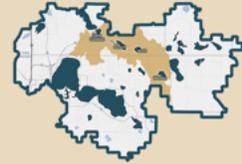




MEMORANDUM

Comfort Lake-Forest Lake Watershed District

Date: March 5, 2026
To: CLFLWD Board of Managers
From: Mike Kinney, District Administrator
Subject: Heath Iron Enhanced Sand Filter Bid Solicitation



Little Comfort Lake
Management District

Background/Discussion:

The CLFLWD Board of Managers ordered the Heath Iron Enhanced Sand Filter Project at the January 23, 2025, regular board meeting. Since that time, Emmons & Olivier Resources (EOR) completed the engineering construction plan set, and the project is ready to be put to bid.

The wetland permitting is complete. The District is in the process of obtaining the grading permit from the City of Wyoming and staff will ensure it has that permit in hand at the time staff return with a recommendation for contract award. All construction activity will be on land now owned by the District or within the city Right-Of-Way (as stipulated in the Project Agreement between the CLFLWD and City of Wyoming).

The deadline for bid submittal is planned to be April 14th. EOR and staff are planning to provide a Recommendation for Award at the May 14th regular board meeting.

Recommended Motion

Proposed Motion: Manager _____ moves to adopt resolution 26-03-02 Approving Plans and Directing Solicitation of Bids for the Heath Iron Enhanced Sand Filter Project. Seconded by Manager _____.

Attached

- Resolution 26-03-02
- Engineer's Memo
- Final Plans Heath IESF

**COMFORT LAKE-FOREST LAKE WATERSHED DISTRICT
BOARD OF MANAGERS**

RESOLUTION 26-03-02

**RESOLUTION APPROVING PLANS and DIRECTING SOLICITATION of BIDS
for the HEATH IRON ENHANCED SAND FILTER PROJECT**

Manager _____ offered the following resolution and moved its adoption, seconded by Manager _____:

WHEREAS the District has adopted a watershed management plan (WMP) in accordance with Minnesota Statutes §103B.231, which, in project 5225C identified the need for best management practices, such as iron enhanced sand filtration, to reduce nutrient loading from the Heath Avenue subwatershed to Little Comfort Lake (hereafter the "Project");

WHEREAS the Project will construct a pumped iron-enhanced sand filter located on District property in the City of Wyoming within the lakeshed of Little Comfort Lake;

WHEREAS a feasibility report prepared by the District engineer, dated January 15, 2025, finds that the Project will reduce phosphorus loading into Little Comfort Lake by about 75-86 pounds per year;

WHEREAS the District applied for and has been awarded a Clean Water Fund grant from the State of Minnesota, in the amount of \$1,499,000, for the Project;

WHEREAS on January 23, 2025, in accordance with Minnesota Statutes §103B.251, the Board, after public notice and hearing, established and ordered the Project;

WHEREAS the District engineer subsequently has prepared final construction plans consistent with the concept design and the grant work plan, which plans have been presented to the Board, and the engineer's refined estimate for construction, in the judgment of the Board, indicates that the Project remains cost effective;

WHEREAS the Project and temporary construction staging will be located on land owned by the District;

WHEREAS the District has obtained or is in the process of obtaining all necessary permits and approvals for the work and has a high level of assurance that it will obtain all permits prior to contract award;

WHEREAS District plans provide for Project construction to commence during Summer 2026 through Spring 2027;

THEREFORE BE IT RESOLVED as follows:

- a. The final plans are approved for bid solicitation, and the engineer shall proceed to solicitation with final plans;
- b. The District administrator shall solicit sealed bids for construction of the Project and present to the Board a recommendation for award of contract.

The question was on the adoption of the above resolution and there were ____ ayes and ____ nays as follows:

Manager	Aye	Nay	Absent	Abstain
Jim Schottmuller				
Dave Bakke				
Doug Toavs				
Stephen Schmaltz				
Jackie Anderson				

The President declared the resolution adopted.

Dated: March 12, 2026

Dave Bakke, Secretary

* * * * *

State of Minnesota

Chisago County, Washington County

I, Dave Bakke, Secretary of the Comfort Lake–Forest Lake Watershed District Board of Managers, do hereby certify that the above resolution is a true and correct transcription of an action of the Board taken on the date above indicated.

IN TESTIMONY WHEREOF, I have hereunto set my hand this ___ day of _____ 2026.

Dave Bakke, Secretary

Project Name	Heath Avenue Iron-Enhanced Stormwater Filter (IESF)	Date	03/03/2026
To / Contact info	CLFLWD Board of Managers Mike Kinney, CLFLWD Administrator		
Cc / Contact info	Blayne Eineicher, CLFLWD Project Coordinator Emily Heinz, CLFLWD Planning Coordinator		
From / Contact info	Greg Graske, District Engineer - EOR Erik Megow, PE - EOR		
Regarding	Request for Authorization to Solicit Bids		

The purpose of this memorandum is to request authorization to solicit bids for construction of the Heath Avenue Iron-Enhanced Sand Filter (IESF) Project.

Background

The District has been actively seeking out and implementing projects to improve water quality in the Comfort Lake watershed. 2018 and 2019 water quality monitoring of the Heath Avenue system confirmed a significant phosphorus load entering Little Comfort Lake, thus indicating that a phosphorus reduction project would greatly improve progress towards achieving the 336 lb/yr reduction needed to meet the growing season average water quality goal of 30 µg TP/L for Little Comfort Lake. On January 23, 2025 EOR presented the feasibility study for this project at which time the Board ordered the project, authorized preparation of design, and directed that the District proceed to acquire the real property on which the project is to be sited.

Final Project Implementation

The proposed iron-enhanced sand filter will provide approximately 75-86 lbs/yr reduction in phosphorus (22-25% of remaining Little Comfort Lake Treatment goal). The treatment will be split between two filters approximately 14,700 sf in surface area (each). Each will receive 400-500 gpm of untreated stormwater during and after rain events, diverted by pumping from the City of Wyoming stormwater conveyance system. Treated stormwater will be returned to the storm sewer system and be discharged near Lake Boulevard where it will flow into Little Comfort Lake via roadside ditch.

Project Cost and Funding

The table below itemizes estimated Heath Ave IESF project costs for implementation. The estimated base construction contract price based on the final plans, recent project bid results and supplier quotes is \$1,333,920.

Item	Description	Contractor	Engineering	District Staff/ Materials	Legal/ Acquisition	Total	Grant Funds	District Funds
1	Project Support and Public Outreach			\$40,000	\$10,000	\$50,000	\$4,941	\$45,059
2	Feasibility Design		\$58,784			\$58,784	\$45,798*	\$12,986*
3	Final Design/ Construction	\$1,333,920	\$105,517			\$1,439,437	\$1,439,437**	
4	Legal/ Land Acquisition				\$115,427	\$115,427	\$0	\$115,427
Subtotal		\$1,333,920	\$164,301	\$40,000	\$125,427	\$1,663,648	\$1,490,176	\$173,472

*Lower St. Croix Watershed Based Implementation Funding Grant. Associated local funds cannot count toward CWF match.

**Clean Water Fund Projects & Practices Grant. If construction bids come in at engineer's estimate or lower, may shift grant funds toward other eligible activities such as staff/legal/outreach. May leave some grant funds on the table if project comes in under budget.

The District received a Lower St. Croix Watershed Based Implementation Funding (WBIF) grant of \$45,798 for the completion of the feasibility study (i.e., the steps leading up to Project Ordering).

The District was awarded a FY25 Clean Water Fund grant from BWSR to implement the Heath Avenue IESF Project. The total grant amount is \$1,499,000 and the required match is \$149,900. The grant request included an early estimate of construction costs at \$1,485,641. The engineer's estimate, without added contingency, is now over \$150,000 less than the early estimate. If construction bids come in at the current engineer's estimate or lower, the District will have excess grant funds which it may allocate to other eligible expenditures, such as staff/legal/outreach, so long as the District provides the 10% non-state match. Some grant funds may be left on the table (i.e., left with BWSR) if the project comes in under budget.

The District is slated to receive a Section 319 Small Watersheds Focus grant in January 2027 of approximately \$300,000 (exact award TBD). Project costs would be eligible to use these funds, but grant expenditures must occur after the grant agreement is executed in order to be eligible. If construction bids are higher than anticipated, the Board may consider ways to support project funding with Section 319 funds.

Project Permitting

The following permits are required for this project and status updates are provided below. All permit applications have been submitted and approved, with a final grading permit, through the City of Wyoming, to be issued by the end of March, before the project is awarded. The City of Wyoming has approved both the 60% and 90% designs and grading approval is expected before the project is awarded. Correspondence with permitting agencies has indicated that there are no anticipated issues with permit to be approved prior to construction occurring.

Entity	Permit Required	Permit Update (02/26/2025)
City of Wyoming	Grading Permit	Submitted, approval pending
City of Wyoming	Site Plan Review	Submitted and Approved
WCA/LGU	Wetland 'No-Loss'	Submitted and Approved

Summary

Implementation of the Heath Avenue IESF Project will improve water quality in the Comfort Lake system. The project is expected to reduce phosphorus loading from a 963-acre watershed before entering Little Comfort Lake by approximately 75-86 lbs/yr. The total contract price of the project is estimated at \$1,333,920. Using an estimated lifespan of 25 years, the life cycle cost benefit is expected to be \$620 – \$711/ TP lb./yr. The project is being funded partially by multiple grants. The total expected cost to the CLFLWD for feasibility, final design and construction is \$173,472, depending on project timing and utilization of Section 319 funds.

It is requested that the Board of Managers authorize the District Administrator and District Engineer to solicit bids for construction of the Heath Avenue IESF Project.

GENERAL SITE WORK NOTES

- VERIFY HORIZONTAL LOCATION AND ELEVATION WHERE A CONNECTION TO EXISTING PAVEMENT, STRUCTURE, PIPE OR OTHER SITE FEATURE IS TO BE MADE. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR VARIATIONS FROM THE PLANS.
- REFERENCE TO MNDOT SPECIFICATIONS SHALL MEAN DIVISIONS II AND III OF THE 2020 SPECIFICATIONS FOR CONSTRUCTION.
- SEE RESTORATION PLAN FOR VEGETATION RESTORATION REQUIREMENTS.
- ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MMUTCD, INCLUDING FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS, JANUARY 2014.
- ALL CONSTRUCTION WORK SHALL BE COMPLETED WITHIN CITY APPROVED WORKING HOURS.
- PROPOSED WORK MUST BE IN COMPLIANCE WITH CITY OF WYOMING, CLFLWD, CHISAGO COUNTY, MNDNR, AND WETLAND PERMITS.
- CONTRACTOR SHALL RESTORE ALL AREAS TO PRE-CONSTRUCTION CONDITIONS.

GENERAL UTILITY NOTES

- CONTRACTOR SHALL CONTACT 'GOPHER STATE ONE CALL' WITHIN TWO WORKING DAYS PRIOR TO EXCAVATION/CONSTRUCTION FOR UTILITY LOCATIONS. TWIN CITIES METRO AREA: 651-454-0002 OR TOLL-FREE: 1-800-252-1166.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITY LOCATIONS AND INVERTS, SHOWN OR NOT SHOWN. ANY DISCREPANCY BETWEEN PLANS AND FIELD CONDITIONS SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
- ALL UTILITY WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CITY OF WYOMING SPECIFICATIONS AND REQUIREMENTS.
- UTILITY TRENCHES SHALL BE COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D698.78 OR AASHTO T-99) FROM THE PIPE ZONE TO WITHIN THREE FEET OF THE GROUND SURFACE AND 100% STANDARD PROCTOR IN THE UPPER THREE FEET. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND CONDUCTING TESTING. COMPACTION IN GREEN SPACE AREAS OF ENTIRE TRENCH SHALL BE AT LEAST 90% STANDARD PROCTOR OR AS DIRECTED BY THE ENGINEER.

SITE DEMOLITION & REMOVAL NOTES

- ALL VEGETATION REMOVAL INCLUDING CATTAILS, SOD, WINDFALL/DEADFALL, AND/OR BRUSH REMOVAL SHALL BE CONSIDERED INCIDENTAL AS SPECIFIED IN THE CONTRACT DOCUMENTS.
- ALL EXCAVATED MATERIAL NOT SPECIFIED FOR REUSE ON SITE SHALL BE REMOVED FROM THE SITE AND BECOME THE PROPERTY OF THE CONTRACTOR. THIS SHALL INCLUDE ALL FOREIGN DEBRIS, TRASH, ETC. ENCOUNTERED ON SITE.
- BEFORE EXCAVATION HAS COMMENCED, CONTRACTOR SHALL PROVIDE ALL LOCATIONS THAT SPOILS MATERIALS WILL BE DEPOSITED TO ENGINEER FOR REVIEW. CONTRACTOR IS RESPONSIBLE TO OBTAIN ALL PERMITS REQUIRED BY LOCAL JURISDICTIONS. ENGINEER AND OWNER HAVE RIGHT TO REJECT NON-LICENSED DEPOSITION LOCATION IF THERE IS CONCERN REGARDING LACK OF EROSION AND SEDIMENT CONTROLS OR ENVIRONMENTAL RISKS.**
- NO TREES ON SITE WILL REQUIRE CLEARING AND GRUBBING, ANY MINOR CLEARING AND GRUBBING SHALL BE CONSIDERED INCIDENTAL.

GRADING & EROSION CONTROL NOTES

- CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES AND TOPOGRAPHIC FEATURES PRIOR TO START OF SITE GRADING. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE PROJECT ENGINEER OF ANY DISCREPANCIES OR VARIATIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL HORIZONTAL AND VERTICAL SURVEY, BEYOND INITIAL BENCHMARKS. ENGINEER SHALL BE RESPONSIBLE FOR INITIAL BENCHMARKS.
- INSTALL PERIMETER EROSION CONTROL MEASURES AND PERFORM TREE CLEAN ROOT CUTTING (IF NECESSARY) BEFORE BEGINNING SITE GRADING ACTIVITIES. SOME EROSION CONTROL MAY BE INSTALLED AS GRADING OCCURS IN THE SPECIFIC AREA. MAINTAIN EROSION CONTROLS THROUGHOUT THE GRADING PROCESS AND REMOVE WHEN APPROVED BY THE ENGINEER.
- CONTRACTOR TO ADHERE TO ALL CITY AND WATERSHED PERMIT REQUIREMENTS, INCLUDING THE REQUIREMENT TO MINIMIZE THE AREA DISTURBED BY GRADING AT ANY GIVEN TIME AND TO COMPLETE RESTORATION WITHIN THE TIME INDICATED BELOW AFTER COMPLETION OF GRADING OF AN AREA.
- ALL EXPOSED SOIL AREAS MUST BE STABILIZED WITHIN 14 DAYS, EXCEPT FOR CONNECTIONS WITHIN 200 FEET OF A WATER OF THE STATE OR ANY STORMWATER CONVEYANCE SYSTEM WHICH IS CONNECTED TO A WATER OF THE STATE WHICH MUST BE STABILIZED WITHIN 24 HOURS.
- ALL CONSTRUCTION ENTRANCES SHALL BE SURFACED WITH CRUSHED ROCK OR APPROVED EQUAL ACROSS FULL WIDTH FROM ENTRANCE POINT TO 50 FEET INTO THE CONSTRUCTION ZONE. SEE DETAIL.
- ALL EROSION CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH CITY OF WYOMING, CLFLWD, CHISAGO COUNTY, MNDNR, AND WETLAND STANDARDS.
- THE CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL MEASURES, INCLUDING THE REMOVAL OF ACCUMULATED SILT IN FRONT OF SILT FENCES OR FILTER LOGS DURING THE DURATION OF THE CONSTRUCTION.
- CONTRACTOR SHALL PROVIDE ADDITIONAL TEMPORARY EROSION CONTROL MEASURES AS REQUIRED FOR CONSTRUCTION. THESE SHALL BE CONSIDERED INCIDENTAL UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.
- ANY EXCESS SEDIMENT IN PROPOSED BASINS SHALL BE REMOVED BY THE CONTRACTOR.
- REMOVE ALL EROSION CONTROL MEASURES AFTER THE WORK HAS BEEN ACCEPTED BY THE ENGINEER.
- THE CONTRACTOR SHALL REMOVE ALL SOILS AND SEDIMENT TRACKED ONTO EXISTING STREETS AND PAVED AREAS WITHIN 24 HOURS OF INCIDENT. INCIDENTAL TO THE CONTRACT.

GRADING & EROSION CONTROL NOTES (CONT)

- IF BLOWING DUST BECOMES A NUISANCE, THE CONTRACTOR SHALL APPLY WATER FROM A TANK TRUCK TO ALL CONSTRUCTION AREAS. INCIDENTAL TO THE CONTRACT.
- SWEEP ADJACENT STREETS IN ACCORDANCE WITH CITY REQUIREMENTS. THIS SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.
- INSPECT EROSION CONTROL DEVICES AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. IMMEDIATELY REPAIR FAILED OR FAILING EROSION CONTROL DEVICES.
- SEDIMENT REMOVAL - SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT, AND WHENEVER 1/2 OF THE BMP CAPACITY OR DEPTH IS REACHED. THIS SHALL BE CONSIDERED INCIDENTAL TO THE INDIVIDUAL EROSION & SEDIMENT CONTROL PRACTICES AND EROSION CONTROL SUPERVISOR LINE ITEMS.
- ANY SEDIMENT REMAINING IN PLACE AFTER THE EROSION CONTROL DEVICE IS NO LONGER REQUIRED SHALL BE GRADED TO CONFORM WITH THE EXISTING GRADE, PREPARED, AND SEEDED WITH THE APPROPRIATE SEED MIX AS DIRECTED BY THE ENGINEER.
- SUITABLE GRADING MATERIAL SHALL CONSIST OF ALL SOIL ENCOUNTERED ON THE SITE WITH EXCEPTION OF TOPSOIL, DEBRIS, ORGANIC MATERIAL AND OTHER UNSTABLE MATERIAL. STOCKPILE TOPSOIL AND GRANULAR FILL AT LOCATIONS DIRECTED BY CONTRACTOR.
- EXISTING GRANULAR MATERIALS AND/OR TOPSOIL BORROW SHALL BE SEGREGATED AND STOCKPILED FOR REUSE ON-SITE.
- CONTRACTOR SHALL STRIP, STOCKPILE AND RE-SPREAD EXISTING ON-SITE TOPSOIL TO PROVIDE A UNIFORM 6" THICKNESS ON ALL DISTURBED AREAS TO BE SEEDED, WHICH DOES NOT INCLUDE THE BASIN SURFACES. THIS QUANTITY IS INCLUDED IN, AND SHALL BE INCIDENTAL TO, COMMON EXCAVATION.
- GRADES SHOWN ARE FINISHED GRADES, CONTRACTOR SHALL ROUGH GRADE TO SUBGRADE ELEVATION BEFORE RESPREADING TOPSOIL.
- COMPLETION OF SITE GRADING OPERATIONS SHALL RESULT IN ALL AREAS BEING GRADED TO 'PLAN GRADE ELEVATION'. EXCAVATION QUANTITIES SHALL BE PAID PER PLAN QUANTITY UNLESS OTHERWISE DISCUSSED AND AGREED TO WITH ENGINEER.
- FINAL TOLERANCES ARE ±0.05 FEET OF UTILITY GRADES AND ±0.10 FEET OF CRITICAL TOPOGRAPHY.
- CONTRACTOR IS RESPONSIBLE FOR GRADING AND SLOPING THE FINISHED GROUND SURFACE TO PROVIDE SMOOTH & UNIFORM SLOPES, WHICH PROVIDE POSITIVE DRAINAGE AWAY FROM STRUCTURES AND PREVENT PONDING IN LOWER AREAS. CONTACT ENGINEER IF FIELD ADJUSTMENTS TO GRADING PLANS ARE REQUIRED.
- SLOPES AT 3:1 OR STEEPER, AND/OR WHERE INDICATED ON THE PLANS SHALL BE SEEDED AND HAVE AN EROSION CONTROL BLANKET INSTALLED WHERE SPECIFIED.
- IF DEWATERING IS REQUIRED, CONTRACTOR SHALL PREPARE DEWATERING PLAN FOR APPROVAL BY ENGINEER AND OBTAIN ALL PERMITS REQUIRED FOR DEWATERING. COSTS FOR THIS SHALL BE INCLUDED WITHIN THE DEWATERING LINE ITEM.

