



**VILLAGE OF JACKSON
BOARD OF PUBLIC WORKS MEETING AGENDA**

Tuesday, January 30, 2024 at 6:00 PM

Jackson Municipal Complex
Village Board Room
N168W19851 Main Street
Jackson, WI 53037

1. Call to Order and Roll Call
2. Approval of Minutes for the Board of Public Works Meeting of November 28, 2023
3. Discussion on Glen Brooke Drive Traffic Concerns - Residents Mike and Kristin Kania
4. Review of Bids for the 2024 Jackson Wastewater Treatment Plant Improvement Project
5. Change Order #1 - Jackson Wastewater Treatment Facility Storage Garage - Hunzinger Construction
6. Change Order #2 - Jackson Wastewater Treatment Facility Storage Garage - Hunzinger Construction
7. Change Order #3 - Jackson Wastewater Treatment Facility Storage Garage - Hunzinger Construction
8. Pay Request #3 - Jackson Wastewater Treatment Facility Storage Garage - Hunzinger Construction, in the Amount of \$227,905.83
9. Pay Request # 4 - Jackson Wastewater Treatment Facility Storage Garage - Hunzinger Construction, in the Amount of \$142,692.68
10. Pay Request #2 - STH 60 Street Lighting Project - Wil-Surge, in the Amount of \$94,502.93
11. Pay Request #3 - STH 60 Street Lighting Project - Wil-Surge, in the Amount of \$125,124.79
12. Review Bids for the Eagle Drive & STH 60 Intersection Improvement Project
13. Review of DNR Urban Non-Point Source Planning Grant Report - Draft
14. Director of Public Works Report
15. Citizens/Village Staff to address the Board of Public Works
16. Adjourn

Persons with disabilities requiring special accommodations for attendance at the meeting should contact the Administration Department at the Jackson Municipal Complex at least one (1) business day prior to the meeting.

It is possible that members of the Village Board may attend the above meeting. No action will be taken by any governmental body at this meeting other than the governmental body specifically referred to in this

meeting notice. This notice is given so that members of the Village Board may attend the meeting without violating the open meeting law.

MINUTES
BOARD OF PUBLIC WORKS MEETING
Tuesday, November 28, 2023 at 6:00 PM
Board of Public Works Meeting

1. Call to Order and Roll Call

The meeting was called to order at 6:00 PM by Pres. Heckendorf.

Members Present: Pres. Heckendorf, Ethan Hollenberger, Randy Matter, Tr. Engelhardt (arrived at 6:01 PM), Stephanie Egner, and Chris Sberna.

Members Excused: Jeffrey Mitchell

Members Absent: None

Staff Present: Administrator Jen Keller, Public Works Director Brian Kober, and Clerk Anastasia Gonstead.

Trustees Present in Audience: None

2. Approval of Minutes for the Board of Public Works Meeting of October 31, 2023

The motion to approve the minutes for the Board of Public Works meeting of October 31, 2023 was made by Tr. Matter and seconded by S. Egner.

Vote: 5 ayes, 0 nays. Motion carried.

Note: Tr. Engelhardt arrived and joined the meeting at 6:01 PM.

3. Easement Agreement for Use of Public Right of Way on Mill Road - Sysco Corporation, Inc.

Director Kober provided the background on this matter and provided clarification on the area in which this easement would affect.

The motion to recommend to the Village Board to approve the Easement Agreement for use of the public right of way on Mill Road for Sysco Corporation, Inc. was made by E. Hollenberger and seconded by C. Sberna.

Vote: 6 ayes, 0 nays. Motion carried.

4. Pay Request #2 - Jackson WWTF Storage Garage - Hunzinger Construction, in the Amount of \$257,119.48

Director Kober provided an update on the status of this project.

The motion to recommend to the Budget and Finance Committee and to the Village Board to approve Pay Request #2 for Jackson Water Wastewater Storage Garage, to Hunzinger Construction, in the amount of \$257,119.48 was made by C. Sberna and seconded by E. Hollenberger.

Vote: 6 ayes, 0 nays. Motion carried.

5. Pay Request #4 - 2023 Utility Street Improvement Project - Vinton Construction, in the Amount of \$104,719.39

Director Kober provided an overview of the project to point and projected project in the spring.

The motion to recommend to the Budget and Finance Committee and to the Village Board to approve Pay Request #4 for the 2023 Utility Street Improvement project, to Vinton Construction, in the amount of \$104,719.39 was made by Tr. Matter and seconded by Tr. Engelhardt.

Vote: 6 ayes, 0 nays. Motion carried.

6. Pay Request #7 - STH 60 Utility Upgrade Project - Advanced Construction, in the Amount of \$57,835.84

Director Kober provided an explanation of the pay request and the retainage.

The motion to recommend to the Budget and Finance Committee and to the Village Board to approve Pay Request #7 for State Highway 60 Utility Upgrade Project, to Advanced Construction, in the amount of \$57,835.84 was made by E. Hollenberger and seconded by Tr. Engelhardt.

Vote: 6 ayes, 0 nays. Motion carried.

7. Pay Request #1 - STH 60 Street Light Project - Wil-Surge, in the Amount of \$112,813.38

Director Kober provided an update on the project and recent hurdles due to weather.

The motion to recommend to the Budget and Finance Committee and to the Village Board to approve Pay Request #1 for the State Highway 60 Street Light Project, to Wil-Surge, in the amount of \$112,813.38 was made by Tr. Matter and seconded by E. Hollenberger.

Vote: 6 ayes, 0 nays. Motion carried.

8. Update - Stormwater Pond Inspection Program

Director Kober provided the body an email from Matthew Bednarski with CDM Smith and gave an overview of what it encompassed. A copy of the supplemental handout will be retained and put on file. He further explained reports are forthcoming and the anticipated next steps. Invoicing is not expected until next year. Discussion commenced regarding different approaches in the future to matters such as this, in order to be more efficient and timely.

No formal action taken/needed.

9. Update - DNR Urban Non-Point Source Planning Grant

Director Kober provided the body with an email from Matthew Bednarski with CDM Smith and gave an overview of what is encompassed. A copy of the supplemental handout will be retained and put on file. He further went on to explain the projects the DNR is interested in, as well as the projected reduction in total suspended solids and total phosphorus numbers with the proposed projects. A presentation is to be expected in January.

No formal action taken/needed.

10. Director of Public Works Report

Director Kober provided a summary of his report, which was included in the packet. Director Kober also took questions from the body regarding his report.

The motion to put Director Kober's report on file was made by E. Hollenberger and seconded by Tr. Engelhardt.

Vote: 6 ayes, 0 nays. Motion carried.

11. Citizens/Village Staff to address the Board of Public Works

None. Pres. Heckendorf reminded the body that there would not be a Board of Public Works meeting in December, and will reconvene in January.

12. Adjourn

A motion to adjourn the meeting was made by Pres. Heckendorf and seconded by E. Hollenberger.

Vote: 6 ayes, 0 nays. Motion carried. The meeting was adjourned at 6:25 PM.

Respectfully Submitted,
Anastasia Gonstead - Village Clerk

Memo

To: Board of Public Works
From: Brian W. Kober, P. E., Director of Public Works 
Subject: Discussion of Glen Brooke Drive Traffic Concerns
Date: January 26, 2024

Village residents in the Glen Brooke Subdivision have concerns of vehicle traffic on Glen Brooke Drive. A meeting was held with Mike & Kristin Kania on Tuesday, December 12, 2023, which I was not able to attend. Chief Vossekuil has provided a summary of the discussion that occurred. Attached is the email. Per the email, Mike and Kristin expressed interest of speaking at the next Board of Public Works meeting (January 30, 2024).

In summary, as per the email the Village has several problem areas with vehicle traffic. One of the areas is Hickory Lane from Sherman Road to Eagle Drive. In 2018, the Jackson Police Department conducted a speed study to further understand the traffic concerns. The summary is attached for review. Recommendation is to conduct a speed study for Glen Brooke Drive from South Street to Glen Hill Drive and review results to create a plan for the next steps necessary.

If you have any questions, please do not hesitate to ask.

Brian W. Kober, P.E.

Brian Kober

From: Ryan Vossekui <chief@jacksonpolice.org>
Sent: Thursday, December 14, 2023 7:15 AM
To: Brian Kober
Cc: Mike and Kristin Kania; Jen Keller
Subject: Speeding on Glen Brooke Drive

Good Morning Brian,

I met with Mike and Kristin Kania (copied here) on Tuesday to further discuss their ongoing concerns with speeding and reckless driving on Glen Brooke Drive. Mike and Kristin explained that they are continuing to observe high speeds and failure to yield to pedestrians as Glen Brooke continues to experience high traffic volumes.

We discussed the reasons that adding stop signs or speed bumps are not feasible or effective solutions. Traditional speed reduction efforts (enforcement and use of the radar trailer) have not been effective in the long term. They would like the Village to consider adding well marked pedestrian crossings, and possibly permanent speed warning signs.

I've explained that we have several problem areas in the Village, and that adding additional infrastructure in each area is not affordable. With that said, I am researching current technologies for speed signs that have been effective in other communities. I'll provide that information when I have it.

There may be an opportunity for the residents of that area to provide funding for speed reduction efforts.

Mike and Kristin have expressed interest in having this item added to a future Board of Public Works agenda, or speaking under public comments if that's not possible. The next logical step is for that body to discuss this matter, once we've identified what the potential costs might be.

Sincerely,



Chief Ryan Vossekui

Village of Jackson Police Department
N168W19851 Main St.
Jackson, WI 53037
(262) 677-4949



Board of Directors
Board Secretary
Wisconsin Police Leadership Foundation

MEMO

To Brian Kober, Director of Public Works
From Chief Jed Dolnick
Date May 16, 2018
Subject Traffic Study- Hickory Drive

Northbound

- A total of 4,075 vehicle speeds were collected from May 10 to May 16. Some vehicles were counted more than once as they went in-and-out of the radar beam.
- Only .5% of the vehicles were measured at 40 mph or more.
- The average speed was 25 mph.
- The “85th Percentile Speed”, which is the speed at or below which 85 percent of all vehicles are observed to travel, was 31 mph.
- The “Ten MPH Pace”, which is the 10 mph range in which the majority of vehicles are travelling, was 23-32 mph.

