BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO,	)	
Petitioner,	)	
v.	)	**PCB No. 2016-028**
	)	**(Time-Limited Water Quality Standard)**
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,	)	
Respondent.	)	

NOTICE OF FILING

To: See Attached Service List

PLEASE TAKE NOTICE that on July 27, 2020, the **Metropolitan Water Reclamation District of Greater Chicago** electronically filed with the Office of the Clerk of the Illinois Pollution Control Board the **Responses of Metropolitan Water Reclamation District of Greater Chicago to Questions from Pollution Control Board**, a copy of which is hereby served upon you.

Dated: July 27, 2020

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

By: */s/ Fredric P. Andes*
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PROOF OF SERVICE

The undersigned attorney certifies, under penalties of perjury pursuant to 735 ILCS 5/1-109, that he caused a copy of the foregoing **Responses of Metropolitan Water Reclamation District of Greater Chicago to Questions from Pollution Control Board** to be served via electronic mail to all parties listed on the attached Service List on this 27th day of July, 2020.

/s/ Fredric P. Andes
One of Its Attorneys

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RESPONSES OF METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO TO QUESTIONS FROM POLLUTION CONTROL BOARD

Board Question 12

1. Please clarify whether the answer to this question is MWRD's answer to IEPA's Question 2.

   RESPONSE: Yes.

2. In response to IEPA's Question 2, MWRD states that the construction of a new sewer to route dry weather flow around the TARP connection to the interceptor downstream of the outfall is currently under contract and will be completed in 2020. Given the impact of Covid-19, please comment on whether the construction of new sewer line is still on schedule to be completed in 2020.

   RESPONSE: Yes.

Board Question 14(b)

3. MWRD states that green infrastructure measures are being implemented, consistent with the Consent Decree between MWRD, U.S. EPA and the Illinois EPA to address impacts of climate change on storage capacity.

   a. Please provide information on the types of green infrastructure measures that are being implemented by the District. Submit into the record any technical reports or planning documents MWRD has developed to address green infrastructure measures.
   b. Comment on how many of green infrastructure projects have been implemented to date and how many are planned during the term of the TLWQS.

   RESPONSE: Information responsive to these requests is contained in the reports and documents included in Attachments A, B, C, D and E. Additional information is provided on MWRD's Green Infrastructure web page at https://mwrd.org/green-infrastructure-0 .

Board Question 15

4. MWRD states that it does not have experience operating a TCR without its transitional reservoir. Please elaborate on how MWRD plans to transition operations when the transitional reservoir lease ends. Comment on whether any economically reasonable alternatives other than green infrastructure measures are available to replace the transitional reservoir capacity.

   RESPONSE: When the transitional reservoir lease ends, MWRD will endeavor to operate the TCR so as to stay within the reservoir's capacity to the extent feasible. The reservoir is designed to reserve 4.8 billion gallons for combined sewer overflows and 3.1 billion gallons for Thorn Creek floodwaters. MWRD is not aware of any economically reasonable alternatives that are available to replace the transitional reservoir capacity.

Board Question 20

5. MWRD notes that other sources have had opportunities to join in this request, but none have sought similar relief. Please comment on whether the District would be opposed to other CSO dischargers such as the City of Chicago being extended coverage under this TLWQS.

   RESPONSE: MWRD would not be opposed to other CSO dischargers being extended coverage under the TLWQS, as long as they commit to complying with applicable requirements in the TLWQS.

Board Question 22

6. In response to 22(a)(ii), MWRD responds with a "No". Please explain why the emergency bypass outfall at Stickney (Outfall 003) should not be covered under the proposed TLWQS.

   RESPONSE: Outfall 003 is an emergency bypass outfall at the Stickney facility. It is not a CSO outfall. The TLWQS petition is intended to cover only CSO outfalls, so MWRD has not requested that Outfall 003 be covered under the TLWQS.

Board Question 24

7. Please comment on whether MWRD considers the changes in water quality conditions in the Calumet River System summarized in the Post-Construction Monitoring Report to be significant. If so, describe these changes and their impact on compliance with applicable DO standards. Also, comment on whether Dr. Zenz's cost estimate to bring CAWS reaches into attainment by installing supplementary aeration stations and flow augmentation stations needs to be updated to reflect these changes.

   RESPONSE: As to the changes in water quality conditions described in the Post-Construction Monitoring Report, that report includes detailed assessments, for each parameter (including DO), of the significance of those changes, and of the possible causes for some of those changes. The report also includes an assessment, on pages 39-43, of the impacts of those changes on compliance with DO standards. As to Dr. Zenz's cost estimate, we do not believe that it needs to be updated. As MWRD has

stated in its responses to previous Board and IEPA questions, CSOs may still occur in the Calumet River System, and substantial costs would be required to attempt to bring the System into full compliance with the applicable DO standards. Even with the expenditures specified in Dr. Zenz's report, there is no guarantee that complete compliance would be achieved, as the report itself notes.

8. Regarding the use of the Marquette Model, MWRD notes that there is no need to reconfirm and revalidate the model. If so, comment on whether the model could be run with recent data reflecting the changes summarized in the Post-Construction Monitoring Report to evaluate the impact of the changes, particularly in the Calumet System, on construction cost or feasibility of the aeration project.

   RESPONSE: There is no need to reconfirm and revalidate the model. Moreover, that would not be possible. The model was based on data from three years: 2001, 2003, and 2008. If it were to be run again, it would have to be redone entirely, with data from more recent years. However, the computer program has been discontinued, and technical support is no longer available.

Board Question 25

9. MWRD states that Sections 104.560(a)(3) (Human caused condition) still applies to the Calumet River System because CSOs can still occur. In this regard, please comment on whether it is MWRD's position that a TLWQS is necessary as long as there is a potential for CSOs to occur in the future or is there a scenario where TLWQS would not be needed.

   RESPONSE: Yes, a TLWQS is necessary as long as there is a potential for CSOs to occur in the future. As MWRD has stated in its responses to previous Board and IEPA questions, there is a potential for future occurrence of CSOs in the Calumet River System, particularly due to the impending permanent loss of transitional reservoir capacity. If, at some point, it is determined that CSOs will not be occurring in the System, the TLWQS may not be necessary as to CSOs in the System. That issue can be reevaluated at the end of the initial five-year term of this TLWQS.

10. Given the USEPA's expectation that "Completion of the reservoir would mean that CSOs would not be a human-caused source of pollution that prevents attainment of the DO criteria in the Calumet portion of the CAWS." (Am. Pet. Exh. K at 2.), please explain why MWRD has not discussed the CRS Report findings with USEPA.

    RESPONSE: The referenced USEPA letter was written in 2012. It reflects the Agency's understanding of the situation at that time. Since then, MWRD has responded to all comments raised by USEPA. Those responses were contained in Exhibit N to the Amended Petition.

    In the letter, USEPA states its understanding that the proposed terms and conditions in the proposed TLWQS, including completion of TARP under the

schedule in the consent decree, "will result in elimination of CSOs over time." Based on that statement, EPA indicates that "[t]o the extent that TARP comes on-line, the human-caused conditions preventing attainment of the DO criteria will be remedied for certain segments such that a variance would likely not be appropriate so long as water quality in the segment would not be influenced by CSOs in other segments that have not yet been controlled." At this time, MWRD cannot guarantee that TARP will entirely eliminate CSOs in the CAWS. (Further information regarding this issue was contained in Exhibit J to the Amended Petition.) Therefore, the human-caused conditions that are the primary basis for the TLWQS still exist. Moreover, since TARP will not be entirely completed, under the applicable schedule, until 2029, possible impacts throughout the CAWS from remaining CSOs that occur while TARP is not complete cannot be discounted. As to the CRS Report findings, those have not been discussed with USEPA since that report was submitted to EPA under the consent decree (on June 27, 2019), but MWRD does not believe that the information in that report changes the conclusions stated here, and in the Amended Petition, as to TARP and elimination of CSOs.

11. Regarding updating the 2008 cost estimates for compliance with DO standards to current dollars and provide the cost information in terms cost per user, MWRD states that such analysis would be complex and take substantial time and effort. Further, MWRD states the Amended Petition does not claim affordability as a reason for approval of the TLWQS. However, given that the MWRD demonstration relies, in part, on Section 104.560(a)(6) (widespread economic and social impact), please explain why meaningful economic impact information is not relevant for Board consideration, particularly with respect to Calumet System where "human caused condition" may not be the cause of nonattainment of the DO standard.

    RESPONSE: MWRD believes that it has provided meaningful information as to the "widespread economic and social impact" of attaining compliance with DO standards – which, it has demonstrated, is not yet possible. As noted in its Petition and its responses to previous questions, flooding and widespread basement backups are among the possible impacts. However, the primary basis for the TLWQS is "human-caused conditions," including for the Calumet River System.

Board Question 26

12. Regarding the improvement in DO levels in the last several years, MWRD notes that the data are not yet adequate to determine long-term trends. Please comment on how many years of DO data would be needed to determine long-term trends or statistically significant changes in the DO levels. Would such analysis be possible within the 5-year term of the TLWQS?

    RESPONSE: We assume that this question is referring to the Calumet River System, and not the remainder of the CAWS, where further expansion of reservoir capacity remains to be implemented in the future. As to the Calumet River System, we believe that at least five years of DO data would be needed. Within the five-year term of the TLWQS, MWRD would have gathered seven years of DO data with full operation of the reservoir, and we believe that this dataset would be reasonable to use in

assessing long-term trends – certainly to a far better extent than would be possible using data gathered to date.

Board Question 29

13. Regarding deletion of Condition (3)(a), please submit any reports or documentation that MWRD has completed its obligations under the Intergovernmental Agreement.

    RESPONSE: MWRD's only obligation under that agreement was to provide $500,000 in funding. That funding has been provided. Relevant documents were included in Exhibit M to the Amended Petition.

14. Please comment on whether the proposed TLWQS would be approvable by the USEPA without an interim DO criterion.

    RESPONSE: Yes. Under the USEPA regulations (40 CFR 131.14(b)(1)(A)(3)), a discharger-specific variance may satisfy the "highest attainable condition" requirement, if no additional feasible pollutant control technology can be identified, by specifying "the interim criterion or interim effluent condition that reflects the greatest pollutant reduction achievable with the pollutant control technologies installed at the time the State adopts the WQS variance, and the adoption and implementation of a Pollutant Minimization Program." As explained in Exhibit J to the Amended Petition, the TLWQS contains a series of conditions that will apply to MWRD during the terms of the TLWQS, which will help to minimize DO exceedances and to reduce any possible impacts from those exceedances. These conditions satisfy the requirements provided in 131.14(b)(1)(A)(3).

IEPA Question 7

15. In its response, MWRD states that it is impossible to guarantee there will not be more CSO events in the Calumet System.

    a. Has MWRD done any trend analysis to determine the numbers of CSO events that are likely to occur in the future in comparison to what has been seen in the past?

    b. If not, comment on whether it would be possible to perform such an analysis.

    RESPONSE: No, MWRD has not done any such trend analysis. It is not possible to determine the numbers of CSO events that will occur in the future, since that depends on the frequency, duration and extent of rainfall events, which cannot be predicted.

IEPA Question 8

16. MWRD states that it does not accept water from other entities connected to TARP when TARP is full.

    a. Please comment on how often has MWRD closed the gates on other entities during the last 5 years.

    RESPONSE: MWRD does not have the data readily available as to the exact number of times that it has closed the gates to TARP. However, based on review of records as to TARP operating conditions, MWRD estimates that it has closed the gates at least 113 times in the last five years.

    b. What recourse is available for other entities connected to TARP when MWRD closes the gates to TARP?

    RESPONSE: The only recourse for those other entities is to have CSO discharges to the CAWS.

IEPA Question 10

17. MWRD notes that the temporary closure of a SEPA system was the primary cause of DO exceedance.

    a. Please comment on whether MWRD has implemented any measures to prevent recurrence of such closure.

    b. If so, describe the implemented measures.

    RESPONSE: MWRD did not state that temporary closure of a SEPA system was the primary cause of DO exceedance. In its response to that IEPA question, MWRD stated that "the primary other causes [other than CSOs] were dry conditions, low water flow, stagnant areas, warm weather, and the temporary shutdown of a SEPA station." As to the temporary closure of the SEPA station, MWRD has taken steps to reduce the likelihood of such closures in the future. The closure was due to a failure of electrical cables that supply power to the station. Those cables have been replaced, and are inspected in conjunction with other preventive maintenance work at the station.

EXHIBIT A

National Pollutant Discharge Elimination System Permits Consent Decree

2019 Annual Report

Metropolitan Water Reclamation District of Greater Chicago

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Green Infrastructure Activities

The Village of La Grange's weekly farmer's market supports sustainable produce and stands on a sustainable surface thanks to support from the District. In 2019, the project partners installed interlocking concrete permeable pavers that retain nearly 95,000 gallons of stormwater per rain event on two separate parking lots completed in 2019. Built over soil and aggregate base and bedding layers, the pavers reduce stormwater runoff, clean and filter stormwater, heighten awareness for green infrastructure solutions, improve water quality and introduce a sparkling new amenity that improves the driving surface and attracts customers to local businesses.

The following is a report on Green Infrastructure activities undertaken pursuant to Consent Decree Section V of Appendix E:

Introduction

The Consent Decree required the District to submit a Green Infrastructure Program Plan (GIPP) to the EPA and IEPA for approval within one year of the effective date. A draft of the District's GIPP was submitted to the EPA and IEPA on December 23, 2014, and ultimately approved on October 7, 2015. (See Green Infrastructure Program Plan on the enclosed thumb drive)

Going forward, the Consent Decree (Appendix E, Section V) requires the District to include Green Infrastructure reporting in its Annual Report.

The GIPP outlines the District's strategy to gain the public's acceptance and understanding of how GI can be beneficial to alleviate flooding issues and Combined Sewer Overflows in addition to describing how the District will satisfy the Consent Decree's GI Design Retention Capacity (DRC) requirements. The District is required to provide a minimum of 2 million gallons of DRC within five years and 10 million gallons of DRC within 15 years of the approval date of the Consent Decree.

2019 Rain Barrel Program Annual Report (Appendix E.II.A)

Rain Barrel Program

In May 2015, the District revised and expanded the rain barrel distribution program that offered free rain barrels to Cook County residents and organizations to increase the number of barrels disseminated. The District delivered free rain barrels through three distribution networks: municipalities; campus-type facilities; and non-government organizations, planning groups, or community groups. This free program continued through 2016 and ended on December 31, 2016. To participate in this free program, municipalities were required to sign an Intergovernmental Agreement (IGA) with the District, and non-governmental organizations, planning groups, or community groups throughout Cook County were required to sign a Memorandum of Understanding. During the free program, a total of 88 municipalities and 23 organizations were enrolled as partners. Since the free program concluded, the District began selling rain barrels to Cook County residents at cost ($45.78 per rain barrel) via mwrd.org.

Marketing Activities

The District marketed rain barrels through multiple channels in 2019. Our marketing materials educated the public about the value of rain barrels in preventing flooding and improving water quality while countering barriers to their acceptance. To address concerns about the difficulty of installation, simple installation instructions were included in every barrel, and a link to an installation video developed by the District in partnership with Openlands (a not-for-profit organization that unites people and resources around the goal of land and water protection) was available. Concerns that rain barrels would have a negative impact on the appearance of a property were countered by using photography of rain barrels installed in beautifully landscaped yards.

PUBLICATIONS: The District created a rain barrel brochure that continued to be distributed at all community outreach events in 2019. The brochure provides specific details for ordering (See MWRD Rain Barrel Brochure on the enclosed thumb drive). The District continued to print an installation, use and maintenance instructional guide for rain barrels which was distributed with our rain barrels. The instructional guide is also available at mwrd.org. (See MWRD Rain Barrel Instructions on the enclosed thumb drive).

SOCIAL MEDIA: : The District promoted rain barrels throughout the year on social media by posting photos, press releases, and videos and sharing the productive uses of rain barrels and other green infrastructure tools via Facebook, Twitter, LinkedIn, YouTube and Instagram. Postings included general educational information regarding the environmental and monetary value of utilizing rain barrels, while other postings detailed specific events where rain barrels would be or were distributed to the public.

WEBSITE: Rain barrels were prominently advertised with a large graphic on the home page of the District's website, mwrd.org. The rain barrel content is refreshed as changes to the program are incorporated.

OUTREACH EVENTS AND RAIN BARREL DRAWINGS: The District continued to promote rain barrels at public outreach events. Attendees were asked to complete a "Water Environment Pledge" detailing water conservation actions. One of the pledges was selected, and the individual was given a free rain barrel. These outreach efforts are designed to educate the public on the value of rain barrels and other green infrastructure in the District's pursuit of water quality improvements and flooding solutions.

WATER ENVIRONMENT PLEDGE MAILING LIST: The District maintains an email list of those who have signed the Water Environment Pledge. The 9,500+ addresses in this database may receive additional educational materials and program updates.

Number of Barrels Distributed

The District distributed 925 rain barrels in 2014; 29,358 barrels in 2015; 92,981 barrels in 2016, 10,294 barrels in 2017; and 779 in 2018; and 981 in 2019; for a total of 135,318 barrels. The cost to the District to provide the rain barrels was $6,400,402.52

Technical Assistance

The District continued to provide instructions on how to install a rain barrel with each order. The District worked with Openlands to create a YouTube video that demonstrates how to install a rain barrel. (See storyboards on the enclosed thumb drive.)

Potential Volume

With proper utilization, if all rain barrels distributed and sold through December 31, 2019, were properly utilized during the entire year, the volume of rainwater kept out of the sewer system in 2019 is 491,204,340 gallons.

Early Monitoring, Evaluation & Knowledge Building (Appendix E.II.B.)

The Consent Decree also required the District to implement one or more GI projects and dedicate a minimum of $325,000 towards such projects prior to January 6, 2015, within one year of the effective date of the Consent Decree or prior to approval of the GI Plan, whichever was later. As further described below, the District satisfied this requirement in 2014 through collaboration with the Chicago Public Schools (CPS), the City of Chicago

Department of Water Management (DWM), Openlands, and Healthy Schools Campaign in the Space to Grow Program (Phase I Space to Grow) and continued to participate in this program in 2016 (Phase II Space to Grow). The District and the DWM each invested approximately $2 million towards the construction of GI at four CPS schools in 2014. The District's nearly $2 million investment was used solely for GI improvements at the selected CPS schools, thereby far exceeding the minimum $325,000 requirement of the Consent Decree.

Phase I Space to Grow Program – Financial Partnership between the District, CPS and DWM

Space to Grow is an innovative public-private partnership with a mission of transforming Chicago schoolyards into vibrant green spaces for physical activity, outdoor learning and play. As centers of school and community life, Space to Grow projects promote active and healthy lifestyles and connect people with nature in their daily lives. The schoolyards are also designed to prevent flooding and water pollution via rainfall-capturing green infrastructure features such as permeable surfaces, native plants and rain gardens.

The program is co-managed by the Healthy Schools Campaign and Openlands with capital funding, leadership and expertise from the District, CPS and the DWM. The District also provides technical support for green infrastructure elements to ensure that the new schoolyards provide optimal stormwater capture benefits.

Each Space to Grow schoolyard is unique, and the architectural landscape designs incorporate input from neighborhood residents, students, families, staff and faculty. Prior to renovations, many of the schoolyards were little more than asphalt parking lots with aging, or in many cases a lack of, playground equipment. In contrast, the new schoolyards typically feature expanded and safer playground equipment, track and field areas, multi-purpose courts on permeable asphalt, turf fields, outdoor classrooms, rain gardens and vegetable gardens. Also, on average, each Space to Grow schoolyard has the capacity to capture hundreds of thousands of gallons of rainwater that would otherwise have drained into local sewers.

The four elementary schools selected for Phase I Space to Grow are in low income areas throughout the City:

- ✓ Virgil I. Grissom Elementary School, 12810 S. Escanaba Avenue
- ✓ Morrill Elementary School of Math & Science, 6011 S. Rockwell Street
- ✓ Schmid Elementary School, 9755 S. Greenwood Avenue
- ✓ George Leland Elementary School, 512 S. Lavergne Avenue

These schools were prioritized for implementation by CPS, DWM, and the District based on flood risk, site suitability, and socioeconomic factors. Numerous community meetings were held to describe project details and benefits. The District and CPS executed an intergovernmental agreement (IGA) to facilitate this project whereby long term maintenance responsibilities are assigned to CPS. The District has perpetual rights to inspect the GI to ensure it is being properly maintained in accordance with the Operations and Maintenance (O&M) Manual developed for each school.

The District reviewed and provided comments on the construction drawings and specifications at various intervals during the course of design. During the course of construction, the District frequently visited the sites to gain knowledge on the installation of GI. The four sites combine for a Design Retention Capacity (DRC) of 731,004 gallons per rain event. Educational signage has been placed at the sites to inform students and the surrounding community of the benefits of GI. Neighborhood residents were involved in the installation of GI plantings at some of the schools.

Groundbreaking and ribbon cutting ceremonies were held at each of the schools and were attended by students, parents, school staff, local residents, and elected officials, including the District's Commissioners. The four projects have positively impacted thousands of local residents by providing a safe place for their children to play, educating all to the benefits of GI, and providing much needed relief from localized flooding. CPS has indicated that the new playgrounds are being utilized by students at a far greater rate than before, as well as reducing gang activity within close proximity to the schools.

The District is proud to be a part of the Space to Grow program as it successfully brings communities together, enhances the educational experience for children throughout Chicago, connects people to nature and encourages physical activity while reducing the risk of flooding and water pollution.

Green Infrastructure Program (Appendix E)

Phase II Space to Grow Program – Partnership between the District, CPS and DWM

Given the success of the Phase I Space to Grow Program, the District's Board of Commissioners authorized expansion of the program to fund GI at up to thirty schools, which started in 2015, and will continue through 2022, with a total investment by the District of approximately $15 million. These projects will not only address localized flooding but will also serve to educate students, parents, and school staff about the benefits of GI. The District will also invest up to $1,000,000 to fund project design at ten schools.

In 2015, plans and specifications were prepared for six schools and construction completed for two schools: Willa Cather (Cather) Elementary School, located at 2908 W. Washington Boulevard, and the Orozco Fine Arts and Sciences (Orozco) Elementary School, located at 1940 W. 18th Street. Both of these elementary schools are located in low-income neighborhoods in the city. The combined DRC for these two schools is an estimated 364,504 gallons per rain event. The District contributed a total of $898,477.66 for the work at Cather and Orozco.

In 2016, Space to Grow projects were completed at three additional schools, also located in low-income neighborhoods: Daniel J. Corkery Elementary School, located at 2510 S. Kildare Avenue; Frank W. Gunsaulus Elementary Scholastic Academy, located at 4420 S. Sacramento Avenue; and the James Wadsworth Elementary School, located at 6650 S. Ellis Avenue. The District contributed a total of $1,371,508.67 towards the work at these three schools, which provided an estimated combined DRC of 388,648 gallons per rain event.

In 2017, projects were designed for the following schools: John W. Cook Elementary School, located at 8150 S. Bishop Street; Nathan S. Davis Elementary School, located at 3014 W. 39th Place; Fernwood Elementary School, located at 10041 S. Union Avenue; Eugene Field Elementary School, located at 7019 N. Ashland Avenue; and Morton School of Excellence,

located at 431 N. Troy Street. Unfortunately, due to financial issues at both CPS and CDWM, the projects at these schools were not constructed in 2017. The financial issues have since been addressed, and the projects were constructed in 2018. Also constructed in 2018 was the previously designed project at the James B. Farnsworth Elementary School located at 5414 N. Linder Avenue. The District contributed $2,621,194.64 towards the work at these six schools which provide a combined DRC of 1,287,651 gallons per rain event.

In 2019, four more schools were designed. These four schools were Arthur R. Ashe Elementary School, 8505 S. Ingleside Avenue; Ninos Heroes Elementary Academic Center, 8344 S. Commercial Avenue; Henry H. Nash Elementary School, 4837 W. Erie Street; and Daniel Webster Elementary School, 4055 W. Arthington Street. In addition, one school designed in 2015, the Oliver S. Wescott Elementary School, located at 409 W. 80th Street, was lacking enough financing from CPS to start construction at the time it was designed. The additional funding was allocated in 2019 and this project was constructed in 2019, along with the other four schools. The DRC for the five schools is estimated to be 881,416 gallons per rain event.

Currently, five more Space to Grow projects are being designed with construction anticipated in 2020. These five schools are John Barry Elementary School, 2828 N. Kilbourn Avenue; Daniel Boone Elementary School, 6710 N. Washtenaw Avenue; Genevieve Melody Elementary School, 3937 W. Wilcox Street; Jesse Sherwood Elementary School, 245 W. 57th Street; and Harold Washington Elementary School, 9130 S. University Avenue. The DRC for these five schools will be determined once the plans and specifications are completed. All Space to Grow schools were prioritized for implementation by CPS, DWM, and the District based on flood risk, site suitability, and socioeconomic factors. Numerous community meetings were and will continue to be held to describe project details and benefits.

The existing IGA and amendments between the District and CPS facilitates the remaining projects through 2022. Under the agreement, long term maintenance responsibilities are assigned to CPS. The District has perpetual rights to inspect the GI to ensure it is being properly maintained in accordance with the Operations and Maintenance (O&M) Manual developed for each school. The District reviewed and provided comments on the construction drawings and specifications at various intervals during the course of design. During construction, the District frequently visited the sites to gain knowledge on the installation of GI, while monitoring progress.

Space to Grow Awards

The Space to Grow program continues to be recognized by numerous awards, including:

- ✓ The 2014 Silver Ribbon Award, Friends of the Chicago River;
- ✓ The 2015 Active Design Excellence Award, Honorable Mention: This was the only submission from Chicago to be recognized this year. Fellow award recipients span the globe;
- ✓ The 2015 Emerald Award from the Illinois Chapter of the U.S. Green Building Council, Mission category;
- ✓ The 2015 New Champions Award from the National Physical Activity Plan Alliance (NPAPA);
- ✓ The 2015 Sustainability Award from the Illinois Association for Floodplain and Stormwater Management (IAFSM), which recognizes excellence in stormwater management across the state of Illinois;
- ✓ Top 100 Finalist for the 2015 Chicago Innovation Awards;
- ✓ Best of Green Schools 2016 – Collaborator, Green Schools National Network;

(*continued next page.*)

The District and Space to Grow partners in November 2019 celebrated the completion of a new schoolyard at Nash Elementary School and KIPP Academy Chicago on the city's West Side. The two schools share a campus that will benefit from a vibrant, functional space for physical activity, outdoor learning, environmental literacy and engagement with art, all while addressing community flooding. The new permeable improvements at the schoolyard can hold as much as 152,841 gallons per rain event.

- ✓ First Place - Large Population Green Infrastructure, 2016, National Association of Flood and Stormwater Management Agencies (NAFSMA);
- ✓ The 2016 Special Achievement Award to Primera Engineers, Ltd. for Morrill Elementary - American Council of Engineering Companies (ACEC) of Illinois;
- ✓ The 2017 MWRD Sustainable Landscaping Award;
- ✓ The 2017 Stormwater Solutions Magazine Top Project;
- ✓ The 2018 Local Initiatives Support Corporation Chicago Neighborhood Development Awards – Blue Cross Blue Shield of Illinois Healthy Community Award;
- ✓ The 2018 Metropolitan Planning Council Burnham Award for Excellence in Planning.

Additional GI Partnerships

In 2019, the District constructed additional GI projects that conform to the criteria established in the GIPP. The District worked with the City of Des Plaines, and the Villages of Forest Park, Harwood Heights, La Grange, Maywood, Riverside, Tinley Park, and the Forest Preserve District of Cook County to develop GI projects consisting of permeable pavement parking, green alleys, and bioretention facilities. The District will contribute up to $3,254,367 to these projects which provided a combined DRC of 1,203,382 gallons. The District entered into IGAs with these entities whereby maintenance responsibilities lie with the local municipality or park district and the District retains perpetual rights to inspect the facilities to ensure they are being maintained as required by the O&M Manuals of the respective projects.

Des Plaines – Pervious Concrete Alley Improvement Project

In 2019, the City of Des Plaines Alley Improvement Program consisted of removing deteriorated alley pavement and replacing it with new porous concrete pavement. Drainage improvements, including new storm sewers were included where appropriate. Six alleys throughout the village were constructed with the goals of capturing stormwater, improving public safety (basement backups, ponding on roadway, etc.), and reducing combined sewer overflow events. The District will fund $527,145 of the total $1,056,339 estimated construction cost. This project provides 119,609 gallons per rain event in a flood prone area.

Forest Park – Green Alley Improvements

In 2019, the Village of Forest Park replaced an alley with permeable pavement with the goals of capturing stormwater, improving public safety (basement backups, ponding on roadway, etc.), and reducing combined sewer overflow events. The District funded $123,830 of the total $240,000 construction cost. This project provides 58,273 gallons per rain event in a flood prone area.

Forest Preserve District of Cook County – Dam No. 4 East Woods Permeable Pavement Parking Lot

In 2019, the Forest Preserve District completed a project that converted an asphalt parking lot into a smaller permeable pavement parking lot. The remainder of the parking lot was converted into open space. This project met the goals of capturing stormwater, improving public safety (basement backups, ponding on roadway, etc.), and reducing combined sewer overflow events The District will fund up to $319,933.00 of the estimated $501,312.50 estimated construction cost. This project provides 94,212 gallons per rain event in a flood prone area.

Harwood Heights – Harwood Heights Green Alley Project

In 2019, the Village of Harwood Heights replaced two alleys with permeable pavement. One alley is located between Olcott Avenue, Winnemac Avenue and Argyle Avenue, and the other is located between Forest Preserve Drive, Sunnyside Avenue and Narragansett Avenue. with the goals of capturing stormwater, improving public safety (basement backups, ponding on roadway, etc.), and reducing combined sewer overflow events. The District will fund $383,984 of the total $675,762 estimated construction cost. This project provides 84,065 gallons per rain event in a flood prone area.

La Grange – La Grange Parking Lots Green Infrastructure Retrofits

In 2019, the Village of La Grange constructed two permeable paver parking lots located at 53 S. La Grange Road and 20 W. Harris Avenue, with the goals of capturing stormwater, improving public safety (basement backups, ponding on roadway, etc.), and reducing combined sewer overflow events. The District will fund up to $298,350 of the total $596,700 estimated construction cost. This project provides 94,973 gallons per rain event in a flood prone area.

Maywood - Village of Maywood Green Alleys

In 2019, the Village of Maywood replaced six alleys with permeable pavement located in various locations throughout the Village with the goals of capturing stormwater, improving public safety (basement backups, ponding on roadway, etc.), and reducing combined sewer overflow events. The District will fund $841,110 of the total $1,201,110 estimated construction cost. This project provides 445,711 gallons per rain event in a flood prone area.

Riverside – Metra Commuter Parking Lot #1 Green Parking Lot

In 2019, the Village of Riverside installed a permeable pavement parking lot along with a rain garden at its Metra Station located at Bloomingbank Road and Barrypoint Road, with the goals of capturing stormwater, improving public safety (basement backups, ponding on roadway, etc.), and reducing combined sewer overflow events. The District will contribute $560,615 out of a total estimated construction cost of $1,097,085 to help pay for the green infrastructure components. The project provides 237,340 gallons of DRC in a flood prone area.

Tinley Park – North Street Permeable Pavers

In 2019, the Village of Tinley Park installed permeable pavers in street right-of-way located at North Street, bounded by Oak Park Avenue and 173rd Street, with the goals of capturing stormwater, improving public safety (basement backups, ponding on roadway, etc.), and reducing combined sewer overflow events. The District will contribute $200,000 out of a total estimated construction cost of $1,000,000 to help pay for the green infrastructure components. The project provides 69,739 gallons of DRC in a flood prone area.

Chicago-Calumet Rivers Fund

A team of private and public organizations, including the District, established and funded the Chicago-Calumet (Chi-Cal) Rivers Fund (Fund), administered by the National Fish and Wildlife Foundation (NFWF). The Fund's main goals include reducing damages caused by flooding, improving water quality, and restoring habitat and safe public access on the local waterways. One method to achieve these goals is through green infrastructure such as rain gardens, green roofs, pervious surfaces, bioswales, and cisterns.

In 2014 and 2015, the District contributed to the Chi-Cal Fund for green infrastructure projects throughout the region. However, in 2016 the District decided to no longer contribute to the Fund in order to have more flexibility to fund projects with high DRCs in flood prone areas throughout its jurisdiction. However, the District has continued to work with the Chi-Cal team in evaluating projects that will reduce flooding, improve water quality and reduce loads to the local sewer systems.

Watershed Management Ordinance

The District began requiring stormwater detention in 1972 under the Sewer Permit Ordinance (SPO) for development projects greater than five acres. In 2007, the District began work on a new stormwater management regulatory ordinance known as the Watershed Management Ordinance (WMO). Numerous public hearings were held on the WMO in order to receive public input. The District's Board of Commissioners subsequently approved the WMO, which became effective on May 1, 2014. The WMO is a comprehensive regulatory ordinance drafted with the assistance of an Advisory Committee consisting of regulatory agencies, municipalities, and non-governmental organizations.

The WMO aims to protect public health, safety, and welfare, and Cook County homes and businesses from flood damage by managing and mitigating the effects of development and redevelopment on stormwater drainage. It provides uniform minimum stormwater management regulations for Cook County that are consistent with the region. The WMO replaces the District's Sewer Permit Ordinance (SPO) with WMO permit requirements more comprehensive than those of the SPO. The District has included a GI component in its WMO, which requires the capture of 1-inch of runoff from impervious surfaces for parcels greater than ½ acre in size when a WMO permit is required.

In 2019, 207 permits were issued that required a total of 17,711,957 gallons of GI retention volume. For the WMO permits issued in 2019, 1,658,582 gallons of retention were completed, 11,864,235 gallons were under construction, and 4,189,140 gallons were approved on projects that have yet to be started. An additional 12,110,155 gallons of retention capacity permitted since 2014 has been constructed bringing the total GI installed under the WMO to 37,367,876 gallons. The District anticipates that more GI retention volume will be approved in 2020 and beyond. (see Green Infrastructure Project Log below and table showing Green Infrastructure Design Retention Accomplishments on enclosed thumb drive)

In 2019, the total DRC installed at CPS, the District-sponsored projects at the City of Des Plaines, the Forest Preserve District of Cook County, and the Villages of Forest Park, Harwood Heights, La Grange, Maywood, Riverside and Tinley Park, was 2,084,798 gallons.

The District's WMO requires GI for new development and redevelopment projects. As can be seen in the table below, the WMO's GI requirements will lead to the eventual installation of over 71 million gallons of DRC throughout Cook County. This number will continue to grow significantly in future years. The District's permit review engineers provide input to design consultants on GI at the onset and during the permitting process. A list of all GI Permits issued from 2014 through 2019 is on the enclosed thumb drive.

	2014	2015	2016	2017	2018	2019
WMO GI Permits Issued	7	107	183	203	209	207
Permitted GI DRC (Gallons) Installed*	247,647	8,053,505	8,872,434	12,362,950	6,172,758	1,658,582
Permitted GI DRC (Gallons) Under Construction*	0	104,924	2,551,413	4,170,893	8,665,356	11,864,235
Permitted GI DRC (Gallons) to be Constructed*	0	0	218,320	876,539	1,401,159	4,189,140
Total DRC (Gallons) Permitted	**247,647**	**8,158,429**	**11,642,167**	**17,410,382**	**16,239,273**	**17,711,957**
Cumulative Total			**71,409,855**			
***Values reflect status of permits issued in each respective year**						

Potential Future GI Projects

In order to assist communities in addressing urban flooding issues and promote the use of GI in the region, the District has been sending out a "Call for Green Infrastructure Projects" to governmental organizations (i.e. municipalities, townships, and various agencies) within its corporate boundaries. In 2017, the District received 47 project submittals and selected 19 partnerships to help fund GI installations. Due to the positive response to the program, the District again solicited project submittals in 2018, and received 48 applications, and selected another 20 project partnerships. In 2019, 41 more applications were submitted, with the District selecting another 20 additional projects. While the DRC figures have not yet been finalized for all the projects yet to be constructed, the total DRC for those projects selected in the three years is estimated to be around 6.4 million gallons.

Green Infrastructure Comprehensive Land Use Policy (Appendix E.II.C)

As part of the GI Plan, the District has also developed a Comprehensive Land Use Policy.

The District's Comprehensive Land Use Policy was approved by the District's Board of Commissioners on August 6, 2015 and approved by the USEPA on October 7, 2015 (see Appendix B of the GIPP on the enclosed thumb drive). The Comprehensive Land Use Policy requires public entities leasing property at a nominal fee from the District to provide GI based on the size of the leasehold and the desired use. For any new/renewed lease, the public lessee must now pay for and include GI on its leasehold. Private entities leasing District land are provided incentives to implement and maintain GI for development projects based on the size and type of use of the property. Private entities installing GI will receive a credit equal to $0.50 on the $1.00 up to 10% of the leasehold cost, capped at 10 years, for GI improvements in excess of WMO requirements. The District will seek credit towards the DRC requirements outlined in Section III of this plan for any GI installed by leaseholders of District property due to GI installed as a result of the requirements of the Comprehensive Land Use Policy.

The District partnered with the Village of Riverside to construct a new commuter parking lot and bioretention area that will provide parking for Metra commuters and more than 237,000 gallons of stormwater storage per rain event. The permeable parking lot and rain garden will reduce the current load to the combined sewer system and help alleviate flooding within the project area.

Watershed Management Ordinance Permits

916 WMO Permits issued requiring Green Infrastructure

Construction Status	Capacity
GI Permitted Yet to Begin Construction	6,685,158 gallons
GI Permitted Under Construction	27,356,821 gallons
GI Permitted Construction Complete	37,367,876 gallons
Total WMO GI Permitted	**71,409,855 gallons**

GI Installed Through 2019

CPS SCHOOL RETENTION* + DISTRICT PARTNERSHIP PROJECTS** = **8,031,963 GALLONS**

*Twenty schools completed through 2019
**Eighteen projects completed through 2019

Summary Log of Green Infrastructure Capture Volume

2014–2019

Installed Design Retention Capacity (Gallons)	2014	2015	2016	2017	2018	2019	Totals
CPS School Retention	731,004	364,504	388,648	0	1,287,651	881,416	3,653,223
District Partnership Projects	0	392,784	1,482,753	1,093,788	205,453	1,203,382	4,378,160
WMO Projects (Installed)	247,647	8,053,505	8,872,434	12,362,950	6,172,758	1,658,582	37,367,876
Total DRC Installed	**978,651**	**8,810,793**	**10,743,835**	**13,456,738**	**7,665,862**	**3,743,380**	**45,399,259**

EXHIBIT B

Completion Year	Project Name	Project Location	Project Description	Partners	Design Retention Capacity (Gallons)	District Investment	Partner Investment	Total Investment
2014	Grissom Elementary School	12810 S. Escanaba, Chicago	Playground with Permeable Pavement, Rain gardens and other GI Technologies	Chicago Dept of Water Management & Chicago Public Schools	253,902	$500,000	$1,011,394	$1,511,394
2014	Leland Elementary School	512 S. Lavergne, Chicago	Playground with Permeable Pavement, Rain gardens and other GI Technologies	Chicago Dept of Water Management & Chicago Public Schools	128,197	$413,219	$838,959	$1,252,178
2014	Morrill Elementary School	6011 S. Rockwell, Chicago	Playground with Permeable Pavement, Rain gardens and other GI Technologies	Chicago Dept of Water Management & Chicago Public Schools	118,098	$500,000	$1,035,767	$1,535,767
2014	Schmid Elementary School	9755 S. Greenwood, Chicago	Playground with Permeable Pavement, Rain gardens and other GI Technologies	Chicago Dept of Water Management & Chicago Public Schools	230,807	$500,000	$1,068,510	$1,568,510
2015	Cather Elementary School	2908 W. Washington Blvd, Chicago	Playground with Permeable Pavement, Rain gardens and other GI Technologies	Chicago Deptof Water Management & Chicago Public Schools	56,152	$398,478	$809,030	$1,207,508
2015	Orozco Elementary School	1940 W. 18th Street, Chicago	Playground with Permeable Pavement, Rain gardens and other GI Technologies	Chicago Dept of Water Management & Chicago Public Schools	308,352	$500,000	$1,115,951	$1,615,951
2015	Blue Island GI Project	8 Locations in Northeast Blue Island	Six rain gardens in parkways and two permeable pavement parking lots	MWRD	150,809	$663,000	$0	$663,000
2015	Evanston Civic Center Parking Lot	2100 Ridge Road, Evanston	Permeable Parking Lot with bioswales and rain gardens	City of Evanston	167,278	$608,000	$911,000	$1,519,000
2015	Wilmette Green Alleys	4 Distributed Locations in Wilmette	Four Permeable Alleys	Village of Wilmette	74,667	$130,000	$715,000	$845,000
2016	Corkery Elementary School	2510 S. Kildare, Chicago	Playground with Permeable Pavement, Rain gardens and other GI Technologies	Chicago Dept of Water Management & Chicago Public Schools	102,738	$407,002	$825,463	$1,232,465
2016	Gunsaulus Elementary School	4420 S. Sacramento, Chicago	Playground with Permeable Pavement, Rain gardens and other GI Technologies	Chicago Dept of Water Management & Chicago Public Schools	152,517	$464,507	$938,231	$1,402,738
2016	Wadsworth Elementary School	6650 S. Ellis, Chicago	Playground with Permeable Pavement, Rain gardens and other GI Technologies	Chicago Dept of Water Management & Chicago Public Schools	133,393	$500,000	$1,042,012	$1,542,012

2016	Kenilworth	Cumberland and Rosylyn Road	Bioswale and Porous Pavement	Village of Kenilworth	1,319,897	$1,200,000	$6,900,000	$8,100,000
2016	Northbrook	Wescott Park	Stormwater Reservoir Control System	Village of Northbrook	162,926	$475,000	$8,912,178	$9,387,178
2017	Berwyn Green Alleys	10 Distributed Locations in Berwyn	Ten Permeable Alleys	City of Berwyn	679,122	$666,700	$1,888,465	$2,555,165
2017	Niles	Oak Park in Niles	Bioswale and Permeable Parking Lot	Village of Niles	53,811	$200,000	$200,000	$400,000
2017	Egan Parking Lot	Egan WRP, 550 S. Meacham Road, Schaumburg	Permeable Pavement Parking Lot	MWRD	360,855	$1,519,000	$0	$1,519,000
2018	Cook Elementary School	8150 S. Bishop	Playground with Permeable Pavement, Rain gardens and other GI Technologies	Chicago Dept of Water Management & Chicago Public Schools	217,978	$447,925	$1,000,000	$1,500,000
2018	Davis Elementary School	314 W. 39th Place, Chicago	Playground with Permeable Pavement, Rain gardens and other GI Technologies	Chicago Dept of Water Management & Chicago Public Schools	197,422	$498,941	$1,000,000	$1,500,000
2018	Fernwood Elementary School	10041 S. Union, Chicago	Playground with Permeable Pavement, Rain gardens and other GI Technologies	Chicago Dept of Water Management & Chicago Public Schools	138,222	$478,868	$1,000,000	$1,500,000
2018	Field Elemetary School	7019 N. Ashland, Chicago	Playground with Permeable Pavement, Rain gardens and other GI Technologies	Chicago Dept of Water Management & Chicago Public Schools	422,169	$428,621	$1,000,000	$1,500,000
2018	Morton Elemetary School	431 N. Troy, Chicago	Playground with Permeable Pavement, Rain gardens and other GI Technologies	Chicago Dept of Water Management & Chicago Public Schools	155,783	$349,065	$1,000,000	$1,500,000
2018	Farnsworh Elementary School	5414 N. Linder, Chicago	Playground with Permeable Pavement, Rain gardens and other GI Technologies	Chicago Dept of Water Management & Chicago Public Schools	156,077	$417,774	$1,000,000	$1,500,000
2018	Skokie GI	Devonshire Park and Skokie Police Headquarters	Bioswale and Parking Lot Pavers	Village of Skokie	46,424	$200,000	$200,000	$400,000
2018	Arlington Heights	Arlington Heights Police Station	Rain Garden and Naturalized DetentionBasin	Village of Arlington Heights	90,807	$358,000	$1,157,000	$1,515,000
2018	Wheeling Park District	Chamber Park in Wheeling	Rain Garden	WheelingPark District	41,732	$61,000	$99,000	$160,000

2018	River Forest Green Alleys	Gale Avenue in River Forest	Permeable Pavement Parking Lot	Village of River Forest	26,490	$75,000	$110,000	$185,000
2019	Ashe Elementary School	8505 S. Ingleside	Playground with Permeable Pavement, Rain gardens and other GI Technologies	Chicago Dept of Water Management & Chicago Public Schools	244,771	$600,000	$1,000,000	$1,600,000
2019	Ninos Elementary School	8344S. Commercial	Playground with Permeable Pavement, Rain gardens and other GI Technologies	Chicago Dept of Water Management & Chicago Public Schools	179,432	$600,000	$1,000,000	$16,000,000
2019	Nash Elementary School	4837 W. Erie	Playground with Permeable Pavement, Rain gardens and other GI Technologies	Chicago Dept of Water Management & Chicago Public Schools	152,841	$600,000	$1,000,000	$16,000,000
2019	Webster Elemetary School	4055 W. Arthington	Playground with Permeable Pavement, Rain gardens and other GI Technologies	Chicago Dept of Water Management & Chicago Public Schools	151,742	$600,000	$1,000,000	$16,000,000
2019	Westcott Elemetary School	409 W. 80th Street	Playground with Permeable Pavement, Rain gardens and other GI Technologies	Chicago Deptof Water Management & Chicago Public Schools	152,630	$600,000	$1,000,000	$16,000,000
2019	Des Plaines	Various locations throughout Village	Pervious Concrete Alley Improvement Project	City of Des Plaines	119,609	$527,145	$529,194	$1,056,339
2019	Forest Park	Between Marengo Avenue and Elgin Avenue	Green Alley Improvements	Village of Forest Park	58,273	$123,830	$116,170	$240,000
2019	Harwood Heights	Two locations throughout Village	Harwood Heights Green Alley Project	Village of Harwood Heights	84,065	$383,984	$291,178	$675,762
2019	La Grange	Parking Lots at 53 S. La Grange Road and 20 W.Harris Ave.	La Grange Parking Lots Green Infrastructure Retrofits	Village of La Grange	94,973	$298,350	$370,350	$668,700
2019	Maywood	Various Locations throughout Village	Village of Maywood Green Alleys	Village of Maywood	445,711	$841,110	$360,000	$1,201,110
2019	Riverside	Bloomingbank Road and Barrypoint Road	Metra Commuter Parking Lot #1 Green Parking Lot	Village of Riverside	237,340	$560,615	$536,470	$1,097,085
2019	Tinley Park	Oak Park Avenue and 173rd Street	North Street Permeable Pavers	Village of Tinley Park	69,739	$200,000	$800,000	$1,000,000
					7,937,751	$18,895,134	$43,781,322	$120,655,862

EXHIBIT C

Permit No.	Issue Date	GI Volume	Gallons	
20140205	08/28/2014	0.01	3,259	
20140208	10/16/2014	0.06	19,551	
20140209	09/11/2014	0.07	22,810	
20140241	10/24/2014	0.11	35,844	
20140258	11/19/2014	0.21	68,429	
20140284	11/19/2014	0.28	91,238	**2014**
20140287	11/26/2014	0.02	6,517	247,647
20140207	04/29/2015	0.03	9,776	
20140268	01/12/2015	0.04	13,034	
20140292	05/12/2015	0.1	32,585	
20140298	01/28/2015	0.04	13,034	
20140307	02/04/2015	0.16	52,136	
20140320	03/26/2015	3.26	1,062,274	
20140327	03/26/2015	0.06	19,551	
20140329	06/12/2015	0.04	13,034	
20140344	05/12/2015	0.2	65,170	
20147001	05/18/2015	0.092	29,978	
20150003	04/02/2015	0.05	16,293	
20150009	04/02/2015	0.38	123,823	
20150012	10/16/2015	4.94	1,609,704	
20150013	07/31/2015	0.41	133,599	
20150014	05/19/2015	0.19	61,912	
20150021	04/03/2015	0.06	19,551	
20150025	05/20/2015	0.01	3,259	
20150034	05/01/2015	0.0013	424	
20150035	04/03/2015	0.01	3,259	
20150037	05/28/2015	0.15	48,878	
20150040	09/03/2015	0.02	6,517	
20150052	07/15/2015	0.07	22,810	
20150063	06/24/2015	0.02	6,517	
20150064	07/16/2015	0.03	9,776	
20150069	05/18/2015	0.1	32,585	
20150070	05/29/2015	0.07	22,810	
20150081	10/14/2015	0.32	104,272	
20150083	07/07/2015	0.3	97,755	
20150089	07/28/2015	0.56	182,477	
20150094	05/28/2015	0.1	32,585	
20150100	06/04/2015	0.02	6,517	
20150111	07/30/2015	0.04	13,034	
20150112	07/15/2015	0.15	48,878	
20150115	07/14/2015	0.03	9,776	
20150117	07/08/2015	1.6	521,362	
20150136	07/10/2015	0.19	61,912	
20150150	08/26/2015	0.04	13,034	
20150163	07/22/2015	0.06	19,551	
20150183	06/26/2015	0.25	81,463	

20150184	07/21/2015	0.2	65,170
20150185	07/23/2015	0.05	16,293
20150186	08/11/2015	0.02	6,517
20150188	09/03/2015	0.23	74,946
20150189	08/24/2015	0.02	6,517
20150194	09/15/2015	0.23	74,946
20150195	08/05/2015	0.08	26,068
20150198	07/20/2015	0.86	280,232
20150199	08/06/2015	0.01	3,259
20150202	09/23/2015	0.14	45,619
20150204	07/23/2015	0.223	72,665
20150213	10/13/2015	0.17	55,395
20150214	07/28/2015	0.034	11,079
20150217	07/23/2015	0.11	35,844
20150220	07/22/2015	0.03	9,776
20150224	07/07/2015	0.03	9,776
20150226	09/02/2015	0.04	13,034
20150227	10/23/2015	0.22	71,687
20150228	07/13/2015	0.02	6,517
20150229	08/12/2015	0.13	42,361
20150233	09/15/2015	0.2	65,170
20150234	08/18/2015	0.03	9,776
20150235	11/09/2015	0.18	58,653
20150236	09/15/2015	0.16	52,136
20150237	09/30/2015	0.11	35,844
20150238	09/10/2015	0.02	6,517
20150239	08/19/2015	0.05	16,293
20150240	08/19/2015	0.01	3,259
20150245	10/20/2015	0.07	22,810
20150246	11/05/2015	0.03	9,776
20150247	08/28/2015	0.03	9,776
20150249	09/30/2015	0.05	16,293
20150256	10/28/2015	0.08	26,068
20150257	09/15/2015	0.06	19,551
20150258	09/15/2015	0.05	16,293
20150261	09/16/2015	0.88	286,749
20150264	12/10/2015	0.97	316,075
20150265	11/02/2015	0.04	13,034
20150269	10/14/2015	0.02	6,517
20150272	10/21/2015	0.01	3,259
20150273	10/21/2015	0.13	42,361
20150276	10/16/2015	0.19	61,912
20150277	11/02/2015	0.08	26,068
20150278	10/14/2015	0.12	39,102
20150279	11/24/2015	0.17	55,395
20150286	10/28/2015	0.08	26,068
20150289	11/03/2015	0.01	3,259

20150290	12/01/2015	0.18	58,653	
20150295	12/29/2015	0.04	13,034	
20150296	11/10/2015	0.28	91,238	
20150299	10/06/2015	0.02	6,517	
20150302	10/21/2015	0.75	244,388	
20150311	11/05/2015	0.04	13,034	
20150312	12/07/2015	0.03	9,776	
20150313	11/20/2015	0.1	32,585	
20150316	11/24/2015	0.2	65,170	
20150317	10/30/2015	0.54	175,960	
20150320	11/05/2015	0.03	9,776	
20150344	12/17/2015	0.09	29,327	
20150345	12/23/2015	0.03	9,776	
20150346	11/10/2015	0.04	13,034	
20150348	12/22/2015	0.03	9,776	
20150380	12/30/2015	0.01	3,259	
20150382	12/22/2015	0.03	9,776	
20157001	06/12/2015	0.68	221,579	
20157002	04/27/2015	0.31	101,014	
20157007	11/18/2015	0.057	18,574	**2015**
20157012	11/10/2015	0.68	221,579	8,158,429
20150032	05/10/2016	0.15	48,878	
20150059	03/07/2016	0.04	13,034	
20150132	02/03/2016	0.1	32,585	
20150232	01/11/2016	0.07	22,810	
20150244	02/26/2016	0.15	48,878	
20150250	03/11/2016	0.09	29,327	
20150284	03/11/2016	0.02	6,517	
20150291	01/11/2016	0.13	42,361	
20150298	07/19/2016	0.29	94,497	
20150300	02/22/2016	0.12	39,102	
20150306	01/20/2016	0.05	16,293	
20150307	01/06/2016	0.7	228,096	
20150309	03/03/2016	0.07	22,810	
20150322	05/24/2016	0.04	13,034	
20150324	01/06/2016	0.54	175,960	
20150329	01/20/2016	0.09	29,327	
20150331	04/12/2016	0.09	29,327	
20150336	01/20/2016	0.03	9,776	
20150342	02/02/2016	0.18	58,653	
20150351	03/22/2016	1.13	368,212	
20150352	02/17/2016	0.28	91,238	
20150357	03/28/2016	0.06	19,551	
20150358	01/14/2016	0.09	29,327	
20150364	04/08/2016	0.05	16,293	
20150367	06/17/2016	0.07	22,810	
20150369	02/10/2016	0.1	32,585	

20150370	04/14/2016	0.06	19,551
20150371	02/02/2016	0.12	39,102
20150373	01/27/2016	0.08	26,068
20150376	02/03/2016	0.02	6,517
20150379	03/28/2016	0.27	87,980
20150381	06/17/2016	0.03	9,776
20150383	03/14/2016	0.01	3,259
20150386	01/14/2016	0.07	22,810
20150390	03/16/2016	0.02	6,517
20150391	03/14/2016	0.08	26,068
20150392	02/11/2016	0.01	3,259
20150393	05/23/2016	0.07	22,810
20150395	03/21/2016	0.34	110,789
20150397	06/03/2016	0.03	9,776
20150400	04/27/2016	0.07	22,810
20150402	04/11/2016	0.13	42,361
20150405	01/29/2016	0.21	68,429
20150406	02/11/2016	0.07	22,810
20157011	03/07/2016	0.21	68,429
20157016	01/04/2016	0.54	175,960
20157017	03/22/2016	0.36	117,306
20157018	03/03/2016	0.33	107,531
20160003	04/28/2016	0.03	9,776
20160014	05/10/2016	0.13	42,361
20160016	03/03/2016	0.29	94,497
20160021	11/04/2016	0.02	6,517
20160023	05/23/2016	0.01	3,259
20160024	06/03/2016	0.1	32,585
20160025	06/17/2016	1.67	544,171
20160026	05/16/2016	0.39	127,082
20160029	05/11/2016	0.06	19,551
20160030	04/28/2016	1.34	436,640
20160032	05/12/2016	0.35	114,048
20160033	06/03/2016	0.06	19,551
20160034	08/22/2016	0.02	6,517
20160037	05/05/2016	0.06	19,551
20160038	03/25/2016	0.02	6,517
20160039	07/28/2016	0.05	16,293
20160042	05/23/2016	0.69	224,837
20160043	05/19/2016	0.04	13,034
20160045	05/16/2016	0.15	48,878
20160046	04/13/2016	0.11	35,844
20160050	05/24/2016	0.05	16,293
20160051	05/23/2016	0.05	16,293
20160052	04/18/2016	0.11	35,844
20160053	06/20/2016	0.07	22,810
20160054	06/15/2016	0.05	16,293

20160058	06/20/2016	0.05	16,293
20160059	05/05/2016	0.17	55,395
20160060	06/24/2016	0.11	35,844
20160061	05/23/2016	0.35	114,048
20160062	07/21/2016	0.71	231,354
20160066	06/01/2016	0.02	6,517
20160068	06/09/2016	0.99	322,592
20160069	12/23/2016	0.51	166,184
20160072	05/27/2016	0.09	29,327
20160074	07/06/2016	0.89	290,007
20160078	06/02/2016	0.05	16,293
20160080	04/29/2016	0.06	19,551
20160082	07/08/2016	0.14	45,619
20160084	08/03/2016	0.03	9,776
20160087	05/26/2016	0.26	84,721
20160089	06/08/2016	0.14	45,619
20160090	07/15/2016	0.35	114,048
20160092	10/10/2016	0.24	78,204
20160094	06/15/2016	0.02	6,517
20160096	07/25/2016	0.6	195,511
20160097	05/27/2016	0.07	22,810
20160098	07/19/2016	0.17	55,395
20160099	06/15/2016	0.5	162,926
20160102	06/06/2016	0.07	22,810
20160104	07/15/2016	0.08	26,068
20160105	06/16/2016	0.07	22,810
20160108	07/28/2016	0.03	9,776
20160109	07/19/2016	0.37	120,565
20160111	10/14/2016	0.13	42,361
20160112	08/17/2016	0.06	19,551
20160113	05/23/2016	0.04	13,034
20160114	06/01/2016	0.01	3,259
20160115	08/31/2016	0.21	68,429
20160116	07/22/2016	0.24	78,204
20160117	08/11/2016	0.06	19,551
20160120	07/12/2016	0.08	26,068
20160126	06/22/2016	0.05	16,293
20160127	12/07/2016	0.46	149,891
20160134	07/19/2016	0.03	9,776
20160137	07/28/2016	0.06	19,551
20160138	07/19/2016	0.06	19,551
20160139	10/10/2016	0.03	9,776
20160142	08/25/2016	0.4	130,340
20160144	08/26/2016	0.41	133,599
20160146	07/27/2016	0.04	13,034
20160148	07/18/2016	0.05	16,293
20160150	08/02/2016	0.11	35,844

20160151	11/08/2016	0.56	182,477
20160156	09/15/2016	0.3	97,755
20160159	08/01/2016	0.04	13,034
20160161	08/17/2016	0.22	71,687
20160162	10/12/2016	1.38	449,674
20160163	07/26/2016	0.05	16,293
20160165	09/26/2016	0.03	9,776
20160169	07/26/2016	0.05	16,293
20160170	08/30/2016	0.01	3,259
20160172	10/11/2016	0.02	6,517
20160173	10/18/2016	0.25	81,463
20160174	08/22/2016	0.19	61,912
20160178	11/18/2016	0.04	13,034
20160180	12/07/2016	0.17	55,395
20160184	09/22/2016	0.24	78,204
20160190	11/16/2016	0.36	117,306
20160191	09/02/2016	0.04	13,034
20160192	08/12/2016	0.24	78,204
20160196	09/15/2016	0.03	9,776
20160197	08/24/2016	0.04	13,034
20160198	09/21/2016	0.04	13,034
20160205	08/30/2016	0.1	32,585
20160207	09/29/2016	0.48	156,408
20160208	09/09/2016	0.07	22,810
20160212	08/31/2016	0.05	16,293
20160213	10/14/2016	0.04	13,034
20160217	10/05/2016	0.04	13,034
20160218	10/14/2016	0.04	13,034
20160220	09/30/2016	0.23	74,946
20160221	09/14/2016	0.08	26,068
20160224	11/28/2016	0.35	114,048
20160225	10/10/2016	0.09	29,327
20160229	10/27/2016	0.17	55,395
20160230	12/19/2016	1.13	368,212
20160233	12/09/2016	0.67	218,320
20160235	10/03/2016	0.09	29,327
20160236	10/24/2016	0.79	257,422
20160238	10/04/2016	0.13	42,361
20160242	10/24/2016	0.24	78,204
20160244	11/23/2016	0.02	6,517
20160245	10/12/2016	0.02	6,517
20160260	10/26/2016	0.29	94,497
20160266	12/23/2016	0.06	19,551
20160272	10/14/2016	0.03	9,776
20160276	12/06/2016	0.13	42,361
20160291	11/09/2016	0.12	39,102
20160293	11/21/2016	0.08	26,068

20160296	11/25/2016	0.06	19,551	
20160300	12/16/2016	0.05	16,293	
20160311	12/20/2016	0.02	6,517	
20167001	06/15/2016	0.0908	29,587	
20167002	06/23/2016	0.0077	2,509	
20167004	05/25/2016	0.07	22,810	
20167005	07/19/2016	0.06	19,551	
20167006	07/25/2016	0.04	13,034	
20167007	09/06/2016	0.09	29,327	
20167009	07/19/2016	0.81	263,939	
20167010	07/28/2016	0.14	45,619	
20167014	09/19/2016	0.08	26,068	
20167017	09/12/2016	0.08	26,068	
20167020	12/06/2016	0.18	58,653	
20167023	12/06/2016	0.54	175,960	**2016**
20167031	12/29/2016	0.12	39,102	11,642,167
20150338	09/29/2017	0.47	153,150	
20160085	01/24/2017	0.09	29,327	
20160131	01/10/2017	0.05	16,293	
20160164	03/08/2017	0.85	276,973	
20160194	01/11/2017	0.04	13,034	
20160203	01/30/2017	0.19	61,912	
20160237	01/06/2017	0.06	19,551	
20160256	03/13/2017	0.02	6,517	
20160258	01/11/2017	0.05	16,293	
20160273	04/28/2017	0.25	81,463	
20160274	03/16/2017	3.83	1,248,009	
20160278	04/24/2017	0.16	52,136	
20160279	02/17/2017	0.02	6,517	
20160285	10/30/2017	0.12	39,102	
20160288	01/20/2017	0.14	45,619	
20160294	01/27/2017	0.14	45,619	
20160298	02/02/2017	0.47	153,150	
20160303	01/25/2017	0.12	39,102	
20160304	12/07/2017	0.04	13,034	
20160305	03/22/2017	0.12	39,102	
20160308	02/06/2017	0.05	16,293	
20160312	08/22/2017	0.18	58,653	
20160316	01/18/2017	0.08	26,068	
20160317	01/13/2017	0.3	97,755	
20160318	02/23/2017	0.03	9,776	
20160321	01/31/2017	0.62	202,028	
20160322	01/27/2017	0.08	26,068	
20160324	01/31/2017	0.02	6,517	
20160325	05/05/2017	0.07	22,810	
20160326	04/07/2017	0.13	42,361	
20160327	01/31/2017	0.09	29,327	

20160329	01/26/2017	0.17	55,395
20160330	01/11/2017	1.57	511,586
20160331	03/17/2017	0.08	26,068
20160334	06/14/2017	0.96	312,817
20160341	04/12/2017	0.03	9,776
20160342	05/03/2017	0.08	26,068
20160346	03/20/2017	0.46	149,891
20160347	03/27/2017	0.04	13,034
20167022	03/07/2017	0.04	13,034
20167024	02/21/2017	0.95	309,558
20167025	03/14/2017	0.08	26,068
20170001	03/29/2017	0.13	42,361
20170005	04/24/2017	0.1	32,585
20170008	03/22/2017	0.08	26,068
20170009	05/17/2017	0.15	48,878
20170012	03/13/2017	0.12	39,102
20170014	06/21/2017	0.15	48,878
20170016	03/03/2017	0.04	13,034
20170017	04/27/2017	0.08	26,068
20170018	02/27/2017	0.09	29,327
20170019	04/06/2017	0.33	107,531
20170021	03/10/2017	0.05	16,293
20170023	07/07/2017	0.02	6,517
20170024	04/06/2017	0.12	39,102
20170032	05/19/2017	0.92	299,783
20170037	04/26/2017	0.03	9,776
20170042	05/02/2017	0.2	65,170
20170045	05/12/2017	0.11	35,844
20170046	05/17/2017	0.5	162,926
20170047	05/26/2017	0.18	58,653
20170048	06/02/2017	0.29	94,497
20170051	04/07/2017	0.04	13,034
20170056	07/10/2017	0.21	68,429
20170058	06/05/2017	0.07	22,810
20170061	09/07/2017	0.15	48,878
20170062	10/13/2017	0.04	13,034
20170068	05/17/2017	0.9	293,266
20170071	05/26/2017	0.19	61,912
20170072	05/16/2017	0.42	136,857
20170074	05/04/2017	0.17	55,395
20170076	03/30/2017	0.1	32,585
20170081	05/19/2017	0.26	84,721
20170083	05/03/2017	0.2	65,170
20170084	06/02/2017	0.04	13,034
20170086	05/15/2017	0.04	13,034
20170092	07/14/2017	0.63	205,286
20170093	06/02/2017	0.15	48,878

20170094	05/26/2017	0.24	78,204
20170096	05/09/2017	0.06	19,551
20170097	06/13/2017	1.63	531,137
20170101	06/01/2017	0.16	52,136
20170102	06/06/2017	0.17	55,395
20170103	09/07/2017	0.32	104,272
20170104	06/02/2017	0.15	48,878
20170105	05/10/2017	0.02	6,517
20170106	05/25/2017	0.86	280,232
20170107	05/11/2017	1.09	355,178
20170108	06/08/2017	0.44	143,374
20170110	06/22/2017	0.07	22,810
20170111	05/16/2017	0.15	48,878
20170112	05/25/2017	0.08	26,068
20170113	08/29/2017	0.06	19,551
20170117	05/19/2017	0.06	19,551
20170118	08/09/2017	0.11	35,844
20170124	06/13/2017	0.07	22,810
20170127	12/08/2017	0.04	13,034
20170128	05/16/2017	0.35	114,048
20170129	06/21/2017	0.15	48,878
20170130	05/17/2017	0.14	45,619
20170131	06/29/2017	1.22	397,538
20170136	09/29/2017	0.06	19,551
20170139	07/31/2017	0.42	136,857
20170140	05/19/2017	0.1	32,585
20170141	05/19/2017	0.06	19,551
20170144	06/21/2017	0.36	117,306
20170146	09/07/2017	0.08	26,068
20170147	07/27/2017	0.08	26,068
20170148	09/29/2017	0.09	29,327
20170152	07/14/2017	0.09	29,327
20170153	06/14/2017	0.21	68,429
20170154	08/02/2017	1.32	430,123
20170157	07/25/2017	0.48	156,408
20170158	07/17/2017	2.39	778,784
20170159	12/20/2017	0.18	58,653
20170160	07/20/2017	0.21	68,429
20170162	08/23/2017	0.21	68,429
20170163	07/06/2017	0.11	35,844
20170167	08/01/2017	0.46	149,891
20170168	07/26/2017	0.04	13,034
20170169	06/27/2017	0.18	58,653
20170170	07/20/2017	0.06	19,551
20170173	07/11/2017	0.1	32,585
20170177	06/22/2017	0.02	6,517
20170178	06/23/2017	0.02	6,517

20170179	09/07/2017	0.03	9,776
20170180	08/14/2017	0.06	19,551
20170185	10/03/2017	0.01	3,259
20170189	07/21/2017	0.09	29,327
20170190	06/07/2017	0.11	35,844
20170192	11/09/2017	0.56	182,477
20170202	08/23/2017	0.02	6,517
20170203	08/03/2017	0.02	6,517
20170205	08/17/2017	0.01	3,259
20170214	09/26/2017	0.05	16,293
20170215	08/17/2017	0.04	13,034
20170216	09/15/2017	0.07	22,810
20170218	08/01/2017	0.1	32,585
20170221	08/23/2017	0.03	9,776
20170222	07/12/2017	0.01	3,259
20170224	08/24/2017	0.53	172,701
20170226	08/22/2017	0.31	101,014
20170229	08/31/2017	0.16	52,136
20170231	08/25/2017	0.17	55,395
20170232	11/15/2017	0.02	6,517
20170234	08/25/2017	0.01	3,259
20170235	12/08/2017	0.09	29,327
20170238	09/19/2017	0.02	6,517
20170241	09/20/2017	0.16	52,136
20170244	08/25/2017	0.48	156,408
20170245	08/10/2017	0.03	9,776
20170251	10/03/2017	0.03	9,776
20170254	12/20/2017	0.11	35,844
20170256	09/11/2017	0.05	16,293
20170258	09/11/2017	0.04	13,034
20170259	09/26/2017	0.58	188,994
20170262	10/26/2017	0.05	16,293
20170265	09/13/2017	0.02	6,517
20170267	09/15/2017	0.07	22,810
20170271	09/20/2017	0.12	39,102
20170275	12/18/2017	0.01	3,259
20170276	10/25/2017	0.01	3,259
20170279	10/24/2017	0.43	140,116
20170280	10/27/2017	0.01	3,259
20170281	09/19/2017	1.33	433,382
20170283	10/17/2017	0.06	19,551
20170284	11/14/2017	1.35	439,899
20170288	10/02/2017	0.16	52,136
20170289	11/15/2017	0.02	6,517
20170290	11/07/2017	2.04	664,736
20170291	09/29/2017	0.08	26,068
20170295	10/11/2017	0.55	179,218

20170298	12/08/2017	0.14	45,619	
20170299	10/13/2017	0.03	9,776	
20170300	12/01/2017	1.18	384,504	
20170307	10/13/2017	0.06	19,551	
20170310	09/25/2017	0.25	81,463	
20170311	11/28/2017	0.19	61,912	
20170316	11/15/2017	0.13	42,361	
20170317	12/20/2017	0.46	149,891	
20170318	11/16/2017	0.06	19,551	
20170319	12/08/2017	0.1	32,585	
20170325	12/21/2017	0.06	19,551	
20170328	11/13/2017	0.05	16,293	
20170329	11/20/2017	0.02	6,517	
20170330	11/16/2017	0.04	13,034	
20170334	11/16/2017	0.73	237,871	
20170352	12/22/2017	0.39	127,082	
20170367	12/22/2017	0.08	26,068	
20177002	03/07/2017	0.25	81,463	
20177004	05/23/2017	0.0035	1,140	
20177009	10/10/2017	0.7	228,096	
20177010	11/14/2017	0.03	9,776	
20177012	06/23/2017	0.06	19,551	
20177013	08/01/2017	0.39	127,082	
20177014	07/25/2017	0.77	250,905	
20177016	08/30/2017	0.17	55,395	
20177019	11/15/2017	0.03	9,776	
20177022	11/07/2017	0.009	2,933	
20177023	09/21/2017	0.06	19,551	
20177024	10/10/2017	0.11	35,844	
20177026	10/03/2017	0.7	228,096	**2017**
20177028	11/07/2017	0.258	84,070	17,410,382
20170095	01/24/2018	0.05	16,293	
20170132	03/09/2018	2.73	889,573	
20170172	06/05/2018	0.1	32,585	
20170191	10/18/2018	0.01	3,259	
20170201	01/02/2018	0.03	9,776	
20170209	01/09/2018	0.06	19,551	
20170239	09/18/2018	0.06	19,551	
20170246	02/08/2018	0.17	55,395	
20170249	01/22/2018	0.23	74,946	
20170253	01/09/2018	0.03	9,776	
20170264	05/25/2018	0.03	9,776	
20170272	03/06/2018	0.29	94,497	
20170273	04/19/2018	0.22	71,687	
20170285	02/14/2018	0.03	9,776	
20170294	01/10/2018	0.47	153,150	
20170306	03/09/2018	0.04	13,034	

20170308	02/16/2018	0.01	3,259
20170313	01/10/2018	0.02	6,517
20170324	07/06/2018	0.12	39,102
20170327	01/24/2018	0.06	19,551
20170342	01/12/2018	0.02	6,517
20170343	01/26/2018	0.06	19,551
20170344	04/10/2018	0.03	9,776
20170346	02/06/2018	0.02	6,517
20170347	01/31/2018	0.23	74,946
20170349	03/08/2018	0.17	55,395
20170350	09/14/2018	0.35	114,048
20170356	01/09/2018	0.11	35,844
20170362	02/22/2018	0.61	198,769
20170366	01/25/2018	0.15	48,878
20170371	03/06/2018	0.08	26,068
20170376	01/31/2018	0.09	29,327
20170377	01/23/2018	0.02	6,517
20170378	03/23/2018	0.05	16,293
20170384	03/19/2018	0.19	61,912
20170385	04/19/2018	0.13	42,361
20170386	03/21/2018	0.07	22,810
20170387	04/02/2018	0.09	29,327
20170388	03/12/2018	0.0035	1,140
20170390	02/14/2018	0.13	42,361
20170391	02/27/2018	0.07	22,810
20170393	06/19/2018	1.4	456,191
20170394	04/12/2018	0.03	9,776
20170395	04/17/2018	0.41	133,599
20177015	01/31/2018	0.68	221,579
20180003	03/23/2018	0.13	42,361
20180007	02/22/2018	0.06	19,551
20180008	04/11/2018	0.2	65,170
20180009	04/13/2018	0.04	13,034
20180010	02/27/2018	0.04	13,034
20180016	04/02/2018	0.08	26,068
20180017	04/10/2018	1.38	449,674
20180018	04/19/2018	0.02	6,517
20180019	04/02/2018	0.23	74,946
20180020	05/23/2018	0.35	114,048
20180021	03/26/2018	0.18	58,653
20180022	03/30/2018	0.06	19,551
20180026	04/09/2018	0.07	22,810
20180028	04/05/2018	0.38	123,823
20180029	03/26/2018	0.03	9,776
20180034	04/19/2018	0.19	61,912
20180037	04/05/2018	0.08	26,068
20180039	03/06/2018	0.02	6,517

20180048	04/09/2018	0.31	101,014
20180052	03/29/2018	0.02	6,517
20180053	07/26/2018	0.08	26,068
20180055	03/28/2018	0.32	104,272
20180056	06/08/2018	0.34	110,789
20180061	04/11/2018	0.13	42,361
20180062	05/17/2018	0.04	13,034
20180063	04/20/2018	0.13	42,361
20180064	06/21/2018	0.17	55,395
20180065	06/01/2018	0.06	19,551
20180067	12/07/2018	0.08	26,068
20180070	04/19/2018	1.22	397,538
20180071	07/13/2018	0.25	81,463
20180072	05/31/2018	0.02	6,517
20180073	06/27/2018	0.09	29,327
20180075	05/15/2018	0.21	68,429
20180077	05/02/2018	0.13	42,361
20180078	09/11/2018	0.04	13,034
20180080	05/25/2018	0.68	221,579
20180085	06/08/2018	0.05	16,293
20180086	04/25/2018	0.06	19,551
20180088	04/23/2018	0.07	22,810
20180089	06/12/2018	0.13	42,361
20180090	05/07/2018	0.05	16,293
20180091	06/12/2018	0.16	52,136
20180093	05/03/2018	0.42	136,857
20180094	06/19/2018	0.58	188,994
20180095	07/02/2018	0.01	3,259
20180096	07/24/2018	0.02	6,517
20180097	05/15/2018	0.2	65,170
20180098	07/24/2018	0.76	247,647
20180100	07/03/2018	0.02	6,517
20180102	05/22/2018	0.06	19,551
20180104	10/11/2018	0.03	9,776
20180105	10/05/2018	0.01	3,259
20180108	09/12/2018	0.02	6,517
20180109	05/31/2018	0.08	26,068
20180110	06/01/2018	0.05	16,293
20180111	07/12/2018	0.23	74,946
20180113	07/24/2018	0.33	107,531
20180114	06/25/2018	0.53	172,701
20180115	05/04/2018	0.03	9,776
20180116	06/12/2018	0.06	19,551
20180117	05/14/2018	0.19	61,912
20180118	05/10/2018	0.16	52,136
20180119	05/25/2018	0.38	123,823
20180124	06/08/2018	0.11	35,844

20180127	07/12/2018	0.78	254,164
20180132	05/11/2018	0.05	16,293
20180133	10/18/2018	0.023	7,495
20180138	08/02/2018	0.17	55,395
20180145	08/29/2018	0.03	9,776
20180148	12/17/2018	0.03	9,776
20180152	08/24/2018	0.25	81,463
20180157	07/24/2018	0.1	32,585
20180158	07/18/2018	0.03	9,776
20180159	06/27/2018	0.3	97,755
20180161	07/31/2018	0.01	3,259
20180166	06/29/2018	0.08	26,068
20180167	06/21/2018	0.19	61,912
20180171	10/11/2018	0.06	19,551
20180172	07/10/2018	0.02	6,517
20180175	08/29/2018	0.15	48,878
20180176	08/16/2018	2.22	723,389
20180180	08/20/2018	1.13	368,212
20180181	08/16/2018	0.06	19,551
20180184	07/27/2018	0.09	29,327
20180188	08/20/2018	0.05	16,293
20180192	07/12/2018	0.28	91,238
20180193	08/24/2018	0.08	26,068
20180194	08/01/2018	1.99	648,443
20180195	08/24/2018	0.17	55,395
20180196	08/06/2018	0.16	52,136
20180198	07/18/2018	0.02	6,517
20180199	09/10/2018	0.18	58,653
20180201	11/23/2018	0.1	32,585
20180203	10/02/2018	0.5	162,926
20180204	09/13/2018	0.07	22,810
20180205	07/12/2018	0.02	6,517
20180206	09/07/2018	0.52	169,443
20180209	11/02/2018	0.12	39,102
20180214	07/26/2018	0.06	19,551
20180215	08/29/2018	0.5	162,926
20180218	08/27/2018	0.37	120,565
20180220	09/19/2018	0.13	42,361
20180221	09/13/2018	4.38	1,427,227
20180222	10/18/2018	0.13	42,361
20180225	09/10/2018	0.11	35,844
20180226	08/20/2018	0.93	303,041
20180227	10/19/2018	0.24	78,204
20180228	08/10/2018	0.04	13,034
20180230	09/26/2018	0.97	316,075
20180231	11/26/2018	0.09	29,327
20180232	10/26/2018	0.01	3,259