GENERAL LANDSCAPE NOTES

- CONTRACTOR SHALL INSPECT THE SITE AND BECOME FAMILIAR WITH EXISTING CONDITIONS RELATING TO THE NATURE AND SCOPE OF WORK.
- CONTRACTOR SHALL VERIFY PLAN LAYOUT AND BRING TO THE ATTENTION OF THE LANDSCAPE ARCHITECT OR ENGINEER DISCREPANCIES WHICH MAY COMPROMISE THE DESIGN OR INTENT OF THE LAYOUT.
- CONTRACTOR SHALL ASSURE COMPLIANCE WITH APPLICABLE CODES AND REGULATIONS GOVERNING THE WORK AND MATERIALS SUPPLIED.
- CONTRACTOR SHALL PROTECT EXISTING ROADS, TREES, LAWNS AND SITE ELEMENTS OUTSIDE CONSTRUCTION LIMITS DURING CONSTRUCTION OPERATIONS. DAMAGE TO SAME SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER.
- CONTRACTOR SHALL REVIEW THE SITE FOR DEFICIENCIES IN SITE CONDITIONS WHICH MIGHT NEGATIVELY AFFECT PLANT ESTABLISHMENT, SURVIVAL OR WARRANTY. UNDESIRABLE SITE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT OR ENGINEER PRIOR TO BEGINNING OF WORK.
- CONTRACTOR IS RESPONSIBLE FOR ONGOING MAINTENANCE OF NEWLY INSTALLED MATERIALS AND UNTIL ONE YEAR AFTER TIME OF SUBSTANTIAL COMPLETION. REPAIR OF ACTS OF VANDALISM OR DAMAGE WHICH MAY OCCUR PRIOR TO SUBSTANTIAL COMPLETION SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR.
- EXISTING TREES OR SIGNIFICANT SHRUB MASSINGS FOUND ON SITE SHALL BE PROTECTED AND SAVED UNLESS NOTED TO BE REMOVED OR ARE LOCATED IN AN AREA TO BE GRADED. QUESTIONS REGARDING EXISTING PLANT MATERIAL SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT OR ENGINEER PRIOR TO REMOVAL.
- ALL DISTURBED AREAS SPECIFIED TO RECEIVE VEGETATION RESTORATION WILL ONLY BE APPROVED FOR FINAL ACCEPTANCE WHEN 70% VEGETATION DENSITY / COVERAGE OF SPECIFIED SPECIES HAS BEEN SATISFIED.
- CARE SHALL BE GIVEN TO PROTECT ALL TREES, SHRUBS, AND VEGETATION NOT SPECIFIED FOR REMOVAL.

SCHEDULE OF ESTIMATED QUANTITIES NOTES

- SEQ LINE ITEM 5 SHALL INCLUDE ALL REQUIRED TESTING OF IRON-SAND MIXTURE AS SPECIFIED IN CONTRACT DOCUMENT.
- SEQ LINE ITEM 12 REFLECTS ONLY THE MINIMUM REQUIRED COVERAGE OF LINER, IT DOES NOT INCLUDE OVERLAP AND EXCESS.
- SEQ LINE ITEMS 26 AND 27 SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY TO CONSTRUCT AND INSTALL STRUCTURE, INCLUDING, BUT NOT LIMITED TO: GEOTEXTILE FABRIC, GEOGRID, DRAINAGE ROCK, AGGREGATE STABILIZATION, COMPACTION.
- SEQ LINE ITEM SHALL INCLUDE MATERIALS, EQUIPMENT, AND LABOR REQUIRED TO FURNISH AND INSTALL SUBMERSIBLE PUMPS WITHIN THE LIFT STATION MANHOLE AND VALVES AND METERS IN VALVE VAULT TO BE COMPLETE AND FULLY FUNCTIONING AS SHOWN IN THE DRAWINGS. WORK SHALL ALSO INCLUDE WIRING AND CONTROLS ASSOCIATED WITH PUMP.
- SEQ LINE ITEM 28 INCLUDES, BUT IS NOT LIMITED TO: UNIT PRICE INCLUDES MATERIALS, EQUIPMENT, AND LABOR REQUIRED TO FURNISH AND INSTALL CONTROL PANEL, ELECTRICAL PAD, METER SOCKET, CONNECTING FEEDER FROM METER SOCKET TO CONTROL PANEL, AND OTHER APPURTENANCES AS SHOWN ON DRAWINGS E-0.0 - E-3.1. UNIT PRICE ALSO INCLUDES COORDINATING THE ELECTRICAL UTILITY CONNECTION WITH CONNEXUS.
- SEQ LINE ITEM 34 INCLUDES MATERIALS, EQUIPMENT, AND LABOR REQUIRED TO FURNISH AND INSTALL TRANSFORMER, UNDERGROUND PRIMARY SERVICE, AND OTHER APPURTENANCES BY CONNEXUS. CONNEXUS TO FURNISH METER. CONTRACTOR SHALL BE PAID A LUMP SUM PRICE FOR COMPANY ALLOWANCE. ALLOWANCES SHALL BE INCLUDED IN CONTRACTOR'S PERMANENT SERVICE FOR ENERGY SUPPLIER LUMP SUM PRICE LISTED ON THE BID PROPOSAL. CONTRACTORS COST FOR OVERHEAD AND PROFIT SHALL BE EXCLUDED IN THE ALLOWANCE. UPON COMPLETION OF ALLOWANCE WORK, PROVIDE RECEIPTS TO ENGINEER. THE CONTRACT PRICE WILL BE ADJUSTED BY CHANGE ORDER OF THE ACTUAL COST IS MORE THAN OR LESS THAN THE COST SPECIFIED IN THE ALLOWANCE LISTED.
- SEQ LINE ITEM 35 SHALL ONLY INCLUDE FABRIC UNDER RIPRAP AS SPECIFIED IN PLANS. ALL OTHER REQUIRED GEOTEXTILE FABRIC SHALL BE CONSIDERED INCIDENTAL TO THE RELEVANT WORK ITEM.

SCHEDULE OF QUANTITY (SEQ) TABLE

Item No.	Item	MnDOT Reference #	Unit	Estimated	Notes
1	Mobilization	2021.501	LS	1	
2	Clearing and Grubbing	2101.501	LS	1	
3	Remove Storm Sewer Manhole	2104.502	EA	1	
4	Remove HDPE Pipe	2104.503	LF	20	
5	Select Granular Borrow - Premixed Washed Sand and Iron Filings	2106.507	CY	1,777	1
6	Select Granular Borrow - 1" - 1 1/2" Washed Gravel	2105.607	CY	308	
7	Select Granular Borrow - 1/4" Washed Buckshot	2105.607	CY	315	
8	Excavation - Common (Offsite) (EV) (P)	2106.507	CY	5,652	
9	Dewatering	2106.601	EA	1	
10	Geogrid Type 1	2108.504	SY	115	
11	Aggregate Surfacing (CV) Class 5	2118.509	CY	26	
12	Waterproof Liner - 30 mil PVC	2481.618	SF	33,000	2
13	12" CMP Apron	2501.502	EA	4	
14	Trash Guard for 12" Pipe Apron	2501.502	EA	2	
15	12" CMP Culvert	2501.503	LF	35	
16	6" C900 PVC Pipe Sewer	2503.503	LF	50	
17	10" C900 PVC Pipe Sewer	2503.503	LF	20	
18	12" C900 PVC Pipe Sewer	2503.503	LF	203	
19	15" C900 PVC Pipe Sewer	2503.503	LF	78	
20	6" Ductile Iron Pipe Sewer	2503.503	LF	26	
21	8" Slotted Schedule 40 PVC	2502.503	LF	713	
22	8" PVC Pipe Drain Cleanout	2502.602	EA	8	
23	15" Gate Valve & Box	2502.602	EA	1	
24	15" Rubber Check Valve	2502.602	EA	1	
25	Connect to Existing Storm Sewer	2502.602	EA	2	
26	Construct Diversion Structure Design 48-4080	2506.502	EA	1	3
27	Construct Lift Station Design 72-4080	2506.502	EA	1	3
28	Pumps and Controls	2506.601	LS	1	4
29	Electrical - System Distribution - See Drawings E-0.0 to E-3.1	2506.601	LS	1	5
30	48" x 72" Storm Sewer Vault	2506.602	EA	1	
31	Drainage Structure Design Special (18" PVC STMH)	2506.602	EA	3	
32	Drainage Structure Design Special (30" PVC STMH)	2506.602	EA	1	
33	Drainage Structure Design Special (48" RCP Structure)	2506.602	EA	1	
34	Permanent Electrical Service for Energy Supplier (Connexus)	2506.601	ALLOW	1	6
35	Geotextile Filter Type VI	2511.504	SY	25	7
36	Class III Hand-placed Riprap	2511.507	CY	8	
37	Bollards	2540.602	EA	2	
38	Install Project Sign	2540.602	EA	1	
39	Traffic Control	2563.601	LS	1	
40	Deciduous Tree 2" Cal. B&B	2571.502	EA	19	
41	Coniferous Tree 6' HT B&B	2571.502	EA	30	
42	Deciduous shrub 5 Gal. Container	2571.502	EA	54	
43	Erosion Control Supervisor	2573.501	LS	1	
44	Stabilized Construction Exit	2573.501	LS	1	
45	Storm Drain Inlet Protection	2573.502	EA	1	
46	Sediment Control Log Type Wood Fiber	2573.503	LF	1,225	
47	Silt Fence; Type MS	2573.503	LF	2,540	
48	Temporary Erosion & Sediment Control Allowance	2573.601	ALLOW	1	
49	Rolled Erosion Prevention Category 25	2575.504	SY	1,283	
50	Seeding	2575.505	ACRE	1.5	
51	Hydraulic Bonded Fiber Matrix (3,000 lb/ac)	2575.508	LB	3,651	
52	Seed Mixture 35-241 (36.5 lb/ac)	2575.508	LB	55	
53	Native Vegetation 3-Year Extended Warranty	2575.601	LS	1	

EMMONS & OLIVIER RESOURCES, INC.
1919 JUV. AVE. W. #300 ST. PAUL, MN
ILL: 651.770.8449 WWW.LOHINC.COM

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

ER MEGOW
ERIK R. MEGOW DATE: 02/23/2026 LICENSE #57794

DATE	NO.	DESCRIPTION
02/23/2025	1	FINAL BID PLANS
	2	
	3	
	4	
	5	
	6	

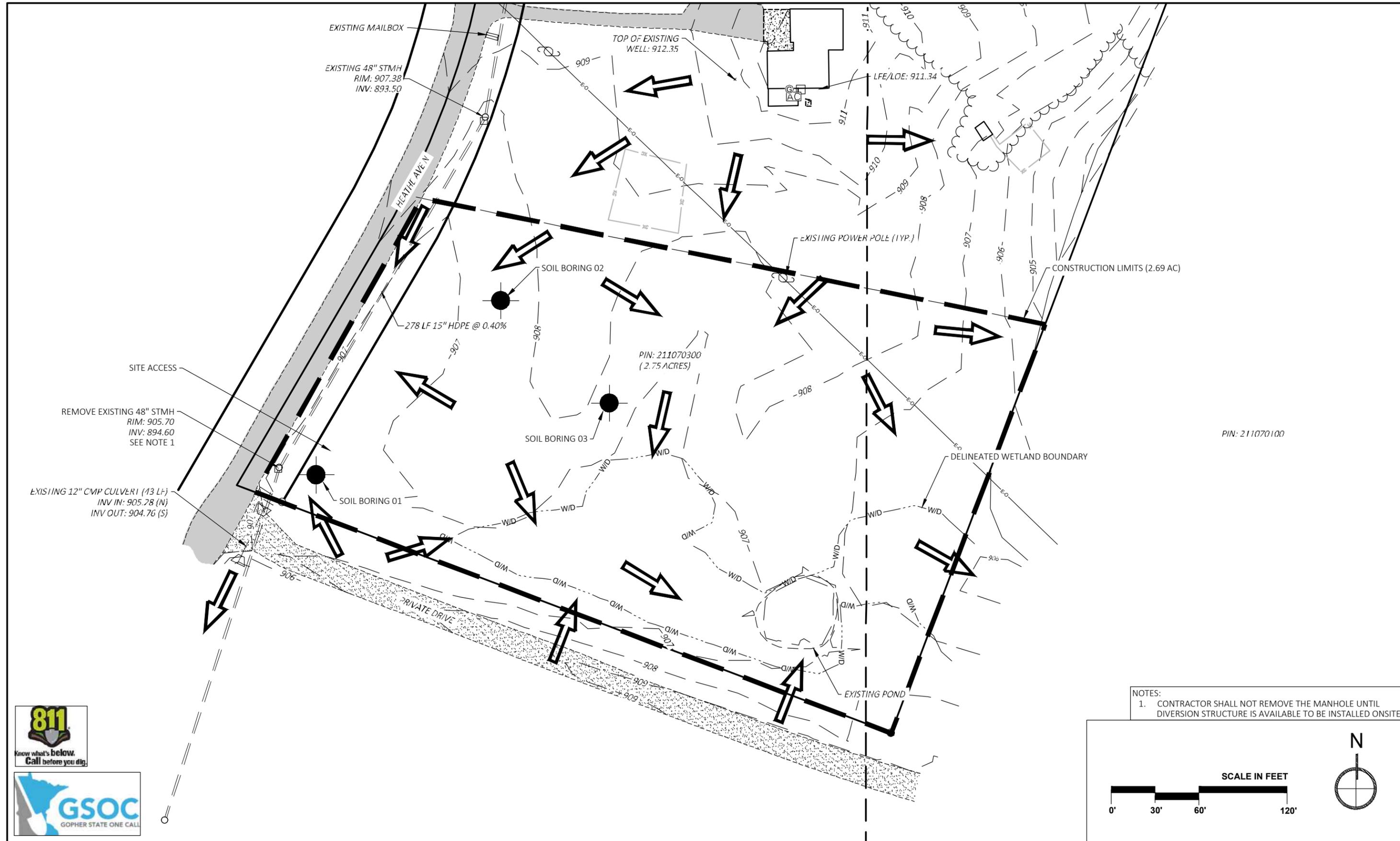
DESIGNED BY: ERM
DRAWN BY: ERK
CHECKED BY: DRL
EOR JOB #376-0232



HEATH AVENUE IRON-ENHANCED SAND FILTER
CITY OF WYOMING, CHISAGO COUNTY, MN
COMFORT LAKE - FOREST LAKE WATERSHED DISTRICT

NOTES & SEQ
SHEET 02 OF 20

Plot Date: 08/01/2024
 Drawing name: X:\Chims_V01000376_CLFLWD0232_V01.mxd_ESF_Pre-Feasibility09_GNIS\wg\Sheets\376-0232_E-istingCond.dwg



NOTES:
 1. CONTRACTOR SHALL NOT REMOVE THE MANHOLE UNTIL DIVERSION STRUCTURE IS AVAILABLE TO BE INSTALLED ONSITE.



EOR water ecology community
 EMMONS & OLIVIER RESOURCES, INC.
 1919 JUV. AVL. W. #300 ST. PAUL, MN
 ILL: 651.770.8449 WWW.LORINC.COM

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E.R. Megow
 ERIK R. MEGOW DATE: 02/23/2026 LICENSE #57794

DATE	NO.	DESCRIPTION
02/23/2025	1	FINAL BID PLANS
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	3	
	4	
	5	
	6	

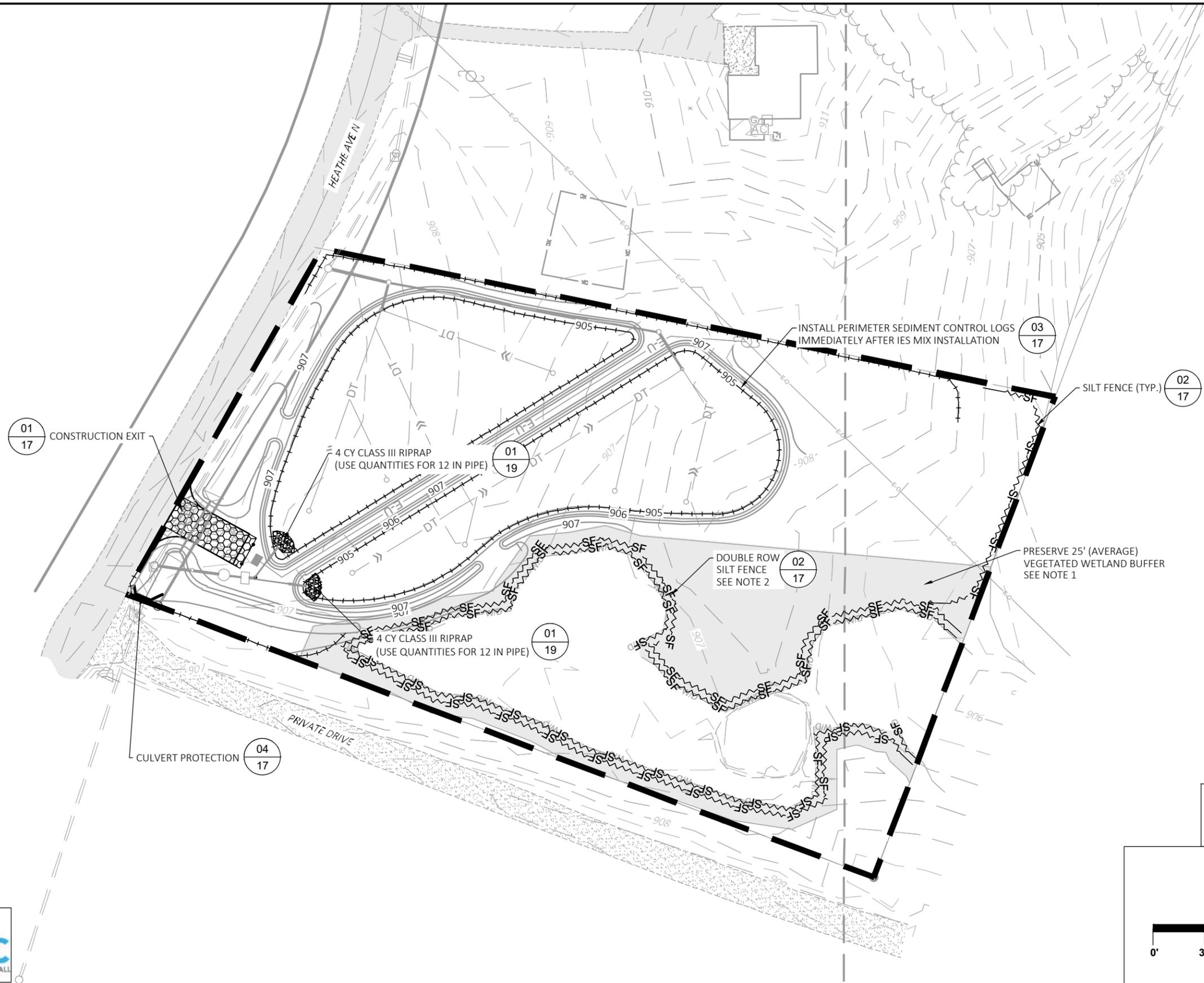
DESIGNED BY: ERM
 DRAWN BY: ERK
 CHECKED BY: DRL
 EOR JOB #376-0232



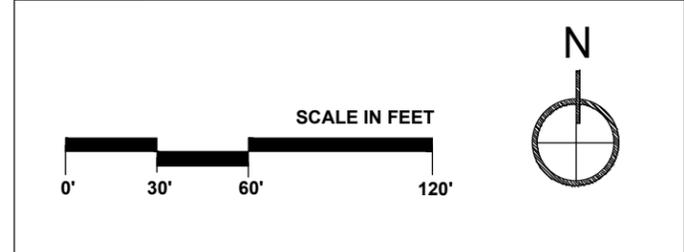
HEATH AVENUE IRON-ENHANCED SAND FILTER
 CITY OF WYOMING, CHISAGO COUNTY, MN
 COMFORT LAKE - FOREST LAKE WATERSHED DISTRICT

EXISTING CONDITIONS AND REMOVALS PLAN
 SHEET 03 OF 20

Plot Date: 08/01/2024
 Drawing name: X:\Clients_V01000376_CFLWD\0232_Vol1.mxd_ESF_Pre-Feasibility\09_GNIS\wg\Sheets\376-0232_ExistingCond.dwg



- NOTES:
1. PRIOR TO ANY GRADING ACTIVITIES BEGIN, CONTRACTOR SHALL STAKE OUT WETLAND BUFFER PER PLANS.
 2. DOUBLE ROW OF SILT FENCE SHALL HAVE A MINIMUM DISTANCE OF 5' BETWEEN ROWS.