Conclusion

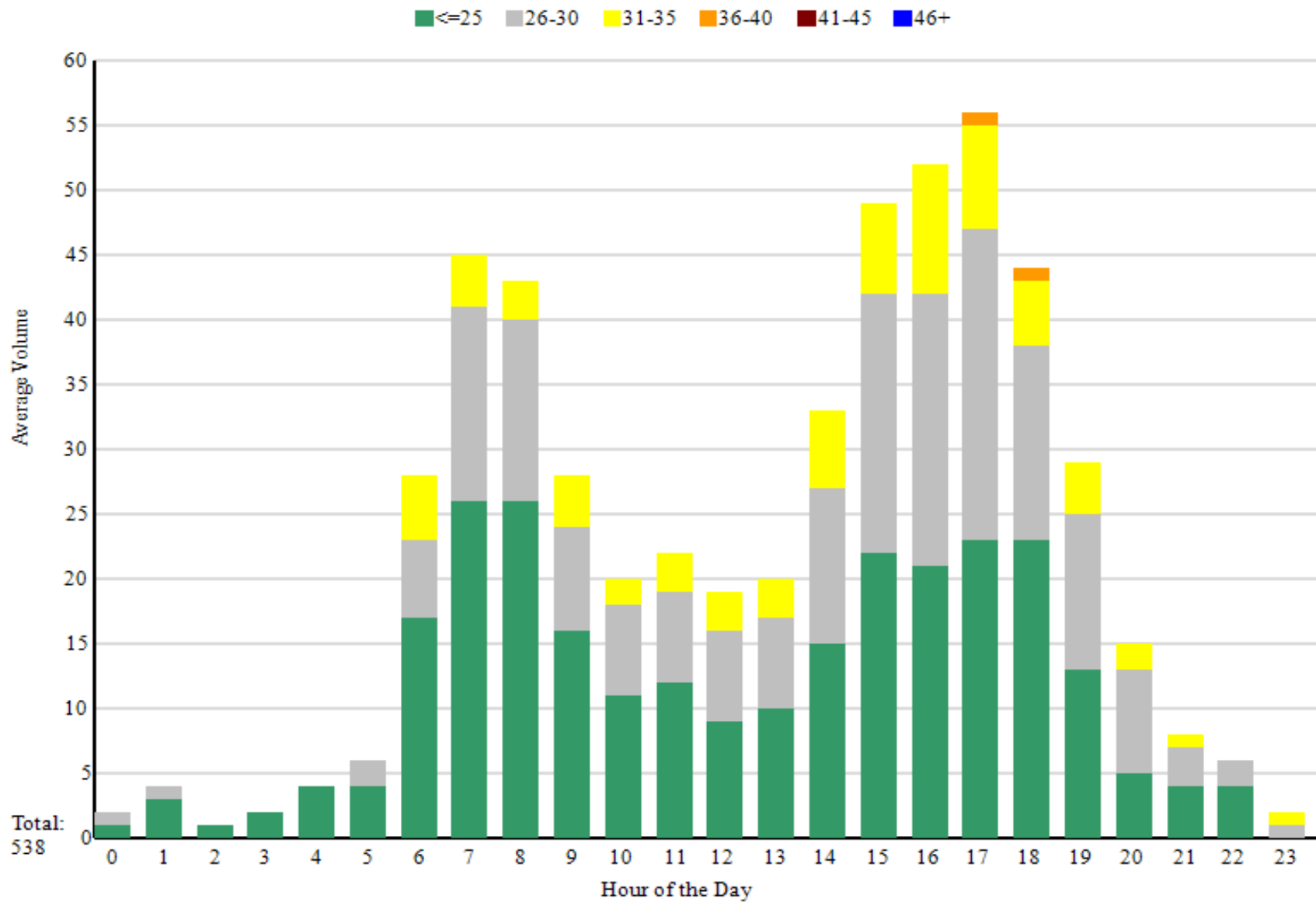
The speed compliance is typical for a residential street, but especially good for a wide “collector road” like Hickory.

Place Currently Not Set
Speed/Time/Volume Graph

Location: Hickory Drive
Dates: 05/14/2018 to 05/16/2018

Zone: Residential
Speed Limit: 25 MPH

Travel Direction: N



05/16/2018, 14:40:30

Place Currently Not Set

Traffic Survey Summary

Location: Hickory Drive
Start Date: 05/10/2018
End Date: 05/16/2018

Zone: Residential
Start Time: 10:56:04
End Time: 10:02:29
Travel Direction: N

Speed	1 - 19	20 - 21	22 - 23	24 - 25	26 - 27	28 - 29	30 - 31	32 - 33	34 - 35	36 - 37	38 - 39	40 - 999
Volume	634	303	351	513	645	653	461	347	97	39	11	21
% of Total	15.55%	7.43%	8.61%	12.58%	15.82%	16.02%	11.31%	8.51%	2.38%	0.95%	0.26%	0.51%
									Total Vehicles: 4075			

Speed Statistics		10 MPH Pace		Number Exceeding Limit				
Posted	25	Pace Speed	23 to 32	Speed	25+	35+	45+	Total
#At/Under Limit	1801	# in Pace	2673	Number	2203	63	8	2274
# Over Limit	2274	% in Pace	65.59%	Percent	54.06%	1.54%	0.19%	55.8%
Average Speed	25.28	85% Percentile	31					

Memo

To: Board of Public Works

From: Brian W. Kober, P. E., Director of Public Works 

Subject: 2024 WWTP Improvement Project
Tertiary Filters and Disinfection

Date: January 26, 2024

The bid opening date was changed to Tuesday, January 30, 2024, at 1:00 PM. The bid information will be distributed at the meeting. We have a good interest from contractors for the project. Hoping for a very competitive bid.

If you have any questions, please do not hesitate to ask.

Brian W. Kober, P.E.

2024 Wastewater Improvements - Tertiary Filters and Disinfection

Quest Number: 8909406

Closing Date: Tue, 01/30/2024 01:00 PM CST

Posting Type: Construction Project

QuestCDN Partner Posting

Location Details -

City:	Jackson
County:	Washington
State/Province:	WI

Project Details -

Online Bidding:	Available
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Closing Date:	Tue, 01/30/2024 01:00 PM CST
Project Bid Received By & Opening Information:	Village of Jackson, W194N16660 Eagle Drive, Jackson, WI 53037. Bids will be publicly opened and read aloud immediately thereafter in the meeting room.

Pre-Bid Meeting Info:	A pre-bid meeting is scheduled for January 16, 2024 at 10:00 a.m. at the WWTF. Questions regarding the work can be addressed to Greg Droessler at Town and Country Engineering (gdroessler@tcengineers.net).
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Project Description -

Project Category Code:	Wastewater Treatment Plant Improvements, Buildings/Public
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Description:

The addition to the tertiary filter building and disinfection facilities in the Village of Jackson, including:

- Construction of an approximate 40' x 54' masonry building addition to the existing tertiary filter building, including additional process tanks for enhanced phosphorus removal. Improvements will also include renovation of the existing building, including structural, process, HVAC, and electrical improvements.
- Renovation of the existing disinfection tank to remove the existing chlorination equipment and replace it with new UV equipment. Improvements also include various structural upgrades to this tank including new metal grating and an open-air structure.
- Site improvements that include process piping, site grading, asphalt paving and various other improvements.
- Various HVAC, plumbing, and electrical improvements to the new and existing building.

Bidders must be pre-qualified with the Village of Jackson within the last year or must be pre-qualified for this work 5 days prior to the bid deadline in accordance with Section 66.0901 of the Wisconsin Statutes. Each bidder must deposit, with his bid, security in the amount of 5% of the maximum bid amount. Bidders must be experienced in municipal pipeline construction. The Village of Jackson reserves the right to reject any and all bids and to waive informalities in any bid.

This project will be funded by the Clean Water Fund (CWF) established under Wisconsin State Statutes, as administered by the Wisconsin Department of Natural Resources. Neither the State of Wisconsin nor any of its departments, agencies, or employees is or will be party to this invitation for bids or any resulting contract. Disadvantaged Business Enterprises (DBE), including minority business enterprises (MBE) and women business enterprises (WBE) are encouraged to apply and be used to the greatest extent feasible. Qualified DBEs will be included in the Unified Certification Program WisDOT UCP list. Program policy requires all bidders to show good faith efforts to solicit proposals from DBEs. Contractors with a DBE classification are strongly encouraged to bid as the Prime Contractor on this project provided they are qualified to do the work. Award of the contract will be subject to the Federal government's policy of good faith effort for increased use of DBE businesses. A description of the policy and forms to be used are included in the specifications. Funding under the CWF program also requires all iron and steel products used in the construction of the project be produced in the United States (FFY 2014 Appropriations Act and/or Section 608 of the Federal Water Pollution Control Act (FWPCA)), including lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and construction materials. The successful bidder will be required to conform to the wage requirements prescribed by the federal Davis-Bacon and Related Acts which requires that all laborers and mechanics employed by contractors and sub-contractors performing on contracts funded in whole or in part with federal funds in excess of \$2,000 pay their laborers and mechanics not less than the prevailing wage rates and fringe benefits, as determined by the Secretary of Labor, for corresponding classes

of laborers and mechanics employed on similar projects in the area, per the U.S. Department of Labor Wage and Hour Division May 29, 2009 Guidance.

Primary Contact Information

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Owner Details

Owner Name: **Village of Jackson**

Solicitor Details

Solicitor Name: **Town & Country Engineering**

Design Discipline: **Soliciting agent**

Address: **6264 Nesbitt Road, Madison, WI - 53719**

Phone: **608-273-3350**

Contact: **Greg Droessler, P.E.**

Email: gdroessler@tcengineers.net

Project Document Information

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Document Information: **Paper copies of the Contract Documents and the Construction Plans may be obtained at the office of Town & Country Engineering, Inc., 6264 Nesbitt Road, Madison, WI 53719 via appointment only. There is a \$75 non-refundable copying and distribution charge for these documents.**

Quest EBidDoc™ Delivery Info: **Download delivery fee is \$42.00, file size is 47**

MB .