20180234	10/12/2018	0.36	117,306
20180235	09/07/2018	0.13	42,361
20180236	10/01/2018	0.06	19,551
20180237	10/11/2018	0.06	19,551
20180238	10/11/2018	0.1	32,585
20180242	09/12/2018	0.1	32,585
20180244	08/28/2018	0.05	16,293
20180245	10/29/2018	0.01	3,259
20180247	11/05/2018	0.03	9,776
20180249	09/24/2018	0.08	26,068
20180252	11/02/2018	0.47	153,150
20180258	11/14/2018	0.03	9,776
20180259	09/21/2018	0.13	42,361
20180261	09/11/2018	0.03	9,776
20180262	12/11/2018	0.04	13,034
20180263	08/31/2018	0.44	143,374
20180265	08/31/2018	0.07	22,810
20180267	09/21/2018	0.09	29,327
20180268	09/10/2018	0.03	9,776
20180272	10/30/2018	0.02	6,517
20180274	09/24/2018	0.01	3,259
20180276	10/04/2018	0.03	9,776
20180277	10/01/2018	0.03	9,776
20180280	11/09/2018	0.21	68,429
20180284	10/11/2018	0.06	19,551
20180288	12/06/2018	0.36	117,306
20180289	11/21/2018	0.05	16,293
20180293	10/24/2018	0.45	146,633
20180294	11/21/2018	0.14	45,619
20180295	10/26/2018	0.16	52,136
20180296	10/31/2018	0.05	16,293
20180300	11/08/2018	0.07	22,810
20180304	11/21/2018	0.05	16,293
20180305	11/09/2018	0.58	188,994
20180309	11/29/2018	0.6	195,511
20180312	11/13/2018	0.29	94,497
20180313	11/06/2018	0.05	16,293
20180314	12/05/2018	0.12	39,102
20180316	12/28/2018	0.09	29,327
20180317	11/08/2018	0.16	52,136
20180318	11/02/2018	0.01	3,259
20180320	11/02/2018	0.17	55,395
20180333	12/18/2018	0.79	257,422
20180349	12/27/2018	0.81	263,939
20180356	12/20/2018	0.07	22,810
20187002	04/09/2018	0.64	208,545
20187003	06/21/2018	0.07	22,810

20187010	08/27/2018	0.05	16,293
20187011	09/26/2018	0.3	97,755
20187012	08/28/2018	0.27	87,980
20187013	11/30/2018	0.13	42,361
20187021	12/18/2018	0.03	9,776
20187016	01/08/2019	0.42	136,857
20180327	01/09/2019	0.05	16,293
20180355	01/09/2019	0.02	6,517
20180047	01/14/2019	0.03	9,776
20180271	01/16/2019	0.57	185,735
20180319	01/17/2019	0.22	71,687
20180301	01/22/2019	0.05	16,293
20180331	01/22/2019	0.05	16,293
20180343	01/22/2019	0.08	26,068
20180149	01/24/2019	0.02	6,517
20180363	01/25/2019	0.04	13,034
20180358	01/28/2019	0.13	42,361
20180378	02/01/2019	0.05	16,293
20180329	02/06/2019	0.03	9,776
20180338	02/07/2019	0.61	198,769
20180282	02/11/2019	0.01	3,259
20180321	02/11/2019	0.08	26,068
20180332	02/11/2019	0.09	29,327
20180372	02/11/2019	0.08	26,068
20180364	02/14/2019	0.06	19,551
20180384	02/15/2019	0.06	19,551
20180292	02/20/2019	0.26	84,721
20180366	02/22/2019	0.01	3,259
20180382	02/22/2019	0.04	13,034
20190011	02/25/2019	1.63	531,137
20180357	02/27/2019	0.04	13,034
20180373	02/27/2019	0.37	120,565
20170351	02/28/2019	0.08	26,068
20180334	02/28/2019	0.01	3,259
20190015	02/28/2019	0.02	6,517
20180250	03/04/2019	0.1	32,585
20180344	03/04/2019	0.03	9,776
20180354	03/04/2019	0.06	19,551
20180380	03/04/2019	0.03	9,776
20180336	03/06/2019	0.48	156,408
20190043	03/08/2019	0.04	13,034
20180302	03/11/2019	0.21	68,429
20190001	03/11/2019	0.04	13,034
20190010	03/11/2019	0.86	280,232
20190019	03/11/2019	0.21	68,429
20190021	03/12/2019	0.49	159,667
20170354	03/13/2019	0.06	19,551

2018
16,239,273

20180347	03/14/2019	0.06	19,551
20190052	03/21/2019	0.09	29,327
20180385	03/22/2019	0.06	19,551
20190034	03/22/2019	0.03	9,776
20180348	03/25/2019	0.18	58,653
20180377	03/27/2019	0.13	42,361
20190003	03/28/2019	0.02	6,517
20180367	03/29/2019	0.09	29,327
20190032	03/29/2019	0.09	29,327
20190025	04/01/2019	0.32	104,272
20190031	04/01/2019	0.01	3,259
20180297	04/02/2019	0.04	13,034
20190033	04/04/2019	0.2	65,170
20190039	04/05/2019	0.07	22,810
20180170	04/11/2019	0.15	48,878
20180283	04/16/2019	1.93	628,892
20190013	04/16/2019	0.09	29,327
20190026	04/22/2019	0.06	19,551
20180392	04/26/2019	0.08	26,068
20180253	05/01/2019	0.02	6,517
20190040	05/02/2019	0.07	22,810
20190014	05/07/2019	0.02	6,517
20190056	05/07/2019	0.06	19,551
20190101	05/08/2019	0.04	13,034
20190023	05/09/2019	0.04	13,034
20190089	05/09/2019	0.07	22,810
20180351	05/10/2019	0.25	81,463
20180391	05/10/2019	0.47	153,150
20190053	05/13/2019	0.68	221,579
20190055	05/13/2019	0.16	52,136
20180339	05/14/2019	0.11	35,844
20190076	05/17/2019	0.41	133,599
20190128	05/21/2019	0.03	9,776
20180388	05/23/2019	0.33	107,531
20190131	05/28/2019	0.57	185,735
20190150	05/28/2019	0.23	74,946
20190069	05/29/2019	0.06	19,551
20190063	05/30/2019	0.06	19,551
20190111	05/30/2019	0.03	9,776
20190143	05/30/2019	0.07	22,810
20190141	06/03/2019	0.08	26,068
20190124	06/04/2019	0.42	136,857
20180182	06/07/2019	0.35	114,048
20190110	06/10/2019	0.72	234,613
20197009	06/11/2019	0.016	5,214
20190132	06/12/2019	0.12	39,102
20180308	06/13/2019	0.07	22,810

20180379	06/13/2019	0.29	94,497
20190106	06/14/2019	0.72	234,613
20190083	06/17/2019	0.51	166,184
20190148	06/17/2019	0.03	9,776
20187024	06/18/2019	0.1	32,585
20190065	06/18/2019	0.06	19,551
20190090	06/20/2019	0.53	172,701
20190095	06/21/2019	0.06	19,551
20190126	06/21/2019	0.27	87,980
20190139	06/24/2019	0.04	13,034
20190082	06/25/2019	3.26	1,062,274
20190099	06/25/2019	0.35	114,048
20190163	06/25/2019	0.52	169,443
20170379	06/26/2019	0.55	179,218
20190113	06/26/2019	0.08	26,068
20190118	06/28/2019	0.12	39,102
20190114	07/01/2019	0.25	81,463
20190104	07/02/2019	0.1	32,585
20180186	07/03/2019	0.24	78,204
20190093	07/08/2019	0.01	3,259
20190096	07/08/2019	0.09	29,327
20180298	07/11/2019	0.01	3,259
20180345	07/11/2019	0.02	6,517
20190177	07/11/2019	0.18	58,653
20190047	07/15/2019	0.13	42,361
20190142	07/16/2019	0.01	3,259
20190022	07/17/2019	0.21	68,429
20190155	07/17/2019	0.04	13,034
20190197	07/18/2019	0.05	16,293
20190171	07/19/2019	0.2	65,170
20190067	07/22/2019	0.1	32,585
20190077	07/23/2019	0.24	78,204
20190115	07/24/2019	0.27	87,980
20180208	07/25/2019	0.03	9,776
20190135	08/01/2019	0.01	3,259
20190180	08/01/2019	0.06	19,551
20190173	08/06/2019	0.06	19,551
20190224	08/06/2019	0.53	172,701
20190223	08/09/2019	0.08	26,068
20190137	08/14/2019	0.04	13,034
20190174	08/15/2019	0.05	16,293
20190237	08/16/2019	0.03	9,776
20190168	08/19/2019	0.13	42,361
20190194	08/19/2019	0.01	3,259
20190198	08/19/2019	0.16	52,136
20190253	08/19/2019	0.03	9,776
20190170	08/20/2019	0.35	114,048

20190184	08/20/2019	0.1	32,585
20197010	08/20/2019	0.09	29,327
20190178	08/22/2019	0.03	9,776
20190264	08/23/2019	0.06	19,551
20190181	08/28/2019	1.87	609,341
20190261	08/28/2019	0.06	19,551
20190240	09/06/2019	0.07	22,810
20190057	09/10/2019	0.04	13,034
20180324	09/12/2019	0.61	198,769
20190050	09/12/2019	0.7	228,096
20190256	09/12/2019	0.07	22,810
20197011	09/12/2019	0.07	22,810
20190209	09/13/2019	0.05	16,293
20190216	09/17/2019	0.15	48,878
20190309	09/17/2019	1.98	645,185
20190231	09/18/2019	0.61	198,769
20190166	09/23/2019	0.11	35,844
20190201	09/23/2019	0.27	87,980
20190123	09/25/2019	1.77	576,756
20190208	09/25/2019	0.04	13,034
20190245	09/27/2019	0.04	13,034
20190270	10/03/2019	0.3	97,755
20197017	10/08/2019	0.06	19,551
20190196	10/09/2019	0.03	9,776
20190263	10/10/2019	0.12	39,102
20190172	10/11/2019	0.35	114,048
20190293	10/11/2019	0.48	156,408
20190012	10/15/2019	0.07	22,810
20180368	10/18/2019	0.12	39,102
20190207	10/18/2019	0.05	16,293
20190275	10/18/2019	0.11	35,844
20190308	10/18/2019	0.01	3,259
20190250	10/22/2019	1.79	583,273
20190227	10/24/2019	7.28	2,372,195
20190153	10/25/2019	0.02	6,517
20190288	10/25/2019	0.08	26,068
20190301	10/25/2019	0.33	107,531
20190313	10/25/2019	0.31	101,014
20180266	10/28/2019	0.24	78,204
20190331	10/30/2019	0.04	13,034
20190274	11/01/2019	0.23	74,946
20190318	11/01/2019	0.09	29,327
20190347	11/01/2019	0.2	65,170
20190319	11/04/2019	0.04	13,034
20190266	11/06/2019	0.13	42,361
20190284	11/06/2019	0.1	32,585
20190326	11/06/2019	0.05	16,293

20190036	11/07/2019	0.11	35,844	
20190322	11/07/2019	1.19	387,763	
20190119	11/08/2019	0.07	22,810	
20190306	11/12/2019	0.27	87,980	
20190292	11/13/2019	0.01	3,259	
20190286	11/19/2019	0.12	39,102	
20190315	11/19/2019	0.28	91,238	
20190340	11/19/2019	0.04	13,034	
20190342	11/20/2019	0.35	114,048	
20190249	11/21/2019	0.03	9,776	
20190321	11/21/2019	0.05	16,293	
20190338	11/21/2019	0.08	26,068	
20190226	11/26/2019	0.76	247,647	
20190268	11/26/2019	0.22	71,687	
20190299	11/27/2019	0.04	13,034	
20190364	12/04/2019	0.03	9,776	
20190325	12/06/2019	0.53	172,701	
20190221	12/09/2019	0.05	16,293	
20190260	12/12/2019	0.03	9,776	
20190187	12/17/2019	0.14	45,619	
20190228	12/17/2019	0.1	32,585	
20190339	12/17/2019	0.04	13,034	
20190283	12/18/2019	0.02	6,517	**2019**
20190276	12/30/2019	0.09	29,327	17,711,957
916		**Total:**	71,409,855	

EXHIBIT D

Green Infrastructure Program Plan

Metropolitan Water Reclamation District
of Greater Chicago

October 7, 2015

MWRD Green Infrastructure Program Plan

I. Introduction/Purpose of Green Infrastructure Program

On January 6, 2014, the Metropolitan Water Reclamation of Greater Chicago (MWRD) and the Environmental Protection Agency (EPA) entered into a Consent Decree (CD) concerning Combined Sewer Overflow (CSO) discharges. One of the requirements of the CD is the establishment by MWRD of a Green Infrastructure (GI) Program. The purpose of the GI Program is to increase acceptance of and investment in GI measures within MWRD's service area and to reduce CSO discharges, localized flooding, and stormwater impacts. MWRD will implement the GI Program in collaboration with Cook County municipalities, municipal conferences, townships, and other local governments, state and federal agencies, non-governmental organizations, citizens, and private entities. For the purposes of this plan, Green Infrastructure (GI) is defined as a range of stormwater control measures that store, infiltrate, and/or evaporate stormwater with the goal of reducing flows to sewer systems and/or to surface waters. GI may include, but is not limited to, permeable pavement, plant/soil systems such as rain gardens, swales, and extended detention wetland areas, and control measures to harvest and reuse stormwater, such as rain barrels, and cisterns. This GI Plan has been developed to guide MWRD's future activities in sustainable stormwater management.

The MWRD Board of Commissioners convened a public Study Sessionto thoroughly discuss the Green Infrastructure Program Plan on December 11, 2014. A summary of the GI Plan and Comprehensive Land Use Policy was presented to the Board of Commissioners by MWRD staff. After questions posed from the Board of Commissioners were addressed by MWRD staff, members of the public provided comments for the District's consideration. The GI Plan and Comprehensive Land Use Policy, which is a component of the GI Plan, were subsequently revised and presented to the Board of Commissioners at their meeting on December 18, 2014 where approval was granted to submit the GI Plan to the EPA and Illinois EPA for approval. Upon approval by the EPA and Illinois EPA, the MWRD will publicize and promote its GI Plan through public outreach, press releases and will post the GI Plan on the MWRD web site.

II. A. Green Infrastructure Program: Rain Barrel Program

Rain barrels are a form of GI that capture and allow for reuse of rain water. Rain barrels are attached to roof downspouts that have been disconnected from the sewer system. Roofs comprise 41% of the impervious surface of Cook County and disconnection of downspouts from the sewer system will help reduce basement backups. The District's Rain Barrel Program will utilize three distribution networks: (1) municipalities, (2) non-government, planning organizations, and community groups, and (3) campus-type facilities. The District will provide technical assistance on the proper use of rain barrels via the District's website, public service announcements, press releases, promotion on social media, and distribution of brochures. Further information concerning the Rain Barrel Program can be found in Appendix A.

II.B. Green Infrastructure Program: Early Monitoring, Evaluation, and Knowledge Building

The CD requires MWRD to dedicate a minimum of $325,000 towards GI projects prior to January 6, 2015, whereby MWRD would evaluate design specifications and installation processes and procedures and document its findings. MWRD embarked on multiple demonstration projects during the past year to satisfy this requirement.

The first demonstration project involved collaboration between MWRD, Chicago Public School Systems (CPSS), and the City of Chicago Department of Water Management (DWM). CPSS rehabilitated the grounds of four elementary schools with GI as a major design element of each project. MWRD and DWM each dedicated $2,000,000 towards GI measures at the schools to reduce local flooding and the amount of rainwater entering the local combined sewer system. The project areas largely consisted of impermeable asphalt surfaces with no opportunity for infiltration of stormwater runoff. Runoff from these asphalt surfaces would enter the combined sewer system and contribute toward CSOs and basement backups. Each project was comprised of various amounts of permeable pavement, rain gardens, native landscaping, stormwater trees, bioswales, and bioretention area greenways to store and infiltrate stormwater generated from the site. The four elementary schools, Virgil I. Grissom Elementary School, 12810 S Escanaba Avenue, George Leland Elementary School, 512 S. LaVergne Avenue, Morrill Elementary School of Math & Science, 6011 S. Rockwell Street, and Schmid Elementary School, 9755 S. Greenwood Avenue, are all in low income areas throughout the City. These schools were prioritized for implementation by CPS, DWM, and MWRD based on flood risk, site suitability, and socioeconomic factors. Numerous community meetings were held to describe project details and benefits. All four projects were completed in the fall of 2014. MWRD and CPSS executed an intergovernmental agreement (IGA) to facilitate this project whereby long term maintenance responsibilities are assigned to CPSS. MWRD has perpetual rights to inspect the GI to ensure it is being properly maintained in accordance with the Operations and Maintenance (O&M) Manual developed for each school. MWRD reviewed and provided comments on the construction drawings and specifications at various intervals during the course of design. During the course of construction, MWRD frequently visited the sites to gain knowledge on the installation of GI. The four sites combine for a Design Retention Capacity (DRC) of approximately 730,000 gallons per rain event. Educational signage has been placed at the sites to inform students and the surrounding community of the benefits of GI. Ground breaking ceremonies were held at each of the 4 schools and were attended by students, parents, school staff, local residents, and elected officials, including MWRD Commissioners. The collective enrollment at the 4 schools is over 1,400 students. The 4 projects have positively impacted thousands of local residents by providing a safe place for their children to play, educating all to the benefits of GI, and providing much needed relief to localized flooding. Given the success of this project, the MWRD Board of Commissioners authorized expansion of the program to fund GI at 6 schools per year over the next 5 years for a total of 30 schools and a total investment by MWRD of $15,000,000. These projects will not only address localized flooding, but will also serve to educate students, parents, and school staff about the benefits of GI. The 30 schools will be selected out of a list of 100 elementary schools that meet baseline

minimum criteria judged from three main categories: flood risk, site suitability (size and logistics) and vulnerable communities (low income and child obesity concerns).

MWRD has also worked with the City of Blue Island (Blue Island) and City of Evanston (Evanston) to develop GI Projects that will be constructed in 2015. These projects will address localized flooding, are in areas heavily trafficked by the general public, and will educate the public on the use of GI. MWRD's contribution towards these projects will be approximately $1,250,000 and the combined DRC will be 300,000 gallons. The projects will consist of permeable pavement, rain gardens, and swales. For Blue Island, MWRD retained a consultant to prepare plans and specifications, which were reviewed and approved by MWRD engineers. MWRD will administer the Blue Island construction contract, and will have an MWRD Resident Engineer oversee the construction. In addition to providing input on the type of permeable pavement to install, MWRD engineers reviewed and commented on the design drawings and specifications of the Evanston project. MWRD staff also participated in meetings with the local public to explain the rationale behind the projects and how the projects will help to alleviate flooding while providing a myriad of other environmental and social benefits. MWRD entered into IGAs with Blue Island and Evanston whereby maintenance responsibilities lie with the municipality and MWRD retains perpetual rights to inspect the facilities to ensure they are being maintained as required by the O&M Manuals of the respective projects.

II.C. Green Infrastructure Program: Green Infrastructure Plan

MWRD has developed this GI Plan to serve as a framework document to guide MWRD in its GI Program and to outline to EPA how MWRD will comply with the requirements of the CD as it pertains to GI. MWRD does not view the Design Retention Capacity requirements stipulated under Section III of this plan as an end goal; MWRD is committed to exceeding the minimum requirements for Design Retention Capacity by working with various stakeholders to install meaningful GI throughout Cook County in the coming years.

II.C.i. Comprehensive Land Use Policy

MWRD's Comprehensive Land Use Policy requires public entities leasing property at a nominal fee from MWRD to provide GI based on the size of the leasehold and the desired use. For any new/renewed lease, the public lessee must now pay for and include GI on its leasehold. MWRD will collaborate with and provide technical assistance to public entities leasing MWRD land at a nominal fee. Technical assistance will include, but not necessarily be limited to, reviewing plans, and providing input on best management practices related to the operation and maintenance of GI and providing input on the types of GI to be installed on specific leaseholds. Private entity or commercial lessees are required to comply with the terms of the MWRD's Watershed Management Ordinance (WMO), which requires use of GI for development projects based on the size and type of use of the property. Private entity or commercial lessees will receive a credit equal to $0.50 on the $1.00 up to 10% of the leasehold cost, capped at 10 years, for GI improvements in excess of WMO requirements. MWRD will seek credit towards the DRC requirements outlined in Section III of this plan for any GI installed by leaseholders of MWRD

property due to GI installed as a result of the requirements of the Comprehensive Land Use Policy. The Comprehensive Land Use Policy is attached to this document as Appendix B.

II.C.ii. Green Infrastructure Controls

GI measures employed in conjunction with conventional gray infrastructure measures, such as tunnels and reservoirs, is the most effective way to reduce flooding and CSO's. There are a number of GI controls that serve to reduce stormwater runoff from entering the sewer system. These controls can be broken down into three categories: (1) Plant/soil systems, (2) Stormwater harvest and reuse, and (3) Permeable pavement. The section below introduces each category and discusses design, performance, and maintenance. Once GI is installed and in use, proper maintenance and operations of the GI are imperative to ensure that the expected benefits are not degraded. MWRD, through intergovernmental agreements, will require that most GI installed under its GI Program be maintained by the benefitting local government, and MWRD will retain monitoring rights along with the ability to perform maintenance and back charge if the benefitting local government fails to maintain the GI. An example of MWRD's Maintenance and Operations Plan is included as Appendix D and each GI project will have its own Maintenance and Operations Plan tailored to its specific needs.

Green Infrastructure Controls: General Design Considerations

Design considerations to ensure GI performs as expected include available space, soil type, drainage area, adequate separation from buildings and seasonal ground water table, appropriate sediment control measures to prevent sediment-laden construction runoff from entering infiltration areas, and minimizing compaction of soil in infiltration areas by heavy equipment. All design considerations must be taken into account when selecting the appropriate GI measure to implement.

Green Infrastructure Controls: General Performance Expectations

Performance will be dependent on how well GI is selected, designed, constructed, and maintained. Performance will vary based on the GI technique employed. A more specific summary of how GI is expected to perform is provided below.

Green Infrastructure Controls: General Maintenance Requirements

As with traditional gray infrastructure, proper maintenance is essential for the long term success of GI. An Operations and Maintenance Plan (OMP) will be developed for all GI projects undertaken by MWRD. All maintenance activities must be documented and to ensure this occurs maintenance checklist(s) based on the OMP will be developed for each GI practice installed at all projects. Owners of the projects will be required to update the maintenance checklists and produce them to MWRD upon request. MWRD will meet with the owner on a yearly basis to inspect each project component and maintenance checklist(s) for completeness. The maintenance checklists will include a list of items to be inspected and will include the following: inspection dates, facility components inspected, and any maintenance performed and repairs made. All inspections and maintenance, both routine and emergency, must be included in the maintenance checklists. Each practice-specific requirement listed in the OMP

will serve as a checklist for design elements that require inspection, the frequency of inspections, and the conditions that indicate when maintenance is needed.

The owner will be required to perform inspections and maintenance at regular intervals appropriate for the GI Control and as agreed upon by MWRD. MWRD will have the right to perform its own inspections and if it is determined that the owner is not adequately maintaining the site, MWRD will have the right to perform maintenance at the owners' expense.

Green Infrastructure Controls: Plant/Soil Systems

Green infrastructure technologies are designed to store, infiltrate, and/or evaporate stormwater in order to reduce wet weather flows into sewer systems and reduce localized flooding. The goals of GI are to retain stormwater and infiltrate it into the subsoil or release it slowly when conditions subside. Rainwater infiltration recharges the shallow groundwater table, reducing the need for irrigation of deep-rooted vegetation and also provides delayed ecological base flow to natural streams. To accomplish these objectives, MWRD will utilize the following technologies: rain gardens, native plants/landscaping, stormwater trees, bioswales, green roofs, and greenways.

Green Infrastructure Controls: Plant/Soil Systems Design Considerations

In addition to the general considerations, plant/soil systems should include additional criteria, such as owner acceptance due to aesthetics, and underdrain system if appropriate. Native plants are to be hardy, drought, inundation and disease resistant, and deep-rooted.

Green Infrastructure Controls: Plant/Soil Systems Performance Expectations

The table below lists expected design retention capacity (DRC) for each type of plant/soil GI installation:

Technology	Quantity	Unit of Measure	DRC [gallons]
Rain Gardens	100	square feet	200
Native Plants/Landscaping	100	square feet	150
Stormwater Trees	100	Trees	1,000
Bioswales	100	square feet	500
Green Roofs	100	square feet	300
Greenways	100	square feet	63

Green Infrastructure Controls: Plant/Soil Systems Maintenance Requirements

Plant media must consist of native perennial species and be inspected minimally on an annual basis. Any damaged or dead trees, shrubs, ornamental grasses or perennials must be promptly replaced. Invasive species must be identified and removed. MWRD will develop a handbook outlining best management practices for the establishment and maintenance of native perennial species and the eradication of invasive non-native weed species. Landscaped areas

shall be inspected and maintained at least once every season. This includes, but is not limited to: inspection, weeding, trimming, pruning, cultivation, fertilization, watering, pest control and anything else necessary to ensure healthy vigorous plant growth and maintain the area in an aesthetically pleasing manner.

- Shrubs: landscape maintenance contractor to monitor for disease and insect problems, and treat as recommended
- Ornamental grasses and perennials: cut back to 3" above grade in spring, while plants are still dormant.

Rainfall is to be supplemented with water for a total rate of one (1) inch per week during the growing seasons for the first three years.

Green Infrastructure Controls: Stormwater Harvesting and Reuse
MWRD is exploring innovative ways to harvest and reuse captured stormwater. One potential project involves repurposing an abandoned water tunnel from the City of Chicago to capture water from the downspouts of large buildings that would normally go into the local combined sewer system. The stored water could then be reused to water parks and other areas, and possibly even by local industries. Another project would be to install large cisterns at each residential property in a flood prone area. The captured stormwater could then be used for irrigation rather than be returned to the local system.

Green Infrastructure Controls: Stormwater Harvesting and Reuse Design Considerations
Projects that include large-scale stormwater capture are typically unique, and will require different design criteria. The design criteria should investigate structural concerns, detention, and potential reuse applications, appropriate water quality, and code requirements. It is imperative that other agencies and citizens are involved in the design as appropriate.

Green Infrastructure Controls: Stormwater Harvesting and Reuse Performance Expectations
The most important criteria regarding these projects will be the amount of DRC, to be sized by application and drainage area. Performance of these systems will be contingent on owners understanding the need to reuse the captured stormwater in a timely manner to ensure storage capacity is available for ensuing storms. MWRD will provide outreach materials to property owners emphasizing the need to properly operate these types of systems.

Green Infrastructure Controls: Stormwater Harvesting and Reuse Maintenance Requirements
Stormwater storage facilities should be drained, cleaned, and disinfected at a minimum on a yearly basis.

Green Infrastructure Controls: Porous Pavement

Green Infrastructure Controls: Porous Pavement Design Considerations

In addition to general design considerations listed above, porous pavement systems should include additional criteria such as owner acceptance due to maintenance requirements, underdrain systems (if required), traffic loading, material strength, mix design if concrete or asphalt, and installation by an experienced and credentialed construction contractor.

Green Infrastructure Controls: Porous Pavement Performance Expectations
Porous Pavement systems are expected to hold approximately 10 gallons of DRC per square foot.

Green Infrastructure Controls: Porous Pavement Maintenance Requirements

- Keep landscaped areas well-maintained and prevent soil from being transported onto the pavement.
- Monitor regularly to ensure that the paving surface drains properly after storms.
- Ensure that the surface is free of sediment.
- Remove vegetation established in gravel spaces twice per year.
- Bi-annually vacuum surface to keep free of sediment. Vacuuming should occur in the Fall and Spring by using a vacuum designed for pavement cleaning, such as a Little Wonder walk-behind type or approved equal. If surfaces have severe clogging, use a low-pressure water spray to loosen sediment and follow with a walk behind vacuum.
- Clean out inlet structures within or draining to the subsurface bedding beneath surface once per year.
- Inspect surface for signs of deterioration or settling.
- Inspect void areas.
- Drainage structures and flow restrictor must be inspected and cleaned semi-annually.
- All permeable surfaces shall be inspected semi-annually and after significant rainfall events exceeding 1.5 inches.

II.C.iii. MWRD Green Infrastructure Community Assistance

MWRD is committed to providing administrative and technical assistance to communities within its service area to facilitate the implementation of GI projects. As part of its efforts under Section II.B., Early Monitoring, Evaluation, and Knowledge Building, MWRD worked with numerous stakeholders to share and gain knowledge on the design, installation, and maintenance of GI. MWRD will continue to seek such partnership opportunities as its GI Program evolves. To carry out our community assistance efforts, MWRD has dedicated three full time civil engineers, which exceeds the CD requirement of at least one MWRD full time equivalent position, to work exclusively on MWRD's GI Program and to specifically provide technical and administrative support to communities, developers, and public and private lessees of MWRD property. MWRD will look to provide funding assistance for GI projects that achieve MWRD's goals of reducing flooding, basement backups, and CSO discharges. Other forms of assistance will include review of municipal GI plans and specifications, public outreach

via publication and distribution of brochures, development of a Green Infrastructure webpage with information private home owners can use to make simple GI improvements on their property, such as rain gardens and rain barrels, and speaking engagements.

MWRD is initiating 5 pilot studies in 2015 with the intent to ultimately develop a stormwater master plan for Cook County to address 100-year flooding. MWRD views these pilot studies as the cornerstone of its efforts to educate the public about the benefits of GI and to address flooding and basement backups occurring throughout Cook County. The goal of the pilot studies is to identify a solution to 100-year flooding of structures and basement backups with projects involving green and gray infrastructure located in public and privately owned properties. To achieve this ambitious goal, it is vital the general public understands that no agency alone can solve the flooding woes plaguing our region. Through extensive public outreach, MWRD will work to educate the public concerning the size of the issue. The consultants retained by MWRD for the pilot studies have been encouraged to develop creative ways to involve the public in the discussion of how they want their community to address the problem. The pilot study locations were determined by the regional municipal conferences of Cook County and the City of Chicago. The study locations are Little Calumet River corridor, Roberts Road drainage area, Village of Northbrook, Village of Harwood Heights, and the City of Chicago's 8th Ward and surrounding Wards. The community will need to be engaged and become part of the solution by detaining and infiltrating stormwater at their homes and businesses through GI implementation. Building a resilient Chicagoland through a new way to interact with water will be a focal point of the pilot studies. Once completed, the information and lessons learned from the pilot studies will serve as guidance to develop stormwater master plans for the remainder of Cook County.

MWRD will coordinate with the Cook County Land Bank Authority and the South Suburban Land Bank and Development Authority to identify vacant properties with potential for meaningful GI projects to be constructed. In 2014, MWRD received statutory authority to acquire flood prone structures from voluntary sellers. All structures on flood prone property acquired with MWRD funds will be removed using EPA's On the Road to Reuse Residential Demolition Bid Specification Development Tool handbook and Cook County Demolition Diversion Ordinance as guidelines. The properties will be converted to open space, which may include usage as a park, and may include GI. The credit MWRD will seek towards its DRC obligation will be based on the type of GI installed.

Since 1971, MWRD required stormwater detention in the separate sewer areas of suburban Cook County under the Sewer Permit Ordinance (SPO). In 2014, MWRD adopted a Watershed Management Ordinance (WMO), attached as Appendix C, to regulate development and redevelopment activities in the suburban communities of Cook County. The WMO replaced the SPO and provides comprehensive stormwater management regulations. Although not required under the SPO, the WMO requires stormwater detention in the combined sewer area. The WMO also explicitly requires the use of GI to treat the first inch of stormwater runoff from impervious surfaces created by development or redevelopment projects over one-half acre in size. Full credit for stormwater detention can be accomplished through GI techniques. Passage of the WMO served as a major milestone for Cook County where GI will become an integral

component of future development and redevelopment projects. MWRD permit review staff will interact closely with design engineers during the permit process and provide input and direction on all aspects of a development or redevelopment project's design, including appropriate use of GI. As a result, MWRD will seek credit towards the DRC requirements described in Section III for GI installed due to the requirements of the WMO and the technical assistance provided by MWRD staff during the permit application process.

II.C.iv. Green Infrastructure Projects and/or Collaborations

The following Sections describe how MWRD will work with stakeholders to identify, develop, and implement GI projects.

II.C.iv.a Establishing Partnerships and collaboration with other stakeholders

MWRD has extensive experience working with numerous stakeholders on various initiatives, including GI projects. MWRD is committed to maintaining current relationships with various stakeholders, including non-governmental organizations, such as Openlands, Friends of the Chicago River, Sierra Club, Center for Neighborhood Technology, and Metropolitan Planning Council. MWRD will continue to develop partnerships with additional stakeholders, including government entities, businesses, non-governmental organizations, and members of the public, in developing and implementing GI projects throughout the region.

The District, working in conjunction with Cook County municipal conferences (South Suburban Mayors and Managers Association, Southwest Conference of Mayors, Northwest Municipal Conference, and West Central Municipal Conference), established Watershed Planning Councils (WPCs) for the six major watersheds of Cook County in 2005. WPC meetings are open to the public and held quarterly to discuss stormwater management issues. Attendees include mayors, public works directors, consulting engineers, and concerned citizens. MWRD has utilized WPC meetings as a vehicle to educate WPC members and meeting attendees about MWRD's role in wastewater treatment and protecting the environment. MWRD has and will continue to promote use of GI at these meetings. MWRD will also seek out ideas for GI projects and present information regarding planned GI projects within the respective watershed.

II.C.iv.b Public Participation

The importance of MWRD interacting with the public to explain the benefits of GI projects throughout the region cannot be overstated. Meeting with public agencies, as well as private citizens, will assist in identifying the best potential areas to install GI, while generating understanding and enthusiasm among constituents. The public participation process will include informal workshops and canvassing of neighborhoods. The community will be engaged at the onset of a project's design with meaningful and reasonable public input incorporated into the final plans. MWRD believes the solution to Cook County's flooding involves more than simply constructing green and/or gray projects within publicly owned property. To truly solve

the flooding problems our region faces, the public's enthusiastic acceptance of public GI projects is a first step to convincing the public of the need for GI improvements on private property. Extensive public outreach will be required to achieve this goal. As discussed in preceding sections above, MWRD will promote the use of GI through WPC meetings, workshops, publications of a webpage dedicated to GI, and development of stormwater master plans for Cook County.

II.C.iv.c Geographic Coverage/Decision Criteria

MWRD projects will fall into two categories: (1) Demonstration Projects and (2) Prioritized Projects. Demonstration projects will consist of partnership projects similar to the CPSS projects described previously. Demonstration projects will be located in highly visible and easily accessible public areas.

MWRD will periodically solicit public entities (municipalities, townships, school districts, etc.) to provide a list of proposed GI projects and supporting information for MWRD's consideration and prioritization. Projects will be prioritized based on the following criteria in accordance with Appendix E of the CD::

a. The likelihood of flooding and/or basement backup reduction by the project
b. Number of structures benefitting from the project
c. Cost of the project
d. Project location and land ownership with consideration given to maintenance and educational opportunities
e. Socio-economic considerations

MWRD will look to fund GI projects that have the greatest potential to reduce flooding and/or basement backups. The ability to determine a project's effectiveness to reduce flooding and/or basement backups will in part be based on the number of structures directly benefitting from the GI project under consideration. The project's cost will be evaluated in conjunction with the benefits to be provided and factors such as cost per gallon infiltrated. MWRD will look to fund projects in highly visible locations where opportunities for public education exist. Socio-economic factors, such as median household income, will also be considered. Multi-purpose stormwater parks that incorporate GI and recreational activities will be sought out. The concept of improving recreational amenities while providing stormwater management via GI was integral to our successful partnership with CPSS and DWM as previously described.

II.C.iv.d Preservation of Constructed Green Infrastructure Projects

MWRD will work with partners and stakeholders to plan legal, such as conservation easements, and institutional mechanisms to preserve and maintain constructed GI projects that are put in place to ensure that future site or land use changes do not result in the loss of the runoff reduction benefits of constructed GI projects. MWRD shall share with partners and stakeholders best management practices to maintain and preserve GI as they are developed. MWRD will develop Design Guidelines, and Maintenance and Operation standards that will be transmitted to the project administrators, and will follow up by visual inspection to verify that such standards are being upheld. The responsibilities of MWRD and benefitting communities will be memorialized via Intergovernmental Agreement. The responsibilities of MWRD and non-governmental entities will be documented via Easement Agreement. The Intergovernmental and Easement Agreements will include items such as funding arrangement, maintenance requirements, and the need to preserve GI installed as a means to comply with the CD in perpetuity.

III. Implementation of the GI Plan

The CD requires the District to implement GI with a DRC totaling 10 million gallons according to the schedule shown below.

Years after CD Effective Date	Date	DRC (Million gallons)
5	January 5, 2019	2
10	January 5, 2024	5
15	January 5, 2029	10

MWRD is in the process of developing a GIS platform to maintain an inventory of all completed GI projects. The data to be stored will include project location, collaborating partner(s), type of GI, the entity responsible for project maintenance, as-built drawings, and DRC. The MWRD will roll out the GIS platform in stages as it becomes available.

DRC is defined as the maximum available stormwater retention capacity of a GI project in any individual storm as stated in the project plans stamped by a licensed Professional Engineer or, in the absence of such a statement, a project-specific capacity calculated using the following table:

Technology	Quantity	Unit	DRC (gallons)
Rain Gardens	100	Square Feet	200
Native Plants/Landscaping	100	Square Feet	150
Stormwater Trees	100	Trees	1,000
Porous Pavement	100	Square Feet	1,000
Bioswales	100	Square Feet	500
Green Roofs	100	Square Feet	300
Greenways	100	Square Feet	63

MWRD will implement projects to achieve the DRC requirements as described in Section II of this GI Plan.

IV. Additional Commitment to Green Infrastructure Projects Due to Contingency Event-Related Schedule Delay

A contingency event occurs if MWRD is unable to complete Thornton Composite Reservoir, McCook Reservoir, Stage 1, and McCook Reservoir, Stage 2 by the dates required in the CD and an extension is approved either by EPA or the Court. If a contingency event occurs , MWRD will provide additional required DRC by the deadlines indicated in the table below and in conformance with this GI Plan.

For Contingency Events in Delay of	Additional DRC requirement	Deadline to complete additional DRC
Thornton Composite Reservoir	250,000 gallons	January 5, 2019
McCook Reservoir, Stage 1	250,000 gallons	January 5, 2024
McCook Reservoir, Stage 2	250,000 gallons for each grant, pursuant to Paragraph 24 or 26 of the CD, of an extension of one or more deadlines applicable to McCook Reservoir, Stage 2	5 years after the grant of each such extension

V. Reporting

MWRD will prepare an Annual GI Report to document progress made on GI Plan and will describe technical assistance given, the implementation of GI projects, the cumulative estimate of DRC volume, and the continuing evaluation of potential future projects.

Appendix A

Rain Barrel Program

Metropolitan Water Reclamation District of Greater Chicago

Rain Barrel Program

A component of the District's Green Infrastructure Program

I. PROGRAM DESCRIPTION

Rain Barrels are a form of green infrastructure that are designed to capture and reuse rain water. The largest benefit of rain barrel use is achieved by disconnecting the roof runoff from the system and installing rain barrels to reuse water. Roofs comprise 41% of the impervious surface in Cook County. Many of these surfaces are directly connected to the public drainage system.

The goal of the Metropolitan Water Reclamation District of Greater Chicago's (District's) Rain Barrel Program is removing the direct load from entering the sewer system, reducing basement backups, and reducing combined sewer overflow volume, overland flooding, and infiltration and inflow. The District believes the value of keeping water out of the system will benefit the community.

The District's Rain Barrel Program will utilize three distribution networks throughout its service-delivery area to distribute and promote the use of rain barrels. These networks are described in Section II. Each rain barrel distributed will display a specially-designed label that summarizes the environmental benefits of using rain barrels (see Attachment A).

II. DISTRIBUTION NETWORKS

The three networks that will be utilized to distribute rain barrels are: municipalities, community groups/non-governmental organizations and campus- type facilities.

A. Municipalities

Cook County has 129 communities within the District's service area. Each community will be encouraged to adopt the Rain Barrel Program as its own. This program is contingent on funding approval by the Board of Commissioners on an annual basis. Until otherwise indicated, the Program will provide free rain barrels to residents who live in the District's service area.

Municipalities are required to enroll in this free program via an Intergovernmental Agreement (IGA). Once an IGA is signed, municipalities may order rain barrels, connection hardware, and delivery for their residents from the District's vendor at no cost to the municipality. The District will cover the cost of the rain barrels, the connection hardware and home delivery as the District has a contract with a vendor in place; the vendor will furnish and deliver rain barrels, and municipal partners will be

provided with an email address and telephone number that can be used to order the rain barrels for delivery to residents. Distribution will be limited to a maximum of four rain barrels per home.

The District will provide the following templates for municipalities to use:

- **Sample letter and rain barrel reservation form** – The letter and form can be adapted and mailed to residents; the form is designed to collect the information needed to place an order on the resident's behalf.
- **Sample brochure that can incorporate your logo** – Upon request, the District will provide municipalities with a supply of brochures imprinted with their municipal logo.
- **Generic press release** – The language in this generic press release can be used in newsletters, on websites or submitted to local publications.

B. Community Groups/Non-Governmental Organizations

Cook County has many community groups and non-governmental organizations (NGOs) that work to educate residents about stormwater management, green infrastructure and environmental improvement. Community groups and NGOs will have access to the District's rain barrel program. To enroll in this free program, they will be asked to sign a Memorandum of Understanding (MOU). Once the MOU is signed, the community group/NGO may order rain barrels, connection hardware, and delivery for their constituents from the District at no cost to the community group/NGO.

In order to participate, the community group or NGO must:

- Submit a plan to the District describing the utilization of rain barrels;
- Provide detailed ordering information to the District ;
- Periodically ensure proper installation of rain barrels;
- Ensure proper education, care and maintenance of the rain barrels;
- Provide a follow-up report on rain barrel distribution. The report should include the following information:
    - email addresses of constituents receiving the rain barrel(s)
    - street addresses where rain barrels were installed
    - number of rain barrels installed, with a maximum of four rain barrels per home or location
    - a brief report of project successes and/or lessons learned in implementing the project.

C. Campus-Type Facilities

Campus-type facilities include: schools, municipal properties (i.e. town halls, libraries, park district facilities, fire and police stations, garage/outbuilding), churches,

community centers, senior centers, hospitals and clinics. The District will provide free rain barrels to any such facility committed to be a community partner and good steward of stormwater. The facility representative should contact the District regarding execution of a template IGA or MOU and to complete an appropriate application which shall include at a minimum:

- Size of campus
- Number of rain barrels requested
- Percent of downspouts intercepted
- Any other additional stormwater controls implemented on the site

After the rain barrels have been delivered and installed, the facility representative should submit a post-implementation plan or "As-Built" document that provides at minimum:

- addresses and locations where rain barrels were installed
- number of rain barrels installed
- a brief report of project successes and/or lessons learned in implementing the project.

III. MARKETING AND PROMOTION

In addition to providing technical assistance to residents, municipalities, community groups/non-governmental organizations and campus-type facilities on the proper use of rain barrels, a combination of tools will be provided by the District's Office of Public Affairs to promote and market rain barrels to the distribution networks. The tools include the District website, community outreach, public service announcements, email campaigns, press releases, promotion on social media, a rain barrel installation video and distribution of brochures.

Templates for applying for free rain barrels will be provided. In addition, the District can provide materials that utilize logos from the municipalities, community groups/non-governmental organizations and campus-type facilities for program purposes. The District will assign a District liaison to interested municipalities, community groups/non-governmental organizations and campus-type facilities. The liaison can provide assistance and direction during program implementation.

District Commissioners will also play a role in the marketing and promotion of the Rain Barrel Program. Commissioners may use and distribute rain barrels at community events as a means of educating and informing the public about the importance of green infrastructure, promoting the District's Rain Barrel Program, and instructing on proper installation. Upon request of each rain barrel for such events, Commissioners will provide the date, location, and purpose of the event for which the rain barrel(s) is/are being used, acknowledging by signature that the use and distribution is in compliance with the District's Ethics Ordinance policy on political activity.

IV. PROGRAM PERFORMANCE

The District's Maintenance and Operations Department will continue to administer the Rain Barrel Program in cooperation with Engineering and Public Affairs. An assigned resident engineer will administer the rain barrel contract, coordinate deliveries, and document distribution for reporting purposes. The resident engineer will collect the addresses and number of rain barrels delivered and installed. The Office of Public Affairs will document marketing, community outreach and technical assistance and submit this information to the resident engineer for inclusion in an annual report.

V. LABEL

A label will be affixed to every rain barrel distributed (see Attachment A). The label summarizes the environmental benefits of using rain barrels and green infrastructure.

VI. FORMS

Draft forms pertaining to this program are attached and will be modified to include information pertaining to the specific participating municipality, community group/non-governmental organization or campus-type facility:

1. Municipal and Community Group/NGO Ordering Instructions - Attachment B
2. Resident Application Form – Attachment C

Attachment A

Attachment B

MWRD Rain Barrel Program
Municipal and Community Group/Non-Governmental Organization Ordering Instructions

Municipalities and Community Groups/Non-Governmental Organizations in the District's service area may order free rain barrels for their residents.

To qualify for free rain barrels, residents must either live in a municipality that has signed an Intergovernmental Agreement with the District or request them through an organization that has signed a Memorandum of Understanding with the District.

If the resident meets the above criteria, then the municipality or community group/non-governmental organization may call 815-735-9583 or email sales@upcycle-products.com to order rain barrels*; please write **MWRD Rain Barrel Program** in the subject line.

The following resident information will be required for delivery:

Name _____

Address _____

Phone number _____

Email address _____

Number of rain barrels _____

Color requested (*indicate #*) ___Terra Cotta ___ Blue ___ Black ____Gray

Desired delivery days/times _____

*A maximum of four rain barrels may be ordered per location.
Bulk deliveries will continue to be made to organizations and agencies wishing to purchase rain barrels at cost from the District.

Need more information? Visit www.mwrd.org or call (312) 751-6633.

Attachment C

Free Rain Barrel Program
Municipal Application Form for Residents

We are pleased to offer free rain barrels to our residents. Please complete the information needed for delivery.

Resident's information:

Name: _____
(Please print)

Home address: _____

Phone number: _____

Email address: _____

Number of rain barrels requested: _____

Rain Barrel Color (indicate #):___Terra Cotta ___ Blue ___ Black____Gray

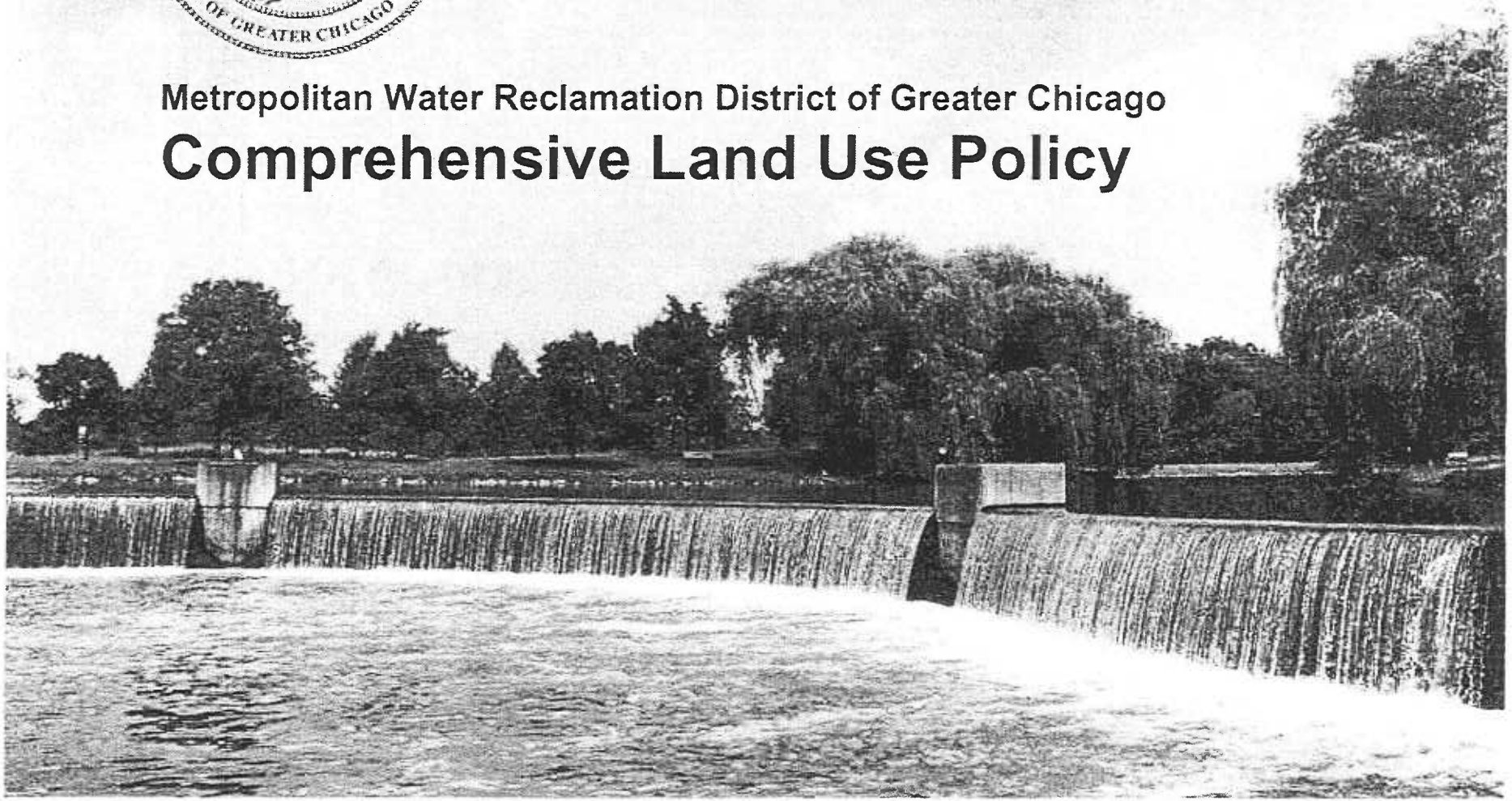
Desired delivery days/times: _____

Appendix B

Comprehensive Land Use Policy

Metropolitan Water Reclamation District of Greater Chicago

Comprehensive Land Use Policy



FOREWORD

The Metropolitan Water Reclamation District of Greater Chicago was organized in 1889 as an independent unit of government and taxing body. The District was organized in response to a longstanding problem with contamination of the water supply and nuisance conditions in the Chicago River and other waterways. The District reversed the flow of the Chicago and Calumet River systems to stop discharge of sewage into Lake Michigan and instead discharge it into the Des Plaines River and eventually the Mississippi River. In order to reverse the flow of the Chicago and Calumet River Systems, the District constructed 61.3 miles of canals and waterway improvements. These canals are known as the Chicago Sanitary & Ship Canal, the Cal-Sag Channel, and the North Shore Channel. The District owns substantial acreage on both sides of these canals spanning several counties, including Cook, DuPage, and Will Counties. It also owns thousands of acres in Fulton County as well.

Over these past 125 years, a number of policies have been enacted concerning the District's landholdings. The purpose of this Comprehensive Land Use Policy is to provide a mechanism where all these policies governing District real estate are contained, and made available, in a single source. The end result is a single comprehensive policy that adopts some of the District's policies of yesterday, while at the same time, introduces new policies that satisfy the District's vision of today. As this vision changes over time, so too will this comprehensive policy, but with a unified approach that continues to make everything available in a single source.

The District's enabling statute, 70 ILCS 2605/1 et al., sets forth the District's powers and duties, including its statutory requirements for acquiring, selling, and leasing District real estate. Through its real estate policies, the District is able to maintain a sense of direction from a literal interpretation of its leasing statute. By enacting a Comprehensive Land Use Policy, the District can ensure that its program is well-planned, that its lands are held and not dissipated, that special privileges to individuals and organizations are denied, and that all citizens and organizations seeking to lease District real estate are treated equally and uniformly. Through policies well made and kept, the District can continue to make its lands available for different uses.

Not to be lost in this is the District's mission as a chartered organization: to protect the public's health and safety by treating wastewater, managing stormwater, and protecting water as a vital resource for its service area. Corporate use of District land, that is, any use of District land necessary for the District to fulfill its corporate purpose, will always be given first priority over all other uses of District land. Land not currently needed for corporate use, on the other hand, will be made available for leasing, for use by easement, or for temporary use by permit. The goal of this comprehensive policy is to put this available District land to its best possible use in a manner that does not inhibit the District from fulfilling its chartered mission.

To accomplish this goal, a thorough understanding of several different, though not always competing, needs and interests is necessary. There are the needs and interests of commerce and industry, which stimulate economic growth, provide valuable jobs to people living in our region, and improve the tax base. The District will continue leasing land to responsible commercial and industrial tenants, like barge companies that require leaseholds with direct

access to water. District land contiguous to its three channels of water is well-suited for this commercial purpose. There are the needs and interests of municipalities and local park districts. Presently, 75% of District real estate currently being leased is devoted to open green space. The District will continue leasing land at nominal costs to these public entities for open green space purposes such as nature preserves and parks and recreation. Then there are the needs and interests of the District itself--such as the need to maximize rental income to help minimize the real estate tax levies--which are tied directly to its vision as a public organization.

The District's vision consists of several components: that a healthy financial environment is critical to its operations, that employees are its greatest asset, that sensibly meeting the needs of the public is its primary focus, and that protecting the natural environment is its most important mission. Successful, yet responsible, stewardship of land that promotes these basic tenets will continue to be the driving force behind this comprehensive policy.

Land use categories will be established by the District consistent with this comprehensive policy, with input from the community. District land that is now, or later becomes, vacant will be designated for corporate purpose, for natural habitat/restoration, for public access, or for commercial or industrial purposes. Green infrastructure initiatives will continue to factor heavily in the use of District land. Municipal and other tenants who enter into leases through negotiation rather than through the statutory leasing process will be required to accomplish certain "green" milestones, while new commercial or industrial tenants will receive incentives from the District to likewise accomplish the same. Long-term leases with responsible commercial or industrial tenants will continue to be encouraged, as they provide stability to both the District and the land that is being occupied.

The District is committed to making land that is not necessary for corporate use available to both public and private entities to ensure optimal use. This Comprehensive Land Use Policy not only fosters relationships with those entities, but it also sees the importance of preserving the health of our natural environment. It is the framework for a brighter and better tomorrow.

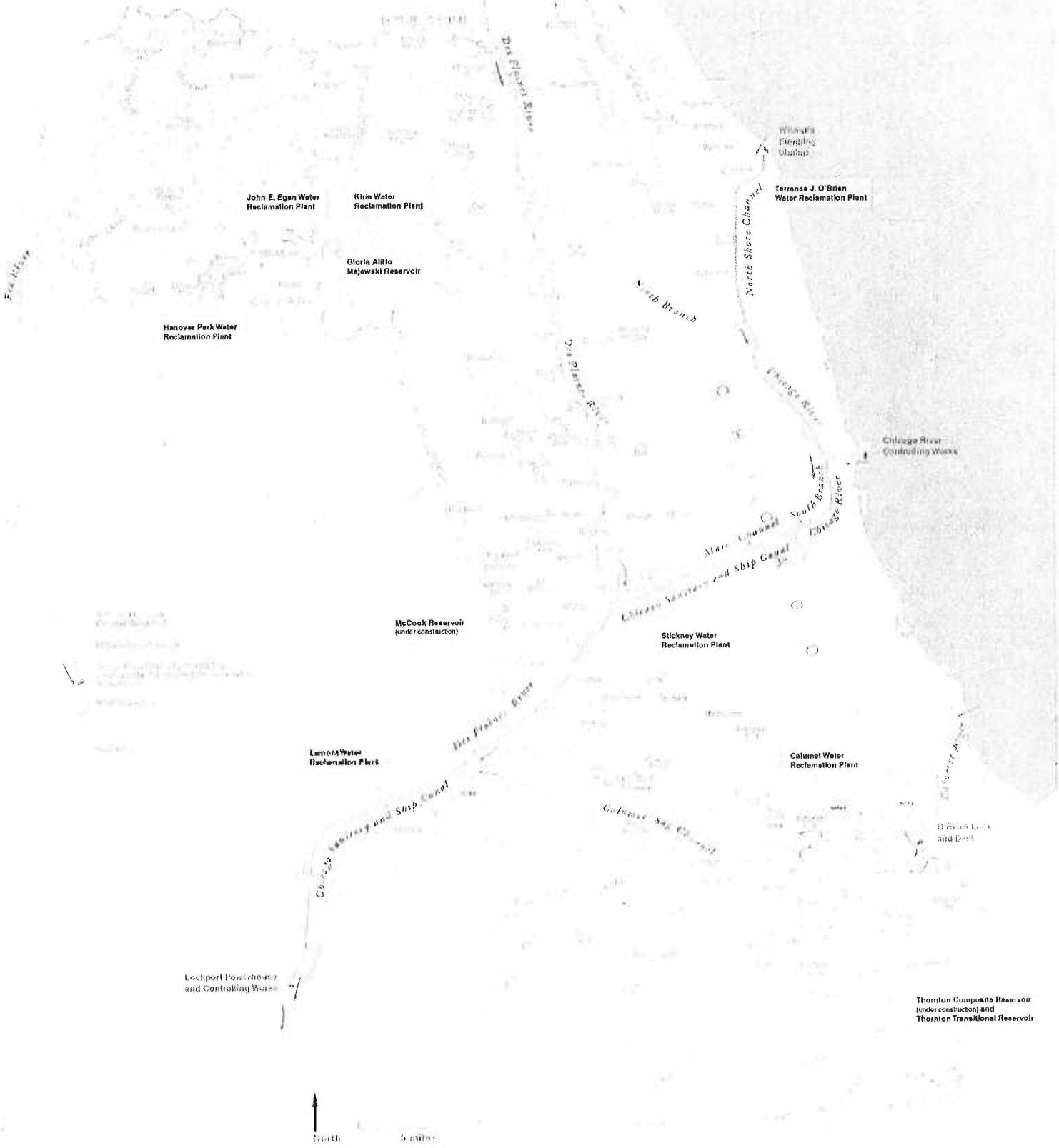
Table of Contents

*The above statutory provisions and summary pertain to the law as it exists on the date of passage of this Comprehensive Land Use Policy. Any subsequent amendments to these provisions will be contained in the Illinois Compiled Statutes, as amended.

Comprehensive Land Use Policy

Chapter 1: Map of Waterways

Metropolitan Water Reclamation District of Greater Chicago



Visit www.mwrd.org, and click "Business with Us" then "Real Estate" to see:

- **Atlases of the District's channel waterways designating current uses**
- **the District's standard lease form**

Comprehensive Land Use Policy

Chapter 2: Executive Summary of Statutory Authority to Sell, Lease, or Otherwise Allow Use of District Land (70 ILCS 2605/8, 8a, and 8c)

Policies governing the sale or lease of District land, or the granting of easements or issuance of permits, may not supersede or be inconsistent with the District's Enabling Act. There are three sections of the Act that pertain primarily to such transactions. Below is a summary of the salient provisions contained in those sections:

70 ILCS 2605/8

- The District may sell or vacate its land, but only if the land is no longer required for the corporate purposes of the District and only upon recommendation of the District's Executive Director and upon the approval by the Board of Commissioners.

- The District may lease its land if, in the opinion of the Board of Commissioners and the Executive Director, it is no longer required for the District's corporate purposes or not immediately needed for such purposes. The lease shall be upon the terms as the Board of Commissioners, upon recommendation of the Executive Director, may determine.

- The District may grant easements and permits for use of its land which will not, in the opinion of the Board of Commissioners and the Executive Director, interfere with the use of the land for the District's corporate purposes.

- The term of any lease of District real estate may not exceed 99 years.

70 ILCS 2605/8a

- In addition to any other powers conferred upon the District, the District may sell or otherwise transfer real estate to the United States of America, the State of Illinois, the County of Cook, and/or any municipal corporation, with the approval by the Illinois Department of Natural Resources.

70 ILCS 2605/8c

- Notice of the proposed lease shall be published for three consecutive weeks in a newspaper of general circulation within the District.

- Fair market value of the underlying fee of the proposed lease must be determined by two American Institute of Real Estate Appraisers or similarly qualified appraisers. The District may engage an additional appraiser. Every appraisal report must contain an affidavit certifying the absence of any collusion relating to the lease of the property.

- Every lease must be awarded to the highest responsible bidder upon free and open competitive bids. In determining the responsibility of any bidder, the District may consider, in addition to financial responsibility, any past records of transactions with the bidder and any other pertinent factors, including but not limited to, the bidder's performance or past record with respect to any lease, use, occupancy, or trespass of District or other lands.

- Prior to acceptance of the bid of the highest bidder and before execution of the lease, the bidder shall submit to the Board of Commissioners and Executive Director, for incorporation into the lease, a detailed plan and description of improvements to be

constructed upon the leased property, the time within which the improvements will be completed, and the intended uses for the leased property.

•No lease may be awarded unless the bid of the highest responsible bidder provides for an annual rent of at least 6% of the parcel's fair market value. However, if the parcel contains a special development impediment, defined as any condition that constitutes a material impediment to the development or lease of a parcel, annual rent may be less than 6% of the parcel's fair market value for the first 10 years of the lease, at which point the annual rent shall return to a rate no less than 6% of the parcel's fair market value.

•If there is more than one responsible bid, the Board of Commissioners may authorize and direct the Executive Director to solicit from the two highest responsible bidders written amendments to their prior bids, increasing their rental bid proposal by at least 5% in excess of their prior written bid, or otherwise amending the financial terms of their bid so as to maximize the financial return to the District during the term of the proposed lease. Upon the Executive Director's tentative agreement with one or more amended bids, the bids may be submitted to the Board of Commissioners with the recommendation of the Executive Director for acceptance of one or rejection of all. The amendments may not result in a diminution of the terms of the transaction and must result in an agreement that is equal to or greater in value than the highest responsible bid initially received.

•All leases awarded after competitive bidding may be subject to annual adjustments based on changes in the Consumer Price Index published by the United States Department of Labor, Bureau of Labor Statistics, or some other well known economic governmental activity index.

•Any lease for 15 years or more shall be subject to rent adjustments every 10 years, known as decennial rent adjustments. If the initial rent is below 6% fair market value due to the existence of a special development impediment, the first decennial rent adjustment shall not occur until the 20th year of the lease. Such redetermination shall be as of the first day of each succeeding 10 year period, and annual rental payments shall be adjusted so that the ratio of annual rental to fair market value shall be the same as that ratio for the first year of the preceding 10 year period. The decennial adjustment shall not exceed 100% of the rental in effect on the last day of the preceding 10 year period, except when the property rental is less than 6% of fair market value due to the existence of a special development impediment, in which case, the decennial adjustment shall not be so limited until the twentieth year of the lease.

•In addition to the fixed annual rent, the District may require additional rent to be paid based upon a percentage of the tenant's revenues derived from its business operations on the leasehold premises or subleases. These are matters of additional compensation and are not considered in determining the highest bid of an applicant for a lease.

•No assignment or sublease shall be effective without the prior written consent of the Executive Director and the Board of Commissioners. The District may consider, for any assignment or sublease, all pertinent factors including the assignee's or sublessee's financial responsibility. The District may also condition its consent upon the redetermination of the annual rent required to be paid under any lease initially executed on or before January 1, 1983, for which the annual rent being paid was less than 6% of the

current appraised fair market value of the leased property. No assignment or sublease is effective if the assignee or sublessee is a trust constituted by real property of which the trustee has title but no power of management or control, unless the identity of the beneficiaries of the trust is revealed, upon demand, to the Executive Director and the Board of Commissioners.

• If the Executive Director and the Board of Commissioners conclude that it would be in the public interest, the District may lease its land to the following entities without complying with the above provisions: 1) the United States of America, the State of Illinois, the County of Cook, or any municipal corporation, provided that the property is to be applied exclusively for public recreational purposes or other public purposes; 2) any academic institution of learning which has been in existence for 5 years prior to the date that the lease is entered, provided that the property is to be applied exclusively to the operation of the institution's academic or physical educational programs; or 3) any tenant who leases land that is located in a county with a population of 100,000 or less and which is leased solely for agricultural or commercial recreational uses. All such leases are terminable by the District with one year notice to the tenant in the event that Board of Commissioners and the Executive Director determine that the leased land, or part thereof, has become essential to the corporate purposes of the District.

Comprehensive Land Use Policy

Chapter 3: Land Use Policies

Land Use Policies Guide

a. Land Made Available for Public Recreational Use (Non-Revenue Generating)
b. Land Made Available for Public Recreational Use (Revenue Generating)
c. Land Made Available for Public Non-Recreational Use

3. Environmental Provisions - TACO Tier I Residential Standards

C. Leasing to Academic Institutions of Learning
1. Term
2. Rent to be Paid to the District
3. Environmental Provisions – TACO Tier I Residential Standards

3.9 Easements on District Land

A. Easements to Private Entities
1. Term
2. Rent to Be Paid to the District
a. Initial Annual Rent
b. Annual CPI Adjustments

B. Easements to Governmental Entities
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2. Annual Rent for Public Use and Non-Revenue Generating Activities
3. Annual Rent for All Other Easements

3.10 Permits for Use of District Land

A. Term

B. Annual Permit Fee
1. Public Use
2. All Other Uses (one year or longer)
3. All Other Uses (less than one year)

C. Training Exercises by Police, Fire, and Emergency Personnel
1. Approval
2. Insurance
3. Short Release Document

3.1 Overview

This chapter sets forth the Board of Commissioner's policies concerning use of District land, whether by lease, easement, or permit. It is divided into ten sections:

It contains not just restrictions and prohibitions, but also recommended uses of District land for future tenants.

Nothing contained herein is intended to conflict with the provisions of the District's Enabling Act, including its leasing statute. To the extent a conflict exists, the provisions of the Enabling Act will control. Nor are these policies intended to conflict with, or supersede, the applicable zoning laws of any local municipality with proper jurisdiction.

Unless otherwise stated herein, the policies set forth herein shall apply to all leases, easements, and permit agreements, and renewals thereof, entered into and fully executed upon, or after, the date of passage of this Comprehensive Land Use Policy. They are not intended to replace, supersede, or excuse the performance of any obligation created by an existing contract pursuant to a lease, easement, or permit agreement, or any renewal thereof, entered into with the District before such date of passage. For purposes of this Comprehensive Land Use Policy, "date of passage" refers to the date that the United States Environmental Protection Agency approves the District's Green Infrastructure Program Plan, which includes this Comprehensive Land Use Policy, pursuant to the Consent Decree entered in *United States of America, et al., v. Metropolitan Water Reclamation District of Greater Chicago*, Case Number 11 C 8859.

All real estate policies of the Board of Commissioners enacted before the date of passage of this Comprehensive Land Use Policy shall remain in full force and effect until such date of passage, at which time they are hereby repealed.

Upon recommendation of the Executive Director, the Board of Commissioners reserves the right to waive or amend any requirement contained in this Comprehensive Land Use Policy whenever such waiver or amendment is in the best interests of the District and done without contravening any legal obligation incurred by, or imposed upon, the District by law, decree, or contract.

3.2 Definitions

Board of Commissioners means the elected body of governance for the Metropolitan Water Reclamation District of Greater Chicago.

Corporate Use Land means District land that is necessary for use by the District to fulfill its corporate mission to treat and convey wastewater, manage stormwater and control flooding, or develop best management practices for use of farm land. The designation of corporate use land is transient in nature and subject to change over time.

District means the Metropolitan Water Reclamation District of Greater Chicago.

Easement means a written contractual agreement between the District and another party that authorizes that party to cross or otherwise use a specified parcel or parcels of District land for a specific purpose or purposes.

Executive Director means the Executive Director of the Metropolitan Water Reclamation District of Greater Chicago.

Lease means a written contractual agreement in which the District conveys a specified parcel or parcels of District land for a specific purpose or purposes to another party for a specified period of time not to exceed what is provided by statute in exchange for annual rental payments.

Lessee(s) means any person or entity that has entered into a lease agreement with the District. The term includes the lessee's agents, representatives, successors, and assignees.

Permit means a written authorization from the District that authorizes another party to use a specified parcel or parcels of District land for a short duration and for a limited purpose.

Private lease or leasing refers to any leasing of District land by the District that is governed by 70 ILCS 2605/8c(1)-(10). Private leasing must be competitively bid before a lease is entered into with the District.

Public lease or leasing refers to any leasing of District land by the District that is <u>not</u> governed by 70 ILCS 2605/8c(1)-(10) by virtue of 70 ILCS 2605/8c(11). Public leasing is not competitively bid before a lease is entered into with the District, and the leased premises must be used solely for public recreational purposes or other public purposes.

Surplus Land means any District land that the District determines is not currently needed for its corporate use. The designation of surplus land is transient in nature and subject to change over time.

Waterway Strategy means the District's comprehensive approach to District land contiguous to waterways.

3.3 Sale of District Land

A. Permissible Sales: The sale of Surplus Land located in Cook, DuPage, and Will Counties that is isolated and not contiguous to waterways, and the sale of District land in Fulton County, is permitted, but only upon the Executive Director's recommendation and at the sole discretion of the Board of Commissioners.

B. Prohibited Sales: The sale of Corporate Use Land, and any District land contiguous to waterways in Cook, DuPage, or Will County, is prohibited.

3.4 The District's Waterway Strategy

A. District Lands Contiguous to Waterways

1. Setback Requirements: It is the intent of the District to have a well-maintained and attractive river edge of all of the property it owns adjacent to waterways, including the Chicago River, the Chicago Sanitary & Ship Canal (a.k.a. Main Channel), the North Shore Channel, and the Cal-Sag Channel. In order to accomplish this goal, the District requires a waterway edge easement to be included in its land leases. Unless otherwise authorized by the Board of Commissioners, the width of the easement shall be a minimum of 60 feet and up to 100 feet, when feasible. Such width shall be measured from the edge of the water at normal water levels, then inward across the leased premises at a 90 degree angle, or best approximation thereof, from the water's edge. No lessee of the District shall cause, or allow to be caused, any impediment to be constructed or placed upon such easement, whether it be a permanent structure such as a building, or moveable objects such as unsightly materials and debris. Buildings existing at the time this policy is enacted shall be grandfathered in.

2. Bank Stabilization and Landscaped Visual Screening: All lessees shall be responsible for bank stabilization and the construction and maintenance of a landscaped visual screen that effectively screens the leased premises from the viewpoint of the waterway edge easement. The recommended landscaped visual screen, whenever possible, shall consist of native vegetative cover. In the event that site development necessitates removal of existing vegetative cover, the lessee shall be required to promptly reestablish native vegetative cover in the same quantities as those removed during the development.

3. Penalties: Any lessee's failure to comply with the requirements contained in subsections A(1) and A(2) above shall constitute a breach of the lease agreement by the lessee and shall be grounds for the District, at its option, to terminate the lease agreement. The District shall also have the right to recover from the lessee any and all reasonable costs associated with correcting each such violation, including, but not limited to, remediation costs to have the violations corrected, as well as court costs

and attorneys' fees for filing an action in circuit court seeking an order to have the lease agreement terminated on these grounds.

B. North Shore Channel – Additional Requirements

1. Limitations on Use of Lands Contiguous to North Shore Channel: All District lands contiguous to either side of the North Shore Channel, starting from the south at Devon Avenue and continuing north to, and including, Wilmette Harbor, shall be dedicated and used exclusively as open green space and public recreational use.

2. Special Lease Conditions: All District leases pertaining to lands contiguous to the North Shore Channel shall require continuous trails, boat access, and bank stabilization; however, in the case of renewed District leases to public agencies, the stated policy shall apply only to the extent it is economically feasible and consistent with existing public uses.

C. Exceptions: Any use of District land that is prohibited by or inconsistent with the terms of this Paragraph 3.4 shall be permitted only upon one or more of the following conditions:

1. Uses Permitted Under Pre-Existing Leases: The use is authorized by the terms of an unexpired lease agreement with the District that was entered into before the date of passage of this Comprehensive Land Use Policy. Such use shall continue to be permitted until such time as the lease agreement expires or is terminated, unless otherwise extended by the Board of Commissioners.

2. Variances: The use is authorized by a variance granted by the Board of Commissioners whenever, and to the extent, it deems that the variance is necessary and in the best interests of the District considering the location, existing topography and vegetation, and use or proposed use of the leased premises. All variances shall be granted only by approval of the Board of Commissioners at its sole discretion, with recommendation by the Executive Director.

3. Waterborne Commerce: The use is for the purpose of waterborne commerce pursuant to a lease agreement with the District. In such instances, no variance from the Board of Commissioners is necessary. However, the lessee shall, to the extent possible, construct and maintain a docking facility compatible with the visual intent of the scenic easement, with the District maintaining the sole discretion to determine whether compatibility has been achieved.

3.5 Land Use Categories

A land use category is a designation by District staff as to the a) manner that District land is presently being used in the case of land that is already occupied, or b) recommended use of District land in the case of land that is vacant. District staff shall be responsible for

assigning each vacant parcel of District land an appropriate land use category. Once a vacant parcel is assigned a land use category, steps will be taken by the District to locate tenants who are interested in using the parcel in a manner conducive to the land use category that the parcel has been assigned. This does not limit the District from allowing the parcel to be used for a different purpose, or to assign the parcel a different land use category whenever appropriate. Instead, it is simply a statement of the District's preference as to how vacant parcels of District land should be presently utilized.

Each vacant parcel of District land will be assigned one of the following land use categories:

- Corporate Purpose – Land that is necessary for use by the District to fulfill its corporate mission to treat and convey wastewater, manage stormwater and control flooding, or develop best management practices for use of farm land.

- Natural Habitat/Restoration – Land that is in its natural environmental state or being restored to its natural environmental state.

- Public Access – Land that is typically leased to a unit of local government, or a local public agency such as a park district, that is set aside for use by the public.

- Commercial/Industrial – Land that is used by businesses for commercial or industrial purposes.

3.6 Green Infrastructure Requirements and Incentives

A. Introduction: The District is developing and implementing a Green Infrastructure Program Plan, which includes this Comprehensive Land Use Policy. As part of the Comprehensive Land Use Policy, a policy has been established for implementing green infrastructure on District land that is leased to public and private tenants.

B. Public Leases: For District lands that are leased to other governmental entities and/or for public use, new or renewed leases must incorporate green infrastructure. Typically, the District enters into nominal fee leases with other units of local government, park districts, etc., wherein the local governments then improve the leasehold and make it available for public use/access.

For any new/renewed lease, the lessee must now also pay for and include green infrastructure on its leasehold. The amount of green infrastructure credited will be determined by what is referred to as "Design Retention Capacity" (DRC). DRC shall mean the maximum available retention capacity of a project in any individual storm event as stated in project plans stamped by a licensed Professional Engineer or, in the absence of such statement, a project-specific capacity calculated using the following table:

Technology	Quantity	Unit	Design Retention Capacity (gallons)
Rain Gardens	100	sq. ft.	200
Native Plants/ Landscaping	100	sq. ft.	150
Stormwater Trees	100	Trees	1000
Porous Pavement	100	sq. ft.	1000
Bio-Swales	100	sq. ft.	500
Green Roofs	100	sq. ft.	300
Greenways	100	sq. ft.	63

For nominal fee leases/renewals of leases to governmental entities, the lessee will be required to pay for and install green infrastructure technology. The volume control storage to be provided for any new/renewed lease shall equal the capture of 1-inch of runoff from proposed or existing impervious surfaces within the leasehold and/or 5,000 gallons per leased acre, whichever is higher. Additionally, the lessee shall be responsible for all operations and maintenance of the green infrastructure technology on an ongoing basis for the remainder of the leasehold.

In lieu of, or in addition to, a governmental entity installing green infrastructure on its leasehold with the District, the governmental entity can, and is encouraged to, install green infrastructure in other parts of its community. For green infrastructure installed offsite from the leasehold with the District, to the extent the governmental entity intends to seek credit for meeting its green infrastructure requirements under its leasehold with the District, such off-site green infrastructure must be reviewed and approved by the District prior to the governmental entity seeking such credit for it.

Such factors that the District will consider in whether or not to grant green infrastructure credit include, but are not necessarily limited to, where green infrastructure can mitigate local flooding, reduce infiltration and inflow, or educate the public about green infrastructure and benefit the community as a whole. Any credit given for green infrastructure off-site is solely at the District's discretion, with appropriate signage indicating that such green infrastructure is being done in partnership with the District.