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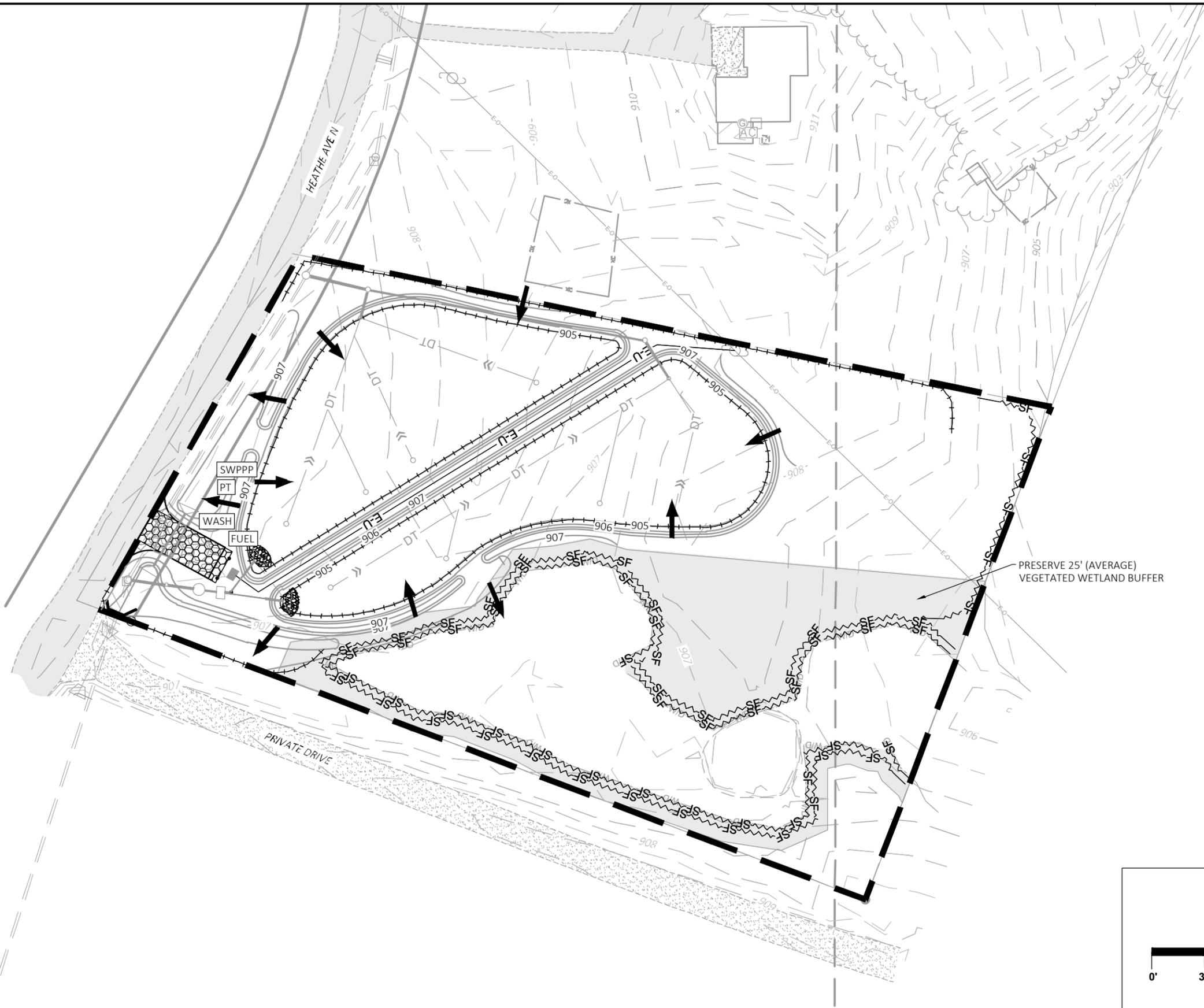
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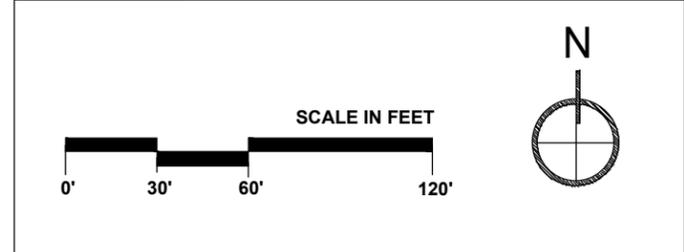
HEATH AVENUE IRON-ENHANCED SAND FILTER
 CITY OF WYOMING, CHISAGO COUNTY, MN
 COMFORT LAKE - FOREST LAKE WATERSHED DISTRICT

EROSION & SEDIMENT CONTROL PLAN
 SHEET 04 OF 20

Plot Date: 08/01/2024
 Drawing name: X:\Chims_V01000376_CLFLWD0232_Vol1.mxd_ESF_Pre-Feasibility09_GNISwg(Sheets)376-0232_EastingCond.dwg



- FUEL FUELING STATION
(SECONDARY CONTAINMENT REQUIRED)
- PT PORTABLE TOILET
- SWPPP SWPPP LOCATION
- WASH CONCRETE WASHOUT



Plot Date: 08/01/2024
 Drawing name: X:\Chems_V01000376_CLFLWD0232_Vol1.mxd_ESF_Pre-Feasibility09_GNISwg(Sheets)376-0232_EastingCond.dwg

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	3	
	4	
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DESIGNED BY: ERM
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 EOR JOB #376-0232



HEATH AVENUE IRON-ENHANCED SAND FILTER
 CITY OF WYOMING, CHISAGO COUNTY, MN
 COMFORT LAKE - FOREST LAKE WATERSHED DISTRICT

SWPPP SITE MAP
 SHEET 05 OF 20

SUNRISE RIVER
 AUID: 7030005-526
 IMPAIRED USE: AQL (AQUATIC LIFE),
 AQR (AQUATIC RECREATION)
 TMDL: NONE
 ADDITIONAL IMPAIRMENTS: DO, E.coli

SHALLOW POND
 AUID: 13-55 W

COMFORT LAKE
 AUID: 13-0053-00
 IMPAIRED USE: AQC (AQUATIC
 CONSUMPTION), AQR (AQUATIC
 RECREATION)
 TMDL: Hg-F, NUTRIENTS

GREEN LAKE TRAIL

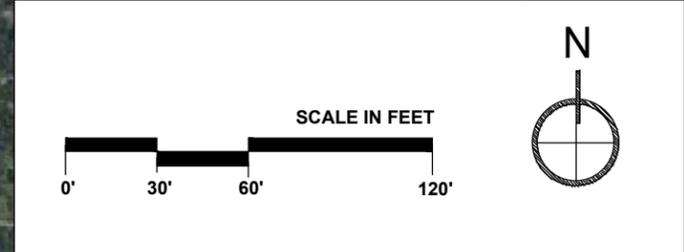
1 MILE RADIUS

PROJECT LOCATION

LITTLE COMFORT LAKE
 AUID: 13-0054-00
 IMPAIRED USE: AQR
 (AQUATIC RECREATION)
 TMDL: NUTRIENTS

UNNAMED CREEK
 AUID: 07030005-522
 IMPAIRED USE: AQL (AQUATIC LIFE),
 AQR (AQUATIC RECREATION)
 TMDL: NONE
 ADDITIONAL IMPAIRMENTS: E. coli,
 FISHERBIO, INVERTBIO

HIGHWAY 18



Plot Date: 08/01/2024
 Drawing name: X:\Clients_V01000376_CFLFLWD0232_Vol1.mxd_ESF_Pre-Feasibility09_GNIS\dwg\Sheets\376-0232_EastingCoord.dwg

EO **water ecology community**
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E.R. Megow
 ERIK R. MEGOW DATE: 02/23/2026 LICENSE #57794

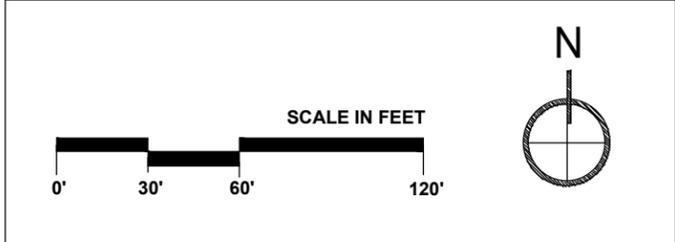
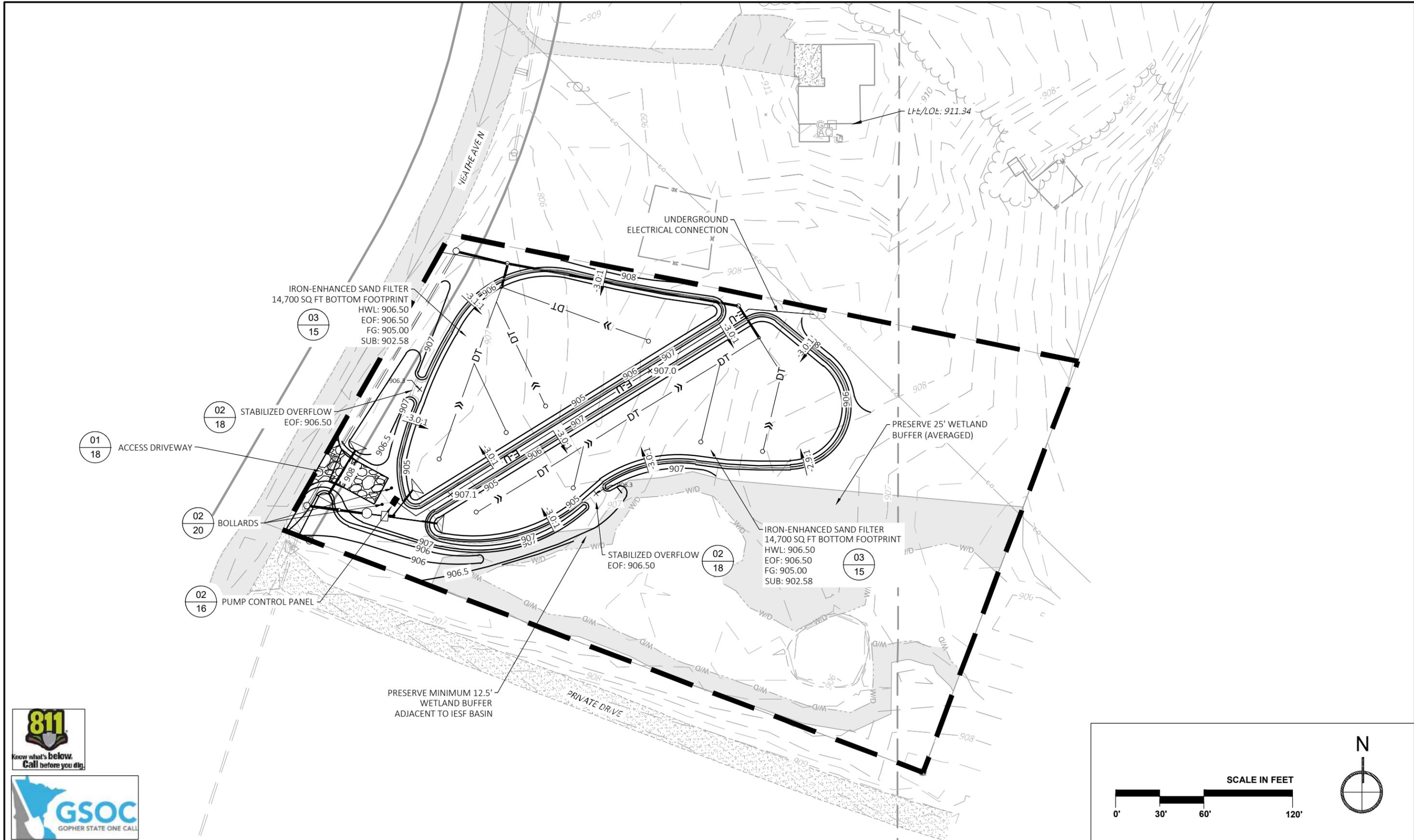
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DESIGNED BY: ERM
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 CHECKED BY: DRL
 EOR JOB #376-0232



HEATH AVENUE IRON-ENHANCED SAND FILTER
 CITY OF WYOMING, CHISAGO COUNTY, MN
 COMFORT LAKE - FOREST LAKE WATERSHED DISTRICT

SWPPP PUBLIC WATERS MAP
 SHEET 06 OF 20



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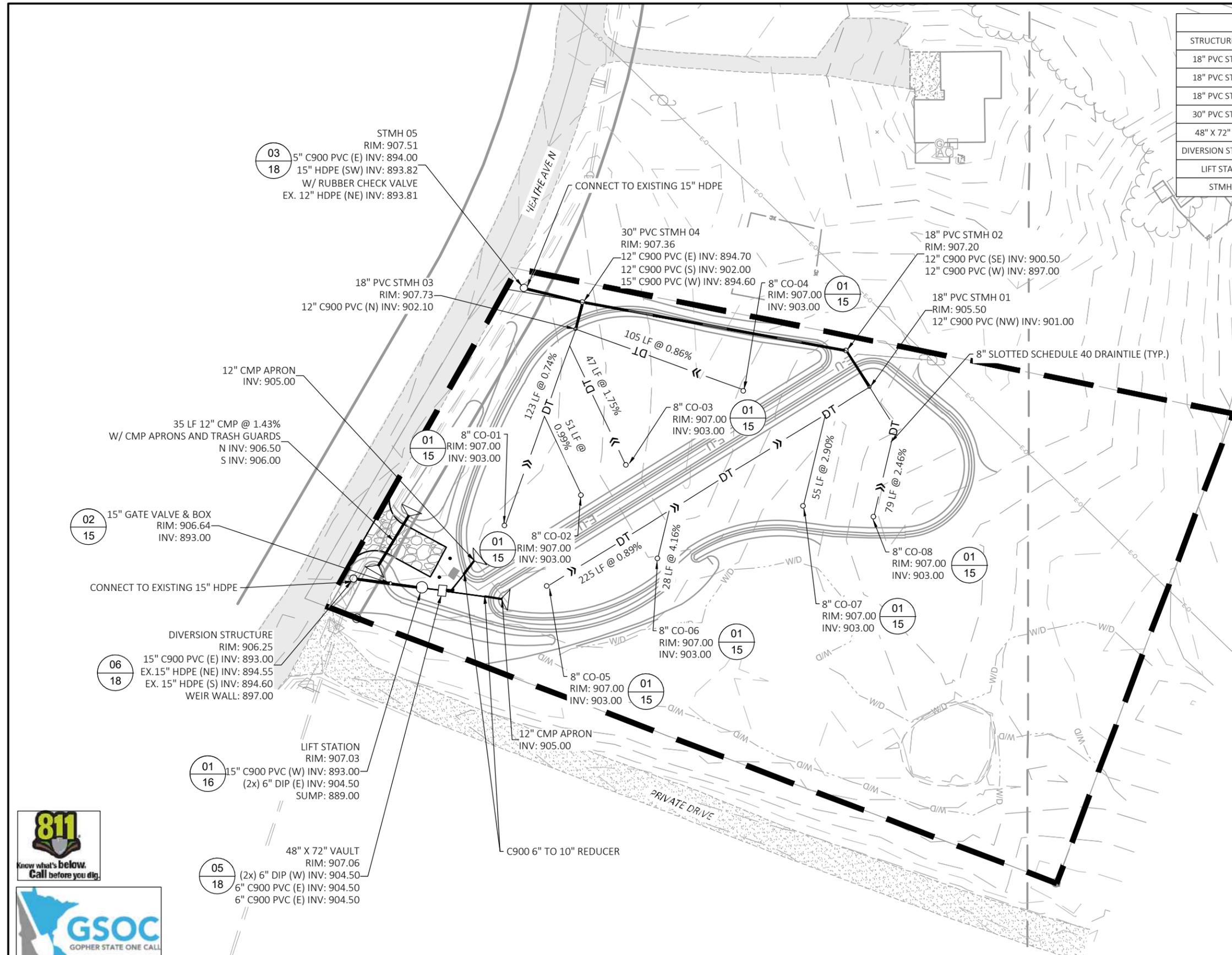


HEATH AVENUE IRON-ENHANCED SAND FILTER
 CITY OF WYOMING, CHISAGO COUNTY, MN
 COMFORT LAKE - FOREST LAKE WATERSHED DISTRICT

GRADING PLAN
 SHEET 07 OF 20

Plot Date: 08/01/2024
 Drawing name: X:\Clients_V01000376_CFLFLWD0232_Vol1.mh_ESF_Pre-Feasibility09_GNISwg(Sheets)376-0232_EastingCond.dwg

PROPOSED STORM SEWER STRUCTURE INFORMATION				
STRUCTURE NAME	RIM ELEV	CONNECTED PIPES	SUMP	GRATE AND FRAME
18" PVC STMH 01	905.50	1	901.00	MANUFACTURER-SPECIFIED SOLID LID
18" PVC STMH 02	907.20	2	897.00	MANUFACTURER-SPECIFIED SOLID LID
18" PVC STMH 03	907.73	1	902.10	MANUFACTURER-SPECIFIED SOLID LID
30" PVC STMH 04	907.36	3	894.60	MANUFACTURER-SPECIFIED SOLID LID
48" X 72" VAULT	907.06	3	903.81	HALLIDAY HATCH H2C7248
DIVERSION STRUCTURE	906.25	2	890.00	R-1642-B
LIFT STATION	907.03	2	889.00	36" X 48" SAFETY HATCH
STMH 05	907.51	3	893.00	R-1642-B



NOTES:
 1. AFTER INSTALLATION OF THE DIVERSION STRUCTURE, CONTRACTOR SHALL FULLY OPEN THE 15" GATE VALVE TO ALLOW ALL FLOWS TO BYPASS THE PROJECT FOR ESTABLISHMENT. THE 15" PVC DIVERSION PIPE SHALL BE TEMPORARILY BULKHEADED IN THE STRUCTURE TO PREVENT WATER FROM ENTERING THE SYSTEM. THESE MEASURES SHALL REMAIN IN PLACE UNTIL THE PROJECT IS FULLY COMPLETE AND THE ENGINEER DIRECTS THE SYSTEM TO BE BROUGHT ONLINE.



