

MINNESOTA PLUMBING BOARD
ORDER GRANTING VARIANCE

Xcel Energy (“Xcel”) submitted a Petition for Variance dated January 8, 2025 (the “Petition” Attachments D and E), to the Minnesota Plumbing Board (the “Board”). The Petition requested a permanent variance from the 2018 edition of the Uniform Plumbing Code, specifically section 310.5, incorporated by reference and made part of the Minnesota Plumbing Code by Minnesota Rule 4714.0050, for the purpose of installing and implementing a storm water filtration system with piping that is surcharged and considered an obstruction at the proposed Xcel Energy St. Paul Service Center. The Board considered the Petition for Variance at the January 21, 2025, Board meeting.

At the January 21, 2025, Board meeting, the Board approved the Petition for a permanent variance within the scope of the information submitted as Attachments D and E. In approving the Petition, the Board determined that application of the rule identified above to Xcel would result in hardship or injustice; variance from the rule identified above would be consistent with the public interest; and variance from the rule identified above would not prejudice the substantial legal or economic rights of any person or entity. The Board has the authority to grant this variance under Minn. Stat. § 14.055, subd. 4 (2024). The Board further authorized the undersigned to issue the required Order under Minn. Stat. § 14.056, subd. 5.

ACCORDINGLY, IT IS HEREBY ORDERED that Xcel is granted a permanent variance from the 2018 edition of the Uniform Plumbing Code, specifically section 310.5, incorporated by reference and made part of the Minnesota Plumbing Code by Minnesota Rule 4714.0050, for the purpose of installing and implementing a storm water filtration system with piping that is surcharged and considered an obstruction at the proposed Xcel Energy St. Paul Service Center as described in Attachments D and E.

Dated: January 21, 2025



Richard Becker, Chair, Plumbing Board

January 8, 2025

Submitted via Email: lyndy.logan@state.mn.us

Ms. Lyndy Logan
Minnesota Department of Labor and Industry.
443 Lafayette Road North
St. Paul, Minnesota 55155

Attachment D

Re: Request for Minnesota Plumbing Code Variance
Xcel Energy St. Paul Service Center
TKDA Project No. 0014963.067

Dear Ms. Logan:

TKDA, on behalf of Xcel Energy, is requesting a variance to the Minnesota Plumbing Code for the proposed St. Paul Service Center. This letter is a petition for a variance and contains the information below as required by 2024 Minnesota Statutes 14.056.

- Mr. Leigh Stoakes, Xcel Energy Senior Project Engineer, is the owner requesting the variance. Mr. Stoakes' address is:

Leigh Stoakes
414 Nicollet Mall, Mezzanine
Minneapolis, MN 55401

- TKDA, on behalf of, Xcel Energy is requesting a variance to the 2020 Minnesota Plumbing Code, Section 310.5, Obstruction of Flow. In the case of the site stormwater, the code applies to stormwater surcharging storm sewer pipe. The original design of the storm sewer pipe and stormwater filtration chamber system for this project met the code. No water surcharged any storm pipes for the water quality event (2-inch rainfall). However, during construction of the stormwater chambers the contractor encountered an unforeseen and unexpected condition. The groundwater level is at an elevation higher than expected. The ground water elevation is 3.5 feet above the bottom of the chamber system. It is not feasible to construction the filtration chamber system below the groundwater level. Therefore, the chamber system needs to be revised by raising it above the groundwater level, a vertical distance of 3.75 feet. This revision will result in temporary surcharging pipe upstream of the chamber system to structure CB 166 (reference attached Pipe Surge Exhibit) during the water quality event (2-inch rainfall).
- This variance is justified because the surcharged pipe is temporary. The stormwater filtration chamber system will draw down in 48 hours, through filtration, and drain the water in the surcharged pipe. The surcharging is limited to approximately 415 feet of pipes directly upstream of the chamber system. No water will surcharge any pipes at the proposed building in any rain event up to and including the 100-year event. The surcharging is a temporary condition. However, the request for a variance is permanent.
- Xcel Energy has no knowledge of previously requesting a variance from the Department of Labor and Industry (DLI).
- Per discussions with Mike Westemeir at the DLI, he is not aware of any previously approved variances for similar cases.
- No other persons or facilities will be adversely affected if this variance is approved.