 Preview

 Download

2024 Wastewater Improvements - Tertiary Filters and Disinfection

Quest eBidDoc™ Number: 8909406

Closing Date: Tue, 01/30/2024 01:00 PM CST **Posting Type:** Construction Project **Owner Name:** Village of Jackson **Solicitor Name:** Town & Country Engineering **Contact:** Greg Droessler, P.E. **Phone:** 608-273-3350 **Email:** gdroessler@tcengineers.net

<u>Company Name & Address</u>	<u>Contact Name/Email Address</u>	<u>Phone/Fax</u>	<u>Bus. Cert</u>	<u>Bus. Desig</u>	<u>Entry Date</u>	<u>Doc Type</u>	<u>Comments</u>
Village of Jackson W194N16660 Eagle Drive, Jackson, WI - 53037	Village of Jackson use_gdroessler@tcengineers.net	000-000-0000		Project Owner	12/27/2023	Paper	
J. Miller Electric, Inc. 512 S. Park St, Port Washington, WI-53074	Justin Miller justin.jmillerelectric@gmail.com	262-284-2646 262-284-6282		Subcontractor	01/04/2024	eBidDoc	
C.D. Smith Construction 125 Camelot Drive, Fond du Lac, WI-54935	Patty Guldán pguldán@cdsmith.com	9209242900 920-924-2910		Prime Bidder	01/04/2024	eBidDoc	
Hunzinger Construction 21100 Enterprise Ave, Brookfield, WI-53045	Marc Gilman mgilman@hunzinger.com	2627970797 2627970474		Prime Bidder	01/04/2024	eBidDoc	
August Winter & Sons, Inc 2323 N. Roemer Rd., Appleton, WI-54911	Kurt Van Grinsven pma@augustwinter.com	920-739-8881 920-739-2230		Prime Bidder	01/04/2024	eBidDoc	
Pieper Electric, Inc - New Berlin Office 5477 S. Westridge Court, New Berlin, WI-53151	Kim Schuenemann kim.schuenemann@pieperpower.com	262-879-8229		Subcontractor	01/04/2024	eBidDoc	
Dorner Company N61 W23043 Silver Spring Dr, Sussex, WI-53089	Pete Pronold petep@dornerco.com	2629322100 2629322101		Supplier	01/04/2024	eBidDoc	
Ferguson Waterworks #1476 5350 N. RICHMOND ST., APPLETON, WI-54913	Jeremy Roskopf jeremy.roskopf@ferguson.com	920-731-3252 920-731-2305		Supplier	01/04/2024	eBidDoc	
Mid City Corporation 12930 W. Custer Avenue, Butler, WI-53007	Mid City Corporation estimating@midcitycorp.us	262-781-5940 262-781-4005	SBE	Prime Bidder	01/04/2024	eBidDoc	
J. F. Ahern Co. - Fond du Lac 855 Morris St, Fond du Lac, WI-54935	Clerical Department centralservices@jfahern.com	920-921-9020 920-921-8632		Prime Bidder	01/04/2024	eBidDoc	
Hawkins, Inc. 2381 Rosegate, Roseville, MN-55113	Brian Greffin brian.greffin@hawkinsinc.com	612-225-6587 612-331-5450		Supplier	01/04/2024	eBidDoc	
Peterson and Matz, Inc. 6408 River Bend Rd. Ste 100, weston, WI-54476	Rob Szekeress rob.szekeress@petersonandmatz.com	7153551436 7153551437		Supplier	01/04/2024	eBidDoc	
Minnesota Builders Exchange 1123 Glenwood Ave, Minneapolis, MN-55405	David Siegel addenda@mbex.org	612-381-2625		Plan Room	01/05/2024	eBidDoc	
Wolf Paving 1320 Walnut Ridge Dr, Hartland, WI-53029	Wolf Paving bidrequest@wolfpaving.com	262-965-2121		Subcontractor	01/05/2024	eBidDoc	
Veolia Water Technologies 4001 Weston Parkway, Cary, NC-27513	Simba Washaya simba.washaya@veolia.com	919-677-8310 919-677-0082		Supplier	01/05/2024	eBidDoc	
Rohde Brothers, Inc. W5745 Woodchuck Lane, Plymouth, WI-53073	Craig Bahr bids@rohdebros.com	(920) 893-5905 9208935908		Subcontractor	01/06/2024	eBidDoc	
Dodge Data & Analytics 2860 S State Hwy 161, Grand Prairie, TX-75052	Daedri Cavuoto daedri.cavuoto@construction.com	513.666.3354 800-768-5594		Plan Room	01/08/2024	eBidDoc	

<u>Company Name & Address</u>	<u>Contact Name/Email Address</u>	<u>Phone/Fax</u>	<u>Bus. Cert</u>	<u>Bus. Desig</u>	<u>Entry Date</u>	<u>Doc Type</u>	<u>Comments</u>
ConstructConnect 3825 Edwards Rd, Cincinnati, OH-45209	Eric Mills content@constructconnect.com	800-364-2059 866-570-8187		Plan Room	01/08/2024	eBidDoc	
Energenecs, Inc 700 East Milan Drive, Saukville, WI-53080	Doralee Piering doralee.piering@energenecs.com	262-377-6360 262-377-1515	SBE	Supplier	01/08/2024	eBidDoc	
Lee Mechanical Inc 9909 S 57th st., Franklin, WI-53132	Dave Ruffalo DRuffalo@selectlee.com	2626579490		Subcontractor	01/08/2024	eBidDoc	
Crane Engineering Sales, Inc PO Box 38, Kimberly, WI- 54136	Eric Finnilla e.finnilla@craneengineering.net	920-257-0109 920-733-2871	SBE	Supplier	01/08/2024	eBidDoc	
Dodge Data & Analytics 2860 S State Hwy 161, Grand Prairie, TX-75052	DodgeAPI dodge.docs@construction.com	513.666.3354 800-768-5594		NOT BIDDING	01/08/2024	eBidDoc	
Staab Construction Corporation 1800 Laemle Avenue, Marshfield, WI-54449	Valerie Schubert bid@staabco.com	715-387-8429 715-384-4846		Prime Bidder	01/09/2024	eBidDoc	
Core & Main LP 2804 Larue Fields Lane, Sun Prairie, WI-53590	Mark Dombrosky Mark.Dombrosky@coreandmain.com	608-834-1311		Supplier	01/09/2024	eBidDoc	
Mulcahy Shaw Water N57 W6316 Center St., Cedarburg, WI-53012	Tom Mulcahy info@mulcahyshaw.com	262-241-1199 262-241-4997		Supplier	01/09/2024	eBidDoc	
LW ALLEN, LLC 4633 Tompkins Drive, Madison, WI-53716	Amber Link bids@lwallen.com	608-222-8622 608-222-9414		Supplier	01/11/2024	eBidDoc	
Quest Construction Data Network PO Box 517, Shakopee, MN-55379	QuestCDN Support and Sales skahl@questcdn.com	952-233-1632		Other	01/12/2024	eBidDoc	
JH Hassinger, Inc. N60W16289 Kohler Lane, Menomonee Falls, WI- 53051	Shelly shelly@jhassinger.com	2622524701 262-252-4227		Prime Bidder	01/16/2024	eBidDoc	
NEXT Electric, LLC 1121 Marlin Ct., Waukesha, WI-53186	Leo Maney leo.maney@nextelectricinc.com	262-506-3271		Subcontractor	01/18/2024	eBidDoc	
Ferguson Waterworks #1476 5350 N. RICHMOND ST., APPLETON, WI-54913	Keith Fischer keith.fischer@ferguson.com	920-731-3252 920-731-2305		Supplier	01/19/2024	eBidDoc	
County Materials S16 W33633 Wolf Road, Oconomowoc, WI-53066	Ed Kamenick ed.kamenick@countymaterials.com	262-201-4844		Supplier	01/23/2024	eBidDoc	

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100 – E – 03	FIELD WIRING
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100 – W – 02	P&ID NO.2
100 – W – 03	P&ID NO.3
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STANDARD ABBREVIATIONS

AER	ACTUATED	M	METER
AFF	AERATION, AEROBIC	MATL	MATERIAL
AHP	ABOVE FINISHED FLOOR	MAX	MAXIMUM
ALP	AIR — HIGH PRESSURE	MECH	MECHANICAL
ALT	AIR — LOW PRESSURE	MFR	MANUFACTURER
ALUM	ALTERNATE	MGD	MILLION GALLONS PER DAY
APPROX	ALUMINUM	MH	MANHOLE
ARCH	APPROXIMATE, —LY	MID	MIDDLE
ASPH	ARCHITECTUAL	MIN	MINIMUM
ASSY	ASPHALT	MISC	MISCELLANEOUS
AVG	ASSEMBLY	MJ	MECHANICAL JOINT
	AVERAGE	ML	MIXED LIQUOR
		MLSS	MIXED LIQUOR SUSPENDED SOLIDS
B/	BOTTOM OF	MM	MILLIMETER
BAF	BAFFLE	MOT	MOTOR, —IZED
BCKWSH	BACKWASH	MTL	METAL
BFV	BUTTERFLY VALVE		
BF	BLIND FLANGE	N	NORTHING
BIT	BITUMINOUS	NH3—N	AMMONIA—NITROGEN
BLDG	BUILDING	NO.	NUMBER
BM	BENCH MARK	NPT	NATIONAL PIPE THREAD
BOD	BIOCHEMICAL OXYGEN DEMAND	NPW	NONPOTABLE WATER
BOT	BOTTOM	NTS	NOT TO SCALE
BSMT	BASEMENT		
BV	BALL VALVE	OC	ON CENTER
BYP	BYPASS	OD	OUTSIDE DIAMETER
		OPNG	OPENING
C/C	CENTER TO CENTER	OVER	OVER, —FLOW
CF	CUBIC FEET		
CFM	CUBIC FEET PER MINUTE	P	PHOSPHORUS
CHAN	CHANNEL	PNEU	PNEUMATIC
CHEM	CHEMICAL	PNV	PINCH VALVE
CI	CAST IRON	PE	POLYETHYLENE
C/L	CENTERLINE	PLMB	PLUMBING
CLASS	CLASSIFICATION	POLY	POLYMER
CLG	CEILING	PP	POWER POLE
CMP	CORRUGATED METAL PIPE	PRV	PRESSURE REDUCING VALVE
CON	CONCENTRIC	PSF	POUNDS PER SQUARE FOOT
CONC	CONCRETE	PSI	POUNDS PER SQUARE INCH
CONN	CONNECTION	PT	POINT
CONTR	CONTRACTOR	PV	PLUG VALVE
CTR, CTRD	CENTER, —ED	PVC	POLYVINYL CHLORIDE
CV	CHECK VALVE	PVMT	PAVEMENT
CY	CUBIC YARD	PW	POTABLE WATER
DAF	DISSOLVED AIR FLOTATION THICKENER	R	RADIUS
DEC	DECANT	R/W	RIGHT—OF—WAY
DEG	DEGREE	RAS	RETURN ACTIVATED SLUDGE
DG	DIGESTER GAS	RCP	REINFORCED CONCRETE PIPE
DIA	DIAMETER	RCY	RECYCLE
DIG	DIGESTER	RED	REDUCER
DI	DUCTILE IRON	REF	REFERENCE
DISCH	DISCHARGE	REQ'D	REQUIRED
DN	DOWN	RM	ROOM
DNR	DEPARTMENT OF NATURAL RESOURCES	ROT	ROTATE, —D
DRN	DRAIN	RR	RAILROAD
DWG	DRAWING	RT	RIGHT
		RWW	RAW WASTEWATER
E	EASTING		
EA	EACH	SAN	SANITARY
ECC	ECCENTRIC	SBR	SEQUENCING BATCH REACTOR
EFFL	EFFLUENT	SCH	SCHEDULE
ELB	ELBOW	SDR	STRUCTURAL DIMENSION RATIO
ELEC	ELECTRIC, —AL	SEC	SECTION
EL, ELEV	ELEVATION	SEP	SEPTAGE
EQ	EQUALIZATION	SF	SQUARE FOOT
EQUIP	EQUIPMENT	SHT	SHEET
EST	ESTIMATE, —D	SLG	SLUDGE
EX	EXISTING	SPEC	SPECIFICATION
		SQ	SQUARE
FH	FIRE HYDRANT	SS	STAINLESS STEEL
FFC	FLANGED FLEXIBLE CONNECTOR	STA	STATION
FL	FLOW LINE	STL	STEEL
FLR	FLOOR	STR	STRUCTURE
FLTR	FILTER	SUP	SUPERNATANT
FM	FORCE MAIN	SNV	SOLENOID VALVE
FRP	FIBERGLASS REINFORCED PLASTIC	SW	SIDEWALK
FT	FEET	SY	SQUARE YARD
FTG	FOOTING		
		T/	TOP OF
GAL	GALLON	T/W	TOP OF WALL
GALV	GALVANIZED	TEMP	TEMPERATURE
GC	GENERAL CONTRACTOR	TSS	TOTAL SUSPENDED SOLIDS
GND	GROUND	TYP	TYPICAL
GR	GRIT		
GV	GATE VALVE	UV	ULTRAVIOLET
HORIZ	HORIZONTAL	VERT	VERTICAL
HP	HORSEPOWER	VF	VERTICAL FEET
HR	HOUR		
HVAC	HEATING, VENTILATING, AND AIR CONDITIONING	W/	WITH
HWL	HIGH WATER LEVEL	W/O	WITHOUT
HYD	HYDRANT	WAS	WASTE ACTIVATED SLUDGE
		WAT	WATER
ID	INSIDE DIAMETER	WW	WASTEWATER
IN	INCH		
INCL	INCLUDE, —ING	YD	YARD
INFL	INFLUENT	YR	YEAR
INV	INVERT		
LB(S)	POUND(S)		
LF	LINEAL FEET		
LIN	LINEAR		
LR	LONG RADIUS		
LS	LUMP SUM		
LT	LEFT		
LWL	LOW WATER LEVEL		