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E.R. Megow
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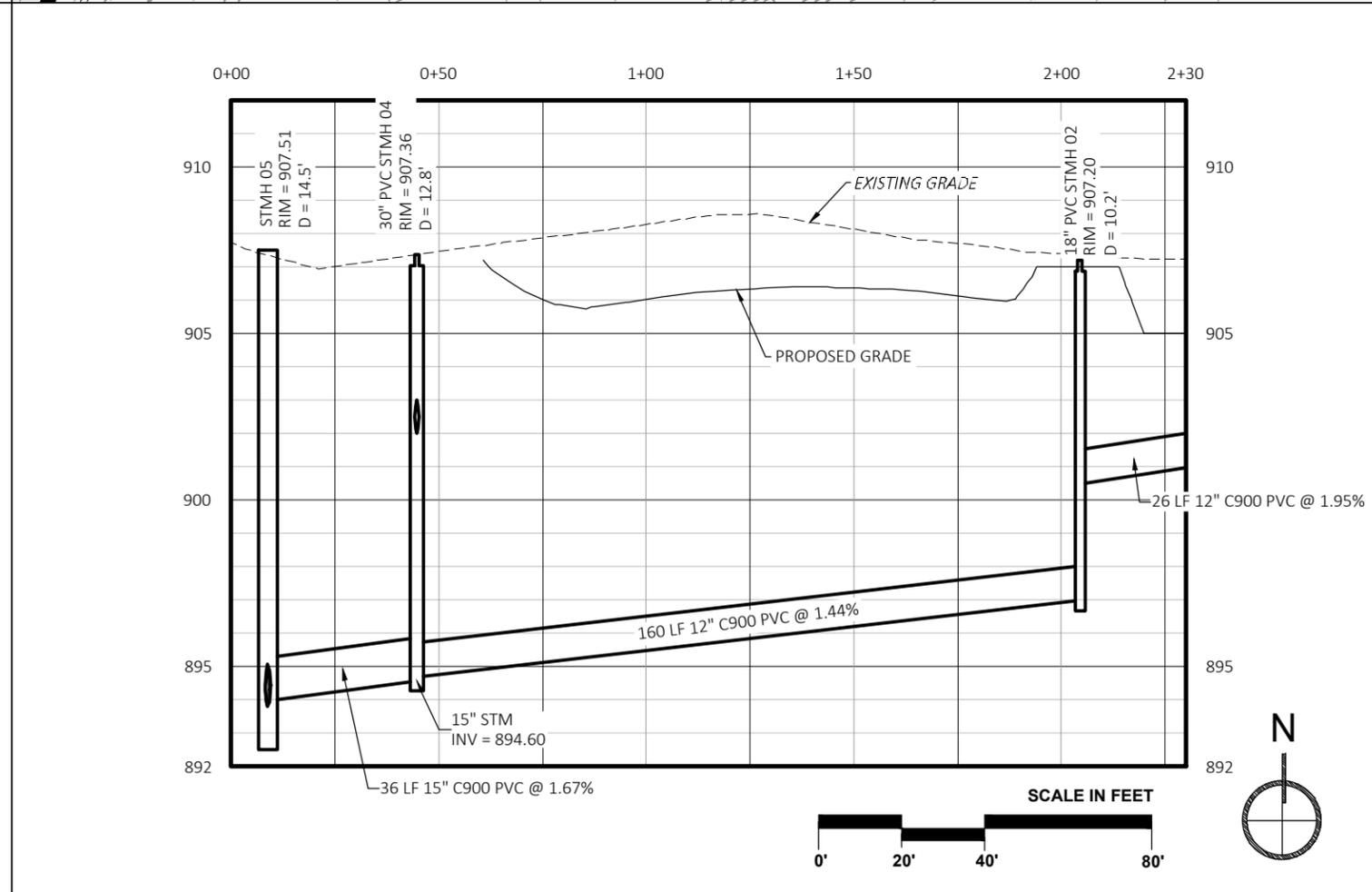
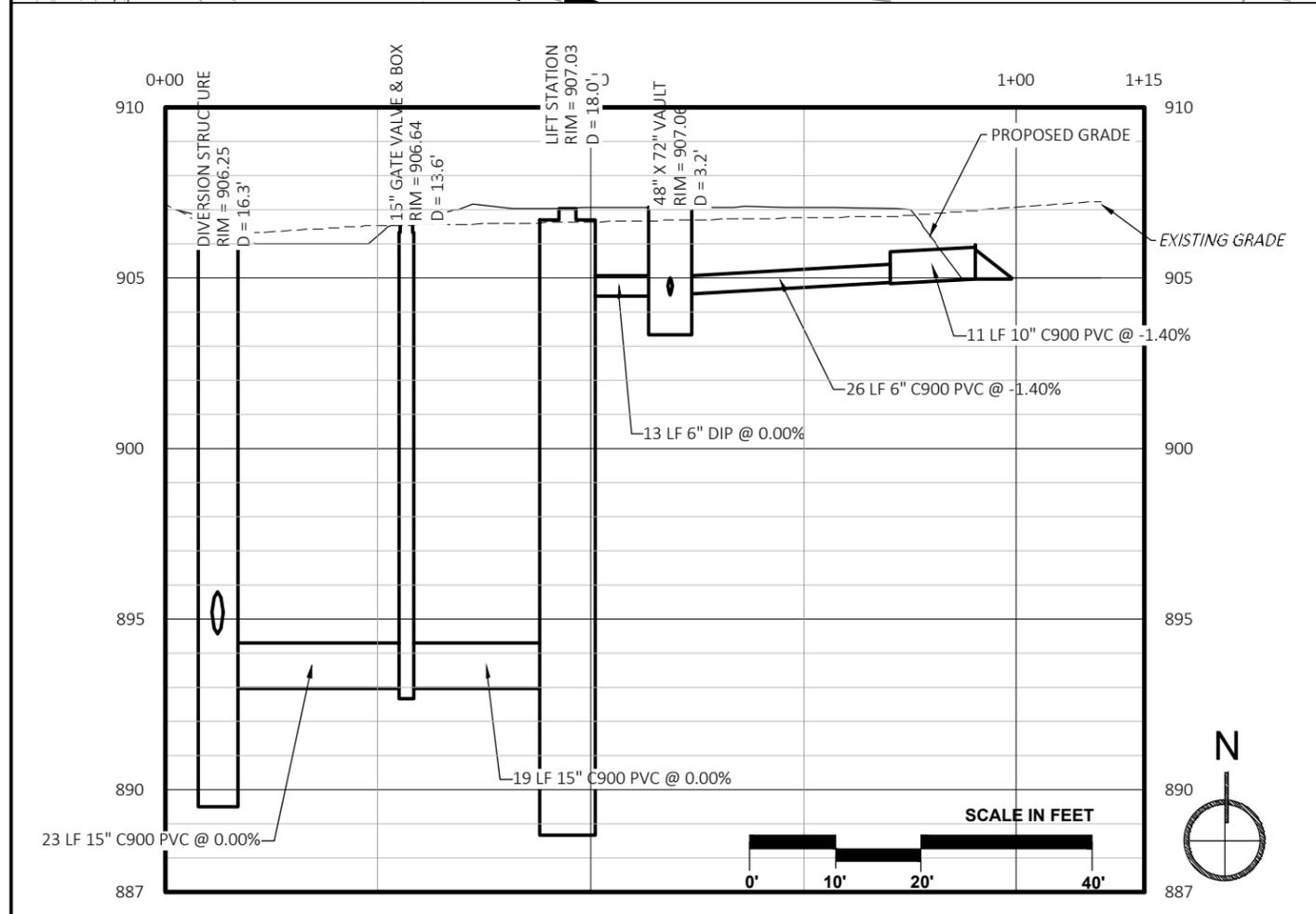
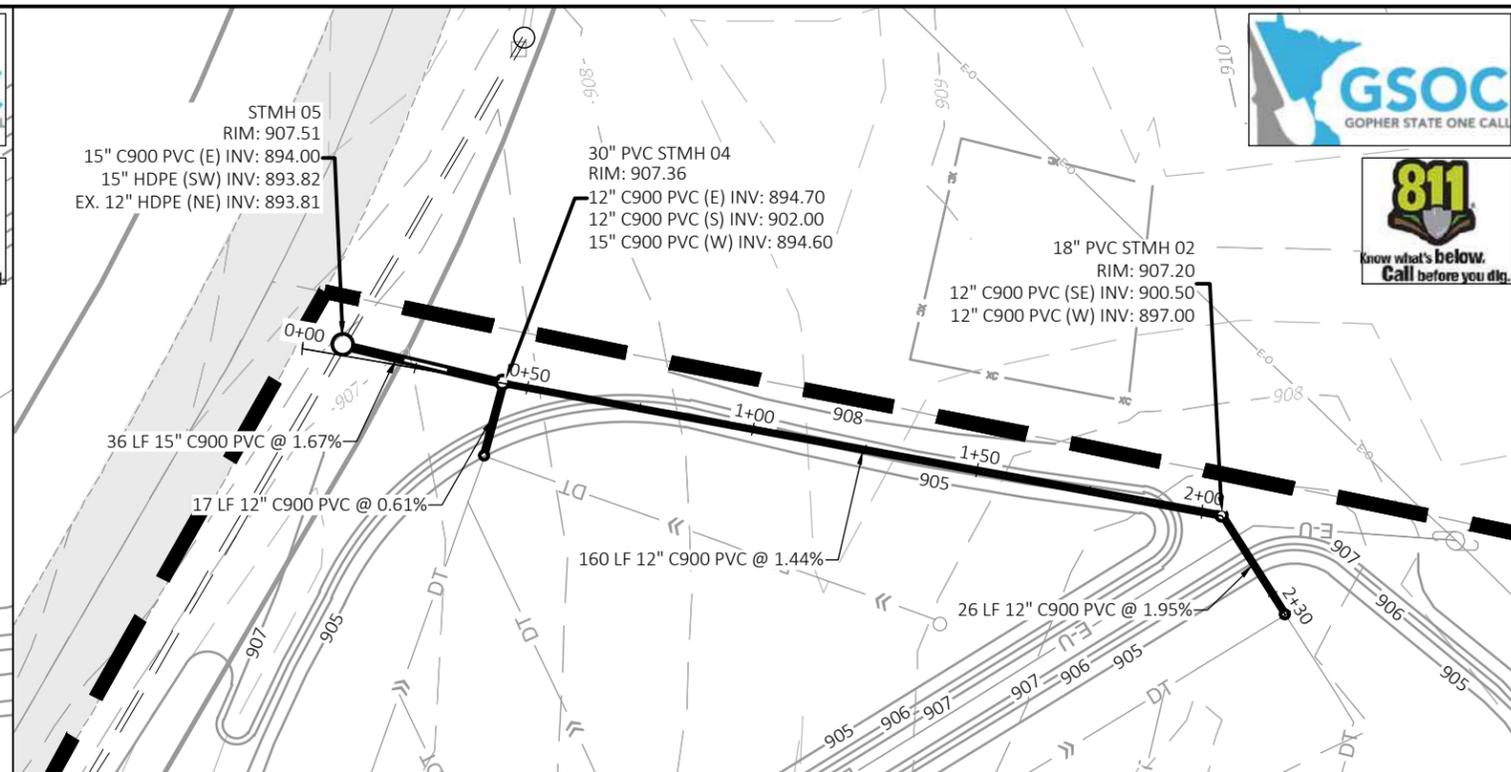
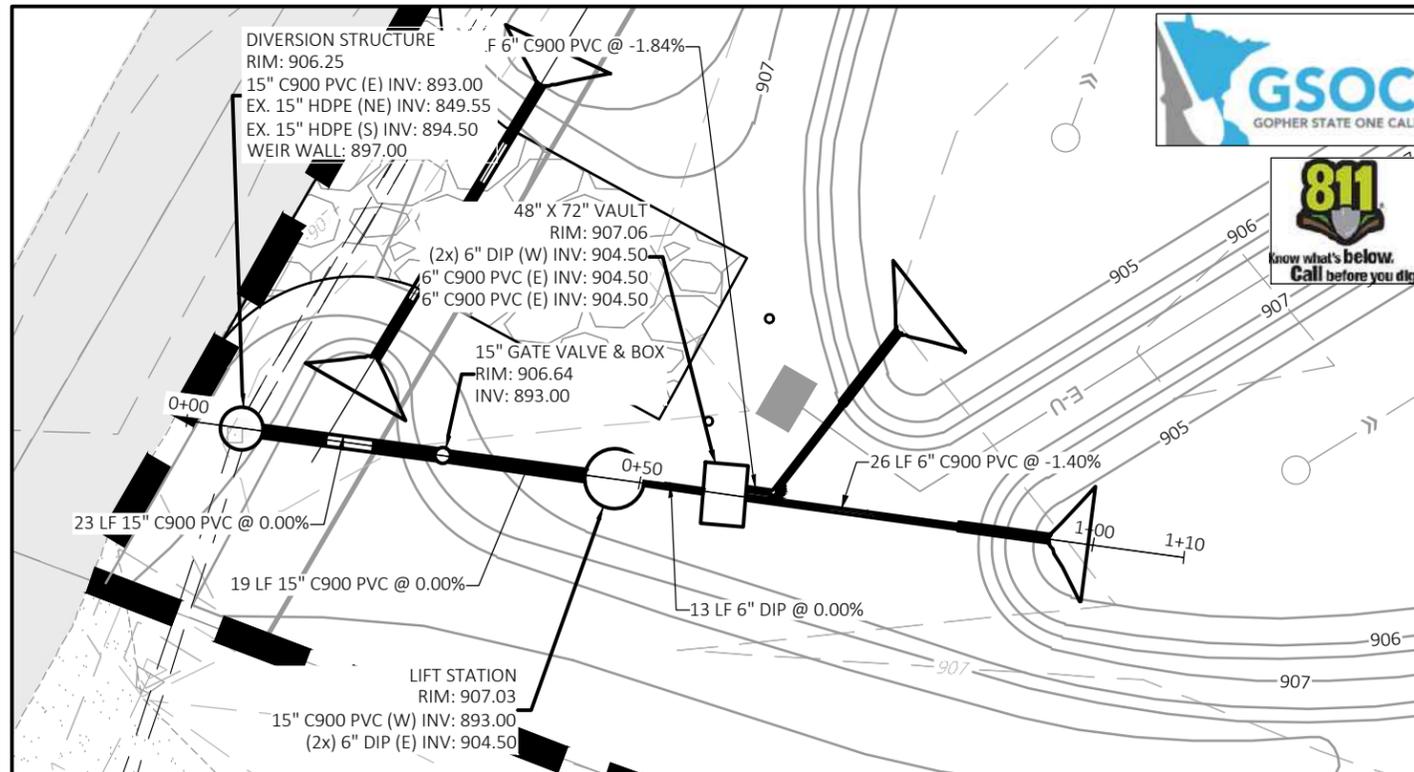
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 DRAWN BY: ERK
 CHECKED BY: DRL
 EOR JOB #376-0232

HEATH AVENUE IRON-ENHANCED SAND FILTER
 CITY OF WYOMING, CHISAGO COUNTY, MN
 COMFORT LAKE - FOREST LAKE WATERSHED DISTRICT

DRAINAGE PLAN
 SHEET 08 OF 20

Plot Date: 08/01/2024
 Drawing name: X:\Chems_V01000376_CFLWD0232_Vol1.mxd_ESF_Pre-Feasibility09_GNIS\wg\Sheets\376-0232_EastingCond.dwg



Plot Date: 08/01/2024
 Drawing name: X:\Clients_V01000376_CFLFLW0232_Vol1n11_ESF_Pre-Feasibility09_GNIS\dwg\Sheets\376-0232_E-ExistingCond.dwg



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HEATH AVENUE IRON-ENHANCED SAND FILTER
 CITY OF WYOMING, CHISAGO COUNTY, MN
 COMFORT LAKE - FOREST LAKE WATERSHED DISTRICT

STORM SEWER PLAN & PROFILE
 SHEET 09 OF 20

SEEDING SCHEDULE

Symbol	Seed Type	Erosion Control Measures	Seeding Rate (lb/acre)	Total Area (acre)
S1	Mn-DOT 35-241: Mesic Prairie General	Category 25 Erosion Control Blanket	36.5	0.25
S2	Mn-DOT 35-241: Mesic Prairie General	Hydraulic Bonded Fiber Matrix (at 3,000 lb/ac)	36.5	1.25
TOTAL			73.0	1.50

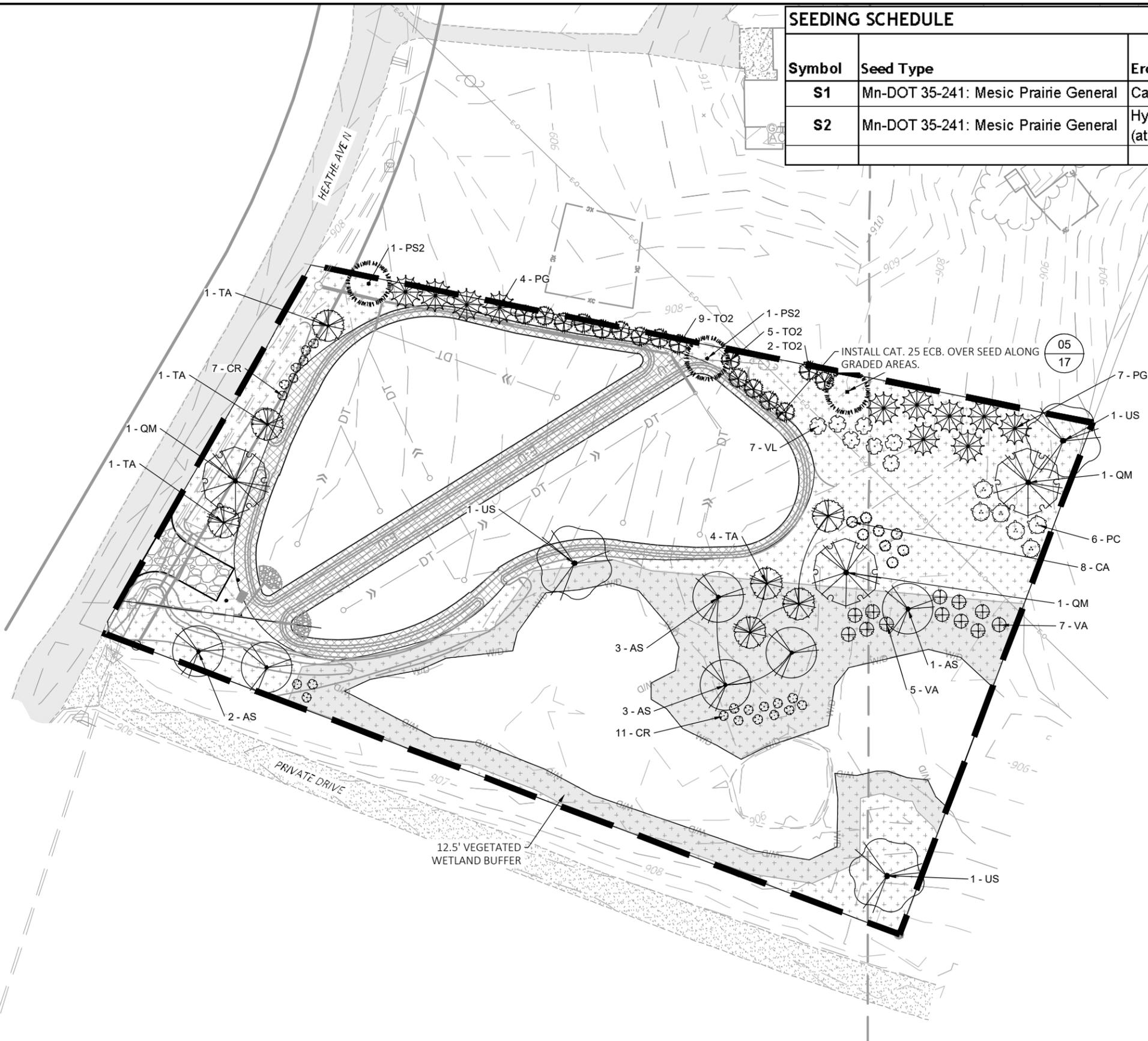
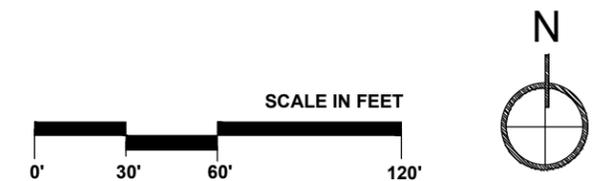
PLANT SCHEDULE

SYMBOL	CODE	BOTANICAL / COMMON NAME	SIZE	CONT.	QTY
CONIFEROUS TREES					
	PG	Picea glauca / White Spruce	6' Ht.	B&B	11
	PS2	Pinus strobus / White Pine	6' Ht.	B&B	3
	TO2	Thuja occidentalis / American Arborvitae	6' Ht.	B&B	16
DECIDUOUS TREES					
	AS	Acer saccharum / Sugar Maple	2" Cal.	B&B	6
	QM	Quercus macrocarpa / Burr Oak	2" Cal.	B&B	3
	TA	Tilia americana / American Linden	2" Cal.	B&B	7
	US	Ulmus americana 'St. Croix' / First Editions® St Croix™ American Elm	2" Cal.	B&B	3
NATIVE SHRUBS					
	CR	Cornus sericea / Red Twig Dogwood	5 gal.	Cont	21
	CA	Corylus americana / American Hazelnut	5 gal.	Cont	8
	PC	Prunus virginiana / Chokecherry	5 gal.	Cont	6
	VL	Viburnum lentago / Nannyberry	5 gal.	Cont	7
	VA	Viburnum trilobum / American Cranberrybush	5 gal.	Cont	12

NOTES:
 1. ALL AREAS NOT DISTURBED DURING CONSTRUCTION SHALL RECEIVE A MINIMUM OF TWO GLYPHOSATE TREATMENTS TO KILL ALL EXISTING TURF AND GROUND VEGETATION.