To the extent practicable, governmental entities leasing District land shall use District biosolids in any amendments they perform to the leasehold soil. Such amendments may include, but not necessarily be limited to, creating bio-swales, native landscaping, and recreational fields. To the extent practicable, the District will provide such biosolids free of charge with the local municipality being required to pay for the transportation costs and the costs associated with the soil amendments.

C. Private Entity/Commercial Leases: For District owned land within the District's service area leased for private use under new and renewed leases, the District has developed the following incentive program to encourage private/commercial lessees to design, implement, operate, and maintain

green infrastructure technology on its leasehold beyond the requirements for volume control storage imposed on the lessee by the District's Watershed Management Ordinance ("WMO"). Article 503 of the WMO requires non-residential development or redevelopment greater than one-half acre to provide volume control storage for the first inch of runoff from newly created impervious surfaces. The WMO's regulations for development and redevelopment are applicable to suburban Cook County but not the city of Chicago. However, for purposes of this section, all private entity/commercial leases, whether in Chicago or suburban Cook County, will be required to conform with the WMO as applicable to the type of use proposed.

The amount of green infrastructure credited will be based on DRC, as defined in paragraph 3.6B, including the table above.

Subject to the minimum rent provisions of Section 8c of the District's Enabling Act (70 ILCS 2605/8c), the District will provide the private lessee with a credit equal to $0.50 on the $1.00, up to 10% of the leasehold cost, capped at 10 years, for expenditures and improvements on the leasehold of pre-approved green infrastructure. For example, where a leasehold has an annual rent of $100,000, that lessee can invest up to $200,000 in green infrastructure and receive a maximum credit of 10% of the value of that leasehold, capped at 10 years (10% of annual rent = $10,000 x 10 years), or $100,000 for pre-approved green infrastructure improvements.

In lieu of, or in addition to, a private lessee installing green infrastructure on its leasehold with the District, a private lessee can, and is encouraged to, design, implement, operate, and maintain green infrastructure in partnership with, and on lands owned by, the local municipality where the leasehold is located. The responsibility for ongoing maintenance and operation shall be borne by the private lessee. For green infrastructure installed off-site from the leasehold with the District, to the extent the private lessee intends to seek monetary credit for its green infrastructure requirements under its leasehold with the District, such off-site green infrastructure must be reviewed and approved by the District prior to the private lessee seeking credit for it.

Such factors that the District will consider in whether or not to grant green infrastructure credit include, but are not necessarily limited to, where green infrastructure can mitigate local flooding, reduce infiltration and inflow, or educate the public about green infrastructure and benefit the community as a whole. Any credit given for green infrastructure off-site is solely at the District's discretion.

The District must pre-approve any such green infrastructure projects, and any invoices seeking a monetary credit shall specifically set forth the green infrastructure component of the project, with the District only providing the offset credit for that component of the project.

For purposes of the offset credit, acceptable green infrastructure technologies include: rain gardens, native plants/landscaping, stormwater trees, porous/permeable pavement, bio-swales, green roofs and greenways.

3.7 Signage

A. Permissible Signage:

1. District Signs: Signs posted on District property by the District are permitted.

2. Tenant Signs: Signs that identify the name and address of District tenants are permitted provided they comply with applicable local law. Each such sign shall be posted within the boundaries of the District land that is being leased to the tenant, and shall not be posted in a manner that violates the District's Waterway Strategy. The tenant shall comply with all directions from the District, whenever given, as to the make, size, content, and location of the sign. In its sole discretion, the District may allow more than one sign to be posted on site per tenant, but no such additional sign may be posted without the consent of the District, which can be revoked. Upon expiration of the lease agreement, the tenant is responsible for removing the sign from the leased premises.

B. Prohibited Signage: No sign, other than what is permitted in subparagraphs A(1) and (2) above, shall be allowed on District property. Billboard signs are specifically prohibited.

3.8 Leasing District Land

The private and public leasing of District land shall conform to the following policies, which supplement the requirements contained in the District's Enabling Act.

A. Private Leasing

1. Minimum Bid: The minimum acceptable annual rental bid for purposes of private leasing of District land shall be no less than 10% of the highest appraised fair market value of the land.

2. Term: The maximum term for private leases of District land shall be 39 years. However, subject to the District's Enabling Act, a longer term may be allowed by the Board of Commissioners, upon recommendation by the Executive Director, for leases involving a commercial or industrial development where such term is necessary to finance the development.

3. Rent to Be Paid to the District (for standard leases where no special development impediment exists)

a. Initial Annual Rent: The initial annual rent payable to the District for private leases of District land shall be no less than 10% of the highest

appraised fair market value of the land. Under no circumstances shall the annual rent ever be less than $5,000.00.

b. Annual CPI Adjustments: Except for years when the annual rent is adjusted pursuant to subparagraph (c) of this section below, the rent payable to the District for private leases of District land for each succeeding year after the first year shall be adjusted annually by multiplying the rent in effect for the previous one-year term by the percentage of change in the Consumer Price Index for the Chicago Metropolitan Area, published by the United States Department of Labor, Bureau of Labor Statistics, as established on the first day of January immediate preceding the term of the lease and every January 1st thereafter during the term of the lease. In the event the Consumer Price Index is discontinued, the Board of Commissioners shall, in its sole discretion, select and utilize any other economic activity index of the United States government which reasonably reflects economic activity in the Metropolitan Chicago Area.

This subparagraph is limited in scope to rent increases. No adjustment to rent as provided herein shall ever result in a decrease in the amount of annual rent owed to the District.

c. Ten Year Periodic Rent Adjustments: For private leases of a duration of 15 years or more, on the ten-year anniversary following the effective date of the lease, and every ten-year periodic anniversary thereafter, the rent in effect for the most recent one-year term shall be adjusted and predetermined in accordance with the conclusions of a review of the fair market value of the fee simple estate upon which the leased premises is located, independent of improvements constructed by the tenant on the leased premises after the effective date of the lease, in accordance with appraisal procedures set forth in 70 ILCS 2605/8c. The rent shall be based on the highest appraised value.

The annual rent for each following ten-year period will be increased by multiplying the fair market value of the fee simple estate upon which the leased premises is located by the same percentage used to determine the initial annual rent. The fair market value of the re-appraised fee estate and the rent for the leased premises shall be established by the Board of Commissioners, who shall determine the rent by using the highest appraised fair market value of the fee estate. The appraisals required by the tenant shall be made and dated within the last one hundred twenty (120) days of the ten-year period of the lease which will be expiring. The appraisals shall be delivered to the District no later than forty-five (45) days prior to the end of the ten-year period.

In the event that fair market value and/or the annual rent for the next ten-year period has not been established before the commencement of

any new ten-year period, the tenant shall continue to pay the annual rent in effect for the last year of the prior ten-year period until such time that the reappraisal and decennial rent adjustment has been established. The tenant shall then be responsible for paying any resulting rent increase that would have been owed to the District had the re-appraised rent been established before the expiration of the previous ten-year period. Such payment shall be made within thirty (30) days of the tenant receiving notice of the increase.

All ten-year periodic annual rent adjustments shall be made without regard to the annual rent in effect for the last year of the preceding ten-year period, except for leases entered after September 11, 2007, no increase shall exceed 100% of the rent in effect on the last day of the preceding ten-year period. Upon the establishment of the fair market value and the adjusted annual rent to be paid for that ten-year period, at any time later than the end of any period of the lease, such fair market value and rent shall take effect as of the first (1st) day of the period.

This subparagraph is limited in scope to rent increases. No adjustment to rent as provided herein shall ever result in a decrease in the amount of annual rent owed to the District.

d. Additional Compensation: In addition to the annual rent owed for private leases of District land, the District, in its sole discretion, may also require a tenant to pay in cash a certain percentage of the gross revenues generated by the tenant's use of or activities on the leased premises. In no circumstance shall that percentage exceed 50% of the gross revenues.

4. Sublease or Assignment

a. Consent: No private lease of District land shall be wholly or partially sublet or assigned to any other party without prior written consent from the District.

b. Additional Compensation Owed for Sublease: In the event that a sublease or assignment consented to by the District results in payment of rent to the sublessor that exceeds the amount of rent owed to the District under the lease agreement, the District shall be entitled to 50% of the difference in rent between the subtenant's annual rent and the lessee's annual rent. If the sublease provides for a commercial use that generates a net profit, the District, in its sole discretion, may condition its consent to sublease upon receiving 15% of the net profit generated as a result of the sublease.

c. Penalty for Unauthorized Sublease or Assignment: In addition to other remedies available to the District under the lease agreement, the District shall be entitled to 100% of any fees or rent paid to the

tenant pursuant to any sublease or assignment that was not consented to by the District in accordance with subparagraph (i) above.

5. Environmental Provisions

   a. TACO Tier I Residential Standards: At the expiration of any private lease of District land, the tenant shall restore the leased premises to TACO Tier I Residential Standards, as set forth in 35 IAC 742.500, as amended. In the event the property did not meet such standards at the commencement of the lease through no fault of the tenant or any of its affiliates or subsidiaries, the tenant shall restore the leased premises to the condition it was when the lease first commenced as determined by the District.

   b. Site Remediation Bond: At or before the commencement of the last five-year period of any private lease of District land, the tenant shall lodge with the District an Environmental Site Restoration/Remediation Bond in a penal sum to be determined by the District, secured either by cash, irrevocable letter of credit, or a commercial bond with surety, to secure the tenant's performance of and compliance with the environmental provisions of the lease.

B. Public Leasing

1. Term: The maximum term for the public leasing of District land shall be determined by the Board of Commissioners.

2. Rent to be Paid to the District:

   a. Land Made Available for Public Recreational Use (Non-Revenue Generating): The only rent that shall be paid to the District for the entire term of any public lease of District land where the leased premises is generally made available for public recreational use and is not used to generate income shall be a fee of $10.00.

   b. Land Made Available for Public Recreational Use (Revenue Generating): The annual rent to be paid to the District for any public lease of District land where the leased premises is generally made available for public recreational use that generates income of any kind shall be no less than 6% of the appraised fair market value. If multiple appraisals are obtained, the annual rent shall be no less than 6% of the highest of the appraised values. Under no circumstances shall the annual rent ever be less than $5,000.00.

   However, rather than accepting the greater of 6% of the appraised fair market value or $5,000.00, the District may instead, at its sole

discretion, accept as rent an initial fee of $10.00, plus 25% of the net revenue generated as a result of the lease.

c. Land Made Available for Public Non-Recreational Use: The annual rent to be paid to the District for any public lease of District land where the leased premises is used for a public non-recreational use (*e.g.*, fire stations or employee parking lots) shall be no less than 6% of the appraised fair market value. If multiple appraisals are obtained, the annual rent shall be no less than 6% of the highest of the appraised values. Under no circumstances shall the annual rent ever be less than $5,000.00.

3. Environmental Provisions - TACO Tier I Residential Standards: At the expiration of any public lease of District land, the tenant shall restore the leased premises to TACO Tier I Residential Standards, as set forth in 35 IAC 742.500, as amended. In the event the property did not meet such standards at the commencement of the lease through no fault of the tenant, the tenant shall restore the leased premises to the condition it was when the lease first commenced as determined by the District.

C. Leasing to Academic Institutions of Learning (as specified in 70 ILCS 2605/8c)

1. Term: The maximum term for the leasing of District land to academic institutions of learning shall be determined by the Board of Commissioners.

2. Rent to be Paid to the District: The annual rent to be paid to the District for any lease of District land to any academic institution of learning where the land is used exclusively for the institution's academic or physical education program shall be no less than 6% of the appraised fair market value. If multiple appraisals are obtained, the annual rent shall be no less than 6% of the highest of the appraised values. Under no circumstances shall the annual rent ever be less than $5,000.00.

3. Environmental Provisions - TACO Tier I Residential Standards: At the expiration of any lease of District land to an academic institution of learning, the tenant shall restore the leased premises to TACO Tier I Residential Standards, as set forth in 35 IAC 742.500, as amended. In the event the property did not meet such standards at the commencement of the lease through no fault of the tenant, the tenant shall restore the leased premises to the condition it was when the lease first commenced as determined by the District.

3.9 Easements on District Land

Easements across District land shall be granted only upon recommendation of the Executive Director and approval by the Board of Commissioners. All such easements shall

conform to the following policies, which supplement the requirements contained in the District's Enabling Act.

A. Easements to Private Entities

1. Term: The maximum term for District easements to private entities shall be determined by the Board of Commissioners.

2. Rent to Be Paid to the District

a. Initial Annual Rent: The initial annual rent payable to the District for any easement across District land granted to private entities shall be no less than 10% of the fair market value of the land. Under no circumstances shall the annual rent be less than $5,000.00.

b. Annual CPI Adjustments: Except for years when the annual rent is adjusted pursuant to subparagraph (c) of this section below, the rent payable to the District for any easement across District land for each succeeding year after the first year shall be adjusted annually by multiplying the rent in effect for the previous one-year term by the percentage of change in the Consumer Price Index for the Chicago Metropolitan Area, published by the United States Department of Labor, Bureau of Labor Statistics, as established on the first day of January immediate preceding the term of the lease and every January 1st thereafter during the term of the lease. In the event the Consumer Price Index is discontinued, the Board of Commissioners shall, in its sole discretion, select and utilize any other economic activity index of the United States government which reasonably reflects economic activity in the Metropolitan Chicago Area.

This subparagraph is limited in scope to rent increases. No adjustment to rent as provided herein shall ever result in a decrease in the amount of annual rent owed to the District.

B. Easements to Governmental Entities

1. Term: The maximum term for any easement across District land granted to governmental entities, such as the federal government, local governments, park districts, school districts, and other similar public entities created by statute, shall be determined by the Board of Commissioners.

2. Annual Rent for Public Recreational Use and Non-Revenue Generating Activities: The only rent that shall be paid to the District for the entire term of any easement across District land granted to such governmental entities where the activity under the easement is for a public use and generates no revenue shall be an initial fee of $10.00.

3. Annual Rent for All Other Easements: The annual rent that shall be paid to the District for any easement across District land granted to such governmental entities where the activity under the easement is not for a public use or is one that generates revenue shall be no less than 6% of the appraised fair market value. If multiple appraisals are obtained, the annual rent shall be no less than 6% of the highest of the appraised values. Under no circumstances shall the annual rent be less than $5,000.00.

3.10 Permits for Use of District Land

Unless otherwise herein provided, permits for use of District land shall be issued only upon recommendation of the Executive Director and approval by the Board of Commissioners. All such permits shall conform to the following policies, which supplement the requirements contained in the District's Enabling Act.

A. Term: The maximum term for use of District land pursuant to a District permit of District permits shall be 5 years. Permits may be extended for a greater duration upon recommendation of the Executive Director and at the discretion of the Board of Commissioners, provided the extension is determined by the Board to be in the District's best interests.

B. Annual Permit Fee:

1. Public Use: The permit fee payable to the District for use of District land for a public purpose is $10.00.

2. All Other Uses (one year or longer): The permit fee payable to the District for uses of District land that are not for a public purpose where the permit is of a duration of one year or longer shall be no less than 10% of the fair market value of the real estate. Under no circumstances shall the annual fee ever be less than $5,000.00.

3. All Other Uses (less than one year): The permit fee payable to the District for uses of District land that are not for a public purpose where the permit is of a duration of less than one year shall be no less than 10% of the fair market value of the land. Under no circumstances shall the fee ever be less than $2,500.00.

C. Training Exercises by Police, Fire, and Emergency Personnel: Requests by municipalities for use of District land pursuant to a District permit for the purpose of training their police, fire, and emergency response unit personnel shall be streamlined as follows:

1. Approval: Permits shall be issued by the Executive Director. Board of Commissioners' approval is not required, except when the duration of the training exercise exceeds 14 days, the number of personnel trained exceeds 250, the training exercise has the potential to permanently degrade the natural state of the training site in the District's estimation, or the training exercise involves the use of firearms.

2. Insurance: Standard insurance provisions typically required by the District shall be waived, unless determined otherwise by the Board of Commissioners whenever Board of Commissioners' approval is required.

3. Short Release Document: In lieu of executing the District's standard permit agreement, such entities shall be required to execute a short release document containing an indemnification and hold harmless provision, and an acknowledgement of the District's right to terminate any exercise which interferes with the District's facilities or operations.

Comprehensive Land Use Policy

Chapter 4: 70 ILCS 2605/8, 8a, and 8c (Full Versions)

70 ILCS 2605/8

Sec. 8. Except as otherwise in this Act provided, the sanitary district may acquire by lease, purchase or otherwise within or without its corporate limits, or by condemnation within its corporate limits, any and all real and personal property, right of way and privilege that may be required for its corporate purposes. All moneys for the purchase and condemnation of any property must be paid before possession is taken, or any work done on the premises. In case of an appeal from the Court in which the condemnation proceedings are pending, taken by either party, whereby the amount of damages is not finally determined, the amount of the judgment in the court shall be deposited with the county treasurer of the county in which the judgment is rendered, subject to the payment of damages on orders signed by the judge whenever the amount of damages is finally determined.

Upon recommendation of the executive director and upon the approval by the board of trustees when any real or personal property, right of way or privilege or any interest therein, or any part thereof of such sanitary district is no longer required for the corporate purposes of the sanitary district it may be sold, vacated or released. Such sales, vacations, or releases may be made subject to such conditions and the retention of such interest therein as may be deemed for the best interest of such sanitary district as recommended by the executive director and approved by the board of trustees.

However, the sanitary district may enter into a lease of a building or a part thereof, or acquire title to a building already constructed or to be constructed, for the purpose of securing office space for its administrative corporate functions, the period of such lease not to exceed 15 years except as authorized by the provisions of Section 8b of this Act. In the event of the purchase of such property for administrative corporate functions, the sanitary district may execute a mortgage or other documents of indebtedness as may be required for the unpaid balance, to be paid in not more than 15 annual installments. Annual installments on the mortgage or annual payment on the lease shall be considered a current corporate expense of the year in which they are to be paid, and the amount of such annual installment or payment shall be included in the Annual Appropriation and Corporate Tax Levy Ordinances. Such expense may be incurred, notwithstanding the provisions, if any applicable, contained in any other Sections of this Act.

The sanitary district may dedicate to the public for highway purposes any of its real property and the dedications may be made subject to such conditions and the retention of such interests therein as considered in the best interests of the sanitary district by the board of trustees upon recommendation of the executive director.

The sanitary district may lease to others for any period of time, not to exceed 99 years, upon the terms as its board of trustees upon recommendation of the executive director may determine, any such real property, right-of-way or privilege, or any interest therein or any part thereof, which is in the opinion of the board of trustees and executive director of the sanitary district no longer required for its corporate purposes or which may not be immediately needed for such purposes. The leases may contain such terms and conditions, including restrictions as to permissible use of the real property, and retain such interests therein as considered in the best interests of the sanitary district by the board of trustees upon recommendation of the executive director. Negotiations and execution of such leases and preparatory activities in connection therewith must comply with Section 8c of this Act. The sanitary district may grant easements and permits for the use of any such real property, right-of-way, or privilege, which will not in the opinion of the board of trustees and executive director of the sanitary district interfere with the use thereof by the sanitary district for its corporate purposes. Such easements and permits may contain such

conditions and retain such interests therein as considered in the best interests of the sanitary district by the board of trustees upon recommendation of the executive director.

No sales, vacations, dedications for highway purposes, or leases for periods in excess of 5 years, of the following described real estate, may be made or granted by the sanitary district without the approval in writing of the Director of Natural Resources of the State of Illinois:

All the right-of-way of the Calumet-Sag Channel of the sanitary district extending from the Little Calumet River near Blue Island, Illinois, to the right-of-way of the main channel of the sanitary district near Sag, Illinois.

Lots 1, 3, 5, 21, 30, 31, 32, 33, 46, 48, 50, 52, 88, 89, 89a, 90, 91, 130, 132, 133, those parts of Lots 134 and 139 lying northeasterly of a tract of land leased to the Corn Products Manufacturing Company from January 1, 1908, to December 31, 2006; 1000 feet of Lot 141 lying southwesterly of and adjoining the above mentioned leased tract measured parallel with the main channel of the sanitary district; Lots 166, 168, 207, 208, and part of Lot 211 lying northeasterly of a line 1500 feet southwesterly of the center line of Stephen Street, Lemont, Illinois, and parallel with said street measured parallel with said main channel; and Lot 212 of the Sanitary District Trustees Subdivision of right-of-way from the north and south center line of Section 30, Township 39 North, Range 14 East of the Third Principal Meridian, to Will County line.

That part of the right-of-way of the main channel of the sanitary district in Section 14, Township 37 North, Range 11 East of the Third Principal Meridian, lying southerly of said main channel, northerly of the Northerly Reserve Line of the Illinois and Michigan Canal, and westerly of the Center line of the old channel of the Des Plaines River.

That part of said main channel right-of-way in Section 35, Township 37 North, Range 10 East of the Third Principal Meridian, lying east of said main channel and south of a line 1,319.1 feet north of and parallel with the south line of said Section 35.

That part of said main channel right-of-way in the northeast quarter of the northwest quarter of Section 2, Township 36 North, Range 10 East of the Third Principal Meridian, lying east of said main channel.

That part of said main channel right-of-way lying south of Ninth Street in Lockport, Illinois.

Notwithstanding any other law, if any surplus real estate is located in an unincorporated territory and if that real estate is contiguous to only one municipality, 60 days before the sale of that real estate, the sanitary district shall notify in writing the contiguous municipality of the proposed sale. Prior to the sale of the real estate, the municipality shall notify in writing the sanitary district that the municipality will or will not annex the surplus real estate. If the contiguous municipality will annex such surplus real estate, then coincident with the completion of the sale of that real estate by the sanitary district, that real estate shall be automatically annexed to the contiguous municipality.

All sales of real estate by the sanitary district must be for cash, to the highest bidder upon open competitive bids, and the proceeds of the sales may be used only for the construction and equipment of sewage disposal plants, pumping stations and intercepting sewers and appurtenances thereto, the acquisition of sites and easements therefor, and the financing of the Local Government Assistance Program established under Section 9.6c.

However, the sanitary district may:

(a) Remise, release, quit claim and convey, without the approval by the Department of Natural Resources of the State of Illinois acting by and through its Director, to the United States of America without any consideration to be paid therefor, in aid of the widening of the Calumet-Sag Channel of the sanitary district by the United States of America, all those

certain lands, tenements and hereditaments of every kind and nature of that portion of the established right-of-way of the Calumet-Sag Channel lying east of the east line of Ashland Avenue, in Blue Island, Illinois, and south of the center line of the channel except such portion thereof as is needed for the operation and maintenance of and access to the controlling works lock of the sanitary district;

(b) Without the approval by the Department of Natural Resources of the State of Illinois acting by and through its Director, give and grant to the United States of America without any consideration to be paid therefor the right, privilege and authority to widen the Calumet-Sag Channel and for that purpose to enter upon and use in the work of such widening and for the disposal of spoil therefrom all that part of the right-of-way of the Calumet-Sag Channel owned by the sanitary district lying south of the center line of the Calumet-Sag Channel from its connection with the main channel of the sanitary district to the east line of Ashland Avenue in Blue Island, Illinois;

(c) Make alterations to any structure made necessary by such widening and to construct, reconstruct or otherwise alter the existing highway bridges of the sanitary district across the Calumet-Sag Channel;

(d) Give and grant to the United States of America without any consideration to be paid therefor the right to maintain the widened Calumet-Sag Channel without the occupation or use of or jurisdiction over any property of the sanitary district adjoining and adjacent to such widened channel;

(e) Acquire by lease, purchase, condemnation or otherwise, whatever land, easements or rights of way, not presently owned by it, that may be required by the United States of America in constructing the Calumet-Sag Navigation Project, as approved in Public Law 525, 79th Congress, Second Session as described in House Document No. 677 for widening and dredging the Calumet-Sag Channel, in improving the Little Calumet River between the eastern end of the Sag Channel and Turning Basin No. 5, and in improving the Calumet River between Calumet Harbor and Lake Calumet;

(f) Furnish free of cost to the United States all lands, easements, rights-of-way and soil disposal areas necessary for the new work and for subsequent maintenance by the United States;

(g) Provide for the necessary relocations of all utilities.

Whatever land acquired by the sanitary district may thereafter be determined by the Board of Trustees upon recommendation of the executive director as not being needed by the United States for the purposes of constructing and maintaining the Calumet-Sag Navigation Project as above described, shall be retained by the sanitary district for its corporate purposes, or be sold, with all convenient speed, vacated or released (but not leased) as its Board of Trustees upon recommendation of the executive director may determine: All sales of such real estate must be for cash, to the highest bidder upon open, competitive bids, and the proceeds of the sales may be used only for the purpose of paying principal and interest upon the bonds authorized by this Act, and if no bonds are then outstanding, for the purpose of paying principal and interest upon any general obligation bonds of the sanitary district, and for corporate purposes of the sanitary district. When the proceeds are used to pay bonds and interest, proper abatement shall be made in the taxes next extended for such bonds and interest.

(Source: P.A. 95-604, eff. 9-11-07; 95-923, eff. 1-1-09.)

70 ILCS 2605/8a

Sec. 8a. The Sanitary District, in addition to the other powers vested in it, is empowered, with the approval by the Department of Natural Resources as successor to the Department of Transportation and the Department of Purchases and Construction of the State of Illinois, through its Director, to remise, release, quit claim, grant, convey and transfer all its right, title and interest in and to any and all lands, tenements and hereditaments and in and to any and all property, including structures, of every kind and nature or rights to or in, under, over and adjoining the Main Channel, Main Channel Extension, Calumet-Sag Channel and the North Shore Channel of the Sanitary District and for improvements made by the Sanitary District in, under, over and adjoining the Chicago River, the Calumet River, the Des Plaines River and tributaries thereto, and any and all other land, property or structures of the Sanitary District, to the United States of America, the State of Illinois, the County of Cook or/and any Municipal Corporation, upon such terms as may be mutually agreed upon by the Sanitary District and the United States of America, the State of Illinois, the County of Cook or/and any Municipal Corporation; and the Board of Trustees of the Sanitary District is empowered to and may authorize the doing of all things and acts, and the execution of such documents and instruments and adopt such resolutions and ordinances in connection therewith that may be required, and the provisions of this Section 8a shall constitute complete authority for the performance of all acts herein provided without reference to other laws and shall be construed as conferring powers in addition to, but not limiting, powers granted under other existing laws.

The proceeds derived from any such sale or transfer to the United States of America shall, unless Congress shall otherwise provide, be used only for paying the costs of controlling works in the Chicago River, the completion, construction and enlargement of sewage treatment works, and additions therefor, pumping stations, tunnels, conduits and intercepting sewers connecting therewith, and outlet sewers, together with the equipment and appurtenances necessary thereto, and for the acquisition of the sites and rights of way necessary thereto, and for engineering expenses for designing and supervising the construction of the works above described, which works are made necessary by the decree of the Supreme Court of the United States in the consolidated cases entitled "Wisconsin et al. v. The State of Illinois and The Sanitary District of Chicago", numbers 7, 11 and 12 original. Any excess of the proceeds, not required for the cost of construction of the works made necessary by the decree, may be used for the construction of sewage disposal plants and equipment thereof, pumping stations, and intercepting sewers and appurtenances thereto, the acquisition of sites and easements therefor and the expense of design and supervision of the construction thereof.

70 ILCS 2605/8c

Sec. 8c. Every lease of property no longer or not immediately required for corporate purposes of a sanitary district, from such district to others for a term not to exceed 99 years, in accordance with Section 8 of this Act, shall be negotiated, created and executed in the following manner:

(1) Notice of such proposed leasing shall be published for 3 consecutive weeks in a newspaper of general circulation published in such sanitary district, if any, and otherwise in the county containing such district.

(2) Prior to receipt of bids for the lease under this Section, the fair market value of every parcel of real property to be leased must be determined by 2 professional appraisers who are members of the American Institute of Real Estate Appraisers or a similar, equivalently recognized professional organization. The sanitary district acting through the executive director may select and engage an additional appraiser for such determination of fair market value. Every appraisal report must contain an affidavit certifying the absence of any collusion involving the appraiser and relating to the lease of such property.

(3) No lease may be awarded unless the bid of such highest responsible bidder provides for an annual rental payment to the sanitary district of at least 6% of the parcel's fair market value determined under this Section, provided however, if the sanitary district determines that a parcel contains a special development impediment, defined as any condition that constitutes a material impediment to the development or lease of a parcel, and includes, but is not limited to: environmental contamination, obsolescence, or advanced disrepair of improvements or structures, or accumulation of large quantities of non-indigenous materials, the sanitary district may establish a minimum acceptable initial annual rental of less than 6% of the parcel's fair market value for the initial 10 years of the lease. In no event will the annual rental payment for each 10-year period after the initial 10 years of the lease be less than the 6% of the parcel's fair market value determined under this Section. Every lease must be awarded to the highest responsible bidder (including established commercial or industrial concerns and financially responsible individuals) upon free and open competitive bids. In determining the responsibility of any bidder, the sanitary district may consider, in addition to financial responsibility, any past records of transactions with the bidder and any other pertinent factors, including but not limited to, the bidder's performance or past record with respect to any lease, use, occupancy, or trespass of sanitary district or other lands.

(4) Prior to acceptance of the bid of the highest responsible bidder and before execution of the lease the bidder shall submit to the board of commissioners and executive director, for incorporation in the lease, a detailed plan and description of improvements to be constructed upon the leased property, the time within which the improvements will be completed, and the intended uses of the leased property. If there is more than one responsible bid, the board of commissioners may authorize and direct the executive director to solicit from the 2 highest responsible bidders written amendments to their prior bids, increasing their rental bid proposal by at least 5% in excess of their prior written bid, or otherwise amending the financial terms of their bid so as to maximize the financial return to the sanitary district during the term of the proposed lease. Upon the executive director's tentative agreement with one or more amended bids, the bids may be submitted to the board of commissioners with the recommendation of the executive director for acceptance of one or rejection of all. The amendments may not result in a

diminution of the terms of the transaction and must result in an agreement that is equal to or greater in value than the highest responsible bid initially received.

(5) The execution of such lease must be contemporaneous to the execution by the lessee, each member of the board of commissioners and the executive director of an affidavit certifying the absence of any collusion involving the lessee, the members and the executive director and relating to such lease.

(6) No later than 30 days after the effective date of the lease, the lessee must deliver to the sanitary district a certified statement of the County Assessor, Township Assessor or the county clerk of the county wherein the property is situated that such property is presently contained in the official list of lands and lots to be assessed for taxes for the several towns or taxing districts in his county.

(7) Such lease may be subject to annual adjustments based on changes in the Consumer Price Index published by the United States Department of Labor, Bureau of Labor Statistics, or some other well known economic governmental activity index. Any lease, the term of which will extend for 15 years or more, shall provide for a redetermination of the fair market value (independent of improvements to the property subsequent to the effective date of the lease) after the initial 10 years and every 10 years thereafter, in the manner set forth in paragraph (2) of this Section, which redetermination shall be referred to as the decennial adjustment. Where the property rental is less than 6% of fair market value due to the existence of a special development impediment, the first decennial adjustment shall not occur until the twentieth year of the lease. Such redetermination shall be as of the first day of each succeeding 10 year period, and annual rental payments shall be adjusted so that the ratio of annual rental to fair market value shall be the same as that ratio for the first year of the preceding 10 year period. The decennial adjustment shall not exceed 100% of the rental in effect on the last day of the preceding 10-year period, except when the property rental is less than 6% of fair market value due to the existence of a special development impediment, in which case, the decennial adjustment shall not be so limited until the twentieth year of the lease. The rental payment for the first year of the new 10 year period may be subject to Consumer Price Index or other allowable index adjustments for each of the next 9 years, or until the end of the lease term if there are less than 9 years remaining.

(8) A sanitary district may require compensation to be paid in addition to rent, based on a reasonable percentage of revenues derived from a lessee's business operations on the leasehold premises or subleases, or may require additional compensation from the lessee or any sublessee in the form of services, including but not limited to solid waste disposal; provided, however, that such additional compensation shall not be considered in determining the highest responsible bid, said highest responsible bid to be determined only on the initial annual rental payment as set forth in paragraph (3) of this Section.

(9) No assignment of such lease or sublease of such property is effective unless approved in writing by the executive director and the board of commissioners of the sanitary district. The district may consider, for any assignment or sublease, all pertinent factors including the assignee's or sublessee's responsibility in accordance with subparagraph (3) of this Section. The sanitary district may also condition its consent upon the redetermination of the annual rental required to be paid under any lease initially executed on or before January 1, 1983, for which the annual rent being paid thereunder is less than 6% of the current appraised fair market value of the leased property. The redetermination of any annual rental under this Section shall be consistent with the requirements of subparagraphs (2) and (3) of this Section. No assignment or sublease is effective if the assignee or sublessee is a trust constituted by

real property of which the trustee has title but no power of management or control, unless the identity of the beneficiaries of the trust is revealed, upon demand, to the executive director and the board of commissioners of the sanitary district.

(10) Failure by the lessee to comply with a provision in the lease relating to improvements upon the leased property or any other provision constitutes grounds for forfeiture of the lease, and upon such failure the sanitary district acting through the executive director shall serve the lessee with a notice to terminate the lease and deliver possession of the property to the sanitary district within a particular period.

(11) If the executive director and the board of commissioners conclude that it would be in the public interest, said sanitary district may lease without complying with the prior provisions of this Section, in accordance with an Act concerning "Transfer of Real Estate between Municipal Corporations", approved July 2, 1925, as amended, to the following, upon such terms as may be mutually agreeable: (a) the United States of America and the State of Illinois, County of Cook, any municipal corporation, with provisions that the property is to be applied exclusively for public recreational purposes or other public purposes; (b) any academic institution of learning which has been in existence for 5 years prior to said lease, provided that such lease limit the institution's use of the leased land to only those purposes relating to the operation of such institution's academic or physical educational programs; or (c) any lease involving land located in a county with a population of 100,000 or less and which is leased solely for agricultural or commercial recreational uses. Any lease issued in accordance with this paragraph shall contain the provisions that such lease is terminable in accordance with service of a one-year notice to terminate after determination by the board of commissioners and the executive director that such property (or part thereof) has become essential to the corporate purposes of the sanitary district.

(Source: P.A. 95-604, eff. 9-11-07; 95-923, eff. 1-1-09.)

Appendix C

Watershed Management Ordinance

Watershed Management Ordinance

Effective

May 1, 2014

As amended

July 10, 2014

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO
100 EAST ERIE STREET
CHICAGO, ILLINOIS 60611
(312) 751-5600

AN ORDINANCE

AN ORDINANCE HEREINAFTER KNOWN AS THE "WATERSHED MANAGEMENT ORDINANCE," ADOPTED BY THE BOARD OF COMMISSIONERS, METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO, ON OCTOBER 3, 2013 AND AS AMENDED TO, AND INCLUDING, APRIL 17, 2014, MAY 1, 2014 AND JULY 10, 2014

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Table of Contents

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ARTICLE 1. AUTHORITY AND PURPOSE

§ 100. Statutory Authority

1. This **Ordinance** shall be known and may be cited as the Watershed Management Ordinance (**Ordinance**).

2. The Metropolitan Water Reclamation District of Greater Chicago (**District**) promulgates this **Ordinance** pursuant to its authority to adopt ordinances regulating sewers tributary to the **District's water reclamation plants**, regulating **floodplain** and **stormwater** management, and governing the location, width, course, and release rate of all **stormwater runoff** channels, streams, and basins in **Cook County**, over which the **District** has jurisdiction, in accordance with the adopted Cook County Stormwater Management Plan (**CCSMP**). The statutory authority for this **Ordinance** is contained in 55 ILCS 5/5-1062.1, 70 ILCS 2605/1 *et seq.*, and particularly 70 ILCS 2605/7f, 70 ILCS 2605/7h, 70 ILCS 2605/12, as well as other applicable authority, all as amended from time to time.

3. An **authorized municipality**, as defined in Article 14 of this **Ordinance**, may adopt this **Ordinance** pursuant to its authority to adopt ordinances regulating **floodplain** and **stormwater** management and governing the location, width, course, and release rate of all **stormwater runoff** channels, streams, and basins in the **authorized municipality**, over which the **authorized municipality** has jurisdiction. The statutory authority for an **authorized municipality** to adopt this **Ordinance** is contained in the Illinois Municipal Code, 65 ILCS 5/1 *et seq.*, as well as other applicable authority, all as amended from time to time.

§ 101. Cook County Stormwater Management Plan

The **District**'s **Board of Commissioners** adopted the **CCSMP** on February 15, 2007. This **Ordinance** is a component of the countywide **stormwater** management program presented in the **CCSMP**. Other components of the countywide **stormwater** management program include the **development** of Detailed Watershed Plans (**DWPs**) for the major **watersheds** of **Cook County**. The **CCSMP** and **DWP**s are available on the **District**'s website, www.mwrd.org.

§ 102. Considerations

The **District** has considered numerous factors in the creation of this **Ordinance** including but not limited to:

1. Inappropriate **floodplain** uses and **development** have increased **flood** risk, **flood** damage, and environmental degradation;

2. It is necessary to consider **stormwater** management on a **watershed** basis;

3. **Cook County** lands drain poorly due to generally flat topography and soils of low permeability;

4. Many land **development** practices alter the natural hydrologic balance of **Cook County** streams;

5. **Wetlands** play an essential role in **flood** storage, **floodplain** management, **sediment** control, and water quality enhancement;

6. **Riparian environments** may be effective in reducing flow rates and volumes in addition to providing stream bank **erosion** protection and water quality enhancements;

7. Many **stormwater facilities** are not adequately maintained;

8. While the **District** has required **stormwater** detention in **separate sewer areas** since 1972 via the **Sewer Permit Ordinance, flooding** continues to be a concern in **Cook County** due to the increased volume and rate of **stormwater runoff** resulting from continued **development**;

9. **Stormwater** detention requirements for new **developments** alone do not address the impacts of transportation and other improvements; and

10. Infiltration and inflow contributes to **basement** backups, **sanitary sewer** overflows, and excessive flows to the **District**'s **water reclamation facilities**.

§ 103. Purposes of this Ordinance

The purpose of this **Ordinance** is to effectuate the purposes and intent of the Metropolitan Water Reclamation District Act (70 ILCS 2605/1 *et seq.*) by:

1. Protecting the public health, safety, and welfare, and reducing the potential for loss of property due to **flood** damage;

2. Managing and mitigating the effects of urbanization on **stormwater** drainage throughout **Cook County**;

3. Protecting existing and new **development** by minimizing the increase of **stormwater runoff** volume beyond that experienced under existing conditions and by reducing peak **stormwater** flows;

4. Promoting responsible land use practices in **Cook County**, particularly within **floodplains** and **floodways**;

5. Protecting existing water resources, including **lakes**, streams, **floodplains**, **wetlands**, and **groundwater** from detrimental and unnecessary modification in order to maintain their beneficial functions;

6. Reducing or mitigating the environmentally detrimental effects of existing and future **runoff** in order to improve and maintain water quality;

7. Preserving and enhancing existing **riparian environments**;

8. Controlling **erosion** and the discharge of **sediment** from all sources including, but not limited to, **stormwater facilities**, **waterways**, **developments**, and construction **sites**;

9. Requiring appropriate and adequate provisions for **site runoff** control;

10. Requiring consistency in **stormwater** management activities within and among the units of government having **stormwater** management jurisdiction;

11. Ensuring future **development** in the **floodplain** does not adversely affect **floodplain** environments or increase the potential for **flood** damage;

12. Requiring regular, planned **maintenance** of **stormwater** management facilities;

13. Encouraging control of **stormwater** quantity and quality at the most **site**-specific or local level;

14. Establishing uniform and minimum countywide **stormwater** management regulations while recognizing and coordinating with **stormwater** programs effectively operating within **Cook County**;

15. Requiring strict compliance with and enforcement of this **Ordinance**;

16. Meeting the **floodway** permitting requirements of the Illinois Department of Natural Resources, Office of Water Resources, delineated in the Rivers, Lakes, and Streams Act (615 ILCS 5/18g);

17. Complying with the rules and regulations of the National Flood Insurance Program (**NFIP**) thereby making federally subsidized **flood** insurance available;

18. Protecting the ability of the **District's** sewerage systems, intercepting sewers, **TARP structures**, **sewage** disposal and treatment plants, works and facilities to perform the functions for which they were designed;

19. Controlling the nature, volume, and manner of discharge into the **District's** sewerage systems, intercepting sewers, **TARP structures**, **sewage** disposal and treatment plants, works, and facilities;

20. Maintaining stable operation of the **District's** sewerage systems, intercepting sewers, **TARP structures, sewage** disposal and treatment plants, works, and facilities;

21. Reducing infiltration and inflow into the **District's** sewerage systems, intercepting sewers, **TARP structures**, **sewage** disposal and treatment plants, works, and facilities; and

22. Protecting waters within **Cook County** so as to preserve the public health.

§ 104. Relationship to the Sewer Permit Ordinance and Manual of Procedures

1. **Permittees** and **co-permittees** that have **Sewerage System Permits** issued prior to the effective date of this **Ordinance** shall retain all rights, obligations and liabilities under the **Sewer Permit Ordinance** and the Manual of Procedures for the Administration of the Sewer Permit Ordinance (**Manual of Procedures**) as they existed prior to their repeal.

2. Proposed **development** for which a complete **Sewerage System Permit** application has been accepted by the **District** prior to the effective date of this **Ordinance** will retain all rights, obligations and liabilities under the **Sewer Permit Ordinance** and the **Manual of Procedures** as they existed prior to their repeal.

3. Effective May 1, 2014, the **Sewer Permit Ordinance** and its companion ordinance, the **Manual of Procedures,** will be repealed. (See **District** Ordinance repealing the **Sewer Permit Ordinance** and the Manual of Procedures for the Administration of the Sewer Permit Ordinance, April 17, 2014).

4. The requirements for **qualified sewer construction** are now contained in Article 7 of this **Ordinance**.

ARTICLE 2. APPLICABILITY AND GENERAL PROVISIONS

§ 200. Scope of Regulation

1. This **Ordinance** applies to all **development** within the boundaries of **Cook County**, Illinois and **qualified sewer construction** within the **District**'s corporate boundaries or service agreement areas, over which the **District** has jurisdiction as described in §100.2 of this **Ordinance**, including those **developments** under the control of any governmental entity, agency, or authority.

2. Any **person** proposing a **development** that falls under any of the categories set forth in §201 of this **Ordinance** shall obtain a **Watershed Management Permit** prior to **development**.

3. The requirements for sewer construction contained within Article 7 supersede the requirements of the repealed **Sewer Permit Ordinance** and the **Manual of Procedures**, as described in §104. Any **person** proposing to install **qualified sewer construction** within the **District**'s corporate limits or service agreement areas, as detailed under §700.4 and §700.5 of this **Ordinance**, shall obtain a **Watershed Management Permit** prior to commencing sewer work.

4. The provisions of this **Ordinance** shall **not** apply to any of the following:

   A. **Structures** and land uses existing as of the effective date of this **Ordinance**, except when **redevelopment** occurs;

   B. Proposed **development** with an active **Sewerage Systems Permit** issued prior to the effective date of this **Ordinance,** which has not been fully constructed by the effective date of this **Ordinance**. **Stormwater** management provisions for such **development** shall conform to the approved plans and specifications of the issued **Sewerage System Permit** and shall not result in any increase in **impervious area** over the amount specified by the **Sewerage System Permit**;

   C. Proposed **development** for which a complete **Sewerage System Permit** application has been accepted by the **District** prior to the effective date of this **Ordinance**. Any such **Sewerage System Permit** application shall be subject to the **Sewer Permit Ordinance** and **Manual of Procedures** effective at the time the application was made. A complete **Sewerage System Permit** application is considered accepted by the **District** upon actual receipt by the **District** and is minimally composed of the following:

      (1) Complete and executed **Sewerage System Permit** forms consisting of Schedules A, B, C, and D where **stormwater** detention is required;

(2) **Sewerage System Permit** fee paid in full;

(3) Plan drawings signed and sealed by a **Professional Engineer**; and

(4) Permit documents signed by the **permittee** and **co-permittee**;

D. **Development** within the corporate boundaries of the City of Chicago, Illinois except for any of the following:

(1) New or reconstructed sewers, drainage, or detention **outfalls** to **waterways** or Lake Michigan;

(2) **Stormwater** discharges directly to **District** property; and

(3) Direct connections to **District** interceptors, **TARP structures**, facilities, or **District** property;

E. **Development** activities listed in §201.1 that are within the corporate boundaries of a **multi-county municipality**, which has adopted and currently enforces the **stormwater** ordinance of a **contiguously** adjacent Illinois county subject to the requirements of §207 of this **Ordinance**;

F. A **development** included on the **District**'s **existing development plans list**, except that such developments must comply with the provisions of Appendix C, Existing Development Plans List Requirements – Legacy **Sewer Permit Ordinance** and **Manual of Procedures**. The **existing development plans list** shall be subject to all of the following conditions:

(1) The **District** shall compile the **existing development plans list** before the effective date of this **Ordinance**;

(2) All **developments** included on the **existing development plans list** shall be subject to the provisions of Appendix C, Existing Development Plans List Requirements – Legacy **Sewer Permit Ordinance** and **Manual of Procedures**, provided the **development** has:

(a) Submitted a complete permit application within one (1) year of the effective date of this **Ordinance**; and

(b) Conformed to the permit application requirements of Appendix C, Existing Development Plans List Requirements – Legacy **Sewer Permit Ordinance** and **Manual of Procedures**;

(3) A **development** must have received preliminary approval from the governing **municipality** to be included on the **existing development plans list**;

(4) A **development** shall be removed from the **existing development plans list** upon expiration of the governing **municipality's** preliminary approval; and

(5) The **existing development plans list** shall expire one (1) year from the effective date of this **Ordinance**;

G. **Development** activities listed solely in §201.1 that are undertaken by the **District,** state agencies, or federal agencies (e.g. **IDOT**, Illinois Tollway Authority, or the **Corps**); or

H. **Development** undertaken as a **flood control project**.

5. Existing **structures** that do not conform to the requirements of this **Ordinance** shall not be substantially improved, replaced, or enlarged in any manner unless such **substantial improvements**, replacements, or enlargements conform to the requirements of this **Ordinance**.

§ 201. Applicability

Table 1. Applicability Summary				
Activity		Regulated Area	Permitting Authority	See Section
Development Activities	Disturbances more than 0.5 acre*	**Cook County** Except City of Chicago	**District** or **Authorized Municipality**	§ 201.1.D
	Reconfiguration of existing **major** or **minor stormwater systems** which alters the service area of a permitted or **existing detention facility**	**Cook County** Except City of Chicago	**District**	§ 201.2.E
	Modifications to a permitted or **existing detention facility**	**Cook County** Except City of Chicago	**District**	§ 201.2.F
Flood Protection Areas	**Development** within a **flood protection area**	**Cook County** Except City of Chicago	**District** or **Authorized Municipality**	§ 201.1.A
	Indirect impacts to a **wetland**	**Cook County** Except City of Chicago	**District** or **Authorized Municipality**	§ 201.1.B
	Alteration of an existing **building** which constitutes a **substantial improvement** in the **regulatory floodplain**	**Cook County** Except City of Chicago	**District** or **Authorized Municipality**	§ 201.1.C
Qualified Sewer Construction	Sewers, drainage, or detention in **combined sewer areas** tributary to **combined sewers**	**District** Corporate Limits or Service Areas Except City of Chicago	**District**	§ 201.2.A
	Qualified sewer construction including lift stations	**District** Corporate Limits or Service Areas Except City of Chicago	**District**	§ 201.2.B
District Impacts	Direct connections to **District** interceptors, reservoirs, facilities, or **TARP Structures**	Entire **Cook County** Including City of Chicago[+]	**District**	§ 201.2.C & § 201.3
	Stormwater discharges directly to **District** Property	Entire **Cook County** Including City of Chicago[+]	**District**	§ 201.2.G & § 201.3
	New or reconstructed sewers, drainage, or detention **outfalls** to **waterways** or Lake Michigan	**Cook County** Including City of Chicago[+]	**District**	§ 201.2.D & § 201.3

*unless the **development** solely involves one or more activity listed in §201.1.D.

[+]**Facility connection authorization** as outlined in §703.

1. A **Watershed Management Permit** from either the **District** or an **authorized municipality** shall be required for any of the following **development** activities:

   A. **Development** within a **Flood Protection Area**;

   B. **Development** with an **indirect wetland impact**;

   C. **Development** altering an existing **building** which constitutes a **substantial improvement** disturbing land in the **regulatory floodplain**; and

   D. **Development** disturbing more than 0.5 acre, unless the **development** solely involves one or more of the following:

      (1) Agriculture or gardening that maintains existing grades and drainage patterns;

      (2) Installation, renovation, or replacement of a septic system, potable water service line, or other utility to serve an existing **structure**, provided that the area is restored to existing grade and vegetative cover is restored;

      (3) Excavation in rights-of-way or public utility easements not part of other **development**, outside of **flood protection areas**, for the purpose of installing or maintaining utilities other than **qualified sewer construction**, provided that the area is restored to existing grade and vegetative cover is restored. Utility excavation not requiring a **Watershed Management Permit** must install and maintain adequate **sediment** and **erosion** control;

      (4) **Maintenance activities**, repair, or at-grade in-kind replacement of existing lawn areas not otherwise requiring a **Watershed Management Permit**, provided that the area is restored to existing grade and vegetative cover is restored; or

      (5) **Maintenance activities**, repair, or in-kind replacement of existing **impervious areas** including, but not limited to, roadways or parking lots not otherwise requiring a **Watershed Management Permit**.

2. A **Watershed Management Permit** from the **District** shall be required for any of the following **development** activities:

   A. **Development** proposing sewers, drainage, or detention in **combined sewer areas** tributary to either a **combined sewer** or a **waterway**;

   B. **Permittees** or **co-permittees** proposing **qualified sewer construction** within the **District**'s corporate boundaries;

C. **Development** proposing a direct connection to **District** interceptors, reservoirs, facilities, or **TARP structures**;

D. **Development** proposing new or reconstructed sewer, drainage, or detention **outfalls** to the **waterways** or Lake Michigan, within **Cook County**;

E. **Development** proposing reconfiguration of existing **major** or **minor stormwater systems** which alters the service area of a permitted or **existing detention facility**;

F. **Development** proposing modifications to a permitted or **existing detention facility**;

G. **Development** discharging **stormwater** directly to **District** property; and

H. **Non-residential development** on septic systems or private treatment systems proposing a connection to a **sanitary sewer**.

3. **Development** located within the City of Chicago that proposes a direct or indirect connection to **District** interceptors, reservoirs, facilities, or **TARP structures** or new or reconstructed sewers, drainage, or detention **outfalls** to **waterways** or to Lake Michigan shall obtain a **facility connection authorization**.

§ 202. Interpretation

1. This **Ordinance** shall be liberally construed to protect the health, welfare, safety, and environment of the residents of **Cook County** and to effectuate the purposes of this **Ordinance** and enabling legislation.

2. Nothing contained in this **Ordinance** shall be understood to imply consent, licensing, or permission to locate, construct, or maintain any **structure**, **site**, or facility, nor to carry on any trade, industry, occupation, operation, or activity.

3. When provisions of this **Ordinance** differ or conflict with any other applicable statute, law, ordinance, regulation, or rule, the more stringent provisions shall apply.

4. The provisions of this **Ordinance** are cumulative and shall be considered additional limitations on all other laws and ordinances previously approved, or that may hereafter be approved, and that concern any subject matter included in this **Ordinance**.

§ 203. Disclaimer of Liability

1. The degree of **flood** protection provided by this **Ordinance** is considered reasonable for regulatory purposes and is based on engineering experience and scientific methods of study.

2. This **Ordinance** does not warrant that areas outside the delineated **floodplain** or permitted **developments** within the delineated **floodplain** will be free from **flooding** and associated damages.

3. This **Ordinance** shall not be construed or applied in any manner to create liability on the part of, or a cause of action against, the **District**, any **municipality**, or any elected official, officer, agent, or employee thereof, for any damage or injury to **person** or property resulting from reliance on the provisions of this **Ordinance** or from reading or interpreting any map that is part of this **Ordinance**.

4. The design and supplementary design requirements contained herein do not replace nor substitute sound engineering practice.

§ 204. Severability

1. The provisions of this **Ordinance** shall be severable in accordance with the following rules:

   A. If any court of competent jurisdiction shall adjudge any provision of this **Ordinance** invalid, such judgment shall not affect any other provisions of this **Ordinance**; and

   B. If any court of competent jurisdiction shall adjudge invalid the application of any provision of this **Ordinance** to a particular **parcel** of land, a particular **structure**, or a particular **development**, such judgment shall not affect the application of said provisions to any other **parcel** of land, **structure**, or **development**.

2. All such unaffected provisions of this **Ordinance** shall remain in full force and effect.

§ 205. Right of Access

1. Representatives of the **District** may, at all reasonable times during regular business hours or upon notice, enter upon any **development** subject to this **Ordinance** for the purpose of conducting periodic inspections to ensure compliance with this **Ordinance** or with a **Watershed Management Permit** issued thereunder. The scope of the inspection, including reviewing and copying of records, is limited to determining

whether the **development** is in compliance with all requirements and conditions of this **Ordinance** and/or **Watershed Management Permit**.

2. The **District** may periodically inspect any mitigation measure at reasonable times and such inspection shall be limited to determining whether the **development** is in compliance with all requirements and conditions of this **Ordinance** and/or a **Watershed Management Permit**.

3. An inspection may also be conducted in accordance with Article 12, § 1201.4 of this **Ordinance**.

§ 206. National Flood Insurance Program Eligibility

1. This **Ordinance** does not repeal any county/municipal ordinance or resolution passed in order to establish eligibility for the National Flood Insurance Program (**NFIP**).

2. This **Ordinance** is not intended to supplement, replace, or remove any responsibility that either **Cook County** or a **municipality** may have to maintain eligibility and good standing in the **NFIP**. Proper administration and enforcement of the **NFIP** within participating municipalities and counties is a requirement of the **NFIP**.

3. **Floodplain** requirements included in Article 6 of this **Ordinance** meet or exceed the **NFIP** requirements for **development** as set forth under the Code of Federal Regulations (44 C.F.R. §§ 59-60).

§ 207. Multi-County Municipalities

1. A **multi-county municipality** may adopt and enforce one of the following ordinances of an adjacent county if the **municipality** has corporate area within that county:

   A. The DuPage County Countywide Stormwater and Flood Plain Ordinance, as amended from time to time by the DuPage County Board;

   B. The Kane County Stormwater Ordinance, as amended from time to time by the Kane County Board;

   C. The Lake County Watershed Development Ordinance, as amended from time to time by the Lake County Board;

   D. The McHenry County Stormwater Management Ordinance, as amended from time to time by the McHenry County Board; or

   E. The Will County Stormwater Management Ordinance, as amended from time to time by the Will County Board.

2. A **Watershed Management Permit** shall not be required from the **District** for any **development** activity specified in §201.1 within a **multi-county municipality**, in which the **multi-county municipality** elects to adopt an adjacent county's ordinance as specified in §207.1 of this **Ordinance** and satisfies all of the following requirements:

   A. Has the authority to adopt an adjacent county's ordinance;

   B. Retains qualified staff per the adopted ordinance;

   C. Enters into an intergovernmental agreement with the **District**; and

   D. Administers and enforces the adopted ordinance per the requirements of the adopted ordinance.

3. A **Watershed Management Permit** shall be required from the **District** for all **development** activities specified in §201.1 and §201.2 of this **Ordinance** within a **multi-county municipality** that does not:

   A. Adopt and enforce an ordinance specified in §207.1 of this **Ordinance**; or

   B. Comply with the requirements specified in §207.2 of this **Ordinance**.

4. A **Watershed Management Permit** shall be required from the **District** for all **development** activities specified in §201.2 of this **Ordinance** within a **multi-county municipality**, regardless of whether a **multi-county municipality** adopts and enforces an adjacent county's ordinance.

§ 208. Amendments

Amendments to this **Ordinance** shall become effective when adopted by the **District**'s **Board of Commissioners**.

§ 209. Effective Date

This **Ordinance** shall be effective on May 1, 2014.

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ARTICLE 3. WATERSHED MANAGEMENT PERMIT REQUIREMENTS AND SUBMITTALS

§ 300. General Requirements

1. The **District** shall establish permit fees, which are contained in Appendix F of this **Ordinance**. Fees shall be based upon the costs the **District** incurs for all aspects of the permitting process, including inspections.

2. The **Watershed Management Permit** submittal shall include an opinion by a **Professional Engineer** that the technical submittal meets the criteria required by this **Ordinance**. In addition:

   A. The **site stormwater** plan shall include the signature and seal of a **Professional Engineer**;

   B. The design of **stormwater facilities**, calculations for the determination of the 100-year **floodplain** and **regulatory floodplain**, and calculations of the impact of **development** shall meet the standards of this **Ordinance** and shall be prepared, signed, and sealed by a **Professional Engineer**;

   C. If **wetlands** are located on the **site** or within one hundred (100) feet of the **site**, a survey locating the **wetland** in plan view, including the **wetland buffer** in accordance with §603 of this **Ordinance**, shall be signed and sealed by a **Professional Engineer** or a **Professional Land Surveyor**; and

   D. If **riparian environments**, in accordance with §606 of this **Ordinance**, are located on the **site** or within one hundred (100) feet of the **site**, a survey in plan view of the channel or stream and associated **riparian environment** shall be signed and sealed by a **Professional Engineer** or a **Professional Land Surveyor**.

3. All required topographic information shall be tied to the North American Vertical Datum of 1988 based on national map standard accuracy.

4. Prior to commencing construction, the **co-permittee** shall secure all appropriate approvals from federal, state, and regional authorities or their designee, including, but not limited to, **OWR**, the **Corps**, **IEPA**, and **FEMA**.

5. **Co-permittees** proposing point discharge at a location adjacent to holdings or property of Forest Preserve District of Cook County (FPD) shall contact FPD and review FPD's Stormwater Management Policy.

6. Either the **District** or relevant **authorized municipality** shall make the final

determination that all pertinent information is submitted by the **co-permittee** to allow for **Watershed Management Permit** review and/or issuance. Additional information or calculations may be requested from the **co-permittee** by either the **District** or **authorized municipality** to ensure compliance with this **Ordinance**.

7. Both the Cook County Land Bank Authority and the South Suburban Land Bank and Development Authority offer opportunities for the **District** to work with neighborhoods, **Cook County**, and local governments to determine neighborhood level best practices for **stormwater** and **flood** mitigation management that can be combined with both the Cook County Land Bank Authority's mission and the South Suburban Land Bank and Development Authority's mission to return vacant and abandoned homes and land back into productive and sustainable community assets.

§ 301. Watershed Management Permit Application and Submittals

The **Watershed Management Permit** application and submittal shall include permit schedules A, B, C, and K, Exhibit A, and all of the following when applicable:

1. The name(s), original signature(s), and legal address(es) of the **co-permittee(s), permittee,** and of the **owner(s)** of the land, according to the following;

   A. For parcels located within a municipality's corporate limits, both the **co-permittee(s)** and **permittee** must sign the **Watershed Management Permit** application;

   B. For parcels located in unincorporated areas, the **co-permittee(s)** must sign the permit and the **permittee** (township) is requested to sign the permit. If the **permittee** refuses to sign the **Watershed Management Permit**, it must do so in writing, and the **co-permittee** must comply with the following requirements;

      (1) For projects which include **qualified sanitary sewer** work, the **watershed management permit** may be issued under a **sole permittee** status, and must demonstrate all of the following:

         (a) Evidence of responsibility, as determined by the **District's Board of Commissioners**;

         (b) The facilities to be served are for the sole and exclusive use of the property **owner**, and no sewer extension is contemplated for other private users;

         (c) The area to be served is outside the jurisdiction of any local sanitary district or public utility company certified for such service;

(d) Compliance with the administrative requirement as outlined in the **TGM**.

(2) For projects that do not include **qualified sewer construction**, the **Watershed Management Permit** may be issued without a **permittee** and without **sole permittee** status, and must be recorded with **Cook County** Recorder of Deeds according to §309.

2. The common address and legal description of the **site** where the **development** will take place;

3. A general narrative description of the proposed **development** that shall include:

   A. Type of **development**;

   B. Total **parcel** or **site** size; and

   C. Size of area under **development**;

4. Affidavit(s) signed by the **co-permittee(s)** attesting to:

   A. The understanding of the requirements of and intent to comply with this **Ordinance**;

   B. Disclosure of property **interests** (Schedule K) stating the aggregate total area of said property and all other lands **contiguous** to said property in which the **owner** holds an **interest**; and

   C. Acknowledgement of Schedule L, which provides notice that any **parcel** areas not being developed under a **Watershed Management Permit** must comply with detention requirements if future **development** occurs.

5. A statement of opinion by either a **Professional Engineer** or **Wetland Specialist** either denying or acknowledging the presence of **flood protection areas**:

   A. Within the area of the **development**;

   B. On the **site**;

   C. 100 feet beyond the area of the **development** if not included within the **site**; and

   D. The appropriate submittals identified in this article if the statement acknowledges the presence of **flood protection areas**;

6. Copies of other permits or permit applications as required, including any **FEMA LOMAs**, **LOMRs**, **LOMR-Fs**, **CLOMAs**, and **CLOMRs**;

7. The **Erosion** and **Sediment** Control Submittal specified in §302 of this **Ordinance** for any **development** requiring a **Watershed Management Permit**;

8. The **Stormwater** Management Submittal specified in §303 of this **Ordinance** for any **development** requiring a **Watershed Management Permit**;

9. The **Floodplain** Submittal specified in §304 for **development** associated with a **floodplain** designated in §601 of this **Ordinance**;

10. The **Wetland** Submittal specified in §305 for any **development** associated with a **wetland** designated in §603 of this **Ordinance**;

11. The Riparian Submittal specified in §306 for any **development** associated with a **riparian environment** designated in §606 of this **Ordinance**;

12. The Sewer Construction Submittal specified in §307 for any **development** associated with **qualified sewer construction** designated in Article 7 of this **Ordinance**;

13. All applicable maps specified in §308.1 of this **Ordinance,** and;

14. **Maintenance** and Monitoring Plan Submittal specified in §310 of this **Ordinance.**

§ 302. Erosion and Sediment Control Submittal

The **Erosion** and **Sediment** Control Submittal shall include permit Schedule P and require the following when applicable:

1. Maps, exhibits, and plan sheet(s) in accordance with §308.4 of this **Ordinance**;

2. An **erosion** and **sediment** control plan that describes all measures appropriate for the **development** such that all the requirements of Article 4 of this **Ordinance** are met. This plan shall include:

   A. A narrative description of the existing land cover, hydrologic conditions of the proposed **development,** and areas adjacent to the **development** including a description of any **flood protection areas**, **site** discharge location(s), points of discharge to **Jurisdictional Waters of the U.S.**, and soil survey data;

   B. The **NPDES** ILR-10 permit number issued by **IEPA** to the **co-permittee** upon submittal of the ILR-10 Notice of Intent permit application or permit;

C. A narrative description of the proposed temporary **erosion and sediment control practices**, including a narrative describing how **flood protection areas** will be protected from **erosion** and **sedimentation**;

D. A schedule of construction activities including, but not limited to, clearing and grading, installation of **stabilized** construction entrances, disposal of construction waste, stockpiling, and inspection and **maintenance** of all **erosion and sediment control practices**;

E. A narrative describing how **flood protection areas** will be protected from **erosion** and **sedimentation**;

F. Data and calculations used to size, locate, design, and maintain all **erosion and sediment control practices**, and the design of temporary stream crossings; and

G. A mechanism for ensuring that the **erosion** and **sediment** control installation and **maintenance** requirements for both temporary and permanent measures will be met, including the list of **maintenance** tasks and performance schedules that have been identified and/or required in the plan sheet(s) and specifications.

§ 303. Stormwater Management Submittal

The **Stormwater** Management Submittal shall include the appropriate permit Schedule D and require the following when applicable:

1. Maps, exhibits, and plan sheet(s) in accordance with §308.1, §308.2, §308.3, and §308.5 of this **Ordinance**;

2. The **site runoff** plan for the **development** that describes all appropriate measures necessary to meet the requirements of §502 of this **Ordinance**. This plan shall include:

   A. A narrative description of the existing drainage pattern that shall include:

      (1) The portion of the **parcel(s)** that is located in a **separate sewer area**;

      (2) The portion of the **parcel(s)** that is located in a **combined sewer area**;

      (3) The **parcel(s)** and **site** discharge point(s) to a **storm sewer** or **waterway**; and

      (4) The **parcel(s)** and **site** discharge point(s) to a **combined sewer**;

   B. A narrative description of the proposed **development** that shall include:

      (1) Area in acres of existing **impervious areas**; and

(2) Area in acres of proposed **impervious areas**;

C. A narrative description of the upstream **tributary area** to allow for evaluation of offsite impacts resulting from the proposed **development**;

D. **Stormwater** calculations comprised of **site runoff** and upstream tributary **runoff** calculations. Such **stormwater** calculations must include the following as applicable:

(1) Documentation identifying the procedures, assumptions, and data used to calculate hydrologic and hydraulic conditions for sizing both **major and minor stormwater systems**;

(2) Time of concentration calculations as required in Article 5 of this **Ordinance**;

(3) Curve number calculations for existing and proposed conditions;

(4) Calculations for sizing **storm sewer** systems;

(5) Delineation of areas tributary to each **stormwater facility**, overland flow route, and storage facility;

(6) Hydraulic grade line and water surface elevations under both design flow and **base flood** conditions;

(7) Calculations for sizing overland flow routes, ditches, channels, and swales;

(8) Cross section data for open channels;

(9) Profile drawings for open channels and sewers;

(10) Assumptions or calculations utilized to determine tailwater conditions for the **site**; and

(11) Other calculations necessary to demonstrate compliance with this **Ordinance**;

E. Determination of the **BFE** and **FPE**, including the source of the determination, in accordance with §601 of this **Ordinance**.

3. A volume control plan that describes all measures appropriate for the **development** in accordance with §503 of this **Ordinance**. This plan shall include:

   A. Calculations of **impervious area** and the associated volume required for the **volume control practices**;

   B. Narrative description of likely water quality impacts based upon proposed **development** land use;

   C. Description of soils that shall include:

      (1) Infiltration rates;

      (2) Percentage of clay; and

      (3) Depth to water table, bedrock, or limiting layer.

   D. Narrative description of the utilization of the **volume control practices** hierarchy in §503.3.A-C, including use of **retention-based practices** and **flow-through practices** in §503.3.A-C, and for **impervious area** reduction in §503.3.C of this **Ordinance**;

   E. Calculations of the quantifiable storage provided in each proposed **retention-based practice(s)** in §503.3 of this **Ordinance** to verify adequate storage;

   F. Calculations to demonstrate that the chosen **flow-through practice(s)** in §503.3 of this **Ordinance** will treat the targeted water quality impacts; and

   G. Calculation of **impervious area** reduction in §503.3 of this **Ordinance**, if applicable.

4. A **detention facility** plan that describes all measures appropriate for the **development** in accordance with §504 of this **Ordinance**. This plan shall include:

   A. Documentation identifying the procedures, assumptions, and data used to calculate hydrologic and hydraulic conditions and to determine the post-**development allowable release rate** and related storage volume;

   B. Elevation versus storage area curve and associated calculations for **detention facility**;

   C. Elevation versus discharge curve and associated calculations for the outlet works of the storage system;

D. Calculations demonstrating that the overflow **structure** and overflow path are sized in accordance with §504.11(C) of this **Ordinance**; and

E. Assumptions or calculations utilized to determine tailwater conditions for the **site** in accordance with §504.13(B) of this **Ordinance**.

§ 304. Floodplain Submittal

The **Floodplain** Submittal shall describe all measures appropriate for the **development** in accordance with Article 6 of this **Ordinance**. This submittal shall include permit Schedule H and the following when applicable:

1. Maps, exhibits, and plan sheet(s) in accordance with §308.5 of this **Ordinance**;

2. A determination of the **BFE**, including the source of the determination, in accordance with §601.4 of this **Ordinance**;

3. A determination of the **FPE**, including the source of the determination, in accordance with §601.9 of this **Ordinance**;

4. A narrative description of proposed **development** within the limits of the **regulatory floodplain** and **regulatory floodway**;

5. A determination from the **permittee** of whether the **development** constitutes a **substantial improvement**;

6. A narrative discussion and details of **floodproofing** measures including material specifications, construction methods, and calculations;

7. **Floodplain** fill and **compensatory storage** calculations in accordance with §602.9, §602.10, and §602.11 of this **Ordinance** that shall include:

   A. Cross section profiles of the **floodplain** fill and **compensatory storage**;

   B. A plan view delineating the location of cross sections; and

   C. Tabular summary showing fill below and above the existing 10-year **flood** elevation and cuts below and above the proposed 10-year **flood** elevation;

8. Revisions to **FIRM(s)** including all hydrologic and hydraulic calculations, modeling, and all **CLOMR/LOMR** applications;

9. A copy of the **Cook County FIS Floodway** Data Table; and

10. For **development in the regulatory floodway**, the following calculations or analyses shall be submitted to demonstrate compliance with §602.27 of this **Ordinance**:

    A. Existing and proposed hydrologic and hydraulic analysis (land use and stream systems);

    B. Tabular summary of existing and proposed flows, **flood** elevations, and **floodway** velocities for the 2-year, 10-year, and 100-year **storm event**;

    C. All calculations used in hydrologic and hydraulic modeling;

    D. Input and output for hydraulic and hydrologic computer models;

    E. Plan view drawing locating all cross sections utilized within the hydraulic and hydrologic computer models;

    F. **Flood** damage analyses for the replacement or modification of existing culverts, bridges, or impoundments;

    G. Hydraulic analyses of new, modified, or replacement bridges or culverts; and

    H. Transition sections as required in §602.30 of this **Ordinance**; and

    I. Analyses of hydrologically and **hydraulically equivalent compensatory storage**; and

11. Copies of any of the following forms of correspondence from the **OWR**:

    A. A letter of no objection stating that no **OWR** permit is necessary; or

    B. A copy of the completed joint application form (NCR Form 426, "Protecting Illinois Waters"), signed by the **co-permittee**, and all associated correspondence submitted to and received from **OWR**.

§ 305. Wetland Submittal

The **Wetland** Submittal shall describe all measures appropriate for the **development** in accordance with Article 6 of this **Ordinance**. This submittal shall include permit Schedule W and the following when applicable:

1. Maps, exhibits, and plan sheet(s) in accordance with §308.7 of this **Ordinance**;

2. The **isolated wetland submittal** for a **standard isolated wetland** that includes **contiguous isolated waters** less than one-tenth of an acre (0.10 acre) in aggregate shall include the following:

A. An **isolated wetland** delineation report containing the following:

(1) A delineation of the **wetlands** consistent with the requirements for **wetland** delineation provided in §603 of this **Ordinance**;

(2) A statement indicating date of boundary verification by the **District**;

(3) All **Corps** "Routine Wetland Determination Data Form(s);" and

(4) Mapping products in accordance with §308 of this **Ordinance**;

B. Copies of the following forms of correspondence from the **Corps**:

(1) A **jurisdictional determination** from the **Corps** indicating that the impacted **wetland** is not under the jurisdiction of the **Corps**; or

(2) A Letter of No Objection stating that no permit from the **Corps** is necessary; and

(3) If required by the **Corps**, a Section 404 permit application, all associated correspondence, and a copy of the completed joint application form (NCR Form 426, "Protecting Illinois Waters") signed by the **co-permittee**;

3. The **isolated wetland submittal** for a **high quality isolated wetland** or a **standard isolated wetland** equal to or greater than one-tenth of an acre (0.10 acre) in aggregate shall contain the following:

A. An **isolated wetland** delineation report containing the following:

(1) A narrative describing the location, type, functions, and size of all **wetlands** and **wetland buffers** on the **site**;

(2) A statement indicating date of boundary verification by the **District**;

(3) A delineation of the **isolated wetlands** consistent with the requirements for **wetland** delineation provided in §603 of this **Ordinance**;

(4) A classification of each onsite **isolated wetland** as either a **high quality isolated wetland** or a **standard isolated wetland**, including a narrative detailing the results of the assessment of specific functions and values;

(5) All **Corps** "Routine Wetland Determination Data Form(s);"

(6) An assessment to determine the **Swink and Wilhelm Floristic Quality Index (FQI)** and **mean coefficient of conservatism (ĉ)**, carried out within

the growing season for all **wetlands** on the **site**;

(7) Photos of all **wetlands** and **wetland buffers** on the **site**;

(8) An Illinois Department of Natural Resources (IDNR) threatened and endangered species consultation;

(9) A United States Fish and Wildlife Service (USFWS) threatened and endangered species consultation; and

(10) Mapping products in accordance with §308 of this **Ordinance**;

B. Copies of the following forms of correspondence from the **Corps**:

(1) A **jurisdictional determination** from the **Corps** indicating that the impacted **wetland** is not under the jurisdiction of the **Corps**; or

(2) A Letter of No Objection stating that no permit from the **Corps** is necessary; and

(3) If required by the **Corps**, a Section 404 permit application, all associated correspondence, and a copy of the completed joint application form (NCR Form 426, "Protecting Illinois Waters") signed by the **co-permittee**;

C. For impacts to **high quality isolated wetlands**, documentation must be provided indicating that the proposed amount of impact represents the least amount of impact required to allow for an economically feasible use of the **parcel**, and documentation shall be provided indicating that:

(1) The presence of **high quality isolated wetlands** precludes all economically feasible uses of the **site** and no practicable alternative to **wetland** modification exists; and/or

(2) Avoidance of **high quality isolated wetlands** would create a hazardous road condition and no practicable alternative to **wetland** modification exists;

D. For impacts to **standard isolated wetlands** with a total acreage greater than or equal to one-tenth of an acre (0.10 acre) in aggregate, documentation must be provided indicating that no practicable alternative to **wetland** modification exists;

E. An evaluation of the indirect impacts to **isolated wetlands** on the **site** and **wetlands** 100 feet beyond the area of the **development** if not included within the **site**;

F. For impacts to **isolated wetland buffers**, documentation must be provided that describes how the impacted buffer functions and how its values will be mitigated. **Isolated wetland buffer** impacts may be mitigated via replacement or enhancement of impacted functions and values, or through buffer averaging;

G. If mitigation is required, a **wetland mitigation** document must be developed in accordance with §310.4 of this **Ordinance** and a plan in accordance with §308.7; and

H. If mitigation is to be provided via a **wetland mitigation bank**, a statement of obligation from the **wetland mitigation bank** showing mitigation acreage reserved for the project; and

4. Prior to construction, the **co-permittee** shall submit all relevant federal, state, and local permits.

§ 306. Riparian Environment Submittal

The **Riparian Environment** Submittal shall describe all measures appropriate for the **development** in accordance with Article 6 of this **Ordinance**. This submittal shall include either permit Schedule W or H and the following when applicable:

1. Maps, exhibits, and plan sheet(s) in accordance with §308.8 of this **Ordinance**;

2. An inventory of the functions of the **riparian environments** in accordance with §606.1 of this **Ordinance**;

3. A delineation of the **riparian environments** in accordance with §606.2 of this **Ordinance**;

4. For impacts to **riparian environments**, documentation must be provided that describes the impacted riparian functions and how their values will be mitigated. **Riparian environments** impacts may be mitigated via replacement or enhancement of impacted functions;

5. For impacts to a **Jurisdictional Waters of the U.S.**, provide copies of any of the following forms of correspondence from the **Corps**:

   A. A **Jurisdictional Determination** from the **Corps** indicating that the impacted waters are isolated;

   B. A Letter of No Objection stating that no permit is necessary; or

C. A Section 404 permit application from the **Corps**, all associated correspondence and a copy of the completed joint application form (NCR Form 426, "Protecting Illinois Waters") signed by the **co-permittee** or agent;

6. For channel relocation, include documentation indicating that the length of the mitigated channel is equal to or greater than the length of the disturbed channel; and

7. If mitigation is required, a **riparian environment** mitigation document must be developed in accordance with §310.5 and a plan in accordance with §308.8 of this **Ordinance**.