Sincerely,



Brent D. Paulsen, PE
Civil Group Manager, Facilities Division
TKDA

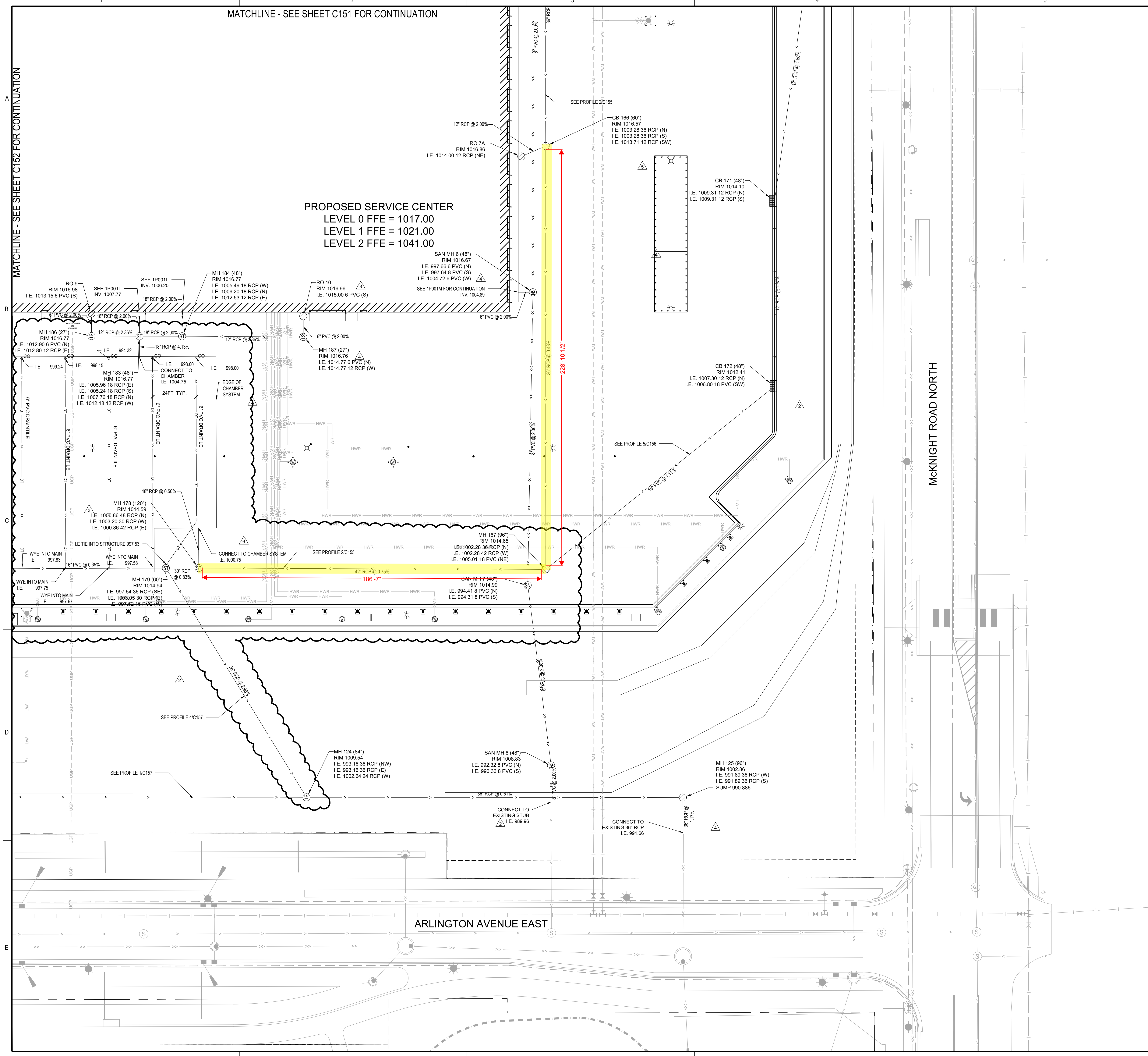


Leigh W. Stoakes, PE
Senior Project Engineer
Xcel Energy

Attachments: Pipe Surcharge Exhibit

c: Craig Coil – TKDA
Andy Koshire – TKDA

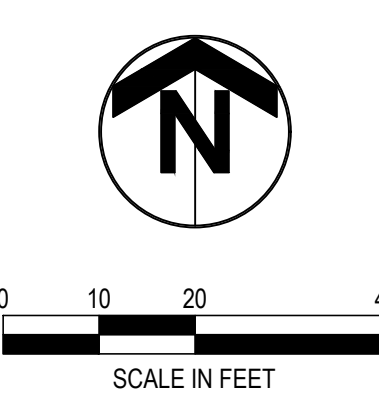
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LEGEND

EXISTING		PROPOSED	
APPROXIMATE CONSTRUCTION LIMITS	---	APPROXIMATE CONSTRUCTION LIMITS	---
RIGHT OF WAY	---	RIGHT OF WAY	---
PROPERTY LINE	---	PROPERTY LINE	---
EASEMENT	---	EASEMENT	---
UNDERGROUND ELEC			
FUEL	---	FUEL	---
GEOTHERMAL WATER	---	GEOTHERMAL WATER	---
NATURAL GAS	---	NATURAL GAS	---
SANITARY SEWER	---	SANITARY SEWER	---
STORM SEWER	---	STORM SEWER	---
CITY WATER	---	CITY WATER	---
FES	---	FES	---
SEE DETAIL 1/C503	---	SEE DETAIL 1/C503	---
CLEANOUT	---	CLEANOUT	---
HYDRANT	---	HYDRANT	---
LIGHTPOLE	---	LIGHTPOLE	---
METER	---	METER	---
MONITORING WELL	---	MONITORING WELL	---
PEDESTAL	---	PEDESTAL	---
VALVE	---	VALVE	---
SEE DETAIL 1A2/C504	---	SEE DETAIL 1A2/C504	---
WELL	---	WELL	---
SEE STRUCTURE SCHEDULE C503	---	SEE STRUCTURE SCHEDULE C503	---
POWER POLE	---	POWER POLE	---
CATCH BASIN	---	CATCH BASIN	---
SEE STRUCTURE SCHEDULE C503	---	SEE STRUCTURE SCHEDULE C503	---