SITE LEGEND

UNDERGROUND TELE.
UNDERGROUND CATV.
UNDERGROUND ELEC.
OVERHEAD
EXISTING GAS
PROPERTY LINE
EXISTING SITE PIPING
EXISTING FENCE LINE
EXISTING CONTOURS
NEW CONTOURS
SAWCUT
NEW STORM SEWER
NEW SITE PIPING
SITE PIPING REMOVAL/ABANDON

Legend for existing and new features:

- UT (Underground Tele.)
- UCATV (Underground CATV)
- UE (Underground Elec.)
- OH (Overhead)
- G (Existing Gas)
- Property Line
- Existing Site Piping
- Existing Fence Line
- Existing Contours
- New Contours
- Sawcut
- New Storm Sewer
- New Site Piping
- Site Piping Removal/Abandon

NEW ITEMS:

Legend for new items:

- Water Valve
- Curb Stop
- Hydrant
- Manhole
- Curb Inlet
- Endwall
- Gas Warning

EXISTING ITEMS:

Legend for existing items:

- Flag Pole
- Mailbox
- Power Pole
- Light Pole
- Lamp Post
- Pull Box
- Water Valve
- Curb Stop
- Hydrant
- Well
- Monitoring Well
- Tracer Wire
- Sanitary Manhole
- Sanitary Valve
- Cleanout
- Storm Manhole
- Curb Inlet
- Circular Inlet
- Square Inlet
- Endwall
- Stump
- Decid. Tree (Relative Size Shown)
- Evergreen
- Shrub or Hedge
- Sign
- Catv. Ped.
- Tele. Ped.
- Elec. Ped.
- Gas Valve
- Street Sign
- Iron Pipe
- Iron Rod

NOTES: 1.) EXISTING FEATURES AND LABELS ARE SHOWN WITH SCREENED, LIGHTER LINES.
2.) NEW CONCRETE IS SHOWN SHADED IN PLAN VIEWS
3.) CONCRETE AND ASPHALT REMOVALS ARE SHOWN BY CROSS-HATCHING

Legend for existing and new items:

- Existing Piping Label
- New Piping Label
- Key Note
- Removal Note

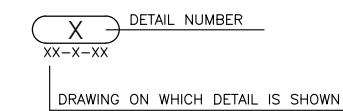
GENERAL NOTES

1. EXISTING INFORMATION, INCLUDING UNDERGROUND PIPING AND UTILITIES, SHOWN ON THE PLANS WAS OBTAINED FROM OWNER INFORMATION AND FIELD MEASUREMENTS WHERE AVAILABLE. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE ACCURACY OF ALL EXISTING INFORMATION AS REQUIRED TO ACCOMMODATE NECESSARY CONSTRUCTION. UTILITIES THAT MAY BE AFFECTED BY CONSTRUCTION MUST BE MAINTAINED AND ANY DAMAGES TO EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
2. THE CONTRACTOR IS RESPONSIBLE FOR THE PRESERVATION OF PROPERTY AND RESTORATION OF DAMAGED PROPERTY CAUSED BY CONSTRUCTION ACTIVITIES. AFTER THE COMPLETION OF CONSTRUCTION, ANY EXISTING PROPERTY DAMAGED AS A RESULT OF THE CONTRACTOR'S ACTIVITIES DURING EXECUTION OF THE CONTRACT SHALL BE RESTORED SO AS TO MATCH THE EXISTING AT NO COST TO THE OWNER.
3. DRAWINGS SCALES MAY VARY FROM ONE SHEET TO THE NEXT. ALL PERSONS SHALL BE RESPONSIBLE FOR VERIFYING THE CORRECT SCALE OF ANY MEASUREMENTS MADE ON THE PLAN SHEETS. DRAWINGS IN GENERAL DO NOT SHOW DIMENSIONS OF EXISTING STRUCTURES. CONSTRUCTION SHALL BE DRAWN PROPORTIONATELY TO SCALE. CONTRACTOR SHALL OBTAIN ALL DIMENSIONS REQUIRED FOR CONSTRUCTION.
4. WHEN THE TERM "REMOVE" IS USED ON DRAWINGS IT SHALL MEAN THAT THE CONTRACTOR IS TO REMOVE THE REFERENCED MATERIAL OR EQUIPMENT AND DISPOSE OF IN A PROPER MANNER. WHEN THE TERM "REMOVE AND SALVAGE" IS USED THE CONTRACTOR SHALL REMOVE THE REFERENCED MATERIAL OR EQUIPMENT, TRANSPORT TO THE DESTINATION INDICATED, AND UNLOAD THE MATERIAL OR EQUIPMENT AS DIRECTED BY THE OWNER. THE PLANS DO NOT NECESSARILY SPELL OUT ALL ITEMS REQUIRING REMOVAL, DEMOLITION, OR PATCHING. WHERE NOT SHOWN, ALL REMOVAL, DEMOLITION, CUTTING, PATCHING AND OTHER WORK NECESSARY TO ACCOMMODATE NEW CONSTRUCTION SHALL BE PROVIDED AS A PART OF THE CONTRACT.

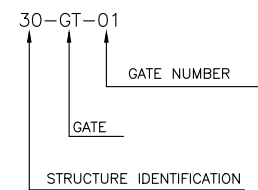
PROCESS PIPING LEGEND

	PLUG VALVE
	GATE VALVE
	CHECK VALVE
	BUTTERFLY VALVE
	PINCH VALVE
	PNEUMATIC—, MOTORIZED (ELECTRIC) ACTUATORS
	
	ELBOWS
	
	CROSS, TEE, WYE
	
	PIPE UP, PIPE DOWN
	
	CONCENTRIC REDUCER, ECCENTRIC REDUCER
	
	FLANGED FLEXIBLE CONNECTER
	FLOW METER
PIPING SMALLER THAN 3"	
	BALL VALVE
	CONTROL VALVE
	PRESSURE REGULATOR
	ELBOW/TEE DOWN
	
	ELBOW/TEE UP
	

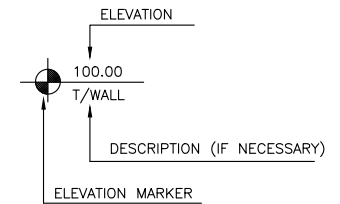
DRAWING NUMBER DESIGNATION



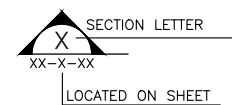
DETAIL DESIGNATION



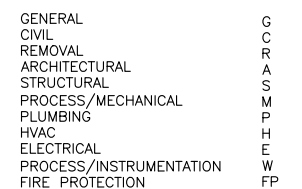
GATE IDENTIFIER



ELEVATION MARKER



SECTION DESIGNATION



DISCIPLINE DESIGNATION

ELECTRICAL PLAN SYMBOLS

OUTLETS AND DEVICES

	DUPLEX
	DUPLEX (COUNTER TOP HEIGHT)
	SINGLE
	DOUBLE DUPLEX
	SPECIAL OUTLET
	EQUIPMENT CONNECTION
	DATA OUTLET
	TELEPHONE/DATA OUTLET
	TELEPHONE OUTLET
	TELEPHONE BLACKBOARD

LIGHTING

	LUMINAIRE, CEILING MOUNTED, RECESSED OR SURFACE
	WALL MOUNTED FIXTURE
	FIXTURE – DOUBLE OR SINGLE HEAD SPOTLIGHT
	EXIT FIXTURE WITH EMERGENCY BATTERY AND HEADS WHERE SHOWN
	EMERGENCY BATTERY REMOTE HEADS
	EMERGENCY BATTERY UNIT WITH HEADS
	SINGLE POLE MOUNTED FIXTURE
	TWIN POLE MOUNTED FIXTURE

SWITCHES

\$	SINGLE POLE SWITCH
\$ ₂	DOUBLE POLE SWITCH
\$ ₃	THREE WAY SWITCH
\$ ₄	FOUR WAY SWITCH
\$ _a \$ _b \$ _c	SWITCH CONTROL A, B, C
\$ _K	KEY OPERATED
\$ _P	SWITCH WITH PILOT LIGHT
\$ _{WP}	WEATHERPROOF SWITCH
\$ _D	DIMMER SWITCH
	OCCUPANCY SENSOR, WALL MOUNTED
	OCCUPANCY SENSOR, CEILING MOUNTED
\$ _M	MOTOR RATED SWITCH
\$ _{MS}	MANUAL MOTOR STARTER

SERVICE AND DISTRIBUTION

	LIGHTING OR POWER PANEL – RECESSED
	LIGHTING OR POWER PANEL – SURFACE
	DISTRIBUTION PANEL
	MOTOR CONTROL CENTER
	TRANSFORMER – REFER TO ONE-LINE. XX-XFMR-01 INDICATES LOCATION AT STRUCTURE XX.
	CURRENT TRANSFORMER CABINET (UTILITY METERING)
	METER AND SOCKET

MOTOR CONTROL

	DISCONNECT SWITCH, NON-FUSED
	DISCONNECT SWITCH, FUSED
	ENCLOSED CIRCUIT BREAKER
	MAGNETIC CONTACTOR
	ADJUSTABLE FREQUENCY DRIVE
	MAGNETIC MOTOR STARTER
	COMBINATION MAGNETIC MOTOR STARTER
	EQUIPMENT CONTROL PANEL – XXX INDICATES EQUIPMENT SERVED
	PUSHBUTTON
	ON/OFF PUSHBUTTON
	THREE FUNCTION PUSHBUTTON (UP/DOWN/STOP)
	THERMOSTAT
	SOLENOID VALVE
	MOTOR – NUMBER INDICATES HORSEPOWER

GENERAL NOTES

- THIS DRAWING IS A STANDARD LEGEND. SYMBOLS SHOWN MAY NOT ALL APPEAR ON DRAWINGS FOR THIS PROJECT.
- ALL CONTACTS ARE SHOWN IN THE DE-ENERGIZED (SHELF) POSITION. BI-STABLE RELAYS ARE SHOWN IN THE RESET POSITION.
- ONE-LINE DIAGRAMS FOR POWER SWITCHGEAR, USE ANSI STANDARD SYMBOLS AND ABBREVIATIONS.
- SEE INSTRUMENTATION I + C SYMBOLS LEGEND FOR INSTRUMENTATION SYMBOLS AND DETAILS.
- OTHER ABBREVIATIONS PER NECA 100-213 AND ISA S5.1
- ELEVATIONS ADJACENT TO SYMBOLS ARE BASED ON STATION DATUM. HEIGHTS ADJACENT TO SYMBOLS (+4.0) ARE REFERENCED TO FINISHED FLOOR GRADE.
- SEE SPECIFICATIONS AND SCHEDULES FOR COMPONENT REQUIREMENTS FOR MOTOR CONTROLLERS AND FOR CONTRACTORS.