LEGEND

SYMBOL	CODE	SEED MIX
	S1	35-241: MESIC PRAIRIE GENERAL WITH CAT. 25 ECB
	S2	35-241: MESIC PRAIRIE GENERAL WITH HYDRAULIC BONDED FIBER MATRIX



Plot Date: 08/01/2024
 Drawing name: X:\Clients_V01000376_CFLFLWD0232_Vol1.mxd_ESF_Pre-Feasibility09_GNIS\wg\Sheets\376-0232_E-istingCond.dwg



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ERIK R. MEGOW DATE: 02/23/2026 LICENSE #57794

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DESIGNED BY: ERM
 DRAWN BY: ERK
 CHECKED BY: DRL
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HEATH AVENUE IRON-ENHANCED SAND FILTER
 CITY OF WYOMING, CHISAGO COUNTY, MN
 COMFORT LAKE - FOREST LAKE WATERSHED DISTRICT

RESTORATION PLAN
 SHEET 10 OF 20

ELECTRICAL ABBREVIATIONS

&	AND	KV.A.	KILOVOLT AMPS
@	AT	K.W.	KILOWATTS
Ø	PHASE OR ROUND	LT.	LIGHT
A.C.	ALTERNATING CURRENT	LTS.	LIGHTS
A.C.U.	AIR CONDITIONING UNIT	LTG.	LIGHTING
A.F.F.	ABOVE FINISH FLOOR	L.V.	LOW VOLATGE
ALUM.	ALUMINUM	MAX.	MAXIMUM
AMP.	AMPERE	M.C.B.	MAIN CIRCUIT BREAKER
AP.	ACCESS PANEL	M.C.C.	MOTOR CONTROL CENTER
APPROX.	APPROXIMATE	M.H.	MANHOLE
ARCH.	ARCHITECT/ARCHITECTURAL	MIN.	MINIMUM
A.T.S.	AUTOMATIC TRANSFER SWITCH	MISC.	MISCELLANEOUS
AUTO.	AUTOMATIC	M.S.	MOTOR STARTER
BLDG.	BUILDING	MTR.	MOTOR
C.	CONDUIT	M.T.S.	MANUAL TRANSFER SWITCH
CAB.	CABINET	M.V.	MOTORIZED VALVE
CAP.	CAPACITY	N.A.	NOT APPLICABLE
CB.	CIRCUIT BREAKER	N.F.	NON FUSED
CIRC.	CIRCUIT	NO.	NUMBER
C.C.TV.	CLOSED CIRCUIT TELEVISION	N.T.S.	NOT TO SCALE
CLG.	CEILING	P	PHASE
COMB.	COMBINATION-/ED	PNL.	PANEL
CONC.	CONCRETE	P.O.S.	POINT OF SALES
CONT.	CONTINUE/-OUS/-ATION	P.B.	PULL BOX
CONV.	CONVERTER	PVC	POLYVINYL CHLORIDE
C/T	CURRENT TRANSFORMER	PWR.	POWER
CTR.	CENTER	REC.	RECESSED
D.C.	DIRECT CURRENT	RECEPT.	RECEPTACLE
DET.	DETAIL	REF.	REFERENCE
DIA.	DIAMETER	RM.	ROOM
DIST.	DISTRIBUTION	SCHED.	SCHEDULE
DIV.	DIVISION	SECT.	SECTION
DN.	DOWN	S.F.	SQUARE FOOT
DRWG.	DRAWING	S.M.	SURFACE MOUNTED
EA.	EACH	S.P.	SUMP PUMP
E.C.	ELECTRICAL CONTRACTOR	SPEC.	SPECIFICATIONS
ELEC.	ELECTRICAL	SQ.	SQUARE
ELEV.	ELEVATOR	S.SW.	SAFETY SWITCH
EM.	EMERGENCY	STD.	STANDARD
E.P.	EXPLOSION PROOF	STR.	STARTER
EQ.	EQUAL	STRUCT.	STRUCTURAL
EQUIP.	EQUIPMENT	SUSP.	SUSPENDE
FDR.	FEEDER	SW.	SWITCH
FIN.	FINISH	SW. BD.	SWITCH BOARD
FIXT.	FIXTURE	SW.GR.	SWITCH GEAR
FLUOR.	FLUORESCENT	TERM.	TERMINAL
FUT.	FUTURE	TR.	TRANSFORMER
G.C.	GENERAL CONTRACTOR	TYP.	TYPICAL
G.F.I.	GROUND FAULT INTERRUPTER	U.G.	UNDERGROUND
GND.	GROUND	U.H.	UNIT HEATER
H.	HEIGHT	U.V.	UNIT VENTILATOR
HORZ.	HORIZON	V.	VOLTS
H.P.	HORSE POWER	V.A.	VOLT AMPERE
HZ.	HERTZ	V.L.	VERIFY LOCATION
INT.	INTERIOR	VOL.	VOLUME
J-BOX	JUNCTION BOX	W.	WATT (S)
(E)	EXISTING	W.H.	WATER HEATER
(R)	RELOCATE	W/O	WITHOUT
(N)	NEW	W.G.	WIRE GUARD
		WP	WEATHERPROOF

MOTORS

	MOTOR OUTLET - SEE SCHEDULE (REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATIONS)
	STARTER
	LOCKABLE DISCONNECT SWITCH
	PUSH BUTTON
	INTERVAL TIMER
	RELAY
	STARTER AND PILOT
	PUSH BUTTON AND PILOT
	THERMOSTAT

RECEPTACLES

	DUPLEX RECEPTACLE
	COMBO DUPLEX RECEPTACLE & USB OUTLET
	DOUBLE DUPLEX RECEPTACLE
	GFI
	GROUND FAULT INTERRUPTER DUPLEX RECEPTACLE (FEED THROUGH TYPE)
	WEATHERPROOF RECEPTACLE
	CEILING MOUNTED DUPLEX OUTLET

GENERAL NOTES

- THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE OF THE WORK AND THOROUGHLY BECOME FAMILIAR WITH THE WORKING CONDITIONS AND THE EXACT NATURE AND EXTENT OF WORK TO BE DONE, TAKING INTO ACCOUNT ANY SPECIAL OR UNUSUAL FEATURES PECULIAR TO THIS JOB PRIOR TO BID.
- CONTRACTOR SHALL PROVIDE THE REQUIRED AUXILIARY J-BOXES TO FACILITATE THE INSTALLATION OF BRANCH CIRCUIT WIRING TO LIGHTING FIXTURES, L.V. TRANSFORMERS, REMOTE BALLASTS, ETC.
- ELECTRIC EQUIPMENT EXPOSED TO WEATHER OR INSTALLED SHALL BE WEATHERPROOF TYPE, INCLUDING BUT NOT LIMITED TO: SWITCHES, OUTDOORS, CONDUITS, BOXES, ETC.
- OUTDOOR RECEPTACLES SHALL BE WEATHERPROOF "GFCI" TYPE.
- PROVIDE PULL ROPE IN EMPTY CONDUITS MARKED WITH "C.O.", "FUTURE" OR "DEAD END".
- ELECTRICAL CONTRACTOR IS RESPONSIBLE TO INSTALL EQUIPMENT WITH CLEARANCES AS REQUIRED PER CODE.
- ELECTRICAL CONTRACTOR IS TO REVIEW DRAWING DOCUMENTS BY OTHER DISCIPLINES DURING BID, AND TAKE INTO ACCOUNT ANY ELECTRICAL ITEMS SPECIFIED BY OTHERS.
- CONDUITS SHALL HAVE GREEN GROUND WIRE PER N.E.C.
- CONTRACTOR TO LABEL EMPTY CONDUITS PER PLANS FOR ITS PURPOSE OF FUTURE USE INCLUDING CIRCUIT NUMBER. NON TERMINATED WIRES TO BE SAFE-OFF AND LABELED WITH CIRCUIT NUMBER AND ITS PURPOSE.

INDEX OF ELECTRICAL DRAWINGS

E-0.0	ELECTRICAL TITLE SHEET
E-1.1	ELECTRICAL SPECIFICATION
E-2.1	ELECTRICAL POWER PLAN
E-3.1	ELECTRICAL PANEL SCHEDULE

* NOTE *

ALL OF THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.

DATE	NO.	DESCRIPTION
08/19/25	1	60% ISSUE SET
10/03/25	2	90% ISSUE SET
01/12/26	3	90% DRAFT PLAN TO CITY OF WYOMING
01/28/26	4	DRAFT BID PACKAGE TO EOR FOR REVIEW
02/12/26	5	100% OWNER REVIEW SET
	6	

DESIGNED BY: TBC
 DRAWN BY: TBC
 CHECKED BY: ALB
 EOR JOB #376-0232

ELECTRICAL SPECIFICATIONS
PART 1 - GENERAL

1.01 DESCRIPTION

A. WORK INCLUDED:

1. EVERYTHING NECESSARY FOR AND INCIDENTAL TO EXECUTING AND COMPLETING THE ELECTRICAL WORK DESCRIBED BY THE CONTRACT DOCUMENTS AND REASONABLY INFERABLE THEREFROM.

1.02 QUALITY ASSURANCE

A. REGULATORY REQUIREMENTS: EXCEPT WHERE REQUIREMENTS HEREIN OR ON THE DRAWINGS ARE MORE STRINGENT, PERFORM ALL WORK TO MEET ALL REQUIREMENTS OF THE MOST CURRENT EDITION AND MOST STRINGENT RULE OF MINNESOTA BUILDING CODE

B. PERMITS, FEES AND INSPECTIONS:

1. OBTAIN AND PAY FOR ALL PERMITS AND LICENSES REQUIRED FOR THE ELECTRICAL WORK AND ARRANGE AND SCHEDULE ALL REQUIRED INSPECTIONS. OBTAIN PERMITS PRIOR TO COMMENCING ANY WORK.
2. PAY ALL FEES OR CHARGES LEVIED BY POWER COMPANY FOR PERMANENT AND TEMPORARY SERVICES TO THE PROJECT. EXCLUDE MONTHLY CONSUMPTION FEES.

C. LABELS:

1. LABEL OF LISTING BY UNDERWRITERS' LABORATORIES, INC. SHALL APPEAR ON MATERIALS AND EQUIPMENT FOR WHICH STANDARDS HAVE BEEN ESTABLISHED BY THE AGENCY.
2. WHERE LOCAL OR OTHER AUTHORITIES HAVING JURISDICTION HAVE ESTABLISHED LABEL OR APPROVAL REQUIREMENTS, FURNISH MATERIAL AND EQUIPMENT WITH EITHER THE REQUIRED LABEL AFFIXED OR NECESSARY WRITTEN APPROVAL.

D. ACCEPTABLE MANUFACTURERS: EXCEPT WHERE REVIEW IS OBTAINED FROM ARCHITECT PRIOR TO BID DATE, ACCEPTABLE MANUFACTURERS FOR ALL EQUIVALENT SYSTEMS, EQUIPMENT AND MATERIALS DESCRIBED HEREIN AND/OR ON THE DRAWINGS ARE LIMITED TO THOSE NOTED.

E. WHEN DRAWINGS OR SPECIFICATIONS CALL FOR MATERIALS OR CONSTRUCTION OF BETTER QUALITY OR LARGER SIZE THAN REQUIRED BY CODES, LAWS, RULES AND REGULATIONS, DRAWINGS AND SPECIFICATIONS SHALL TAKE PRECEDENCE.

F. SHOULD ANY CHANGES TO WORK INDICATED ON THE DRAWINGS OR DESCRIBED IN SPECIFICATIONS BE NECESSARY IN ORDER TO COMPLY WITH ABOVE REQUIREMENTS, NOTIFY ARCHITECT IMMEDIATELY FOR REVIEW OF REQUIRED MODIFICATIONS.

1.03 SUBMITTALS

A. PRODUCT DATA: SUBMIT FOR REVIEW THE LIST OF MATERIAL TO BE USED ALONG WITH NAMES OF MANUFACTURERS, COLOR CHARTS AND WHERE APPLICABLE, CATALOGUE NUMBERS.

1.04 1.10 GUARANTEE

- A. UNCONDITIONALLY GUARANTEE FOR ONE YEAR, EVERY PART OF THE WORK OF THIS SECTION.
- B. FURNISH MANUFACTURER'S WARRANTIES. WARRANTIES SHALL COMMENCE FROM THE DATE OF SUBSTANTIAL COMPLETION.

PART 2 - PRODUCTS

2.01 MATERIALS

A. GENERAL: EXCEPT WHERE SPECIFICALLY INDICATED OTHERWISE, PROVIDE ONLY NEW MATERIALS IN PERFECT CONDITION AND HAVING LEGALLY REQUIRED APPROVALS AND/OR LABELS. PROVIDE MATERIALS COMPLYING WITH THE STANDARDS OF NATIONALLY RECOGNIZED ORGANIZATIONS (SUCH AS ANSI, NEMA, AND U.L.).

2.02 CONDUIT

- A. INSTALL WIRING IN CONDUIT OR DUCT UNLESS FURTHER SPECIFIED HEREIN.
- B. CONCEAL CONDUIT UNLESS OTHERWISE INDICATED OR REQUIRED. IN NO CASE SHALL CONDUIT INSTALLED IN FINISHED PUBLIC AREAS BE EXPOSED WITHOUT PRIOR APPROVAL FROM ENGINEER.

2.03 OUTLET BOXES

- A. OUTLET BOXES AND THEIR COVERS: GALVANIZED ONE-PIECE PRESSED STEEL, KNOCKOUT TYPE.
 1. BOXES SHALL BE RIGIDLY SUPPORTED.

2.04 CONDUCTORS

- A. CONDUCTORS SHALL BE UNDERWRITERS' APPROVED TINNED COPPER UNLESS NOTED OTHERWISE, LABELED AS SUCH, RATED AT 600 VOLT SERVICE.
- B. TYPE OF INSULATION FOR CONDUCTORS SHALL CONFORM TO THE FOLLOWING:
 1. FEEDERS - "XHHW" UNLESS OTHERWISE NOTED.
 2. UNLESS OTHERWISE INDICATED ON PLANS, ALUMINUM CONDUCTORS ARE NOT ACCEPTABLE.

2.05 ELECTRICAL IDENTIFICATION - NAMEPLATES AND WARNINGS

- A. NAMEPLATES AND WARNING SIGNS: FURNISH PERMANENTLY INSTALLED ON ELECTRICAL EQUIPMENT AND DEVICES INCLUDING.
- B. NAMEPLATE DESIGNATIONS SHALL CLEARLY STATE:
 1. EQUIPMENT ENCLOSURE NAMEPLATES:
 - a. MANUFACTURER'S NAMEPLATE INCLUDING EQUIPMENT DESIGN RATING OF CURRENT, VOLTAGE, KVA, HP, BUS BRACING RATING, OR AS APPLICABLE.
- C. NAMEPLATE MATERIAL: ENGRAVED, LAMINATED, PLASTIC WITH WHITE LETTERS ENGRAVED THROUGH BLACK BACKGROUND. LETTERS SHALL BE 3/16" HIGH FOR DEVICES AND MINIMUM 1/4" HIGH FOR EQUIPMENT AND ENCLOSURES. ADHESIVES ARE NOT ACCEPTABLE.

2.06 SAFETY SWITCHES

- A. ALL MOTORS OR EQUIPMENT LOCATED OUT OF SIGHT OF, OR MORE THAN 50 FEET FROM THE PANEL SHALL HAVE HEAVY-DUTY HORSEPOWER RATED DISCONNECTS INSTALLED AT THE MOTOR OR EQUIPMENT. ALL OUTDOOR DEVICES AND WIRING SHALL BE WEATHERPROOF. ALL MULTI-MOTOR EQUIPMENT SHALL HAVE FUSIBLE SWITCHES AHEAD OF THEM.

PART 3 - EXECUTION

3.01 LOCATIONS

- A. THE DRAWINGS INDICATE DIAGRAMMATICALLY THE DESIRED LOCATIONS AND ARRANGEMENTS OF THE COMPONENTS OF THE ELECTRICAL WORK. FOLLOW THE DRAWINGS AS CLOSELY AS POSSIBLE BUT USE JUDGMENT AND COORDINATE WITH THE OTHER TRADES TO SECURE THE BEST POSSIBLE INSTALLATION IN THE AVAILABLE SPACE AND UNDER THE DEVELOPED CONDITIONS.

3.02 EXCAVATIONS

- A. PROVIDE EXCAVATION AND BACKFILL FOR ELECTRICAL WORK IN ACCORDANCE WITH REQUIREMENTS PER REQUIREMENTS OF DIVISION 2. TRENCHES FOR UNDERGROUND CONDUITS EXTERIOR TO BUILDING SHALL PROVIDE A MINIMUM EARTH COVER OF 24" FOR CONDUITS UNLESS NOTED OTHERWISE.

3.03 GROUNDING

- A. GROUND THE NEUTRAL OF EACH ISOLATED ELECTRICAL SYSTEM HAVING A NEUTRAL CONDUCTOR WITH A SYSTEM GROUND CONNECTION SIZED AS REQUIRED. COMPLETE SERVICE GROUNDING SHALL COMPLY WITH REQUIREMENTS OF PARAGRAPHS 250-81 AND 250-83 OF THE NEC AND SHALL MEET ADDITIONAL REQUIREMENTS OF LOCAL CODE AUTHORITIES.
- B. GROUND WIRE SHALL BE COPPER ONLY.

3.04 EQUIPMENT CONNECTIONS

- A. WHERE CONNECTIONS ARE INDICATED TO ELECTRICAL EQUIPMENT OR APPLIANCES FURNISHED UNDER OTHER THAN THIS SECTION, VERIFY THE EXACT LOCATIONS METHODS OF TERMINATION AND ELECTRICAL REQUIREMENTS FROM THE EQUIPMENT SHOP DRAWINGS OR FROM THE EQUIPMENT VENDOR.

3.05 CONDUITS AND RACEWAY

- A. SIZES OF CONDUIT FOR VARIOUS CONDUITS SHALL BE AS INDICATED ON DRAWINGS AND AS REQUIRED BY CODE FOR SIZE AND NUMBER OF CONDUCTORS TO BE PULLED. CODE REQUIREMENTS SHALL PREVAIL WHERE FILL IS NOT SHOWN ON DRAWINGS. OPEN ENDS SHALL BE CAPPED WITH APPROVED MANUFACTURED CONDUIT SEALS AS SOON AS INSTALLED AND KEPT CAPPED UNTIL READY TO PULL IN CONDUCTORS.
- B. RIGID PLASTIC CONDUIT:
 1. USE FOR CONDUITS INSTALLED UNDERGROUND AND IN CONTACT WITH EARTH.
 2. MAKE FITTINGS IN PLASTIC CONDUIT WATERTIGHT WITH APPROVED SOLVENT-WELD CEMENT SPECIFICALLY MANUFACTURED FOR THE PURPOSE. APPLY HEAT FOR BENDS SO THAT CONDUIT DOES NOT DISTORT OR DISCOLOR. USE A SPRING MANDREL AS REQUIRED TO ASSURE FULL INSIDE DIAMETER AT BENDS: PROVIDE SEPARATE GROUND WIRE IN RUNS.
- C. ELECTRICAL METALLIC TUBING: USE FOR TRADE SIZES IN DRY LOCATIONS, EXCEPT WHERE RIGID METALLIC CONDUIT IS REQUIRED OR INDICATED. CONCRETE AND MASONRY IN CONTACT WITH THE EARTH ARE NOT CONSIDERED DRY LOCATIONS.
 1. DO NOT USE FOR TRADE SIZES LARGER THAN 2" WITHOUT ARCHITECT'S ACCEPTANCE.



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

PRINT NAME: ANTHONY L. BASDEN
SIGNATURE: *Anthony L. Basden*
DATE: 02/12/2026 LIC. NO. 48705

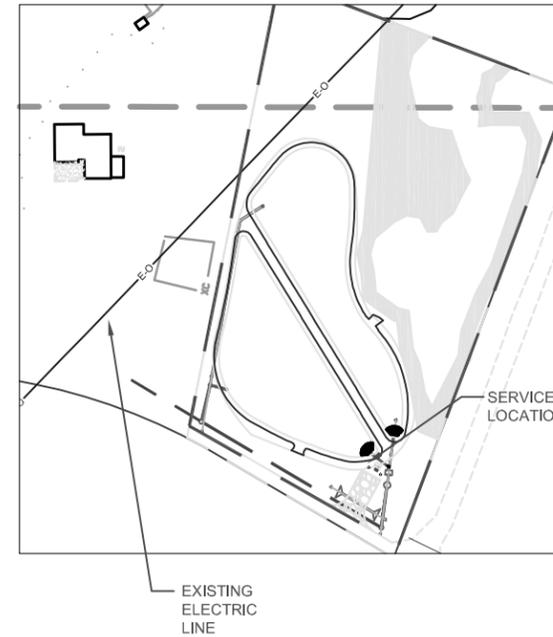
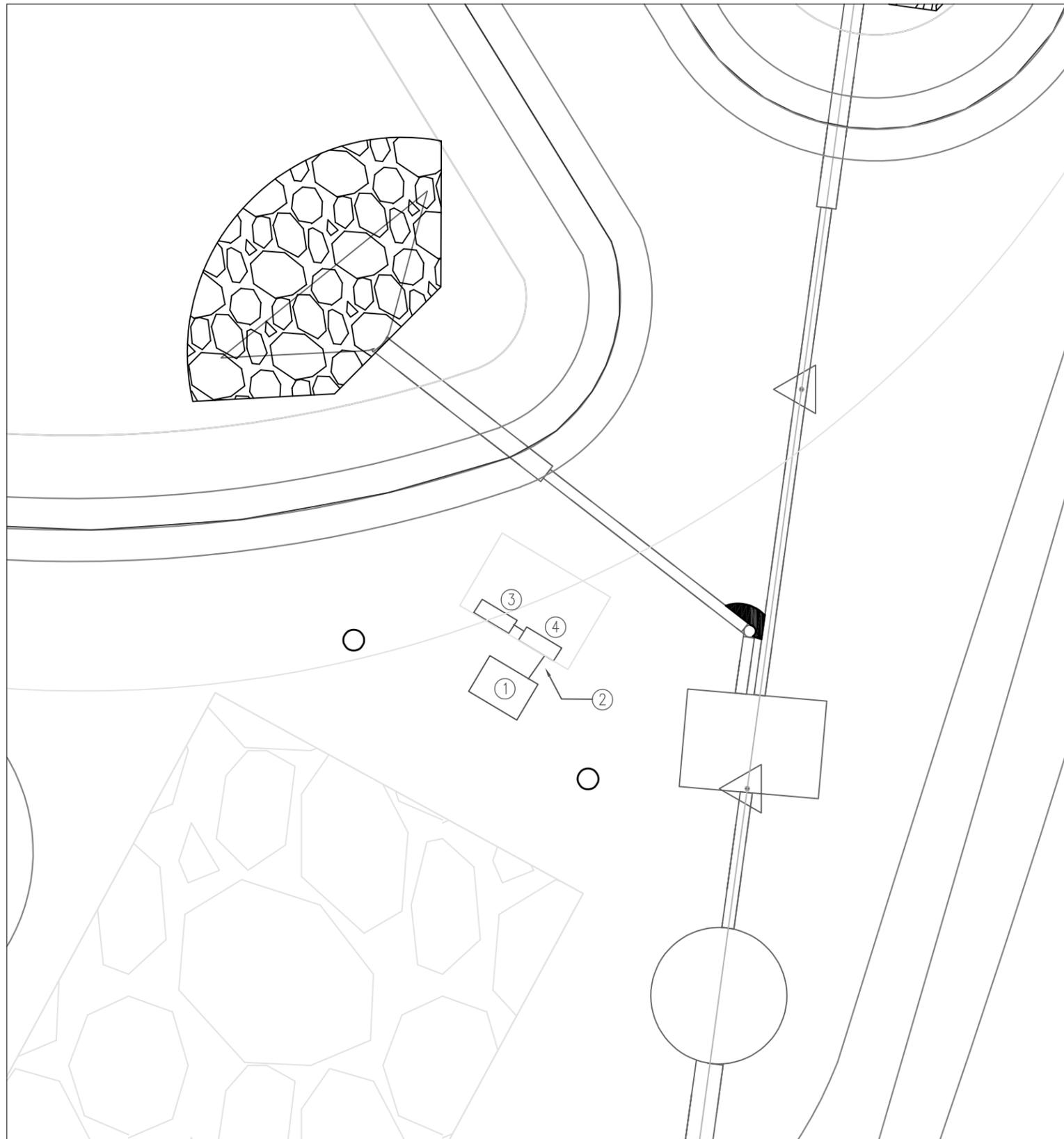
DATE	NO.	DESCRIPTION
08/19/25	1	60% ISSUE SET
10/03/25	2	90% ISSUE SET
01/12/26	3	90% DRAFT PLAN TO CITY OF WYOMING
01/28/26	4	DRAFT BID PACKAGE TO EOR FOR REVIEW
02/12/26	5	100% OWNER REVIEW SET
	6	