- UTILITY NOTES:**
- UTILITIES SHOWN ON PLAN ARE DEPICTED TO ASCE 38-02 QUALITY LEVEL D.
 - THERE IS NO GUARANTEE THAT ALL UNDERGROUND UTILITIES IN SERVICE OR ABANDONED ARE SHOWN.
 - THE CONTRACTOR SHALL VERIFY THE LOCATION OF PUBLIC UNDERGROUND UTILITIES THROUGH GOPHER STATE ONE CALL PRIOR TO COMMENCING DEMOLITION OR CONSTRUCTION ACTIVITIES.
 - THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL PRIVATE UTILITY LOCATES. CONTRACTOR SHALL HIRE A PRIVATE LOCATOR TO ASSIST WITH LOCATES. COST FOR LOCATES & REPAIR OF ANY DAMAGED UTILITIES SHALL BE INCURRED BY THE CONTRACTOR.
 - ALL EXISTING UTILITIES SHALL REMAIN IN SERVICE THROUGHOUT CONSTRUCTION, AND BE PROTECTED FROM CONSTRUCTION ACTIVITY. CONTRACTOR MUST ADEQUATELY SUPPORT THE UTILITIES DURING EXCAVATION.
 - ALL EXISTING AND PROPOSED SURFACE UTILITY FEATURES INCLUDING, BUT NOT LIMITED TO MANHOLE CASTINGS, HYDRANTS, PVS, LIGHTPOLES, HANDHOLES, CLEANOUTS AND VALVE BOXES SHALL BE PROTECTED AND ADJUSTED TO PROPOSED FINISH GRADE.
 - DURING THE COURSE OF THE UTILITY INSTALLATION THE CONTRACTOR SHALL COORDINATE THE AS-BUILT SURVEY OF ALL PROPOSED UTILITIES AND ALL EXISTING UTILITIES EXPOSED DURING EXCAVATION. THE AS-BUILT SURVEY WILL BE COMPLETED BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR ALL COMMUNICATION AND COORDINATION WITH THE OWNER TO ENSURE THAT THE AS-BUILT SURVEY IS COMPLETED. THE CONTRACTOR SHALL INCLUDE THE AS-BUILT SURVEY TASK AS A REGULAR AGENDA ITEM DURING THE WEEKLY CONSTRUCTION MEETINGS. ITEMS TO BE RECORDED IN THE AS-BUILT SURVEY INCLUDE, BUT ARE NOT LIMITED TO, HORIZONTAL OR VERTICAL CHANGES IN PIPE ALIGNMENT, FLANGED CONNECTIONS, REDUCERS, DISSIMILAR MATERIAL CONNECTIONS, VALVES, PVS, STORMWATER CHAMBER SYSTEMS, AND ALL EXISTING UTILITIES EXPOSED DURING EXCAVATION.
 - PVC STORM PIPE SHALL BE SCH. 40. WHERE STORM SEWER CROSSES OVER WATER PIPE SHALL BE PVC AND THE PIPE SHALL BE CENTERED OVER THE WATERMAIN.
 - SANITARY SEWER PIPE SHALL BE SCH. 40 PVC.
 - PLUMBING CONTRACTOR TO OBTAIN REMOVAL PERMITS FROM PUBLIC WORKS TO CUT OFF EXISTING SEWER CONNECTIONS SERVICES TO THE PROPERTY. CALL ST PAUL PUBLIC WORKS PERMIT DESK (651-266-6234) FOR INFORMATION ON OBTAINING THIS PERMIT.
 - LICENSE HOUSE DRAIN CONTRACTOR TO OBTAIN (SEWER CONNECTION PERMIT) TO CONSTRUCT NEW SANITARY AND STORM CONNECTION IN STREET FROM MAIN TO THE PROPERTY. CALL ST PAUL PUBLIC WORKS PERMIT DESK (651-266-6234) FOR INFORMATION ON OBTAINING THIS PERMIT.
 - ALL STORM WATER PIPING SYSTEMS LOCATED BETWEEN THE BUILDING AND THE STORM WATER INFILTRATION SYSTEM SHALL BE INSPECTED AND TESTED PRIOR TO BACKFILLING. CONTACT THE DEPARTMENT OF SAFETY AND INSPECTIONS AT 651-266-9006 TO SCHEDULE AN INSPECTION WITH THE AREA PLUMBING INSPECTOR.
 - STORM WATER RETENTION/INFILTRATION SYSTEMS: PRESSURE TESTING OF UNDERGROUND FACILITIES WITHIN 10 FEET OF THE BUILDING TO ENSURE PROPER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE FOLLOWING: MPC 4714.1107.2.1 WATER TEST, MPC 4714.1107.2.2 AIR TEST, MPC 4714.1107.2.3 HYDROSTATIC TEST METHOD FROM THE CITY ENGINEERS ASSOCIATION OF MINNESOTA, MPC 4714.712.4 CONCRETE MANHOLES AND SEWER LINES SHALL BE TESTED BY NEGATIVE PRESSURE TEST IN ACCORDANCE WITH ASTM STANDARDS C124-19 AND C1244-17 OR THE HYDROSTATIC TEST METHOD IN SECTION 1107.2.3(B).



OWNER

Xcel Energy

CORPORATE HQ 414 MCCOY HALL, MPLS, MN
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CONSULTANT NAME/LOGO:
TKDA

CONSULTANT PROJECT NO. 100035539107

STAMP:

DESIGNER CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS
PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM
A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF
THE STATE OF MINNESOTA.