SECURITY AND FIRE PROTECTION

	DOOR HOLDER
	HORN AND STROBE
	HORN ONLY
	STROBE ONLY
	MANUAL PULL STATION
	SMOKE DETECTOR
	HEAT DETECTOR – RATE OF RISE
	HEAT DETECTOR – FIXED TEMPERATURE
	WATER FLOW SWITCH
	LOW PRESSURE SWITCH
	TAMPER SWITCH
	SECURITY CAMERA – WP INDICATES WEATHERPROOF EXTERIOR CAMERA
	MOTION DETECTOR
	FIRE ALARM ANNUNCIATOR
	FIRE ALARM CONTROL PANEL

WIRING AND CONDUIT

- SIZE CONDUIT PER NEC. MINIMUM SIZE $\frac{3}{4}$ ".
- (X)#12 & #12G

REFERS TO NUMBER OF WIRE(S) AND SIZE OF WIRE(S) REQUIRED, WHERE AS:
(1)= ONE WIRE
#12 = THE SIZE OF WIRE REQUIRED
G = GROUND WIRE

- (X) 1-1/2°C

REFERS TO NUMBER OF CONDUIT(S) AND SIZE OF CONDUIT(S) REQUIRED, WHERE AS:

(1)= ONE CONDUIT
1-1/2°C = THE SIZE OF CONDUIT REQUIRED

*REFER TO DRAWINGS FOR REQ'D WIRE AND CONDUIT SIZES AND AMOUNTS

CIRCUITS

	CONDUIT STUB – TERMINATE WITH CAP
	CONDUIT TURNING UP
	CONDUIT TURNING DOWN
	HOMERUN TO PANELBOARD – H(X)-(Y,Z) OR L(X)-(Y,Z) – HIGH OR LOW VOLTAGE PANEL (X) – CIRCUIT (Y,Z) AS INDICATED
	JUNCTION BOX

ELECTRICAL ABBREVIATIONS

1P	ONE POLE
2P	TWO POLE
3P	THREE POLE
4P	FOUR POLE
1P1W	ONE POLE, ONE WIRE
1P2W	ONE POLE, TWO WIRE
2P2W	TWO POLE, TWO WIRE
2P3W	TWO POLE, THREE WIRE
3P2W	THREE POLE, TWO WIRE
3P3W	THREE POLE, THREE WIRE
3P4W	THREE POLE, FOUR WIRE
4P4W	FOUR POLE, FOUR WIRE
A	AMPERE
AC	ALTERNATING CURRENT
AF	AMP FRAME
AFCI	ARC-FAULT CIRCUIT INTERRUPTER
AFD	ADJUSTABLE FREQUENCY DRIVE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
ALUM	ALUMINUM
AS	AMP SWITCH
AT	AMP TRIP
ARCH	ARCHITECT
ATS	AUTOMATIC TRANSFER SWITCH
AUD	AUDIOMETER BOX CONNECTION
AUX	AUXILIARY
A/V	AUDIO VISUAL
AWG	AMERICAN WIRE GAUGE
BLDG	BUILDING
C	CONDUIT (GENERIC TERM FOR RACEWAY.)
CAM	CAMERA
CAT	CATALOG
CATV	CABLE TELEVISION
CB	CIRCUIT BREAKER
CKT	CIRCUIT
COL	COLUMN
C.T.	CURRENT TRANSFORMER
C.U.	COPPER
CL	CENTERLINE
DC	DIRECT CURRENT
Δ	DELTA
DET	DETECTOR
DISC	DISCONNECT
DIST	DISTRIBUTION
DN	DOWN
DWG	DRAWING

E	WIRED ON EMERGENCY CIRCUIT
EA	EACH
EC	ELECTRICAL CONTRACTOR
ECB	ENCLOSED CIRCUIT BREAKER
EDH	ELECTRICAL DUCT HEATER
EF	EXHAUST FAN
ELEC	ELECTRIC(AL)
ELEV	ELEVATION
EM	EMERGENCY
EMT	ELECTRIC METALLIC TUBING
ENCL	ENCLOSURE
ENL	END OF LINE
EP	EXPLOSION PROOF
EPO	EMERGENCY POWER OFF
EQUIP	EQUIPMENT
EUH	ELECTRIC UNIT HEATER
EW	ELECTRIC WATER COOLER
EW	ELECTRIC WATER HEATER
EXIST.	EXISTING
F	FLUSH
FA	FIRE ALARM
FBO	FURNISHED BY OTHERS
FC	FIRE PROTECTION CONTRACTOR
FCU	FAN COIL UNIT
FDN	FOUNDATION
FIXT	FIXTURE
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE
FLR	FLOOR
FMC	FLEXIBLE METALLIC CONDUIT
FRE	FIBERGLASS REINFORCED EPOXY CONDUIT
FURN	FURNITURE
G	GROUND
GC	GENERAL CONTRACTOR
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFPE	GROUND FAULT PROTECTION EQUIPMENT
GND	GROUND
GRC	GALVANIZED RIGID CONDUIT
HGT	HEIGHT
HP	HORSEPOWER
HTR	HEATER
HV	HIGH VOLTAGE
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HW	HOT WATER
HZ	HERTZ (CYCLE) PER SECOND

IAM	INDIVIDUAL ADDRESSABLE MODULE
ID	IDENTIFICATION
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
I/O	INPUT/OUTPUT
IR	PASSIVE INFARED
I.S.	INTRINSICALLY SAFE
J-JO	JUNCTION BOX
KCMIL	ONE THOUSAND CIRCULAR MILS
K/O	KNOCK-OUT
KVA	KILOVOLT AMPERE
KVAR	KILOVOLT AMPERE REACTIVE
KW	KILOWATT
LFMC	LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT
LFNC	LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT
LP	LIGHTING PANELBOARD
LS	LIMIT SWITCH
LTG	LIGHTING
LV	LOW VOLTAGE
MAINT	MAINTAINED
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MC	METAL CLAD CABLE
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MD	MOTORIZED DAMPER
MDP	MAIN DISTRIBUTION PANEL
MISC	MISCELLANEOUS
MFR	MANUFACTURER
MLO	MAIN LUGS ONLY
MOD	MOTOR OPERATED DISCONNECT SWITCH
MTD	MOUNTED
MTG	MOUNTING
MTS	MANUAL TRANSFER SWITCH
N	NORTH
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRIC CODE
NF	NON-FUSED
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NM	NONMETALLIC SHEATHED CABLE
NO	NORMALLY OPEN
NRTL	NATIONALLY RECOGNIZED TESTING LAB
#	NUMBER
NTS	NOT TO SCALE

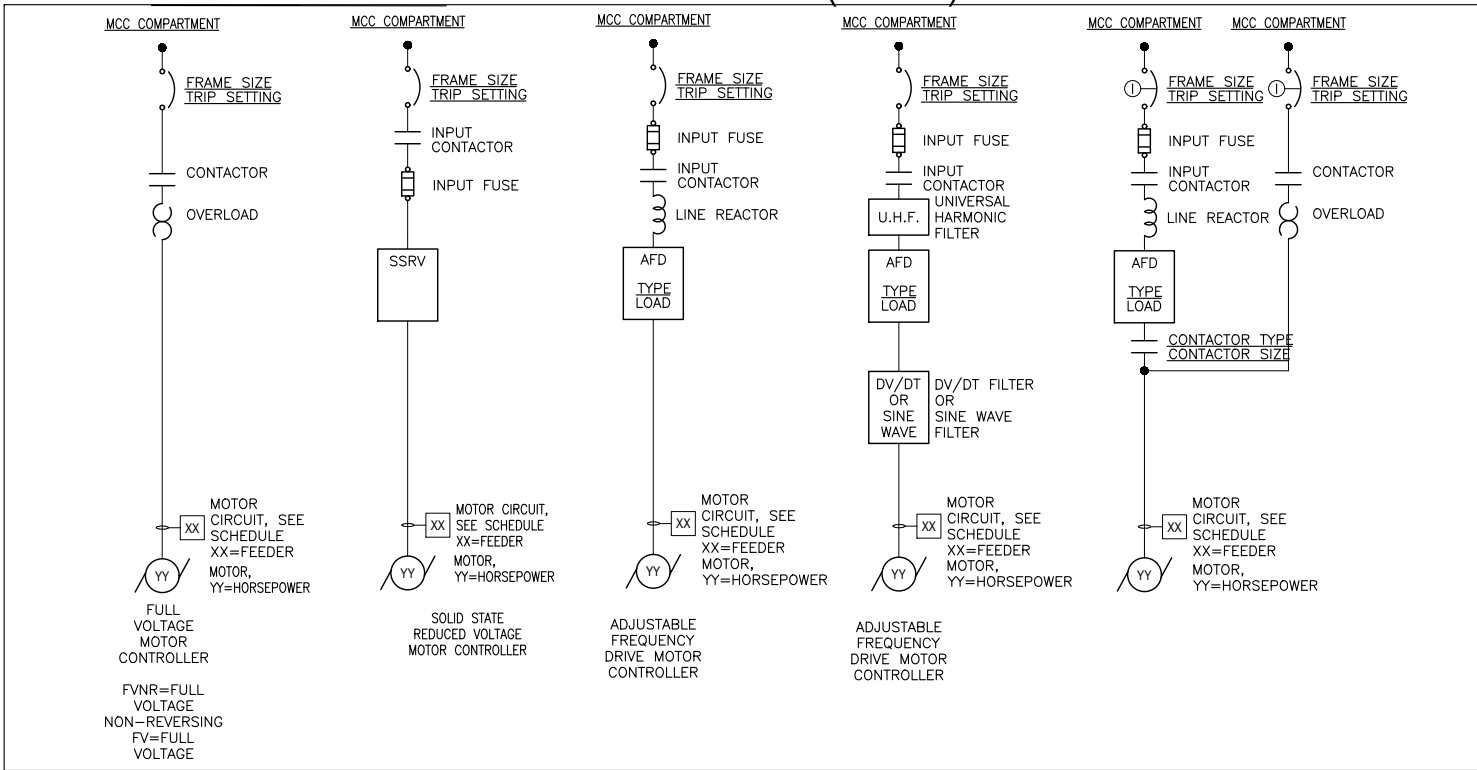
OHD	OVERHEAD DOOR OPERATOR
OL	OVERLOAD
P	POLE
PB	PULL BOX
PC	PLUMBING SYSTEM CONTRACTOR
PE	PRIMARY SERVICE
PEC	PHOTO ELECTRIC CONTROL
PH	PHASE
PIV	POST INDICATING VALVE
PNL	PANEL(BOARD)
PP	POWER PANEL
PR	PAIR
PRI	PRIMARY
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE CONDUIT
PWR	POWER
RE	REMOVE EXISTING
REC	RECESSED
RECP	RECEPTACLE
REQD	REQUIRED
RM	ROOM
RMC	RIGID METAL CONDUIT
RTU	ROOFTOP UNIT
S	SURFACE MOUNTED
SCH	SCHEDULE
SEC	SECONDARY
SIG	SIGNAL
SN	SOLID NEUTRAL
SP	SPARE
SPD	160KA/ PHASE MINIMUM SURGE PROTECTIVE DEVICE
SPEC	SPECIFICATION
SPKR	SPEAKER
SS	STAINLESS STEEL
STP	SHIELDED TWISTED PAIR
STL	CARBON STEEL
SUSP	SUSPENDED
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TC	TELEPHONE CABINET
TCI	TELECOMMUNICATIONS CABLING INSTALLER
TCP	TEMPERATURE CONTROL PANEL
TEL	TELEPHONE/DATA
TEL/DATA	TELEPHONE
TEMP	TEMPORARY
TERM	TERMINAL(S)
TV	TELEVISION
TYP	TYPICAL