DESIGNED BY: TBC
DRAWN BY: TBC
CHECKED BY: ALB
EOR JOB #376-0232



HEATH AVENUE IRON-ENHANCED SAND FILTER
CITY OF WYOMING, CHISAGO COUNTY, MN
COMFORT LAKE - FOREST LAKE WATERSHED DISTRICT

ELECTRICAL SPECIFICATION E-1.1
SHEET 02 OF 04

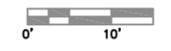


GENERAL NOTE:

- A. CONDUCTORS OPERATING AT 50 VOLTS OR GREATER SHALL BE IN RACEWAY. RACEWAY WITHIN THE STRUCTURE ABOVE THE FLOOR SLAB SHALL BE METAL. RACEWAY BELOW THE FLOOR SLAB AND UNDERGROUND RACEWAY OUTSIDE THE STRUCTURE SHALL BE PVC.
- B. PERFORM WORK TO COMPLY WITH THE STANDARD PRACTICES FOR GOOD WORKMANSHIP PUBLISHED BY NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION (NECA), COMPLY WITH THE LATEST ENFORCED EDITION OF THE NATIONAL ELECTRICAL CODE (NEC), LOCAL CODES, AMENDMENTS, AND ORDINANCES.
- C. ELECTRICAL WORK SHALL BE PERFORMED UNDER THE SUPERVISION OF A LICENSED MASTER ELECTRICIAN.
- D. CONTRACTOR TO FOLLOW THE NECESSARY SAFETY RULES AND REGULATIONS FOR OPEN TRENCHES.

KEYNOTES:

- ① APPROXIMATE LOCATION OF UTILITY CABINET AND METER. SITE VERIFY THE EXACT LOCATION.
- ② PROVIDE SERVICE FEEDERS FROM UTILITY METER TO MDP PER ONE LINE DIAGRAM.
- ③ INSTALL OWNER PROVIDED PUMP CONTROL PANEL WITH MANUFACTURER FURNISHED SUBMERSIBLE POWER CABLE. PROVIDE PEDESTAL TO MOUNT PUMP CONTROL PANEL.
- ④ PROVIDE MDP AND MOUNT ON A PEDESTAL. REFER TO ONE LINE DIAGRAM AND SCHEDULE FOR SIZING.



EOR water ecology community
 EMMONS & OLIVIER RESOURCES, INC.
 1919 UNIV. AVE. W. #300 ST. PAUL, MN
 TEL: 651.770.8448 WWW.EORINC.COM

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 PRINT NAME: ANTHONY L. BASDEN
 SIGNATURE: *Anthony L. Basden*
 DATE: 02/19/2026 LIC. NO. 48705

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02/12/26	5	100% OWNER REVIEW SET
	6	

DESIGNED BY: TBC
 DRAWN BY: TBC
 CHECKED BY: ALB
 EOR JOB #376-0232

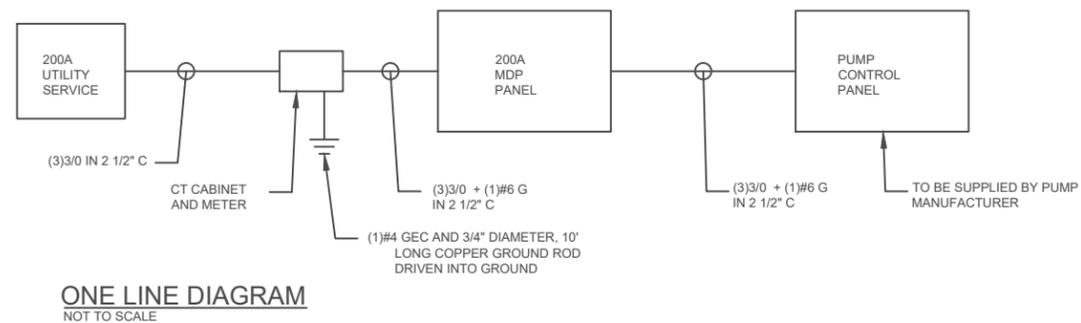
AYRES
 MECHANICAL, ELECTRICAL, PLUMBING (MEP)

CLFLWD
 WATERSHED DISTRICT

HEATH AVENUE IRON-ENHANCED SAND FILTER
 CITY OF WYOMING, CHISAGO COUNTY, MN
 COMFORT LAKE - FOREST LAKE WATERSHED DISTRICT

ELECTRICAL POWER PLAN
E-2.1
 SHEET 03 OF 04

PANEL NAME:	MDP	VOLT:	120/240	BUS SIZE:	225 AMPS	REMARKS:	22 KAIC
LOCATION:	SERVICE	PH:	1	MAIN BRKR:	200 AMPS		
MOUNTING:	FLOOR	WIRE:	3	V.A.	V.A.	V.A.	V.A.
				GND BUS:	YES	GF:	NO
LOAD DESCRIPTION	TYPE	BRKR	CCT				
PUMP CONTROL PANEL	LM	200/2	1	15870	360	2	CONVEIENCE RECEPTACLE
			3	15870		4	SPARE
SPARE			5			6	SPARE
SPARE			7			8	SPARE
SPACE			9			10	SPACE
SPACE			11			12	SPACE
SPARE			13			14	SPARE
SPARE			15			16	SPARE
SPACE			17			18	SPACE
SPACE			19			20	SPACE
SPACE			21			22	SPACE
SPACE			23			24	SPACE
SPACE			25			26	SPACE
SPACE			27			28	SPACE
SPACE			29			30	SPACE
				PER PHASE TOTAL VA	16230	15870	
				TOTAL CONNECTED VA		32100	
				TOTAL CONNECTED AMPS		134	
				2 x HIGHEST PHASE		32460	
				HIGHEST AMPS		135	

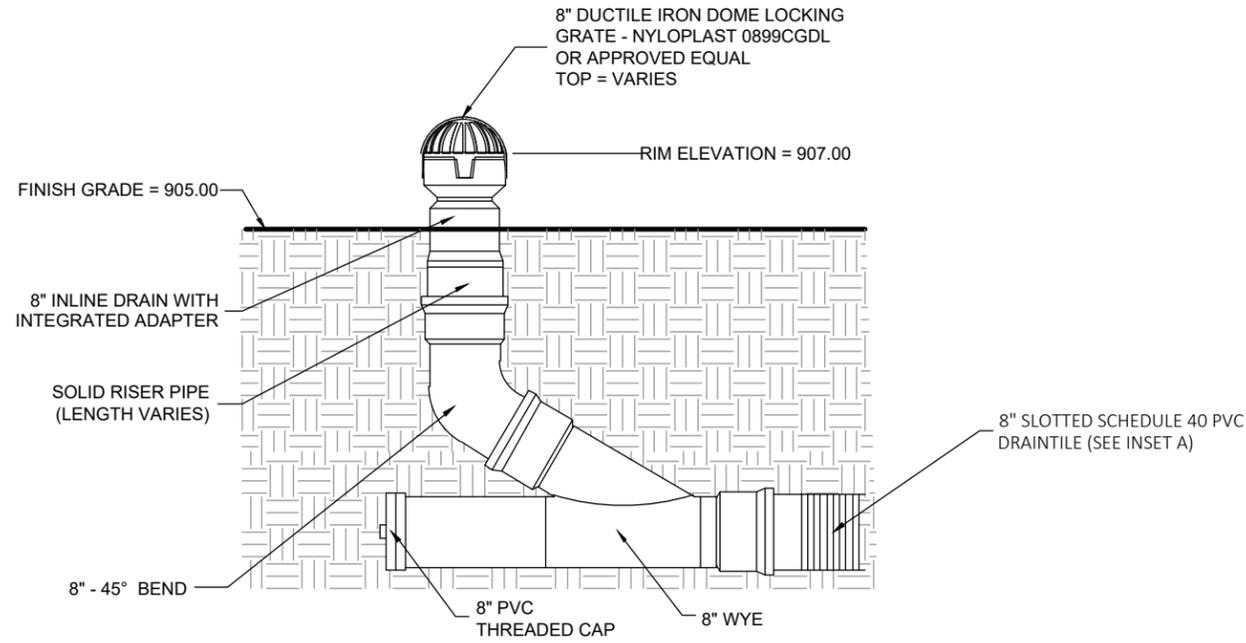


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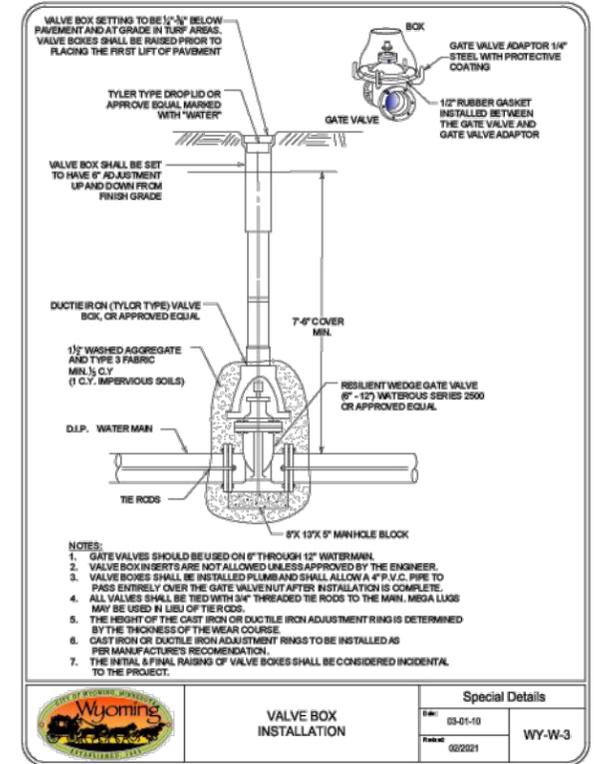
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CHECKED BY: ALB
EOR JOB #376-0232

SEQUENCE OF CONSTRUCTION

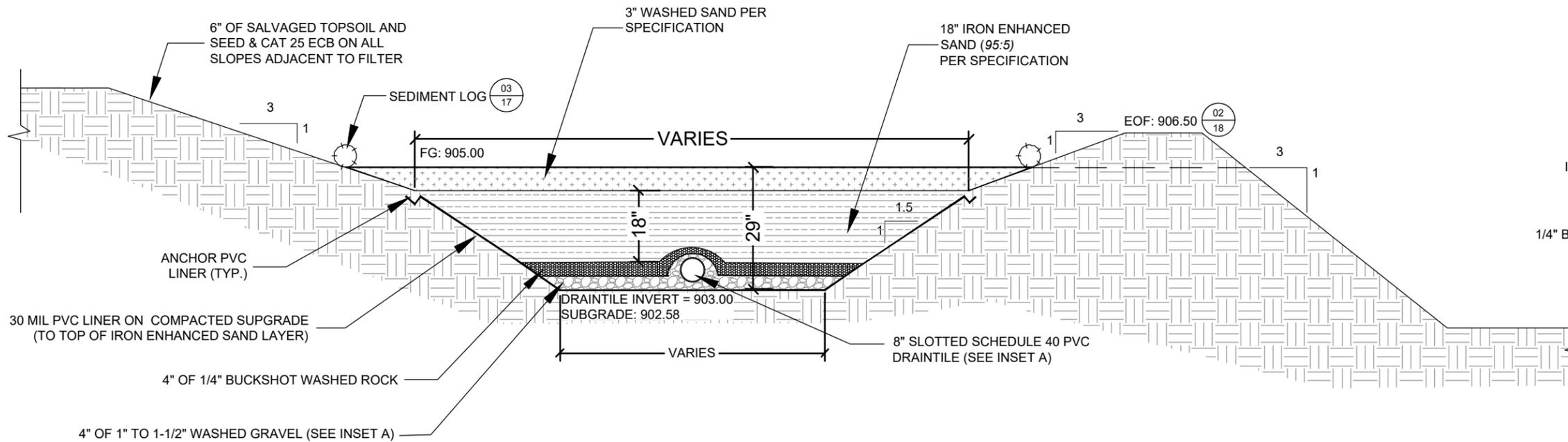
1. STABILIZE ALL UP-GRADIENT EXPOSED EARTH WITH SEED, BLANKET, AND SEDIMENT LOG.
2. INSTALL PVC 30 MIL LINER ON SUBGRADE.
3. INSTALL DRAINTILE, CLEANOUTS, VALVES AND MANHOLES.
4. PLACE WASHED GRAVEL, SCREED LEVEL.
5. PLACE IRON ENHANCED SAND FILTER MEDIA PER SPECIFICATION AND RAKE SURFACE SMOOTH.
6. PLACE 3" WASHED SAND AND RAKE SURFACE SMOOTH.



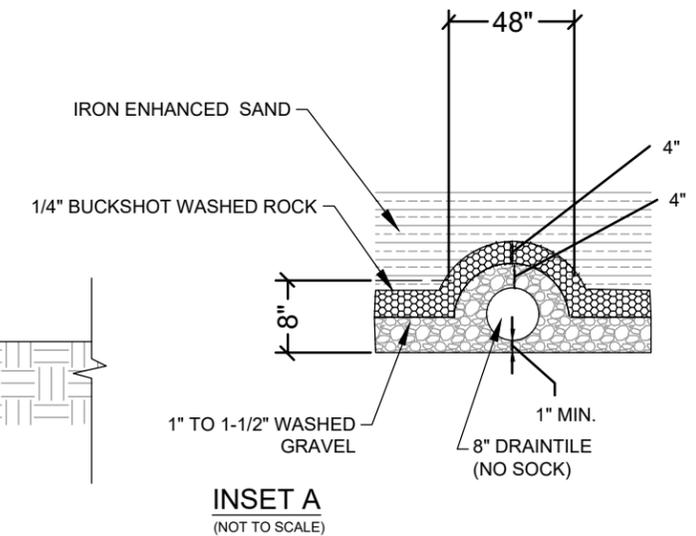
01 DRAINTILE CLEANOUT
15 (No Scale)



02 GATE VALVE & BOX
15 (No Scale)



03 IRON ENHANCED SAND FILTER
15 (No Scale)



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ER MEGOW
ERIK R. MEGOW DATE: 02/23/2026 LICENSE #57794

DATE	NO.	DESCRIPTION
02/23/2025	1	FINAL BID PLANS
	2	
	3	
	4	
	5	
	6	

DESIGNED BY: ERM
DRAWN BY: ERK
CHECKED BY: DRL
EOR JOB #376-0232

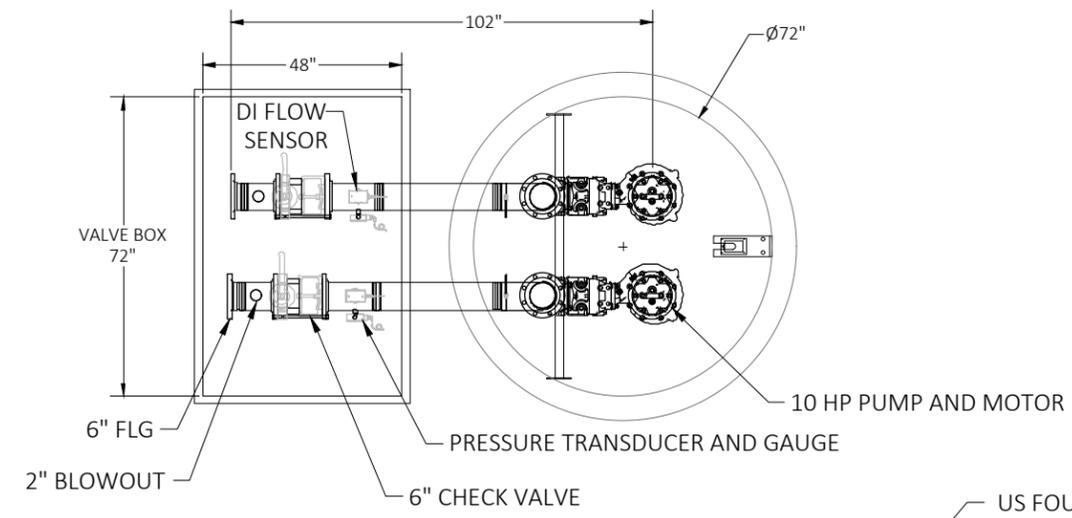


HEATH AVENUE IRON-ENHANCED SAND FILTER
CITY OF WYOMING, CHISAGO COUNTY, MN

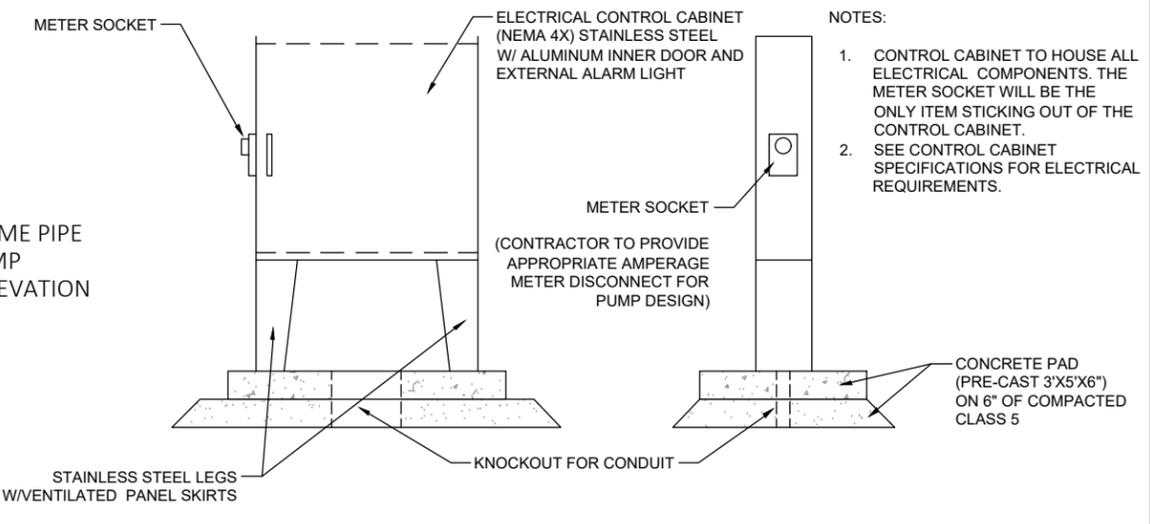
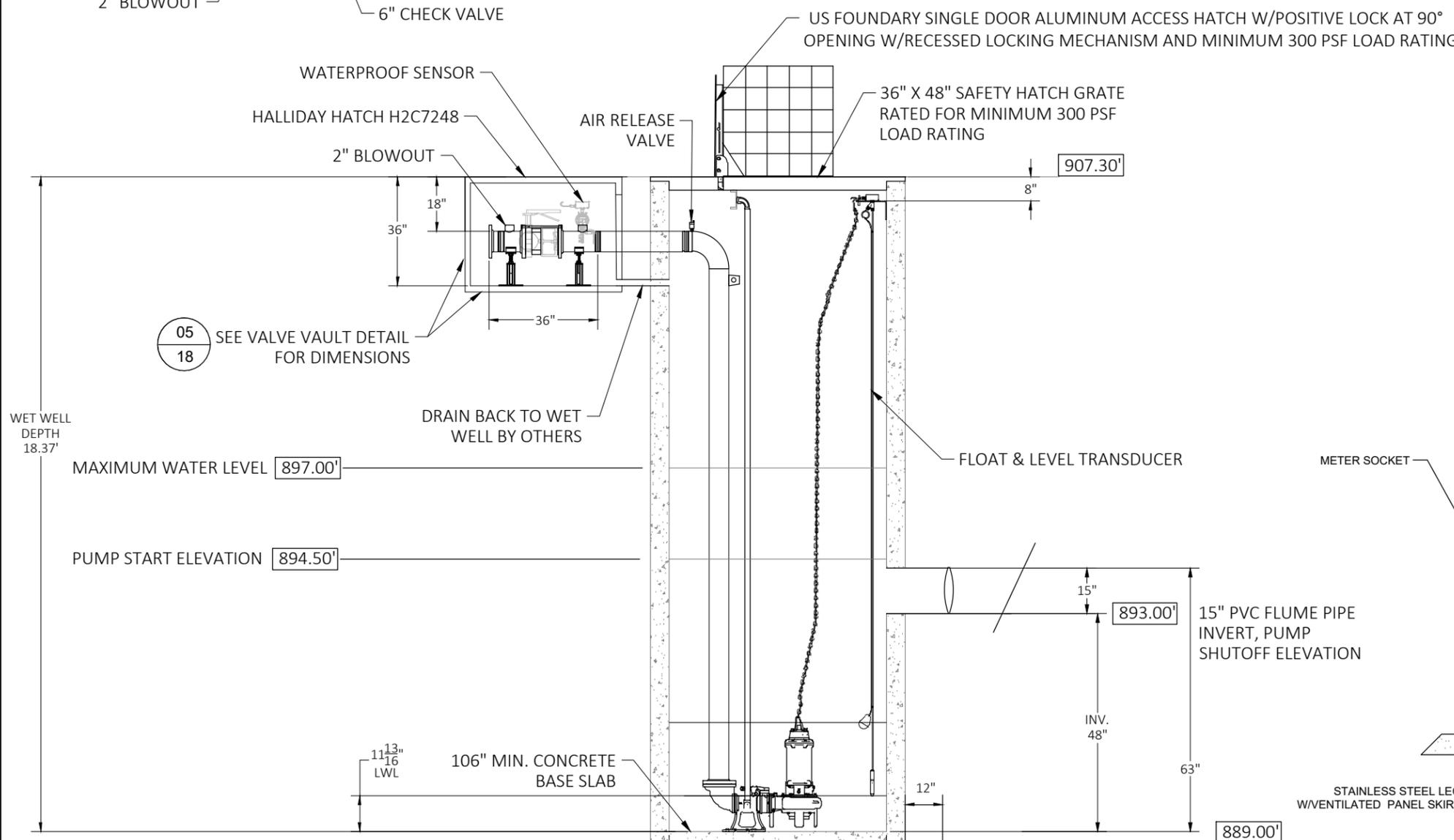
COMFORT LAKE - FOREST LAKE WATERSHED DISTRICT