§ 307. Sewer Construction Submittal

The Sewer Construction Submittal shall describe and delineate all measures appropriate for installing **qualified sewer construction** in accordance with Article 7 of this **Ordinance**. In all cases permit Schedules A, B, and C should be submitted. This submittal shall include the following when applicable:

1. Maps, exhibits, and plan sheet(s) in accordance with § 308.1 and §308.6 of this **Ordinance**;

2. All **District** required general notes, approved material and applicable standard **qualified sewer construction** details available from the **TGM**;

3. All applicable **District** details, technical requirements, and design guidelines for **qualified sewer construction** available from the **TGM**;

4. Population Equivalency (PE) calculations for expected sewer flows based on new or expanded **development**;

5. Service area and future service area exhibits along with supporting population calculations;

6. A narrative description of any live sewer connection or live sewer bypass protocol;

7. Characteristic of waste for onsite treatment or pre-treatment of **industrial wastes** including:

   A. Completed **Watershed Management Permit** forms Schedule F & G; and

   B. Narrative of wastes being generated, treatment process, and flow loading;

8. **District** Direct Connection information, including:

   A. Completed permit form Schedule O;

   B. Clearly label all **District** owned sewers and **structures** on the plans;

   C. Provide clearance distances for all proposed excavation within 15 feet of **District** sewers and **structures**;

   D. Provide sewer construction notes associated with construction in proximity of **District** facilities (available from the **TGM**);

   E. Provide required **District** direct connection detail (available from the **TGM**);

   F. Provide narrative(s) of excavation protocol in proximity to **District structure**; and

   G. Provide shoring calculations certified by a structural engineer for any deep excavation in proximity of **District** facilities;

9. **Outfall** Connection details including:

   A. Completed permit form Schedule O;

   B. Clearly label proposed **outfall** location on the plans;

   C. Provide **District outfall** general notes (available from **TGM**);

   D. Provide construction details for the proposed **outfall**; and

   E. Provide construction details of **stormwater** quality interceptor; and

10. Other calculations necessary to demonstrate compliance with this **Ordinance**.

§ 308. Maps, Exhibits and Plan Sheets Submittal

Depending on the complexity of the proposed **development** combining plan sheets is desirable if information provided on all plan sheets is clear, specific, and legible. The Maps, Exhibits, and Plan Sheets Submittal shall include the following when applicable:

1. Mapping products, with the project location indicated, shall include where applicable and where available:

   A. Location map to scale displaying the route and **ownership** of storm drainage from the **development** to the receiving **waterway** or **combined sewer**;

B. Location map to scale displaying the route and **ownership** of sanitary flow from the **development** through the local sewer system(s) to the receiving **District** interceptor or facility;

C. United States Geological Survey (USGS) topographic map;

D. Natural Resources Conservation Service (**NRCS**) soils map noting hydric soils;

E. **Cook County FIRM**;

F. **National Wetland Inventory (NWI)**;

G. Aerial photo of the **site**;

H. Aerial photo showing onsite **wetland** and offsite **wetland** boundaries and locations of delineation data points; and

I. Historical aerial photographs, USGS hydrological atlas, or **NRCS wetland** inventory maps;

2. Plan sheet(s) and exhibits that shall contain the following:

A. North arrow;

B. Scale of at least one inch to 100 feet or less (e.g., one inch to 50 feet);

C. Legend;

D. Property and/or **parcel** lines; and

E. Date of original preparation and any revisions;

3. A **drainage area** exhibit that shall include:

A. A vicinity topographic map covering the entire upstream **watershed** that drains to or through the **site** and the entire **watershed** downstream to the point of known or assumed discharge and water surface elevation on the **site**;

B. Top of foundation elevations and overland flow paths on properties located directly downstream of and adjacent to the proposed **site**; and

C. A plan view drawing of existing and proposed **stormwater facilities** at the same scale as the vicinity topographic map that shall include:

(1) **Watershed** boundaries for areas draining through or from the **development**;

(2) The location of the **development** within the **watershed planning area**; and

(3) Soil types, vegetation, and land cover conditions affecting **runoff** upstream of the **development site** for any area draining through or to the **site**;

4. An **erosion** and **sediment** control plan sheet(s) at the same scale as the **stormwater** management plan sheet(s) that shall include:

A. Existing contours with drainage patterns and clearly delineated **watershed** boundaries tributary to the **site**;

B. Location of **flood protection areas** and vegetated areas for the **development** that are to be preserved or avoided;

C. Proposed contours, locations of **waterways**, and the location of **erosion and sediment control practices**;

D. The **drainage area** tributary to each **erosion and sediment control practice** delineated on the drawing;

E. A schedule of construction activities including, but not limited to, clearing and grading of the **site**, installation of **stabilized** construction entrances, disposal of construction waste, stockpiling, and **maintenance** of all **erosion and sediment control practices**;

F. Design details for proposed **erosion and sediment control practices**; and

G. Identification of **person(s)** having legal responsibility for installation, **maintenance**, and removal of **erosion and sediment control practices** during construction and after **development** is completed;

5. The **stormwater** management plan sheet(s) shall include the following:

A. An existing conditions plan sheet(s) that shall contain the following:

(1) Benchmark location and information;

(2) A delineation of any pre-development **regulatory floodplain** and **regulatory floodway** on the **site**;

(3) A **wetland** delineation of all **Jurisdictional Waters of the U.S.**, including **wetlands**, both on the **site** and extending one-hundred (100) feet beyond the **site**;

(4) A delineation of any **riparian environments** on the **site**;

(5) Existing contours on entire **site** and 50 feet beyond the **site**;

(6) Minimal contour intervals of one foot for both existing and proposed contours;

(7) Top of foundation, **lowest floor**, **lowest entry elevation**, and **floodproofing** elevations of all existing **structures** within 100 feet of the **development** area;

(8) Existing **structures**, parking lots, driveways, sidewalks, pathways, trails, and other **impervious areas** on the **site**;

(9) All existing **stormwater facilities** including pipes, field tile, culverts, and inlets on entire **site** and 50 feet beyond the **site**. Information regarding the invert and rim elevations, pipe sizes, pipe lengths, and material type shall be provided;

(10) Existing utilities including sanitary, storm, water main, or any other utilities that exist on the **site**. Information regarding the invert and rim elevations, pipe sizes, pipe lengths, and material type shall be provided; and

(11) Existing trees and vegetation areas on the **site**;

B. A utility and geometry plan sheet(s) shall contain the following:

(1) Delineated limits of any **flood protection areas** on the **site**;

(2) The **FPE(s)** shall be specified, as appropriate;

(3) All existing and proposed impervious surfaces such as roadways, **structures**, parking lots, driveways, sidewalks, pathways, trails, or any other impervious surfaces;

(4) All top of foundation elevations for existing and proposed **structures**;

(5) All existing and proposed **lowest entry elevations** of any **structures** within a **regulatory floodplain** on the **site** or on adjacent property;

(6) All existing and proposed **lowest entry elevations** of any **structures** adjacent to a **stormwater facility**;

(7) All existing and proposed **stormwater facilities** including pipes, field tile, culverts, and inlets, including rim and invert elevations, pipe sizes, pipe lengths, and material type;

(8) Existing and proposed utilities including sanitary, storm, water main, electric, television cables, gas or any others that exist on the **site**. Information regarding the invert and rim elevations, pipe sizes, pipe lengths, and material type should be provided;

(9) Design details for all proposed **stormwater facilities** including, but not limited to, **major and minor stormwater systems**, storage basins, **detention facilities**, **volume control practices**, and outlet works including restrictor size and invert;

(10) Delineated limits of the **base flood** condition from new or adjacent **detention facilities**;

(11) Location of all **volume control practices**;

(12) Downspout and sump pump discharge line locations and directions. Outlets should be outside the limits of **flood protection areas**; and

(13) Location and limits of all easements;

C. A grading plan sheet(s) that shall contain the following:

(1) Delineated limits of any **flood protection areas** on the **site**;

(2) Existing and proposed contours of the entire **site** and 100 feet beyond the **site**;

(3) Existing and proposed spot elevations demonstrating drainage patterns;

(4) **Major and minor stormwater systems** that shall include:

(a) All existing and proposed **stormwater** facilities;

(b) All existing and proposed **volume control practices**;

(c) All existing and proposed **base flood** conditions for the **major stormwater system**;

(d) All existing and proposed overland flow routes;

(e) Stage-storage-discharge table for **detention facilities**;

(f) Design details for proposed **stormwater** facilities including, but not limited to, major and **minor stormwater systems**, storage basins, **volume control practices**, and outlet works including restrictor size and invert; and

(g) **Drainage area** to all proposed **stormwater facilities;**

(5) **A delineation** of the pre-development and post-development **regulatory floodplain** and **regulatory floodway** in accordance with §601 of this **Ordinance**;

(6) Topographic survey drawings of all existing and proposed **structures** located on or within 100 feet of the **site** including the **lowest floor**, **lowest entry elevation**, and **floodproofing** elevations;

(7) Plan view of locations of cross sections utilized to compute **compensatory storage**; in addition, the cross sections should be plotted on the plans or in the **stormwater** management submittal at a scale such that the reviewer can verify quantities;

(8) Location of cross sections and any other hydrologic or hydraulic computer-modeled features;

(9) **Volume control practices**; if native plantings are required this shall be shown on a separate planting plan;

(10) Delineation of all **unrestricted areas**;

(11) Delineation of all **native planting conservation areas**; and

(12) Delineation of all **disturbed areas**;

6. The utility plan sheet(s) for **qualified sewer construction** shall include the following:

A. A utility plan sheet(s) shall contain the following:

(1) Benchmark location and information;

(2) Existing **structures**, parking lots, driveways, sidewalks, pathways, trails, and other **impervious areas** on the **site**;

(3) All top of foundation elevations for existing and proposed **structures**;

(4) All proposed **qualified sewer construction** information including:

(a) **Qualified sewer** manhole, cleanout or other **structure** information including rim, and invert elevation (each labeled by compass direction), with a unique clearly labeled identifier;

(b) **Qualified sewer** pipe size, length, material, and slope, clearly labeled as proposed;

(c) At the upstream **building** connection, estimated sewer invert;

(d) At the downstream point of connection, estimated invert, size, slope, and flow direction of the existing sewer;

(e) Utility crossing information and call outs, including pipe-to-pipe clearance distance, for all water main and water service intersections along the proposed alignment; and

(f) **Qualified sewer** manhole, **structure** lid cover type where appropriate (within HWL or **BFE**);

(5) All existing sanitary and **combined sewer** pipe and **structure** information including pipe size, invert and rim elevation, flow direction, material type, and **ownership**;

(6) All existing sanitary and **combined sewer** pipe and **structure** to be demolished or abandoned, including septic systems;

(7) All existing and proposed water main and water service rim and invert elevations, and the location of all fire hydrants and valves;

(8) Existing and proposed utilities including, electric, television cables, gas or any others that exist on the **site**. Information regarding the invert and rim elevations, pipe sizes should be provided;

(9) All existing and proposed **stormwater facilities** including pipes, field tile, culverts, and inlets, including rim and invert elevations, pipe sizes, pipe lengths, and material type;

(10) Location of all **volume control practices** and **major stormwater systems**;

(11) All proposed and existing downspout and sump pump discharge line locations and directions except for **residential subdivision development**. Outlets should be located outside the limits of **flood protection areas**;

(12) Delineated limits of any **flood protection areas on the site;**

(13) The **BFE** and **FPE(s)** shall be specified in accordance with §601 of this **Ordinance**, as appropriate;

(14) Location and limits of all easements; and

(15) Locations of existing trees and vegetation areas along the alignment;

B. The plan and profile for public **qualified sewer** main **construction** shall include the following (when applicable)**:**

(1) Profile views or all proposed public **qualified sewer** main **construction** depicted on the same sheet as an accompanying plan view;

(2) Profiles shall follow the alignment of public **qualified sewer** main **construction** if substantially different from the centerline of a **right-of-way** alignment;

(3) Proposed size, length, slope, material and class of pipe for all proposed public **qualified sewer** main **construction**;

(4) A unique line type to distinguish between proposed and existing sewer systems;

(5) **Structure** rim and invert elevations (labeled by compass direction) for all proposed **qualified sewer construction** along with a unique identifier;

(6) Horizontal and vertical scale [exaggeration as appropriate to show detail];

(7) Utility crossings with vertical distance between proposed **qualified sewer** and existing or proposed utility;

(8) Existing ground profile (and bedrock when applicable);

(9) Profile stationing to coincide with plan stationing;

(10) Match line when profile covers more than one page; and

(11) For large or complex projects, an insert map indicating immediate plan limits within the overall project.

C. The lift station plan, profile, and schematic shall include the following (when applicable):

(1) Completed **Watershed Management Permit** form Schedule E;

(2) Lift station and wet well plan and profile, including:

(a) Critical pump operation elevations (pump off, pump on, etc.);

(b) Pump installation elevation;

(c) **Structure** rim Elevation; and

(d) Initial Check valve and air/vacuum relief valve;

(3) Force main profile, including:

(a) Location of check valve(s);

(b) Location of combination air/vacuum relief valve(s) along the alignment; and

(c) Stream or **waterway** crossing(s) and crossing provisions;

(4) Pump detail (manufacturer cut sheet) indicating specified horse power and impeller type;

(5) Lift station construction details;

(6) Lift station service area map;

(7) Calculations for lift station design including:

(a) Design population including average and peak flow;

(b) Narrative for basis of lift station design population (service area or actual flow monitoring data);

(c) Force main pipe friction and design head losses;

(d) Wet well capacity, cycle time, detention time;

(e) Narrative of alternative power source;

(f) System curve and pump performance curve; and

(g) The logic of the Programmable Logic Controller, including pump operation elevations.

7. The **wetland** plan sheet(s) shall include:

A. In plan view, the location of **wetland** and **wetland buffer** on or within 100 feet of the **site**, based upon a survey of the **wetland** delineation in accordance with §603 of this **Ordinance**;

B. Acreage and area of proposed impact to **wetland** or **wetland buffer**; and

C. A proposed **wetland mitigation** that meets the requirements of §604 of this **Ordinance**, if **wetland** or **wetland buffer** impacts are proposed; the proposed **wetland mitigation** plan sheet(s) shall include the following:

(1) Location and acreage of proposed **wetland mitigation**;

(2) Soil locations and soil management activities;

(3) Planting zones, species, quantities, sizes, locations, specifications, methodologies, and details;

(4) **Hydrology** monitoring equipment locations;

(5) Schedule of earthwork, planting, **maintenance**, and monitoring;

(6) Temporary and permanent access locations; and

(7) Applicable **maintenance** and conservation easements granted or dedicated to, and accepted by, a governmental entity;

8. The riparian plan sheet(s) shall include:

A. Location of **riparian environments** located on **site**, based upon a survey of the Ordinary High Water Mark (**OHWM**) of the channel or stream and associated **riparian environment**, in plan view;

B. Acreage and area of proposed impact to **riparian environments** as defined in §607.3 of this **Ordinance** ; and

C. Proposed **riparian environment** mitigation plan that meets the requirements of §607 of this **Ordinance**, if riparian mitigation is required. The proposed **riparian environment** mitigation plan sheet(s) shall include the following:

(1) A plan and profile of the existing and proposed channel showing the channel width, depth, sinuosity, and location of in-stream **structures**;

(2) Proposed planting zones, species, quantities, sizes, locations, specifications, methodologies, and details;

(3) Schedule of earthwork, planting, **maintenance**, and monitoring;

(4) Temporary and permanent access locations; and

(5) Applicable **maintenance** and conservation easements granted or dedicated to, and accepted by, a governmental entity; and

9. The recording plan sheet(s) shall include:

A. Location of all existing and proposed **detention facilities** to meet **District stormwater storage** requirements and to ensure they are permanently sustained and adequately maintained by future **parcel owners**;

B. Location of any offsite, trade-off **detention facilities** to meet **District stormwater storage** requirements not located on the **parcel** and to ensure they are linked to the permitted **parcel development** and permanently sustained and adequately maintained by future/alternate **parcel owners**;

C. Location of all existing and proposed **volume control practices** to meet **District volume control** requirements and to ensure they are permanently sustained and adequately maintained by future **parcel owners**;

D. Entire **parcel** area for phased **development** providing notice of **stormwater** detention storage requirements for undeveloped portions of a **parcel** now developed in part under the WMO;

E. A sewer utility plan for **parcels** outside the territorial boundaries of a **municipality** delineating any **qualified sewer construction** to be maintained by the **co-permittee** in the event that the Township or County is unwilling or unable to do so;

F. Location of all **wetland and riparian mitigation areas** provided to meet **District** mitigation requirements and to ensure they are permanently sustained and adequately maintained by future **parcel owners**;

G. Location of all native or natural planting areas to ensure they are permanently sustained and remain as native or natural planting areas by future **parcel owners**; and

H. Location of all **qualified sewer construction** for **parcels** in unincorporated areas, to ensure sewer systems are permanently sustained and adequately maintained by future **parcel owners** in the event the **permittee** (township or other non municipal entity) is unwilling or unable to do so.

§ 309. Recordation and Obligations of a Watershed Management Permit

1. At the expense of the **Co-Permittee**, the **District** may record the recording submittal specified under §308.9 of this **Ordinance**, together with the appropriate permit form (Schedule R) with the **Cook County** Recorder of Deeds.

2. The **Director of Engineering** may record the **Watershed Management Permit** and any amendments thereto with the **Cook County** Recorder of Deeds.

3. Obligations imposed under a recorded **Watershed Management Permit** shall continue for the useful life of the subject **development** or **qualified sewer construction**.

§ 310. Maintenance and Monitoring Plan Submittal

The **maintenance** and monitoring plan submittal shall describe all measures appropriate for the **development** during the construction phase such that requirements of Article 4, Article 5, Article 6, and Article 7 are met, and for the post-construction phase such that all the requirements of Article 9 of this **Ordinance** are met. Such submittal shall include the following when applicable:

1. A schedule of implementation of the **erosion** and **sediment** control plan including, but not limited to:

   A. A statement that installation of **erosion and sediment control practices** will occur prior to any soil disturbance;

   B. A schedule for construction activities, including **stabilized** construction entrance installation, **sediment** trapping facility installation, **site** clearing, stockpiling, grading, construction waste disposal, temporary and permanent **stabilization**, and removal of temporary **erosion and sediment control practices**;

   C. A schedule for inspection, reporting, and maintenance of all erosion and sediment control practices; and

   D. Contact information for the party responsible for implementation and **maintenance** of the **site** soil **erosion** and **sediment** control plan;

2. A scheduled perpetual **maintenance** program for **stormwater facilities** including, but not limited to:

   A. Planned **maintenance** tasks and frequency of each task such as removal of **sediment**, debris, mowing and pruning of vegetation, and restoration of eroded areas;

   B. Identification of the responsible parties for performing the **maintenance** tasks; and

   C. A description of applicable temporary and permanent access and **maintenance** easements granted or dedicated to, and accepted by, a governmental entity.

3. A scheduled perpetual **maintenance** program for **qualified sewer construction** including, but not limited to:

   A. Planned **maintenance** tasks and frequency of each task for the removal of objectionable wastes, fats, oils and grease, or any **other wastes** collected in private pre-treatment or separator **structures**;

   B. Planned routine **maintenance** for all private lift station and pumping facilities;

   C. Operation **maintenance** agreements for all private **service sewers** providing service to multiple **owners**;

   D. Identification of the responsible parties for performing the **maintenance** tasks; and

   E. A description of applicable temporary and permanent access and **maintenance** easements granted or dedicated to, and accepted by, a governmental entity.

4. If **wetland mitigation** is required, a **wetland mitigation** document shall be developed in accordance with §604 of this **Ordinance**. This document shall include:

   A. Proposed **wetland hydrology** and an inundation and duration analysis;

   B. Proposed soils and soil management activities;

   C. Proposed planting zones, species, quantities, sizes, locations, specifications, methodologies, and details;

   D. Proposed **maintenance** and monitoring plan with **maintenance activities** and performance criteria outlined;

   E. Schedule of earthwork, planting, monitoring, and **maintenance**;

F. A plan for the continued management, operation, and **maintenance** of the **wetland mitigation** measures including the designation of funding sources and the person responsible for long-term operation and **maintenance**; and

G. A description of applicable temporary and permanent access and **maintenance** and conservation easements granted or dedicated to and accepted by a governmental entity; and

5. If riparian mitigation is required, a **riparian environment** mitigation document shall be developed in accordance with §607 of this **Ordinance**. This document shall include:

A. The proposed methods which will allow naturalizing to occur, such as meandering, pools, or riffles for relocated channels. Methods proposed are expected to be able to withstand all events up to the **base flood** without increased **erosion**;

B. The methods by which the normal flow within the channel will be diverted to construct the new or relocated channel;

C. The **erosion and sediment control practices** to be utilized to minimize and control **sediment** and degradation of downstream water quality;

D. The appropriate hydrologic and hydraulic methods analyzing the impacts on **flood** flows and **flood** elevations (to be provided in the **floodplain** and **floodway** submittal) meeting all other requirements in the **Ordinance**, including the **floodplain/floodway** requirements outlined in §601 and §602 of this **Ordinance**;

E. Proposed planting zones, species, quantities, sizes, locations, specifications, methodologies, and details;

F. Proposed **maintenance** and monitoring plan with **maintenance activities** and performance criteria outlined;

G. Scheduling of earthwork, planting, **maintenance,** and monitoring;

H. A plan for the continued management, operation, and **maintenance** of the **riparian environment mitigation** measures, including the designation of funding sources and the **person** responsible for long-term operation and **maintenance**; and

I. A description of applicable temporary and permanent access and **maintenance** and conservation easements granted or dedicated to, and accepted by, a governmental entity.

§ 311. Record Drawings

1. Upon completion of **development**, **record drawings** of the **site stormwater** plan sheet(s), **detention facility**, and **stormwater facilities** shall be submitted to the **District**. **Record drawings** shall consist of the following as necessary:

   A. Record topography with one foot contours;

   B. Record utility plans; and

   C. Cross sections.

2. All **record drawings** shall contain benchmark information and reference a vertical datum.

3. **Record drawing** calculations shall be required showing the as-built volume of **compensatory storage**. As-built **compensatory storage** volume calculations shall incrementally determine both cut and fill volumes within the **regulatory floodplain** as follows:

   A. Below the 10-year **flood** elevation; and

   B. Between the 10-year **flood** elevation and **BFE**.

4. **Record drawing** calculations shall be required showing the as-built volume of the **volume control practices**.

5. **Record drawing** calculations shall be required showing the as-built volume of the **detention facility**.

6. If the constructed grades, geometries, or inverts of **stormwater facilities**, **volume control practices**, or **detention facilities** are not in conformance with the approved plans, the **co-permittee** shall be responsible for any modifications required for compliance with this **Ordinance**.

7. **Record drawings** shall be prepared, signed, and sealed by a **Professional Engineer** or a **Professional Land Surveyor**. The record calculations shall be prepared, signed, and sealed by a **Professional Engineer**.

§ 312. Terms of Permit/Denial - Appeal

1. Upon receipt of a complete **Watershed Management Permit** application, either the **District** or an **authorized municipality** may:

   A. Request clarifications or revisions from the **co-permittee**;

   B. Issue a **Watershed Management Permit**;

   C. Issue a **Watershed Management Permit** with special conditions in accordance with this **Ordinance**; or

   D. Deny the application for a **Watershed Management Permit**.

2. Any **co-permittee** aggrieved by the special conditions or denial of a **Watershed Management Permit** may appeal said denial or special conditions as specified in Article 13 of this **Ordinance**.

§ 313. Permit Fees

1. The **District** shall establish a schedule of permit fees in accordance with the provisions of this **Ordinance**, which may be amended from time to time. The Schedule of permit fees is included in Appendix F of this **Ordinance**.

2. An **authorized municipality** may establish a schedule of permit fees in accordance with the provisions of this **Ordinance**, which may be amended from time to time.

3. Fees shall be based upon the costs either the **District** or **authorized municipality** incurs for all aspects of the permitting process, including, but not limited to, review of permit applications and inspections.

4. A **co-permittee** shall pay all relevant permit fees at the time of application for a **Watershed Management Permit**.

§ 314. Construction Timeline Requirements and Approval of Plan Revisions

1. Construction activities authorized under a **Watershed Management Permit** must be initiated within one year following the date of permit issuance. Failure to commence construction activities within one year following the date of permit issuance renders the issued **Watershed Management Permit** null and void.

2. Construction activities authorized under a **Watershed Management Permit** must be completed within three years following the date of permit issuance.

3. If construction activity has been started but is not completed within three years of the date of issuance of a **Watershed Management Permit** and the **co-permittee** intends to pursue the permitted activity, then the **co-permittee** shall submit a written request for an extension. Upon receipt of such request, either the **District** or an **authorized municipality** may grant an extension for construction activities under a **Watershed Management Permit**.

4. After issuance of a **Watershed Management Permit**, all material revisions to the plans require the approval of either the **District** or an **authorized municipality**. The **co-permittee** shall submit a written request for approval, the appropriate fee, and the revised plans to either the **District** or an **authorized municipality**. If either the **District** or **authorized municipality** determines that the revised plans are in compliance with the then current requirements of this **Ordinance**, an approval of the revised plans will be issued.

ARTICLE 4. REQUIREMENTS FOR EROSION AND SEDIMENT CONTROL

§ 400. Erosion and Sediment Control General Requirements

1. Any **development** requiring a **Watershed Management Permit** as specified in §201 shall comply with the requirements of Article 4. All **co-permittees** shall submit the documents specified in §302 of this **Ordinance** to demonstrate compliance and must develop an **erosion** and **sediment** control plan.

2. All **developments** that are subject to National Pollutant Discharge Elimination System (**NPDES**) Permit ILR-10 shall meet the submittal and approval requirements of ILR-10.

3. All **developments** shall incorporate **erosion and sediment control practices** into the initial **site** plan. Primary emphasis should be placed on **erosion control practices** as they are preventative source controls, while **sediment control practices** are secondary measures designed to contain eroded soil after it is in transport.

4. For all **developments** that discharge directly to **Jurisdictional Waters of the U.S.**, the hydraulic and hydrologic design of the **erosion** and **sediment** control plan shall be designed for a **storm event** equal to or greater than a 25-year, 24-hour **storm event**.

5. Design criteria and specifications for **erosion and sediment control practices** shall be taken from the **Illinois Urban Manual**, as amended.

6. Where criteria and specifications are not provided in the **Illinois Urban Manual**, the design criteria and specifications shall be taken from the **TGM**.

7. Other **erosion and sediment control practices** that are equally effective as those in the **Illinois Urban Manual** may be used if either the **District** or an **authorized municipality** provides prior written approval.

8. **Erosion and sediment control practices** shall be functional before disturbances are made to the **site**.

§ 401. Temporary Erosion Control Requirements

1. Existing vegetation shall be preserved where practicable to minimize the area of soil disturbance.

2. Selection of appropriate **erosion control practices** shall consider:

   A. Seasonal, topographic, and **maintenance** limitations;

   B. The susceptibility of soils to **erosion**; and

C. Proximity to **flood protection areas**.

3. Temporary **erosion control practices** are **stabilization** measures that include, but are not limited to, protection of existing vegetation or establishment of new vegetation, such as seeding and sod **stabilization**, mulches and soil binders, geotextiles, **erosion** control blankets, plastic covers and mats, wind and dust control measures, **stormwater** conveyance channels, and velocity dissipation measures.

4. Areas where the existing ground cover does not consist of appropriate stabilizing vegetation in the portions of the **site** not under current **development** shall incorporate appropriate **erosion control practices**.

5. **Erosion control practices** shall be maintained on a year-round basis during construction and any periods of construction shutdown until permanent **stabilization** is achieved.

6. For projects involving phased construction, the portions of the **site** where construction activities have temporarily or permanently ceased must have **stabilization** practices completed within seven days, except:

   A. Where precluded by snow cover, **erosion control practices** shall be completed as soon as practicable; or

   B. Where construction activity resumes on that portion of the **site** within fourteen (14) days from when activities ceased.

7. If a soil stockpile is to remain dormant or undisturbed:

   A. For time periods between thirty (30) days and twelve (12) months, temporary **stabilization** shall be completed within seven days of the formation of the stockpile; or

   B. For time periods of more than twelve (12) months, permanent **stabilization** of the stockpile shall be completed within seven days of the formation of the stockpile.

8. Any trenches, holes, or other excavations required for utility installation shall be protected at the end of each workday.

9. **Development sites** shall incorporate appropriate **erosion control practices** that reduce the potential for wind **erosion**.

10. Velocity dissipation measures shall be placed at discharge locations and along the length of any **outfall** channel, as necessary, to provide a non-erosive velocity flow so

that the natural, physical, and biological characteristics and functions of the channel are maintained and protected.

11. **Erosion control practices** shall be functional before disturbances are made to the **site**.

12. Earthen embankment side slopes shall not exceed 3:1 (horizontal to vertical) and shall be **stabilized** with an **erosion** control blanket.

§ 402. Temporary Sediment Control Requirements

1. Selection of appropriate **sediment control practices** shall consider:

   A. Seasonal, topographic, and **maintenance** limitations;

   B. Amount of tributary **drainage area**; and

   C. Proximity to **flood protection areas**.

2. **Sediment control practices** include, but are not limited to, **silt fences**, fiber rolls and berms, storm drain inlet controls such as barriers and inserts, entrance and exit controls, **sediment** traps, basins, and check **dams**. Straw bales shall not be used as **sediment control practices**.

3. Perimeter **sediment control practices** shall be installed and functioning prior to soil disturbance.

4. **Sediment control practices** shall be maintained on a year-round basis during construction and any periods of construction shutdown until permanent **stabilization** is achieved.

5. **Sediment control practices** shall intercept all **runoff** from **disturbed areas** before **runoff** leaves the **site** under the following conditions:

   A. **Disturbed areas** draining less than one acre shall be protected by **silt fence** or equivalent; or

   B. **Disturbed areas** draining more than one acre shall be protected by a **silt fence** and a **sediment basin** or equivalent, which shall be:

      (1) Sized to intercept the 2-year, 24-hour **runoff** volume from the tributary **drainage area**; and

      (2) Located at the lowest point of the disturbance.

6. All storm drain inlets draining **disturbed areas** shall be protected with an appropriate **sediment control practice**.

7. A **stabilized** construction entrance/exit shall be provided to prevent soil from being tracked or deposited onto public or private roadways. Any soil reaching a public or private roadway shall be removed immediately and transported to a controlled **sediment** disposal area.

8. If a soil stockpile is created on the **site**, perimeter **sediment** controls shall be placed around the stockpile immediately.

9. Construction dewatering operations shall be designed and operated so that water discharged from a **site** will meet State of Illinois water quality standards, as set forth in Title 35, Subtitle C, Chapter I, Part 302, Subpart B, of the Illinois Administrative Code.

§ 403. Construction Site Management Requirements

1. All waste generated as a result of **site development** including, but not limited to, any building waste, concrete truck washout, chemicals, litter, sanitary waste, or any **other waste** shall be properly disposed of and shall be prevented from being transported offsite by either wind or water.

2. **Flood protection areas** shall be protected with a minimum of a double-row **silt fence** or equivalent measure.

3. Soil stockpiles or other construction materials shall not be located within **flood protection areas** or their buffers.

4. Temporary stream crossings used during construction shall be designed to convey a 2-year, 24-hour **flood** event without overtopping unless either the **District** or an **authorized municipality** approves a more frequent design event. In addition, the following conditions shall be met:

   A. Temporary stream crossings shall not reduce the carrying capacity of the channel;

   B. The entire crossing shall be designed to withstand hydrodynamic, hydrostatic, and erosive forces up to the **base flood** event without washing out;

   C. Upon completion of construction, the temporary stream crossings shall be entirely removed and the stream bed and banks restored to a stable non-erosive condition that incorporates native vegetation where appropriate; and

D. **Erosion and sediment control practices** shall be implemented and maintained during installation, **maintenance**, and removal of temporary stream crossings.

§ 404. Permanent Erosion Control Requirements

1. Permanent **erosion control practices** shall be initiated within seven days following the completion of soil disturbing activities.

2. All temporary **erosion and sediment control practices** shall be maintained until permanent **stabilization** practices are achieved by at least one of the following:

   A. The establishment of a uniform (e.g., evenly distributed, without large bare areas) perennial vegetative cover with a density of 70 percent on all unpaved areas and areas not covered by permanent **structures**; and

   B. Installation of riprap, gabions, or other non-vegetative practices.

3. All temporary **erosion and sediment control practices** shall be removed within thirty (30) days after permanent **stabilization** is achieved in accordance with §404.2 of this **Ordinance**.

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ARTICLE 5. REQUIREMENTS FOR STORMWATER MANAGEMENT

§ 500. General Site Development and Stormwater Management Information

1. All **developments** shall meet the requirements specified for general **site development** specified in §501, Article 4, Article 6, and Article 9 of this **Ordinance**.

2. All **co-permittees** shall submit the documents specified in Article 3 to verify compliance with the requirements in Article 5 of this **Ordinance**.

3. **Development** in **combined sewer areas** shall collect, route and discharge **stormwater** to the **waterway** as required in §502.19 of this **Ordinance**.

4. Analysis, design, and performance standards of all **stormwater facilities** required for **development** shall be consistent with the **TGM** for the **Ordinance**.

5. **Stormwater facilities** constructed under the provisions of this **Ordinance** shall be maintained according to the criteria and guidelines established in Article 9 of this **Ordinance**.

6. For all **developments**, **stormwater facilities** shall be designed to comply with Illinois drainage law in addition to the requirements of this **Ordinance**.

7. For any **development** subject to an intergovernmental agreement listed in Appendix G, the terms of the intergovernmental agreement shall prevail over any conflicting requirements of Article 5 of this **Ordinance**.

§ 501. General Site Development and Stormwater Management Requirements

1. **Development** shall not:

   A. Increase **flood** elevations or decrease **flood** conveyance capacity upstream or downstream of the area under the **ownership** or control of the **co-permittee**;

   B. Pose any increase in **flood** velocity or impairment of the hydrologic and hydraulic functions of streams and **floodplains** unless a **water resource benefit** is realized;

   C. Violate any provision of this **Ordinance** either during or after construction; and

   D. Unreasonably or unnecessarily degrade surface or ground water quality.

2. **Development** shall meet the **site stormwater** management requirements of Article 5 as summarized in Table 2 of this **Ordinance**.

Table 2.
Summary of Site Stormwater Management Requirements[1]

	§502	§503	§504
Development Type (See Appendix A for definitions)	**Runoff Requirements**	**Volume Control Requirements[2]**	**Detention Requirements[2]**
Single-Family Home	Exempt	Exempt	Exempt
Residential Subdivision	**Parcels** ≥ 1 acre	**Parcels** ≥ 1 acre	**Parcels** ≥ 5 acres
Multi-Family Residential	**Parcels** ≥ 0.5 acre	**Parcels** ≥ 0.5 acre	**Parcels** ≥ 3 acres ‡
Non-Residential	**Parcels** ≥ 0.5 acre	**Parcels** ≥ 0.5 acre	**Parcels** ≥ 3 acres ‡
Right-of-Way	**New Impervious Area** ≥ 1 acre	**New Impervious Area** ≥ 1 acre †	**New Impervious Area** ≥ 1 acre †
Open Space	**Parcels** ≥ 0.5 acre	Not Applicable	Not Applicable

1 **Site stormwater** management requirements are not required for **maintenance activities** as defined in Appendix A.

2 Requirements are applicable when a **Watershed Management Permit** is required under §201 of this **Ordinance.**

† Where practicable.

‡ Starting the effective date of this **Ordinance,** any new **development** on the **parcel** that totals either individually or in the aggregate to more than one-half (0.5) of an acre.

3. The **District** or an **authorized municipality** may issue a **Watershed Management Permit** without the **co-applicant** providing stormwater **detention facilities** for the entire **parcel** and place a special condition on the **Watershed Management Permit** requiring stormwater **detention facilities** to be provided by the **co-applicant** for future **development** on the **parcel**. The **co-applicant** shall submit Schedule L with the **Watershed Management Permit** , which shall be recorded with the Cook County Recorder of Deeds, as an encumbrance against the entire **parcel**.

§ 502. Site Runoff Requirements

1. The requirements of this section shall apply to any of the following:

   A. **Residential subdivision development** on **parcels** totaling one acre or more;

   B. **Multi-family residential development** on **parcels** totaling one-half of an acre (0.5 acre) or more;

   C. **Non-residential development** on **parcels** totaling one-half of an acre (0.5 acre) or more;

   D. **Right-of-way development** totaling one acre or more of **new impervious area**, where practicable; and

   E. **Open space development** on **parcels** totaling one-half of an acre (0.5 acre) or more.

2. Transfers of waters between **watersheds** shall be prohibited except when such transfers will not violate any of the provisions of §501.1 of this **Ordinance**.

3. Concentrated discharges from **stormwater facilities** must enter conveyance systems that are:

   A. Capable of carrying the **design runoff rate** without increasing **flood** or **erosion** damages downstream or on adjacent property for the 2-year, 10-year, and 100-year **storm events**; or

   B. Contained within public **rights-of-way** or public easements.

4. **Design runoff rates** for **major stormwater systems** shall be calculated by using event hydrograph methods. Event hydrograph methods must be HEC-1 (SCS **runoff** method), HEC-HMS, or TR-20. A **critical duration analysis** is required for all methods. Event hydrograph methods shall incorporate the following assumptions:

   A. Antecedent Moisture Condition II;

B. **Bulletin 70** northeast sectional rainfall statistics shall be used for rainfall depths; and

C. Appropriate Huff rainfall distributions shall be used when performing the **critical duration analysis**.

5. **Minor stormwater systems** shall be sized to convey **runoff** from the **tributary area** under fully developed conditions consistent with the design requirements of the local jurisdiction or existing **stormwater** system.

6. **Major stormwater systems** shall be sized to convey the **design runoff rate** of the 100-year **storm event** using the methodology provided in §502.4 of this **Ordinance**. The **design runoff rate** for **major stormwater systems** shall include the calculated flows from all the **tributary areas** upstream of the point of design without increasing **flood** or **erosion** damages downstream or on adjacent properties.

7. Drain tiles that are found on the **site** during design or construction of the **development** shall be replaced and incorporated into the new **site** drainage plan or removed and incorporated into the new **site** drainage system, based upon their existing capacity and capability to properly convey low flow **groundwater** and upstream flows. The **co-permittee** shall ensure that:

   A. The new **site** drainage plan shall not cause damage to upstream and downstream **structures**, land uses, or existing **stormwater facilities**;

   B. Drain tiles that receive **upstream tributary flows** shall maintain drainage service during construction until the new **stormwater** system can be installed for a permanent connection;

   C. Replaced drain tile shall be properly reconnected to the downstream system and located within a public **right-of-way** or dedicated easement and marked on the **record drawings**; and

   D. Drain tiles are not tributary to either a **sanitary sewer** or **combined sewer**.

8. **Major stormwater systems** and **minor stormwater systems** shall be located within easements or rights-of-way explicitly providing public access for **maintenance** of such facilities.

9. **Upstream tributary flows** must be considered for all **developments** and safely routed through or around the **site** in the following manner:

   A. Where **site** detention is not required in §504.1, the **co-permittee** shall demonstrate that the **development** will not increase velocities or flows

downstream or on adjacent properties for the 2-year, 10-year, and 100-year **storm events**, at a minimum, using **critical duration analysis** and the methodology provided in §502.4 of this **Ordinance**; and

B. Where **site detention** is required in §504.1, the requirements of §504.10 of this **Ordinance** apply.

10. The **runoff** or **flood** water storage function of **depressional storage** on the **site** shall be preserved. For **developments** where the **depressional storage** is altered, the **depressional storage** must be compensated in the following manner depending on whether **site** detention is required per §504.1 of this **Ordinance**:

A. Where **site detention** is not required, the **co-permittee** shall demonstrate that the proposed **development** does not increase velocities, flows, or **flood** elevations downstream nor on adjacent properties for the 2-year, 10-year, and 100-year **storm events** of a 24-hour duration. The analysis shall utilize the methodology described in §502.4 of this **Ordinance** and include the **upstream tributary flow** areas to the existing **depressional storage**; and

B. Where **site** detention is required, the requirements of §504.5 of this **Ordinance** shall apply.

11. All **developments** shall provide a separate **sanitary sewer** and a separate **storm sewer** within the property lines of the **development**.

12. Maximum flow depths on roads for all **development** shall not exceed twelve (12) inches during the **base flood** condition.

13. Maximum detention depths on new parking lots shall be designed for protection against damages caused by **stormwater** detention inundation, which shall not exceed twelve (12) inches. The inundation hazard below the 100-year high water elevation shall be clearly posted.

14. For **developments** adjacent to a **floodplain**, the **lowest floor** in new **buildings** or additions to existing **buildings** shall be:

A. Elevated to the **FPE** as determined by §601.9 of this **Ordinance**; or

B. **Floodproofed** or otherwise protected to prevent the entry of surface **stormwater** or floodwater below the **FPE** and such that the **lowest entry elevation** of the **building** is at or above the **FPE**; and

C. **Floodproofing** devices should be operational without human intervention. If

electricity is required for protection against **flood** damage, there shall be a backup power source that will activate without human intervention.

15. The **lowest floor** in new **buildings**, or added to existing **buildings**, adjacent to a **major stormwater system** as sized in §502.6 or a **detention facility** overflow path as designed in §504.11.C of this **Ordinance** shall be elevated, **floodproofed**, or otherwise protected to at least one foot above the design elevation associated with the design flow rate to prevent the entry of surface **stormwater**.

16. The **lowest floor** in new **buildings**, or added to existing **buildings**, adjacent to a **detention facility** as designed in §504.11 of this **Ordinance** shall be elevated, **floodproofed**, or otherwise protected with a minimum of one foot of freeboard for the **base flood** condition to prevent the entry of surface **stormwater**.

17. To the extent practicable, all **runoff** from rooftops and parking lots that does not discharge into a **detention facility** shall be directed onto pervious surfaces.

18. Proposed **developments** that discharge **stormwater** to a private sewer shall obtain written permission from the sewer **owner**.

19. The **co-permittee** shall procure any required federal, state, or local permits for **stormwater** discharges to a **waterway**. **Development** in **combined sewer areas** shall collect, route and discharge **stormwater** to either a **waterway** or **storm sewer** if:

    A. Any boundary of the **development** is within one-eighth (1/8) of a mile of either a **waterway** or **storm sewer**; or

    B. Any boundary of the **development** is within one-fourth (1/4) of a mile of either a **waterway** or **storm sewer** if practicable.

20. Proposed **developments** that propose offsite construction on private property shall obtain written permission from the property **owner** and obtain any required easements.

21. Watertight connections are required for any **storm sewer**, **sanitary sewer**, or **combined sewer**, excluding **underdrains**, tributary to a **combined sewer**. Watertight connections per **sanitary sewer** standards are required between sewer segments and all manholes, inlets, and **structures**.

22. **Underdrains** shall not be tributary to a **combined sewer**, unless:

    A. Separation is provided upstream of the receiving **combined sewer**;

B. The **underdrain** is intended to protect a **building** or **structure** foundation and cannot discharge to a **storm sewer**; or

C. The **underdrain** is used in conjunction with **green infrastructure** and conforms to the **TGM**.

23. **Underdrains** shall not be directly connected to any sewer tributary to a **combined sewer** without backflow prevention.

§ 503. Site Volume Control Requirements

1. The requirements of this section shall apply to any of the following when a **Watershed Management Permit** is required under §201 of this **Ordinance**:

A. **Residential subdivision development** on **parcels** totaling one acre or more;

B. **Multi-family residential development** on **parcels** totaling one-half of an acre (0.5 acre) or more;

C. **Non-residential development** on **parcels** totaling one-half of an acre (0.5 acre) or more; and

D. **Right-of-way development** totaling one acre or more of **new impervious area**, where practicable.

2. The first inch of **runoff** from the **impervious area** of **development** on the **site** shall be the **volume control storage**.

3. **Volume control practices** shall provide treatment of the **volume control storage**. The **volume control practices** shall be designed according to the following hierarchy:

A. **Retention-based practices** with quantifiable storage capacity shall be the primary form of water quality treatment. **Retention-based practices** shall:

(1) Be sized to retain and infiltrate the **volume control storage**;

(2) Include, but not be limited to: infiltration trenches, infiltration basins, porous pavement, bio retention systems, dry wells, open channel practices fitted with check **dams**, retention storage below the outlet of a **detention facility**, and constructed **wetlands** that have quantifiable storage; and

(3) Provide pretreatment measures to protect the functionality of **retention-based practices** where necessary. **Flow-through practices** included in

§503.3.B of this **Ordinance** may be used to meet the pretreatment requirement where appropriate.

B. **Flow-through practices** shall be required for treatment of any portion of the **volume control storage** that has not been treated using **retention-based practices**. **Flow-through practices** shall:

(1) Be sized to filter the **volume control storage** as it passes through the **structure**; and

(2) Include, but not be limited to: vegetated filter strips, bio swales, constructed **wetlands**, catch basin inserts, and oil and grit separators.

C. For **redevelopments** with **site** constraints that prevent use of **retention-based practices** to retain the **volume control storage** in full, a co-applicant may reduce the **volume control storage** by twenty-five percent (25%) for every five-percent (5%) of reduced **impervious area**, however, the co-applicant shall:

(1) Demonstrate that **site** limitations prevent the co-applicant from providing the entire **volume control storage** onsite; and

(2) Provide the **volume control storage** onsite to the maximum extent practicable with **retention-based practices**.

§ 504. Site Detention Requirements

1. The requirements of this section shall apply to any of the following when a **Watershed Management Permit** is required under §201 of this **Ordinance**:

A. **Residential subdivision development** on **parcels** totaling five acres or more;

B. **Multi-family residential development** on **parcels** totaling three acres or more with new **development** on the **parcel** that totals either individually or in the aggregate to more than one-half of an acre (0.5 acre) after the effective date of this **Ordinance**;

C. **Non-residential development** on **parcels** totaling three acres or more with new **development** on the **parcel** that totals either individually or in the aggregate to more than one-half of an acre (0.5 acre) after the effective date of this **Ordinance**; and

D. **Right-of-way development** totaling one acre or more of **new impervious area**, where practicable.

2. The area of **development** shall be used to calculate the **development**'s **allowable release rate**.

3. The **allowable release rate** for a **development** shall be determined at the time a complete **Watershed Management Permit** application is accepted by the **District** and shall be:

   A. 0.30 cfs/acre of **development** for the **storm event** having a one percent probability of being equaled or exceeded in a given year (100-year **storm event**) until April 30, 2019; and

   B. Based on a **watershed** specific release rate after and including May 1, 2019 as specified in Appendix B. The **watershed** specific release rate shall not be less than 0.15 cfs/acre of **development**.

4. The release rate from the **detention facility** in addition to any **unrestricted flow** shall not exceed the **allowable release rate** for the **development**.

5. For **sites** where **depressional storage** exists and where the existing **runoff** rate for the **development** is less than the **allowable release rate** provided in §504.3, then the **allowable release rate** and the corresponding **detention facility** volume shall be based on the existing **runoff** rate. The existing **runoff** rate shall be calculated using the methods described in §504.9 of this **Ordinance**.

6. When all **runoff** from a **development** is not captured in the **detention facility**, the **unrestricted flow** shall be addressed by:

   A. Demonstrating that the **unrestricted flow** does not cause offsite damage; and

   B. Providing for **unrestricted flow** by one of the following methods:

      (1) Diverting an equivalent **upstream tributary area** where detention is not provided to the **detention facility**;

      (2) Calculating the **unrestricted flow** rate using the methods in §504.9 of this **Ordinance** and reducing the required **site runoff** release rate such that the total developed release rate from the **development site** equals the **allowable release rate**; or

      (3) Planting the **unrestricted flow** area with native deep-rooted vegetation approved by either the **District** or an **authorized municipality**. **Unrestricted flow** areas shall be placed in an easement and maintained as a **native planting conservation area** in perpetuity. The **allowable release**

rate for the **development** shall be based on the **development** area tributary to the **detention facility**.

7. **Detention facility** volume shall be calculated using either an event hydrograph routing method or the nomograph relating percent impervious to unit area as presented in the **TGM**. The nomograph shall not be used in any of the following scenarios:

   A. The **allowable release rate** is affected by **depressional storage** on the **site** described in §504.5 of this **Ordinance**;

   B. The **allowable release rate** is affected by **unrestricted flow** as described in §504.6.B(2) or §504.6.B(3) of this **Ordinance**;

   C. When there are **upstream tributary flows** to the **detention facility** described in §504.10 of this **Ordinance**; or

   D. When there are tailwater conditions on the **detention facility** outlet **structure**.

8. The **detention facility** volume calculated in §504.7 of this **Ordinance** can be reduced by:

   A. The volume of the retention-based **volume control storage** provided in §503.3.A; and

   B. The volume of any **retention-based practice** listed in §503.3.A.(2) in excess of the **volume control storage** if all of the following conditions are met:

      (1) The storage volume of the **retention-based practice** is quantifiable;

      (2) The storage volume of the **retention-based practice** is accessed under the 100-year **storm event**;

      (3) The **development** complies with the **allowable release rate** specified in §504.3; and

      (4) **Maintenance** responsibilities for the **retention-based practice** are delineated in the **maintenance** plan required in Article 9 of this **Ordinance**.

9. Event hydrograph methods shall be HEC-1, HEC-HMS, TR-20, or a method approved by the **District**, using SCS curve number methodology and an outlet control routing option. Event hydrograph methods shall incorporate the following assumptions:

   A. Antecedent Moisture Condition II; and

   B. 100-year **storm event** with a 24-hour duration, as specified in **Bulletin 70**

northeast sectional rainfall statistics and appropriate Huff time distribution of heavy storm rainfall.

10. **Developments** that have **upstream tributary flow** to the **site** shall provide one of the following **site runoff** measures:

    A. Provide **detention facility** volume for the **development** at the **allowable release rate** while bypassing **upstream tributary flows** described in §502.9 of this **Ordinance** (bypass flow);

    B. Provide **detention facility** volume to accommodate both the **runoff** for the **development** and the **upstream tributary flow** area on the **site** at the **site**'s **allowable release rate**; or

    C. Provide sufficient **detention facility** volume to accommodate **runoff** from the **development** and the **upstream tributary flow** area at a release rate that ensures that no adverse offsite impacts will occur. The **co-permittee** shall consider **runoff** from all **tributary areas** and demonstrate the impacts for 2-year, 10-year, and 100-year **storm events**, at a minimum, using **critical duration analysis** and the methodology provided in §504.9. The minimum **detention facility** volume required shall be based on the **site allowable release rate** as determined in §504.3 and §504.4 of this **Ordinance**.

11. **Detention facilities** shall be designed and constructed to:

    A. Function with a gravity outlet wherever possible;

    B. Function without human intervention and under tailwater conditions with minimal **maintenance**;

    C. Provide an overflow **structure** and overflow path that can safely pass a **design runoff rate** of at least 1.0 cfs/acre of **tributary area** to the **detention facility**;

    D. Provide side slope **stabilization**;

    E. Provide earth **stabilization** and armoring with riprap, concrete or other durable material when high erosive forces could lead to soil **erosion** or washout. Examples of where armoring may be required include:

        (1) **Storm sewer** flared end sections; and

        (2) Emergency overflows.

    F. Be accessible and maintainable; and

G. Provide a **maintenance** agreement.

12. The outlet control device for **detention facilities** shall be:

A. Located within the property boundary when possible;

B. Durable and permanent;

C. Visible and accessible for **maintenance**;

D. Located on the outlet side of a manhole **structure**;

E. Designed to be self cleaning; and

F. Designed to incorporate a backflow prevention device if discharging to a **combined sewer**.

13. **Detention facilities** in areas outside of the **regulatory floodway**, but within the **regulatory floodplain**, shall:

A. Conform to all applicable requirements specified in Article 6; and

B. Store the **site runoff** from the **development** such that the required post **development** release rate is not exceeded, assuming a zero release rate below the **BFE**.

14. If it is not practicable to provide a **detention facility** onsite, an **offsite detention facility** may be constructed if **all** of the following conditions are met:

A. The **volume control storage** required in §503 of this **Ordinance** is provided onsite;

B. The **co-permittee** demonstrates that **site** limitations prevent the **development** from providing the full volume of the **detention facility** onsite;

C. The **parcel** area is less than ten (10) acres;

D. **Stormwater** detention is provided in accordance with the following hierarchy:

(1) Partially onsite in a **detention facility** with supplemental storage offsite in an **offsite detention facility** according to §504.14.D(2) through §504.14.D(4) of this **Ordinance** ;

(2) Offsite in an **offsite detention facility** where the **development** conveys the 100-year **storm event** to the **offsite detention facility**;

(3) Offsite in an **offsite detention facility** in a location that is upstream or hydrologically equivalent to the **development** in the same **subwatershed**; or

(4) Offsite in an **offsite detention facility** within the same **subwatershed**;

E. The **offsite detention facility** shall:

(1) Meet all of the requirements of this Article 5;

(2) Obtain a **Watershed Management Permit** separate from the **development**;

(3) Provide 100% of the deficient onsite volume exclusively for the associated **development**;

(4) Capture **stormwater runoff** from a **parcel** that is not tributary to an existing **stormwater detention facility**;

(5) Be functional before the **co-permittee** requests final inspection of the associated **development**; and

(6) Encumber the underlying **parcel** to ensure perpetual existence, function, and **maintenance**.

F. A **co-permittee** may collaborate with either the Cook County Land Bank Authority or the South Suburban Land Bank and Development Authority referenced in §300.7 of this **Ordinance** to provide offsite **stormwater detention facilities**.

15. **Detention facilities** should be functional before occupancy permits are issued for residential and **non-residential subdivisions** or **sanitary sewers** are placed in service.

16. **Detention facilities** shall be functional for **developments** before **building** or road construction begins.

17. A **development** is not required to comply with the **site** detention requirements of §504 of this **Ordinance** if the **development** satisfies **all** of the following conditions:

A. The **development** discharges **stormwater** to a **storm sewer** tributary to Lake Michigan;

B. The downstream receiving **storm sewer** has adequate capacity as determined by the governing **municipality**;

C. The **development** complies with the **site** volume control requirements of §503 of this **Ordinance**; and

D. The **development** intercepts and treats all **stormwater runoff** onsite to improve water quality prior to discharge from the **development**.

§ 505. Allowances for Redevelopment and Development Subject to Legacy Sewerage System Permits

1. For **redevelopment** of a **site** tributary to an **existing detention facility** that will only require a marginal increase in the new total storage required in the same **existing detention facility**, the increase in storage may be waived if the following conditions are met:

   A. Actual storage volume is verified to meet or exceed the required detention volume based on a recent survey, signed and sealed by either a **Professional Engineer** or **Professional Land Surveyor**; and

   B. The marginal increase in incremental required storage volume is less than one-tenth (0.10) of an acre-foot or within two percent (2%) of the existing total storage.

2. Incidental disturbance to an **existing detention facility** to provide the new required additional detention volume may be considered **non-qualified development**.

3. Allowances noted below may be granted for the **redevelopment** of a **parcel** that was planned to be tributary or contains within the **parcel** an **existing detention facility** permitted under a **sewerage system permit**:

   A. If the **redevelopment** meets <u>all</u> of the following conditions:

      (1) The design of the **existing detention facility** is documented and approved under an existing **sewerage system permit** (commonly referred to as Schedule D);

      (2) Actual storage volume is verified (or is further modified as part of the current work) to meet or exceed the required detention volume under the permit based on a recent survey, signed and sealed by either a **Professional Engineer** or **Professional Land Surveyor**;

(3) The **redevelopment** provides treatment of the **volume control storage** as required in §503 of this **Ordinance**; and

(4) The **redevelopment** provides adequate capacity to convey **stormwater runoff** to the **existing detention facility** for all storms up to and including the 100-year **storm event**;

B. Then, the following **redevelopment** allowances may be granted:

(1) If the **redevelopment**'s composite **runoff** coefficient does not exceed the design composite **runoff** coefficient of the **existing detention facility** as designed and intended under the original permit, additional **stormwater** detention volume is not required;

(2) If the **redevelopment**'s composite **runoff** coefficient exceeds the design composite **runoff** coefficient of the **existing detention facility** as designed and intended under the original permit, additional **stormwater** detention volume shall be provided for the **redevelopment**. In such situations, the modified rational method using **Bulletin 70** rainfall data may be used to calculate the additional required storage volume. The release rate for the **redevelopment** will be based as follows:

(a) For **redevelopment** of areas within a permitted **parcel** intended to be tributary to an **existing detention facility,** the existing approved release rate and restrictor may be retained;

(b) For **redevelopment** of areas within a permitted **parcel** that was never intended to be tributary to an **existing detention facility**, but will become tributary to such **detention facility** upon **redevelopment**, the original release rate for the basin will be recalculated based on a pro-rated area amount. The total new required storage volume will be updated based on the new required release rate and the restrictor may need to be replaced.

C. For **redevelopment** of a **parcel** never planned to be tributary or that does not contain an **existing detention facility** permitted under a **sewerage system permit**, the **redevelopment** shall be subject to the standard **stormwater** management requirements described in §500 through §504 of this **Ordinance**.

4. Allowances noted below may be granted for the **redevelopment** of a **parcel** that contains a **detention facility** within the **parcel** that was never permitted under a **sewerage system permit**:

A. If the **redevelopment** meets <u>all</u> of the following conditions:

(1) Actual detention volume is verified (or is further modified as part of the current work) to meet or exceed the detention volume calculated according to the standards set under the Legacy Sewer Permit Ordinance, and signed and sealed by either a **Professional Engineer** or **Professional Land Surveyor**;

(2) Actual release rate from the existing control structure is verified (or is further modified as part of the current work) to be less than the requirements set under the Legacy Sewer Permit Ordinance, and the calculations are signed and sealed by a **Professional Engineer**;

(3) The **redevelopment** provides treatment of the **volume control storage** as required in §503 of this **Ordinance**; and

(4) The **redevelopment** provides adequate capacity to convey **stormwater runoff** to the **detention facility** for all storms up to and including the 100-year **storm event**.

B. Then, the following **redevelopment** allowances may be granted:

(1) If the **redevelopment**'s proposed **impervious area** does not exceed the existing or anticipated **impervious area**, additional **stormwater** detention volume is not required;

(2) If the **redevelopment**'s proposed **impervious area** exceeds the existing or anticipated **impervious area**, additional **stormwater** detention volume shall be provided for the **redevelopment**. In such situations, the modified rational method using **Bulletin 70** rainfall data may be used to calculate the additional required storage volume. The release rate for the **redevelopment** will be based on a pro-rata share of **redevelopment**'s portion of the actual release rate of the control structure.

ARTICLE 6. REQUIREMENTS FOR FLOOD PROTECTION AREAS

§ 600. Flood Protection Areas

1. **Flood Protection Areas** include **floodplains**, **wetlands**, **wetland buffers**, and **riparian environments**. Requirements for determining **floodplains** are specified in §601. Requirements for delineating **wetlands** are specified in §603. Requirements for determining **riparian environments** are specified in §606 of this **Ordinance**.

2. Any **development** within the **floodplain** shall comply with the requirements of §601 and §602 and the requirements of Article 4, Article 5, and Article 9 of this **Ordinance**.

3. Any **development** within **wetlands** shall comply with the requirements of §603, §604, and §605 and the requirements of Article 4, Article 5, and Article 9 of this **Ordinance**.

4. Any **development** within **riparian environments** shall comply with the requirements of §606 and §607 and the requirements of Article 4, Article 5, and Article 9 of this **Ordinance**.

5. All **co-permittees** shall submit the documents specified in Article 3 to verify compliance with the requirements of this **Ordinance**.

6. Compliance with Article 6 of this **Ordinance** does not excuse the **co-permittee** from meeting all applicable federal, state, and local requirements including, but not limited to, the local **NFIP** regulations.

7. Any human-induced change in improved or unimproved real estate within the **regulatory floodplain** not considered to be **development** under this **Ordinance** shall meet the requirements of the local jurisdiction's **NFIP** ordinance. Compliance with §601 and §602 of this **Ordinance** does not excuse the **co-permittee** from meeting all local requirements for participation in the **NFIP**.

§ 601. Requirements for Floodplain, Regulatory Floodway, and Flood Protection Elevation Determination

1. **Development** within **floodplains** shall not:

   A. Result in any new or additional expense to any **person** other than the **co-permittee** for **flood** protection or for lost environmental stream uses and functions;

   B. Increase **flood** elevations or decrease **flood** conveyance capacity upstream or downstream of the area not under the **ownership** or control of the **co-permittee**;

C. Pose any increase in **flood** velocity or impairment of the hydrologic and hydraulic functions of streams and **floodplains** unless a **water resource benefit** is realized;

D. Unreasonably or unnecessarily degrade surface or ground water quality; or

E. Violate any provision of this **Ordinance** either during or after construction.

2. Any **co-permittee** proposing **development** shall identify the elevation and boundary of the **regulatory floodplain** and the limits of the **regulatory floodway** within the **development site.**

3. The **regulatory floodplain** shall be determined by the **base flood** elevation (**BFE**) as determined by the effective Cook County Flood Insurance Study (**FIS**) and associated **FIRMs**, including any Letter of Map Change (**LOMC**) that has been issued by the Federal Emergency Management Agency (**FEMA**). The **co-permittee** is responsible for utilization of the current applicable **FIRM** and any associated **LOMC**. A list of **FIRMs** for **Cook County** is provided in the **TGM**. **FIRMs** are available at **FEMA**'s Map Service Center; a web link to **FEMA**'s Map Service Center is provided in the **TGM**.

4. Determination of the **BFE** in **Special Flood Hazard Areas** shown on the **FIRM** associated with the effective **FIS** shall be determined for:

A. AE Zones by using the 100-year profile at the **development site**;

B. AH Zones by using the elevation noted on the applicable **FIRM**;

C. AO Zones by using the **highest adjacent grade** plus the depth number shown on the applicable **FIRM**, or two feet above the **highest adjacent grade** if no depth number is provided;

D. For areas shown as A Zones on the effective **FIS**, a **BFE** shall be determined by a project-specific **floodplain** study approved by either the **District** or an **authorized municipality**. This study shall be approved by **OWR** in cases where both:

(1) The **drainage area** is one (1) square mile or greater; and

(2) The **development** is associated with a permit that will be issued by **OWR**.

5. When a known **flood** hazard is not identified as a **Special Flood Hazard Area** on the **FIRM**, the **District** or an **authorized municipality** may require the **co-permittee** to perform a project-specific **floodplain** study to determine the project-specific **100-year flood elevation**. This study shall be approved by **OWR** in cases where both:

A. The **drainage area** is one square mile or greater; and

B. The **development** is associated with a permit that will be issued by **OWR**.

6. Project-specific **floodplain** studies shall be performed by a **Professional Engineer** using the appropriate models when applicable:

A. TR-20, HEC-1, or HEC-HMS hydrologic model;

B. HEC-2 or HEC-RAS hydraulic model; or

C. A model or technique approved by the **District** and **OWR**.

7. The **co-applicant** shall observe the **regulatory floodway** as designated by **OWR**, which is delineated on the effective **FIRM**. If a **floodway** is not designated on the **FIRM** then the following shall apply:

A. When the **drainage area** is greater than one square mile, then the **regulatory floodway** shall be deemed to be the limits of the **regulatory floodplain** and subject to all **floodway** requirements of this **Ordinance** with the exception of the **appropriate use** criteria in §602.29 of this **Ordinance**; or

B. When the **drainage area** is less than one (1) square mile, then a **floodway** designation is not required.

8. The **regulatory floodway** may be re-designated by the **co-permittee**. For **floodways** where the **drainage area** is greater than one square mile, approval of the re-designation shall be required by **FEMA**, through a Conditional Letter of Map Revision (**CLOMR**) and/or Letter of Map Revision (**LOMR**). **OWR** concurrence is also required by **FEMA** where a **regulatory floodway** is re-designated.

9. The **co-permittee** shall determine the flood protection elevation (**FPE**). The **FPE** shall be two feet above the highest **100-year flood elevation** as determined by:

A. The **BFE** associated with the effective **Cook County FIS**, including any **LOMC** that has been issued by **FEMA**; or

B. Project-specific **100-year flood elevation** developed in §601.5 of this **Ordinance**.

§ 602. Requirements for Development within the Floodplain

1. For purposes of this §602, the **floodplain** shall be the area of the **regulatory floodplain** (§601.3 and §601.4) and any inundation areas resulting from the **100-year flood elevation** determined in §601.5. The **100-year flood elevation** in this §602 of this **Ordinance** is the highest of the **BFE** or the project-specific **100-year flood elevation**.

2. For new **buildings** and additions to existing **buildings** in a **floodplain** and for **substantial improvements** to existing **buildings** in a **regulatory floodplain**, the **lowest floor** shall be elevated to at least the **FPE** in accordance with the requirements specified in §602.12, §602.13, and §602.14, unless protected in accordance with §602.3 of this **Ordinance**.

3. For new **buildings**, additions to existing **buildings**, or **substantial improvements** to existing **buildings** in the **regulatory floodplain** and outside the **regulatory floodway**, the **lowest floor** below the **BFE** shall comply with the following:

   A. The lowest adjacent grade to the foundation shall be at or above the **BFE** for a minimum distance of:

      (1) Ten (10) feet beyond the outside face of the **structure** for **buildings** without **basements**; and

      (2) Twenty (20) feet beyond the outside face of the **structure** for **buildings** with **basements**;

   B. The lowest opening in the foundation wall, shall be at or above the **FPE**;

   C. Provide **compensatory storage** per §602.9 and §602.10 of this **Ordinance**;

   D. Demonstrate that a **building** and **building site** are reasonably safe from **flooding** per design standards requirements in Technical Bulletin 10-01 issued by **FEMA**; and

   E. Obtain a Letter of Map Revision Based on Fill (**LOMR-F**) if the **building site** is in the **regulatory floodplain**.

4. **Substantial improvements** to **buildings** in the **floodplain** may be **floodproofed**. **Floodproofing** shall meet the requirements listed in §602.12 or §602.14 of this **Ordinance** and shall be operational without human intervention.

5. New **accessory structures** in the **floodplain** shall be regulated by the relevant **municipality** under its **NFIP** ordinance, and elevated to at least the **BFE** where practicable.

6. Reserved.

7. Reserved.

8. New parking lots built below the **100-year flood elevation** shall clearly post the potential **flood** hazard.

9. **Compensatory storage** shall be required for any fill, **structure**, or other material above grade in the **regulatory floodplain** that temporarily or permanently displaces **floodplain** storage volume. In addition, **compensatory storage** shall:

   A. Equal at least 1.1 times the volume of **flood** storage lost below the **BFE**;

   B. Be operational prior to placement of fill, **structures**, or other materials temporarily or permanently placed in the **regulatory floodplain**;

   C. Be provided in the immediate vicinity of the **flood** storage lost, where practicable;

   D. Be provided in addition to the **site** detention volume; and

   E. Drain freely and openly to the **waterway**.

10. **Compensatory storage** shall be provided incrementally as follows:

   A. All **regulatory floodplain** storage lost below the existing regulatory 10-year **flood** elevation shall be replaced below the proposed regulatory 10-year **flood** elevation;

   B. All **regulatory floodplain** storage lost above the existing regulatory 10-year **flood** elevation shall be replaced above the proposed regulatory 10-year **flood** elevation; and

   C. The additional **compensatory storage** required beyond a one to one (1:1) ratio may be placed above or below the proposed regulatory 10-year **flood** elevation.

11. **Compensatory storage** is not required for the **floodproofing** of existing **buildings** for the **floodplain** volume displaced by the **building** and within the area of fill specified in §602.3.A of this **Ordinance**.

12. New **structures** that are elevated, existing **structures** that are **floodproofed, or substantial improvements** shall:

   A. Be anchored to prevent flotation, collapse, or lateral movement;

   B. Use **flood** resistant materials below the **FPE**;

   C. Use construction methods and practices that do not increase the potential for increases in **flood** damage;

   D. Elevate electrical, heating, ventilation, plumbing, air conditioning equipment, and other service facilities to the **FPE** or higher;

E. Provide adequate access and drainage; and

F. Provide a backup power source that will activate without human intervention if electricity is required.

13. Any fill required to elevate a **building** must extend at least:

A. Ten feet beyond the foundation before the grade slopes below the **100-year flood elevation** for **buildings** without **basements**; and

B. Twenty feet beyond the foundation before the grade slopes below the **100-year flood elevation** for **buildings** with **basements**.

14. When a **structure** is elevated by means other than filling:

A. The **lowest floor** of any **building** and all electrical, heating, ventilating, plumbing, and air conditioning equipment of any **structure** shall be located at or above the **FPE**.

B. Elevation can be accomplished using stilts, piles, walls, or other foundations. Walls and foundations below the **lowest floor** that are subject to **flooding** shall be designed so that hydrostatic forces on exterior walls are automatically equalized by allowing for the entry and exit of floodwaters and shall be anchored and aligned in relation to **flood** flows and adjoining **structures** so as to minimize exposure to known hydrodynamic forces such as currents, waves, ice, and floating debris. Designs for meeting this requirement shall be prepared, signed, and sealed by a structural engineer or licensed architect in the State of Illinois and meet or exceed the following minimum criteria:

(1) A minimum of two (2) openings having a total net area of not less than one (1) square inch for every square foot of enclosed area subject to **flooding**;

(2) The bottom of all openings shall be no higher than one (1) foot above grade;

(3) Openings may be equipped with screens, louvers, valves, or other coverings, provided that such coverings do not impede the automatic entry and exit of floodwaters;

(4) The grade interior to the foundation of the **structure** shall not be more than two feet below the lowest adjacent exterior grade;

(5) An adequate drainage system must be installed to remove floodwaters from the area interior to the **structure** foundation within a reasonable period of time after the floodwaters recede; and

(6) All materials and **structures** below the **FPE** shall be resistant to **flood** damage.

C. **Compensatory storage** for elevation of **structures** allowed in §602.14 of this **Ordinance** shall not be required.

15. All **CLOMR**, **LOMR**, and **LOMR-F** applications require the approval of the governing **municipality** and shall be submitted to either the **District** or an **authorized municipality** concurrently with the application to **FEMA**.

16. No filling, grading, dredging, excavating, or other proposed **development** within the **regulatory floodplain** that results in an increase to the **FIS** effective **BFE** or a modification to the **regulatory floodway** boundary shall take place until a **CLOMR** is issued by **FEMA** and a **floodway** construction permit is issued by **OWR**.

17. If a **LOMR** is required by **FEMA**, no **building** construction shall take place until the approved **LOMR** is issued by **FEMA**.

18. **Stormwater facilities** within the **regulatory floodplain**, such as culverts, bridges, and impoundments that have an associated backwater shall not be removed, replaced, or modified unless all of the following apply:

A. All **structures** and their associated **lowest entry elevations** within the backwater of the existing **stormwater facility** are identified;

B. **Hydraulically equivalent compensatory storage** is provided to mitigate any potential increases in flow or **flood** elevations upstream or downstream of the **stormwater facility**; and

C. A **water resource benefit** is provided.

19. All proposed sanitary **structures** shall have above ground openings located above the **FPE** or be constructed with bolted watertight **structure** lids.

20. Lift station facilities (including mechanical and electrical equipment)

A. Existing lift station facilities to be repaired or rehabilitated shall have all above ground equipment elevated above the **FPE**. Where possible, ground openings and vents shall be adjusted above the **FPE** or be constructed with lock-type, watertight **structure** lids to protect against the **base flood**.

B. New lift station facilities shall be located above the **FPE** and outside the limits of the **regulatory floodplain.** New lift stations facilities shall also be carefully located to ensure **maintenance** access at all times during the **base flood**.

21. New and replacement water supply systems and wells shall either have all above ground openings above the **FPE** or be watertight.

22. New waste disposal systems on the **site** shall not be constructed within the **floodplain**.

23. Construction of **detention facilities** within the **regulatory floodway** is strictly prohibited.

24. **Detention facilities** located outside of the **regulatory floodway** but within the **floodplain** shall:

A. Store the required **site runoff** under all stream flow and backwater conditions up to the **100-year flood elevation**, assuming a zero release rate below the **100-year flood elevation**; and

B. Not allow design release rates to be exceeded under any stream elevation less than the **100-year flood elevation**.

25. New or modified **storm sewer outfalls** shall meet the requirements of §501 and §502 of this **Ordinance** and shall comply with **Illinois Department of Transportation**'s **(IDOT)** minimum standards. Relevant **IEPA** and **NPDES** permits shall be required for all new **outfalls** to **waterways** and Lake Michigan. Copies of all such permit applications for **outfalls** located within the City of Chicago should be provided concurrently to the **District**.

26. Temporary or permanent storage of items susceptible to **flood** damage is prohibited unless elevated or **floodproofed** to the **FPE**.

27. **Development** shall preserve effective **regulatory floodway conveyance** such that there will be no increases in **flood** elevations, flow rates, or **regulatory floodway** velocity, unless these increases are contained in a **public flood easement**, a **water resource benefit** is provided, and a **CLOMR** is issued by **FEMA** prior to any work in the **regulatory floodway**.

28. For any proposed **development** within the **regulatory floodway** the **co-permittee** shall provide either the **District** or an **authorized municipality** with an evaluation of the hydrologic and hydraulic impacts of the **development**:

    A. Using the **regulatory floodplain** model, if available, or a study as directed by the **District** using the methodology provided in §601.6 of this **Ordinance**;

    B. For the 2-year, 10-year, and 100-year **storm events** for the 24-hour event, at a minimum; and

    C. For existing and any future planned **watershed** conditions as directed by either the **District** or an **authorized municipality**.

29. Within the **regulatory floodway**, any proposed **development** shall meet the requirements of §602 of this **Ordinance** and only the following **appropriate uses** shall be considered for permits:

    A. **Flood** control **structures**, dikes, **dams**, and other public works or private improvements relating to the control of drainage, **flooding**, or **erosion** or water quality or habitat for fish and wildlife that provides a **water resource benefit**;

    B. **Structures** or facilities relating to the use of, or requiring access to, the water or shoreline, such as pumping and treatment facilities, and facilities and improvements related to recreational boating, commercial shipping, and other functionally dependent uses;

    C. **Storm** and **sanitary sewer outfalls**;

    D. Underground and overhead utilities;

    E. Recreational facilities such as playing fields and trail systems including any related fencing built parallel to the direction of **flood** flows;

    F. Detached garages, storage sheds, or other non-habitable **accessory structures** to existing **buildings** that will not block **flood** flows. This does not include the construction or placement of any other new **structures**, fill, **building** additions, **buildings** on stilts, fencing (including landscaping or plantings designed to act as a fence), and the storage of materials;

    G. Bridges, culverts, roadways, sidewalks, railways, runways and taxiways, and any modification thereto;

    H. Parking lots built at or below existing grade where either:

        (1) The depth of **flooding** at the **BFE** will not exceed one (1) foot; or

(2) The parking lot is for short-term outdoor recreational use facilities where the **co-permittee** agrees to restrict access during overbank **flooding** events and agrees to accept liability for all damage caused by vehicular access during all overbank **flooding** events. Signs shall be posted to clearly identify the **flooding** hazard.

I. Aircraft parking aprons built at or below ground elevation where the depth of **flooding** at the **BFE** will not exceed one (1) foot;

J. **Regulatory floodway** re-grading without fill to create a positive slope toward the watercourse;

K. **Floodproofing** activities to protect existing **structures** including, but not limited to, constructing water tight window wells and elevating;

L. The replacement, reconstruction, or repair of a damaged **building**, provided that the outside dimensions of the **building** are not increased, and provided that, if the **building** is damaged to fifty (50) percent or more of the **building**'s market value before it was damaged, the **building** will be protected from **flooding** to or above the **FPE**; and

M. Modifications to an existing **building** that would not increase the enclosed floor area of the **building** below the **BFE**, and would not block **flood** flows to including, but not limited to, fireplaces, bay windows, decks, patios, and second story additions.

30. Transition sections are required for the calculation of effective **regulatory floodway conveyance** due to the modification or replacement of existing bridge and culvert **structures** or to compensate for lost conveyance for other **appropriate uses**. The following expansion and contraction ratios shall be assumed to determine transition sections:

A. Water will expand at a rate no faster than one foot horizontal for every four feet of flooded stream length;

B. Water will contract at a rate no faster than one foot horizontal for every one foot of flooded stream length; and

C. Water will not expand or contract faster than a rate of one foot vertical for every ten feet of flooded stream length.

§ 603. Requirements for Wetland Boundary, Quality, and Buffer Width Determination

1. **Wetlands** provide the following functions:

   A. Facilitate hydrologic functions, including infiltration, evaporation, and evapotranspiration;

   B. Reduce **flood** flow rates, velocities, and volumes;

   C. Provide **flood** control by storing **stormwater**;

   D. Prevent **erosion** and promote bank stability of streams, **lakes**, and ponds;

   E. Control **sediment** from **upland** areas reducing the impact of urbanization on stream habitat and water quality by filtering and assimilating nutrients discharged from surrounding **uplands**;

   F. Serve as important areas for de-nitrification, which reduces growth of algal blooms and subsequent depressed levels of dissolved oxygen in-stream; and

   G. Provide an effective mechanism for treatment of contaminated surface **runoff**.

2. Any **co-permittee** proposing **development** shall investigate the **site** for the presence of **wetlands**. The **co-permittee** shall use the following sources and methods to determine if **wetland** areas may exist on the **site**:

   A. Onsite **wetland** investigation;

   B. National Wetland Inventory (**NWI**) Maps from the United States Fish and Wildlife Service (USFWS);

   C. National Resource Conservation Service (**NRCS**) wetland inventory maps; and

   D. **Wetlands** identified in current and historical aerial photographs, United States Geological Survey (USGS) hydrological atlas, soil survey of **Cook County**, and USGS topographic maps.