SIGNATURE: **AMANDA M. KIEFFER**
PRINTED NAME: **AMANDA M. KIEFFER**
LICENSE NO. **56216** DATE: **11.22.2024**

SAINT PAUL SERVICE CENTER
SERVICE CENTER
1470 HOWARD STREET NORTH & 2255 ARLINGTON AVENUE E
SAINT PAUL, MN

KEY PLAN

XCEL ENERGY PROJECT #
100035539107

DATE
07.10.2024

SITE PLAN REVIEW/PERMIT

ISSUE DATE
07.10.2024

REV	DATE	DESCRIPTION
0	07.10.2024	SITE PLAN REVIEW/PERMIT
1	07.26.2024	WATERSEED COMMENT RESPONSE
2	08.06.2024	REV
3	08.19.2024	REV
4	11.06.2024	REV
5	11.22.2024	REV
6	12.03.2024	REV

SHEET TITLE
SURCHARGE EXHIBIT

SHEET NUMBER
C153

Xcel Saint Paul Service Center – Variance Petition

Amanda Kieffer, PE, TKDA Civil Engineer of Record

Leigh Stoakes, Xcel Project Manager

Bruce Baillargeon, McGough Project Manager



Stormwater Filtration System



- Three Stormwater filtration systems on site. Two at grade ponds on the west side of the site, higher elevation. One underground stormwater chamber system.
- Filtration on site due to soil types and fueling on site.
- Fueling is upstream of the Chamber system. System includes a liner.



Variance Petition – Chamber System

- 2020 Minnesota Plumbing Code, Section 310.5, Obstruction of Flow.
- Key Points
 - The original design of the storm sewer pipe and stormwater filtration chamber system for this project met the code for the Water Quality Event (all 3 definitions further described in these slides).
 - During construction of the stormwater chambers the contractor encountered an unforeseen and unexpected condition. The groundwater level is at an elevation higher than expected. The ground water elevation is 3.5 feet above the bottom of the chamber system.
 - Therefore, the chamber system needs to be revised by raising it above the groundwater level, a vertical distance of 3.75 feet.
 - This revision will result in temporary surcharging pipe upstream of the chamber system.



Variance Justification

- The surcharged pipe is temporary. The stormwater filtration chamber system will draw down in 48 hours, through filtration, and drain the water in the surcharged pipe. The surcharging is limited to pipes directly upstream of the chamber system.
- No water will surcharge any pipes at the proposed building in any rain event up to and including the 100-year event.
- The surcharging is a temporary condition. However, the request for a variance is permanent.
- Alternatives for construction were considered with the Geotechnical Engineer to keep the system at its current elevation with the ground water, but it was determined to be infeasible due to:
 - The amount and flow of the ground water.
 - The clay soils and limited pumping options.
 - Soil Instability.
 - Constructability and durability of the system liner within groundwater.
 - Buoyancy concerns during construction.