DETAILS SHEET 01

SHEET 15 OF 20



- NOTES:
1. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS SHOWING EXACT PLACEMENT FOR PUMPS, VALVES, AND FITTINGS. IN ADDITION, CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF CONTROL CABINET (INCLUDING ELECTRICAL DESIGN) AND MANHOLE STRUCTURES.
 2. ALL ATTACHMENT HARDWARE (BRACKETS, BOLTS, ANCHORS, ETC.) SHALL BE STAINLESS STEEL. THIS DOES NOT APPLY TO DIP/HDPE/PVC COUPLERS OUTSIDE THE STRUCTURES.
 3. ALL DUCTILE IRON PIPE SHALL BE POLY WRAPPED.
 4. VERTICAL PIPING SHALL BE SUPPORTED TO THE MANHOLE WALL AT 5' MAXIMUM INTERVALS USING STAINLESS STEEL BRACING.
 5. CONTRACTOR IS REQUIRED TO COORDINATE WITH UTILITY COMPANIES TO GET POWER TO THE LIFT STATION. THIS SHALL BE INCIDENTAL TO THE ELECTRICAL AND PUMP STATION LINE ITEM AND NO ADDITIONAL PAYMENT SHALL BE MADE RESULTING FROM ANY DELAYS IN UTILITY COORDINATION.
 6. PIPES THROUGH THE MANHOLE WALLS SHALL BE SEALED WITH A RUBBER BOOT SEAL AND GUARANTEED WATER TIGHT.
 7. CONTRACTOR SHALL GUARANTEE LIFT STATION MANHOLE AGAINST BOUYANCY.
 8. SEE PLAN VIEW FOR PIPING ORIENTATION.
 9. FOLLOWING INSTALLATION, CONTRACTOR SHALL INSTALL A PRESSURE GAUGE TO TEST THE SYSTEM AND INSTALL STAINLESS STEEL ORIFICE PLATE AS NECESSARY TO OPTIMIZE HEAD CONDITION.
 10. ALL EXPOSED WIRING WITHIN STRUCTURES SHALL BE PROTECTED WITH STAINLESS STEEL BRAIDED WIRING. NO WIRING SHALL BE EXPOSED OUTSIDE THE STRUCTURES.
 11. ALL ELECTRICAL WORK SHALL BE DONE PER PERMITTED REQUIREMENTS AND NEC STANDARD AND COMPLETED BY A LICENSED ELECTRICIAN.
 12. ALL CONCRETE STRUCTURE JOINTS SHALL BE WATERPROOFED AT A MINIMUM WITH MASTIC AND SSI GATORWRAP.
 13. ALL O&M WILL BE THE RESPONSIBILITY OF THE CLFLWD.



- NOTES:
1. CONTROL CABINET TO HOUSE ALL ELECTRICAL COMPONENTS. THE METER SOCKET WILL BE THE ONLY ITEM STICKING OUT OF THE CONTROL CABINET.
 2. SEE CONTROL CABINET SPECIFICATIONS FOR ELECTRICAL REQUIREMENTS.

01 PUMP STATION - ELEVATION VIEW
16 (No Scale)

02 PUMP CONTROL PANEL
16 (No Scale)

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EMMONS & OLIVIER RESOURCES, INC.
1919 JUV. AVE. W. #300 ST. PAUL, MN
ILL: 651.770.8448 WWW.LORINC.COM

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E.R. Megow
ERIK R. MEGOW DATE: 02/23/2026 LICENSE #57794

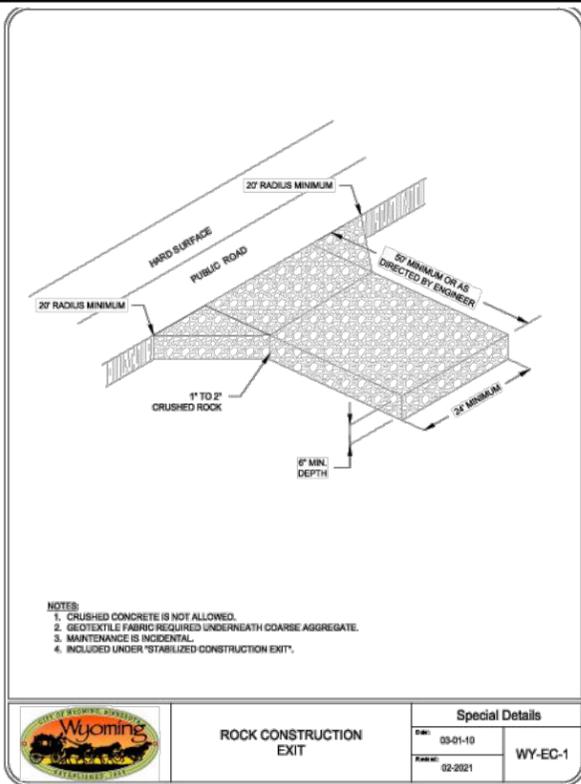
DATE	NO.	DESCRIPTION
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	3	
	4	
	5	
	6	

DESIGNED BY: ERM
DRAWN BY: ERK
CHECKED BY: DRL
EOR JOB #376-0232

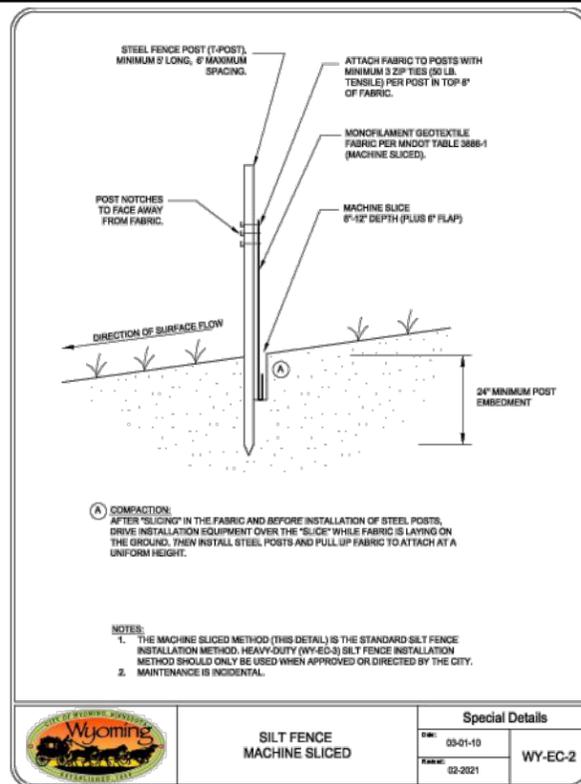


HEATH AVENUE IRON-ENHANCED SAND FILTER
CITY OF WYOMING, CHISAGO COUNTY, MN
COMFORT LAKE - FOREST LAKE WATERSHED DISTRICT

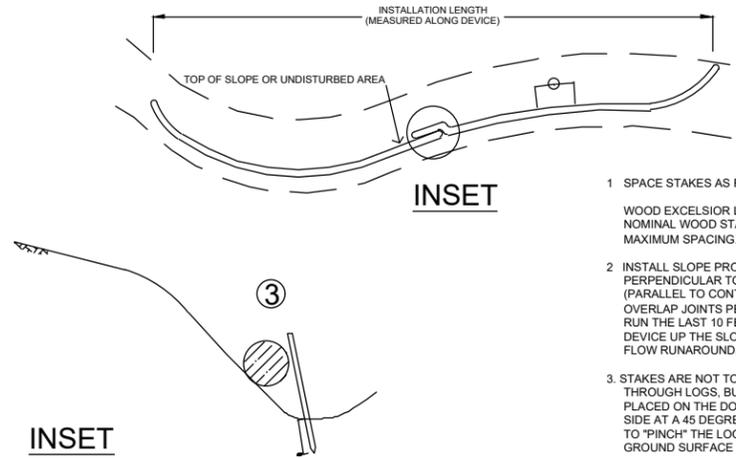
Plot Date: 08/01/2024
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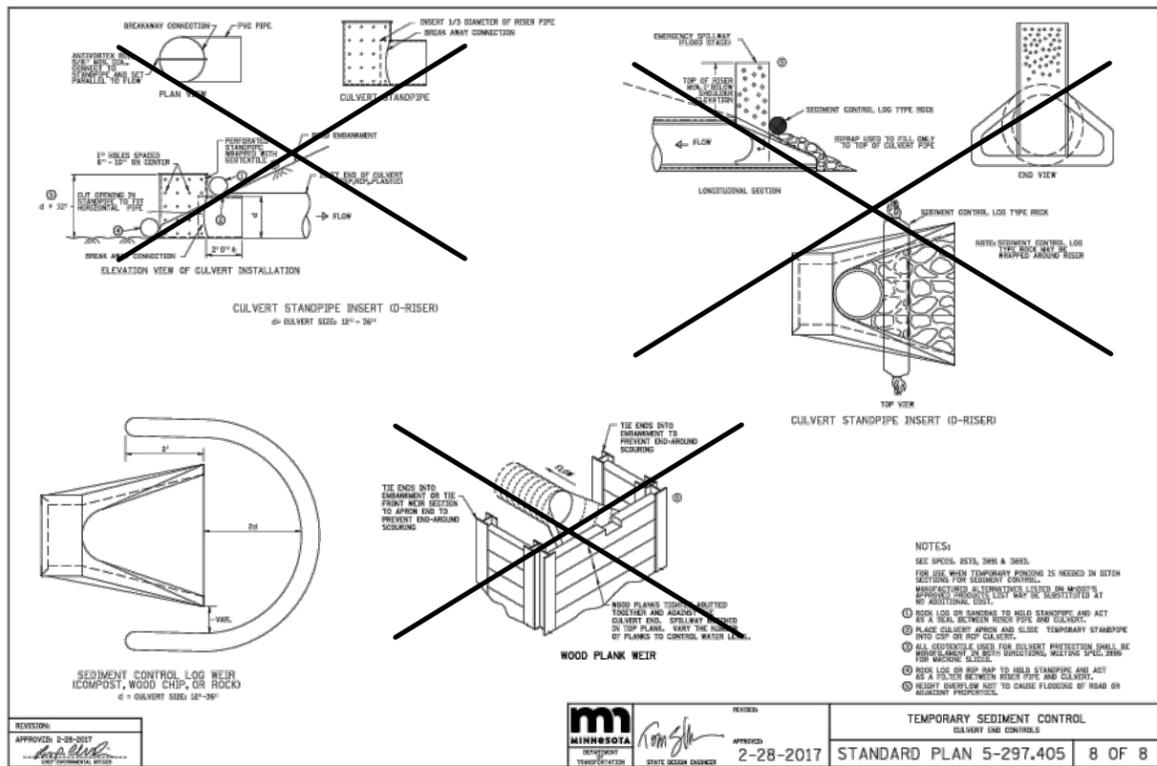
	ROCK CONSTRUCTION EXIT	Special Details	
		DATE: 05-01-10 REVISION: 02-2021	WY-EC-1



	SILT FENCE MACHINE SLICED	Special Details	
		DATE: 05-01-10 REVISION: 02-2021	WY-EC-2



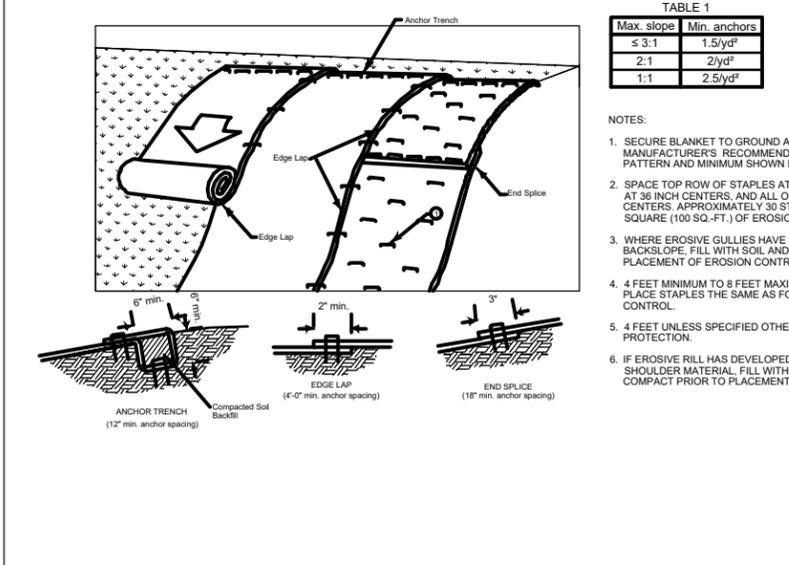
03 SEDIMENT LOG
 17 (No Scale)



	TEMPORARY SEDIMENT CONTROL CULVERT END CONTROLS
APPROVED: 2-28-2017 	APPROVED: 2-28-2017
STANDARD PLAN 5-297.405	8 OF 8

01 ROCK CONSTRUCTION EXIT
 17 (No Scale)

02 SILT FENCE
 17 (No Scale)



05 EROSION CONTROL BLANKET
 17 (No Scale)

04 CULVERT PROTECTION
 17 (No Scale)

EO **water ecology community**
 EMMONS & OLIVIER RESOURCES, INC.
 1919 J.W. AV. W. #300 ST. PAUL, MN
 ILL: 651.770.8449 WWW.LORINC.COM

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ERIC R. MEGOW DATE: 02/23/2026 LICENSE #57794

DATE	NO.	DESCRIPTION
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	2	
	3	
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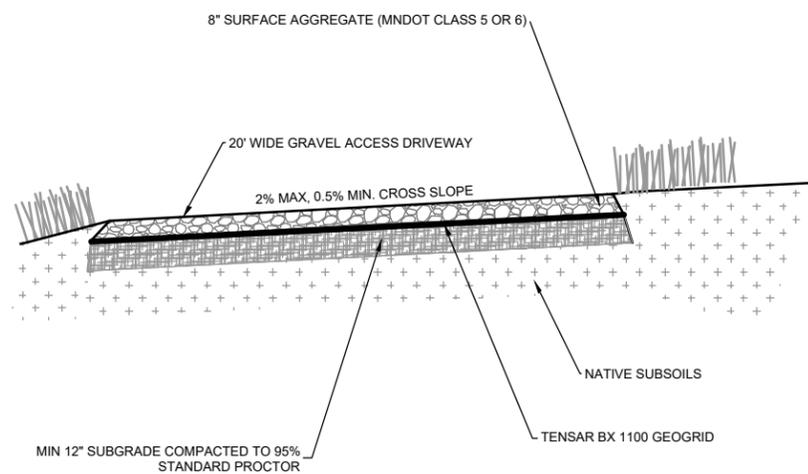
DESIGNED BY: ERM
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 EOR JOB #376-0232



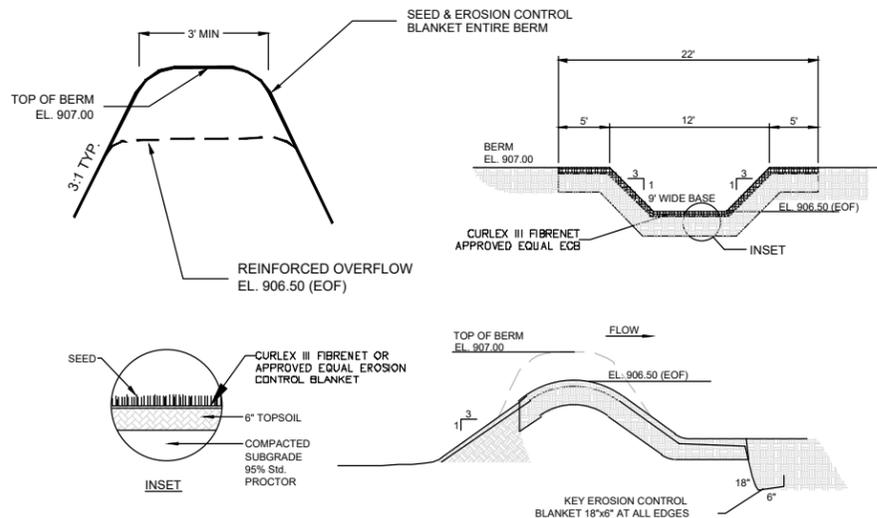
HEATH AVENUE IRON-ENHANCED SAND FILTER
 CITY OF WYOMING, CHISAGO COUNTY, MN
 COMFORT LAKE - FOREST LAKE WATERSHED DISTRICT

DETAILS SHEET 03
 SHEET 17 OF 20

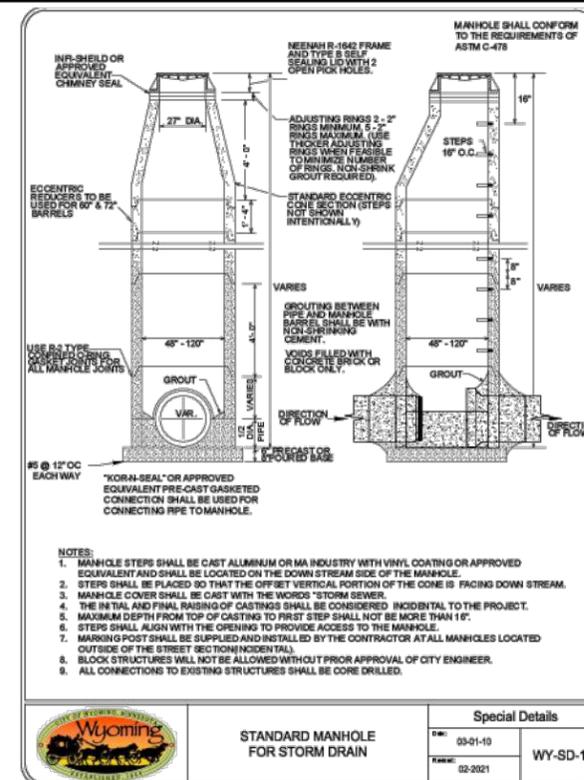
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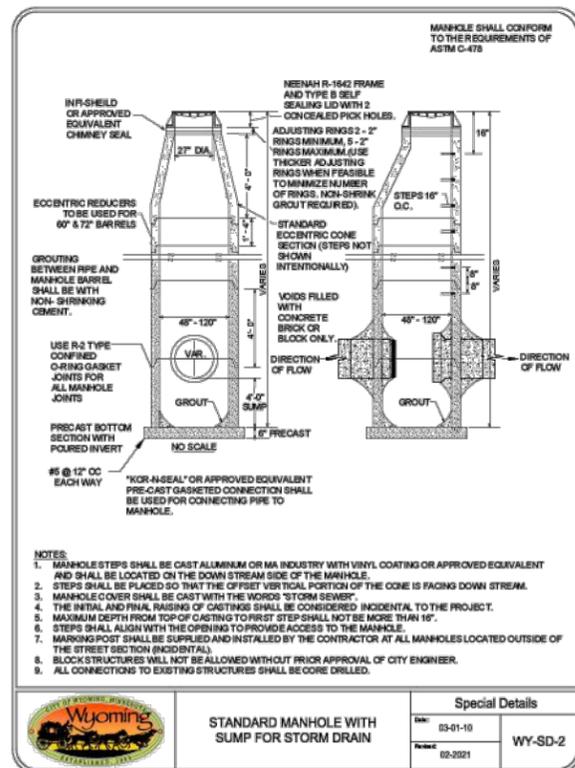
01
18
ACCESS DRIVEWAY
(No Scale)