3. The **co-permittee** shall identify the boundaries, extent, function, and quality of all **wetland** areas on the **site**. The presence and extent of **wetland** areas on the **site** shall be determined as the result of an onsite **wetland** delineation according to the following:

   A. All onsite **wetland** delineations are required to use procedures in accordance with the current **Corps Wetland Delineation Manual**; or

B. **Farmed wetlands** located on the **site** in agricultural areas which are in production and which are not determined to be **wetlands** through the federal **wetland** methodology shall be delineated through the current National Food Security Act Manual methodology;

C. Agricultural areas that have been abandoned for five (5) consecutive years shall be delineated in accordance with the **Corps Wetland Delineation Manual**.

4. The **co-permittee** shall request a **Corps jurisdictional determination** of any identified **wetland** areas on the proposed **site**.

5. The approximate location, extent, and quality of offsite **wetlands** within 100 feet of the **site** shall be identified. Offsite **wetlands** shall be delineated using the **Corps Wetland Delineation Manual,** or if delineation is unavailable or cannot be performed, the approximate limits of **wetlands** shall be identified using one or more of the following resources:

A. **NWI** Maps from the United States Fish and Wildlife Service (USFWS);

B. **NRCS** wetland inventory maps; and

C. **Wetlands** identified in current and historical aerial photographs, USGS hydrological atlas, soil survey of **Cook County**, and USGS topographic maps.

6. The following **isolated wetland** areas are exempt from the **wetland** requirements of this **Ordinance**:

A. **Wetlands** in roadside ditches created by excavation in **upland** areas;

B. **Wetlands** created by excavation or by other unfinished **development** activities in **upland** areas;

C. **Wetlands** created by artificial **hydrology** including, but not limited to, irrigation or **detention facility** outlets which would revert to **upland** areas if irrigation was to cease;

D. **Wetlands** created by the construction of **stormwater facilities** in **upland** areas, provided that the facility was not created for the purpose of **wetland mitigation**; and

E. **Wetlands** created by the construction of ponds in **upland** areas.

7. Either the **District** or an **authorized municipality** shall verify all onsite **isolated wetland** determinations and delineations.

8. The **co-permittee** shall provide an assessment of any identified **isolated wetland** and classify it as either a **high quality isolated wetland** or a **standard isolated wetland** using the criteria described below. Either the **District** or an **authorized municipality** will make the final determination of **wetland** status. A **high quality isolated wetland** satisfies any one of the criteria listed below. An **isolated wetland** that does not meet any of the following criteria can be classified as a **standard isolated wetland**. The criteria to receive a **high quality isolated wetland** status are as follows:

   A. It has a **Swink and Wilhelm Floristic Quality Index (FQI)** value greater than or equal to 20 during a single season assessment or a native mean C-value of 3.5 or higher as calculated by the Swink and Wilhelm methodology; or

   B. It is known to possess a federal- or state-listed threatened or endangered species based upon consultation with the Illinois Department of Natural Resources (IDNR) and the United States Fish and Wildlife Service (USFWS).

9. **Wetland buffers** for **isolated wetlands** shall be determined according to the classification of the **wetland** as determined in §603.8 of this **Ordinance**. Minimum **isolated wetland buffer** widths shall be as follows and as summarized in Table 3 of this Article 6 of this **Ordinance**:

   A. Thirty feet from the boundary of **standard isolated wetlands** greater than or equal to one-tenth of an acre (0.10 acre) and less than one-half of an acre (0.5 acre) in area;

   B. Fifty feet from the boundary of **standard isolated wetlands** greater than or equal to one-half of an acre (0.5 acre) in area; or

   C. One-hundred feet from the boundary of **high quality isolated wetlands**.

Table 3. Wetland Buffer Determination for Isolated Wetlands

Wetland Quality	Acreage	§603.9(A)	§603.9(B)	§603.9(C)
Standard Isolated Wetland	≥ 0.10 acre and < 0.50 acre	30 ft		
	≥ 0.50 acre		50 ft	
High Quality Isolated Wetland	No minimum			100 ft

10. The **Wetland Buffer** width for **isolated wetlands** may be varied to a minimum of the greater of one-half the required buffer width or thirty (30) feet, upon approval of either the **District** or an **authorized municipality**.

§ 604. Requirements for Development Affecting the Function of Wetlands and Wetland Buffers

1. Requirements for **development** affecting the function of **wetlands** are summarized in Table 4 of this Article 6 of this **Ordinance**.

Table 4. Wetland Impact Matrix

Wetland Type	Wetland Area	§604.2	§604.3	§604.4	§604.5
Corps Jurisdictional Wetland	Any	X			
Standard Isolated Wetland	<0.10 acre				X
	≥0.10 acre			X	
High Quality Isolated Wetland	Any		X		

2. **Development** that impacts onsite **Corps jurisdictional wetlands** shall be prohibited unless a permit for all regulated activities is obtained from the appropriate federal and state authorities.

3. **Development** that impacts onsite **high quality isolated wetlands** shall be prohibited unless documentation is submitted that demonstrates:

   A. That the presence of **high quality isolated wetlands** precludes all economic use of the **site** and that no practicable alternative to **wetland** modification exists; or

   B. That avoidance of **high quality isolated wetlands** would create a hazardous road condition and that no practicable alternative to **isolated wetland** modification exists.

   Based upon a review of the submitted documentation and any other available resources, either the **District** or an **authorized municipality** will make the final

determination as to whether the proposed **high quality isolated wetland** modification represents the least amount of **wetland impact** required to allow economic use of the **parcel** or to mitigate the road hazard; and a determination as to whether a permit should be granted.

4. **Development** that impacts onsite **standard isolated wetlands** that are equal to or greater than one-tenth of an acre (0.10 acre) in aggregate shall be prohibited unless documentation is submitted which demonstrates that no practicable alternative to **wetland** modification exists. Based upon a review of the submitted documentation and other available resources, either the **District** or an **authorized municipality** will make a determination as to whether the proposed **wetland** modifications will be permitted.

5. **Development** that impacts onsite **standard isolated wetlands** with a total acreage less than one-tenth of an acre (0.10 acre) in aggregate, including **contiguous Isolated Waters** less than one-tenth of an acre (0.10 acre), does not require documentation showing that no practicable alternatives to **wetland** modification exist and that the **development** meets the requirements of §605 of this **Ordinance**.

6. **Development** will be permitted only when the indirect environmental impacts to onsite and offsite **wetlands** can be sufficiently evaluated, minimized, and mitigated as specified in §604 and §605 of this **Ordinance**. The designed **hydrology** should be maintained as close to 100 percent of the existing **hydrology** as possible. An **indirect wetland impact** shall be assumed if the **development** activity causes the **wetland hydrology** to fall below 80 percent, or to exceed 150 percent, of the existing condition **storm event runoff** volume to the **wetland** for the 2-year, 24-hour **storm event**.

7. **Detention facilities** are permissible in **standard isolated wetlands**. **Detention facilities** are not permissible in **high quality isolated wetlands**. **Detention facilities** are not permissible in **Corps jurisdictional wetlands** when prohibited by the **Corps**. When detention is provided in a **standard isolated wetland**:

   A. The **wetland hydrology** should be maintained as close to 100 percent of the existing **hydrology** as possible;

   B. The **wetland hydrology** shall not fall below 80 percent, nor exceed 150 percent, of the existing condition **storm event runoff** volume to the **wetland** up through the 2-year, **24-hour storm event**; and

   C. The **isolated wetlands** shall not be inundated with more than twelve inches of water above the **isolated wetland's** normal water elevation for longer than twenty four hours during **storm events** up to and including the 100-year, 24-hour **storm event**.

8. **Stormwater** outlets discharging into an **isolated wetland** will only be allowed provided that appropriate **volume control practices** and **erosion control practices** are proposed and the outlets discharge through proper energy dissipation and scour protection, such as a level spreader or vegetated swale.

9. Mitigation for **developments** that impact an **isolated wetland** shall provide for the replacement of the lost **wetland** environment in accordance with Table 5 of this Article 6 of this **Ordinance**:

Table 5. Isolated Wetland Mitigation Requirement Ratios					
Wetland Quality	**Area**	**§604.9(A)**	**§604.9(B)**	**§604.9(C)**	**§604.9(D)**
Standard Isolated Wetland	<0.10 acre	None			
	≥0.10 acre		1.5:1		
High Quality Isolated Wetland	Any			3:1	
Impacts Prior to Issuance of Permit					3:1

A. Impacts to **standard isolated wetlands** less than one-tenth of an acre (0.10 acre) in aggregate do not require mitigation;

B. Impacts to **standard isolated wetlands** more than or equal to one-tenth of an acre (0.10 acre) in aggregate shall be mitigated at a minimum ratio of one-and-one-half acre of creation for each acre impacted (1.5:1);

C. **High quality isolated wetlands** impacts shall be mitigated at a minimum ratio of three acres of creation for each acre impacted (3:1);

D. **Isolated wetland** impacts initiated after the effective date of this **Ordinance** and prior to issuance of a **Watershed Management Permit**, or other unauthorized impact shall be mitigated at a minimum ratio of three acres of creation for each acre impacted (3:1); and

E. The **District**, federal, state, and local authorities may require a greater compensation ratio where unique **wetland** functions are threatened.

10. When **development** impacts an **isolated wetland**, mitigation of said impacts shall be accomplished through one or more of the following options:

    A. Payment into a **Corps** approved **wetland mitigation bank** within the same **Watershed Planning Area** as the impact;

    B. Payment into a **Corps** approved **wetland mitigation bank** that is closest to the **development** within the same **Corps** Watershed Service Area as the impact as shown in Appendix D of this **Ordinance**;

    C. Enhancement of an existing onsite **isolated wetland** from a **standard isolated wetland** to a **high quality isolated wetland**, subject to §604 of this **Ordinance**;

    D. Expansion of an existing onsite **isolated wetland**;

    E. Onsite **wetland mitigation**; and

    F. Offsite **wetland mitigation** within the same **Watershed Planning Area** as the impact.

11. **Wetland mitigation** for impacts to **Corps jurisdictional wetlands** shall not be credited toward **wetland mitigation** for impacts to **isolated wetlands**.

12. Mitigated **isolated wetlands** shall be designed to duplicate or improve the hydrologic and biologic features of the original **isolated wetland**.

13. Creation of **wetlands** for the mitigation of **development** impacts, within or affecting a **wetland**, may take place only within areas that are not currently **wetlands** and where there is reasonable expectation that **wetland mitigation** will succeed.

14. Either the **District** or an **authorized municipality** may allow an existing **isolated wetland** that is **contiguous** to a proposed **isolated wetland mitigation site** to be enhanced in quality from a **standard isolated wetland** to a **high quality isolated wetland** in exchange for a partial reduction in the mitigation area required. In no case shall there be a loss of **wetland** function. Either the **District** or an **authorized municipality** may reduce the total **wetland mitigation** area required by 0.75 acre for every one acre of such **wetland** enhancement; however, the area of creation of new **wetlands** to compensate for unavoidable **wetland** loss shall not be allowed to fall below a ratio of one acre of creation for each acre impacted (1:1).

15. An **isolated wetland mitigation** plan shall be developed by the **co-permittee**. This plan shall include design, construction, monitoring, and **maintenance** of the mitigation measures and shall meet the requirements of Article 9 of this **Ordinance**.

16. **Development** in or affecting an **isolated wetland** shall be initiated only after the mitigation plan has been approved by either the **District** or an **authorized municipality**.

17. The design, analysis, and construction of all **wetland mitigation** shall comply with all applicable federal, state, and local regulations.

18. Either the **District** or an **authorized municipality** will require that the **co-permittee** provide annual monitoring reports on the status of the constructed mitigation measures for five years, or until such time that the performance criteria have been met. Either the **District** or an **authorized municipality** may also require the **co-permittee** to undertake remedial action to bring the area into compliance with the mitigation plan.

19. **Development** within an **isolated wetland buffer** shall not, without mitigation:

    A. Adversely change the quantity, quality, or temporal and areal distribution of flows entering any adjacent **wetlands** or waters;

    B. Adversely affect any **groundwater** infiltration functions; or

    C. Destroy or damage vegetation that stabilizes **wetland** fringe areas or provides overland flow filtration to **wetlands**. The removal of invasive vegetation is not considered to be destruction or damage of vegetation.

20. Impacts to **buffer** areas shall be mitigated through the replacement or enhancement of impacted functions.

§ 605. Wetland Banking

1. **Isolated wetland mitigation** provided through a **wetland mitigation bank** shall abide by the following hierarchy unless the method is not available, or unless the next method is justified through avoidance and minimization sequencing:

    A. Payment into a **Corps** approved **wetland mitigation bank** in the same **watershed planning area**; or

    B. Payment into a **Corps** approved **wetland mitigation bank** that is closest to the **development** within the same **Corps** Watershed Service Area as the impact as shown in Appendix D.

2. The payment amount made into a **wetland mitigation bank** will be determined by multiplying the acres of required mitigation by the appropriate banking cost.

3. **Wetland mitigation bank** credits applied toward impacts to **Corps jurisdictional wetlands** may not be applied simultaneously to mitigate impacts to **isolated wetlands**.

4. **Wetland mitigation banks** shall be approved by the **Corps**.

§ 606. Riparian Environments Requirements

1. **Riparian environments** provide the following functions:

   A. Reduce **flood** flow rates, velocities, and volumes;

   B. Prevent **erosion** and promote bank stability of streams, **lakes**, ponds, or **wetland** shorelines;

   C. Control **sediment** from **upland** areas, reducing the impact of urbanization on stream habitat and water quality by filtering and assimilating nutrients discharged from surrounding **uplands**;

   D. Insulate and moderate daily and seasonal stream temperature fluctuations by maintaining cooler in-stream temperatures for areas with overhanging vegetation;

   E. Serve as important areas for de-nitrification which reduces growth of algal blooms and subsequent depressed levels of dissolved oxygen in-stream; and

   F. Provide an effective mechanism for treatment of contaminated surface **runoff**.

2. Any **developments** involving **riparian environments** shall identify the boundaries of those **riparian environments** by using the following documents or procedures at the time of the **development** and which are summarized in Table 6 of this Article 6 of this **Ordinance**:

Table 6. Riparian Environment Determination				
Biological Stream Characterization	**Waters Classification**	**§606.2 (A)**	**§606.2 (B)**	**§606.2 (C) or (D)**
All Other Streams	Jurisdictional Water of the U.S.	*50 feet from the **OHWM***		
	Isolated Waters		*30 feet from the **OHWM***	
BSC of "A" or "B" or **BSS** Streams	Jurisdictional Water of the U.S.			*100 feet from the **OHWM***
	Isolated Waters			*100 feet from the **OHWM***

A. For any **Jurisdictional Waters of the U.S.** that does not qualify as a **wetland**, the **riparian environment** shall be 50 feet from the **OHWM**.

B. For any **Isolated Waters** that does not qualify as a **wetland**, the **riparian environment** shall be 30 feet from the **OHWM**.

C. For any **Jurisdictional Waters of the U.S.** or for any **Isolated Waters** that do not qualify as a **wetland**, and which have a **BSC** of "A" or "B", the **riparian environment** shall be 100 feet from the **OHWM**.

D. For any **Jurisdictional Waters of the U.S.** or **Isolated Waters** that do not qualify as a **wetland** identified as a **BSS**, the **riparian environment** shall be 100 feet from the **OHWM**.

3. The following are not considered to be **riparian environments** and shall be exempt from the **riparian environment** requirements of this **Ordinance**:

   A. Roadside ditches created by excavation for the purposes of **stormwater** conveyance;

   B. Channels or bodies of water created by unfinished **development** activities; or

   C. Channels or bodies of water created by the construction of **stormwater facilities** for the purposes of **stormwater** management.

§ 607. Requirements for Development That Affect the Function of Riparian Environments

1. **Development** that impacts **Jurisdictional Waters of the U.S.** or **jurisdictional wetlands** on the **development site** shall be prohibited unless a permit for the regulated activities is obtained from the appropriate federal and state authorities.

2. To the extent practicable, the existing functions of a **riparian environment** as defined by §606.1 of this **Ordinance** shall be protected.

3. Adverse impacts to **riparian environment** functions shall be defined as:

   A. Modification or relocation of streams and channels;

   B. Significant changes to quantity, quality, or distribution of flows draining to any adjacent **wetlands** or waters; or

   C. Damage to vegetation that overhangs, stabilizes, and provides overland flow filtration, or shades stream channels, **wetlands**, or impoundments that normally contain water. The removal of invasive vegetation is not considered to be destruction or damage of vegetation. The removal of vegetation and downed trees impeding drainage is not considered to be damage to vegetation when included as part of a **District** recognized program or project for stream **maintenance**, or **stabilization**, restoration, or enhancement.

4. Adverse impacts to the existing functions of a **riparian environment** shall be mitigated and a mitigation plan shall be prepared.

5. The following requirements pertain to channel relocation and **stabilization** practices:

   A. When practicable, impacts to natural streams and channels should be avoided;

B. If a channel is completely or partially relocated, the newly created portion shall be constructed in a manner which will allow naturalizing to occur including, but not limited to, meandering, pools, or riffles;

C. New or relocated channels shall be built under dry conditions through the diversion of the normal flow within the channel. All items of construction (including establishment of vegetation) shall be completed prior to diversion of water into the new channel;

D. If a channel is modified, an approved and effective **erosion and sediment control practice** to minimize and control suspended **sediment** and degradation of downstream water quality must be installed before excavation begins. The installed means must be maintained throughout the construction period and conform to the requirements of Article 4 of this **Ordinance**;

E. The length of any new or relocated channel shall be greater than or equal to the length of the disturbed channel;

F. Any channel modifications shall meet all other requirements in the **Ordinance**, including the **floodplain** and **floodway** requirements described in §601 and §602 of this **Ordinance**;

G. The **co-permittee** shall provide a plan and profile of the existing and proposed channel and supporting calculations for the channel width, depth, sinuosity, and riffle locations. Impacts on **flood** flows and **flood** elevations shall be evaluated using appropriate hydrologic and hydraulic methods;

H. Streams and channels shall be expected to withstand all events up to the **base flood** without increased **erosion**. Hard armoring of banks with concrete, bulkheads, riprap, and other man-made materials shall be avoided where practicable. Hard armoring shall be used only where **erosion** cannot be prevented by use of bioengineering techniques or gradual slopes. Such armoring shall not have any adverse impact on other properties, nor shall it have an adverse impact upon the existing land use; and

I. All **disturbed areas** must be replanted for stability with native vegetation where appropriate. The **TGM** provides examples of native vegetation that is appropriate in **riparian environments**.

6. Re-vegetation of **disturbed areas** within **riparian environments** shall take place as soon as possible. In accordance with §404.1 of this **Ordinance**, **stabilization** practices shall be initiated as soon as practicable in portions of the **site** where construction activities have temporarily or permanently ceased.

7. **Stormwater** outlets discharging into a channel will only be allowed provided that appropriate **volume control practices** are implemented and that they discharge through proper energy dissipation, such as a level spreader or vegetated swale.

8. A riparian mitigation plan in accordance with §306 and §308.8 of this **Ordinance** shall be developed. Mitigation of **riparian environment** impacts shall include design, construction, and continued monitoring and **maintenance** of the mitigation measures and shall meet the requirements of Article 9 of this **Ordinance**.

9. The design, analysis, and construction of all **riparian environment** mitigation measures shall comply with all applicable federal, state, and local regulations.

10. **Development** in or affecting a **riparian environment** shall be initiated only after a mitigation plan has been approved by either the **District** or an **authorized municipality**.

11. Either the **District** or an **authorized municipality** will require that the **co-permittee** provide annual reports monitoring the status of the constructed mitigation measures for five years, or until such time that the performance criteria has been met. Either the **District** or an **authorized municipality** may also require the **co-permittee** undertake remedial action to bring the area into compliance with the mitigation plan.

§ 608. Requirements for Outfalls

1. All new and reconstructed **outfalls** to any **waterways** within **Cook County**, including Lake Michigan, require a **Watershed Management Permit**. For new and reconstructed **outfalls** to **waterways** located in the City of Chicago, a **facility connection authorization** is required.

2. All new and reconstructed **outfalls** must provide an appropriate energy dissipation **structure**. **Outfalls** constructed within **riparian environments** will be subject to the requirements of §607 of this **Ordinance**.

3. Neither **erosion** nor downstream **flooding** shall result from discharge from a new or reconstructed **outfall**. In accordance with Article 4 of this **Ordinance**, **stabilization** practices shall be initiated as soon as practicable in portions of the **site** where construction activities have temporarily or permanently ceased.

4. All new and reconstructed **outfalls** within **Cook County** for which a **Watershed Management Permit** is required shall comply with the details, technical requirements, and design guidelines contained in the **TGM**.

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ARTICLE 7. REQUIREMENTS FOR SEWER CONSTRUCTION

§ 700. General Sewer Construction Requirements

1. The intent of Article 7 of this **Ordinance** is to supersede requirements of the repealed **Sewer Permit Ordinance** and the **Manual of Procedures,** as described in §104 of this **Ordinance**, as these prior ordinances related to the regulation, permitting and enforcement of **qualified sewer construction.**

2. A **Watershed Management Permit** is required for **qualified sewer construction** as defined in §701 of this **Ordinance**.

3. A **Watershed Management Permit** is not required for **non-qualified sewer construction,** as defined in §701.2 and §701.3 of this **Ordinance**.

4. All **qualified sewer construction** shall meet the requirements specified under Article 7 of this **Ordinance**.

5. Any **qualified sewer construction** planned in conjunction with general **site development** shall also meet the requirements specified under Article 4, Article 5, and Article 6 of this **Ordinance** where applicable.

6. All **permittees** and **co-permittees** shall submit the documents specified in §307 to verify compliance with the requirements in Article 7 of this **Ordinance**.

7. Design and performance standards of all **qualified sewer construction** shall be consistent with the **TGM**.

8. **Qualified sewer construction** installed under the provisions of this **Ordinance** shall be maintained according to the criteria and guidelines established in Article 9 of this **Ordinance**.

9. **Qualified sewer construction** shall be designed to comply with all Federal, State, and local laws and engineering standards pertaining to sewer construction, including but not limited to:

   A. The **District**'s **Sewage and Waste Control Ordinance**;

   B. Title 35 of the Illinois Administrative Code;

   C. **Illinois Pollution Control Board** Technical Releases and other applicable rules and regulations issued;

   D. **Illinois Recommended Standards for Sewage Works**;

E. **Standard Specifications for Water & Sewer Construction in Illinois**; and

F. **Recommended Standards for Wastewater Facilities**.

10. The **District** may enter into service agreements to provide an outlet for **sanitary sewer** service, for the following service area types:

A. **Cook County municipalities** that are **contiguous** to the corporate limits of the **District**; or

B. **Multi county municipalities**, provided that the **municipality** is located partly within the corporate limits of the **District**.

When the area to be served by the service agreement is not within the corporate limits of the **District**, the terms and conditions of Article 7 of this **Ordinance** apply to the area to be served.

11. **Connection impact fee** for annexing areas into the **District.**

A. Any **permittee** and **co-permittee** that have not previously paid a **connection impact fee** for any permit project area that annexed to the **District** on or after July 9, 1998, shall pay a **connection impact fee** to the **District** at a time that such area or a portion thereof is the subject of a **Watershed Management Permit.**

B. **Connection impact fees** are not required for:

(1) Publicly owned facilities performing a local governmental function that discharge only domestic **sewage** into the **District's** collection facility; or

(2) Real estate tax-exempt facilities that discharge only domestic **sewage** into the **District's** collection facility.

C. **Connection impact fees** are contained in Appendix F of this **Ordinance**.

§ 701. Qualified Sewer Construction

1. **Qualified sewer construction** is considered all public and private new sewers and new sewer connections, exterior to a **building envelope**, including sewer repair and sewer replacement. **Qualified sewer construction** includes any of the following:

A. New and replacement sewers including:

(1) **Sanitary sewer** (public and private);

(2) Sanitary **service sewer** (exterior to **building envelope**);

(3) **Combined sewer**;

(4) **Storm sewer** within **combined sewer areas**;

(5) **Storm sewer** tributary to a **combined sewer** and/or a **District** collection or **water reclamation facility**;

(6) **Structures** and appurtenances to sewers listed above;

(7) Force main conveying any flows from sewer listed above;

(8) Repair of an existing lift station or sewer listed above;

(9) Reinstatement of an existing unpermitted sewer as listed above;

(10) Cured-In-Place-Pipe-Lining (CIPP) of existing public sewers; and

(11) Alterations to the conveyance capacity of a sewer system, as listed above.

B. New and replacement sewer connections, including:

(1) **Building** connections at the **building envelope**;

(2) Public sewer connections in the **right-of-way**;

(3) Direct connections to **District** interceptors or interceptor **structures**, (except for within the City of Chicago);

(4) Direct connections to **District TARP structures** or tunnels (except for within the City of Chicago);

(5) Direct connections to **District**-owned reservoirs, properties or facilities (pump stations, **water reclamation facilities**, etc., except for within the City of Chicago); and

(6) Outfalls to **waterways** or Lake Michigan (except for within the City of Chicago).

C. For direct connections and outfalls noted above, §701.1.B.(3-6), within the City of Chicago, refer to **Facility Connection Authorization** in §703 of this **Ordinance**.

2. **Non-qualified sewer construction** includes any of the following:

   A. Private **single-family home service sewer** (less than three (3) units);

   B. Plumbing internal to any **building envelope**;

   C. **Storm sewer** tributary to a **waterway** in **separate sewer areas**;

   D. Septic system sewers;

   E. Sewers and sewer connections constructed outside of **District** corporate limits or service agreement areas, at the time of permit application;

   F. Private grey water, reclamation, or water harvesting sewers and associated connections located in **separate sewer areas** and not tributary to **District water reclamation facilities**; and

   G. **Structure** footing drains.

3. **Sewer maintenance** is considered **non-qualified sewer construction** and includes any of the following:

   A. Cured-In-Place-Pipe-Lining (CIPP) of existing previously permitted private sewers;

   B. Grouting of existing sewers; and

   C. Jetting, cleaning, and root-treating of existing sewers.

§ 702. Qualified Sewer Construction Requirements

1. **Qualified sewer construction** shall not:

   A. Pollute public potable water supply systems (water mains);

   B. Pollute **waterways**, water bodies or **groundwater**;

   C. Discharge sanitary **sewage** without treatment:

      (1) Into a **storm sewer** system in a **separate sewer area**;

      (2) Onto the ground; or

      (3) Into a receiving **waterway**;

   D. Convey **industrial wastes** that qualify for pre-treatment;

E. Drain clean clear **groundwater** into a collection system tributary to a **water reclamation facility**;

F. Increase **basement** backups, **sanitary sewer** overflows, or **combined sewer** overflows by disproportionally decreasing **sewage** capacity within the existing **sanitary sewer** system and/or **combined sewer** system;

G. Allow excessive infiltration and inflow into a collection system tributary to **water reclamation facilities**;

H. Allow **stormwater** to enter **sanitary sewer** systems in **separate sewer areas**;

I. Combine **storm sewer** flow with **sanitary sewage** within a **parcel** (including within **Combined Sewer Areas**). Complete separation of sewers shall be provided within a **parcel**, and **sewage** may only be combined at the property line, immediately prior to the public **combined sewer** main connection; and

J. Violate any provision of this **Ordinance** either during or after construction.

2. **Qualified sewer construction** requirements by project type:

A. **Single-Family Home**

(1) Private single-family residential **service sewer** (less than three (3) units) is exempt from these **Ordinance** requirements, provided that:

(a) An extension of public **qualified sewer construction** is not required to obtain service access; and

(b) Wastes consist of domestic **sewage** only.

(2) Single family residential **service sewer** shall not run:

(a) Parallel to the **right-of-way**; or

(b) Extend beyond the ends of the **right-of-way** frontage.

B. **Residential Subdivision**

(1) Any extension of public **qualified sewer construction** within a **residential subdivision development** requires a **Watershed Management Permit**.

(2) An application submittal for a **Watershed Management Permit** shall include a plan and profile of all public sewers.

(3) Each residential single-family **service sewer** meeting conditions specified under §702.2.A(1) of this **Ordinance** can be considered exempt from these requirements.

(4) Refer to Table 2 in Article 5 of this **Ordinance** to determine **site stormwater** management requirements.

C. **Multi-Family Residential Sewer**

(1) Residential **service sewer** for a **building** with three (3) units or more requires a **Watershed Management Permit**.

(2) A **multi-family residential service sewer** may require an inspection manhole prior to the public **right-of-way**. The appropriate **District** inspection manhole detail is available from the **TGM** and shall be provided on the plans, when appropriate.

(3) Refer to Table 2 in Article 5 of this **Ordinance** to determine **site stormwater** management requirements.

D. **Non-Residential Service Sewer**

(1) **Non-residential service sewer** requires a **Watershed Management Permit**.

(2) All **non-residential service sewers** require inspection manholes prior to the public **right-of-way**. The appropriate **District** inspection manhole detail is available from the **TGM** and shall be provided on the plans.

(3) Refer to Table 2 in Article 5 of this **Ordinance** to determine **site stormwater** management requirements.

(4) Refer to the **TGM** for further design guidelines.

(5) Objectionable Wastes. When the use of a **non-residential building** is such that it will produce objectionable wastes or heavily-loaded discharges, (e.g. auto service, garage, car wash), the **co-permittee** shall comply with all of the following requirements:

(a) Provide a triple basin, or similar settling **structure**, to treat all non-domestic flow, prior to discharging into the sewer main;

(b) Perform regularly scheduled **maintenance** to remove and properly dispose of all collected objectionable wastes; and

(c) Provide a detail of the triple basin (or settling **structure**) on the plans.

(6) Fats, Oils and Grease. When the use of a **non-residential building** is such that Fats, Oils, and Grease are expected to be produced and discharged (e.g. restaurants), the **co-permittee** shall comply with all of the following requirements:

(a) Provide a grease separator, or similar device, to treat all non-domestic flow, except the discharge from an automatic dishwasher, prior to discharging to the sewer main;

(b) Perform regularly scheduled **maintenance** to remove and properly dispose of all collected fats, oils, and grease; and

(c) Provide a detail of the grease separator on the plans.

(7) **Industrial Waste** Potential. When the use of a **non-residential building** does not involve processes or operations that will produce **industrial wastes** (e.g. warehouse), the **co-permittee** shall:

(a) Provide a statement on the **owner**'s letterhead describing the use of the **building**; and

(b) Certify that no **industrial waste** will be allowed to discharge into the sewer system.

(8) **Industrial Waste** Present. When the use of a **non-residential building** involves processes or operations that will produce **industrial wastes** (e.g. chemical plating, industrial food processing, etc.), the **co-permittee** shall submit:

(a) A statement on the **owner**'s letterhead describing the use of the **building** and the processes used;

(b) The additional appropriate permit forms, disclosing the planned effluent characteristics of wastes;

(c) The additional appropriate permit forms for documenting the onsite treatment / pre-treatment facilities planned;

E. **Public Lift Station / Force Main**

(1) Gravity sewers shall be used whenever practicable. Lift stations and force mains may only be used after all other alternatives have been exhausted.

(2) Lift station pumping capacity shall be designed and justified on the basis of dry weather flow expected from the population to be served at the time of permit **development**, or derived from actual flow monitoring data.

(a) Additional pumping capacity accommodations may be made for reasonable future build-out of undeveloped / underdeveloped areas within the tributary sewer shed. In such situations, a future service area exhibit and flow estimate must be provided to justify final lift station capacity.

(b) Lift stations shall be designed to operate with standby pumping capacity available for system redundancy in the event of a pump failure. Pumps will be designed to alternate operation to evenly distribute wear and to ensure the standby pump is regularly exercised. Double pumping (dual discharge of design flow rated pumps) in excess of the calculated peak capacity is prohibited.

(c) Unjustified excessive lift station capacity (including existing facilities under rehabilitation) is prohibited.

(3) Discharge of force mains directly into another lift station is discouraged and is only allowed when it is impracticable to discharge into a gravity sewer. Where a force main or a lift system is designed to discharge into another lift station, a detailed report is required to justify such design and shall include:

(a) A written statement that other methods were considered and exhausted;

(b) A written recommendation of the design supported by engineering considerations;

(c) Written approval of the **owner** of the receiving lift station acknowledging the risks and the need for additional **maintenance**; and

(d) A **maintenance** and operation agreement between the **co-permittee** and **owner** specifying the responsibilities of each in case of failure of either lift station.

(4) Completion of the appropriate additional permit schedule for documentation of lift station design and capacity.

(5) Refer to the **TGM** for further design guidelines.

F. **District Interceptor, TARP and other Direct Connections to District Facilities**

(1) Excluding the City of Chicago, direct connections to **District** facilities require a **Watershed Management Permit.** For direct connections within the City of Chicago refer **to Facility Connection Authorization** in §703 of this **Ordinance.**

(2) Refer to §701.1.B of this **Ordinance** for a list of **District** facilities requiring a permit for direct connection.

(3) Preliminary coordination with the **District** is recommended prior to submitting a permit application for proposed connections to **District facilities. The co-permittee shall** formally petition the **Director of Engineering**, or his/her designee, in writing to schedule a coordination meeting.

(4) Written approval from the **District** shall be obtained prior to entering any **District** facilities (including **TARP** and interceptor manholes).

(5) The appropriate **District** direct connection details, specification for connection, and proper construction requirements are available from the **TGM** and shall be provided on the plans. Refer to the **TGM** for further design guidelines.

(6) Complete the appropriate additional permit schedule for documentation of direct connections to **District** facilities.

G. **Outfall Connections**

(1) Excluding the City of Chicago, all new and reconstructed **outfalls** to **waterways** and Lake Michigan within **Cook County** require a **Watershed Management Permit**. For outfalls within the City of Chicago refer to **Facility Connection Authorization** in §703 of this **Ordinance**.

(2) New and reconstructed **outfalls** shall comply with the requirements of §608 of this **Ordinance**.

(3) All new and reconstructed **outfalls** within **Cook County** shall comply with the details, technical requirements, and design guidelines contained in the **TGM**.

(4) Completion of the appropriate additional permit schedule to document the **outfall** connections location.

H. **Treatment and Pretreatment Facilities**

(1) Treatment and pretreatment facilities include, but are not limited to, treatment processes, private treatment plants, oxidation ponds, and similar facilities.

(2) Preliminary coordination with the **District** is recommended prior to submitting a permit application for proposed treatment facilities. The co-applicant shall formally petition the **Director of Engineering**, or his/her designee, in writing to schedule a coordination meeting.

(3) Refer to the **TGM** for further design guidelines.

I. **Septic Systems**

(1) The **District** does not regulate the design, construction, or **maintenance** of septic systems for **sewage** disposal serving a **single-family home** or **building**. When proposing septic systems, the **co-permittee** shall obtain permits from all relevant local and state authorities.

(2) Septic systems shall not discharge effluent to a sewer tributary to the **District**'s interceptors or **water reclamation facilities**.

(3) When septic systems are disconnected and a sanitary service connection is made, existing septic systems shall be removed or abandoned by completely filling the tank with granular material. Connections and piping to the new **sanitary sewer** system shall be watertight and made upstream of the septic tank. All existing septic systems and tank connections to be abandoned shall be plugged with non-shrink mortar or cement.

(4) **Non-residential** projects on septic systems or private treatment plant systems that propose connection to a **sanitary sewer** system shall provide **stormwater** detention for all proposed **development.** Refer to Table 2 in Article 5 of this **Ordinance** to determine **site stormwater** management requirements.

(5) Refer to the **TGM** for further design guidelines.

J. **Sewer Construction in Floodplain**

(1) All proposed sanitary **structures** shall have above ground openings located above the **FPE** or shall be constructed with watertight bolt down **structure** covers/lids.

(2) Refer to Article 6 of this **Ordinance** for further requirements regarding **development** within **flood protection areas**.

(3) Refer to the **TGM** for further design guidelines.

(4) Lift station facilities (including mechanical and electrical equipment) **flood** protection requirements are distinguished based on the following type of work:

(a) Existing lift station facilities to be repaired or rehabilitated shall have all above ground equipment elevated above the **FPE**. Where possible, ground openings shall be adjusted above the **FPE** or be constructed with watertight bolt down **structure** covers/lids to protect against the **base flood**.

(b) New lift station facilities shall be located above the **FPE** and outside the limits of the **regulatory floodplain.** New lift stations facilities shall also be carefully located to ensure **maintenance** access at all times during the **base flood**.

§ 703. Facility Connection Authorization

1. Within the City of Chicago, a **facility connection authorization** application is necessary to track the following types of connections to **District** owned, operated, and maintained facilities, and for impact to **District** owned or leased property:

A. **District Interceptor, TARP and other Direct Connections to District Owned Sewer Collection Facilities**

(1) Preliminary coordination with the **District** is recommended prior to submitting a **facility connection authorization** application for proposed connections to **District** facilities. The co-applicant shall formally petition the **Director of Engineering**, or his/her designee, in writing to schedule a coordination meeting.

(2) Written approval from the **District** shall be obtained prior to entering any **District** facilities including **TARP** and interceptor manholes.

(3) The appropriate **District** direct connection details, specification for connection, and proper construction requirements are available from the **TGM** and shall be provided on the plans. Refer to the **TGM** for further design guidelines.

B. **District Property Impact**

(1) All impacts, including new planned improvements, on **District** owned or leased property within **City of Chicago** must first obtain a **facility connection authorization**.

(2) Preliminary coordination with the **District** is recommended prior to submitting a **facility connection authorization** application for proposed improvements to **District** property or facilities. The co-applicant shall formally petition the **Director of Engineering**, or his/her designee, in writing to schedule a coordination meeting.

(3) Written approval from the **District** shall be obtained prior to entering any **District** facilities including **TARP** and interceptor manholes.

C. **Outfall** connections to the **Chicago Area Waterway System** and Lake Michigan

(1) All new and reconstructed **outfalls** connections either direct or indirect to the **Chicago Area Waterway System** or Lake Michigan within the City of Chicago must first obtain a **facility connection authorization**.

(2) New and reconstructed **outfalls** structures shall comply with the requirements of §608 of this **Ordinance**.

(3) All new and reconstructed outfalls shall comply with the details, technical requirements, and design guidelines contained in the **TGM**.

ARTICLE 8. INFILTRATION / INFLOW CONTROL PROGRAM

§ 800. Introduction

The separate **sanitary sewers** within the District's service area are designed and intended to receive and convey only domestic and industrial wastewaters together with a limited amount of **groundwater** infiltration. **Stormwater** runoff and excessive **groundwater** infiltration, however, have in many cases been entering and overloading **sanitary sewers** through deficiencies in the sewer systems such as open pipe joints, cracked or broken pipes, leaking manholes, and illegal connections (i.e., direct or indirect **stormwater/groundwater** connections to separate sanitary sewers). Sewer overloading arising from such deficiencies may cause health hazards, financial losses, and inconvenience to area residents. These detrimental conditions occur as a consequence of water pollution from treatment plant bypasses and sewage overflows into streams, and also as a result of backups of sewage into buildings and onto streets and yards. Excessive extraneous clear water flows also result in additional sewage treatment costs to the public. Since the enactment of the 1985 Sewer Summit Agreement (**SSA**), many communities have invested in rehabilitation efforts yet the sewer systems still have excessive **stormwater** inflow and **groundwater** infiltration (I/I) requiring further reduction. Many communities still need to establish on-going **maintenance** programs and budgets that continually renew local systems. The Illinois Environmental Protection Agency (**IEPA**) has imposed a special condition as part of the District's National Pollutant Discharge Elimination System (**NPDES**) Permits that requires the owners and/or operators of separate **sanitary sewer** systems that discharges directly and/or indirectly to the District's facilities (**satellite entities**) to implement measures in addition to those required under the **SSA** if excessive I/I causes or contributes to **sanitary sewer overflows** (**SSOs**) and/or **basement backups** (**BBs**). In order to address the requirements set forth in the **NPDES** Permits and other federal, state and local regulations, it is the intent of this Article to set forth a regionally applied Infiltration/Inflow Control Program (Program) for the rehabilitation and correction of **sanitary sewer** system deficiencies, and for the continuation of adequate long-term sanitary sewer management and **maintenance** programs by the **satellite entities** that are tributary to the District's facilities.

§ 801. Scope and Goals

1. The purpose of this Program is to provide a framework for asset management of separate **sanitary sewer** systems to meet the following goals:

   A. Maintain infrastructure to prevent **sanitary sewer overflows** and **basement backups** due to sewer surcharging and other adverse sewer system conditions.

   B. Comply with the District's **NPDES** Permits and all other applicable federal, state, and local laws and regulations.

   C. Minimize extraneous flows transported to the District's facilities due to defective system components or illegal connections.

§ 802. Applicability

1. This Article applies to all **satellite entities** that own and/or operate a **sanitary sewer** system that discharges directly and/or indirectly to the District's facilities.

§ 803. General Requirements

1. All **satellite entities** shall implement and complete all Short Term Requirements as described in **§804** within five (5) years of (Insert Effective Date Here), the effective date of this Article or, for **satellite entities** that connect to the District's sewer system after the effective date of this Article, five (5) years from the date of connection. **Satellite entities** that have been notified by the District as being in compliance with the Short Term Requirements described in **§804** will be subject only to the requirement of the **Long Term Operation and Maintenance (O&M) Program** described in **§805**.

2. All **satellite entities** shall implement a **Long Term O&M Program** as described in **§805.**

3. All **satellite entities** shall submit annual reports of their progress and plans relative to their Short Term Requirements and **Long Term O&M Program** to the District as described in **§806.**

4. All **satellite entities** shall comply with the **SSA** and applicable federal, state, and local laws and regulations.

5. All **satellite entities** shall prioritize corrective action with the goal of preventing **SSOs, BBs** and system failures.

6. All **satellite entities** shall develop an adequate funding mechanism that will ensure program sustainability.

§ 804. Short Term Requirements

1. Each **satellite entity** shall complete the following Short Term Requirements:

   A. Conduct a Sewer System Condition Assessment:

      i. Conduct a prioritized condition assessment of high risk public **sanitary sewer** system infrastructure through various inspection and testing methods. The assessment shall prioritize: (a) areas with **SSOs** and/or **BBs**; (b) areas upstream of **SSOs** and **BBs**; (c) sub-basins known to surcharge; (d) areas with excessive wet weather flows and/or excessive lift station pumpage; and (e) areas with system deficiencies that could result in system failure.

      ii. Recent documented condition assessment(s) can be used as credit toward this assessment.

      iii. Utilize inspections to catalog illegal connections in high wet weather areas for disconnection in Private Sector Program.

B. Conduct Sewer System Rehabilitation:

i. Utilize assessment data to identify rehabilitation needs and begin development of a Capital Improvement Program based on severity of condition.

ii. Begin addressing high priority deficiencies according to CIP plan within three (3) years.

iii. Disconnect direct and indirect cross connections identified during inspections within one year of identification.

iv. Repair uncovered or broken service lateral cleanout caps within one year of identification.

C. Develop and submit to the District for approval a **Private Sector Program (PSP)** that addresses disconnection of illegal private inflow sources and removal of infiltration due to private laterals.

D. Develop and submit to the District for approval a **Long Term O&M Program** conforming to **§805.3**.

2. The District will support **satellite entities'** efforts by providing the following:

A. The District will complete an interceptor capacity allocation analysis to inform communities of built capacity and set maximum allowable flow rates.

B. The District will work with the Council of Government organizations to encourage consolidation of Information Technology platform with secure access to provide **satellite entities** access to Geographic Information System (GIS), Computerized Maintenance and Management System (CMMS) platforms and a customer support system software that tracks reports from the **satellite entities** regarding sewer service.

C. The District will work with the Council of Government organizations to encourage cross-community cleaning, inspection and repair contracts that offer an economy of scale to **satellite entities**.

D. The District will seek unit pricing for flow monitoring and look into providing software tracking of flow information to interested communities.

E. The District will continue meeting with the Advisory Technical Panel (ATP) to provide templates and guidance documents for this program.

§ 805. Long Term O&M Program

1. Under this Program the **satellite entities** will develop a comprehensive operation and **maintenance** program to prevent **SSOs** and **BBs** by removing I/I sources, addressing deficiencies

of their **sanitary sewer** system, maintaining and restoring system capacity, and preventing system failures. This plan will include an-adequate funding mechanism for the program.

2. Each **satellite entity** shall implement the **Long Term O&M Program** and **PSP** developed and approved under **§804.**

3. The **Long Term O&M Program** must include the following elements:

   A. Sewer System Management: Adequate and trained/qualified staff will be provided to implement all aspects of the **Long Term O&M Program**. Staff will be periodically trained for safety, sewer inspection, **maintenance** and rehabilitation work. Records of all work completed under the **Long Term O&M Program** will be maintained.

   B. Sewer System Map: The sewer system map will be maintained and updated on an annual basis.

   C. Sewer System Inspection: A continuous inspection program will be implemented to assess the condition of the system, identify I/I sources, and keep the system map current. Results of the inspections will be utilized to prioritize system **maintenance** and rehabilitation work.

   D. Sewer System **Maintenance**: A continuous **maintenance** program will include sewer cleaning and other preventive **maintenance** work required as a result of the inspection program. The **maintenance** work performed will maintain system capacity.

   E. Sewer System Rehabilitation: A continuous rehabilitation program will correct system defects and deficiencies found as a result of the inspection program. The rehabilitation work performed will address the removal of I/I sources, ensure system integrity, and restore system capacity.

   F. Sewer System Capacity Evaluation: Periodic evaluations will be made to determine if adequate capacity exists within the system and identify areas of inadequate capacity.

   G. Material and Equipment: Adequate and proper material and equipment will be provided to implement all aspects of the **Long Term O&M Program**. The materials will be periodically inspected to assure that an adequate supply is available and in a working condition.

   H. A CIP will be developed and updated as additional deficiencies are identified under the inspection program. The CIP will detail a plan and schedule to address all long term corrective work.

   I. The **PSP**, which addresses disconnection of illegal private inflow sources and removal of infiltration due to private laterals.

   J. A plan for funding all aspects of the **Long Term O&M Program** and the **PSP** will be provided.

4. Each **satellite entity** shall consult the Technical Guidance Manual for additional details regarding the **Long Term O&M Program** requirements.

§ 806. Annual Reporting

1. All **satellite entities** shall submit to the District Annual Reports of their progress and plans relative to their Short Term Requirements and **Long Term O&M Program**. Annual Reports must be submitted regardless of the degree of progress made during the reporting period. Among other uses, the District will utilize the Annual Reports to prepare and distribute an annual status report regarding progress made by the **satellite entities** on their I/I identification and removal efforts.

2. During the first five (5) years after the effective date of this Article, or during the first five (5) years after the date of connection for **satellite entities** that connect to the District's sewer system after the effective date of this Article, **satellite entities** must demonstrate the following:

   A. Completion of their Short Term Requirements described in **§804.1.A** and **§804.1.B.**

   B. Development of their **PSP** described in **§804.1.C.**

   C. Development of their **Long Term O&M Program** described in **§804.1.D.**

3. **Satellite Entities** shall demonstrate that they are implementing their **PSP** and **Long Term O&M Program** by summarizing the following items on Annual Report forms provided by the District. :

   A. Public and private sector **SSOs** and **BBs**.

   B. **Sanitary sewer** system inspection, **maintenance** and rehabilitation activities.

   C. All completed rehabilitation projects.

   D. All completed CIP work.

§ 807. Non-Compliance

1. Any **satellite entity** may be found to be in non-compliance with this Article for the following reasons:

   A. Failure to demonstrate adequate annual progress toward implementing and completing the Short Term Requirements described in **§804** within five (5) years of the effective date of this Article or, for **satellite entities** that connect to the District's sewer system after the effective date of this Article, within five (5) years from the date of connection.

   B. Failure to demonstrate adequate implementation of the approved **Long Term O&M Program** as described in **§805.**

C. Failure to demonstrate adequate implementation of the approved **PSP** described in **§805.3.A.**

D. Failure to submit an Annual Report or submission of an Annual Report that does not meet the requirements of **§806.**

E. Failure to otherwise comply with any provision of this Article.

§ 808. Administrative Proceedings: Notice of Non-Compliance

1. Whenever it shall appear to the **Director of Engineering** that non-compliance with a provision of this Article exists, the **Director of Engineering** shall, as soon as practical, issue a written **Notice of Non-Compliance (NONC)** to the **satellite entity** responsible for the apparent non-compliance. The **NONC** shall advise the **satellite entity** of the nature of the non-compliance and shall require the **satellite entity** to investigate the alleged non-compliance, determine remediation measures, and develop a schedule to correct the non-compliance. The **NONC** may be sent via Certified Mail, Return Receipt Requested, or may be served personally by a representative of the **District** to the **satellite entity**, or its representative.

2. The **Director of Engineering** may request a conciliation meeting concurrent with the issuance of a **NONC** for the purpose of investigating the **NONC** and for establishing a compliance schedule. In the event a conciliation meeting is not requested by the **Director of Engineering**, the **satellite entity** may request a conciliation meeting within seven (7) calendar days of receipt of a **NONC**. The **Director of Engineering** shall use his or her best efforts to convene the conciliation meeting within forty-five (45) calendar days of issuance of the **NONC**. During conciliation proceedings, the **satellite entity** may be required to furnish the **District** with such information as is reasonably necessary to demonstrate compliance with this Article. The **Director of Engineering** may continue the conciliation meeting from time to time as deemed necessary to further compliance with this Article.

3. A **satellite entity** engaging in conciliation proceedings with respect to a **NONC** shall submit a **compliance report and schedule** to the **Director of Engineering** within sixty (60) calendar days after the conciliation meeting, or upon such further date as determined appropriate by the **Director of Engineering**. In the event that no conciliation meeting is held, the **satellite entity** shall submit the **compliance report and schedule** within sixty (60) calendar days after the receipt of the **NONC**.

4. The **compliance report and schedule** shall establish a final compliance date, representing a date certain upon which all conditions contained in the **NONC** are remedied. The **compliance report and schedule** shall be executed by the **satellite entity** or its authorized representative and shall be certified as to accuracy and completeness.

5. Within twenty-one (21) calendar days after receipt of the **compliance report and schedule**, the **Director of Engineering** shall accept the **compliance report and schedule** as filed or shall request such further amendments to the **compliance report and schedule** as deemed necessary to insure compliance with the requirements of this Article.

6. No later than twenty-one (21) calendar days after the final compliance date, the **Director of Engineering** shall review the compliance status of the **satellite entity** and shall advise the **satellite entity** in writing whether the **satellite entity** has adequately remedied the condition(s) contained in the **NONC**.

7. If it appears to the **Director of Engineering** that the **satellite entity** subject to a **NONC** has failed to respond within forty-five (45) calendar days after service, or has failed to submit a **compliance report and schedule** acceptable to the **Director of Engineering**, or has failed to achieve compliance on or before the final compliance date, the **Director of Engineering** may at his or her discretion either issue an amendment to the **NONC** or make a Recommendation for Show Cause to the **Executive Director**. The issuance of a Recommendation for Show Cause may trigger a loss of eligibility for the **satellite entity** to receive District-sponsored funding assistance.

§ 809. Administrative Proceedings: Show Cause before the Board of Commissioners

1. Upon recommendation of the **Director of Engineering** as set forth in §808.7, the **Executive Director** may order the **satellite entity** to appear before the **Board of Commissioners** or its duly designated representative and show cause why the **satellite entity** should not be found in non-compliance of this Article.

2. The **Board of Commissioners** shall promulgate procedural rules governing administrative proceedings pursuant to this Article.

§ 810. Notice of Show Cause

1. Notice to the **satellite entity** shall specify the date, time and location of a hearing to be held by the **Board of Commissioners** or its designee. The notice of the hearing shall be served personally or by registered or certified mail at least ten (10) working days before said hearing.

§ 811. Show Cause Hearing and Imposition of Penalties by the Board of Commissioners

1. The **Board of Commissioners** or its designee may conduct a Show Cause hearing.

2. The **Board of Commissioners** shall establish a panel of independent hearing officers, from which a designee must be selected, to conduct all hearings not presided over by the **Board of Commissioners.** All hearing officers shall be attorneys licensed to practice law in the State of Illinois.

3. All hearings shall be on the record and any testimony taken at a hearing shall be under oath and recorded stenographically. The transcripts so recorded must be made available to any member of the public or to the **satellite entity** or party to such hearing upon payment of the usual charges for transcripts. At the hearing, the hearing officer may issue in the name of the **Board of Commissioners** notices of hearing requesting the attendance and testimony of witnesses and the production of evidence relevant to any matter involved in the hearing.

4. The **Board of Commissioners,** or the hearing officer, shall conduct a full and impartial hearing on the record, with an opportunity for the presentation of evidence and cross-examination of the witnesses.

5. For hearings conducted by a hearing officer, after all evidence has been presented, the hearing officer shall issue a report based upon the preponderance of the evidence in the record, which includes findings of fact, conclusions of law, an order, and, if non-compliance is proved, recommended penalties as detailed under §811.8. The Report shall be transmitted to the **Board of Commissioners**, along with a complete record of the hearing if so requested by the hearing officer or the **Board of Commissioners**.

6. The **Board of Commissioners** shall either approve or reject the report. If the report is rejected, the **Board of Commissioners** shall remand the matter to the hearing officer for further proceedings. If the report is accepted by the **Board of Commissioners**, it shall constitute the final order of the **Board of Commissioners.**

7. The final determination regarding the imposition of penalties rests within the sole discretion of the **Board of Commissioners**.

8. Penalties may be assessed as follows:

   A. Loss of eligibility for any funding assistance that can be provided by the District for the development and implementation of the Program as required under this Article;

   B. Loss of status as an **Authorized Municipality** as described in this **Ordinance**;

   C. Reporting of the **satellite entity's** non compliance to the **IEPA** and/or **USEPA**; and

   D. The denial of a watershed management permit for **qualified sewer construction** as described in Article 7 of this **Ordinance**.

§ 812. Legal and Equitable Relief

1. The **General Counsel** of the **District** shall take such action deemed necessary to compel compliance with the provisions of this Article**.**

2. In the enforcement of this Article, the **District** shall have the authority to institute, or cause to be instituted, any and all actions, legal or equitable, including appeals, which are required for the enforcement of this Article without first exhausting the administrative remedies set forth herein.

§ 813. Injunctive Relief

1. In addition to the penalties provided in Article 8, whenever a **satellite entity** violates any provision of this Article or fails to comply with any order of the **Board of Commissioners**, the **District**, acting through the **Executive Director**, may apply to the Circuit Court of **Cook County**, or other Court having jurisdiction, for the issuance of an injunction restraining the **satellite entity** from violating or further violating this Article or failing to comply with a Board Order.

§ 814. Judicial Review

1. The Administrative Review Act of the State of Illinois and the rules adopted under such act, shall govern all proceedings for judicial review of final orders of the **Board of Commissioners** issued under this section.

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ARTICLE 9. MAINTENANCE

§ 900. General Maintenance Requirements

1. A **maintenance** plan shall be required under a **Watershed Management Permit** to provide for the perpetual **maintenance** of all of the following systems as required by §308:

   A. **Erosion** and **sediment control practices**;

   B. **Stormwater detention facilities**;

   C. **Stormwater** collection facilities including both **major** and **minor stormwater systems**;

   D. Volume control facilities;

   E. **Native planting conservation areas**;

   F. **Qualified sewer construction** including service on grease basins, triple basins, and private pre-treatment facilities;

   G. **Wetland mitigation**; and

   H. **Riparian environment** mitigation.

2. The **maintenance** plan provisions shall describe inspection, **maintenance**, and monitoring activities that occur after the construction phase and continue into perpetuity.

3. Guidance on inspection, **maintenance**, and monitoring is provided in the **TGM**.

4. **Maintenance** is the responsibility of the **co-permittee** and **permittee** of the **development**. The **co-permittee** and **permittee** may delegate **maintenance** responsibility to an entity acceptable to the **permittee**; however, ultimate responsibility for **maintenance** of the facilities listed under §900.1, lies with the **permittee**.

5. Any amendment to the **maintenance** plan shall be submitted to and approved by the **District's Director of Engineering**.

§ 901. Qualified Sewer Operation and Maintenance

1. Constructed sewer facilities must be permanently operated and maintained by the **permittee** and **co-permittee in** accordance with the issued **Watershed Management Permit** and special conditions.

2. Qualified sewer facilities shall not be modified, extended, replaced, eliminated or abandoned without written permission from the **District's Director of Engineering.**

3. It shall be the duty and responsibility of every **permittee** to whom a **Watershed Management Permit** has been issued for the construction and operation of any facility or connection under Article 7 of this **Ordinance** to keep said facility or connection in a proper state of repair and **maintenance** after same has been completed and placed in operation.

4. No permits shall be issued for the construction, extension, operation and **maintenance** of private **sewage** treatment plants, oxidation ponds or other treatment facilities unless accompanied by a bond with sufficient surety for proper construction, extension, operation and **maintenance** of any such treatment plant, oxidation pond, or other **sewage** treatment facility located within the corporate boundaries of the **District**. The bond shall conform to all of the following requirements:

   A. The bond shall terminate upon connection of said **sewage** treatment plant, oxidation pond, or other **sewage** treatment facility to an intercepting sewer, or treatment plant of the **District**;

   B. The bond shall be a condition for issuing a **Watershed Management Permit**;

   C. The **co-permittee** shall provide any additional security required by the **Director of Engineering** for the life of the permit, to guarantee full and complete performance, including the execution of any and all documents that may be required in support thereof;

   D. The form and legality of the bond must be approved by the Law Department of the **District**; and

   E. The engineering details of the bond must be approved by the **Director of Engineering**.

ARTICLE 10. INSPECTIONS

§ 1000. General

1. The **District** may periodically inspect any **development** or **qualified sewer construction** under the **District's** scope of regulation as outlined in §200 of this **Ordinance**.

2. The **District** may periodically inspect any **development** or **qualified sewer construction** requiring a **Watershed Management Permit** as outlined in §201 of this **Ordinance**.

3. An **authorized municipality** shall periodically inspect any **development** requiring a **Watershed Management Permit** as outlined in §201.1 of this **Ordinance**.

4. Inspections shall verify compliance with this **Ordinance** and issued **Watershed Management Permits**. Typical inspections may occur on the following milestones:

   A. After mobilization and installation of initial **erosion and sediment control practices,** prior to any soil disturbance;

   B. During excavation for the construction of **qualified sewer construction, major stormwater systems** and **detention facilities**;

   C. Completion of the **development** or **qualified sewer construction.**

5. The **District** may enter upon any **development** subject to this **Ordinance** to conduct inspections as outlined in §205.1 of this **Ordinance**.

§ 1001. Inspection Requirements to be Met by Development

1. Prior to commencement of construction under a **Watershed Management Permit**, the **co-permittee** shall give, or cause to be given, to the **District** or relevant **authorized municipality**, an advance notice of at least two (2) working days of the milestones described in §1000.4 of this **Ordinance**.

2. All construction shall be in accordance with the plans and specifications made part of a **Watershed Management Permit**. The **Watershed Management Permit** together with a set of the plans and specifications for the project shall be kept on the job **site** at all times during construction, until final inspection and approval by the **District** or relevant **authorized municipality**

3. All construction shall be inspected and approved by a **Professional Engineer** acting on behalf of the **permittee** or the **owner** of the project, or by the duly authorized representative of the **Professional Engineer**.

4. No sewer trenches or **major stormwater systems** shall be backfilled except as authorized by the inspection engineer and the **District** Inspector after having inspected and approved the sewer installation.

5. Construction records may be inspected at any time during the project to demonstrate ongoing compliance with this **Ordinance** and any issued **Watershed Management Permits**. Such records may include, but are not limited to:

   A. The stormwater pollution prevention plan with associated inspection reports;

   B. A copy of the latest revised construction drawings;

   C. The project construction schedule;

   D. Project construction photography; and

   E. Copies of other federal, state, and local permits.

6. Where construction is performed without advance notice to the **District** or relevant **authorized municipality**, as required in §1001.1 of this **Ordinance**, the **District** or relevant **authorized municipality** will assume that the construction does not comply with the applicable **Ordinance** requirements. Any portion of the construction performed without the requisite advance notice shall be exposed by the **owner**, at his expense, in at least one location between every two manholes, two terminal points or as directed by the **District** for visual inspection by the **District** to insure compliance with applicable requirements as to materials and workmanship.

§ 1002. Special Requirements for Qualified Sewer Construction

1. In addition to the inspection requirements of §1001 of this **Ordinance**, the requirements of this section shall apply to **qualified sewer construction**.

2. **Testing** - All sewers constructed under the **Watershed Management Permit** issued by the **District** shall be subject to inspection, testing and approval by the **District** to insure compliance with the **Ordinance**. All testing shall be made, or caused to be made, by the **permittee** or **co-permittee** at no cost to the **District** and in the presence of the **District** inspector or representative.

3. **Backfilling** - No sewer trenches shall be backfilled except as authorized by the **District** inspector after having inspected and approved the sewer installation. The inspector shall signify his approval and authorization for backfilling on the inspection report. The inspection report shall be on the job site at all times, and shall bear the signature of the **co-permittee's** engineer, identifying those portions of the sewer inspected and

approved by him. The inspection report shall be made available to the **District** for the inspector's review.

§ 1003. Request for Final Inspection

1. Prior to completion of construction, the **co-permittee** shall submit to the **District** a properly executed Request for Final Inspection and approval on the form prescribed by the **District**.

2. The **co-permittee** shall provide the **District** inspector an advance notice of at least two (2) working days prior to final inspection.

3. No sewer shall be put in service until it has been approved by the **District** (as detailed under §1001.2 of this **Ordinance**), and until all facilities (excluding landscaping) required as conditions of the **Watershed Management Permit** are satisfactorily constructed and completed.

4. Refer to the **TGM** for further details regarding the administration of the request for final inspection.

5. Record Drawings. Prior to final inspection and approval by the **District**, the **co-ermittee** shall furnish or cause to be furnished to the **District**, a set of **record drawings**.

6. Recordation. Prior to final inspection and approval, the **co-permittee** shall provide a copy of the recorded documents described under §308.9 and §309 of this **Ordinance**. In the event the **co-permittee** does not provide a copy of the recorded documents described under §308.9 and §309 of this **Ordinance**, the **District** may record such document at the cost of the **co-permittee**.

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ARTICLE 11. VARIANCES

§ 1100. Authority

1. Only the **District** may grant **variances** from the requirements of this **Ordinance** as set forth herein; an **authorized municipality** shall not grant **variances** from the requirements of this **Ordinance**.

2. The **variance** procedure is intended to provide a narrowly circumscribed means by which relief may be granted from the requirements of this **Ordinance**.

§ 1101. Petition for Variance

1. A request for a **variance** shall be filed as a petition by the **co-permittee** and shall be filed with the Clerk of the **District,** at 100 East Erie Street, Chicago, Illinois 60611.

2. At the time of filling the petition, the **co-permittee** shall pay a **variance** filing fee. The **District** permit fees, including **variance** filing fees, are contained in Appendix F of this **Ordinance**.

3. All **variance** petitions shall contain the following information including, but not limited to:

   A. The **co-permittee**'s notarized signature on the petition;

   B. A letter of no objection to the **variance** request from the **permittee** or, if the **development** is located in an unincorporated area, from the appropriate unit of local government;

   C. The names and addresses of all professional consultants advising the **co-permittee** regarding the petition;

   D. The address(es), plat of survey, and legal description of the **site**;

   E. The names and address(es) of all **owners** of record within two-hundred fifty (250) feet of the **site**;

   F. The specific feature(s) of the proposed **development** that requires a **variance**;

   G. The specific provision(s) of this **Ordinance** from which a **variance** is being requested and the precise variation being sought;

   H. A detailed statement of the characteristics of the **development** that prevent it from complying with this **Ordinance**;

I. A detailed statement of the minimum **variance** from the provisions of this **Ordinance** that would be necessary to permit the proposed construction or **development**; and

J. A detailed statement describing how the requested **variance** satisfies each of the criterion provided in §1103.1 of this **Ordinance**.

§ 1102. Co-Permittee's Notice of Petition

1. Within seven (7) calendar days after the petition for **variance** is filed with the Clerk of the **District**, the **co-permittee** shall publish at least one notice of such petition in a newspaper that is published in **Cook County** with a general circulation in the vicinity of the **site** of the proposed **development** for which a **variance** is requested.

2. Within seven (7) calendar days after the petition for **variance** is filed with the Clerk of the **District**, the **co-permittee** shall mail notice via certified mail, return receipt requested, of such petition to all **owners** of record located within two-hundred fifty (250) feet of the **site** of the proposed **development** for which a **variance** is requested, and to any other **persons** in the vicinity of the proposed **development** that the **co-permittee** has knowledge of or believes may potentially be affected by the requested **variance**.

3. Within seven (7) calendar days after the petition for **variance** is filed with the Clerk of the **District**, the **District** shall publish such petition for **variance** on its website.

4. All notices required by this section shall include the following:

   A. The street address of the **development**, or if there is no street address, then the legal description and the location with reference to any well-known landmarks, highway, road or intersection;

   B. A description of the requested **variance**;

   C. A statement that any **person** may submit written comments regarding the petition for **variance** to the Clerk of the **District** within twenty-one (21) calendar days after the publication and mailing of notice; the notice shall include mailing information for said comments as follows:

      Metropolitan Water Reclamation District of Greater Chicago,
      Clerk of the District, 100 East Erie Street, Chicago, Illinois 60611;

   D. A statement that copies of the petition for **variance** are available upon request from the **co-permittee**;

E. A statement that any and all documents that concern the petition for **variance**, which are subject to public disclosure, will be made available for inspection by the **co-permittee** at a readily accessible location; the notice will include the address where said inspection of documents will take place together with the name and telephone number of the **person** responsible for making the records available for inspection; and

F. Any additional information considered necessary or proper.

5. Within seven (7) calendar days after the publication of notice, the **co-permittee** shall submit to the Clerk of the **District** a certification of publication and shall attach a copy of the published notice.

6. Within seven (7) calendar days after mailing of notice to **owners** of record as described in §1102.2 of this **Ordinance**, the **co-permittee** shall submit to the Clerk of the **District** a notarized affidavit listing the addresses to which notices were mailed and certifying to the completeness of the list to the best of the **co-permittee's** knowledge and belief.

§ 1103. Standards

1. The **District** may grant a **variance** when it is consistent with the general purpose and intent of this **Ordinance** and when the **development** meets the requirements as specified in §501.1 of this **Ordinance** and all of the following conditions:

A. Granting the **variance** shall not alter the essential character of the area involved, including existing stream uses;

B. Failure to grant the **variance** would create an exceptional hardship on the **co-permittee;** economic hardship of the **co-permittee** alone shall not constitute exceptional hardship;

C. The relief requested is the minimum necessary and there are no means other than the requested **variance** by which the alleged hardship can be avoided or remedied to a degree sufficient to permit the reasonable continuation of the **development**;

D. The **co-permittee**'s circumstances are unique and do not represent a general condition or problem;

E. The **development** is exceptional when compared to other **developments** that have met the provisions of this **Ordinance**;

F. A **development** proposed within a **flood protection area** could not be constructed if it were located outside the **flood protection area**;

G. The **co-permittee**'s circumstances are not self-imposed; and

H. Granting the **variance** shall not result in any of the following:

(1) Increase in the **regulatory floodplain** elevation, unless a **CLOMR** is issued by **FEMA**;

(2) Additional threats to public safety;

(3) Extraordinary public expense;

(4) Nuisances, fraud, or victimization of the public, or;

(5) Conflict with existing laws or ordinances.

2. The **District** shall not grant **variances** for any **development** that is within a **regulatory floodway**, **jurisdictional wetland**, or **Jurisdictional Waters of the U.S.** unless such **variance** meets or exceeds federal and/or state required minimum standards for **development** in such areas. The **co-permittee** shall be responsible for obtaining all applicable federal and/or state permits before any such **variance** is granted.

3. The **District** shall not grant **variances** that would violate the minimum standards for **floodplain** management established by the **OWR** and the requirements of **FEMA** for participation in the **NFIP**.

§ 1104. Submission of Written Comments

1. Any **person** may submit written comments regarding the petition for **variance** to the Clerk of the **District** within twenty-one (21) calendar days after the publication and mailing of notice by the **co-permittee**.

2. Written comments should be mailed to: Metropolitan Water Reclamation District of Greater Chicago, Clerk of the District, 100 E. Erie Street, Chicago, Illinois 60611.

3. The **District** shall take into consideration all written comments received regarding a petition for **variance**.

§ 1105. Determination by the District

1. After closure of the written comment period specified in §1104 of this **Ordinance**, the Clerk of the **District** shall forward to the **Director of Engineering**:

A. The petition for **variance**;

B. Copies of all notices; and

C. Copies of all written comments received.

2. The **Director of Engineering** shall review the petition for **variance** and prepare a report recommending one of the following actions:

A. Grant the petition for **variance**; or

B. Grant the petition for **variance** with conditions; or

C. Deny the petition for **variance.**

The report must also include the items listed under §1104 of this **Ordinance**, and the **Director of Engineering** must forward the report to the **Board of Commissioners** for consideration.

3. Within thirty (30) calendar days after the **Board of Commissioners'** receipt of the petition for **variance**, the **Board of Commissioners** shall review the petition for **variance** and determine whether the petition for **variance** shall be heard by the **Board of Commissioners** itself or by its designee in a **variance** hearing.

4. The Clerk of the **District** shall promptly notify the **co-permittee** in writing of the **Board of Commissioners'** determination regarding who shall hear the petition for **variance**.

5. The **Board of Commissioners** shall promulgate procedural rules that will govern hearings pursuant to this Article. All hearings conducted pursuant to this Article will also follow the requirements for show cause hearings as set forth in §1204.2 through §1204.5 of this **Ordinance**.

6. All **variance** hearings shall be concluded as soon as practicable.

7. When a **variance** hearing is conducted by the designee of the **Board of Commissioners**, the designated hearing officer shall submit the following at the conclusion of the hearing:

A. A written report to the **Board of Commissioners** containing the designated hearing officer's findings with respect to the petition for **variance**; and

B. A complete record of the **variance** hearing if requested by either the **Board of Commissioners** or by the **co-permittee** at its own expense.

8. The **Board of Commissioners** shall either approve or reject the report of the designated hearing officer. If the report is rejected, the **Board of Commissioners** shall remand the matter to the hearing officer for further proceedings. If the report is accepted by the **Board of Commissioners**, it shall constitute the final order of the **Board of Commissioners**.

9. The Clerk of the **District** shall notify the **permittee** and **co-permittee** of the determination of the **Board of Commissioners** by certified mail, return receipt requested within thirty (30) calendar days of the **Board of Commissioners'** determination. A denial of a **variance** request shall specify the requirements and conditions of this **Ordinance** forming the basis of the denial.

10. The Clerk of the **District** shall notify all **persons** who submitted written comments of the determination of the **Board of Commissioners** by certified mail, return receipt requested within thirty (30) calendar days of the **Board of Commissioners'** determination.

11. The Administrative Review Law of the State of Illinois, and the rules adopted under such law, shall govern all proceedings for judicial review of final orders of the **Board of Commissioners** issued under this Section.

§ 1106. Conditions

1. The **District** may grant a **variance** that differs from the relief requested when supported by the record.

2. The **District** may impose specific conditions and limitations on the **development** receiving a **variance** as the **District** deems necessary to meet the intent of this **Ordinance**.

3. Whenever a **variance** is authorized with conditions and limitations, the **permittee** and **co-permittee** shall both file a notarized affidavit with the **District**, indicating acceptance of the conditions and limitations and their agreement to comply therewith.

ARTICLE 12. PROHIBITED ACTS, ENFORCEMENT, AND PENALTIES

§ 1200. Prohibited Acts

1. It shall be unlawful for any **person** to undertake any **development** within **Cook County** that requires a **Watershed Management Permit** under this **Ordinance** without first securing a **Watershed Management Permit.**

2. It shall be unlawful for any **person** to install **qualified sewer construction** within the **District**'s corporate limits or service agreement areas that requires a **Watershed Management Permit** under this **Ordinance** without first securing a **Watershed Management Permit.**

3. It shall be unlawful for any **person** to fail to maintain systems, in whole or in part, as required:

   A. Within a **Watershed Management Permit**; and

   B. Within the **maintenance** plan of the permit as required in §900.1.

4. It shall be unlawful for any **person** to violate, disobey, omit, fail to maintain, or refuse to comply with or to resist enforcement of any provision of this **Ordinance** or any condition of a **Watershed Management Permit** required by this **Ordinance**.

5. Reserved.

§ 1201. Administrative Proceedings: Notice of Violation

1. Whenever it shall appear to the **Director of Engineering** that a violation of a provision of this **Ordinance** exists, the **Director of Engineering** shall, as soon as practical, issue a written **Notice of Violation (NOV)** to the **permittee/co-permittee,** and/or the **person** responsible for the apparent violation (**respondent**). The **NOV** shall advise the **respondent** of the nature of the noncompliance and shall require the **respondent** to investigate the alleged violation, determine remediation measures, and develop a schedule to correct the noncompliance. The **NOV** may be sent via Certified Mail, Return Receipt Requested, or may be served personally by a representative of the **District** at the **site**, on the **respondent** or its representative.

2. The **Director of Engineering** may request a conciliation meeting concurrent with the issuance of a **NOV** for the purpose of investigating the **NOV** and for establishing a compliance schedule. In the event a conciliation meeting is not requested by the **Director of Engineering**, the **respondent** may request a conciliation meeting within seven (7) calendar days of receipt of a **NOV**. The **Director of Engineering** shall use his

best efforts to convene the conciliation meeting within forty-five (45) calendar days of issuance of the **NOV**. During conciliation proceedings, the **respondent** may be required to furnish the **District** with such information as is reasonably necessary to demonstrate compliance with the **Ordinance** or with a **Watershed Management Permit** issued thereunder. The **Director of Engineering** may continue the conciliation meeting from time to time as deemed necessary to further compliance with this **Ordinance**.

3. A **respondent** engaging in conciliation proceedings with respect to a **NOV** shall submit a **compliance report and schedule** to the **Director of Engineering** within 30 calendar days after the conciliation meeting, or upon such further date as determined appropriate by the **Director of Engineering**. In the event no conciliation meeting is held, the **respondent** shall submit the **compliance report and schedule** within forty-five (45) calendar days after the receipt of the **NOV**. The **compliance report and schedule** shall be executed by the **respondent** or its authorized representative and shall be certified as to accuracy and completeness by a **Professional Engineer**. The **compliance report and schedule** shall include a schedule that establishes a final compliance date, representing a date certain upon which all violations and conditions contained in the **NOV** are remedied. Within twenty-one (21) calendar days after receipt of the **compliance report and schedule**, the **Director of Engineering** shall accept the **compliance report and schedule** as filed or shall request such further amendments to the **compliance report and schedule** as deemed necessary to insure compliance with the requirements of the **Ordinance** or **Watershed Management Permit**.

4. Representatives of the **District** may, during reasonable hours, enter upon the **site** of any **development** subject to a **NOV** for purposes of inspecting the **development** that is the subject of the **NOV** and/or for verifying compliance with a **compliance report and schedule** submitted pursuant to §1201.3 Inspections shall be conducted in accordance with the provisions of this **Ordinance** concerning Right of Access as set forth in §205. An inspection fee of $250.00 shall be charged by the **District** for each onsite inspection made by the **District** pursuant to this section.

5. No later than twenty-one (21) calendar days after the final compliance date, the **Director of Engineering** shall review the compliance status of the **respondent** and shall advise the **respondent** in writing whether **respondent** has adequately remedied the violation(s) contained in the **NOV**.

6. If it appears to the **Director of Engineering** that a **person** subject to a **NOV** has failed to respond within 30 calendar days after service, or has failed to submit a **compliance report and schedule** acceptable to the **Director of Engineering**, or has failed to achieve compliance on or before the final compliance date, the **Director of Engineering** may at

his discretion either issue an amendment to the **NOV** or make a Recommendation for Show Cause to the **Executive Director**.

7. Upon receipt of an **NOV**, the **respondent** shall cease all actions that are related to or in furtherance of the alleged noncompliant activity until such time as the **NOV** is finally resolved.

Table 7 Notice of Violation (NOV)			
Section	**Action**	**By**	**When**
1201.1	Issuance of **NOV**	**Director of Engineering**	Apparent violation of **Ordinance** or **Watershed Management Permit.**
1201.3	Submission of **compliance report and schedule**	**Respondent**	Within 45 calendar days after issuance of **NOV.**
1201.5	Review of **compliance report and schedule**	**Director of Engineering**	Within 21 calendar days after receipt of **compliance report and schedule.**
1201.6	Issuance of amendment to **NOV**	**Director of Engineering**	**Respondent:** 1) Does not respond 30 calendar days after service, 2) Fails to submit an acceptable **compliance report and schedule**, or 3) Fails to achieve compliance on or before the final compliance date.
1201.6	Recommendation for Show Cause to **Executive Director**	**Director of Engineering**	**Respondent:** 1) Does not respond 30 calendar days after service, 2) Fails to submit an acceptable **compliance report and schedule**, or 3) Fails to achieve compliance on or before the final compliance date.