UC	UNDER COUNTER
UG	UNDERGROUND
UH	UNIT HEATER
UPS	UNINTERRUPTIBLE POWER SOURCE
UTIL	UTILITY
UTP	UNSHIELDED TWISTED PAIR
V	VOLT
VPD	VARIABLE FREQUENCY DRIVE
W	WATT
W/	WITH
WH	WATTHOUR
WP	WEATHERPROOF
XFMR	TRANSFORMER
XLP	CROSS LINKED POLETHYLENE
Y	WYE
ZAM	ZONE ADAPTER MODULE

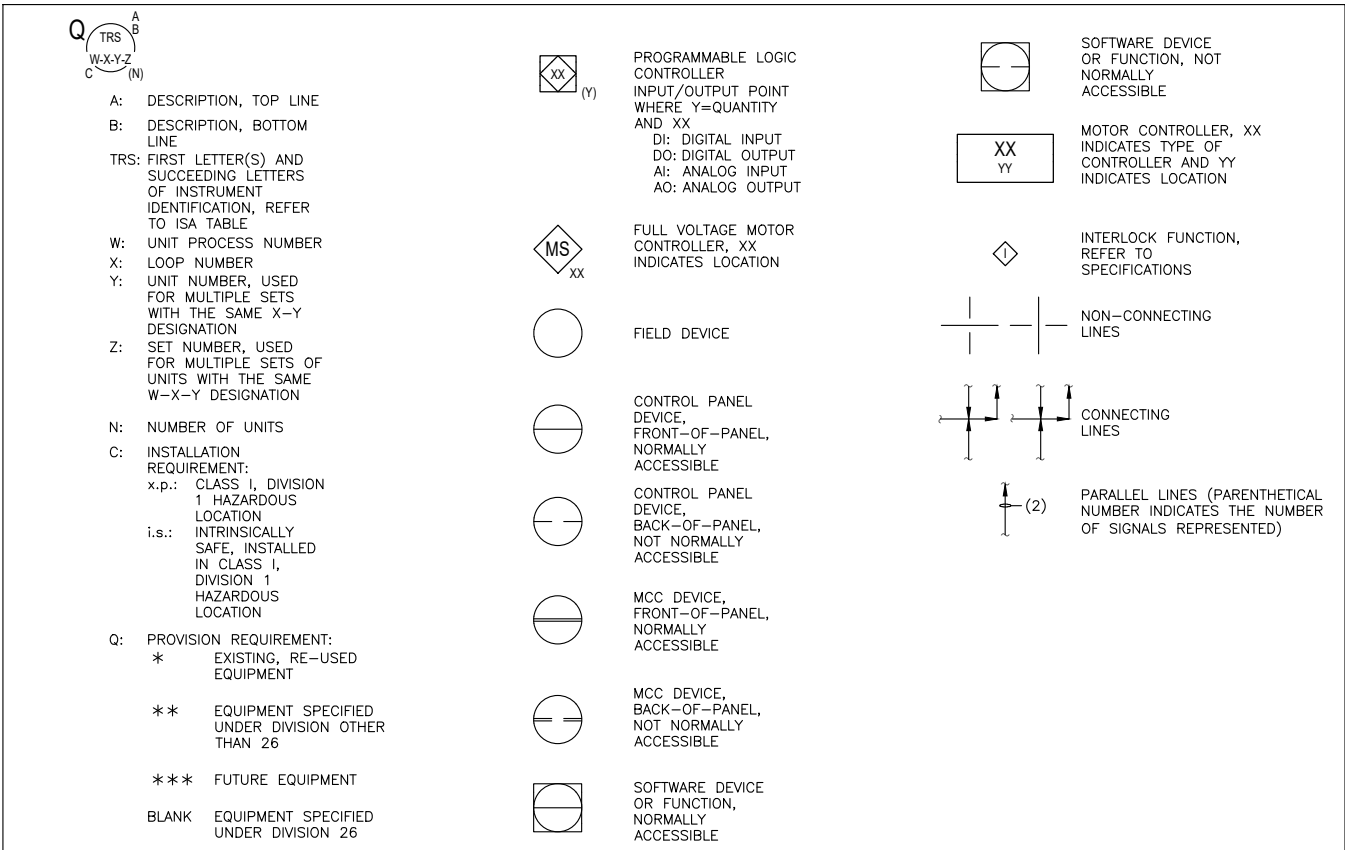
INTERNATIONAL SOCIETY OF AUTOMATION
INSTRUMENT IDENTIFICATION

	FIRST LETTER(S)		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	VARIABLE	READOUT / PASSIVE FUNCTION	OUTPUT / ACTIVE FUNCTION	FUNCTION
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	USER'S CHOICE			CONTROL	CLOSE
D	USER'S CHOICE	DIFFERENCES			DEVIATION
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW, FLOW RATE	RATIO			
G	USER'S CHOICE		GLASS, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT		INDICATE		
J	POWER				
K	TIME, SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOISTURE				MIDDLE, INTERMEDIATE
N	TORQUE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE, RESTRICTION		OPEN
P	PRESSURE (VACUUM)		POINT, TEST CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		RUN
S	SPEED, FREQUENCY	SAFETY		SWITCH	STOP
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL		
X	UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE, PRESENCE	Y AXIS	AUXILIARY DEVICES		
Z	POSITION, DIMENSION	Z AXIS, SAFETY INSTRUMENT OF SYSTEM		DRIVE ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	

MOTOR CONTROL (MCC) SYMBOLS



P&ID SYMBOLS (TYPICAL)



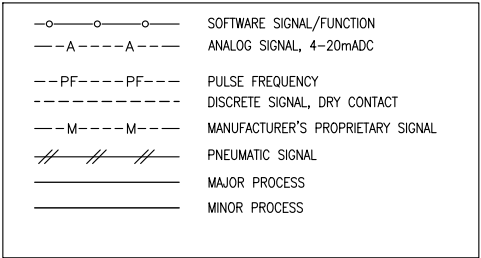
INSTRUMENT WIRING LEGEND

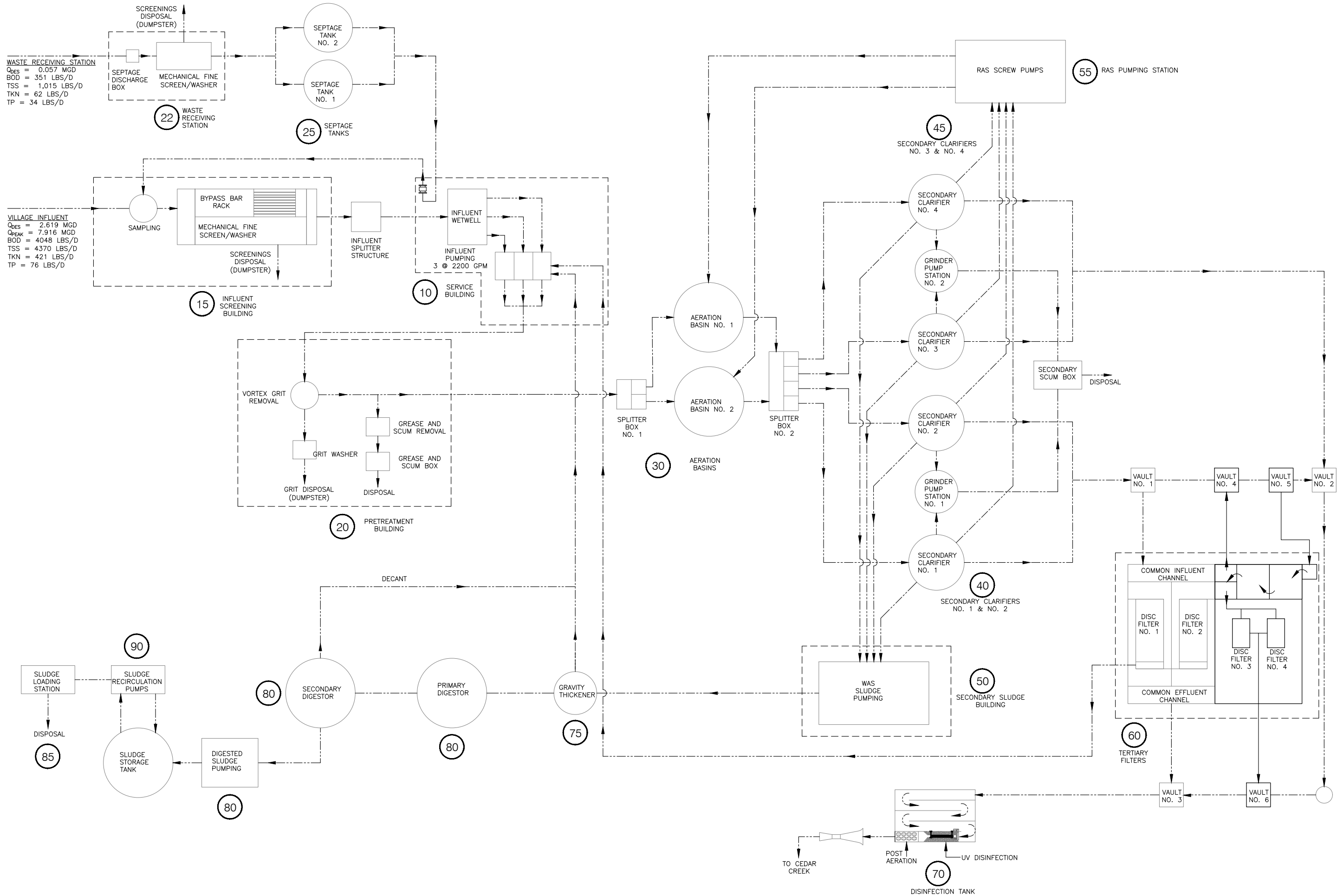
- AX = 2C#16 SHIELDED, TWISTED PAIR CABLE (X = NUMBER OF CABLES)
- DX = #14 THHN WIRE (X = NUMBER OF WIRES)
- MX = 1" CONDUIT FOR CABLE SUPPLIED BY MANUFACTURER (X = NUMBER OF CONDUITS)
- ELX = 3/4" CONDUIT AND CAT6(X) 300V CABLE(S) (X = NUMBER OF CABLES)
- EHX = 3/4" CONDUIT AND CAT6(X) 600V CABLE(S)
- FO(X) = CONDUIT AND FIBER OPTIC CABLE (X = NUMBER OF STRANDS)