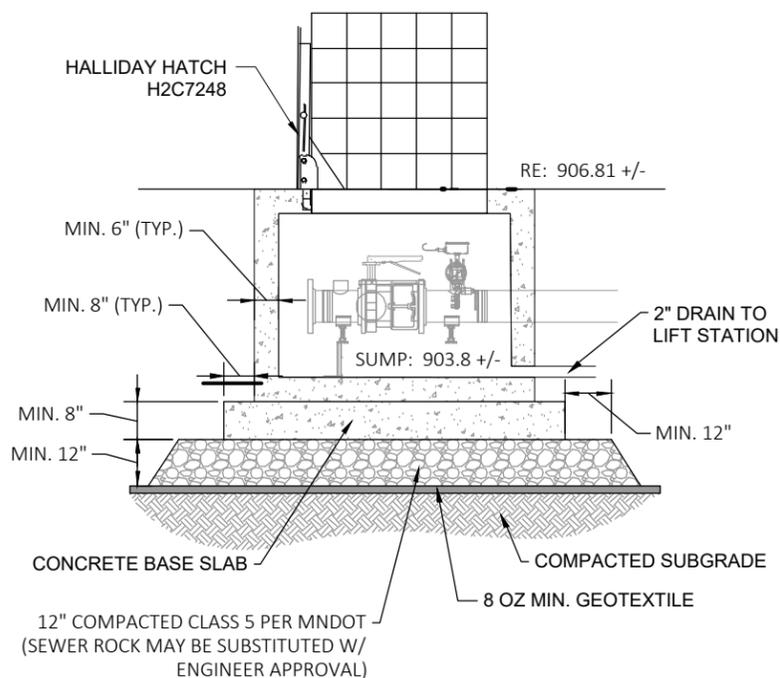
02
18
STABILIZED OVERFLOW
(No Scale)



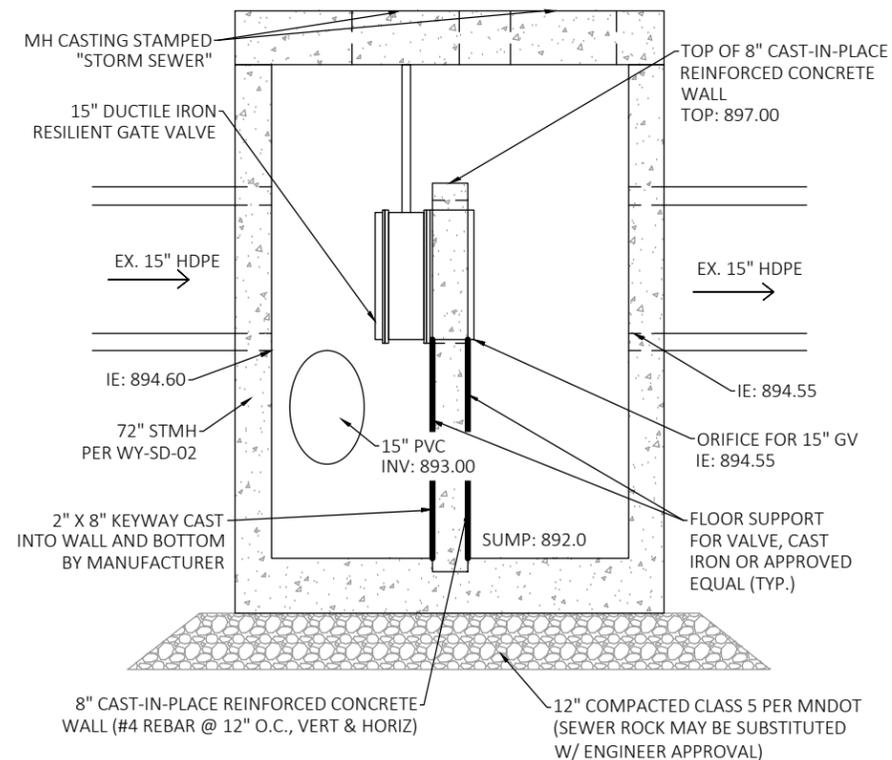
03
18
STORM SEWER MANHOLE
(No Scale)



04
18
STORM SEWER MANHOLE WITH SUMP
(No Scale)

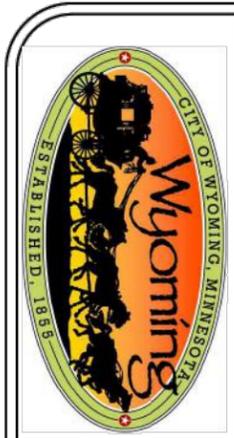


05
18
48" X 72" VAULT
(No Scale)



06
18
DIVERSION STRUCTURE
(No Scale)

DATE	NO.	DESCRIPTION
02/23/2025	1	FINAL BID PLANS
	2	
	3	
	4	
	5	
	6	



**RIPRAP
DETAIL**

Special Details

Date: 03-01-10
Revised: 03-16-20

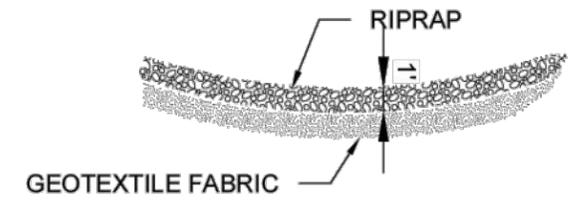
WY-SD-6

RCP AT OUTLETS

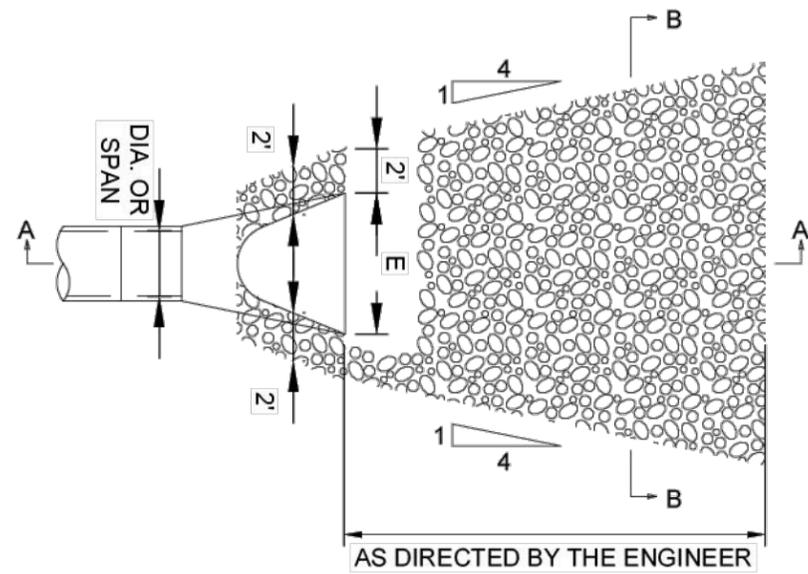
TABLE OF QUANTITIES

SPAN ROUND PIPE (IN)	RIPRAP AT RCP OUTLETS					
	CLASS III D ₅₀ = 15"		CLASS IV D ₅₀ = 15"		CLASS V D ₅₀ = 15"	
	15" DEPTH RIPRAP (CU YD)	7.5" DEPTH GRANULAR FILTER (CU YD)	18" DEPTH RIPRAP (CU YD)	9" DEPTH GRANULAR FILTER (CU YD)	24" DEPTH RIPRAP (CU YD)	12" DEPTH GRANULAR FILTER (CU YD)
12	2.1	1.1	2.6	1.3	3.4	1.7
15	2.9	1.4	3.5	1.7	4.6	2.3
18	3.6	1.8	4.4	2.2	5.8	2.9
21	4.6	2.3	5.6	2.8	7.4	3.7
24	5.8	2.9	6.9	3.5	9.2	4.6
27	6.9	3.4	8.3	4.1	11.0	5.5
30	8.3	4.1	9.9	5.0	13.2	6.6
36	11.0	5.5	13.2	6.6	17.6	8.8
42	13.6	6.8	16.4	8.2	21.8	10.9
48	16.8	8.4	20.1	10.1	26.8	13.4
54	19.8	9.9	23.7	11.9	31.6	15.8
60	23.0	11.5	27.6	13.8	36.8	18.4
66	27.0	13.5	32.4	16.2	43.2	21.6
72	31.1	15.6	37.4	18.7	49.8	24.9
84	40.0	20.0	48.0	24.0	64.0	32.0
90	45.5	22.8	54.6	27.3	72.8	36.4

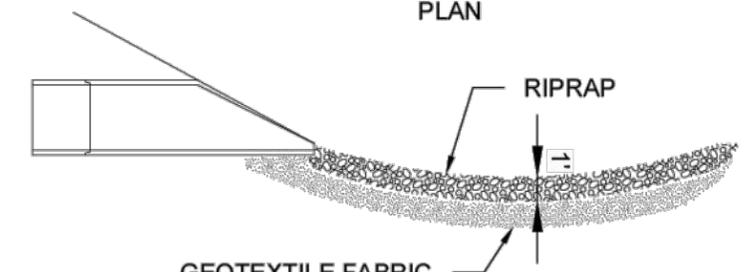
SPAN ROUND PIPE (IN)	RIPRAP AT RCP-A OR BOXES OF EQUIVALENT SPAN WIDTH					
	CLASS III D ₅₀ = 15"		CLASS IV D ₅₀ = 15"		CLASS V D ₅₀ = 15"	
	15" DEPTH RIPRAP (CU YD)	7.5" DEPTH GRANULAR FILTER (CU YD)	18" DEPTH RIPRAP (CU YD)	9" DEPTH GRANULAR FILTER (CU YD)	24" DEPTH RIPRAP (CU YD)	12" DEPTH GRANULAR FILTER (CU YD)
22	3.6	1.8	4.4	2.2	5.8	2.9
28	5.8	2.9	6.9	3.5	9.2	4.6
36	8.1	4.1	9.8	4.9	13.0	6.5
43	11.0	5.5	13.2	6.6	17.6	8.8
51	13.6	6.8	16.4	8.2	21.8	10.9
58	16.5	8.3	19.8	9.9	26.4	13.2
65	19.8	9.9	23.7	11.9	31.6	15.8
73	23.3	11.6	27.9	14.0	31.2	18.6
88	32.4	16.2	38.9	19.4	51.8	25.9
102	43.5	21.8	52.2	26.1	69.6	34.8
115	44.0	22.0	52.8	26.4	70.4	35.2
122	49.3	24.6	59.1	29.6	78.8	39.4
138	61.3	30.6	73.5	36.8	98.0	49.0
154	74.4	37.2	89.3	44.6	119.0	59.5



SECTION B-B



PLAN



SECTION A-A

- NOTES:**
1. FOR PIPES GREATER THAN OR EQUAL TO 48", USE 2.0'
 2. THE FABRIC SHOULD COVER THE AREA OF THE RIPRAP AND EXTEND UNDER THE CULVERT APRON 3 FEET.
 3. GROUT REQUIRED ON 21" & GREATER DIA. PIPE OR AS DIRECTED BY ENGINEER.
 4. RIPRAP TYPE SHALL BE FIELD STONE
 5. REQUIREMENTS FOR RIPRAP SIZE, THICKNESS, WILL BE DESIGNATED IN PLANS.

01 CLASS III RIPRAP
17 (No Scale)



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

E.R. Megow
ERIK R. MEGOW DATE: 02/23/2026 LICENSE #57794

DATE	NO.	DESCRIPTION
02/23/2025	1	FINAL BID PLANS
	2	
	3	
	4	
	5	
	6	

DESIGNED BY: ERM
DRAWN BY: ERK
CHECKED BY: DRL
EOR JOB #376-0232

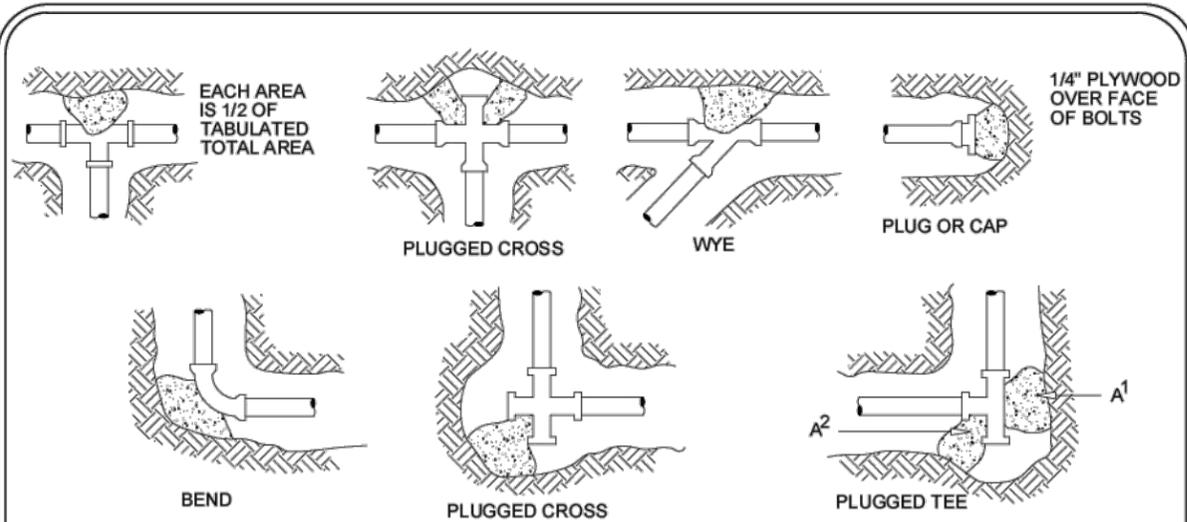


HEATH AVENUE IRON-ENHANCED SAND FILTER
CITY OF WYOMING, CHISAGO COUNTY, MN
COMFORT LAKE - FOREST LAKE WATERSHED DISTRICT

DETAILS SHEET 05

SHEET 19 OF 20

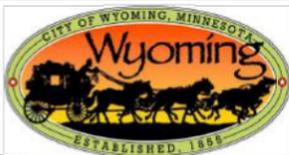
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NOMINAL FITTING SIZE, INCHES	TEE, WYE, PLUG OR CAP	90° BEND, PLUGGED CROSS	TEE PLUGGED ON RUN		45° BEND	22-1/2° BEND	11-1/4° BEND
			A ¹	A ²			
4	1.0	1.4	1.9	1.4	1.0	-	-
6	2.1	3.0	4.3	3.0	1.6	1.0	-
8	3.8	5.3	7.6	5.4	2.9	1.5	1.0
10	5.9	8.4	11.8	8.4	4.6	2.6	1.2
12	8.5	12.0	17.0	12.0	6.6	3.4	1.7
14	11.5	16.3	23.0	16.3	8.9	4.6	2.3
16	15.0	21.3	30.0	21.3	11.6	6.0	3.0
18	19.0	27.0	38.0	27.0	14.6	7.6	3.8
20	23.5	33.3	47.0	33.3	18.1	9.4	4.7
24	34.0	48.0	68.0	48.0	26.2	13.6	6.8

NOTES:

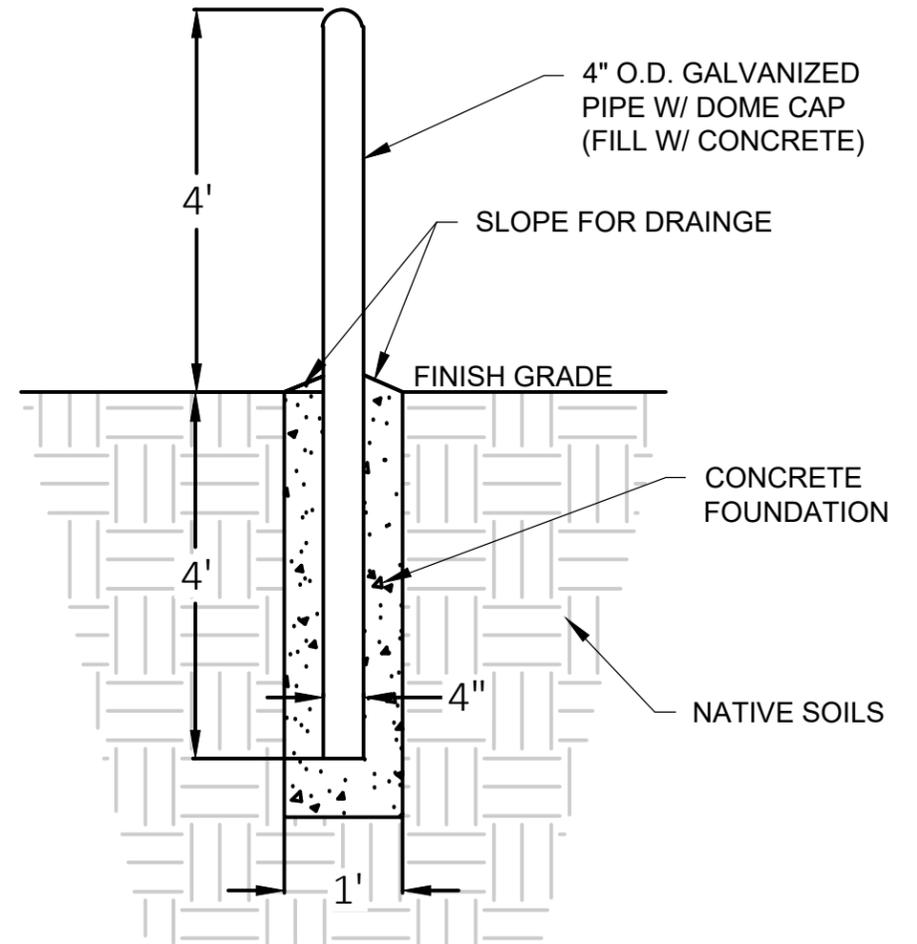
1. CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
2. KEEP CONCRETE CLEAR OF JOINT AND ACCESSORIES.
3. REQUIRED BEARING AREAS AT FITTING SHALL BE AS NOTED ABOVE, UNLESS INDICATED OTHERWISE.
4. BEARING AREAS AND SPECIAL BLOCKING DETAILS SHOWN ON THE PLANS TAKE PRECEDENCE OVER BEARING AREAS AND BLOCKING DETAILS SHOWN ON THIS STANDARD PLATE.
5. ABOVE BEARING AREAS BASED ON TEST PRESSURES OF 150 PSI AND AN ALLOWABLE SOIL BEARING STRESS OF 2000 LBS. PER SQUARE FOOT. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURES AND SOIL BEARING STRESSES, USE THE FOLLOWING EQUATION: BEARING AREA = (TEST PRESSURE/150) X (2000/SOIL BEARING STRESS) X (TABLE VALUE).



POURED CONCRETE THRUST BLOCKING FOR WATERMAIN

Special Details

Date:	03-01-10	WY-W-4
Revised:	03-16-20	



01 THRUST BLOCK
17 (No Scale)

02 BOLLARD
17 (No Scale)



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

Erik R. Megow
ERIK R. MEGOW

DATE: 02/23/2026 LICENSE #57794

DATE	NO.	DESCRIPTION
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DESIGNED BY: ERM
DRAWN BY: ERK
CHECKED BY: DRL
EOR JOB #376-0232



HEATH AVENUE IRON-ENHANCED SAND FILTER
CITY OF WYOMING, CHISAGO COUNTY, MN
COMFORT LAKE - FOREST LAKE WATERSHED DISTRICT

DETAILS SHEET 06

SHEET 20 OF 20