§ 1202. Administrative Proceedings: Proceedings for Show Cause Before the Board of Commissioners

1. Upon recommendation of the **Director of Engineering** as set forth in §1201.6, the **Executive Director** may order the **respondent** to appear before the **Board of Commissioners** or its duly designated representative and show cause why the **respondent** should not be found in violation of this **Ordinance**.

2. The **Board of Commissioners** shall promulgate procedural rules governing administrative proceedings pursuant to this Article.

§ 1203. Notice of Show Cause

1. Notice to the **respondent** shall specify the date, time and location of a hearing to be held by the **Board of Commissioners** or its designee. The notice of the hearing shall be served personally or by registered or certified mail at least ten (10) working days

before said hearing. In the case of a **municipality** or a corporation, said service shall be upon an officer or agent thereof.

§ 1204. Show Cause Hearing and Imposition of Civil Penalties by Board of Commissioners

1. The **Board of Commissioners** or its designee may conduct a Show Cause hearing.

2. The **Board of Commissioners** shall establish a panel of independent hearing officers, from which a designee must be selected, to conduct all hearings not presided over by the **Board of Commissioners.** All hearing officers shall be attorneys licensed to practice law in the State of Illinois.

3. All hearings shall be on the record and any testimony taken at a hearing shall be under oath and recorded stenographically. The transcripts so recorded must be made available to any member of the public or to the **respondent** or party to such hearing upon payment of the usual charges for transcripts. At the hearing, the hearing officer may issue in the name of the **Board of Commissioners** notices of hearing requesting the attendance and testimony of witnesses and the production of evidence relevant to any matter involved in the hearing.

4. The **Board of Commissioners,** or the hearing officer, shall conduct a full and impartial hearing on the record, with an opportunity for the presentation of evidence and cross-examination of the witnesses.

5. For hearings conducted by a hearing officer, after all evidence has been presented, the hearing officer shall issue a report based upon the preponderance of the evidence in the record, which includes findings of fact, conclusions of law, an order, and, if violations are proved, recommended penalties as detailed under §1204.8. The Report shall be transmitted to the **Board of Commissioners**, along with a complete record of the hearing if so requested by the hearing officer or the **Board of Commissioners**.

6. The **Board of Commissioners** shall either approve or reject the report. If the report is rejected, the **Board of Commissioners** shall remand the matter to the hearing officer for further proceedings. If the report is accepted by the **Board of Commissioners**, it shall constitute the final order of the **Board of Commissioners.**

7. The final determination regarding the imposition of penalties, and the amount thereof, rests within the sole discretion of the **Board of Commissioners**.

8. Penalties and costs shall be assessed as follows:

A. Civil penalties shall be assessed at the level of $100.00 and no more than $1,000.00 per day of violation; each day's continuation of such violation or failure to abide by the terms of this **Ordinance** is a separate offense;

B. An inspection fee of $250.00 shall be assessed by the **District** for each onsite inspection made by the **District** to ascertain or confirm compliance by a violator hereunder with the construction, operation and **maintenance** provision of this **Ordinance** or permit issued pursuant to this **Ordinance;** such inspection(s) shall be made when requested by the **permittee/co-permittee**, or if no such request(s) is (are) made, then upon the compliance date established by an order of the hearing officer and thereafter as circumstances may reasonably require; and

C. After a hearing on an alleged violation the hearing officer or **Board of Commissioners** may, in addition to any other penalties imposed, order any **person** found to have committed a violation to reimburse the **District** for the costs of the hearing, including any expenses incurred for the inspection, sampling, analysis, document preparation, administrative costs, court reporter, and attorney fees.

9. All penalties specified by the **District** shall be paid within thirty (30) days after the party on whom it is imposed receives a written copy of the order of the **Board of Commissioners**, unless the **person** to whom the order is issued seeks judicial review of the order, and obtains a stay of the decision from the circuit court in accordance with the Administrative Review Act.

10. All unpaid penalties shall be considered in arrears thirty (30) days after the date of the order.

11. The Administrative Review Act of the State of Illinois, and the rules adopted under such act, shall govern all proceedings for judicial review of final orders of the **Board of Commissioners** issued under this section.

§ 1205. Revocation of Watershed Management Permits

1. In addition to the provisions for administrative and legal proceedings contained in this Article 12, whenever the **Executive Director** determines that a **person** to whom a **Watershed Management Permit** has been issued has wholly failed to remedy the violations stated in a **NOV** issued pursuant to this **Ordinance**; or whenever a **person** has failed to comply with an order of the **Board of Commissioners** issued pursuant to this **Ordinance**; or has failed to comply with a substantive order of a court entered in litigation initiated by the **District**, the Office of the State's Attorney or the United States Attorney, against such **person** for noncompliance with this **Ordinance**; or has

failed to promptly pay all civil penalties, inspection fees, or other costs assessed against such **person** in any action taken by the **District**, the **Executive Director** may order such **person** to show cause before the **Board of Commissioners** why the **Watershed Management Permit** should not be revoked, except in circumstances where a properly filed appeal is pending.

§ 1206. Stop-Work Order

1. The **District**, upon the **Director of Engineering**'s determination, as set forth herein, is authorized to issue an order requiring the suspension of construction of a **development** that is subject to this **Ordinance**.

2. A stop-work order shall:

   A. Be in writing;

   B. Indicate the reason for its issuance; and

   C. Order the action, if any, necessary to resolve the circumstances requiring the stop-work order.

3. One copy of the stop-work order shall be posted on the property in a conspicuous location and one copy shall be delivered by Registered Mail, Return Receipt Requested, or personal delivery to the **permittee/co-permittee**, and/or to the property **owner** or his/her agent.

4. The stop-work order shall state the conditions under which the construction of the subject **development** may be resumed.

5. The **District** shall issue a stop-work order if the **Director of Engineering** determines that:

   A. **Development** is proceeding in a manner which creates imminent hazard of severe harm to **persons**, property, or the environment on or off the **site**;

   B. **Development** is occurring in violation of a requirement of this **Ordinance**, or of a **Watershed Management Permit**, and the **District** has determined it is necessary to halt ongoing **development** activity to avoid continuing or additional violations and where significant costs and effort would be incurred should the offending **development** activity be allowed to continue; or

   C. **Development** for which a **Watershed Management Permit** is required is proceeding without issuance of a **Watershed Management Permit**. In such

nstance, the stop-work order shall state that the order terminates when the required **Watershed Management Permit** is properly obtained.

6. Any **permittee / co-permittee**, and/or property **owner** aggrieved by the issuance of a stop-work order may appeal the stop-work order as outlined in Article 13.

§ 1207. Additional Remedies for Flood Protection Areas

1. Upon the unauthorized excavation, filling, or modification of a **flood protection area** by any **person**, the **District** may petition the circuit court for an order to restore the **parcel** to its prior condition in order to lessen or avoid the imminent threat to public health, safety, or welfare, or damage to property or the environment resulting from the accumulation of **runoff** of **stormwater** or floodwater, or loss of beneficial function.

2. When, after a diligent search, the identity or whereabouts of the **owner**(s) of any such **parcel(s)**, including lien holders of record, are not ascertainable, notice mailed to the **person** in whose name the real estate was last assessed for taxes, constitutes sufficient notice.

3. The reasonable costs of restoration of the **flood protection area** that are incurred by the **District** shall be recoverable from the **owner** of such real estate in a civil action, together with court costs and other expenses of litigation.

§ 1208. Legal and Equitable Relief

1. The **General Counsel** of the **District** shall take such action deemed necessary to enforce collection and payment of all costs and penalties, to restrain violations of, and to compel compliance with the provisions of this **Ordinance** and with the conditions of any **Watershed Management Permit** issued hereunder.

2. In the enforcement of this **Ordinance**, the **District** shall have the authority to institute, or cause to be instituted, any and all actions, legal or equitable, including appeals, which are required for the enforcement of this **Ordinance** without first exhausting the administrative remedies set forth herein.

§ 1209. Injunctive Relief

1. In addition to the penalties provided in Article 12, whenever a **person** violates any provision of this **Ordinance** or fails to comply with any order of the **Board of Commissioners**, the **District**, acting through the **Executive Director**, may apply to the Circuit Court of **Cook County**, or other Court having jurisdiction, for the issuance of an injunction restraining the **person** from violating this **Ordinance** or failing to comply with the Board Order from making further violations.

2. Notwithstanding any remedies that the **District** may have by statute, common law, or this **Ordinance**, when, in the determination of the **Executive Director**, the construction, operation, **maintenance**, **ownership** or control of any **development** subject to this **Ordinance** presents an imminent danger to the public health, welfare or safety, presents or may present an endangerment to the environment, is in violation of this **Ordinance**, or threatens to interfere with the operation of the sewerage system of a **water reclamation facility** under the jurisdiction of the **District**, the **District**, acting through the **Executive Director**, may apply to the Circuit Court of **Cook County**, or other Court having jurisdiction, for injunctive relief to cease and desist such activities without first exhausting administrative remedies set forth herein.

ARTICLE 13. APPEALS

§ 1300. Right to Appeal

1. Any **person** subject to this **Ordinance**, or his/her authorized representative, shall have a right to appeal the following to the **Director of Engineering**:

   A. The denial of a **Watershed Management Permit**;

   B. The conditions imposed in a **Watershed Management Permit**; and

   C. The issuance of a stop-work order.

   D. Reserved.

2. Any **person** contesting any final decision, order, requirement, or determination of the **Director of Engineering** made pursuant to §1300.1 of this **Ordinance** shall have the right to appeal to the **Board of Commissioners**.

§ 1301. Appeals to the Director of Engineering

1. All appeals to the **Director of Engineering** shall be made in writing and shall specify the reasons for the appeal. For appeals regarding permit denials or permit conditions, the appeal must be served upon the **Director of Engineering** within 60 calendar days from the date of denial or conditional issuance of a **Watershed Management Permit**. An appeal of the issuance of a stop-work order must served upon the **Director of Engineering** within 14 calendar days from the date of posting of the stop-work order.

2. The **Director of Engineering** will use his/her best efforts to respond in writing to a request for an appeal within 30 calendar days of the receipt of a request from the **appellant** and shall schedule an appeal meeting in the letter responding to the request. In the case of an appeal of the issuance of a stop-work order, the **Director of Engineering** shall use his/her best effort to schedule and conduct an appeal meeting within 30 calendar days of receipt of the request for appeal.

3. When a meeting is scheduled by the **Director of Engineering**, the **appellant** must submit all information pertinent to the appeal. This information must be submitted to the **Director of Engineering** at least 14 calendar days prior to the scheduled appeal meeting. In the case of an appeal of the issuance of a stop-work order, the **appellant** must submit all information pertinent to the appeal contemporaneously with the request for appeal.

4. The **Director of Engineering** will conduct an appeal meeting and attempt to resolve any bona fide claims, disputes, or inquiries the **appellant** may have. All determinations made by the **Director of Engineering** shall be in writing and a copy thereof transmitted to the **appellant**. The **Director of Engineering** will use his/her best efforts to transmit these determinations to the **appellant** within 60 calendar days of the appeal meeting. Determinations regarding the appeal of the issuance of a stop-work order shall be transmitted to the **appellant** within 14 days of the appeal meeting.

5. Should the **appellant** fail to appear at the scheduled appeal meeting, another appeal meeting will not be scheduled unless the **appellant** requests such a meeting, in writing to the **Director of Engineering**, not later than 30 calendar days after the date of the initially scheduled appeal meeting. A second appeal meeting may be granted at the discretion of the **Director of Engineering** upon a finding of good cause as to why the initial appeal meeting was missed. If a properly filed request for a second appeal meeting under this section is denied by the **Director of Engineering**, the **appellant** may file an appeal to the **Board of Commissioners** for the sole purpose of determining the propriety of the **Director of Engineering's** denial. If the **Board of Commissioners** grant the **appellant**'s request, then the matter shall be remanded for an appeal by the **Director of Engineering** under the provisions of this section.

6. Any **person** who has been issued a **Watershed Management Permit**, and who appeals a condition contained in that permit, may commence construction of the subject **development** prior to a resolution of the appeal. However, any commencement of construction must comply with all of the terms and conditions of the **watershed management permit** as issued to said **person**, and not otherwise in violation of this **Ordinance**.

7. Any **person** whose request for a **Watershed Management Permit** was denied by the **District** or by an **authorized municipality** is prohibited from commencing construction of the subject **development** during the pendency of an appeal. Under no circumstances can construction commence prior to the issuance of a **Watershed Management Permit**.

8. Any **person** who requests an appeal of the issuance of a stop-work order must suspend construction of the subject **development** while the appeal is pending.

§ 1302. Appeals to the Board of Commissioners

1. In the event that the **appellant** does not concur with the determination of the **Director of Engineering**, the **appellant** may petition the **Board of Commissioners** for a hearing. Any petition requesting a hearing by the **Board of Commissioners** shall be made by the **appellant** within 30 calendar days after receipt of the determination by the **Director of Engineering** pursuant to §1301 of this **Ordinance**.

2. This petition must be in writing by the **appellant** and sent to the **President of the Board of Commissioners**, at 100 East Erie Street, Chicago, Illinois 60611, with a copy to the **Director of Engineering**. Within 30 calendar days after receipt of this petition, the **Director of Engineering** will advise the **appellant** in writing regarding the date on which the **Board of Commissioners** will consider the petition made by the **appellant**.

3. The **Board of Commissioners** shall review this petition and determine whether the petition for an appeal shall be heard by the **Board of Commissioners** itself or by its designee.

4. The **Board of Commissioners** shall establish a panel of independent hearing officers, from which a designee must be selected, to conduct all hearings not presided over by the **Board of Commissioners**. All hearing officers shall be attorneys licensed to practice law in the State of Illinois.

5. The **Director of Engineering** will promptly notify the **appellant** in writing of the **Board of Commissioners'** determination of who shall hear the appeal.

6. The **Board of Commissioners** shall not grant an appeal if the **appellant** failed to timely file an appeal with the **Director of Engineering**.

7. When an appeal hearing is conducted by the designee of the **Board of Commissioners**, the designated hearing officer shall submit a written report of his or her findings to the **Board of Commissioners** with respect to such appeal. The hearing officer must also submit a complete record of the appeal hearing if requested by the **Board of Commissioners** or by the **District** or by the **appellant**, at its own expense.

8. The **Board of Commissioners** shall either approve or reject the report of the designated hearing officer. If the report is rejected, the **Board of Commissioners** shall remand the matter to the hearing officer for further proceedings. If the report is accepted by the **Board of Commissioners**, it shall constitute the final order of the **Board of Commissioners**.

9. The scope of any hearing conducted under this section shall be limited to the issues raised by the **appellant** in the **Director of Engineering's** appeal meeting. Technical information that was not submitted by the **appellant** to the **Director of Engineering** under §1301 of this **Ordinance** shall not be utilized in a hearing before the **Board of Commissioners** or its designee.

10. All appeal hearings before the **Board of Commissioners** or the designated hearing officer shall be concluded as soon as practicable.

11. Determinations by the **Board of Commissioners** or its designee shall be effective immediately. The **District** shall provide the final decision and order of the **Board of Commissioners** in writing to the **appellant** within 30 calendar days of entry.

12. Final decisions of the **Board of Commissioners** are subject to the Administrative Review Act.

13. Any **person** who requests an appeal to the **Board of Commissioners** under this section must maintain the status quo during the pendency of the appeal and shall not take any action in contravention of the determination of the **Director of Engineering**.

14. The **Board of Commissioners** shall promulgate procedural rules governing administrative proceedings pursuant to this **Article**.

ARTICLE 14. ADMINISTRATION

§ 1400. Responsibility for Administration

1. The **District** has the authority and responsibility for the administration of this **Ordinance**.

§ 1401. Role of the District

1. The role of the **District** in the administration of this **Ordinance** shall include all of the following:

   A. Supervise the execution of this **Ordinance**;

   B. Review and issue **Watershed Management Permits**;

   C. Develop and maintain the **TGM**, which will serve as a companion reference to this **Ordinance**;

   D. Notify **Cook County** governmental agencies, **municipalities**, **authorized municipalities**, **FEMA**, **OWR**, **Corps**, and **IEPA** of any amendments to this **Ordinance**;

   E. Provide inspections to ensure proper compliance with this **Ordinance**;

   F. Investigate complaints of violations of this **Ordinance**;

   G. Grant **variances**;

   H. Enforce this **Ordinance**;

   I. Hear appeals;

   J. Advise, consult with, and cooperate with other governmental entities to promote the purposes of this **Ordinance**; and

   K. Supervise **authorized municipalities**.

2. The **District** shall timely review **Watershed Management Permit** applications and respond within:

   A. Fifteen (15) working days of an initial submittal for **developments** not involving **flood protection areas**;

B. Thirty (30) working days of an initial submittal for **developments** involving **flood protection areas**; and

C. Ten (10) working days of a resubmittal.

§ 1402. Role of an Authorized Municipality

1. The role of an **authorized municipality** in the administration of this **Ordinance** shall include the following:

   A. Issue **Watershed Management Permits** for **development** activities listed in §201.1 and within its corporate boundaries in conformance with this **Ordinance**;

   B. Provide inspections to ensure proper compliance with this **Ordinance**;

   C. Investigate complaints of violations of the **Ordinance**; and

   D. Advise, consult with, and cooperate with other governmental entities to promote the purposes of this **Ordinance**.

2. An **authorized municipality** must:

   A. Have legal authority to:

      (1) Perform all requirements of an **authorized municipality** under this **Ordinance;** and

      (2) Adopt this **Ordinance** by reference;

   B. Adopt this **Ordinance**, including all amendments, by reference;

   C. Participate in the regular phase of the **NFIP**;

   D. Have the ability to review and issue **Watershed Management Permits** for **development** activities in **separate sewer areas** listed in §201.1 and within its corporate boundaries in conformance with this **Ordinance**;

   E. Employ or retain by contract, adequate staff for all of the following positions:

      (1) An **enforcement officer**;

      (2) **Professional Engineer(s)**; and

      (3) **Wetland specialist(s)**;

F. Timely review **Watershed Management Permit** applications and respond within:

(1) Fifteen (15) working days of an initial submittal for **developments** not involving **flood protection areas**;

(2) Thirty (30) working days of an initial submittal for **developments** involving **flood protection areas**; and

(3) Ten (10) working days of a resubmittal;

G. Maintain all of the following records;

(1) **Watershed Management Permits**;

(2) **Record drawings**;

(3) **Structure** improvement data;

(4) **Elevation certificates**;

(5) **Base flood** data and **base flood** maps; and

(6) **LOMC, LOMR**;

H. Transmit all records specified in §1402.2.G of this **Ordinance** to the **District** upon receipt;

I. Issue **Watershed Management Permits** for **development** activities listed in §201.1 within its corporate boundaries in conformance with this **Ordinance**;

J. Inspect the construction of all **developments** which require a **Watershed Management Permit** from the **authorized municipality**;

K. Notify the **District** promptly for any violation within the **authorized municipality**;

L. Issue local stop work orders for all **violations**, when appropriate; and

M. Establish **Watershed Management Permit** fees for **Watershed Management Permits** reviewed and issued by the **authorized municipality**.

3. An **authorized municipality** shall not:

A. Issue **Watershed Management Permits** inconsistent with the provisions of this **Ordinance**;

B. Issue **Watershed Management Permits** for **development** activities listed in §201.2 of this **Ordinance;**

C. Issue **Watershed Management Permits** for **development** within **combined sewer areas** or **separate sewer areas** that are tributary to **combined sewers**;

D. Issue **variance**s; or

E. Hear appeals.

§ 1403. Procedure for Authorization

1. A **municipality** seeking to become an **authorized municipality** shall formally petition the **District** through a letter of intent. The letter of intent shall contain all of the following:

   A. A statement of intent to adopt this **Ordinance** by reference;

   B. A legal opinion indicating the **authorized municipality** has legal authority to perform all obligations required by this **Ordinance** including:

      (1) The regulation of **erosion** and **sediment** control, **stormwater** management, **floodplains, isolated wetlands**, and **riparian environments**;

      (2) The ability to conduct inspections;

      (3) The issuance of **Watershed Management Permits**;

      (4) The enforcement of this **Ordinance**; and

      (5) The ability to enter into an intergovernmental agreement with the **District**;

   C. A verified statement of financial capability to perform and adequately fund the obligations of the **authorized municipality**;

   D. Designation of an **enforcement officer**;

   E. An implementation plan; and

   F. Proposed staffing.

2. An intergovernmental agreement between a **municipality** and the **District** shall effectuate the status of a **municipality** as an **authorized municipality**. The intergovernmental agreement shall remain effective unless terminated.

§ 1404. District Oversight of Authorized Municipalities

1. The **District** may inspect any **development** within an **authorized municipality**.

2. The **District** may audit an **authorized municipality** periodically. During an audit, the **District** may:

   A. Inspect and copy pertinent records kept by an **authorized municipality**;

   B. Inspect **Watershed Management Permits** issued by an **authorized municipality**;

   C. Meet with staff of an **authorized municipality**;

   D. Conduct field inspections of **developments** permitted by an **authorized municipality**;

   E. Request and copy financial records of the **authorized municipality**;

   F. Verify that an **authorized municipality** complies with all requirements listed in §1402.2 of this **Ordinance**; and

   G. Verify that an **authorized municipality** does not violate any provision listed in §1402.3 of this **Ordinance**.

3. The **Director of Engineering** shall promptly notify an **authorized municipality** of any of the following deficiencies:

   A. Failure to comply with any provision of §1402.2 of this **Ordinance**;

   B. Violation of any provision of §1402.3 of this **Ordinance**; or

   C. Breach of the intergovernmental agreement;

4. An **authorized municipality** shall remedy any deficiency listed in §1404.3 of this **Ordinance** within thirty (30) calendar days of notice of the deficiency. In cases where a deficiency cannot be remedied within thirty days, the **Director of Engineering** may grant an extension.

5. The **Director of Engineering** may either suspend or terminate a **municipality**'s status as an **authorized municipality** if the **municipality** fails to remedy a violation in accordance with §1404.4 of this **Ordinance**. If a **municipality**'s status as an **authorized municipality** is either suspended or terminated, the **municipality** may petition the **Director of Engineering** for reauthorization after all deficiencies are remedied.

§ 1405. Representative Capacity

1. Any action to enforce any provision of this **Ordinance** by an elected official, officer, agent, or employee of the **District** shall be taken in the name of and on behalf of the **District** and said elected official, officer, agent, or employee shall not be rendered personally liable.

2. Any action to enforce any provision of this **Ordinance** by an elected official, officer, agent, or employee of an **authorized municipality** shall be taken in the name of and on behalf of the **authorized municipality** and said elected official, officer, agent, or employee shall not be rendered personally liable.

3. Any action to enforce any provision of this **Ordinance** by an **authorized municipality** shall be taken in the name of and on behalf of the **authorized municipality** and not in the name of and on behalf of the **District**.

This Ordinance as amended shall be in full force and effect July 10, 2014.

Adopted:

Kathleen Therese Meany
President of the Board of Commissioners of the
Metropolitan Water Reclamation District of
Greater Chicago

Approved as to form and legality:

Lisa Luhrs Draper
Head Assistant Attorney

Ronald M. Hill
General Counsel

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APPENDIX A. DEFINITIONS

Interpretation of Terms and Words

The terms and words used in this **Ordinance** shall be interpreted as follows:

1. Verbs and phrases in the present tense shall be presumed to include the future tense;
2. Parts of speech used in the singular shall be presumed to include the plural, and those used in plural shall be presumed to include the singular;
3. The words "shall," "will," and "must" are understood as mandatory, not permissive; and
4. All distances shall be measured horizontally unless otherwise stated.
5. A masculine, feminine or neuter pronoun shall not exclude the other genders.

Definitions

Words and terms not defined herein shall be understood by their common dictionary definition.

Within the context of this **Ordinance**, the following words and terms shall be defined as follows (except where otherwise specifically indicated):

100-Year Flood Elevation

The 100-year flood elevation is highest elevation of the **BFE** or a project-specific 100-year flood elevation.

Accessory Structure

A detached, non-habitable **building** without sanitary facilities that is an accessory to an existing **building** and that is less than 500 square feet in area. Accessory **structures** include, but are not limited, to garages and sheds.

Allowable Release Rate

The maximum or actual post-development release rate from a required **detention facility** as specified in §504.3 of this **Ordinance**, which is adjusted by existing **depressional storage** and/or **unrestricted flow** areas on the **site**.

Appellant

A **co-permittee** who appeals the **District**'s denial and/or imposition of conditions of a **Watershed Management Permit** or of a **variance** request.

Appropriate Use

The only types of **development** within the **regulatory floodway** that are eligible for a **Watershed Management Permit** as specified in §602.29.

Authorized Municipality

A **Cook County municipality** authorized by the **District** to issue **Watershed Management Permits** within its corporate boundaries.

Base Flood

The **flood** having a one percent probability of being equaled or exceeded in a given year. The **base flood** is also known as the "100-year flood."

Basement

Any area of a **building** having its floor below grade.

BB

Basement Backup. Discharge of sanitary wastewater into the lower level of a building caused by either a blockage or collapse on the service lateral from the building to the public sewer system or by surcharging of the public sector sewer system.

BFE

Base Flood Elevation. The height of the **base flood** in relation to the North American Vertical Datum of 1988 that is associated with the **Special Flood Hazard Area** on the effective **FIRM**. The **BFE** shall be determined by the effective Flood Insurance Study (**FIS**) for a **development site** at the time of application as determined by the criteria provided in §601.3 and §601.4.

Board of Commissioners

The nine-member Metropolitan Water Reclamation District of Greater Chicago's **Board of Commissioners** who are elected by the public.

BSC

Biological Stream Characterization. A program developed by the Illinois Environmental Protection Agency (**IEPA**) in conjunction with biologists from the Illinois Department of Natural Resources (IDNR) to aid in the classification of streams throughout the **watersheds** of Illinois. The **BSC** utilizes the Alternative Index of Biotic Integrity (AIBI) to classify streams as A, B, C, D, or E. The ratings use fish, macroinvertebrates, crayfish, mussels, and threatened and endangered species information to generate an overall score of biological diversity and integrity in streams.

BSS

Biologically Significant Stream. Streams with a Biological Diversity or Integrity of "A", "B", or "C" according to the latest edition of the Illinois Department of Natural Resources (**NRCS**) Office of Resource Conservation: Biological Stream Ratings for Diversity, Integrity, and Significance.

Building

A **structure** that is constructed and is enclosed by walls and a roof, including **manufactured homes**. This term does not include **accessory structures**.

Building Envelope

The delineation between the interior and the exterior environments of a **building** and often depicted as the **building** foundation.

Bulletin 70

Huff, F.A., and J.R. Angel, 1989. "Rainfall Distributions and Hydroclimatic Characteristics of Heavy Rainstorms in Illinois" (**Bulletin 70**), Illinois State Water Survey.

CCSMP

The Cook County Stormwater Management Plan adopted by the Metropolitan Water Reclamation District of Greater Chicago **Board of Commissioners** on February 15, 2007, as amended from time to time.

CLOMA

Conditional Letter of Map Amendment. A **FEMA** comment letter on a **development** proposed to be located in, and affecting only that portion of, the area of **floodplain** outside the **regulatory floodway** and having no impact on the existing **regulatory floodway** or **BFEs**.

CLOMR

Conditional Letter of Map Revision. A letter that indicates that **FEMA** will revise **BFEs**, **flood** insurance rate zones, **flood** boundaries, or **floodways** as shown on an effective **FIRM** after the **record drawings** are submitted and approved.

Co-Permittee

A **person** applying for a **Watershed Management Permit**, who must be the **owner** of the land specified in the application, the **owner**'s representative, or a developer with the owner's authorization. In the event, the **co-permittee** is a beneficiary of a land trust that owns the land specified in the application, the **co-permittee** must have power of direction. [*Compare* **co-permittee** *with* **permittee** and **sole permittee**].

Combined Sewer

Sewers intended for the combined conveyance of **stormwater runoff** and wastewater flows. [*Compare* **combined sewer** *with* **sanitary sewer** and **storm sewer**].

Combined Sewer Area

Areas within the **District**'s corporate boundaries that have sewers intended for the combined conveyance of **stormwater runoff** and wastewater flows to a **District** wastewater storage or treatment facility. This regulatory limit should be considered the high water mark **of combined sewer area** service limits, and was established in the past to limit further expansion of areas served by **combined sewers**. This area does not represent the actual effective boundaries between combined and separate sewer sheds. Consult local sewer system atlas information for that level of detail. [*Compare* **combined sewer area** *with* **separate sewer *area***].

Compensatory Storage

An excavated volume of storage used to offset the loss of existing flood storage capacity when fill or **structures** are placed within the **floodplain**.

Compliance Report and Schedule
A report that specifies a schedule and final compliance date for which all violations and conditions contained in a **NON – Stormwater** and/or a **NONC** are remedied.

Connection Impact Fee
Fee for annexing to the **District**.

Contiguous
Adjacent to and touching at one point or more; if the lands are separated by an easement or a dedicated right-of-way, it shall be considered contiguous.

Corps
United States Army Corps of Engineers.

Corps Jurisdictional Determination
Procedure by which the **Corps** determines whether it has jurisdiction over a subject water as a waters of the United States. The purpose of a jurisdictional determination is to determine whether a wetland is a **Corps** jurisdictional wetland. For the purposes of this **Ordinance**, a wetland not under the jurisdiction of the **Corps** shall be considered an **isolated wetland**.

Corps Jurisdictional Wetlands
All **wetlands** that are under the jurisdiction of the **Corps**.

Corps Wetland Delineation Manual
The current Corps Wetland Delineation Manual, including any relevant regional supplements, or superseded and as authorized under Section 404 of the Clean Water Act.

Cook County
Cook County is defined as the land area within the boundaries of Cook County, Illinois.

Critical Duration Analysis
Study that determines which **storm event** duration results in the greatest peak **runoff** rate.

Dam
Any obstruction, wall embankment, or barrier, including the related abutments and appurtenant works, that is constructed to store, direct, or impound water. An underground water storage tank is not classified as a **dam**.

Depressional Storage
The volume potentially contained below a closed contour on a one-foot contour topographic map, with the upper elevation determined by the invert of a surface-gravity outlet.

Design Runoff Rate
The **runoff** rate, or flow rates, used to design **major stormwater systems** and determine offsite flow rates. **Design runoff rates** are calculated by using event hydrograph methods.

Detention Facility

A manmade **structure** providing temporary storage of **stormwater runoff** from a **development** with a release rate specified by this **Ordinance**. The **Detention Facility** includes a stormwater storage basin, control structure (or restrictor), and the basin outlet, overflow and inflow pipes.

Development

Any human-induced activity or change to real estate (including, but not limited to, grading, paving, excavation, dredging, fill, or mining; alteration, subdivision, change in land use or practice; **building**; or storage of equipment or materials) undertaken by private or public entities that affects the volume, flow rate, drainage pattern or composition of **stormwater**, or the **substantial improvement** of an existing **building** in a **Special Flood Hazard Area**. The term **development** shall include **redevelopment** and shall be understood to not include **maintenance** or **maintenance activities**.

Director of Engineering

The Director of Engineering of the Metropolitan Water Reclamation District of Greater Chicago, and his or her designee.

District

Metropolitan Water Reclamation **District** of Greater Chicago. A special-purpose district established by the State of Illinois to, among other things, manage wastewater for an area largely corresponding to **Cook County**, and **stormwater** in **Cook County**. The **District** is an independent unit of local government with an elected nine member **Board of Commissioners**.

Disturbed Area

Actual land surface area disrupted by construction activity.

Drainage Area

The land area tributary to a given point that contributes **runoff** from rainfall and/or snowmelt.

DWP

Detailed Watershed Plans. A study and evaluation by the **District** to assess the specific conditions and needs for each of the following **watersheds**: Calumet-Sag Channel, the Little Calumet River, the Lower Des Plaines River, the North Branch Chicago River, Poplar Creek, and the Upper Salt Creek.

Elevation Certificates

A form published by **FEMA** that is used to certify the **BFE** and the lowest elevation of a **building**'s **lowest floor**.

Enforcement Officer

A municipal official having actual authority from an **authorized municipality** to administer this **Ordinance** and issue **Watershed Management Permits**.

Erosion

The process of soil particle detachment from the land surface by the forces of wind, water, or gravity.

Erosion and Sediment Control Practice

A temporary or permanent measure that stabilizes soil by covering and/or binding soil particles in order to prevent soil particles from becoming detached by the forces of wind, water, or gravity and intercepts **sediment** in **runoff**.

Erosion Control Practice

A temporary or permanent measure that stabilizes soil by covering and/or binding soil particles in order to prevent soil particles from becoming detached by the forces of wind, water, or gravity.

Executive Director

The **Executive Director** of the Metropolitan Water Reclamation District of Greater Chicago.

Existing Detention Facility

A **detention facility** either permitted under the **Sewer Permit Ordinance** or constructed as of the effective date of this **Ordinance**.

Existing Development Plans List

A list of proposed **development** projects submitted by a **municipality** to the **District** for which the **municipality** has granted formal preliminary approval.

Existing Manufactured Home Park or Subdivision

A manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the **manufactured homes** are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final **site** grading or the pouring of concrete pads) is completed before the effective date of this **Ordinance**.

Expansion to an Existing Manufactured Home Park or Subdivision

The preparation of additional **sites** by the construction of facilities for servicing the lots on which the **manufactured homes** are to be affixed (including the installation of utilities, the construction of streets, and either final **site** grading or the pouring of concrete pads).

Facility Connection Authorization

Within the City of Chicago, an authorization for planned connection to **District** owned, operated, and maintained facilities located within the City of Chicago, and for impacts to **District** owned or leased property. Examples of **District** owned facilities may include (but are not limited to): **District** interceptor, **TARP** structure or **District** tunnel, **District** Lift Station or force main, **District** reservoir, a new or reconstructed outfall to a Chicago Area Waterway within the City of Chicago, new or reconstructed outfall to Lake Michigan from property located within the City of Chicago. Formerly known as a Sewer Connection Authorization. Refer to §703 for more information.

Farmed Wetland

A **wetland** that is farmed currently or has been farmed within five years previous to the permit application date.

FEMA

Federal Emergency Management Agency. The federal agency whose primary mission is to reduce the loss of life and property and protect the nation from all hazards (including natural disasters, acts of terrorism, and other man-made disasters) by leading and supporting the nation in a risk-based, comprehensive emergency management system of preparedness, protection, response, recovery, and mitigation.

FIRM

Flood Insurance Rate Map. The current version of a map issued by **FEMA** that is an official community map on which **FEMA** has delineated both the special hazard areas and the risk premium zones applicable to a community together with any amendments, additions, revisions, or substitutions issued by **FEMA** at any time.

FIS

Flood Insurance Study. The current version of a study of **flood** discharges and **flood** profiles for a community adopted and published by **FEMA**, together with any amendments, additions, revisions or substitutions issued by **FEMA** at any time. The **FIS** also includes its associated **FIRMs**.

Flood or Flooding

A general and temporary condition of partial or complete inundation of normally dry land areas from the unusual and rapid accumulation or **runoff** of surface waters from any source.

Flood Control Project

A **development** undertaken by either the **District** or a **municipality** to reduce the frequency and magnitude of **flood** events, including, but not limited to, reservoirs, floodwalls, levees, and channel conveyance improvements and excluding **detention facilities**.

Flood Protection Areas

Regulatory floodplains, regulatory floodways, riparian environments, wetlands, and **wetland buffers.**

Floodplain

The area adjacent to and including a body of water where ground surface elevations are at or below a specified **flood** elevation.

Floodproof or Floodproofing

Additions, changes, or adjustments to **structures** or land that prevent the entry of **flood** water in order to protect property from **flood** damage.

Floodway

The channel and portion of the **floodplain** adjacent to a stream or watercourse that is needed to convey the **base flood** without cumulatively increasing the water surface elevation more than a tenth of a foot.

Floodway Conveyance

The measure of the flow carrying capacity of the **floodway** and is defined using Manning's equation as, $K = (1.49/n)AR^{2/3}$ where "n" is Manning's roughness factor, "A" is the effective area of the cross-section, and "R" is ratio of the wetted area to the wetted perimeter.

Flow-Through Practices

Permanent **volume control practices** designed to treat **stormwater runoff** from **impervious areas** of a **development** after permanent **stabilization** is achieved.

FPE

Flood Protection Elevation. The highest **100-year flood elevation** as determined in §601.9 plus two foot of freeboard.

General Counsel

The General Counsel of the Metropolitan Water Reclamation District of Greater Chicago.

Green Infrastructure

Practices aimed to mimic functions of the hydrologic cycle including infiltration, interception, depression storage, evapotranspiration, and evaporation.

Groundwater

Subsurface water occupying the saturation zone, from which wells and springs are fed. Water found below the normal water table.

High Quality Isolated Wetland

Isolated wetlands that are of the highest value due to their uniqueness, scarcity, function, and/or value as determined by §603.8.

Highest Adjacent Grade

The highest natural elevation of the ground surface next to the proposed walls of a **building** prior to construction.

Hydraulically Equivalent Compensatory Storage

Compensatory storage that can be shown by hydrologic and hydraulic analysis to off-set the increase in **flood** elevations due to **development**.

Hydrology

The science of the behavior of water including its dynamics, composition, and distribution in the atmosphere, on the surface of the earth, and underground.

IDOT

Illinois Department of Transportation.

IEPA

Illinois Environmental Protection Agency.

Illinois Pollution Control Board

A quasi-legislative and quasi-judicial body created under the Illinois Environmental Protection Act. The Illinois Pollution Control Board adopts environmental regulations and hears contested cases.

Illinois Recommended Standards for Sewage Works

The Illinois Recommended Standards for Sewage Works as included in the Illinois Administrative Code. 35 Ill. Adm. Code 370.

Illinois Urban Manual

This manual contains design guidance for a **development site** to meet this **Ordinance**'s performance standards for **erosion** and **sediment** control.

Impervious Area

Surfaces that do not readily allow for the penetration of rain into the ground, and include but are not limited to rooftops, paved areas and graveled areas. Areas that are designed to promote the infiltration of rainfall into the ground at rates at or above the infiltration rate of naturally vegetated areas (given applicable soil types), such as non-compacted gravel areas, porous/permeable pavement areas, and bioretention areas (rain gardens and bioswales, composed of an engineered soil mix) shall not be considered impervious.

Indirect Wetland Impact

A **development** activity that causes the **wetland hydrology** to fall below eighty percent (80%), or exceed one-hundred fifty percent (150%), of the existing condition **storm event runoff** volume to the **wetland** for the 2-year, 24-hour **storm event**.

Industrial Waste

The solids, liquid, or gaseous wastes resulting from any industrial, manufacturing, trade or business process or from the **development**, recovery or processing of natural resources.

Interest

The property interest or contractual interest, legal or equitable, directly or indirectly, in part or in full, and includes options to buy. In the case of a shareholder interest, the shareholder shall be deemed to have an interest if he owns or controls 5% or more of the shares.

Isolated Waters

All waters including **lakes**, ponds, streams, intermittent streams, and ephemeral pools that are not under the **Corps** jurisdiction. The limits of the **Isolated Waters** in **Cook County** extend to the **OHWM**.

Isolated Wetland

All **wetlands** that are not under the jurisdiction of the **Corps**.

Isolated Wetland Buffer

The vegetated area adjacent to **isolated wetlands** left open for the purpose of eliminating or minimizing adverse impacts to such areas.

Isolated Wetland Submittal
Submittal required under §305.

Jurisdictional Waters of the U.S.
All waters including **lakes**, ponds, streams, intermittent streams, and ephemeral pools that are under the jurisdiction of the **Corps**.

Jurisdictional Wetlands
All **wetlands** that are under the jurisdiction of the **Corps**.

Lake
A natural or artificial body of water encompassing a surface area of two or more acres that retains water throughout the year.

LOMA
Letter of Map Amendment. The official determination by **FEMA** that a specific **structure** or **parcel** of land is not in a **regulatory floodplain**. A **LOMA** amends the effective **FIRM**.

LOMC
Letter Of Map Change. A letter from **FEMA** which reflects an official revision to an effective **NFIP** map. **LOMC**s are issued in place of the physical revision and republication of the effective map.

LOMR
Letter Of Map Revision. A letter from **FEMA** that revises **BFEs**, **flood** insurance rate zones, **flood** boundaries, or **floodway** as shown on an effective **FIRM**.

LOMR-F
Letter Of Map Revision Based on Fill. A letter from **FEMA** which officially revises an effective **NFIP** map. A **LOMR-F** provides **FEMA**'s determination concerning whether a **structure** or **parcel** has been elevated on fill above the **BFE** and excluded from the **Special Flood Hazard Area**.

Long Term O&M Program
Long Term Operation and Maintenance Program. An ongoing program that a **satellite entity** develops and implements to reduce **SSOs** and **BB**s including but not limited to removing I/I sources, addressing deficiencies in its sewer system, maintaining system capacity, and preventing catastrophic system failures.

Lowest Entry Elevation
The elevation at which water can enter a **building** through any non-water tight opening such as a doorway threshold, windowsill, or **basement** window well.

Lowest Floor
The **lowest floor** of the lowest enclosed area (including **basement**). An unfinished or **flood** resistant enclosure, used solely for parking of vehicles, **building** access, or storage in an area other than a **basement** area is not considered a **building**'s **lowest floor**; provided, that such enclosure is not built so as to render the **structure** in violation of the applicable non-elevation design requirement of the Code of Federal Regulations (44 CFR 60.3).

Maintenance

The action required to preserve the original function and prevent failure of systems, which include but are not limited to, **sewage** systems, **major stormwater systems**, constructed **wetlands**, or **green infrastructure**.

Maintenance Activities

In kind replacement, restoration, or repair of existing infrastructure, pavement, or facilities including, but not limited to, roadways and parking lots such that they will perform the same functions for which they were originally designed and constructed.

Major Stormwater System

That portion of a stormwater system needed to store and convey flows for the 100-year storm event.

Manual of Procedures

The **District**'s Manual of Procedures for the Administration of the Sewer Permit Ordinance as amended November 5, 1988.

Manufactured Home

A **building** that is transportable in one or more sections, built on a permanent chassis, and designated for use with or without a permanent foundation when connected to the required utilities. The term **manufactured home** includes park trailers, travel trailers, and other similar vehicles placed on a **site** for more than 180 consecutive days.

Manufactured Home Park or Subdivision

A **parcel** or **contiguous parcels** of land divided into two or more **manufactured home** lots.

Material Change

Any deviation from the approved plans or specifications accompanying an application for which a **Watershed Management Permit** has been issued under this **Ordinance**, that would affect the **runoff**, capacity, flow, or operation of sewerage and/or **major stormwater systems** constructed under said **Watershed Management Permit**.

Minor Stormwater System

All infrastructure including curb, gutter, culverts, roadside ditches and swales, **storm sewers**, tiles, subsurface drainage systems, and other practices intended to convey or capture **stormwater runoff** from **storm events** less than a 100-year **storm event**.

Multi-County Municipality

A **municipality** containing corporate area within both **Cook County** and an Illinois county located **contiguously** adjacent to **Cook County**.

Multi-Family Residential

Residential **parcel** where any **building** contains three (3) dwelling units or more. [*Compare* **multi-family residential** *with* **residential subdivision**.]

Municipality

A local government, including a city, village, town, or Cook County. The term shall not be understood to include a township, school district, park district, or sanitary district.

Native Planting Conservation Area

Area planted with native deep-rooted vegetation, as approved by the **District**, and maintained in perpetuity to address **unrestricted flow** areas of a **development site**.

New Construction

For the purpose of determining insurance rates, **structures** for which the **start of construction** commenced on or after the effective date of an initial **FIRM** or after December 31, 1974, whichever is later, and included any subsequent improvements to such **structures**. For the purpose of **floodplain** management, **new construction** means **structures** for which the **start of construction** commenced on or after the effective date of the **floodplain** management regulation adopted by a community and includes any subsequent improvements to such **structures**.

New Impervious Area

Impervious areas that result from **development** or **redevelopment** including new **structures** or **buildings** associated with **development**, new impervious surfaces, and impervious surfaces that are being replaced as part of **redevelopment**.

New Manufactured Home Park or Subdivision

A **manufactured home park** or subdivision for which the construction of facilities for servicing homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final **site** grading or the pouring of concrete pads) is completed on or after the effective date of this **Ordinance**.

NFIP

National Flood Insurance Program. The requirements of the **NFIP** are codified in Title 44 of the Code of Federal Regulations.

NONC

Notice of Non-Compliance. Notice issued to a **satellite entity** by the **District** for an apparent infraction of the Infiltration/Inflow Control Program described in Article 8- of this **Ordinance**.

Non-Residential

Land uses other than **residential subdivisions**, **multi family residential**, **right-of-way**, or **open space**. **Non-residential** land use may include, but is not limited to, commercial land use and industrial land use.

Non-Qualified Development

Redevelopment area excluded from the **allowable release rate** calculation specified in §504.2 and **detention facility** volume calculation specified in §504.7.

Non-Qualified Sewer Construction

Non-qualifying sewer construction is defined in §700.6 and §700.7.

NOV

Notice of Violation. Notice given to a **permittee**, **co-permittee**, and/or any other **person** responsible for an apparent violation of this **Ordinance**.

NPDES

The National Pollutant Discharge Elimination System.

NRCS

The United States Department of Agriculture Natural Resources Conservation Service.

NWI

National Wetland Inventory. The **wetland** mapping program created by the U.S. Fish and Wildlife Service to provide information on the characteristics, extent, and status of the nation's **wetlands**, deepwater habitats, and other wildlife habitats.

Offsite Detention Facility

A manmade **structure** providing temporary storage of **stormwater runoff** intended to mitigate hydrologic impacts of **development** elsewhere in the **watershed**.

OHWM

Ordinary High Water Mark. The point on a bank or shore at which the presence and movement of surface waters is continuous, leaving a distinctive mark. The mark may be caused by **erosion**, destruction or prevention of terrestrial vegetation, a predominance of hydrophytic vegetation, or other recognized factors.

Open Space

Pervious land to be retained as pervious land which is not part of a larger **development. Open space** may include sidewalk, bike path, nature or walking trail **development** less than or equal to fourteen feet in width. [*Compare* **open space** *with* **right-of-way**.]

Ordinance

The Watershed Management Ordinance.

Other Wastes

All decayed wood, sawdust, shavings, bark, lime, refuse, ashes, garbage, offal, oil, tar, chemicals, and all other substances except **sewage** and **industrial wastes**.

Outfall

The end point of any **storm**, **sanitary**, or **combined sewer**, providing a point source discharge into a defined **waterway**, or Lake Michigan. **Outfalls** do not include culverts or open conveyances systems connecting two segments of a **waterway**.

Owner

The record title holder or a beneficiary of a land trust which is the record title holder, and includes singular and plural; if the owner is other than an individual, the term includes beneficiaries, agents, shareholders, officers, and directors.

Ownership

The holding of record title or any beneficial **interest**.

OWR

The Illinois Department of Natural Resources **O**ffice of **W**ater **R**esources.

Parcel

Contiguous land area under single **ownership** or control, under an affidavit of **ownership**, or under a single legal description on record with the **Cook County** Recorder of Deeds Office.

Permittee

Any **municipality**, municipal corporation, sanitary district, utility company, township government, or any other governmental body required to jointly sign a **Watershed Management Permit** application. [*Compare* **permittee** *with* **co-permittee** and **sole permittee**].

Person

Any individual, partnership, firm, school, district, company, corporation, municipal corporation, association, joint stock company, trust, estate, unit of local government, sanitary district, special taxing district, school district, public utility, political subdivision, county agency, state agency, federal agency, or any other legal entity, or **owner**, or any legal representative, agent, or assign thereof.

Professional Engineer

A **person** licensed under the laws of the State of Illinois to practice professional engineering.

Professional Engineering

The application of science to the design of engineering systems and facilities using the knowledge, skills, ability, and professional judgment developed through professional engineering education, training, and experience.

Professional Land Surveyor

A **person** licensed under the laws of the State of Illinois to practice land surveying.

PSP

Private Sector Program. An ongoing program that a **satellite entity** develops and implements to identify and remove I/I from privately owned sources.

Public Flood Easement

An easement acceptable to the appropriate jurisdictional body that meets the regulation of the **OWR**, the **District**, and the **municipality**, that provides legal assurances that all areas subject to **flooding** in the created backwater of the **development** will remain open to allow **flooding**.

Qualified Sewer Construction

All public and private new sewers and new sewer connections, exterior to a **building envelope**, including sewer repair and sewer replacement. See §701 for a complete list.

Recommended Standards for Wastewater Facilities

The current edition of the **Recommended Standards for Wastewater Facilities,** also known as the Ten States Standards, as published by the Great Lakes—Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers.

Record Drawings

Drawings prepared, signed, and sealed by a **professional engineer** or **professional land surveyor** representing the final "as-built" record of the actual in-place elevations, location of **structures**, and topography.

Redevelopment

Any human-induced activity or change to an existing developed property (including but not limited to, grading, paving, excavation, dredging, fill, or mining; alteration, subdivision, change in land use or practice; **building**; or storage of equipment or materials) undertaken by private or public entities that affects the volume, flow rate, drainage pattern, or composition of the **site stormwater runoff** on the previously developed land. The term shall not be understood to include **maintenance**.

Regulatory Floodplain

The **floodplain** as determined by the **BFE** used as the basis for regulation in this **Ordinance**.

Regulatory Floodway

Floodway under the jurisdiction of the Illinois Department of Natural Resources (17 Ill. Adm. Code 1700.30), which consists of portions of the **floodplain** depicted as **floodway** on maps recognized by **OWR**.

Residential Subdivision

Residential **parcel** that is planned to be subdivided for **development**, and where each sub-parcel contains a **building** with less than three (3) dwelling units. [*Compare* **residential subdivision** *with* **multi-family residential** and **single-family home**].

Respondent

Permittee, **co-permittee**, and/or any other **person** responsible for an apparent violation of this **Ordinance**.

Retention-Based Practices

Permanent **volume control practices** designed to capture, retain, infiltrate and treat **stormwater runoff** from **impervious areas** of a **development** after permanent **stabilization** is achieved.

Right-of-Way

Public **right-of-way** dedicated as of the effective date of this **Ordinance** including features such as roads and sidewalks. [*Compare* **right-of-way** *with* **open space**.]

Riparian Environment

The vegetated area between aquatic and **upland** ecosystems adjacent to a **waterway** or body of water that provides **flood** management, habitat, and water quality enhancement or other amenities dependent upon the proximity to water.

Runoff

The water from melting snow and/or precipitation falling within a **watershed** drainage area that exceeds the infiltration capacity of the soil of that basin.

Sanitary Sewer

Sewers intended for the conveyance of wastewater. [*Compare* **sanitary sewer** *with* **storm sewer** and **combined sewer**].

Satellite Entity

Any municipality, municipal corporation, township government or other governmental body, sanitary district, utility company, homeowner association, or mobile home park that owns and/or operates a public sanitary sewer system, including any successors or assigns of those entities, that discharges directly and/or indirectly to the **District's** facilities.

Sediment

The suspended soil particles that are transported after **erosion** has occurred.

Sedimentation

The process when the velocity of wind or water is slowed sufficiently to allow the suspended soil particles to settle.

Sediment Basin

A **structure** or area that allows for the **sedimentation** of **stormwater runoff**.

Sediment Control Practice

A **structure** that is designed to intercept **sediment** in **runoff**.

Separate Sewer Area

An area where **stormwater runoff** is intended to be collected and conveyed in a **separate sewer**, pipe and/or ditch system to a point of discharge in a receiving natural or man-made **waterway** or other **stormwater facility**. This regulatory limit was established in the past to limit further expansion of areas served by **combined sewers**. This area does not represent the actual effective boundaries between combined and separate sewer sheds. Consult local sewer system atlas information for that level of detail. [*Compare* **separate sewer area** *with* **combined sewer** ***area***].

Service Sewer

A sewer pipe constructed on private property, except for street crossing, that receives flow from a single **building** and connects to a sewer main or lateral.

Sewage

The water-carried human wastes or a combination of water-carried waters from residences, business **buildings**, institutions and industrial establishments, together with such ground, surface, storm or **other wastes** as may be present.

Sewage and Waste Control Ordinance

The **District's** current **Sewage and Waste Control Ordinance**.

Sewer Permit Ordinance

The **District's Sewer Permit Ordinance** as amended in July of 1999.

Sewerage System Permit

A permit required under the **District**'s **Sewer Permit Ordinance.**

Silt Fence

A temporary **sediment** control barrier consisting of entrenched geotextile filtering fabric attached to supporting posts that is designed to prevent **sediment**-laden **runoff** from leaving a **site**. The application of a **silt fence** is limited to containment of sheet flow **runoff** from small **drainage areas**.

Single-Family Home

Residential **parcel** containing less than three (3) dwelling units. **Single-family home parcels** subdivided after the effective date of this **Ordinance** are considered as **residential subdivision**. [*Compare* **single family home** *with* **residential subdivision** and **multi-family residential**].

Site

Parcel or **parcels** associated with a **development** or **redevelopment**.

Sole Permittee

A **co-permittee** applying for a **Watershed Management Permit** without a **permittee**. A **sole permittee** is solely and completely responsible for the perpetual operation and **maintenance** of all site infrastructure, including the **sanitary sewer systems,** as approved under the **Watershed Management Permit**. See §301.1.B (1) for a complete list requirements. [*Compare* **sole permittee** *with* **permittee** and **co-permittee**].

Special Flood Hazard Area

An area having special **flood**, mudslide, mudflow, or flood-related **erosion** hazards and which is identified on a **FIRM** as Zone A, AO, A1-30, AE, A99, AH, VO, V1-30, VE, V, M, or E.

SSA

Sewer Summit Agreement provides guidelines for achieving final compliance with sewer rehabilitation requirements acceptable to **IEPA**, **USEPA**, municipal conferences and the **District**. The goals of the **SSA** are to prevent water pollution and eliminate **BBs** and adverse surcharging conditions that cause health hazards and financial losses.

SSO

Sanitary Sewer Overflow. Any release or diversion of untreated sanitary wastewater from the sanitary sewer system to a surface water, storm sewer or storm ditch or the ground due to circumstances including but not limited to rain, snow melt, power outage, collapsed sewers, equipment failure, widespread flooding and/or pumping

Stabilization or **Stabilized**

Establishment of vegetative cover, riprap, or other means that minimizes **erosion** on **disturbed areas**.

Standard Isolated Wetland

All **isolated wetlands** other than **high quality isolated wetlands**.

Standard Specifications for Water & Sewer Construction in Illinois

The current edition of the Standard Specifications for Water & Sewer Construction in Illinois published by the Illinois Society of Professional Engineers.

Start of Construction

The date the **building** or **development** permit was issued, provided the actual **start of construction**, repair, reconstruction, rehabilitation, addition placement, or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a **structure** on a **site**, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a **manufactured home** on a foundation. For **substantial improvements**, the actual **start of construction** means the first alteration of any wall, ceiling, floor, or other structural part of a **building** whether or not that alteration affects the external dimensions of the **building**.

Storm Event

The frequency rainfall event as published in **Bulletin 70**.

Storm Sewer

A sewer intended for the conveyance of only **stormwater runoff**. [*Compare* **storm sewer** *with* **combined sewer** and **sanitary sewer**].

Stormwater

Precipitation that falls to the ground that does not naturally infiltrate into the subsurface soil.

Stormwater Facility

Structures and measures both natural and artificial which serve as a means of draining surface and subsurface water from land including, but not limited to, ditches, channels, conduits, bridges, culverts, levees, ponds, natural and man-made impoundments, **wetlands**, **wetland buffers**, **riparian environment**, tile, swales, **storm sewers**, and **waterways**.

Structure

A **structure** is anything that is erected or constructed on or below ground including, but not limited to, **buildings**, **manufactured homes**, **accessory structures**, fences, sheds, tanks, **dams**, sewers, manholes, drop shafts, constructed channels, **outfalls**, parking lots, driveways, roads, sidewalks, and concrete patios.

Substantial Damage

Damage of any origin sustained by a **building** whereby the cost of restoring the **building** to its before damaged condition would equal or exceed 50 percent of the market value of the **building** before the damage occurred.

Substantial Improvement

Any repair, reconstruction, rehabilitation, addition, or other improvement of a **building**, the cost of which improvement equals or exceeds, individually or in the aggregate, 50 percent of the fair market value of the **building**, determined from the equalized assessed value of the **building** before the **start of construction** of the improvement. This term includes **building**s which have incurred "**substantial damage**", regardless of the actual repair work performed. The term "cost of improvement" includes the market value of volunteer labor and donated materials. The term "cost of improvement" does not, however, include either (a) any project for improvement of a **building** to correct existing violations of state or local health, sanitary, or safety code specifications that have been identified by the local code enforcement official and that are the minimum necessary to assure safe living conditions or (b) any alteration of a historic **building** or a historic district that will not preclude the **building**'s continued designation as a historic **building**.

Subwatershed

Major **watershed** division of a **watershed planning area** as identified in the **District**'s Detailed Watershed Plans.

Swink and Wilhelm Mean Coefficient of Conservatism (ĉ)

The mean coefficient of conservatism (ĉ) in an inventory group calculated by the sum of all coefficients in an inventory unit divided by the number of species (N).

Swink and Wilhelm Floristic Quality Index (FQI)

The index derived from floristic inventory data. The index is the arithmetic product of the average coefficient of conservatism (ĉ) and the square-root of species richness (√N) of an inventory unit.

TARP

The **District**'s Tunnel And Reservoir Plan including all associated **structures** and appurtenances.

TGM

Technical Guidance Manual. A manual prepared in conjunction with this **Ordinance** that provides technical information and guidance on how to comply with the provisions of this **Ordinance**, and as amended from time to time.

Tributary Area

All land drained by or contributing water to the same stream, **lake**, or **stormwater facility**, or which drains to a common point.

Underdrain

A below grade pipe containing openings that allow the drainage of **stormwater** from overlying soils, gravel, sand, aggregate, and other similar media. **Underdrains** include, but are not limited to, field tiles, drain tiles, and open jointed pipes.

Unrestricted Flow

Stormwater runoff from a **development** which is not directed to the required **detention facility** is unrestricted or uncontrolled release or flow. The areas generating unrestricted flow are referred to as unrestricted or uncontrolled release rate areas.

Upland

Terrain lying above the level where water flows or where **flooding** occurs.

Upstream Tributary Flow

Stormwater runoff or **groundwater** flows from **tributary areas** upstream of a **development site**. **Upstream tributary flows** can be **bypass flows**.

USEPA

United States Environmental Protection Agency

Variance

A limited grant of relief by the **District** from the term(s) or condition(s) of this **Ordinance**.

Volume Control Practices

Permanent practices designed to capture, retain, and infiltrate **stormwater runoff** from **impervious areas** of a **development** after permanent **stabilization** is achieved.

Volume Control Storage

The first inch of **runoff** from the **impervious area** of **development** on the **site**.

Watershed

Tributary areas discharging to a common point.

Watershed Management Permit

A permit established by this **Ordinance** that is issued by the **District** prior to the approval of a **building** or construction permit by the appropriate unit of local government. The issuance of a **Watershed Management Permit** signifies that the proposed **development** is in compliance with the provisions of this **Ordinance**.

Watershed Planning Area

The area considered in a specific **DWP** and depicted in Appendix E.

Water Reclamation Facility

Facility designed to treat **sewage**.

Water Resource Benefit

A decrease in **flood** elevations, a reduction in **flood** damages to **structures** upstream or downstream of the **development site**, a reduction in peak flow rates, and/or enhancement of existing water-related environmental resources created by the **development** which is greater than the minimum **Ordinance** requirements.

Waterway

Navigable body of water such as a stream, creek, canal, or river.

Wetlands

Areas which are inundated or saturated by surface or ground water (**hydrology**) at a frequency and duration sufficient to support, under normal circumstances, a prevalence of vegetation (hydrophytes) typically adapted for life in saturated soil conditions (hydric soils). **Wetlands** generally include swamps, marshes, bogs, and similar areas.

Wetland Buffer

The vegetated area adjacent to **wetlands** left open for the purpose of eliminating or minimizing adverse impacts to such areas.

Wetland Impact

Wetlands that are directly or indirectly disturbed or otherwise adversely affected, whether temporarily or permanently, by filling, excavation, **flooding**, or drainage which results from implementation of a **development** activity.

Wetland Mitigation

The process of offsetting **wetland impacts** through the restoration, creation, enhancement, and preservation of **wetlands**.

Wetland Mitigation Bank

A **site** where **wetlands** are restored, established, enhanced, and/or preserved for the purpose of providing compensatory mitigation for authorized impacts. In general, a mitigation bank sells compensatory mitigation credits (acres) to the **co-permittee**(s), whose obligation to provide compensatory mitigation is then transferred to the mitigation bank sponsor.

Wetland Specialist

A **person** having skill in the art and science of identifying, delineating, and assessing **wetlands**.

APPENDIX B

Watershed Specific Release Rates

[Under development]

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APPENDIX C. EXISTING DEVELOPMENT PLANS LIST REQUIREMENTS

LEGACY SEWER PERMIT ORDINANCE AND
MANUAL OF PROCEDURES FOR THE ADMINISTRATION OF THE SEWER PERMIT ORDINANCE

Metropolitan Water Reclamation District of Greater Chicago

SEWER PERMIT ORDINANCE

AS AMENDED
July, 1999

LEGACY SEWER PERMIT ORDINANCE AND
MANUAL OF PROCEDURES FOR THE ADMINISTRATION OF THE SEWER PERMIT ORDINANCE

AN ORDINANCE

AN ORDINANCE REGULATING THE ISSUANCE OF PERMITS FOR CONSTRUCTION, OPERATION AND MAINTENANCE OF SEWERS, SEWERAGE SYSTEMS, TREATMENT FACILITIES AND SEWER CONNECTIONS DESIGNED TO DISCHARGE DIRECTLY OR INDIRECTLY INTO COLLECTION AND TREATMENT FACILITIES OF THE METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO, OR INTO WATER WITHIN ITS TERRITORY, HEREAFTER TO BE KNOWN AS "THE SEWER PERMIT ORDINANCE."

For information or questions about this Ordinance, call the Local Sewer Systems Section of the MWRDGC's Engineering Department.

Phone: (312) 751-3260
Fax: (312) 751-7957

Adopted July 10, 1969
Latest Amendment: July 8, 1999

METROPOLITAN WATER RECLAMATION DISTRICT
OF GREATER CHICAGO
100 East Erie Street
Chicago, Illinois 60611
(312) 751-5600

BOARD OF COMMISSIONERS

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Hon. Kathleen Therese Meany, Vice-President
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Jacqueline Torres, Director of Finance/Clerk

Be it ordained by the Board of Commissioners of the Metropolitan Water Reclamation District of Greater Chicago

Section 1. **Authority and Purpose of this Ordinance.**

This Ordinance is adopted under the authority of 'an act to create sanitary districts and to remove obstructions in the Des Plaines and Illinois rivers, as amended, "(Illinois Compiled Statutes, Chapter 70, Sections 7, 7a, 7aa, 7b and 7f) and of the powers granted to the Board of Commissioners of the Metropolitan Water Reclamation District of Greater Chicago, expressly or by necessary implication, under other provisions of said act, for the purpose of enabling the Metropolitan Water Reclamation District of Greater Chicago more effectively to protect the ability of its sewerage systems, interceptors, sewage disposal and treatment plants, works, and facilities to satisfactorily perform the functions for which they were designed, by controlling the nature, volume and the manner of discharge into said systems, plants, works, and facilities, and for the purpose of maintaining the stable operation of said systems and facilities, and for the protection of the waters within the district so as to preserve the public health.

Section 2. **Definitions.**

For the purpose of this Ordinance, the following definitions obtain:

(a) **Board of Commissioners**: The Board of Commissioners of the Metropolitan Water Reclamation District of Greater Chicago.

(b) **District**: The Metropolitan Water Reclamation District of Greater Chicago, a municipal corporation, organized and existing under the laws of the State of Illinois.

(c) **General Superintendent**: The General Superintendent of the Metropolitan Water Reclamation District of Greater Chicago.

(d) **Industrial Waste**: The solids, liquid or gaseous waste resulting from any industrial, manufacturing, trade or business process or from the development, recovery or processing of natural resources.

(e) **Other Wastes**: All decayed wood, sawdust, shavings, bark, lime, refuse, ashes, garbage, offal, oil, tar, chemicals, and all other substances except sewage and industrial wastes.

(f) **Maintenance**: The action required to prevent failure of the sewerage system and preserve its original function.

(g) **Material Change**: Any deviation from the approved plans or specifications accompanying an application for which a permit has been issued under this Ordinance, that will affect capacity, flow or operation of a sewer, sewer system or connection to any sewer system.

(h) **Permittee**:

1. Any municipality, municipal corporation, sanitary district, utility company, township government or any other governmental body; or

2. any municipality, municipal corporation, sanitary district, utility company, township government or any other governmental body jointly with any individual, individuals or corporation where application is made for installations on private property; or

3. any individual, individuals, or corporation who owns property directly adjacent to any interceptor sewer of the Metropolitan Water Reclamation District of Greater Chicago, where direct connection to said interceptor is made or is contemplated by the owner of said property for the sole, exclusive and perpetual use of the owner of said property (and where the direct connection serves only that property immediately adjacent to said interceptor), who seeks permission to discharge sewage, industrial waste or other waste into facilities of the Metropolitan Water Reclamation District of Greater Chicago; or

4. any individual, individuals or corporation who provides an acceptable sewage treatment plant for the sole, exclusive and perpetual use of the owner, of the property being served thereby, which discharges into any waters or interceptor sewer of the Metropolitan Water Reclamation District of Greater Chicago in conformity with the ordinances of the Metropolitan Water Reclamation District of Greater Chicago, the rules and regulations of the Illinois EPA Division of Water Pollution Control and the statutes of the State of Illinois; or

5. any responsible individual, individuals, or corporation (not otherwise qualified as permittee under the provisions of Section 2(h)2, 3 or 4 of the Sewer Permit Ordinance), upon presentation of satisfactory evidence of responsibility as determined by the Board of Commissioners, where construction of sewers or sewerage systems is contemplated to serve property owned by said individual, individuals, corporation, in an unincorporated area, and the contemplated construction is intended for the sole, exclusive and perpetual use of the owner; provided that said unincorporated area is outside the jurisdiction of a local sanitary district and outside the area of a public utility company certificated for such service, and the township government declines to execute the permit application and to assume the obligations of a joint permittee, as provided in Section 2(h)2 of the Sewer Permit Ordinance.

(i.) **Sewage**: The water-carried human wastes or a combination of water-carried wastes from residences, business buildings, institutions and industrial establishments, together with such ground, surface, storm or other wastes as may be present.

Section 3. **Minimum Engineering Standards of Design and Construction and Maintenance and Flood Control.**

(a) In order to effect the intent and purposes of this Ordinance, it shall be the duty of the Board of Commissioners to establish appropriate written rules and regulations as to minimum engineering standards governing the design, construction and maintenance of sewers and sewerage systems within the territory of the District, including requirements as to types of materials, methods of installation, maximum permissible rates of infiltration and other engineering parameters.

(b) Effective January 1, 1972, no permits shall be issued for sewer construction in unsewered or separate sewered areas when construction of the facilities to be served by the proposed sewer would result in run-off in excess of that from its natural or undeveloped state, unless (1) the local government having jurisdiction over the area in which the construction is contemplated shall have adopted a storm water detention or flood control ordinance acceptable to the District, together with a drainage plan and time schedule for its implementation approved by the District, or (2) the run-off rate from the area be restricted to be no greater than that from its natural or undeveloped state and that detention space for the excess storm water be provided in accordance with the current Manual of Procedures of the District. Provision shall be made for proper maintenance of any such detention facility.

Section 4. **Permit Required for Sewer Construction.**

(a) It shall be unlawful for any person, corporation, sanitary district, school district or other entity to construct, maintain or operate any sewer, sewerage system or private treatment plant that has been planned or designed to discharge, either directly or indirectly, into any sewer, interceptor sewer, sewage treatment plant or other facility maintained and operated by the District, or into waters within the territory of the District, without first having obtained a permit in writing for the construction and operation of such sewer, sewerage system or private treatment plant, which permit shall have been duly approved and issued under the authority of the District, and according to the terms and provisions of this Ordinance.

(b) It shall be unlawful for any person or corporation to install a connection, addition, extension, opening or penetration of any kind into any sewer or interceptor sewer that discharges directly or indirectly into any

sewer, interceptor sewer, sewage treatment plant or other facility maintained and operated by the District; or into waters within the territory of the District, without first having obtained the written permit required under Section 4(a) of this Ordinance.

(c) No permit shall be required for any connections, changes, or additions to or extensions of existing sewerage systems that receive or may receive only domestic or sanitary sewage:

(1) From any building to be devoted solely to residential use, which contains less than twenty-five dwelling units; or

(2) From any building, the use of which will not involve the risk of introduction into the sewer system of industrial waste or other waste by accident, spillage or otherwise; provided, however, that it shall be a requirement of the District in the construction of such building that a control sanitary manhole shall be installed.

(d) The permit provided for in Section 4(a) of this Ordinance shall always be required for any proposed direct connection to any interceptor sewer or other facility owned or operated by the District.

(e) It shall be unlawful for the owner or occupant of any building for which a permit is not required hereunder to cause or permit a change of use of such building to a use for which a permit is required hereunder, without first having obtained the written permit required under Section 4(a) of this Ordinance.

Section 5. **Sewer Permit Application and Processing Fees.**

(a) Except as hereinafter provided, each sewer permit applicant shall pay to the District a sewer permit application and processing fee in accordance with the terms and conditions hereinafter set forth. These fees are subject to change on an annual basis.

(1.) A sewer permit application fee shall be remitted by an applicant with each permit application required to be made pursuant to this Ordinance. Said permit application fee shall be paid at the time of the filing of the sewer permit application, and no sewer permit shall be issued until all application and processing fees with respect thereto are paid in full.

(2.) The sewer permit application fee shall be computed on the basis of the following charges:

i. A $850.00 non-refundable permit application fee; or

ii. A $500.00 non-refundable sewer connection authorization application fee; or

iii. A $100.00 non-refundable notification and request for inspection (sewer replacement) fee; and

v. A $3.50 (three dollars fifty cents) for each foot of sanitary/combined sewer pipe included in the sewer permit application and any plans and specifications made a part hereof.

(Fees Amended at December 18, 1997 Board Meeting, effective January 1, 1998)

(3.) Exemptions:

i. Governmental agencies seeking to construct public works projects (where ownership and control of the project is reposed with the governmental agency), the cost of which is financed by the proceeds of ad valorem property taxation, user charges, special assessments, or municipal bonds shall be exempt from the fee provisions of this Ordinance;

ii. Municipalities and utility companies which apply for permits under this Ordinance to effect sewer rehabilitation work mandated by the District and The Illinois Environmental Protection Agency shall be exempted from the fee provisions of this Ordinance.

(4.) No refund or additional charges will be made with respect to the fees charged pursuant to this Ordinance if the final total fee, as determined from as-built plans for the project, varies by less than $100.00 from the original total fee paid.

(5.) In addition to the foregoing fees herein above established, a $50.00 processing fee shall be paid for each set of revised plans, drawings, specifications or any other supplementary filings submitted to the District by the applicant or his representative subsequent to the issuance of the permit.

(b) Connection Impact Fees

The Permittee/Co-permittee for any permit project, within Cook County, except for publicly owned facilities performing a local governmental function or real estate tax-exempt facilities and which discharge solely sewage into its sewers which is (a) thereafter annexed to the District, or (b) located in a greater than 500-acre Tax Increment Financing (TIF) district, shall pay a Connection Impact Fee to the District at a time that such area or a portion thereof is the subject of a sewer permit application to the District. The Connection Impact Fee will be assessed at the following rates per acre:

Residential Land Use	Units/Acre	Fee/Acre
Low Density and/or Medium Density	20 or less	$3,750
High Density	21 or more	$6,000
Other Land Use		
Commercial and/or Industrial	N/A	$7,500

For permit service areas in a greater than 500-acre TIF district only, a preliminary connection impact fee is computed by multiplying the acreage of each Permanent Index Number (PIN) in the permit service area by the appropriate unit fee set forth in the table above. The preliminary connection impact fee is multiplied by an adjustment factor which is equal to the number of years during the 12-year period immediately preceding the sewer permit application that real estate taxes for the District were not paid for that PIN in the permit service area, divided by twelve. The preliminary connection impact fee for each PIN in the permit service area is then multiplied by the adjustment factor. Each of the adjusted preliminary connection impact fees so computed is added together and the sum total is the Connection Impact Fee for the permit service area.

Ten percent (10%) of the Connection Impact Fee will be paid to the District with the sewer permit application. Fifty percent (50%) of the Connection Impact Fee will be paid no later than the first to occur of substantial completion or one year after construction begins. The remaining 40% of the Connection Impact Fee will be paid to the District no later than the first to occur of Permittee/Co-permittee's Request for Final Inspection or two years after sewer construction begins.

(c) Tax Increment Financing (TIF) District Service Fees for Sewer Permits issued with respect to projects within a TIF district other than for publicly owned facilities performing a local governmental function or real estate tax-exempt facilities and which discharge solely sewage into its sewers, shall be paid to the District for the duration of the TIF district. The municipal Permittee shall pay to the District an annual service fee equal to the difference between the amount of real estate tax paid to the District on account of each Permanent Index Number (PIN) in the permit service area and the actual cost of providing sewage transport and disposal service to those PINs. The amount of service fee for each parcel of real estate in the permit service area shall be calculated by multiplying the current equalized assessed valuation for each PIN in the permit service area by the tax rate for the District for each reporting year and then multiplying that product by the Operation, Maintenance and Replacement Factor established by the District for that tax year (as required by the District's User Charge Ordinance). That amount is compared to the

actual real estate tax receipts by the District for each PIN for that tax year. In the event the cost for providing actual sewage transport and disposal service exceeds the actual tax receipts by the District for that PIN, the difference is the Tax Increment Financing District Service Fee. The municipal Permittee shall furnish a tabulation to the Chief Engineer by September 1st of each year that the TIF district is in effect which shall list all parcels in the permit service area by PIN for each permitted project. For each PIN shown, he following information, which will be subject to audit and confirmation by the District shall be provided:

a) The amount of real estate taxes actually paid to the District by the Cook County Treasurer for each reporting year for each PIN in the permit service area.

b) The cost to the District for providing sewage transport and disposal services to each PIN in the permit service area, using the formula set forth above.

c) The difference between a) and b) above.

d) The TIF district service fee due to the District for that PIN, together with a total aggregate fee for that tax year for the permit service area.

The TIF District Service Fee shown to be owed in the tabulation shall be remitted to the District by the Permittee with the tabulation.

(Adopted at the Board Meeting of May 7, 1998; Amended, Board Meeting of July 9, 1998; Amended, Board Meeting of November 5, 1998; Amended, Board Meeting of July 8, 1999)

Section 6. **Plans and Specifications to be Submitted.**

(a) All applications for permits required under Section 4 of this Ordinance shall be on forms prescribed by the District. Such applications shall be submitted to the General Superintendent, together with plans and specifications prepared by a licensed registered professional engineer, showing details of the proposed construction. The General Superintendent shall review the application, plans and specifications for the purpose of ascertaining whether or not they comply with the rules and regulations established under Section 3 of this Ordinance, and he may approve same and issue the permit, or he may reject such application, in which case he shall transmit to the applicant, within ten working days from the date of receipt of such application, a notice of such rejection, together with his written recommendations for such revisions and/or modifications as shall be required to meet with his approval, and no permit under Section 4 of this Ordinance shall be approved or issued without approval by the General Superintendent of the plans and specifications for the proposed construction. A copy of such approved plans and specifications shall be kept in the files of the District, and all construction performed under authority of the permit required under Section 4 of this Ordinance shall be done in strict compliance and conformity with such approved plans and specifications.

(b) In the event that it should be necessary or desirable to make material changes in the construction proposed under plans and specifications that have been approved as required under Section 6(a) of this Ordinance, revised plans and specifications shall be submitted, together with a written statement as to the reason for the proposed changes, and the General Superintendent may approve such revised plans and specifications, in which case he shall cause a supplemental written permit to be issued, or he may reject such revised plans and specifications on the same terms and in the same manner as is provided for such rejections under Section 6(a) of this Ordinance.

(c) All applications, plans and specifications shall be promptly reviewed, and the District shall, within ten working days of the receipt of each application, make written response to the applicant, or his agent, by approval, or by rejection, or by request for additional information.

(d) The rejection of any permit application shall be subject to reconsideration by the Board of Commissioners upon the written request of the applicant or his agent, made within twenty days of the receipt of such rejection, and the Board of Commissioners shall have twenty days from the receipt of

such request for reconsideration, within which to act thereon and respond to the applicant in writing.

Section 7. **Assignment of Permit.**

No permit issued under Section 4 of this Ordinance may be assigned or transferred without the consent in writing of the General Superintendent, and any such assignment or transfer without said written consent shall be void and of no legal effect.

Section 8. **Maintenance by the Permittee. —Bond Required in Certain Cases.**

(a) It shall be the duty and responsibility of every permittee to whom a permit has been issued for the construction and operation of any facility or connection under Section 4 of this Ordinance to keep said facility or connection in a proper state of repair and maintenance after same has been completed and placed in operation and use.