PROCESS NOTES

- PROVIDE SEPARATE CONDUITS FOR THE FOLLOWING:
 - 24 V DC ANALOG
 - 24 V DC CONTROL/ DC PULSE
 - INTRINSICALLY SAFE
 - MANUFACTURERS CABLE
 - 120 VOLT CONTROL
 - 120 VOLT POWER
 - 480 VOLT POWER
 - 480 VOLT MOTOR FEEDER
 - LOW VOLTAGE INSTRUMENTATION COMMUNICATION
- REFER TO SPECIFICATION 26 90 00 FOR LOOP AND OPERATOR INTERFACE FUNCTIONS.
- REFER TO RESPECTIVE DIVISION SPECIFICATIONS FOR ADDITIONAL DETAILS REGARDING INSTRUMENTATION AND CONTROL EQUIPMENT FURNISHED UNDER THOSE SPECIFICATIONS.

LINETYPE LEGEND



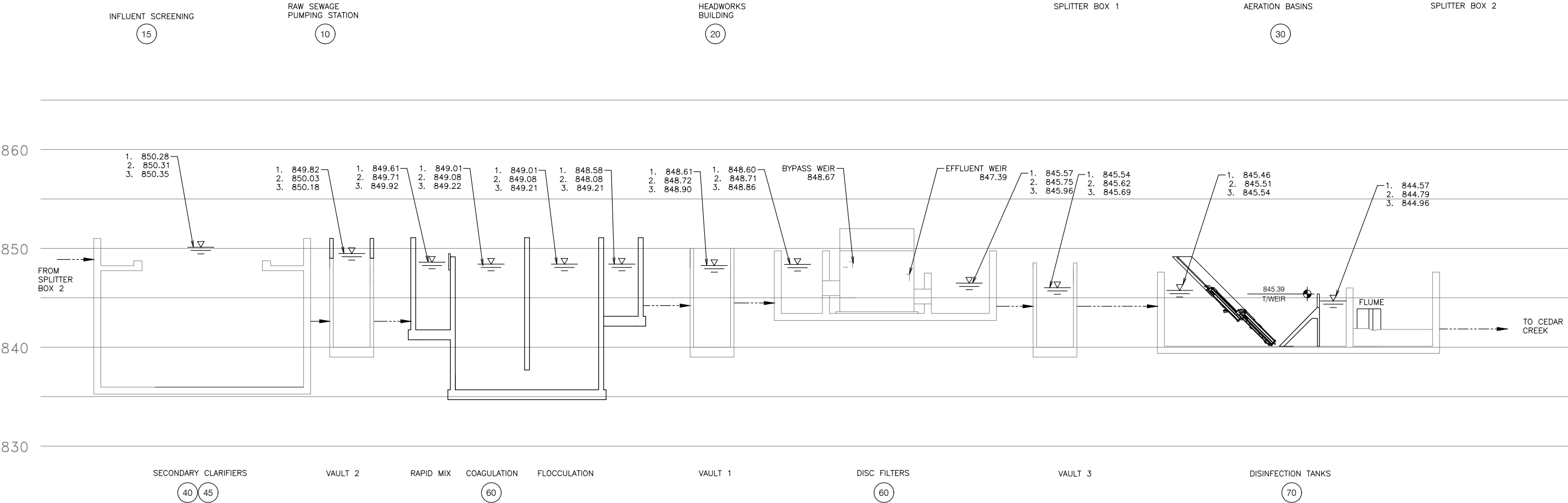
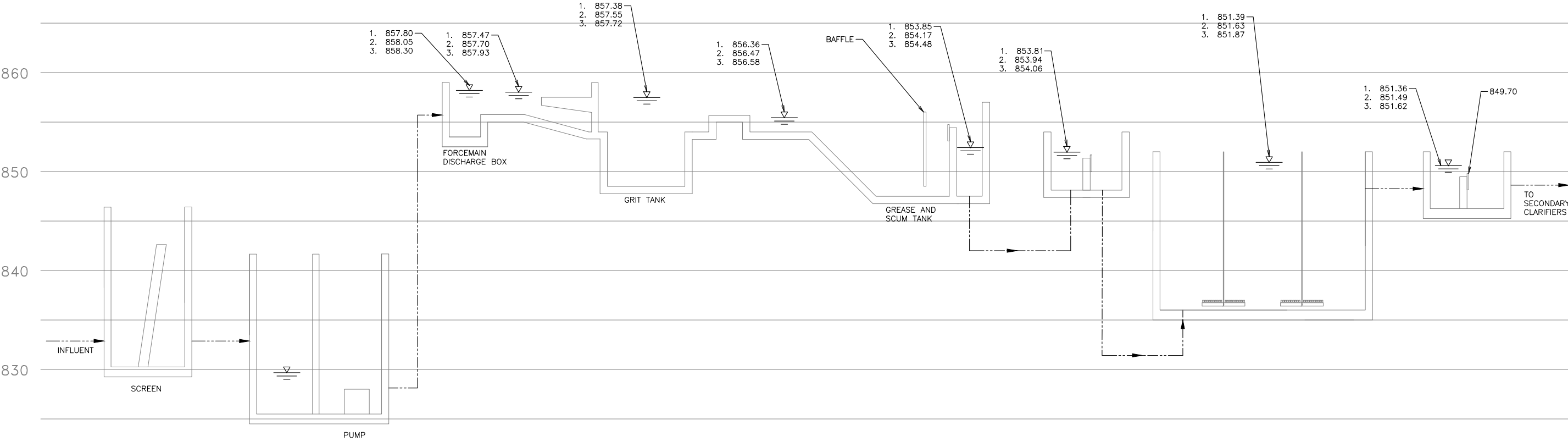


WATER SURFACE ELEVATIONS

1. DESIGN AVERAGE DAY FLOW = 2.046 MGD
2. MAX DAY FLOW = 5.418 MGD
3. PEAK HOUR FLOW = 7.916 MGD

RIVER STAGES

1. NORMAL = 834.00 FT
2. 100-YEAR FLOOD ELEVATION = 844.00 FT
3. WATER LEVEL FOR MODEL = 840.00 FT



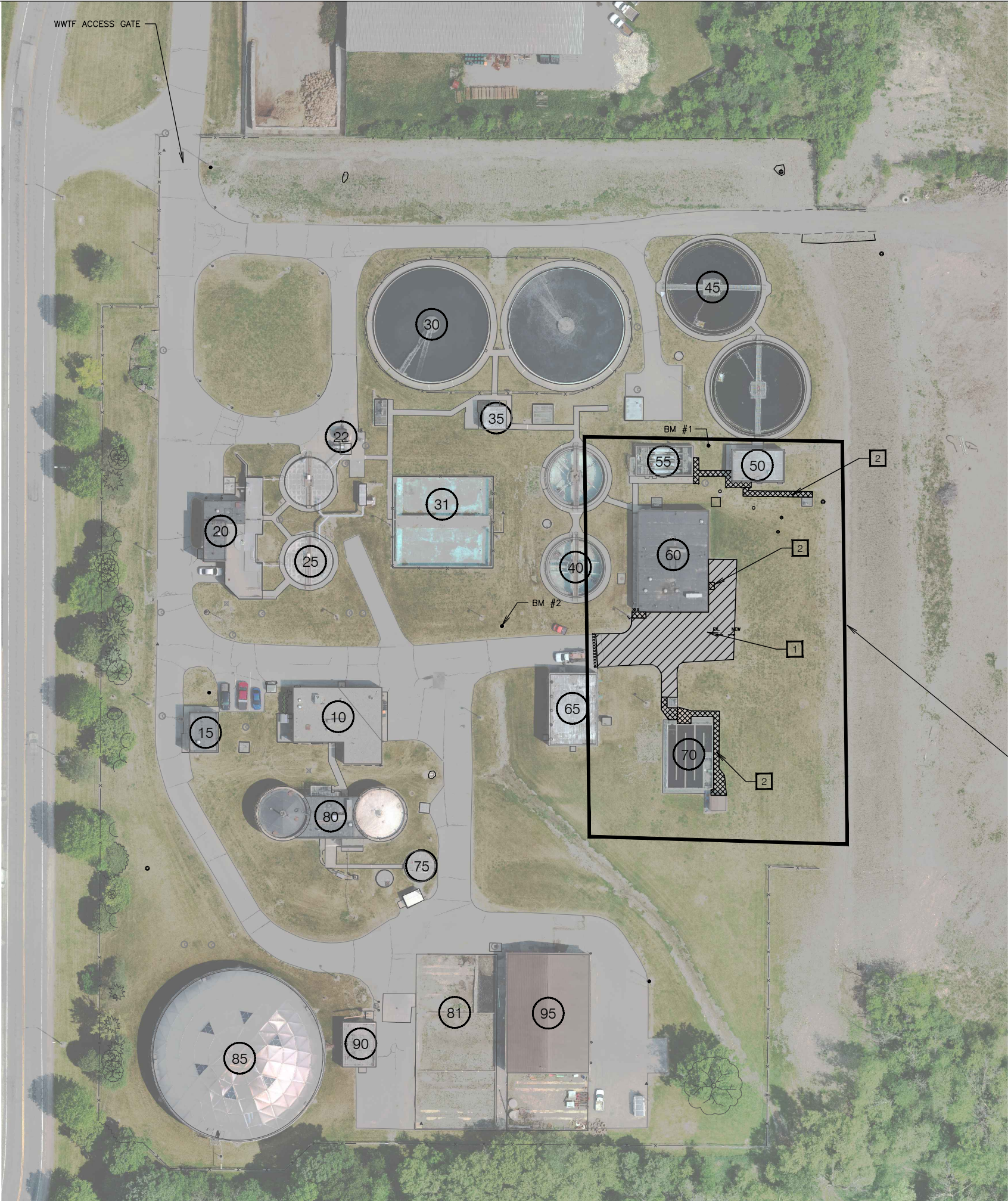
6264 Nesbit Road
Madison, WI 53719
(608) 273-3350
www.tceengineers.net

tc TOWN & COUNTRY
ENGINEERING, INC.