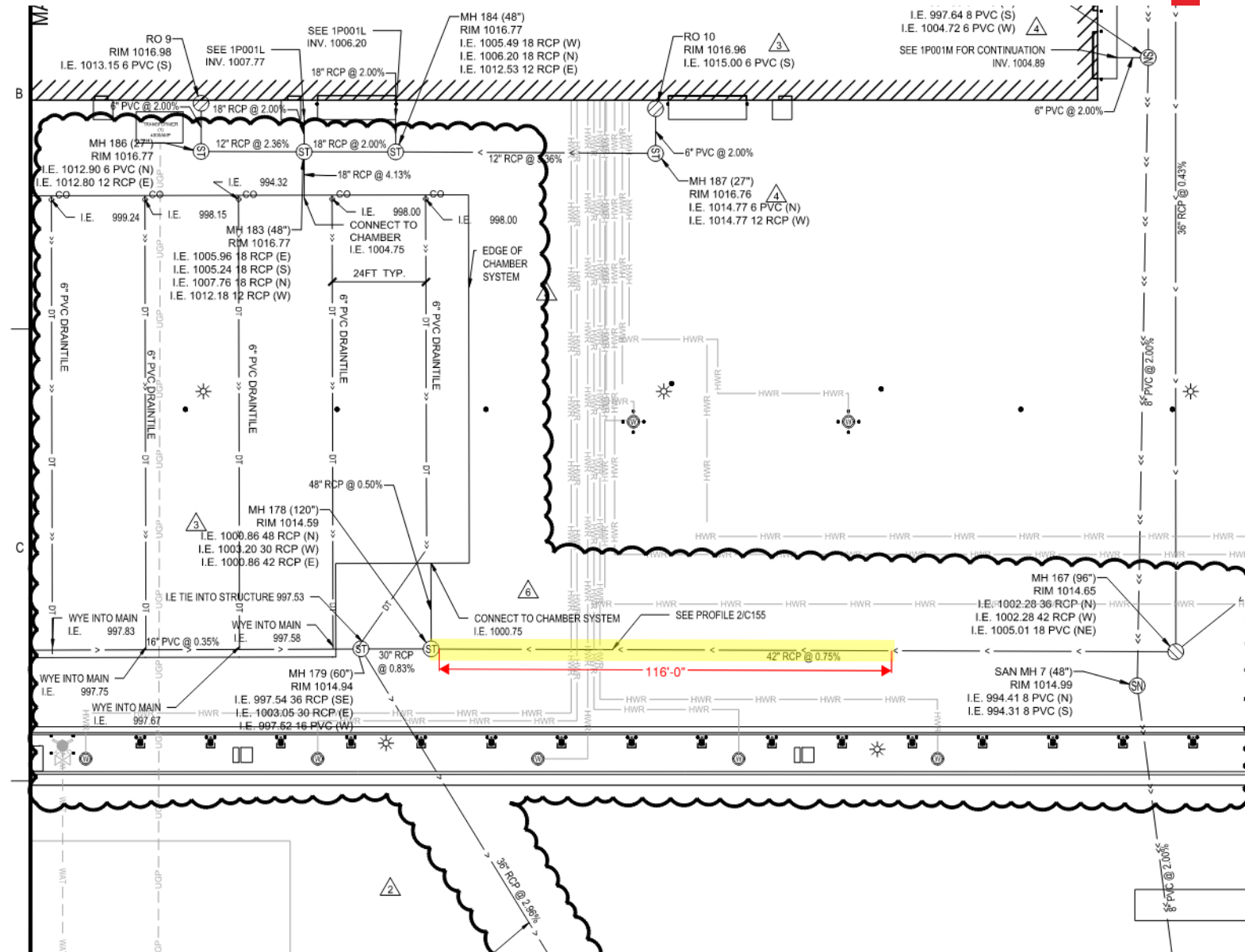
DOLI Final Interpretation – Issued Nov. 6, 2023

- Question: Is a drainage system surcharged by design when an inlet drainage pipe of a stormwater retention pond is designed to be above the MPCA required pond level of 1800 cubic feet per acre of drainage area plus the volume of 1.0 inch of runoff from the net increase in impervious surfaces created by the project?
- Answer: No, a drainage system is not surcharged by design when the inlet pipe enters a stormwater retention pond above the level attained by the water quality volume, which equals the MPCA required pond level of 1800 cubic feet per acre of drainage area plus the volume of 1.0 inch of runoff from the net increase in impervious surfaces.