(b) No permits shall be issued for the construction, extension, operation and maintenance of sewage treatment plants, oxidation pond, or other treatment facility unless accompanied by a bond with sufficient surety to assure proper construction, extension, operation and maintenance of any such treatment plant, oxidation pond, or other sewage treatment facility within the borders of the District, said bond to terminate upon connection of said sewage treatment plant, oxidation pond, or other sewage treatment facility to an intercepting sewer or treatment plant of the District; and it shall be one of the conditions for issuing a permit for the construction, extension, operation and maintenance of a sewage treatment plant, oxidation pond or other treatment facility, that the person, persons, partnership or corporation requesting said permit be required in its or their application to agree that it/they will provide any additional security required by the Board of Commissioners of the District for the life of the permit, to guarantee full and complete performance including the execution of any and all documents that may be required by the Board of Commissioners in support thereof; and said bond shall be approved as to form and legality by the Law Department of the District; and as to engineering details by the Chief Engineer.

Section 9. **Construction Specifications where Permit is not required.**

All sewer connections from buildings where a permit is not required under the provisions of this Ordinance shall nevertheless conform to such minimum engineering standards as to design and construction and maintenance as are established by the General Superintendent to carry out the purposes of this Ordinance. Construction in flood hazard areas shall conform to all applicable, Federal, State and local flood plain requirements.

Section 10. **Violations. Notice—Hearing—Recommendation—Order.**

(a) Whenever it shall appear to the General Superintendent that a violation of any provision of this Ordinance may exist, including the fact that a permit required thereunder has not been issued, or that construction performed under authority of a duly issued permit does not comply with the conditions of such permit, or fails to conform with the plans and specifications that were approved in connection therewith, or that a sewer, sewerage system, treatment plant or facility or sewer connection is not being maintained and operated in accordance with the provisions of this Ordinance, the General Superintendent shall, as soon as practicable, notify the Permittee or whomsoever is responsible for the apparent violation to appear before the Board of Commissioners or its duly designated representative and show cause why he should not be found in violation of this Ordinance.

Such notice shall specify the time and place where a hearing will be held, and notice of such hearing shall be served personally or by registered or certified mail at least ten (10) working days before said hearing; and in the case of a municipality or a corporation such service shall be upon an officer or agent thereof. The Board of Commissioners may itself conduct the

hearing and take evidence, or may designate any of its members or any officer or employee of the District or any other person:

(1) To issue in the name of the Board notices of hearings requesting the attendance and testimony of witnesses and the production of evidence relevant to any matter involved in any such hearings; and

(2) To take the evidence.

Thereafter the Board of Commissioners shall review said evidence and any recommendations which may be presented in connection therewith, and shall make such findings and issue such orders as it deems appropriate to the enforcement of compliance with the provisions of this Ordinance. Testimony taken at the hearing provided for herein shall be under oath and recorded stenographically, and the transcript so recorded must be made available to any member of the public or to the respondent or party to such hearing upon payment of the usual charges therefore.

(b) When the violation referred to in Section 10 (a) above does not appear to be clearly willful, and does not involve an emergency endangering the public health, the alleged violator shall be made aware of the violation prior to the show cause hearing so as to allow the alleged violator an opportunity to correct the violation and secure compliance with the provisions of this Ordinance and the terms and conditions of permits issued hereunder prior to the show cause hearing.

(c) With respect to violations of the Sewer Permit Ordinance cited after August 31, 1984, an inspection fee of $100.00 shall be charged by the District for each on-site inspection made by the District to ascertain or confirm compliance by a violator hereunder with the construction, operation, and maintenance provisions of this Ordinance or permit issued pursuant to this Ordinance. Such inspection(s) shall be made when requested by a Permittee, or if no such request(s) is (are) made, then upon the compliance date established by an order of the Board of Commissioners, and thereafter as circumstances may reasonably require.

After a hearing on an alleged violation the Board may, in addition to any fine imposed, order any person found to have committed a violation to reimburse the District for the costs of the hearing, including any expenses incurred for inspection, sampling, analysis, administrative costs, and court reporter and attorney fees.

Payment of the above-described costs shall be made by the violator within 30 days of its receipt of an invoice therefore prepared and transmitted by the District to the violator. Invoices issued hereunder which shall be in arrears for more than 30 days shall be subject to an additional late payment charge of 1 1/2% per month until paid.

Section 11. **Penalties.**

Whoever violates any provisions of this Ordinance, or any amendment hereafter adopted, or fails to comply with an order of the Board of Commissioners issued in accordance with the provisions of this Ordinance shall be fined not less than one hundred dollars ($100.00) nor more than one thousand dollars ($1,000.00). Each day's continuance of such violation or failure shall constitute a separate offense. The Attorney for the District shall take such action as he may deem necessary to enforce collection and payment of all penalties, to restrain violations of, and to compel compliance with, the provisions of this Ordinance, and with the conditions of any permit issued hereunder.

Section 12. **Right to Repeal or Amend Ordinance.**

The District reserves the right at any time, and from time to time, to repeal or amend this Ordinance or any provisions thereof; and all permits are issued subject to such right. Where conditions so warrant, the Board of Commissioners after a hearing may waive any of the requirements of this Ordinance and waive any other requirements imposed by rules and regulations adopted for the implementation of this Ordinance.

Section 13. **Sewage and Waste Control Ordinance; Pollution Control Board Rule and Regulations.**

Any construction performed under a permit issued under the provisions of this Ordinance shall comply with the provisions of the District's 'Sewage and Waste Control Ordinance' and the rules and regulations of the Illinois Pollution Control Board, wherever the same are applicable.

Section 14. **Construction Under Former Ordinances.**

Construction under any permit issued prior to the effective date of this Ordinance shall be governed by the provisions of the ordinances in force at the time said permit was issued.

Section 15. **Permits not Required in Municipalities 500,000 Population.**

Nothing in this Ordinance shall be construed to require permits in municipalities having a population of over 500,000.

Section 16. **Effect of Court Decisions.**

If the provisions of any section of this Ordinance shall be declared unconstitutional or invalid by the final decision of any court of competent jurisdiction, the provision of the remaining paragraphs shall nevertheless continue in full force and effect.

Section 17. **Effective Date.**

This Ordinance became effective on the 1st day of January 1970. The last amendment became effective July 8, 1999.

METROPOLITAN WATER RECLAMATION DISTRICT
OF GREATER CHICAGO

MANUAL OF PROCEDURES
FOR
THE ADMINISTRATION
OF
THE SEWER PERMIT ORDINANCE

ENGINEERING DEPARTMENT
LOCAL SEWER SYSTEMS SECTION

METROPOLITAN WATER RECLAMATION DISTRICT
OF GREATER CHICAGO
100 East Erie Street
Chicago, Illinois 60611
(312) 751-5600

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AN ORDINANCE

The manual of Procedures is an Ordinance providing minimum Engineering Standards for the design, construction, operation and maintenance of sewers, sewerage systems, treatment facilities and sewer connections designed to discharge directly or indirectly into collection and treatment facilities of the Metropolitan Water Reclamation District of Greater Chicago, or into waters within its territory, supplementing the Sewer Permit Ordinance.

For information or questions about this Ordinance, call the Local Sewer Systems Section of the MWRDGC's Engineering Department.

Phone: (312) 751-3260
Fax: (312) 751-7957

Adopted September 3, 1970
Latest Amendment November 5, 1998

Foreword

The following pages of this Manual contain the design standards and the administrative requirements for the issuance of sewer permits and outline the procedures for permit application. The contents of this Manual have been formulated with the courteous assistance of a Blue Ribbon Committee representing a cross-section of concerned citizens, local governments, builders, contractors and consulting engineers, with a view towards facilitating the issuance of permits. It is hoped that this Manual will reach, and be used by as many hands as may be potentially involved in the preparation of the permit application and the other plans and documents related thereto. For if it does, it is our hope that it will properly serve the purposes it is intended for.

Let us assure you in this connection that the permit and all entries therein, together with the other information and documents related thereto, are individually designed to serve specific and related purposes in our overall responsibility for the protection of the health and welfare of the public. To be specific, the purposes served include: compliance of the project with the minimum design standards; prevention of pollution by controlling flows into the District systems, including flows into waters within the District; prevention of overflowing of the District interceptors and water reclamation plants; and, equally important, the assistance to the District in planning for the future to provide for flood control and to meet demands of population growth as reflected by new construction projects.

It is our sincere hope that this Manual will prove beneficial to you and that you will be generous in extending your cooperation and assistance so that, in turn, we will be able better to serve you and serve and protect the public.

MANUAL OF PROCEDURES
FOR THE ADMINISTRATION OF THE SEWER PERMIT ORDINANCE

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MANUAL OF PROCEDURES FOR THE ADMINISTRATION OF THE SEWER PERMIT ORDINANCE

SECTION I—APPLICABLE RULES AND REGULATIONS

Article 1. PERMIT REQUIREMENTS

1-1. **Purpose.** The "Manual of Procedures for the Administration of the Sewer Permit Ordinance", contained herein, is issued for the implementation, administration and enforcement of the provisions of The Sewer Permit Ordinance of the Metropolitan Water Reclamation District of Greater Chicago, hereinafter known as the "District".

The Engineer of Local Sewers is designated as the authorized representative of the General Superintendent to receive and review permit applications, to inspect and approve construction under the permit, and to investigate violations of the Ordinance.

1-2. **Permit Requirements.** Except as provided in Article 1-3, Exemptions, and Article 1-4, Waivers, permits are required for all construction of sewers and sewer facilities within the territorial boundaries of the District, whether such construction is on private or public property. A permit is also required for existing buildings when the use of the building changes to a use for which a permit is required. Unless the Ordinance contains clear language granting a specific exemption as indicated herein, the intent is that no exemption is granted. It is the responsibility of the General Superintendent to interpret, administer and enforce the Ordinance within the authority granted to him by the Board of Commissioners.

1-3. **Exemptions.** A building service sewer (See Article 4-4) constructed to serve a single building devoted solely for residential purposes and containing less than twenty-five (25) dwelling units is exempt from the sewer permit requirement. Any extension of said service sewer is a violation of the Ordinance.

Any sewer constructed in the public right-of-way or easement, except for crossing, is considered a lateral and is not exempt from the permit requirement, even though it may serve a single building containing less than twenty-five (25) dwelling units. Except as herein provided, all other construction requires a permit.

1-4. **Administrative Waivers.** Administrative Waivers for some non-residential buildings may be available to Permittees meeting specific requirements which minimize or eliminate industrial wastes.

1-5. **Permittees.** The District recognizes as Permittees the parties listed below as provided in Section 2(h) of the Ordinance. The Permittee is held responsible for compliance with the conditions of the permit.

a. Any municipality, municipal corporation, sanitary district, utility company, township government or any other governmental body.

b. Any municipality, municipal corporation, sanitary district, utility company, township government or any other governmental body jointly with any individual, individuals or corporation where application is made for installations on private property.

c. Any individual, individuals, or corporation who owns property directly adjacent to an interceptor sewer of the District, where direct connection to said interceptor is made or is contemplated by the owner of said property for the sole, exclusive and perpetual use of the owner of said property (and where the direct connection serves only that property immediately adjacent to said interceptor), who seeks permission to discharge sewage, industrial waste or other waste into facilities of the District.

d. Any individual, individuals or corporation who provides an acceptable sewage treatment plant for the sole, exclusive and perpetual use of the owner of the property being served thereby, which discharges into any waters or interceptor sewer of the District in conformity with the Ordinances of the District, the Rules and Regulations of the Illinois Pollution Control Board, the Illinois Environmental Protection Agency, and the Statutes of the State of Illinois.

e. Any responsible individual, individuals, or corporation, (not otherwise qualified as permittee under the provisions of Section 2(H)2, 3 or 4 of the Sewer Permit Ordinance), upon presentation of satisfactory evidence of responsibility as determined by the Board of Commissioners, where construction of sewers or sewerage systems is contemplated to serve property owned by said individual, individuals, or corporation, in an unincorporated area, and the contemplated construction is intended for the sole, exclusive and perpetual use of the owner; provided that said unincorporated area is outside the jurisdiction of a local sanitary district and outside the area of a public utility company certificated for such service, and the township government declines to execute the permit application and to assume the obligations of a joint permittee, as provided in Section 2(H)2 of the Sewer Permit Ordinance.

1-6. **Joint Permittees**. In addition to those cases where the requirement for joint permittee is mandatory under the Ordinance, permits may be issued to joint permittees if so requested by the local governmental body having jurisdiction.

1-7. **Permittees Under Previous Ordinance.** Nothing contained in Article 1-4 shall operate to annul permits previously issued for the construction of sewers under the Ordinance then in effect, except that in unincorporated areas where a permit had been issued to an individual owner as Permittee, if said owner/Permittee shall abandon, or transfer the ownership of, the sewer system constructed under a permit and the area served becomes subsequently incorporated or is annexed to a duly constituted local government, sanitary district or utility company, the local authority assuming jurisdiction over the area shall thereby become the Permittee for said system and shall thereafter be responsible for the proper maintenance and operation of the system.

1-8. **Definitions**. For the purposes of the District, the following definitions shall apply:

a. "Sewage" means water-carried human wastes or a combination of water-carried wastes from residences, business buildings, institutions and industrial establishment, together with such ground, surface, storm or other wastes as may be present.

b. "Industrial Waste" means the solids, liquids or gaseous waste resulting from any industrial, manufacturing, trade or business process or from the development, recovery or processing of natural resources.

c. "Other Wastes" means all decayed wood, sawdust, shavings, bark, lime, refuse, ashes, garbage, offal, tar, chemicals and other substances except sewage and industrial wastes.

d. "Maintenance" means keeping the sewer lines, sewer systems, sewer facilities or sewage works and structures in satisfactory working condition and good state of repair,

(including but not limited to preventing any obstructions or extraneous materials or flows from entering said facilities, protecting said facilities from any damage, and keeping same free from defects or malfunctions), and making necessary provisions and taking necessary precautions to assure that said sewer facilities are at all times capable of satisfactorily performing the services, and adequately discharging the functions and producing the final results and purposes said facilities are intended to perform, discharge or produce.

Article 2. **APPLICABLE RULES AND REGULATIONS**

2-1. **General.** The most current copy of the rules, regulations, ordinances and policies listed below which are issued by the authorities indicated are incorporated herein by reference.

2-2. **The Metropolitan Water Reclamation District of Greater Chicago.**

a. The Sewer Permit Ordinance.

b. The Sewage and Waste Control Ordinance.

c. The rules, regulations, resolutions, policies, directives and instructions that may be adopted or issued from time to time by the Board of Commissioners.

d. The administrative procedures or directives issued by the General Superintendent.

2-3. **State of Illinois, Title 35, Illinois Administrative Code.**

a. Pollution Control Board Technical releases and other applicable rules and regulations issued.

b. The "Illinois Recommended Standards for Sewage Works" (Part 370).

2-4. **U.S. Department of Housing and Urban Development.**

a. Minimum Design Standards for Community Sewage System.

2-5. **Standard Specifications for Water and Sewer Main Construction in Illinois.**

2-6. **Recommended Standards for Sewage Works; (Ten State Standards)**

The standards under Article 2-4, 2-5 and 2-6 are incorporated only to the extent that they are not in conflict with the above requirements or with any other provisions in this Manual.

SECTION II - DESIGN AND OTHER REQUIREMENTS

Article 3. **DESIGN REQUIREMENTS.**

3-1. **Minimum Design Standards.** All design and construction of sewers and sewer systems within the territorial boundaries of the District shall be governed by the minimum standards contained in the rules and regulations incorporated under Article 2 above, as supplemented by the provisions outlined herein.

All sewer systems, whether private or public, and whether constructed on private or public property, including sewer construction exempted from the permit requirement, shall

conform to the design standards and other requirements contained herein.

3-2. **Design Slopes.** Minimum and maximum slopes are tabulated below. The slopes are those that produce minimum and maximum velocities of 2.0 fps and 15.0 fps based on Kutter's Formula, with "n" equal 0.013, and the pipe flowing full, as provided in the rules and regulations of the Illinois Pollution Control Board.

Sewer Size-Inches	Minimum Slope Percent	Maximum Slope Percent
6 (Service Sewers)	1.00	33.0
8	0.40	22.0
10	0.28	15.0
12	0.22	11.0
14	0.17	9.0
15	0.15	8.3
16	0.14	7.8
18	0.12	6.5
21	0.10	5.1
24	0.08	4.2

3-3. **Manholes, Drop Manholes.** An exterior drop pipe should be provided for a sewer entering a manhole at an elevation of 24 inches or more above the manhole invert, as provided in the State of Illinois Title 35, Part 370. The minimum diameter of any manhole shall be 48 inches. The diameter of the drop pipe shall preferably be larger than, or of the same diameter as, the entering sewer. The minimum diameter of the drop pipe shall not be smaller than the diameter of the entering sewer by more than two nominal diameters (e.g. for 12", 15" and 18" entering sewer, the drop shall be 8", 10" and 12" respectively), provided that the minimum diameter of the drop pipe shall not be less than 8". If a smaller drop is desired, design calculations and configurations shall be submitted for review and approval. The drop pipe shall be encased in concrete. The flow channel through manholes shall be made to conform in shape and slope to that of the sewers. A bench shall be provided which shall have a minimum slope of two (2) inches per foot.

3-4. **Protection of Water Mains.** Water mains shall be protected in accordance with the requirements of the State of Illinois Recommended Standards for Sewage Works (Title 35 Part 370). Where a sewer main lateral or building service sewer crosses a water main, a minimum vertical separation of 18" shall be provided between the top of the lower pipe and the bottom of the upper pipe. Where the 18" vertical separation is not provided, the sewer shall be designed and constructed of pipe equal to water pipe or shall be encased in concrete for a minimum distance of 10 feet on each side of the water main.

3-5. **Materials.** All materials shall conform to the applicable ASTM, ASA or other national or accepted standards. When the materials indicated below are specified by the design engineer, the materials and the joints for pipe made of that material shall conform to the specifications shown, for sanitary sewer work in separate areas and for all sewer work in combined areas:

	Material	Pipe Spec.	Joint Spec.
a.	Vitrified Clay Pipe		
	Standard Strength	ASTM C-700	ASTM C-425
	Extra Strength	ASTM C-700	ASTM C-425
b.	Concrete Sewer Pipe	ASTM C-14	ASTM C-443
c.	Reinforced Concrete		

	Sewer Pipe	ASTM C-76	ASTM C-443
d.	Asbestos Cement Pipe	ASTM C-428	ASTM D-1869
e.	Truss Pipe		
	Solid wall 6 " Dia. SDR 35	ASTM D-2751	ASTM D-2751
	Truss Wall 8" to 15" Dia.	ASTM D2680	ASTM D-3212
			ASTM D-2680
f.	Cast Iron Soil Pipe	ASTM A-74	ASTM C-564
g.	Ductile Iron Pipe	ANSI A21.51	ANSI A21.11
h.	Polyvinyl Chloride (PVC) Pipe		
	6" to 15" Dia. SDR 35	ASTM D-3034	ASTM D-2855
			ASTM D-3212
	18" to 27" Dia. F/dy=46	ASTM F-679	ASTM D-2855
			ASTM D-3212

Nothing contained in this Article shall be interpreted to mean nor imply an endorsement by the District of any material over another, nor an opinion by the District regarding the equality or superiority of the performance qualities of any of the materials.

3-6. **Workmanship.** As a minimum requirement all sewer pipes shall be laid in accordance with the applicable ASTM specification. The specifications for the construction of any sewers within the District shall not be less stringent than the latest version of the "Standard Specifications for Water and Sewer Main Construction in Illinois," adopted by a joint committee of the Illinois Society of Professional Engineers, Consulting Engineers Council of Illinois, Illinois Municipal League and The Associated General Contractors of Illinois. A copy of said specifications is obtainable from the organizations mentioned.

3-7. **Design Flow.** Average design flow for sanitary sewer shall be 100 gpcpd. Maximum design flow for sanitary sewer lines shall be determined by one of the equations indicated below; provided, however, that the maximum design flow for sewer laterals need not exceed 400 gpcpd and the maximum design flow for sewer mains and trunks shall not be less than 250 gpcpd.

Equation 1. $Q = \frac{500}{\sqrt{P}}$

Equation 2. $Q = 100\left(1 + \frac{14}{4+\sqrt{P}}\right)$

Q = Maximum design flow, gpcpd
P = Population in thousands

3-8. **Curvilinear Sewer.** Available information based on field data falls short of providing conclusive evidence in support of the practice of curvilinear alignment for sewers 24" or less in diameter. Where local governments elect to permit the construction of curvilinear sewer, it is mandatory that available maintenance equipment be evaluated and proper equipment acquired.

When permitted by the local government, construction of sewers 24" or less in diameter on curvilinear alignment shall be subject to the following criteria.

a. **Alignment:** Alignment shall follow the general alignment of the street. Curvilinear sewer alignment shall be limited to curved street areas.

b. **Curvature:** Only simple curves may be used.

c. **Radius:** Minimum radius shall be no less than 200 feet.

d. **Minimum Slope:** The minimum slope shall be that which produces a minimum velocity of 2.0 fps. (Hydraulics of curvilinear alignment to be taken into account.)

e. **Manhole Location:** Manholes are required at the point of beginning and at the end of the curve and at the point of inflection. (PC, PT and PRC).

f. **Deflection:** Deflection of pipe shall not exceed the maximum deflection recommended by the joint manufacturer. The deflections shall be uniform and the finished installation shall follow a smooth curve.

Article 4. **SUPPLEMENTAL DESIGN REQUIREMENTS.**

4-1. **Overhead Plumbing.** After December 31, 1970, all new buildings with basements, floors, rooms or occupancy areas below ground level at the building site and served by a public or private sewer system, shall have overhead plumbing. No permit application will be accepted, nor any permits issued after December 31, 1970, to any municipality or local government unless said municipality or local government shall have adopted an ordinance requiring overhead plumbing, and a copy of said ordinance shall have been filed with the District, or that the permittee and/or co-permittee shall agree to comply with the requirements of this Article.

4-2. **Datum.** The datum shall be indicated on the plans submitted. All plans shall preferably be based on the Chicago City Datum which is established as: 0.00C.C.D=579.48 ft. above Mean Sea Level (1929 Adjustment) or 579.88 ft. above Mean Tide New York. If any other datum is used, a conversion equation shall be shown on the plans to relate the datum used to the Chicago City Datum.

4-3. **Pipe Bedding.** Bedding, other than concrete embedment, shall consist of gravel, crushed gravel, crushed stone or crushed slag, 1/4" to 1" in size. As a minimum, the material shall conform to the requirements of Article 704.01 of the "Standard Specifications for Road and Bridge Construction," of the State of Illinois or ASTM C-33. The gradation shall conform to gradation CA 11 or CA 13 of the Illinois Standard Specifications or to ASTM Gradation No. 67. The pipe shall be laid so that it will be uniformly supported and the entire length of the pipe barrel will have full bearing. No blocking of any kind shall be used to adjust the pipe to grade except when used with embedment concrete. Bedding shall be required for all sewer construction, except ductile iron pipe, and shall be of a thickness equal to 1 /4th of the outside diameter of the sewer pipe with a maximum required thickness of eight inches (8") but shall not be less than four inches (4"). Where polyvinyl chloride (PVC) pipe is specified, the backfill material to a level two inches (2") over the top of the pipe shall be of the same material as the bedding material specified above and shall be carefully placed so as to completely fill the space under and around the pipe, in eight inch layers, loose measurement, and compacted to the satisfaction of the Inspection Engineer named in the permit.

Where unsuitable material is encountered at the grade established, all such unsuitable soil shall be removed under the pipe and for the width of the trench, and shall be replaced with well compacted bedding material, to the satisfaction of the Inspection Engineer named in the Permit.

Where rock is encountered, it shall be removed below grade and replaced with a cushion of well compacted bedding material having a thickness under the pipe of not less than eight inches (8") for all types of pipe including ductile iron pipe.

4-4. **Building Service Sewer.** Building service sewer is defined as a sewer pipe

receiving flow from a single building and connecting to a sewer main or lateral, and constructed on private property, except for street crossing. The maximum length of a building service sewer shall preferably be 120 ft. and shall not exceed 150 ft. If the length is exceeded an intermediate manhole shall be built. A manhole or clean-out shall also be installed every 150 ft. When the building service sewer connects to a sewer lateral of a size not larger than the size of the service sewer, a manhole shall be built at the point of connection. The minimum slope of the service line shall be one percent (1%).

Minimum design standards, and other requirements hereof, governing materials, joints, infiltration, workmanship and maintenance for sewer mains and laterals shall also apply to building service sewers. Horizontal and vertical alignment of the service sewer shall be uniform and shall follow a straight line alignment. There shall be no dips in the grade or fall of the line. Turns or bends required for the riser, if any, necessary to connect to the sewer wye or tee, shall be made with standard bends.

In those instances where the building service sewer is partially constructed from the sewer lateral or main to a point other than the building to be served, the pipe shall be tightly plugged using a manufactured plug. The plug shall be pre-wired by the manufacturer so that it can be firmly secured in place.

4-5. **Connection of Building Service Sewers to Sewer Mains.** Building service sewer shall generally enter the sewer main or lateral by way of an existing wye or tee. In the event of absence of the wye or tee, the connection to the sewer main or lateral shall be made by one of the methods indicated below. If another method is desired, a detail shall be submitted for review and approval by the District before the connection is made. Indiscriminate breaking of the sewer main pipe is not allowed.

a. Installation of a manhole.

b. Circular saw-cut of sewer main by proper tools ("Shewer-Tap" machine or similar), and proper installation of hub wye saddle or hub tee saddle, in accordance with manufacturer's recommendations.

c. Remove an entire section of pipe and replace with a wye or tee branch section. Pipe section shall be removed by breaking only the top of one bell. After the wye or tee branch is inserted, concrete shall be placed over the broken area to a minimum thickness of four inches (4") and to a dimension of eight inches (8") in all directions.

d. Using pipe cutter, neatly and accurately cut out desired length of pipe for insertion of proper fitting. Use "Band-Seal" couplings, or similar couplings, and shear rings and clamps to fasten the inserted fitting and hold it firmly in place. Follow manufacturer's recommendations for the installation.

4-6. **Inspection Manholes.** An inspection manhole having a minimum diameter of 48" is required for all commercial and industrial buildings. The manhole shall be constructed on the building service sewer before it connects to the sewer main, and preferably shall not be closer than five (5) ft. to the building. There shall be no flow into the inspection manhole except flow from the building or buildings for which the inspection manhole is intended. Manholes constructed on public sewer, or on sewers receiving other flows are not considered inspection manholes.

4-7. **Sound Engineering Practice.** The design and supplementary design requirements contained herein do not

replace and are not a substitute for sound engineering practice nor the professional ability and judgement of the design engineer.

Article 5. **CONSTRUCTION WITHIN THE FLOODPLAIN**

5-1. **Issuance of Permit.** No permit will be issued for sewer construction within any municipality lying totally or partially within a floodplain, unless the municipality shall have adopted a Floodplain Ordinance which has been filed with and approved by the District as to minimum requirements for the protection of the health and welfare of the public.

5-2. **Minimum Requirements.** Floodplain Ordinances adopted by the municipality shall include the following minimum requirements.

a. **Elevations and Limits.** Highwater elevations and limits of floodplain shall be established by the Ordinance based on the 100-year flood, as determined by the most recent and best available data listed in Article 5-4 below. If the 100-year flood information is not available, the regulatory base flood shall be the flood of record. When data of higher order becomes available, data of lower order shall not be used for regulatory purposes.

b. **Building Openings.** A door sill, window sill, top of foundation, or the bottom of any other opening in the outer walls of a building or structure shall be constructed at an elevation not lower than 12"above the established highwater elevation of the 100-year flood and not lower than 12" above the highwater elevation of the flood of record, if the 100-year flood information is not available.

c. **Overhead Sewers.** When the building wall encloses open space that is below the base flood elevation, gravity storm and sanitary sewer connections are specifically prohibited and overhead sewers are required for the sanitary connections and sumps for the storm sewer connections.

d. **Existing Buildings.** Existing buildings to be connected into a proposed sewer system within a floodplain must have sanitary connections designed to protect the sewer system from flooding.

e. **Floodways.** Adequate flood channel provisions should be provided. The width of the floodway should be determined in the field and should be protected from encroachment by the zoning ordinance and by the use of building setbacks. Floodway easements should be provided which permit necessary public channel maintenance and improvement work.

f. **Floodproofing.** That part of the structure constructed within floodplain areas below the highwater elevation must be floodproofed. The design must include measure to cope with sewer backup, groundwater seepage, and hydrostatic pressure.

g. **Sanitary Manholes.** All sanitary sewer manholes constructed in the floodplain must be provided with watertight, lock-type covers, or the rims must be raised to an elevation not lower than 12" above the highwater elevation.

5-3. **Conformance with Floodplain Ordinance.** All projects constructed within a floodplain area shall conform to the requirements of the floodplain ordinance adopted by the local government having jurisdiction over the area in which the project

is located. The portion of the project lying within the floodplain shall be delineated and the limits of the floodplain shall be clearly indicated on the overall plans submitted to the District as part of the permit application.

5-4. **Floodplain Highwater Elevation and Limits.** In reviewing submittals for sewer permits, the District will base its review on the highwater elevations and limits of the 100-year flood as established by the most recent and best available data. If the 100-year flood information is not available, the review will be based on the flood of record data. The data which will be used by the District is listed below in descending order of overall accuracy, completeness, and currentness. When data of higher order becomes available, data of lower order will not be used.

(1) HUD Flood Insurance Studies (FIS), if certified by Illinois Department of Transportation, Division of Water Resources (IDOT-DWR).

(2) IDOT-DWR Regulatory Floodplain Maps and Profiles.

(3) Soil Conservation Service-Metropolitan Water Reclamation District of Greater Chicago (SCSMWRDGC) Floodwater Management Plans, using the "without project" data shown therein.

(4) Other detailed 100-year flood studies, if certified by IDOT-DWR.

(5) HUD Flood Hazard Boundary Maps (FHBM) and Approximate FIS Data.

(6) USGS Maps of Flood-prone Areas.

(7) USGS-NIPC Hydrologic Investigation Atlases (Floods of Record).

When either the HUD Flood Hazard Boundary Maps or the USGS Maps of Flood-prone Areas are used to determine the limits of the floodplain, then regulatory highwater elevations shall be those of the flood of record.

5-5. **Statutory Floodplain Requirements.** All construction in the floodplain must meet the requirements of the Rules and Regulations issued by the Illinois Department of Transportation, Division of Water Resources, pursuant to "An Act in Relation to the Regulation of the Rivers, Lakes, and Streams of Illinois" as amended. For any construction within the floodplain, the Illinois Department of Transportation permit for such construction or, in the alternative, a written statement from the Illinois Department of Transportation that no permit is required shall be submitted to the District prior to the issuance of a District permit.

Article 6. **STORM WATERS.**

6-1. **Separation of Storm Waters and Sanitary Sewage.** Except as provided in Article 6-2 below, all new sewer construction shall provide two separate and distinct sewer systems as follows:

a. **Storm Sewer Systems.** The system shall be for the collection and conveyance of surface run-off and other storm waters. All storm waters shall be collected and conveyed in a pipe or ditch system to the point of discharge in the receiving natural or man-made stream or drainage ditch. No storm waters shall be allowed to enter the sanitary sewer systems except that in "Combined Sewer Areas" only, the storm waters are allowed to be discharged into the District interceptors.

b. **Sanitary Sewer Systems.** The system shall be for the collection and conveyance of sanitary sewage consisting of domestic and other water-borne wastes. All sanitary sewage shall be collected and conveyed in a pipe system to the point of discharge into an existing sanitary sewage system, District interceptor or treatment plant. No sanitary sewage shall be allowed to enter any storm sewer system or discharge onto the ground or into receiving streams, without first having been treated.

6-2. **Combined Sewer Areas.** In areas designated as "Combined Sewer Areas" on the District maps, the following requirements shall apply:

a. **Separation.** Complete separation of sewers shall be provided within the property lines.

b. **Detention.** Detention shall be provided and/or permanent constrictions shall be built on the storm sewer system to control the flow into the existing combined system in accordance with the requirements of the local government.

c. **Down-Spouts.** All down-spouts or roof drains shall discharge onto the ground or be connected to the storm or combined sewer. No down-spouts or roof drains shall be connected to the sanitary sewers.

d. **Footing Drains.** Footing drains shall be connected to sump pumps, and discharge shall be made into storm sewers, combined sewers or drainage ditches. No footing drains or drainage tile shall be connected to the sanitary sewer. After December 31, 1970 all new construction shall conform to the requirements of this paragraph. No permit application will be accepted, nor any permits issued after December 31, 1970 to any municipality or local government unless said municipality or local government shall have adopted an ordinance reflecting the requirements of this paragraph and a copy of said ordinance shall have been filed with the District, or that the permittee and/or co-permittee shall agree to comply with the requirements of this Article.

e. **Floor Drains.** Floor drains in basements shall be connected to sump pumps and discharged to the sanitary or combined sewers.

f. **Sump Pumps.** Sump pumps installed to receive and discharge ground waters or other storm waters shall be connected to the storm or combined sewers or discharge into a drainage ditch. Sump pumps installed to receive and discharge floor drain flow or other sanitary sewage shall be connected to the sanitary or combined sewers. A sump pump shall be used for one function only, either the discharge of storm waters or the discharge of sanitary sewage.

6-3. **Separate Sewer Areas.** In areas served by separate sewer systems, the following requirements shall apply:

a. **Down Spouts.** All down-spouts or roof drains shall discharge onto the ground or be connected to storm sewer. No down-spouts or roof drains shall be connected to the sanitary sewers.

b. **Footing Drains.** Footing drains shall be connected to sump pumps, and discharge shall be made into storm sewers or drainage ditches. No footing drains or drainage tile shall be connected to the sanitary sewer. After December 31, 1970, all new construction shall conform

to the requirements of this paragraph. No permit application will be accepted, nor any permits issued after December 31, 1970, to any municipality or local government unless said municipality or local government shall have adopted an ordinance reflecting the requirements of this paragraph and a copy of said ordinance shall have been filed with the District, or that the permittee and/or co-permittee shall agree to comply with the requirements of this Article.

c. **Floor Drains.** Floor drains in basements shall be connected to sump pumps and discharged to the sanitary sewers.

d. **Sump Pumps.** Sump pumps installed to receive and discharge ground waters or other storm waters shall be connected to the storm sewer or discharge into a drainage ditch. Sump pumps installed to receive and discharge floor drain flow or other sanitary sewage shall be connected to the sanitary sewers. A sump pump shall be used for one function only, either the discharge of storm waters or the discharge of sanitary sewage.

e. **Completion of Storm Sewer System.** The construction of the proposed storm sewer system shall be completed before the sanitary sewer system is put in service. When compliance with this requirement may cause an undue hardship to the Permittee, the Permittee shall so notify the District and the District may waive this requirement if the conditions so warrant.

f. **Window Well and Area-Way Drains.** No window well or area-way drains shall be connected to the sanitary sewer.

6.4 **Storm Water Detention in Unsewered and Separate Sewered Areas.**

a. **General.** It is recognized that the receiving streams within the District do not have the capacity to receive and convey the increased storm water runoff resulting from rapid urbanization occurring in many areas. These receiving streams are subject to frequent flooding which results in a growing rate of property damage.

It is the intent of Section 3(B) of the Sewer Permit Ordinance to encourage local governments and developers to jointly participate in providing detention storage to eliminate the excessive runoff during heavy storm periods. Where impervious areas are planned or contemplated, it is the intent that detention be provided as required by the provisions hereinafter set forth. It is proposed that well maintained landscaped areas would be provided to act jointly as detention reservoirs and recreation facilities or aesthetic focal points in new village parks, either in incorporated or unincorporated areas, forest preserve areas, county parks, housing developments, shopping centers, industrial parks, etc. Other control methods to regulate the rate of storm water discharge which would be acceptable include detention on flat roofs, parking lots, streets, lawns, underground storage, oversized storm sewers with restricted outlets, etc.

It is recognized that in order to better serve the long-range interests of the local communities and the Metropolitan area, comprehensive basin-wide planning for flood control should be formulated, adopted and implemented. Comprehensive planning is far more beneficial than the proliferation of small, on-site detention areas, although on-site detention does provide protection and is acceptable for compliance with this Ordinance. The District may be called upon by the local governments to render advisory, technical and other assistance for the

formulation and implementation of a drainage plan.

b. **Requirements.** Pursuant to the provisions of Section 3(B) of the Sewer Permit Ordinance, a sewer permit will not be issued after January 1, 1972, unless (1) The permittee (governmental body) has adopted a Storm Water Detention or Flood Control Ordinance acceptable to the District, and has on file with the District, an approved drainage plan and schedule for its implementation, or (2) The permittee or co-permittee provide detention of storm water runoff as set forth in the following criteria.

(1) **Allowable Release Rate.** The release rate of storm water from all developments requiring detention shall not exceed the storm water runoff from the area in its natural undeveloped state.

Because of the flat conditions of the land in this area, channel configurations cut by nature are generally unable to handle the runoff from high intensity rainfalls and results in flood plain storage or spreading of runoff over the land areas during the larger storm periods. In order not to increase the runoff from such areas after development, the release rate must be limited to the carrying capacity of these natural channels.

The District will accept the release rate of not greater than that calculated from a storm of three (3) year frequency with a runoff rate coefficient of 0.15, unless the applicant can show by his detail calculations, which are acceptable to the District, that the discharge rate of the natural outlet channel serving the area is greater.

(2) **Bypass.** Drainage systems shall have adequate capacity to bypass through the development the flow from all upstream areas for a storm of design frequency assuming that the land is in a fully developed state under present zoning or zoning proposed under a Comprehensive Plan. The bypass flow rate shall be computed utilizing a runoff coefficient of not less than 0.35. An allowance will be made for upstream detention when such upstream detention and release rate has previously been approved by the District and that evidence of its construction can be shown.

(3) **Design Storm.** The live detention storage to be provided will be calculated on the basis of the 100-year frequency rainfall as published by the U.S. Weather Bureau for this area. The detention volume required will be that necessary to handle the runoff of a 100-year rainfall, for any and all durations, for the fully developed drainage area tributary to the reservoir, less that volume discharged during the same duration at the approved release rate.

c. **Exemptions.** Under the provisions of this article, storm water detention facilities meeting the criteria and requirements established herein are not required by the District for the following projects, provided that the available outlet capacity is adequate as determined by the Municipal Engineer. If the outlet capacity is not adequate, then detention as determined by the Municipal Engineer will be required to store that portion of the runoff exceeding the outlet capacity.

(1.) Real estate developments occupied or operational prior to January 1, 1972. If redevelopment, thereof in whole or in

part, subsequently occurs, the exemption shall cease. Redevelopment occurs when a permit application is made to the District for a new sanitary sewer in the original development area. Redevelopment requires storm water detention for the entire original development area.

(Amended at the Board Meeting of November 5, 1998)

(2) Non-residential projects having a total area of less than five acres.

(3) Residential non-single family projects having a total area of less than five acres.

(4) Residential single-family projects having a total area of less than ten acres.

d. **Special Provisions:**

(1.) **Multiple Outlets.** In order to eliminate small multiple outlets, generally designs requiring a release pipe of less than four (4) inches in diameter are not acceptable.

(2) **Affidavit of Disclosure of Property Interest.**

(a) As part of the submittal documents, for projects in the separate sewered areas, the owner of the property upon which the project (for which the permit application is made) is located, shall furnish in all instances an Affidavit of Disclosure Property Interest stating the aggregate total area of said property and all other lands contiguous to said property in which the owner holds an interest. The applicability of the detention requirements will be based on the total contiguous area in which an interest is held by the owner.

(b) Where a permit application is made for sanitary sewer and the area serviceable by the sewer is under the control of an individual or a legal entity (directly or indirectly, in part or in full), the area of the project (for the purpose of determining the applicability of the detention requirements) shall be considered to be the total area owned or controlled by the applicant, and detention facilities or provisions shall be made as part of the permit for the total area. If the area serviceable by the sewer is not in its entirety under the control of the applicant, the applicant shall be responsible to provide detention facilities only for that part of the area which is under his control.

c. In all instances where the property which is the subject of a permit is less than five (5) acres (or less than ten acres for residential single family projects) and detention is not provided as part of the permit, the applicant shall furnish to the District, as part of the submittal, an Affidavit of Disclosure of Property Interest with respect to the property, which is the subject of the permit stating that:

(i.) The owner of the property has no interest, nor did he have any interest at any time during the previous two years in any land contiguous to said property, such that the aggregate total area of the property and the contiguous lands exceeds five (5) acres.

(ii.)The owner covenants and agrees that if within two years after the issuance of the permit he acquires any interest in lands contiguous to the property such that the

aggregate area of the property and the contiguous lands exceeds five (5) acres, the owner shall provide for storm water detention for the entire aggregate area.

(iii.)No owner of any lands contiguous to the property has any interest in the property such that the aggregate total area of the property and the contiguous lands exceeds five (5) acres.

For the purpose of this article, the following definitions shall apply:

Owner: means record title holder or a beneficiary of a land trust which is the record title holder, and includes singular and plural; if the owner is other than an individual, the term includes beneficiaries, agents, shareholders, officers and directors.

Ownership: means holding of record title or any beneficial interest.

Interest: means property interest or contractual interest, legal or equitable, directly or indirectly, in part or in full, and includes option to buy. In the case of a shareholder interest, the shareholder shall be deemed to have an interest if he owns or controls 5% or more of the shares.

Contiguous: means adjacent to and touching at one point or more; if the lands are separated by an easement or a dedicated right-of-way, it shall be considered contiguous.

(3) **Recording**: Under special and unusual circumstances, where conditions so warrant as solely determined by the District (generally where sewer connections are not proposed), the District may issue the sewer permit without detention being provided for the entire area as part of the submittal and place a special condition on the permit that on-site detention will be provided for each future project within the area regardless of the area of the individual future project, provided that a Notice of Requirements for Storm Water Detention in connection with the permit issued by the District shall be recorded with the Cook County Registrar of Torrens Titles or the Recorder of Deeds of Cook County, as an encumbrance against the entire area.

Before such permit is issued by the District, the applicants shall furnish as part of the submittal, preliminary plans and design showing in adequate detail the manner in which the detention requirements will be satisfied by future projects within the area which is the subject of the permit. If, as part of the preliminary plans and design, it is proposed that the detention requirements will be satisfied by providing on-site detention facilities for individual future projects, the facilities shall be designed such that the minimum size of the area served by such facilities shall not be less than three (3) acres. The acres for which the detention facilities are designed shall be delineated on the preliminary plans. If individual lots having an area of less than three (3) acres each are proposed for development in the future, such lots shall be jointly developed so that the minimum area for which detention facilities are designed and provided shall not be less than three (3) acres. Individual projects developed within the area which is the subject of the permit shall conform to the preliminary plans made a part of the permit with respect to providing detention facilities to satisfy the detention requirements or provide alternate design meeting the intent of the preliminary plans and of the detention requirements as outlined herein.

Where only the name of the permittee appears on the permit application, the permittee shall furnish to the District as part

of the submittal an affidavit that the permittee is aware of the above requirements and will require any person connecting to the sewer which is the subject of the permit to comply with these requirements. Permits issued under the provisions of this article will contain a condition to the effect that the permittee will require any person connecting to the sewer to comply with the requirements contained herein.

6-5. **Correction of Existing Deficiencies in Separate Sewered Areas.**

It is recognized that the existing separate sanitary sewers within the District service area were designed and intended to receive and convey only domestic and industrial wastewaters together with a limited amount of groundwater infiltration. Stormwater runoff and excessive groundwater infiltration, however, have in many cases been entering and overloading sanitary sewers through deficiencies in the sewer systems such as open pipe joints, cracked or broken pipes, leaking manholes, and illegal connections (i.e., direct or indirect stormwater/groundwater connections to separate sanitary sewers). Sewer overloading arising from such deficiencies may cause health hazards, financial losses, and inconvenience to area residents. This occurs as a consequence of water pollution from the treatment plant bypasses and sewage overflows into streams, and also as a result of backups of sewage into buildings and onto streets and yards. Excessive extraneous clearwater flows also result in additional sewage treatment costs to the public. in order to remedy and prevent these problems, it is the intent of this Article to set forth a regionally applied program for the rehabilitation and correction of sanitary sewer systems, and for the establishment of adequate long-term sewer management programs by owners of separate sanitary sewers tributary to the District sewage treatment facilities.

a. **Scope and Goals.** The purpose of this program is the removal of groundwater infiltration and stormwater inflow (I/I) from separate sanitary sewer systems in order to meet the following goals:

(1) Prevention of water pollution.

(2) Elimination of basement sewage backups and other adverse sewer surcharging conditions that cause health hazards and financial losses.

b. **Applicability.** This Article applies to all tributary communities which own and/or operate a sanitary sewer system which discharges directly to the District system. As used herein, the term "tributary communities" shall include municipalities, townships, private utility companies, school and sanitary districts, and any other permittee or entity. Tributary communities which have been notified by the District as being in compliance with the District I/I removal requirements need not undertake another sewer rehabilitation program and are subject only to the requirement for the long-term maintenance and operation program as specified in Item h, below.

c. **Compliance Criteria.**

(1) Each tributary community shall undertake a program for removal of excessive I/I which meets all of the following criteria.

(a) Average daily wet weather flow in the tributary community's entire sanitary sewer system shall not exceed 150 gallons per capita per day, or optionally, documented water usage plus allowable

infiltration of 500 gallons per inch diameter-mile per day.

(b) Elimination of basement sewer backups and other adverse sewer surcharging conditions that cause health hazards and financial losses.

(2) Each tributary community has the option of undertaking the alternative I/I Corrective Action Program (ICAP), which meets all of the following criteria:

(a) The ICAP program shall be conducted pursuant to USEPA regulations/guidance (40 CFR 35.2120, Construction Grants 1985). All I/I that is determined to be excessive by an acceptable cost effectiveness analysis performed by the tributary community shall be eliminated. (Also, see item g, "Basin-by-Basin Analysis" below.)

(b) Completion of such additional work as may be required as a result of a Sewer System Compliance Conference provided for in Item g(2), below. The additional work may be required even after the elimination of the cost effective I/I. The cumulative effect on the basin of the remaining I/I from some of the tributary communities may continue to cause problems such as: raw sewage bypasses to local waterways, inadequate treatment at plants due to overloading, surcharging, and basement sewage backups. In some cases, one community's I/I may cause adverse effects on another community's ability to meet the goals set forth in this ordinance.

(c) In order to participate in the ICAP option, tributary communities must submit a formal resolution electing the ICAP option on or before March 1, 1986.

d. **Private Sources of I/I.** A program for the correction of private sources of I/I, which is compatible with the purpose of this Article and meeting the compliance criteria, shall be initiated under either program option selected in Item c above. Private sources are defined as cracked, broken or open-jointed building service laterals; and illegal connections such as, roof downspouts, storm sump pumps, area way drains, window well drains, exterior stairwell drains, patio, yard and driveway drains, and footing/foundation drains connected to the sanitary sewer system.

e. **Semi-annual Reports.** The District shall prepare and distribute semi-annual status reports regarding progress by the communities on their I/I identification and removal efforts. In order to complete this report, each tributary community shall submit to the District semi-annual reports of its progress and plans relative to its I/I identification and removal efforts. The first semi-annual report shall be submitted to District on or before July 1,1986. Reports must be submitted regardless of the degree of progress made during the reporting period.

f. **Compliance Schedule.** Each tributary community shall complete a series of work items in accordance with the time frames set forth below. The work items and schedule herein apply to both options set forth in Item C above unless otherwise indicated.

(1) **Sewer System Evaluation.**

(a) To the extent not already completed, each tributary community pursuing the District Compliance Criteria in Item C1, shall undertake a study and evaluation of its sewer system, and submit a completed evaluation study report to the

District by no later than January 1, 1987. The evaluation study shall be in conformance with the District "Guidelines for Sewer Rehabilitation and Elimination of Extraneous Flows," April, 1985. The work shall include flow measurements, physical survey of the system, and, if determined necessary, rainfall simulation (smoke testing and dyed water flooding), televising of sewers, and identification of private sector I/I sources. All studies must consider basement flooding, adverse surcharging, and private sector I/I.

(b) If the ICAP option is chosen (Item c(2)), a Sewer System Evaluation Survey (SSES) shall be conducted in accordance with USEPA regulations and guidelines by no later than January 1, 1987. A cost effectiveness analysis, prepared in accordance with Appendix A of 40 CFR Section 35 as of July 1,1984, shall be performed as part of the SSES report. The cost information for interceptors and sewage treatment facilities to be used in the cost effectiveness analysis shall be furnished by the District for the appropriate basins. Existing sewer and treatment capacity designed and intended for future population and development cannot, for the purpose of cost effectiveness analysis and planning, be used to accommodate excessive I/I. This existing capacity is necessary for the continuing economic growth and the vitality of the community which accrue by virtue of having adequate sanitary infrastructure available to serve future development. All sewer system evaluation studies shall be reviewed by the District, and the District shall, if necessary, provide the guidance required to achieve District approval.

(2) **Design.** Plans and specifications for the public sector corrective work necessary to eliminate the deficiencies identified in the above study shall be submitted to District as soon as possible, but no later than January 1, 1988. The plans for corrective work must include a timely and reasonable implementation schedule and appropriate funding arrangements. All designs, schedules and funding arrangements will be subject to review and approval by the District and, if necessary, by the IEPA.

(3) **Corrective Actions.** Corrective work necessary to eliminate the deficiencies that have been identified shall be started as soon as possible, but no later than July 1,1988. All corrective work must be completed in accordance with a reasonable schedule which establishes a final completion date and incorporates the private sector I/I removal program plan and long-term operation and maintenance program. The schedule will be based upon the nature of the corrective work to be performed and the funding mechanism to be utilized. The schedule will be formally codified in an enforceable manner.

(4) **Private Sector.** A program plan for the correction of private sector I/I sources shall be developed as soon as possible but no later than January 1, 1988.

g. **Basin-by-Basin Analysis.** Analysis of each sewage treatment basin shall be performed by the District as follows:

(1) After January 1, 1987, the District will conduct a basin-by-basin analysis of the potential, cumulative effect on the corrective actions, identified by the completed SSES as indicated in Item f(1) (a) and (b), above. This analysis will

utilize I/I removal projections to assess the impact on transport and treatment capacities and may identify continuing concerns relative to the goals in Item (a) above that will necessitate consideration of further corrective actions for particular basins or sub-basins which may apply to those tributary communities undertaking the ICAP (cost effectiveness) option.

(2) After July 1, 1988, the District will initiate action to address any continuing concerns identified in Item g (1), above. A 'Sewer System Compliance Conference' shall be convened which includes representatives of all the tributary communities identified as causing, contributing to, or being affected by the continuing concerns within each applicable basin. The IEPA and USEPA will also be invited.

Each conference will discuss the nature of the continuing concerns and formulate additional corrective actions and mitigation measures which may be required of tributary communities undertaking the ICAP cost effectiveness option. As soon as possible, but no later than one year after convening a conference, a final compliance program and schedule will be adopted by the District which will be applicable to the appropriate tributary communities after completion of the corrective work in Item f, above.

h. **Long-Term Operation and Maintenance Program.** All tributary communities (including communities presently in compliance) must establish a long-term operation and maintenance program with the aim of preventing entry of I/I into their sewer systems.

i. **Advisory Technical Panel.** An ICAP Technical Panel will be established by the District by January 1, 1986. This Panel will act in an advisory capacity and will be composed of appropriate elected officials and other representatives from the tributary communities, and the District. The Panel will be given the following duties and assignments:

(1) Develop, by March 1, 1986, recommendations regarding the components used to compute transport and treatment cost.

(2) Review and comment upon by March 1, 1986, flow metering criteria used to evaluate I/I.

(3) Develop by January 1, 1987 guidelines for the long-term operation and maintenance of sanitary sewer systems in the District service area.

(4) Review and comment upon the basin analyses prepared pursuant to Item g, above.

j. **Evaluation of Impacts from Residual Flow.** The District will plan for and initiate a special study of the impacts of "residual" I/I remaining in the separate sewer systems. This study will begin in the spring of 1987 and continue for the period of time necessary to adequately characterize the impacts in areas where corrective actions have been implemented. The results of this special study may be utilized for the Sewer System Compliance Conferences convened pursuant to Item g(2).

SECTION III—SUBMITTAL REQUIREMENTS

Article 7. PROCEDURES FOR SUBMITTALS.

7-1. **Documents to be submitted.** The applicant shall submit the documents listed below and prepared as indicated.

a. **Permit Form.** Submit the permit form in quadruplicate with all items complete. Provide all the signatures and seals necessary by the appropriate parties. Furnish all the information required or indicate non-applicability. Do not leave any blank spaces. Except for signatures and seals, all the information shall be typed.

b. **Overall Plan.** The plan shall clearly show and name all streets, buildings, sanitary and storm sewers, stub locations and method of capping, manholes, catch basins, curb inlets, watermains, surface water drainage and any other pertinent features or information. All manholes shall be clearly shown for all sanitary and storm sewers. Indicate the length and slope of all runs and show inverts at both ends. When the set of drawings submitted contains five (5) or more sheets, the overall plan shall be cross-referenced. A typical overall plan will be furnished upon request.

c. **Plot Plan.** When the project consists of one building, a plot plan on 8-1/2" x 11" will be accepted, provided the purpose and clarity of the drawing are not sacrificed. Otherwise use a standard size sheet, preferably 11" x 17" or 24" x 36". Give the location of the building service sewer with the length and slope. Give invert elevations at both ends, and any manhole rim elevations. Provide all of the other information described in Article 7-1b above. A typical plot plan will be furnished upon request.

d. **Location Map.** The location map shall be made to a scale compatible with clarity and purpose, but not smaller than 1/2" = 1000 ft. The site of the project shall be clearly identified. The map shall encompass an area surrounding the project site and extending approximately one mile in each direction. The map shall show the main streets or highways and/or section lines, labeled by name or number, so as to make them easily identifiable. Show the nearest interceptor and the nearest natural stream. Trace the entire route of the sanitary sewer to the point of connection to the District interceptor and label ownership of the sanitary sewer systems. Trace the entire route of the storm sewer from the site through existing storm sewer systems or drainage ditches to the point of discharge into the receiving stream. The location map will be waived if the municipality in which the project is located maintains an up-to-date sewer atlas, showing all the storm and sanitary sewer systems, and a copy of said atlas is furnished to the District by March 1 of each year. A typical location map will be furnished upon request.

e. **Construction Details and Other Data.** Submit drawings of construction details of special appurtenances, structures, connections and other relevant details. Submit additional information, statements and design data as may be required for specific types of projects.

7-2. **Consultation with the District.** The design engineer is encouraged to consult with the District in all instances to clarify any questions that he may have in connection with the permit and to insure adequacy and conformance of the drawings to the applicable requirements. In all cases which involve the design of treatment facilities, direct connection to the

District interceptors or facilities, and any project involving industrial waste, the design engineer should confer with the District prior to the preparation of the final plans. The transmittal letter submitting the plans must bear reference to prior consultations, if any.

7-3. **Plans.** Four copies of the plans no larger in size than 24" x 36", shall be submitted with the permit application. All plans shall show a "North" arrow, and shall be oriented so that the 'North' arrow points upward or to the right hand side of the drawing. When the set of drawings submitted contains five or more sheets, an index shall be provided on the title sheet of the set, if any, or on the over-all plan. Each sheet shall be designated by a proper title. The index sheet shall bear a date and shall show the name of the project and the name, address and telephone number of the design engineer. When the set of plans contains less than five sheets, and no index is provided, each sheet shall be identified independently and shall show the name of the project, the date, the sheet title, and the name, address and telephone number of the design engineer.

7-4. **Project and Plan Titles.** The engineer is urged to select precise and identifiable titles that would reveal or describe the nature of the project or the work encompassed on the sheet. A project title like "Three Story Building" or a sheet title like "Sanitary Sewer," is vague and unidentifiable.

7-5. **Specifications.** When specifications are prepared for the project, submit two copies of the specifications covering or relating to the sewer work. The specifications shall indicate the name of the project, and the name and address of the design engineer and shall contain a table of contents.

7-6. **Seals and Signatures**. The seal and signature referred to shall be those of the Professional Engineer responsible for the design. The seal shall be affixed on the title sheet and table of contents of the specifications, on the index sheet of the plans and on the location map. Where no index sheet is provided, the seal and signature shall be affixed on each sheet.

7-7. **The Illinois Professional Engineering Act.** The affixing of a Registered Professional Engineer's seal to any work which has not been done by, or under the personal supervision of, that Professional Engineer, is a violation of Section 28 of The Illinois Professional Engineering Act.

7-8. **Connection to Private Sewers.** When the proposed sewer connects to a private sewer, submit the written approval of the owner of the private sewer to which the connection is proposed, and a copy of the maintenance agreement.

Article 8. RESIDENTIAL AND NON-RESIDENTIAL PROJECTS.

8-1. **Trunks and Laterals.** When a permit application is made for the construction of trunk and/or lateral sewers to serve a future residential or non-residential project, submit the following:

a. Standard contract plans, profiles and specifications of the proposed sanitary sewer trunk and/or laterals.

b. Permit form, over-all plan, location map, and other data as may be required. (Article 7-1)

If the project includes construction of building service sewers, submit additional information as required for each specific project listed below. The requirements below may be incorporated in the plans described above.

8-2. **Residential Multi-Family Building.** When the project consists of, or includes, a building service sewer for a residential building containing 25 or more dwelling units, submit the following:

a. Permit form, plot plan, location map, construction details and other data as may be required. (Article 7-1)

b. Method of connection to sewer main. (See Article 4-4 and 4-5)

8-3. **Commercial Building.**

a. General. When the project consists of, or includes a building service sewer for a commercial building, submit the following:

1. Permit form, plot plan, location map, construction details, and other relevant data as may be required. (Article 7-1)

2. Method of connection to sewer main. (See Article 4-4 and 4-5)

3. Provide an inspection manhole on the building service sewer. (See Article 4-6)

b. **Objectionable Wastes.** When the use of the building is such that it will produce objectionable or heavily-loaded discharges, (e.g. auto service garage), include the additional items below in the design: 1. Provide a triple basin or similar device and submit detail or manufacturer's catalog number of same. All non-domestic flow must go through the basin before entering the sewer main.

c. Less Objectionable Wastes. When the use of the building is such that less objectionable or heavily loaded discharges (e.g. from restaurants) are produced, submit the additional items below:

1. Provide a grease separator or similar device and submit detail manufacturer's catalog number of same. All non-domestic flow except the discharge from an automatic dishwasher must go through the separator before entering the sewer main.

d. **Specific Use.** Consult with the Local Sewer Systems Section of the District for building use classifications and specific requirements in each case.

8-4. **Industrial Building.**

a. **General.** When the project consists of, or includes, a building service sewer for an industrial building, submit the following:

1. Permit form, plot plan, location map, construction details, and other relevant data as may be required. (Article 7-1)

2. Method of connection to sewer main. (See Article 4-4 and4-5.)

3. Provide an inspection manhole on the building service sewer. (Article 4-6)

b. **Industrial Waste Potential.** When the use of the building does not involve processes or operations that will produce industrial wastes, (e.g. warehouse), submit the additional items below:

1. Provide a statement on the owner's stationery describing the use of the building and certifying tha no industrial waste will be allowed to discharge int the sewer system.

c. Industrial Waste Present. When the use of the building involves processes or operations that will produce industrial wastes (e.g. pickling plant), submit the additional items below:

1. A statement on the owner's stationery describing the use of the building and the processes used.

2. Indicate quantity, character and quality of industrial wastes produced. Indicate 5-day BOD, pH; suspended solids, etc. (See MWRD Sewer User Form)

3. Indicate type and location of treatment facilities proposed and the expected quality of the effluent. (See also Article 8-5)

4. Indicate method of controlling the quantity of discharge into the public sewer and times of discharge.

5. Indicate other wastes created but not discharged into the sewer and the method of disposal of same.

8-5. **Treatment Facilities**

Treatment facilities under this article: include by description and not enumeration, treatment processes, treatment plants, oxidation ponds and similar facilities. When the project involves, or consists of, treatment facilities submit the items indicated below. In all cases, the design engineer should consult with the District before the final design is completed:

a. Permit form, location map and other relevant data as may be required. (See Article 7-1)

b. Contract drawings.

c. Design criteria and calculations.

d. Required maintenance bond.

8-6. **Lift Stations.** Gravity sewers are by far preferable to Lift Stations and force mains as a means for conveying sewage. In general, lift stations are not desirable nor recommended and should be resorted to only after all other engineering studies for alternatives have been exhausted. Force mains should preferably be designed to discharge into gravity sewers. Discharge of force mains into another lift station is discouraged and is considered to be potentially detrimental to the health and welfare of the public served. Where a force main or a lift system is designed to discharge into another lift station a detailed report is required to justify such design. The report should include other methods considered, and the recommendation for the design must be supported by engineering considerations. Written approval of the Owner of the receiving lift station and a copy of the maintenance and operation agreement between the parties must be furnished. The agreement shall also clearly specify the responsibilities of the parties in case of failure of either lift station.

Where the project for which a permit application is made consists of, or involves a lift station and force main or lift system, submit the following:

a. Permit form, location map and other relevant data as may be required. (See Article 7-1)

b. Contract drawings.

c. Plan and profile of force main.

d. Design calculations and alternate power available. (Complete special District form for this purpose.)

e. Map of area to be served, clearly delineated.

SECTION IV - CONSTRUCTION, TESTING AND APPROVAL

Article 9. CONSTRUCTION AND INSPECTION

9-1. **Advance Notice.** Prior to commencement of sewer construction under the Permit, the Permittee shall give, or cause to be given, to the District, an advance notice of at least two (2) working days.

9-2. **Conformance to Plans and Specifications.** All construction shall be in accordance with the plans and specifications made part of the Permit. The permit together with a set of the plans and specifications for the project shall be kept on the job site at all times during construction, until final inspection and approval by the District.

9-3. **Construction Inspection.** All sewer construction shall be inspected and approved by a Registered Professional Engineer acting in behalf of the Permittee or the Owner of the project, or by the duly authorized representative of the Professional Engineer.

No sewer trenches shall be backfilled except as authorized by the Inspection Engineer after having inspected and approved the sewer installation. The Inspection Engineer shall signify his approval and authorization for backfilling on the Inspection Report. The Inspection Report shall be on the job site at all times, and shall bear the signature of the Engineer, identifying those portions of the sewer inspected and approved by him. The Inspection Report shall be made available for review by the District representative.

9-4. **Record Drawings.** Within sixty (60) days after final inspection and approval by the District, the Permittee shall furnish or cause to be furnished to the District, a set of record drawings. The pipe and joint materials and applicable ASTM Specifications shall be indicated on the drawings.

Article 10. TESTING AND APPROVAL.

10.1. **Requirement for Testing.** All sewers constructed under permits issued by the District shall be subject to inspection, testing and approval by the District to insure compliance with the applicable requirements. All testing shall be made, or caused to be made, by the Permittee or Co-Permittee at no cost to the District and in the presence of the District Representative.

a. Testing procedures for polyvinyl chloride (PVC) pipe shall include the following:

1. The project engineer shall randomly select portions of the project to be deflection tested. Such portions shall consist of the manhole intervals for the initial sewer construction up to 1,200 linear feet and not less than 10% of the remainder of the sewer project.

2. The 5% deflection test for pipe sizes six (6) to fifteen (15) inches in diameter is to be run using a nine-arm mandrel having a diameter equal to 95% of the base diameter of the pipe as established in ASTM D-3034. For pipe sizes eighteen (18) to twenty-seven (27) inches diameter, the nine-arm mandrel size shall be 95% of the inside diameter and wall thickness dimensions shown in Table 1 of ASTM F-679, latest issue. The test shall be performed without mechanical pulling devices.

3. The individual lines to be tested shall be so tested no sooner than 30 days after they have been installed.

4. Wherever possible and practical, the testing shall initiate at the downstream lines and proceed towards the upstream lines.

5. No pipe shall exceed a deflection of 5%.

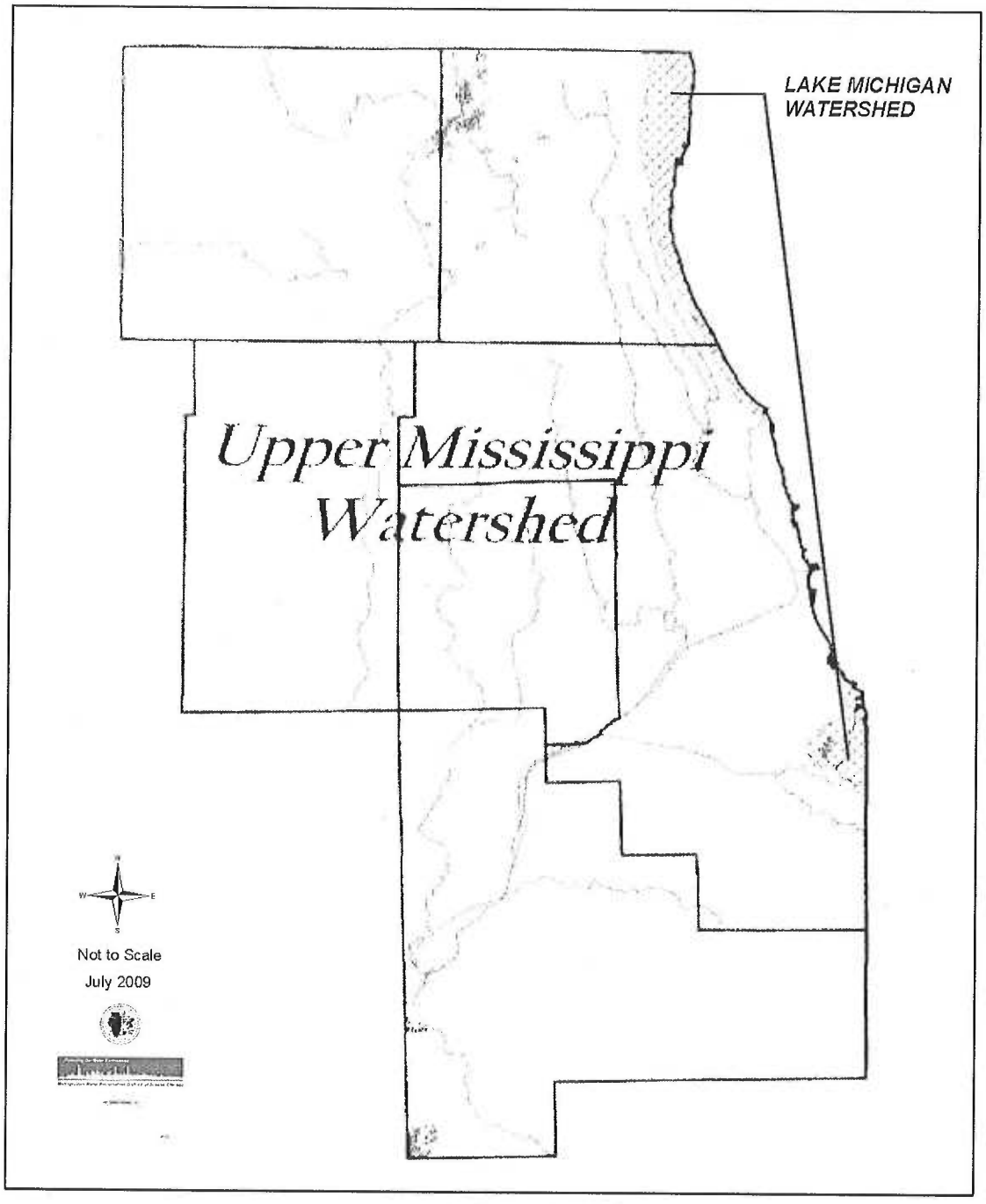
6. In the event that the deflection exceeds the 5% limit in 10% or more of the manhole intervals tested, the total sewer project shall be tested.

7. Where deflection is found to be in excess of 5% of the original pipe diameter, the contractor shall excavate to the point of excess deflection and carefully compact around the point where excess deflection was found. The line shall then be retested for deflection. If, after the second test, the deflected pipe fails to return to the original size (inside diameter) the line shall be replaced.

10-2. **Request for Final Inspection.** Upon completion of construction, the Permittee shall submit to the District a properly executed request for final inspection and approval on the form prescribed by the District. No sewer shall be put in service until it has been approved by the District, and until all the conditions of the permit have been satisfactorily met.

10-3. **Construction Without Advance Notice.** Construction without advance notice to the District, as provided in Article 9-1, shall be considered prima facie evidence that construction may not have been done in accordance with the applicable requirements. In addition to any other requirements, that portion of the newer construction prior to the notification of the District shall be exposed by the owner, at his expense in at least one location between every two manholes, two terminal points or as directed by the District for visual inspection by the District to insure compliance with applicable requirements as to materials and workmanship.

10-4. **Maximum Allowable Infiltration.** It is the intent of the District that all sewers within its territorial boundaries shall be constructed of sound material and shall be properly jointed so that the amount of ground water infiltration into the sewer shall be kept at a minimum. The maximum allowable rate of infiltration or exfiltration shall not exceed 100 gallons per twenty-four (24) hours per mile per inch-diameter of the sewer pipe, for any section of the system and at any time during its service life.



APPENDIX D
US ARMY CORP OF ENGINEERS
WATERSHED SERVICES AREAS

Source: US Army Corps of Engineers, Chicago District

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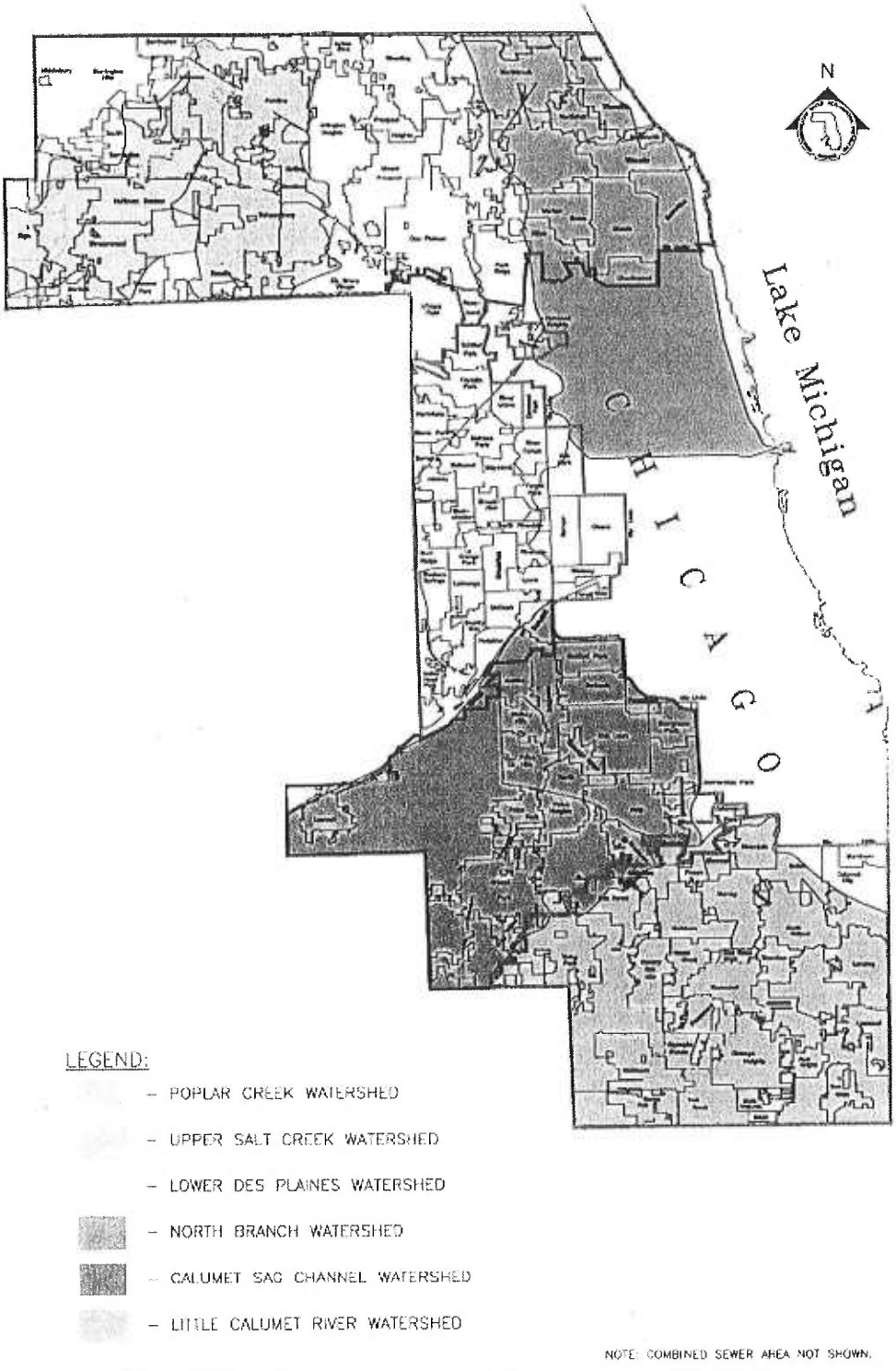
APPENDIX E

Watershed Planning Areas

Watershed Planning Areas



APPENDIX F. PERMIT FEES
TO THE WATERSHED MANAGEMENT ORDINANCE

WATERSHED MANAGEMENT PERMIT FEE SCHEDULE	Total Fee $
SECTION I. BASE PERMIT FEES (Does not include Section II, III, IV, and V of this form)	
(A) Watershed Management Permit	$ 1,100
(B) Notification and Request For Inspection (NRI)	$ 250
(C) Facility Connection Authorization (within City of Chicago)	$ 1,000
(D) Permit Revision	$ 500
SECTION II. STORMWATER DETENTION	
(A) Small Development - Residential ≤ 10 acres & Non-Residential ≤ 5 acres (Nomograph)	$ 500
(B) Small Development - Residential ≤ 10 acres & Non-Residential ≤ 5 acres (Model)	$ 1,500
(C) Large Development - Residential > 10 acres & Non-Residential > 5 acres (Nomograph)	$ 1,000
(D) Large Development - Residential > 10 acres & Non-Residential > 5 acres (Model)	$ 3,000
SECTION III. ISOLATED WETLANDS/RIPARIAN ENVIRONMENTS	
(A) Verification of Isolated Wetland Boundary, Classification and Buffer	$ 250
(B) Isolated Wetland Impact < 0.10 Acre or Riparian Environment without Mitigation	$ 500
(C) Isolated Wetland Impact ≥ 0.10 Acre or Riparian Environment with Mitigation Plan	$ 2,500
SECTION IV. SANITARY SEWER CONSTRUCTION	
(A) Sewer Inspection Fee	$5 Per Linear Foot of Sewer
(B) Lift Station and/or Forcemain (Schedule E)	$ 250
(C) Connection Impact Fee	
(1) Low Density and/or Medium Density Residential (20 Units/Acre or Less)	$3,750/Acre
(2) High Density Residential (21 Units/Acre or More)	$6,000/Acre
(3) Commercial or Industrial	$7,500/Acre
SECTION V. OTHER FEES	
(A) Recordation Deposit	$ 500
(B) Inspections for Violations	$250 Per Inspection
(C) Hazard Areas (Floodplain/Floodway/Riparian Environment - Schedule H)	$ 250
(D) Outfalls/Direct Connections to District Facilities/Impacts to District Property (Schedule O)	$ 250
(E) Notice of Requirements of Stormwater Detention (Schedule L)	$ 250
(F) Resubmittals	$ 0
(G) Variances (Filing and Review Fee)	$ 2,000
Note: All single family home developments are exempt from permit fees, excluding projects involving public sewer extensions	

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APPENDIX G. EXISTING INTERGOVERNMENTAL AGREEMENTS

The intergovernmental agreements referenced in §500.7 include, but are not limited to, all of the following:

1. Agreement by and between the Metropolitan Sanitary District of Greater Chicago and the Villages of Westchester and Hillside, dated February 10, 1972 and commonly known as the Westchester and Hillside Agreement;

2. Agreement by and between the Society of the Divine Word, Missionary Sisters Servants of the Holy Spirit, and Metropolitan Sanitary District of Greater Chicago, dated August 17, 1975 and commonly known as the Techny Agreement; and

3. Intergovernmental Agreement for Acquisition, Design, Construction, Use, Operation and Maintenance of Stormwater and Recreational Improvements at Heritage Park, dated April 1, 2010 and commonly known as the Heritage Park Flood Control Facility Agreement.

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Appendix D

Maintenance and Operations Plan

APPENDIX D

MWRDGC OPERATIONS & MAINTENANCE PLAN FOR GREEN INFRASTRUCTURE PROJECTS

UPON COMPLETION OF THE PROJECT CONSTRUCTION THE FOLLOWING OPERATION AND MAINTENANCE PROCEDURES SHALL TAKE EFFECT.