SURCHARGE BASED ON
VOLUME

MPCA Water Quality Volume

- 43,596.30 CF
- Elevation= 1001.73





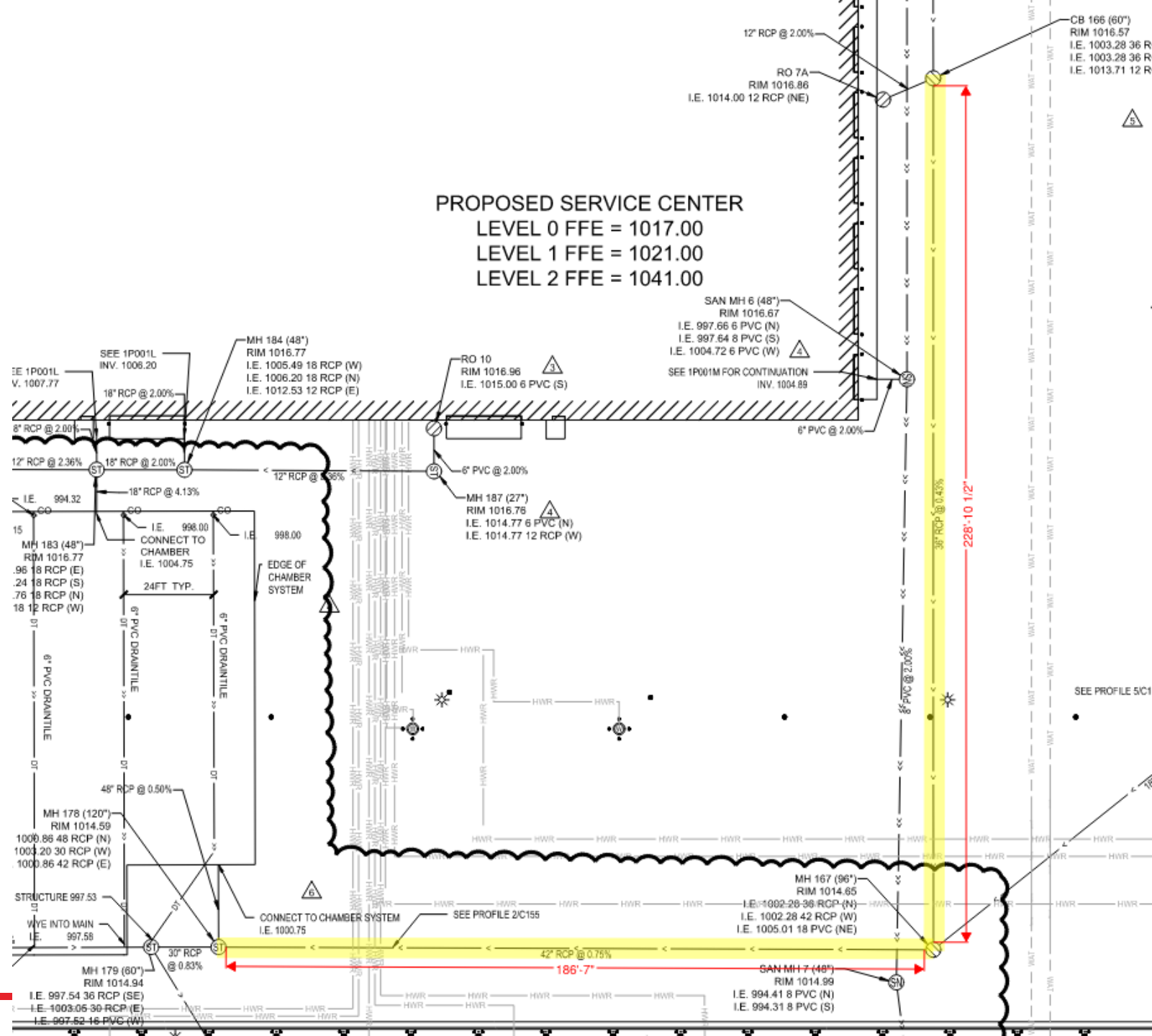
Ramsey Washington and City of Saint Paul Water Quality Volume

- Water Quality Volume = 1.1 inch over the new and re-constructed impervious areas.
 - Filtration is allowed at a 55% Credit.
 - Therefore, the WQV is 2 inches over the new and re-constructed impervious areas.
-

SURCHARGE BASED ON VOLUME

Watershed and City Water Quality Volume

- 89,000 CF
- Elevation= 1003.20





Surcharge Based on Peak Rates

- The system will back up above 1000.86 for rainfall events above 1.06 in rainfall event. MSE 24-hour distribution.
- This assumes that the water will start to filter once it hits the system, which it will.



Conclusion

- Site groundwater constraints will adversely impact the system long term if installed at the current elevation.
- Owner will maintain and clean pipes on a regular basis.
- No adverse affect even at 100-yr event.