ACTIVITY SCHEDULE (STRUCTURE MAINTENANCE)

INFILTRATION BASINS, STORMWATER STRUCTURES, AND CLEANOUTS ARE DESIGNED SO THAT THE STRUCTURE CAN HAVE EASY ACCESS FOR INSPECTION AND MAINTENANCE. STRUCTURE MAINTENANCE PROCEDURES MUST MEET OSHA CONFINED SPACE ENTRY REQUIREMENTS.

AS NEEDED

- REMOVAL OF SEDIMENT AND DEBRIS FROM STRUCTURES WHEN THE SEDIMENT ZONE IS FULL AS WELL AS FROM INLET AND OUTLET PIPES. SEDIMENTS SHOULD BE TESTED FOR TOXICANTS IN COMPLIANCE WITH APPLICABLE DISPOSAL REQUIREMENTS IF LAND USES IN THE CATCHMENT INCLUDE COMMERCIAL OR INDUSTRIAL ZONES, OR IF INDICATIONS OF POLLUTION ARE NOTICED.

QUARTERLY

- FLOATING DEBRIS SHOULD BE REMOVED.

SEMI-ANNUALLY

- INSPECTION OF DRAINAGE STRUCTURES.

MAINTENANCE GUIDELINES

POURED IN PLACE SURFACES

- BRUSH SURFACE TO KEEP IN CLEAN OF MOSS, LEAVES, OR OTHER LITTER AS NEEDED.
- REMOVE CHEWING GUM, WEEDS, MOSS, AND ALGAE. REMOVE ANY MUD THAT HAS BEEN TRACKED ON TO THE SURFACE. ENSURE PRODUCTS USED ARE ACCEPTABLE FOR USE ON POURED IN PLACE SURFACE.
- ANNUALLY INSPECT FOR ANY SIGNS OF DETERIORATION TO THE SURFACE. CONTACT POURED IN PLACE VENDOR IF DAMAGED AND REQUIRING REPAIR.

IRRIGATION SYSTEM

- START UP SYSTEM IN THE SPRING.
- PERIODICALLY CHECK THE IRRIGATION CONTROLS AND SYSTEM HEADS AT LEAST THREE TIMES ANNUALLY.
- SHUT DOWN SYSTEM IN THE FALL.

ADDITIONAL NOTES

THE MINIMUM REQUIREMENTS BELOW SHALL BE INCORPORATED INTO THE INSPECTION AND MAINTENANCE REGIMEN.

- O&M PLAN PROCEDURES AND PRACTICES MUST BE REVIEWED AND ASSESSED ANNUALLY.
- ACCESS ROUTES INCLUDING ROADWAYS AND SIDEWALKS SHALL BE INSPECTED ANNUALLY AND MAINTAINED AS NEEDED.

APPENDIX D

- PERMEABLE PAVER MAINTENANCE GUIDELINES
  AS WITH MOST STORMWATER MANAGEMENT PRACTICES, PERMEABLE PAVEMENT SYSTEMS REQUIRE REGULAR MAINTENANCE TO ENSURE A PROLONGED LIFESPAN. SEE BELOW LIST OF MAINTENANCE ACTIVITIES.

ACTIVITY SCHEDULE AS NEEDED

- DO NOT USE SAND DURING THE WINTER MONTHS.
- KEEP LANDSCAPED AREAS WELL-MAINTAINED AND PREVENT SOIL FROM BEING TRANSPORTED ONTO THE PAVEMENT.
- MONITOR REGULARLY TO ENSURE THAT THE PAVING SURFACE DRAINS PROPERLY AFTER STORMS.
- ENSURE THAT SURFACE IS FREE OF SEDIMENT.
- REMOVE VEGETATION ESTABLISHED IN GRAVEL SPACES IN PAVEMENT TWICE PER YEAR.
- BI-ANNUALLY VACUUM SURFACE TO KEEP FREE OF SEDIMENT. VACUUMING SHOULD OCCUR IN THE FALL AND SPRING BY USING A LITTLE WONDER WALK BEHIND VACUUM OR APPROVED EQUAL. IF SURFACES HAVE SEVER CLOGGING, USE A LOW-PRESSURE WATER SPRAY TO LOOSEN SEDIMENT AND FOLLOW WITH A WALK BEHIND VACUUM.
- CLEAN OUT INLET STRUCTURES WITHIN OR DRAINING TO THE SUBSURFACE BEDDING BENEATH SURFACE ONCE PER YEAR.
- INSPECT SURFACE FOR SIGNS OF DETERIORATION OR SETTLING.
- INSPECT VOID AREAS AND REPLACE OR ADD JOINT MATERIAL.
- DRAINAGE STRUCTURES AND FLOW RESTRICTOR MUST BE INSPECTED AND CLEANED SEMI-ANNUALLY.
- ALL PERMEABLE SURFACES SHALL BE INSPECTED SEMI-ANNUALLY AND AFTER SIGNIFICANT RAINFALL EVENTS EXCEEDING 1.5 INCHES.
- VEGETATION SHALL BE MAINTAINED ON A REGULAR BASIS.
- PEST CONTROL MEASURES SHALL BE IMPLEMENTED TO ADDRESS INSECTS AND RODENTS.
- SIGNAGE AND FENCING SHALL BE INSTALLED AND MAINTAINED WHERE NECESSARY TO PROTECT PROPERTY AND THE PUBLIC.
- CONFINED SPACE SAFETY PROCEDURES MUST BE FOLLOWED FOR MANHOLE ENTRY.
- THE OWNER SHALL KEEP AN UPDATED LOG BOOK DOCUMENTING THE PERFORMANCE OF THE REQUIRED O&M ACTIVITIES FOR PERPETUITY. LOG BOOKS MUST BE PRODUCED UPON THE REQUEST OF A MWRDGC INSPECTOR.

IN GENERAL, THE LOGBOOK SHOULD NOTE ALL INSPECTION DATES, FACILITY COMPONENTS INSPECTED, AND ANY MAINTENANCE PERFORMED AND REPAIRS MADE. ALL INSPECTIONS AND MAINTENANCE. BOTH ROUTINE AND EMERGENCY, SHOULD BE RECORDED IN THE LOGBOOK. EACH BMP-SPECIFIC O&M SHEET SHOULD SERVE AS A CHECKLIST FOR DESIGN ELEMENTS THAT REQUIRE INSPECTION, THE FREQUENCY OF INSPECTIONS, AND CONDITIONS THAT INDICATE THAT MAINTENANCE IS NEEDED.

LANDSCAPING AND TREES

ALL LANDSCAPE AREAS MUST BE MAINTAINED BY THE PROPERTY OWNER IN GOOD CONDITION. ANY DAMAGED OR DEAD TREES, SHRUBS, ORNAMENTAL GRASSES OR PERENNIALS MUST BE PROMPTLY REPLACED MAINTENANCE OF LANDSCAPED AREAS THROUGHOUT THE YEAR INCLUDES, BUT IS NOT LIMITED TO, WEEDING, TRIMMING, PRUNING, CULTIVATION, FERTILIZATION, WATERING, PEST CONTROL AND ANYTHING ELSE NECESSARY TO ENSURE HEALTHY, VIGOROUS PLANT GROWTH AND MAINTAIN THE AREA IN A SLIGHTLY CONDITION.

APPENDIX D

TREES - LICENSED ARBORIST TO PRUNE ANNUALLY, FERTILIZE, MONITOR FOR DISEASE AND INSECT PROBLEMS, AND TREAT AS RECOMMENDED.
SHRUBS - LANDSCAPE MAINTENANCE CONTRACTOR TO MONITOR FOR DISEASE AND INSECT PROBLEMS, AND TREAT AS RECOMMENDED.
HYDRANGEA - CUT BACK TO 6" ABOVE GRADE IN SPRING. WHILE PLANTS ARE STILL DORMANT.
CORNUS - CUT BACK 1/3" OF BRANCHES TO 4" ABOVE GRADE IN SPRING, WHILE PLANTS ARE STILL DORMANT.
ORNAMENTAL GRASSES AND PERENNIALS - CUT BACK TO 3" ABOVE GRADE IN SPRING, WHILE PLANTS ARE STILL DORMANT.
VEGETABLES - FLUSH CUT OR REMOVE PLANT ENTIRELY AFTER FIRST HARD FROST.

RAINFALL TO BE SUPPLEMENTED WITH WATER FOR A TOTAL RATE OF ONE (1) INCH PER WEEK DURING THE GROWING SEASONS FOR THE FIRST THREE YEARS. SLOW RELEASE (E.G. "GATOR") BAGS ARE RECOMMENDED FOR SUPPLEMENTAL WATERING OF TREES.

ALL LANDSCAPE AREAS TO BE MAINTAINED AS PER THE ABOVE SPECIFICATION, FOLLOWING FINAL ACCEPTANCE. ALL RELATED COSTS FOR SAID MAINTENANCE TO BE PROVIDED AND PAID FOR BY THE OWNER, AS REQUIRED, OBLIGATION ASSUMED BY SUBSEQUENT OWNERS.

APPENDIX D

MWRDGC Operation and Maintenance Plan Owner's Certification Statement

Property Name: _____

Property Address: _____

As the owner(s) of the subject property, by signing this document, I/we acknowledge that I/we have received and reviewed the Operation and Maintenance Plan, dated_____ and understand its contents.

In the event that I/we were to sell this property, I/we agree to give a copy of the Plan to the new Owner(s) and this Owner's Certification Statement for signature. This signed Certification Statement must be submitted to the MWRDGC upon transfer of ownership.

I/we further agree to follow adhere to the maintenance schedule to maintain of the best management practices included stipulated in this Plan, and in the event that I were to sell this property, I/we agree to give a copy of this plan to the new owner and explain to him/her the requirements of this plan. I/we also acknowledge that if I/we do not maintain the measures as shown on this plan, upon MWRDGC inspection, I/we could be liable for a violation of the MWRDGC's Stormwater Management Ordinance.

_____
Initial Owner(s) Printed Name

_____ _____
Initial Owner(s) Signature Date Notary Public

_____
2nd Owner(s) Printed Name

_____ _____
2nd Owner(s) Signature Date Notary Public

EXHIBIT E

THE Green Neighbor GUIDE

Metropolitan Water Reclamation District of Greater Chicago

TABLE OF CONTENTS

Introduction

Water is one of the most valuable resources on our planet. We require clean and fresh water for drinking, cleaning, recreation and other activities. However, too much of it can become a nuisance when it causes flooding in waterways and urban areas, impacting our travel when roads are flooded and even damaging our homes and businesses.

The Metropolitan Water Reclamation District of Greater Chicago (MWRD) has a vision for "Recovering Resources, Transforming Water." At the MWRD, we value the importance of water as a critical resource. We strive not only to protect the quality of water in our rivers and streams, but also to find ways to "transform" water—reducing its potential damaging force and turning it into a benefit for our communities. To achieve this vision, we work with local municipalities, agencies and partners to implement flood control and green infrastructure projects.

Everyone, including you as a homeowner, can be a "Green Neighbor" and play an active role in transforming water. This guide provides you with step-by-step instructions on how to improve stormwater management on your property. In doing so, you can help protect our water environment, green up your neighborhood and reduce flooding in your community.

WHAT IS THE GREEN NEIGHBOR GUIDE?

While there are myriad ways to be a Green Neighbor—some actions can be as simple as not over-fertilizing your lawn and garden, washing and maintaining your vehicles properly, or planting a native tree—this guide focuses on stormwater management projects that you can build or install on your property.

In this guide, you will learn how to stop sending stormwater directly into the sewer by disconnecting the downspouts; how to install rain barrels or cisterns to capture stormwater for reuse; how to install dry wells and rain gardens to allow stormwater to filter into the ground; and how to replace asphalt and concrete surfaces with permeable paving to reduce stormwater runoff. These projects are sometimes referred to as Best Management Practices or Green Infrastructure. They are designed to manage stormwater by slowing it down, storing it and soaking it into the ground, rather than sending the stormwater straight into the sewer.

An illustration of how various stormwater management projects can be implemented at a typical single-family residence.

HOW TO SELECT YOUR STORMWATER MANAGEMENT PROJECTS

The stormwater management projects in this guide are specially selected for their relative ease of installation and lower level of maintenance. Depending on the size of your lot and available yard space, not all of these projects will be appropriate for installation on your property. Use the following table to help guide your project selection. These projects are not mutually exclusive; you can incorporate more than one element if sufficient space is available.

LOT SIZE

	Downspout Disconnection	Rain Barrels	Rain Gardens and Bioswales	Permeable Pavement	Dry Wells
Small Urban (1/8 acre or less)	●	●	●	●	●
Medium (1/8–1/2 acre)	●	●	●	●	●
Large (1/2 acre or larger)	●	●	●	●	●

LEGEND: ● Suitable ● Suitable if there is adequate non-paved area

In general, downspout disconnection is the easiest stormwater management project you can implement at your home. You may need to consider including additional elements to your stormwater project to manage the stormwater released by the disconnected downspouts. If your lawn has a low spot and the stormwater pools at that location, consider installing a rain garden and/or a bioswale (see Chapter 3). If stormwater must flow over a paved surface, consider replacing the pavement with permeable pavers (see Chapter 4). If you do not have enough space on your property, consider installing a drywell (see Chapter 5) which can collect stormwater and allow it to slowly drain into the soil. You can also capture water in a rain barrel see Chapter 2) to water your landscape, returning the water to the ground and saving money on your water bill.

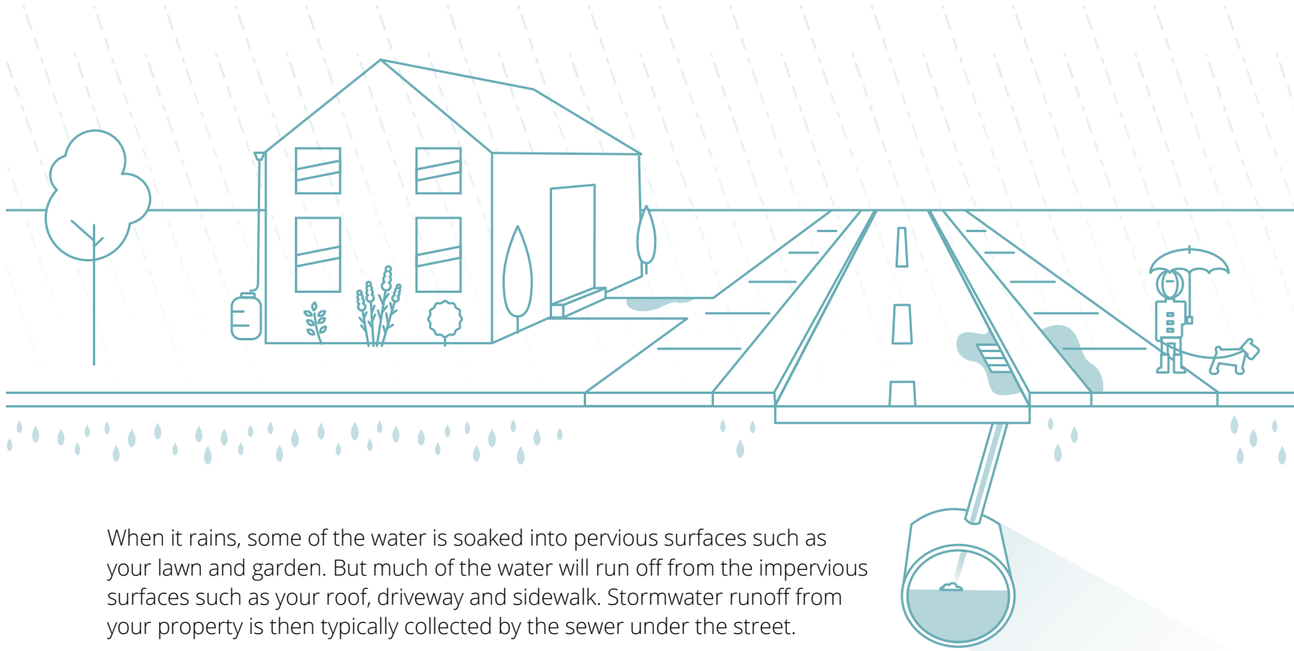
Difficulty of construction, cost, and maintenance requirements may also influence your project selection. In the following table, the quantity of a symbol is used as a measure of level of effort, cost, or time. The wheelbarrow symbol signifies the level of construction difficulty; the dollar sign indicates cost; and the clock symbol represents the amount of time required for long-term maintenance.

PROJECT COMPLEXITY

	Downspout Disconnection	Rain Barrels	Rain Gardens and Bioswales	Permeable Pavement	Dry Wells
Construction Difficulty	🛞	🛞	🛞🛞	🛞🛞🛞	🛞🛞
Cost	$	$	$$	$$$	$$
Maintenance Required	⏱	⏱	⏱⏱⏱	⏱⏱	⏱

While many of these projects can be installed easily by an average homeowner, some projects involve more effort in design and construction. Hiring a professional for installation should be considered.

STORMWATER MANAGEMENT EXPLAINED



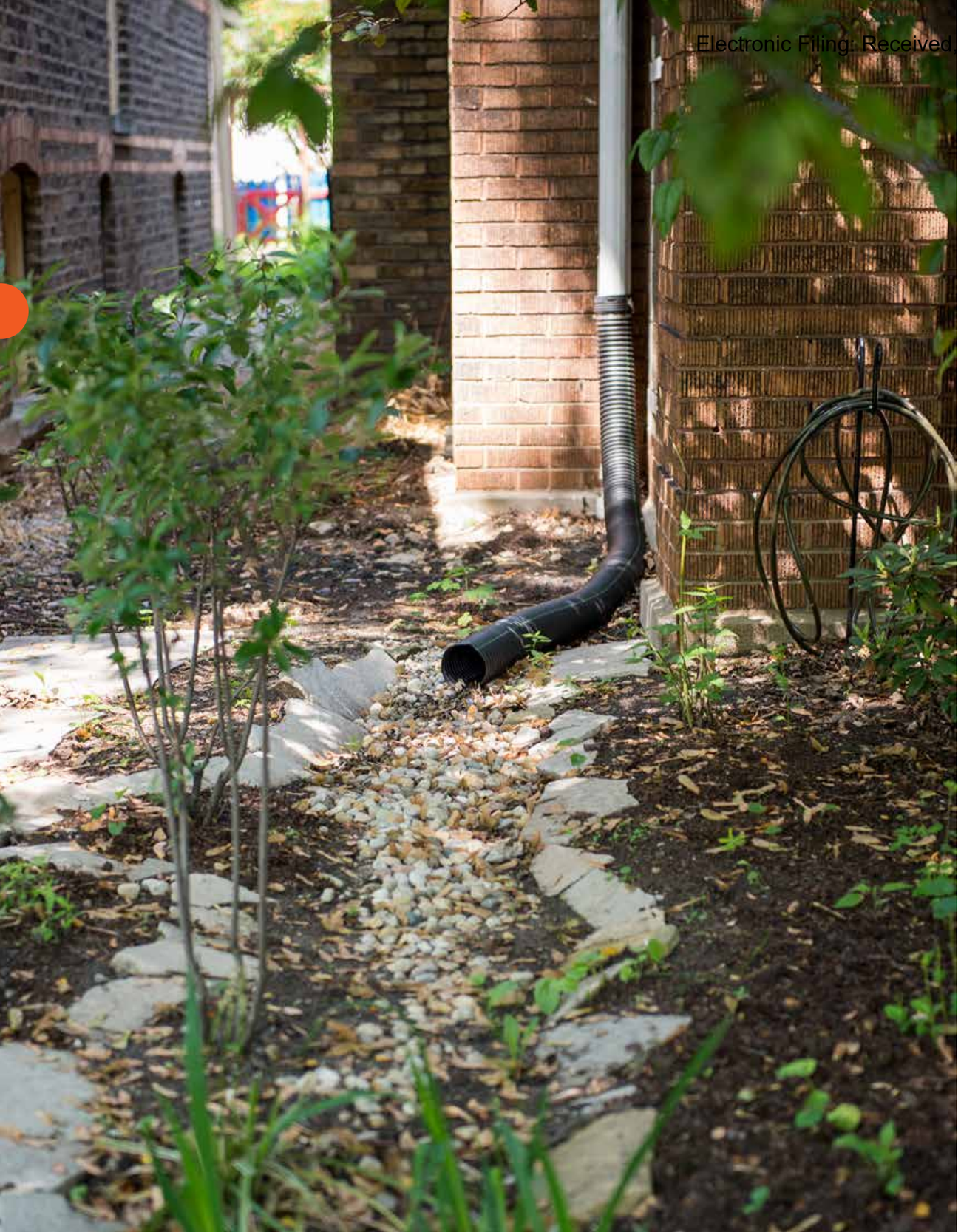
When it rains, some of the water is soaked into pervious surfaces such as your lawn and garden. But much of the water will run off from the impervious surfaces such as your roof, driveway and sidewalk. Stormwater runoff from your property is then typically collected by the sewer under the street.

Flooding can occur during and following heavy rainfall for a number of reasons:

- The sewer system may have reached its capacity.
- The surface drainage path may not be sufficiently designed to carry the stormwater flow.
- Lack of maintenance to the sewer and surface drainage system.

These all can be contributing factors to flooding. But the main culprit oftentimes is the lack of storage volume for stormwater—the excess rain simply has nowhere else to go. For many communities that were built prior to the 1980s, stormwater storage typically provided by detention ponds was often not part of the existing stormwater management system. Low-lying spots in your backyard and on the streets therefore become the effective storage areas.

Compounding the problem of insufficient storage is the fact that in some older neighborhoods, there are no separate sewers for stormwater. In this case, both stormwater and sewage are collected by the same sewer. These combined sewers were generally not designed to carry a large amount of stormwater. When the capacity of the combined system is reached, you might experience basement backups and flooding. The sewage combined with stormwater could also overflow into local streams and rivers, polluting our water environment. To prevent flooding, improve water quality and protect our ecosystems, the MWRD, municipalities and residents need to work together to responsibly manage stormwater in our communities.



CHAPTER 1

Downspout Disconnection

If your downspouts are connected to underground pipes that lead to the municipal sewer system, you can slow down the stormwater by disconnecting them and collecting the water in a rain barrel or cistern or simply letting it soak into the ground. This is especially important in older neighborhoods with combined sewers where sanitary sewage and stormwater drain into the same pipes. When it rains, stormwater from your roofs and gutters can overwhelm the sewer system and may lead to basement backups, flooding in your community and combined sewage overflowing into nearby rivers and lakes. Disconnecting the downspouts is one of the cheapest and easiest stormwater management projects you can implement at your home.

INSTALLATION INSTRUCTIONS

TOOLS & MATERIALS

You will need the following tools and materials:

- ☐ Hacksaw
- ☐ Drill
- ☐ Screwdriver
- ☐ Pliers
- ☐ Tape Measure
- ☐ Sheet Metal Screws
- ☐ Downspout Elbow
- ☐ Downspout Extension
- ☐ Standpipe Cap
- ☐ Splash Block

STEP 1
Select downspouts and locations to release stormwater

Picking the right location to redirect downspout water is important to protect the foundation of your house and prevent water from finding its way to your basement. You will want to make sure that:

- Water flows away from your house and all structures.
- A downspout can be extended at least 6 feet from your home to prevent foundation damage.
- Water will not flow into an area with a steep slope. Fast flowing water will cause erosion to a steep slope.
- A downspout does not release water directly onto sidewalks and pavement. Provide at least 6 feet of lawn or garden space for water to soak into the ground.
- Water is not released directly to your neighbor's property.

STEP 2
Measure the downspout

Measure your downspout 9 inches from the standpipe, the pipe that goes underground. Make a mark on your downspout.

STEP 3
Cut the downspout

Using the hacksaw, cut the downspout where you made your mark. Be careful to protect any siding while cutting the downspout.

STEP 4
Cap the standpipe

Place a cap on the standpipe so water cannot continue to enter the sewer from this point.

STEP 5
Attach the downspout elbow

Using pliers to ensure a tight fit, attach the downspout elbow to the downspout section still attached to your house.

STEP 6
Secure the downspout elbow

Using sheet metal screws and a drill, secure the elbow to the downspout.

STEP 7
Attach the downspout extension

Using sheet metal screws and a drill, secure the downspout extension to the elbow.

STEP 8
Prevent erosion

Place a splash block at the end of the extension to help prevent erosion and direct water. You may also choose to place decorative rock at this location as part of a rain garden or bioswale installation.

CHAPTER 2

Rain Barrels

Rain barrels typically consist of a water-tight container, a spigot and an overflow pipe to allow excess water to drain. They are usually placed beneath downspouts which are modified to direct stormwater into them. Water captured by a rain barrel is highly oxygenated and generally lacks chemicals found in treated tap water. It is ideal for gardens and ornamental plants, contributing to healthier root structures. By installing rain barrels, you can save thousands of gallons of water annually while reducing your utility bill and helping to decrease the amount of stormwater being sent to the sewer. The MWRD sells rain barrels and shares a video of a rain barrel installation on its website at **mwrd.org/rain-barrels**. If you would like to collect and store more water than a typical rain barrel allows, you can consider installing a cistern with larger capacity instead.

Water collected by a rain barrel should not be consumed but can be used to water plants and wash cars, bikes and tools. You can paint your rain barrel if you first gently buff the surface with sand paper and apply a primer formulated for plastics.

INSTALLATION INSTRUCTIONS

TOOLS & MATERIALS

In addition to the items included with your rain barrel, you will need the following tools and materials:

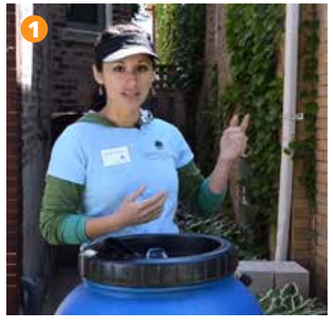
- ☐ Hacksaw
- ☐ Marker
- ☐ Straight-edge ruler or T-square
- ☐ Safety glasses and safety gloves
- ☐ Sheet metal screws
- ☐ Drill
- ☐ Tin snips
- ☐ Flat-head and Phillips screwdrivers
- ☐ Level
- ☐ Hammer
- ☐ Concrete blocks or rain barrel stand*
- ☐ Pavers or pea gravel*
- ☐ Standpipe Cap
- ☐ Splash Block

*Optional, but recommended

STEP 1
Pick a location for your rain barrel

Determine which downspout is best suited for your rain barrel. When selecting a site, consider the following:

- Pick a site closest to the area(s) you want to water.
- Select a location where the rain barrel can be elevated so that you can fit a watering container underneath the spigot or attach a hose.
- Choose a site that is mostly flat to help in leveling the rain barrel (see Step 2).
- Do not choose a site that will impede doors, driveways, paths, or equipment such as air conditioning units.
- Make sure your site slopes away from the house so water will not seep into the house foundation.
- Avoid locations near ground-level basement windows or window wells.



STEP 2
Level the base

Create a flat, level surface on which to place the rain barrel. This can be done by installing a 3-inch thick layer of pea gravel or by placing a 3-foot-by-3-foot paving stone on a level surface.

Use a level to ensure the surface is fairly flat.

If using concrete blocks, a pea gravel base surface is recommended; if using a rain barrel stand, a paver base surface is recommended.

Place your rain barrel on the stand to elevate it enough so a watering can may be placed underneath, or a hose can be attached to the spigot.

STEP 3
Measure and mark the downspout

Assemble, if required, the rain barrel according to manufacturer's instructions.

Rainwater can be diverted from the downspout to the rain barrel using a flexible, extendable plastic elbow. (You can also reuse the existing rigid elbow at the bottom of the downspout.) To measure where the downspout needs to be cut, first place the barrel beside the downspout (and on the stand if you are using one). Using a straight edge or T-square, draw a line on the downspout at the same height as the top of the barrel. Draw another line at least 8 inches above the first line. The section of downspout between these two lines will be cut out in the next step.

Extend the flexible elbow and place one end at the upper line on the downspout and the other end at the top of the barrel. Check to make sure that there is adequate height for the installation of the elbow and for the water to flow from the downspout to the barrel. Redraw the higher cut line if necessary.

Alternatively, you can choose to install a variety of downspout diverters available on the market. Some diverters allow you to reuse the existing lower portion of the downspout as an overflow; some have added screen to filter out debris; and some have a damper to turn on/off flow diversion. For the installation of a diverter, follow manufacturer's instructions specific to the diverter you purchased.

STEP 4
Cut the downspout

Using a hacksaw, cut and discard the section of downspout between the two marked lines. Place cardboard behind the downspout while cutting to protect the exterior wall of your house.

STEP 5
Attach the flexible elbow to the downspout

Attach and secure the flexible elbow to the top portion of the remaining downspout with sheet metal screws and a drill. You may need to add an additional aluminum strap to secure the downspout to the exterior wall.

You can remove and discard the lower portion of the downspout. Alternatively, if the downspout is already disconnected from the sewer and you are not too concerned about the aesthetics, you can leave it in place. When you put the rain barrel away for the winter, you can reconnect the top and bottom portions of the downspout with the flexible elbow (See Step 8).

STEP 6
Attach the lid and place rain barrel

Place the mosquito-proof screen-lid on the rain barrel and tighten using the provided hardware. Place the stand or concrete blocks (if used) and place the rain barrel on top of the stand.

Adjust the flexible elbow so that its end is pointing toward the screened inlet at the top of the barrel. Place the end of the overflow hose away from the foundation of your house.

STEP 7
Finished!

Congratulations! You have now installed your rain barrel. You will be collecting a lot of water from your roof. A common wet weather event will likely fill or overfill an empty rain barrel. Therefore, it is critical to empty your rain barrel to restore its capacity prior to a rain event. This alleviates any potential basement seepage issues or foundation damage caused by the overflow of excess water.

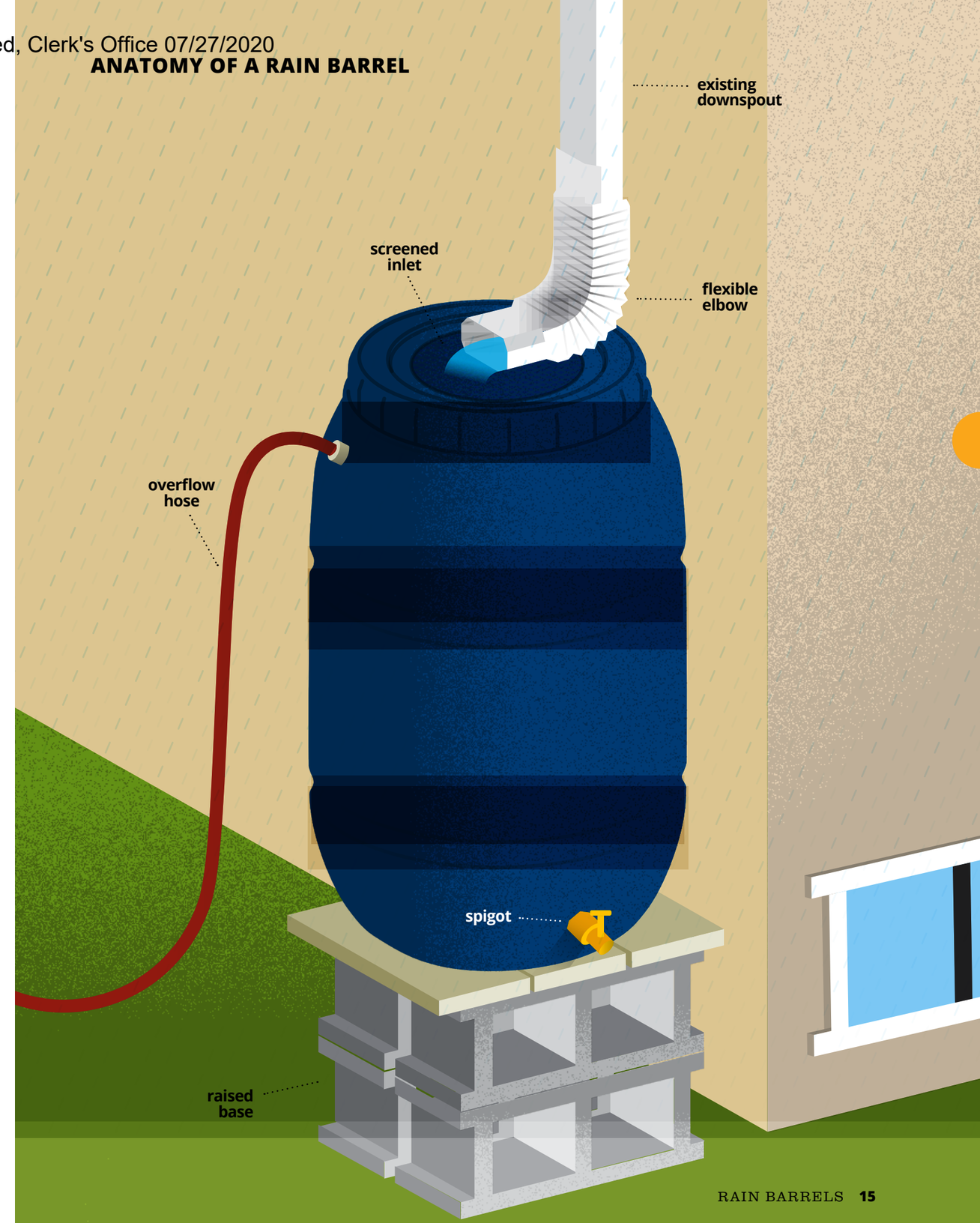
You may also consider connecting your rain barrel to a series of rain barrels or installing a larger cistern, so you can capture more rain water for reuse.

STEP 8
Maintenance

Leaves and debris collected by the gutter and downspout will clog the screened inlet over time. If the inlet is clogged, water will overflow and may cause basement seepage or lead to foundation damage. Erosion (washout) of soil around the barrel is often indicative of an overflowed barrel. Check the screened inlet monthly and keep it free of debris.

You will need to store the rain barrel over the winter. Freezing water will expand and damage the barrel. Follow these steps for the winterization of your rain barrel system:

- Drain the water from your rain barrel by opening the spigot. A full barrel is much too heavy to move – do not attempt! Allow the water to drain from the barrel; you may need to tip the barrel some to allow more water out of the spigot before moving it.
- Connect a temporary extension to the downspout that feeds the rain barrel. Position the extension to direct rainwater away from the house. If you have left the lower portion of the downspout intact during installation, reconnect to it with the flexible elbow.
- Flip the barrel over to drain any remaining stagnant water and decaying material, e.g. leaves, dirt, etc.
- Rinse out the inside of the barrel and remove any sediment by rinsing with a hose or light pressure washer.
- Clean the inside of the barrel with a hard-bristled brush and a mixture of water and a few drops of mild dishwashing detergent.
- Let the rain barrel dry.
- Inspect the rain barrel for any cracks or holes. Patch any damage using an adhesive drywall patch and waterproofing sealant.
- Store the rain barrel in a dry location while temperatures are at or below freezing.



CHAPTER 3

Rain Gardens and Bioswales

Rain gardens are vegetated depressions (small basins) that capture stormwater, allowing it to soak into the ground. They can typically be placed at a low point in your yard. Stormwater can be conveyed to a rain garden from downspouts or paved areas via pipes or vegetated swales (bioswales). Bioswales are trenches lined with vegetation that direct water to a different location, treating the water along the way. Rain gardens are typically designed to drain ponding water within 24 hours and are often planted with native vegetation that can survive inundation for that length of time.

Rain gardens remove pollutants as water filters through the soil to replenish the groundwater. The native plants in them attract beneficial insects and pollinators and provide beautiful flower displays throughout the growing season.

INSTALLATION INSTRUCTIONS

TOOLS & MATERIALS

You'll need the following tools and materials:

- ☐ String level and stakes
- ☐ Shovel
- ☐ Hard rake
- ☐ Rototiller (*optional*)
- ☐ Wheelbarrow for moving soil and mulch
- ☐ Garden trowel for planting
- ☐ Pitchfork for mulching
- ☐ Scoop shovel for mulching

STEP 1

Pick a location for your rain garden

When selecting a site for your rain garden or bioswale, use the following considerations:

- Choose a site at least 10 feet away from your house, garage, and outbuildings, and at least 5 feet from your property line.
- Choose a full or partly sunny site on a relatively level area that is downhill from the water source.
- Avoid septic fields, wells, buried utility lines or areas under large trees.
- Make sure water can get to a storm drain if the rain garden overflows.

STEP 2

Test the soil

A rain garden needs to absorb stormwater within 48 hours or plants will not survive and mosquitoes may breed. A simple way to test the infiltration rate of your soil is to dig an 18-inch deep hole and fill it with water.

The soil is good for a rain garden if the water disappears within 48 hours. If the soil is dry and water disappears rapidly, fill the hole with water 3 times in succession and use the third fill as the test.

STEP 3

Size your rain garden

Consider the following when determining how large your rain garden will be:

- Generally, a rain garden should be about one-third the size of a contributing impervious surface such as a roof. Calculate how much roof area drains to each downspout feeding your rain garden and divide this area by 3 to determine the area of your rain garden.
- A rain garden that is between 100 and 300 square feet will be large enough to allow for plant variety, but small enough to be affordable and easy to build. A smaller rain garden will work if you have limited space because the overflow will lead to a storm drain (see Step 1). Larger sizes will work too.
- Depths between 4 and 8 inches can hold enough water without being impractically deep.
- Rain gardens on poorly drained soils will have to be shallower and occupy larger areas. On well-drained sandy soil your rain garden can be deeper and cover less area.
- The shape of your rain garden is up to you. Have fun and be creative!

STEP 4

Excavate your rain garden

The bottom of your rain garden should be level and the downhill edge should be at your desired depth when excavation is complete. On sloping sites this means the uphill edge will be deeper than your desired depth. Follow these steps:

- Start excavating at the uphill edge and dig to the desired depth, placing excavated soil around the downhill perimeter of the rain garden.
- When the entire rain garden surface is level, the downhill mound should be 25 percent higher than the desired depth. This will allow for soil settling.
- If the downhill mound is lower, excavate more of the rain garden bottom until the mound is the desired height. Remember to excavate a little soil from the entire bottom to keep it level.
- If the downhill mound is higher, spread some of it evenly over the bottom of the rain garden until the mound is at the desired height.
- Gently slope the edges of your rain garden to blend in with the surrounding surface.

STEP 5

Plant your rain garden

It is easy to find a list of rain garden plants on the internet. The Illinois Department of Natural Resources maintains a list at **www.dnr.illinois.gov/education/Pages/PlantListRainGarden.aspx**.

Many of these lists include native plants that are well adapted to local conditions and support pollinators. This guide also provides native plant lists that are tailored to Cook County and the surrounding areas. The native plants on these lists do not grow very tall and should perform well in rain gardens.

Buying native plants for your rain garden can be more challenging than simply going to a nursery or home improvement store. Many native plants must be purchased at specialty nurseries or annual sales hosted by conservation groups and government agencies such

as the Illinois Department of Natural Resources or local Soil and Water Conservation Districts. The University of Illinois maintains a list of native plant vendors at **guides.library.illinois.edu/c.php?g=347854&p=2345331**. The US Environmental Protection Agency lists native plant vendors at **archive.epa.gov/greenacres/web/pdf/il-resor.pdf**. A simple internet search using terms like "rain garden plant vendor" and "native plant vendor Chicago" can yield additional sources.

STEP 6

Mulching your rain garden

Apply a 2-inch layer of mulch around your plants. Undyed shredded hardwood mulch, bark and leaf compost or MWRD's EQ Compost are good choices. These types of mulch break down and help soil structure over time.

Decorative stone mulch is another option although it does not help soil structure. Pine bark chips are not as good because they float. Do not fertilize your new rain garden. Native plants do not need fertilizer and it will promote weed growth.

STEP 7

Maintain your rain garden

New plants need about an inch of water each week. Water your new rain garden plants through the first two growing seasons during weeks when rainfall is less than one inch. The easiest way to do this is by placing a container in the garden and watering with a sprinkler. Water level in the container will tell you how much you have watered.

Weeds can be pulled easily when the ground is moist and the weeds are small. A trowel or dandelion tool are helpful when weeds are larger. Be sure to replace mulch once a year when you are done weeding. Use the "Common Species of Concern in Illinois" table on page 24 to identify common weeds in your rain garden. For more information, review the Illinois Invasive Species of Concern: **www.invasive.org/illinois/SpeciesofConcern.html**.

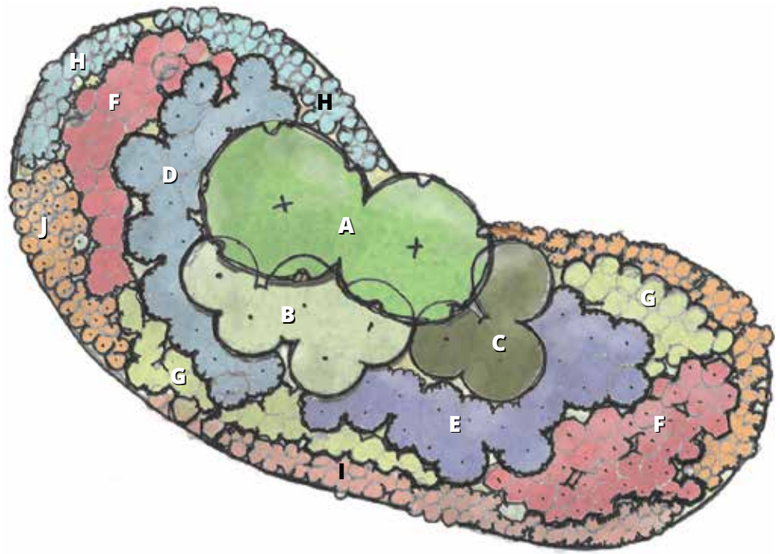
PLANTING PLANS

The sample planting plans demonstrate two possible rain garden planting approaches based on the plant lists and tips above. While they may not be the exact size and shape of your rain garden, they should give you an idea of how these plants can be arranged.

Keep these tips in mind when planning and planting your rain garden:

- Plant plants (plugs), not seed, in a rain garden.
- Place taller plants such as Joe Pye Weed, Ironweed, and Hydrangea in the center or at the back of the rain garden. Space large perennials two to three feet apart and shrubs at least half their mature diameter apart.
- Place the shortest plants such as Amsonia, Wild Ginger, and Ice Dance Sedge at the front or around the perimeter of the rain garden. Space these about one foot apart.
- Arrange your rain garden plants in large masses. It is more efficient for pollinators to gather nectar and it will make it easier for you to identify weeds within a large mass of identical plants. Try using three species in small rain gardens under 200 square feet and four to six species in medium rain gardens up to 600 square feet. Larger rain gardens can have more species, just plant them in large masses.
- If you do not have a lot of experience with native plants, using a limited number of species you can recognize will make it easier to identify weeds. Do not be afraid to use one species such as Blue Flag Iris in a small rain garden. The blade-like leaves are unique and will make weed identification very easy.
- Some native plants will behave in unexpected ways if their growing conditions are not ideal. The plants listed in this guide should be more tolerant to varying conditions.

The example planting plans below show arrangements for a large rain garden site in a sunny location and a small rain garden site in a shady location. Plants should be laid out so taller plants are placed in the center of the rain garden, with shorter plants descending in height toward the edges of the rain garden. This "layering" effect provides maximum visual appeal when all the plants mature.



LARGE SITE

A *Eutrochium dubium*
'Little Joe' Joe Pye Weed

B *Vernonia fasciculata*
Common Ironweed

C *Baptisia sphaerocarpa*
Yellow Wild Indigo

D *Liatris spicata*
Blazing Star 'Kobold'

E *Iris versicolor*
Blue Flag Iris

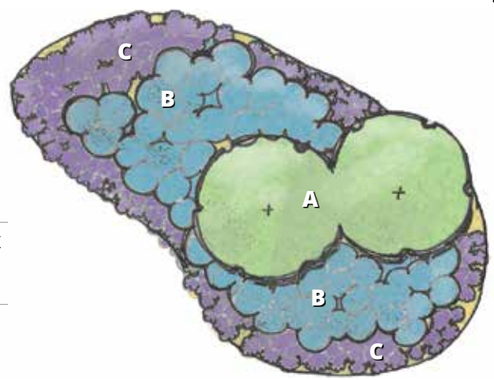
F *Packera aurea*
Golden Ragwort

G *Zizia aurea*
Golden Alexander

H *Tradescantia*
Snowcap Spiderwort

I *Amsonia 'Blue Ice'*
Blue Ice

J *Monarda bradburiana*
Eastern Beebalm



SMALL SITE

A *Hydrangea arborescens*
'NCHA1' Invincibelle spirit

B *Polygonatum biflorum*
Solomon's Seal

C *Asarum canadense*
Wild Ginger

The following tables list native plants that stay relatively low and should perform well in rain gardens in this area.

PLANT LIST FOR PART TO FULL SHADE

	Spring	In Bloom	Fall
Asarum canadense Wild Ginger Bloom Time: April-May Height: 0.5'-1.0'			
Chrysogonum virginianum var. australe Golden Star Bloom Time: May-October Height: 0.5'-1.0'			
Carex 'Ice Dance' Ice Dance Sedge Bloom Time: April-July Height: .8'-1.0'			
Carex flacca 'Blue Zinger' Blue Sedge Bloom Time: July-August Height: 1.0'-1.5'			
Iodanthus pinnatifidus Purple Rocket Bloom Time: May-June Height: 1.0'-3.0'			
Chelone glabra White Turtlehead Bloom Time: August-October Height: 2.0'-3.0'			
Osmunda regalis Royal Fern Bloom Time: n/a Height: 2.0'-3.0'			
Polygonatum biflorum Solomon's Seal Bloom Time: May-June Height: 3.0'-4.0'			
Hydrangea arborescens 'NCHA1' Invincibelle Spirit Hydrangea Bloom Time: June-September Height: 3.0'-4.0'			

The MWRD offers EQ compost. Learn more by visiting **www.mwrd.org.**

PLANT LIST FOR FULL SUN

	Spring	In Bloom	Fall
Packera aurea Golden Ragwort Bloom Time: April Height: 0.5'-2.5'			
Amsonia 'Blue Ice' Blue Ice Bloom Time: May Height: 1.0'-2.0'			PHOTO NOT AVAILABLE
Monarda bradburiana Eastern Beebalm Bloom Time: May Height: 1.0'-2.0'			
Tradescantia Snowcap Spiderwort Bloom Time: May-July Height: 1.0'-2.0'			
Liatris spicata Blazing Star 'Kobold' Bloom Time: July-August Height: 1.5'-2.5'			
Zizia aurea Golden Alexander Bloom Time: May-July Height: 1.5'-2.5'			PHOTO NOT AVAILABLE
Iris versicolor Blue Flag Iris Bloom Time: May-June Height: 2.0'-2.5'			
Baptisia sphaerocarpa Yellow Wild Indigo Bloom Time: May-June Height: 2.0'-3.0'			
Panicum virgatum Cheyenne Sky Switch Grass Bloom Time: July-February Height: 2.0'-3.0'			
Vernonia fasciculata Common Ironweed Bloom Time: July-September Height: 2.0'-4.0'			PHOTO NOT AVAILABLE
Eutrochium dubium Joe Pye Weed Bloom Time: July-September Height: 3.0'-4.0'			

COMMON SPECIES OF CONCERN IN ILLINOIS


Tree of Heaven


Mimosa


Autumn Olive


Japanese Barberry


Honeysuckle


Callery Pear


European Buckthorn


Black Locust


Multiflora Rose


Burning Bush


Garlic Mustard


Canada Thistle


Common Teasel


Japanese Knotweed


Crownvetch


Phragmites


Johnsongrass


Japanese Hop


Kudzu


Winter Creeper

FOR MORE INFORMATION, REVIEW THE ILLINOIS INVASIVE SPECIES OF CONCERN:
www.invasive.org/illinois/SpeciesofConcern.html

CHAPTER 4

Permeable Pavement

Permeable paving consists of a porous surface over an open-graded aggregate base or a stone reservoir (see Types of Permeable Pavements). Pervious concrete, porous asphalt and permeable unit pavers are all forms of permeable paving. They are excellent options for residential and public paving, from patios and plazas to driveways and light-use traffic zones.

Unlike traditional paving that sheds stormwater and often directs it into sewers, permeable paving allows stormwater to drain through and absorb into the ground. Ice is less likely to build up on this paving in winter as puddles will not form unless the pavers are clogged due to lack of maintenance.

Design and construction of permeable pavement can be more involved depending on the size and complexity of the installation. Hiring a professional for design and installation is recommended.

INSTALLATION INSTRUCTIONS

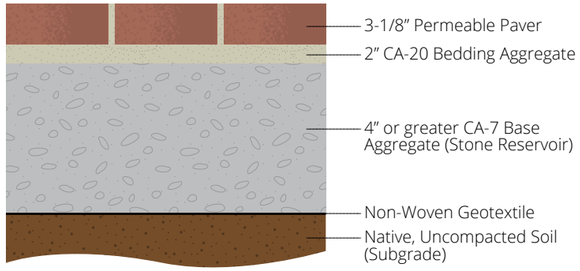
TOOLS & MATERIALS

You will need the following tools and materials at a minimum:

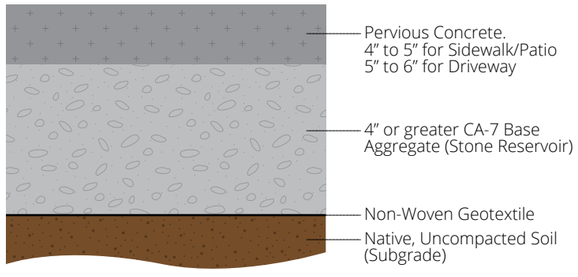
- ☐ Shovels
- ☐ Metal rakes
- ☐ Brooms
- ☐ Leveling markers (wooden stakes, string, and level)
- ☐ Straight edge and t-square
- ☐ Tape measure
- ☐ Vibratory plate compactor
- ☐ Vibratory screed
- ☐ Roller screed
- ☐ Concrete groover
- ☐ Asphalt roller
- ☐ Silt fence
- ☐ 8 oz. non-woven geotextile fabric
- ☐ Material mobilization equipment (skid-steer and wheelbarrow)
- ☐ Pavement base aggregate (CA-7)
- ☐ Pavement bedding aggregate (CA-20) for porous asphalt and permeable pavers only
- ☐ Pavement material (pervious concrete, porous asphalt, or permeable pavers)
- ☐ Edging material (metal, plastic, or timber per design)
- ☐ Grass seed and/or sod
- ☐ Garden hose

TYPES OF PERMEABLE PAVEMENTS

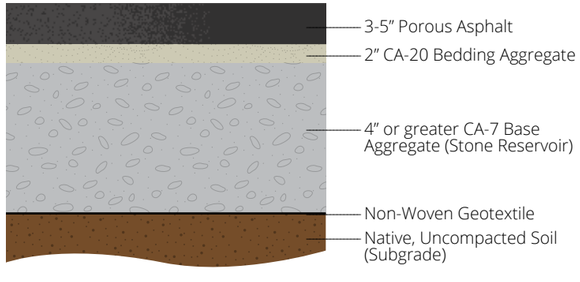
PERMEABLE PAVERS



PERVIOUS CONCRETE



POROUS ASPHALT



STEP 1
Before you begin

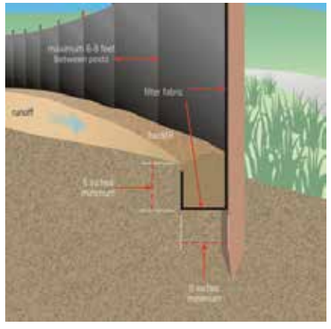
Test for the infiltration rate of your soil by digging an 18-inch deep hole and filling it with water. The site is appropriate for permeable pavement installation if the water disappears within 48 hours. If the soil is dry and water disappears rapidly, fill the hole with water 3 times in succession and use the third fill as the test.

Before finalizing your project design, contact JULIE (**illinois1call.com** or call 811) to have utilities marked on your property. Ensure these utility lines will not interfere with your proposed project. You also need to contact your local municipality and determine if a permit is required for your pavement project.

STEP 2
Stabilize your project area

Identify your project area by marking the extents of the permeable pavement to be installed. Allow for additional working space beyond pavement area as the construction zone.

Prevention of sediment from washing into the construction zone is vital to the success of the final system. Install silt fence (or straw wattles) around this area, ensuring the bottom of the fence is tucked under adjacent soils, facing outward.



Stabilize adjacent slopes with silt fence, vegetation, and/or erosion control blankets. Do not begin construction until the entire project site is protected from adjacent sites.

STEP 3
Planning for construction

Never install permeable pavements in rain or snow, or when the ground is frozen. Plan to start and complete your project between rain events.

Coordinate the delivery of necessary materials as close to construction time as possible. Washed stone material contaminated with sediments or debris cannot be used.

Coordinate where and how these materials will be stored as they are installed. Lastly, coordinate where excavated material will be stored and how it will be disposed.

Ensure this material will not wash back into the construction zone.

STEP 4
Preventing soil compaction

Limit or minimize the use of heavy equipment in the area planned for permeable pavement. Soil compaction will limit or prevent stormwater absorption. If heavy machinery is necessary for excavation or installation, machinery should be positioned outside the construction zone.

STEP 5
Excavation

The depth of excavation is determined by the total thickness of the permeable pavement. Depending on the type of paving, soil type and application, the required thickness of the permeable paving and the underlying aggregate layers can vary (see Types of Permeable Pavements). It is important to consult with a professional for the design of your permeable pavement. Generally, permeable pavement has a thickness of at least 8 inches. It is important to consult with a professional for the design of your permeable pavement.

STEP 6
Assessing subgrade

The subgrade (native, uncompacted soil present after excavation) should be sturdy enough to support the intended use of the permeable pavement. Never compact the subgrade unless a certified professional has verified it should be and to what extent.

STEP 7
Material installation: Filter fabric

Begin installation by laying 8-ounce non-woven geotextile filter fabric over the subgrade. The fabric should extend beyond the excavated zone in each direction by roughly 4 feet. It can be trimmed later. Overlap fabric edges a minimum of 2 feet to cover the entire excavated zone. Be sure a filter fabric is used, and not an impermeable membrane.

STEP 8
Material installation: Base course material

Base course material for permeable pavements consists of washed stone aggregate. This stone reservoir serves as a temporary storage for rainwater. For pervious concrete, porous asphalt and permeable pavers, washed CA 7 or ASTM #57 stone should be used. The stone should also be open graded, meaning it has limited variety in particle size.

Take care in the placement of the stone not to dump heavy loads in concentrated or consistent locations, which may create depressions in the subgrade or alter geotextile filter fabric placement.

Spread the stone to a uniform depth called for by your design (see Types of Permeable Pavements) but no more than a maximum depth of 6 inches. Use a vibratory plate compactor to compact the stone. If the base thickness, per design, is more than 6 inches, add another layer of stone until the desired depth and compact. Each additional layer should not be more than 6 inches deep. If at any time throughout construction sediment or debris is introduced into the washed stone, it should be removed immediately and entirely.

STEP 9
Material installation: Bedding course material

Pervious concrete does not necessitate a bedding course material layer; however, porous asphalt and permeable pavers do. This layer consists of open-graded washed CA 20 or ASTM #8 stone applied 2 inches thick.

Do not dump this material onto the base course, instead spread it carefully with shovels and rakes to achieve a uniform layer with a level surface.

Any bedding course material contaminated with sediment must be removed and replaced with clean material. For permeable pavers, install edge restraints where the pavers should terminate.

STEP 10
Material installation: Surface material

Manufacturer and national standards should be consulted in the installation of pervious pavement surface materials.

American Concrete Institute specifications should be reviewed for *pervious concrete*. In general, the steps are as follows:

1. Lightly water the washed stone base with a garden hose.

2. Pour the pervious concrete mix 4 inches thick using wooden forms to contain the material.
3. Use a vibratory screed to smooth the top surface of the concrete in a uniform layer.
4. A roller screed may be necessary for compaction and for a uniform surface.
5. Cut in control joints with roughly 20 feet spacing using a concrete groover.
6. Cover the concrete with a plastic tarp for one week and do not allow any traffic over the surface.

National Asphalt Pavement Association standards should be reviewed for *porous asphalt*. In general, the steps are as follows:

1. Ensure asphalt is heated to manufacturers' specified temperature prior to pour.
2. Pour and spread the porous asphalt for a 4-inch thick surface.
3. Compact the asphalt using a roller.

Interlocking Concrete Pavement Institute specifications should be reviewed for *permeable pavers*. In general, the steps are as follows:

1. Carefully wet the bedding course with a garden hose ensuring the layer surface remains even and level.
2. Place pavers by hand or with mechanical equipment. Cut pavers at edges to fit if necessary.
3. Fill the paver joints with washed CA 20 or ASTM #8 aggregate or per manufacturers specifications. Use a broom to sweep the material into the voids.
4. Run a plate compactor over the paver surface to set the pavers.
5. Sweep off any remaining aggregate material.
6. Inspect entire surface for uniformity. Should dips be present, take up stones, lightly fill with aggregate, replace paver and joint aggregate, and re-compact.

STEP 11
Cleanup

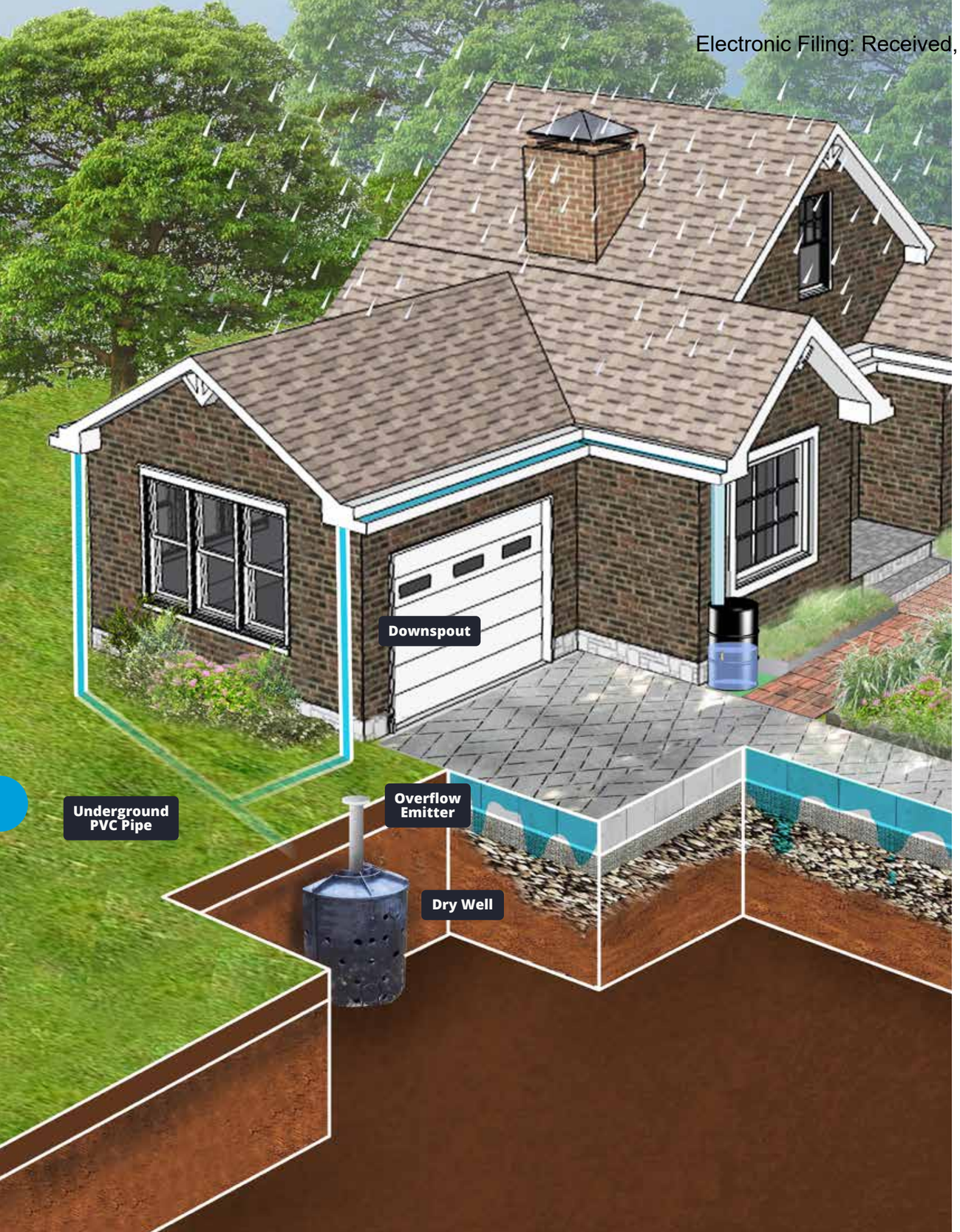
Remove and discard all of the excavated and excess material. Re-seed or re-sod turf areas that may have been damaged by construction equipment or materials.

STEP 12
Maintenance

Permeable pavement requires minimal maintenance if installed properly. For pervious concrete and porous asphalt, vacuum sweeping may be necessary if water puddles are observed following a rainstorm, indicating that infiltration has slowed down.

Never blow or sweep grass clippings or soil over pervious concrete or porous asphalt as they may clog the pores. For permeable pavers, should infiltration decrease, remove pavers in clogged areas, remove sediment or debris and replace paver and joint material.

Weed suppression may also be necessary within permeable paver joints. Hand removal of weeds is preferred over spraying with herbicide.



CHAPTER 5

Dry Wells

A dry well is a buried container with small holes or openings on the sides and bottom. It can be installed on a low spot on your property. It collects the stormwater, provides for some underground storage and allows stormwater to slowly absorb into the soil. It can also receive water directed to it from a bioswale or a pipe connected from your downspouts. Dry wells are often used where limited space is available and where water must not pond on the surface. Hiring a professional for design and installation is recommended.

INSTALLATION INSTRUCTIONS

TOOLS & MATERIALS

- ☐ Long-handled shovel
- ☐ Tarp
- ☐ Landscape fabric
- ☐ 4-inch diameter schedule 40 PVC pipe*
- ☐ PVC elbow*
- ☐ Downspout adapter*
- ☐ PVC cement*
- ☐ Dry well with cap
- ☐ Pop up drainage emitter
- ☐ Spray paint
- ☐ Clean, crushed 0.75 inch stone
- ☐ Wheelbarrow
- ☐ Level
- ☐ Measuring tape
- ☐ Hammer
- ☐ Reciprocating saw or drill with non-arbored hole saw

* Not needed if not hooking up to a downspout

STEP 1
Pick the location and test the soil

A dry well should be located at least 10 feet from your home's foundation and 3 feet from any property line. Test for the infiltration rate of the soil by digging an 18-inch deep hole and filling it with water.

The soil is appropriate for dry well installation if the water disappears within 48 hours. If the soil is dry and water disappears rapidly, fill the hole with water 3 times in succession and use the third fill as the test.

STEP 2
Dig the hole and trench

Using the spray paint, paint a line coming from your downspout to the location of the dry well and around the dry well at least 4 feet in diameter. With a long-handled shovel, dig a hole for the dry well 4 feet deep and 4 feet in diameter. Then, dig a trench 1 foot deep and 6 inches wide that slopes gradually toward the hole. Shovel the soil from digging onto a tarp for easier cleanup. Save the sod to patch over the hole.

STEP 3
Line the hole

Line the hole with landscape fabric cut from a 6-foot wide roll. The fabric prevents soil from clogging the stones around the dry well. Leave enough fabric outside the hole so you can cover the stones once the dry well is installed.

STEP 4
Set up the pipe

Measure the length of pipe needed to reach from the end of the downspout, if connecting a downspout, to about 14 to 16 inches into the dry well hole. Remove the existing elbow from the bottom of your downspout. Then dry-fit the PVC elbow and downspout adaptor to the 4-inch diameter pipe. Once you have a good fit, glue the pieces together with PVC cement.

STEP 5
Check the pitch

The pipe in the trench should slope toward the dry well 0.25-inch per foot of run. A 2-foot level will show a 0.5-inch gap under one end when held level. Adjust the pitch of the pipe by adding or removing soil underneath the pipe.

STEP 6
Attach the downspout

Attach the adaptor to the downspout using stainless steel sheet metal screws and backfill around the pipe with dirt. Trim the opposite end of the pipe if it's too long.

STEP 7
Install the dry well

Assemble the dry well and use the hammer to knock out all the 1.5-inch diameter drainage holes and one of the 4.5-inch ports. Shovel a 6-inch layer of crushed stone into the hole. Set the dry well on top of the stone. Slide the 4.5-inch port over the PVC pipe. Center the dry well and fill with stone around the well until you reach its top edge.

STEP 8
Fit the Overflow Emitter

Using the reciprocating saw or drill with 4-inch non-arbored hole saw, cut a 4-inch hole in the dry well's lid. Put the lid on the well. Take a length of 4-inch pipe and glue the overflow emitter to one end. This will allow excess stormwater to escape out of the dry well. Trim the other end of the pipe so the top of the emitter is at ground level when the pipe is glued to the dry well lid. Cover the dry well with landscape fabric and place soil and sod back on top of the fabric.

STEP 9
Maintenance

If dry wells are installed properly within sites appropriate for their use, they require minimal maintenance throughout their lifespan. Clogging within the system is one of the most common causes of failure.

Continual preventative maintenance will help to ensure that the dry well operates at peak performance. Gutters connected to the dry well should be cleaned regularly or gutter guards should be installed to prevent debris and sediment from entering the system.

GLOSSARY

Aggregate: Coarse to medium grained material used in construction, including sand, gravel, crushed stone, slag and recycled concrete. "Open-graded" describes an aggregate mixture that is designed to be water permeable.

Concrete Groover: A tool, usually made of bronze or stainless steel plate, that has a V-shaped bit underneath that cuts the groove.

Cistern: A tank for storing water, usually underground.

Depression: A sunken or hollow place in the soil.

Excavate: To extract material from the ground by digging.

Inundation: Flooding.

Outbuilding: A building, such as a shed, barn, or garage, on the same property but separate from a more important one, such as a house.

Pervious Concrete: A special type of porous concrete used for concrete flat work applications that allows water to pass directly through, thereby reducing runoff.

Plugs: Seedlings which have been germinated and grown in trays of small cells, to be transplanted into larger pots or outside in the ground.

Pollinators: Animals that cause plants to make fruit or seeds by moving pollen, which fertilizes plants and allows them to reproduce. Pollinators that can be found in Illinois include hummingbirds, butterflies, moths, bees, flies and beetles.

Porous: Having small spaces or holes through which liquid or air may pass.

Reciprocating Saw: A type of machine-powered saw in which the cutting action is achieved through a push-and-pull motion of the blade.

Roller Screed: A large roller that will flatten and smooth poured concrete or angled slabs.

Rototiller: A machine that uses rotary motion of disks or teeth to turn up the ground and cultivate the land.

Sediment: Matter, such as soil, that is carried by water or wind and settled on the surface of land or the bottom of a body of water.

Septic Field: Area where wastewater is discharged from a septic tank for further treatment and dispersal in the soil via underground piping.

Silt Fence: A temporary sediment control device used on construction sites to protect water quality in nearby streams, rivers and lakes from sediment and stormwater runoff. Also known as a "filter fence."

Stormwater Best Management Practice (BMP)/Green Infrastructure: Technique, measure or structural control that is used for a given set of conditions to manage the quantity and improve the quality of stormwater runoff in the most cost-effective manner.

Sump Box: A container installed in the ground that receives stormwater via piping or a grated cover; also known as a catch basin.

Trowel: A small handheld tool with a curved scoop for lifting plants or earth.

Vibratory Plate Compactor: An engine-powered, walk-behind machine that compacts loose materials and asphalt via a bottom-mounted steel plate.

Vibratory Screed: A tool used to help smooth out and compact poured concrete.

Water Table: Underground level at which the soil is completely saturated with water.

INTERNET RESOURCES

In addition to this guide, many supplementary resources are available on the MWRD's and other websites that may be helpful as you plan and design stormwater management improvements for your property.

MWRD INITIATIVES AND PUBLICATIONS

Stormwater Management Homepage: mwrd.org/stormwater-management

Rain Barrel Program: mwrd.org/rain-barrels

Free Trees: mwrd.org/restore-canopy

Free Compost: mwrd.org/eq-compost

Resources and Videos for Residents and Business: mwrd.org/residents-and-businesses

Green Infrastructure Partnership Opportunity Program for public agencies: mwrd.org/green-infrastructure

Unwanted Medicine Disposal: mwrd.org/medication-disposal

Understanding Your Sewer: mwrd.org/understanding-your-sewer-0

RESOURCES BY OTHERS

What are BMPs? www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#edu

Regional Pollinators: www.dnr.illinois.gov/education/Pages/PollinatorMain.aspx

Pollinator Protection: www.epa.gov/pollinator-protection/what-you-can-do-protect-honey-bees-and-other-pollinators

Mosquito Control: www.epa.gov/mosquitocontrol

Your Septic System: www.epa.gov/septic/how-your-septic-system-works

Groundwater: www.epa.gov/sites/production/files/documents/groundwater.pdf

Illinois EPA Homepage: www2.illinois.gov/epa

ADDITIONAL TOPICS

City of Chicago Green Permit Incentives and Checklists: www.chicago.gov/city/en/depts/bldgs/provdrs/permits/svcs/green-permits.html

Green Roofs and the Heat Island Effect: www.epa.gov/heat-islands/using-green-roofs-reduce-heat-islands#types

Green Roofs: greenroofs.org/about-green-roofs

Green Walls: greenroofs.org/about-green-walls

IMAGE CREDITS

6 NJE Tree and Landscaping Service LLC, courtesy of the Chesapeake Stormwater Network

8 Milwaukee Metropolitan Sewerage District

9 Milwaukee Metropolitan Sewerage District

12 Step 2: ®Rain Water Solutions, all rights reserved

13 Step 5 middle: Construction Pro Tips, Copyright © 2019, reprinted with permission of Trusted Media Brands, Inc.

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14 Step 7: ®Rain Water Solutions, all rights reserved

18 Step 1: United States Army

Step 2: Today's Homeowner

19 Step 4: Water Smart Gardening by Diana Maranhao - published by Cool Springs Press, a division of Quarto Publishing Group

20 Water Smart Gardening by Diana Maranhao - published by Cool Springs Press, a division of Quarto Publishing Group

22 Wild Ginger left and middle: Missouri Botanical Garden PlantFinder

Wild Ginger right: brewbooks from near Seattle, USA (commons.wikimedia.org/wiki/File:Asarum_caudatum_(wild_ginger)_-_Flickr_-_brewbooks.jpg), „Asarum caudatum (wild ginger) - Flickr - brewbooks", creativecommons.org/licenses/by-sa/2.0/legalcode

Golden Star left: Jean Everett

Golden Star middle: North Creek Nurseries

Golden Star right: Andy king50 (commons.wikimedia.org/wiki/File:Chrysogonum_virginianum_1.JPG), „Chrysogonum virginianum 1", creativecommons.org/licenses/by-sa/3.0/legalcode

Ice Dance Sedge left: Wilson Nurseries, Inc.

Ice Dance Sedge middle and right: Hoffman Nursery, Inc.

Blue Sedge left: North Creek Nurseries

Blue Sedge middle: North Creek Nurseries

Blue Sedge right: NetPS Plant Finder Tool (www.netpsplantfinder.com)

Purple Rocket left: Peter M. Dziuk, Minnesota Wildflowers (www.minnesotawildflowers.info/)

Purple Rocket middle: Missouri Botanical Garden PlantFinder

Purple Rocket right: Peter M. Dziuk, Minnesota Wildflowers (www.minnesotawildflowers.info/)

White Turtlehead left: H. Zell (commons.wikimedia.org/wiki/File:Chelone_glabra_0001.JPG), „Chelone glabra 0001", creativecommons.org/licenses/by-sa/3.0/legalcode

White Turtlehead middle: Missouri Botanical Garden PlantFinder

White Turtlehead right: North Creek Nurseries

Royal Fern left and middle: Missouri Botanical Garden PlantFinder

Royal Fern right: Stephanie Brundage, Lady Bird Johnson Wildflower Center

Solomon's Seal left: Sally and Andy Wasowski, Lady Bird Johnson Wildflower Center

Solomon's Seal middle: © Prairie Nursery, inc.

Solomon's Seal right: Missouri Botanical Garden PlantFinder

Invincibelle Spirit Hydrangea left: peganum from Small Dole, England (commons.wikimedia.org/wiki/File:Hydrangea_arborescens_radiata_(21390940225).jpg), „Hydrangea arborescens radiata (21390940225)", creativecommons.org/licenses/by-sa/2.0/legalcode

Invincibelle Spirit Hydrangea middle: Proven Winners® ColorChoice®

Invincibelle Spirit Hydrangea right: Missouri Botanical Garden PlantFinder

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Blue Ice middle: Walters Gardens, Inc

Eastern Beebalm left: Krischan Photography. All Rights Reserved.

Eastern Beebalm middle: Missouri Botanical Garden PlantFinder

Eastern Beebalm right: United States Environmental Protection Agency

Snowcap Spiderwort left: Rasbak (commons.wikimedia.org/wiki/File:Eendagsbloem_planten_(Tradescantia_virginiana).jpg),

Snowcap Spiderwort middle and right: Walters Gardens, Inc.

Blazing Star 'Kobold' left: James L. Reveal, Lady Bird Johnson Wildflower Center

Blazing Star 'Kobold' middle: Walters Gardens, Inc

Blazing Star 'Kobold' right: Julie Makin, Lady Bird Johnson Wildflower Center

Golden Alexander left: Thomas L. Muller, Lady Bird Johnson Wildflower Center

Golden Alexander middle: John Hixson, Lady Bird Johnson Wildflower Center

Blue Flag Iris left: Jennifer Anderson, hosted by the USDA-NRCS PLANTS Database

Blue Flag Iris middle: Sally and Andy Wasowski, Lady Bird Johnson Wildflower Center

Blue Flag Iris right: Ryan Hodnett (commons.wikimedia.org/wiki/File:Northern_Blue_Flag_(Iris_versicolor)_-_Algonquin_Provincial_Park,_Ontario.jpg), creativecommons.org/licenses/by-sa/4.0/legalcode

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Yellow Wild Indigo middle: Walters Gardens, Inc.

Yellow Wild Indigo right: Jeff McMillian, hosted by the USDA-NRCS PLANTS Database

Cheyenne Sky Switch Grass left: NetPS Finder Tool (www.netpsplantfinder.com)

Cheyenne Sky Switch Grass middle: Julie Makin, Lady Bird Johnson Wildflower Center

Cheyenne Sky Switch Grass right: Jan Riggenbach, Midwest Gardening

Common Ironweed left: Missouri Botanical Garden PlantFinder

Common Ironweed middle: Walters Gardens, Inc

Joe Pye Weed left: Photo by and (c)2008 Derek Ramsey

Joe Pye Weed middle: A. Barra (commons.wikimedia.org/wiki/File:Eupatorium_purpureum.jpg), creativecommons.org/licenses/by-sa/4.0/legalcode

Joe Pye Weed right: David J. Stang (plants.ces.ncsu.edu/plants/eutrochium-dubium/), „ Eutrochium dubium 'Little Joe' spent flowers.", creativecommons.org/licenses/by/2.0/legalcode

24 Tree of heaven: Paul Wray, Iowa State University, Bugwood.org

Mimosa: Charles T. Bryson, USDA Agricultural Research Service, Bugwood.org

Autumn Olive: Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Japanese Barberry: Britt Slattery, US Fish and Wildlife Service, Bugwood.org

Honeysuckle: Chuck Bargeron, University of Georgia, Bugwood.org

Callery Pear: Chuck Bargeron, University of Georgia, Bugwood.com

European Buckthorn: John M. Randall, The Nature Conservancy, Bugwood.com

Black Locust: Paul Wray, Iowa State University, Bugwood.org

Multiflora Rose: Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Burning Bush: Barry Rice, sarracenia.com, Bugwood.org

Garlic Mustard: David Cappaert, Bugwood.org

Canada Thistle: Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Common Teasel: Steve Dewey, Utah State University, Bugwood.org

Japanese Knotweed: David J. Moorhead, University of Georgia, Bugwood.org

Crownvetch: Dan Tenaglia, Missouriplans.com, Bugwood.org

Phragmites: Theodore Webster, USDA Agricultural Research Service, Bugwood.org

Johnsongrass: Chris Evans, University of Illinois, Bugwood.org

Japanese Hop: Chris Evans, University of Illinois, Bugwood.org

Kudzu: Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Winter Creeper: James H. Miller, USDA Forest Service, Bugwood.org

28 Step 1: United States Fish & Wildlife Service

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Step 2 bottom: United States Environmental Protection Agency

Step 3: Hobbit (http://techno-fandom.org/~hobbit/)

29 Hobbit (http://techno-fandom.org/~hobbit/)

30 Step 9 and 10: Hobbit (http://techno-fandom.org/~hobbit/)

31 Step 11: BMF Masonry

Step 12: Hobbit (http://techno-fandom.org/~hobbit/)

34 Misadventures in Remodeling (misadventuresinremodeling.wordpress.com)

Metropolitan Water Reclamation District of Greater Chicago

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mwrd.org

Established in 1889, the MWRD is an award-winning, special purpose government agency responsible for wastewater treatment and stormwater management in Cook County, Illinois.