HYDRAULIC PROFILE

2024 WASTEWATER IMPROVEMENTS
TERTIARY FILTERS AND DISINFECTION
Village of Jackson, Wisconsin

PROJECT NO.: JK 18
DRAWING FILE: COVER & 00-G
DRAWN BY: R.T.G.
CHECKED BY: G.J.D.
DATE: 1-4-24
REVISIONS:
SCALE:
SHEET: 6
00-G-06



GENERAL NOTES

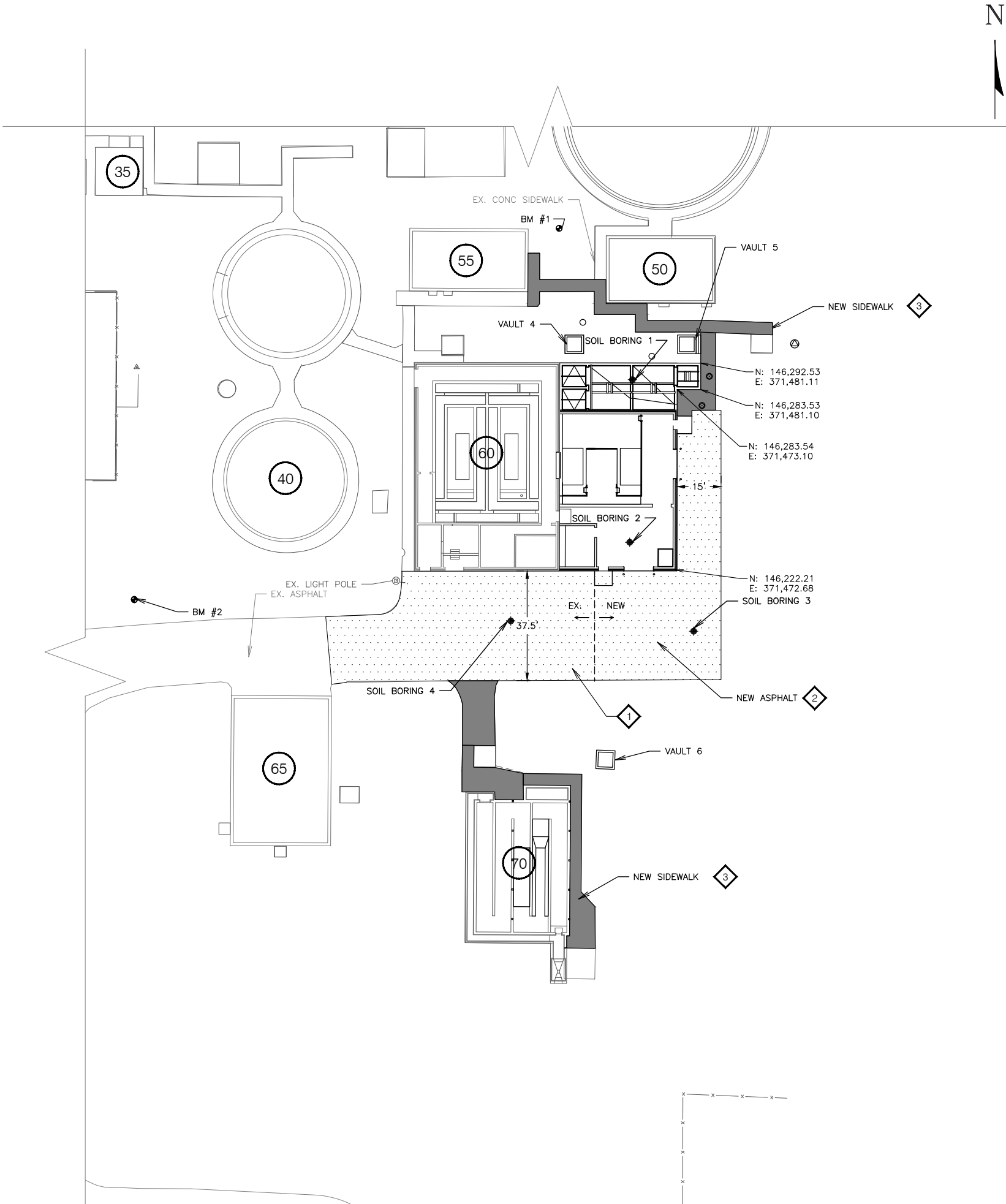
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2. EXISTING UTILITIES AND PIPING ARE BASED ON OWNER INFORMATION. CONTRACTOR SHALL SPOT DIG TO VERIFY ALL HORIZONTAL AND VERTICAL LOCATIONS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING AND RESTORING ALL CONCRETE SURFACES, LANDSCAPING AND GRADING, AND FENCING THAT ARE IMPACTED DURING CONSTRUCTION.

☒ REMOVAL NOTES

1. REMOVE EXISTING ASPHALT IN THE AREA SHOWN.
2. REMOVE AND REPLACE THE EXISTING CONC. SIDEWALK IN THE AREA SHOWN.

STRUCTURE SCHEDULE	
10	EX SERVICE BUILDING
15	EX INFLUENT SCREEN BUILDING
20	EX PRETREATMENT BUILDING
22	EX WASTE RECEIVING STATION
25	EX SEPTAGE TANKS
30	EX AERATION BASINS
31	EX RBC TANKS
35	EX AERATION CONTROL BUILDING
40	EX SECONDARY CLARIFIERS #1 & #2
45	EX SECONDARY CLARIFIERS #3 & #4
50	EX SECONDARY SLUDGE BUILDING
55	EX RAS PUMPING STATION
60	EX TERTIARY FILTER BUILDING
65	EX BLOWER BUILDING
70	EX DISINFECTION TANK
75	EX GRAVITY THICKENER
80	EX ANAEROBIC DIGESTERS AND BUILDING
81	EX SLUDGE DRYING BEDS
85	EX SLUDGE STORAGE TANKS
90	EX SLUDGE PUMPING BUILDING
95	EX STORAGE GARAGE

	BENCH MARK	ELEV
#1	SOUTH FLANGE BOLT ON HYDRANT, WEST OF STR 50	851.21
#2	NORTH FLANGE BOLT ON HYDRANT, SW OF STR 45	848.05



GENERAL NOTES

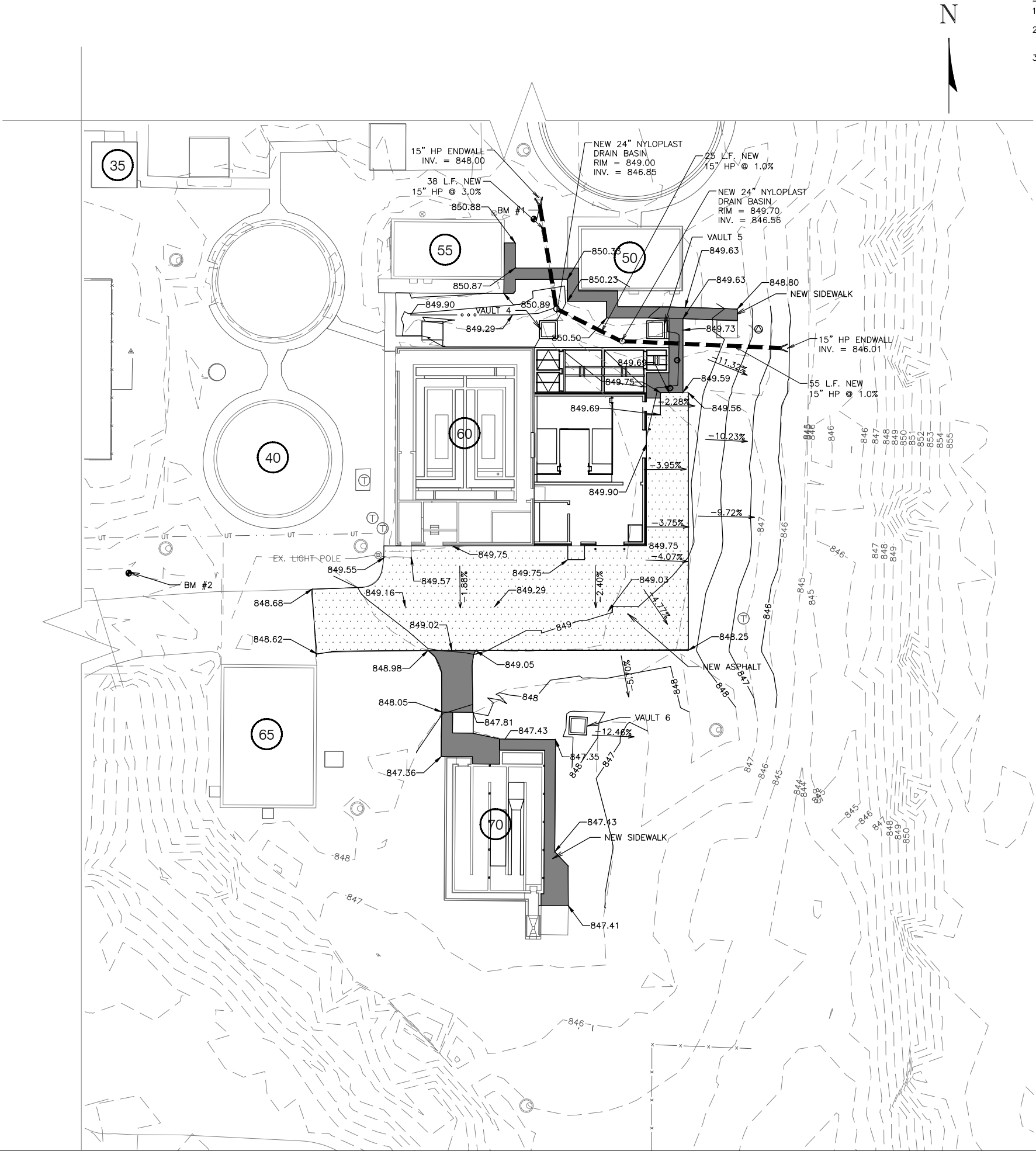
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KEY NOTES

1. NEW 4" ASPHALT PAVEMENT ON EXISTING AGGREGATE BASE COURSE.
2. NEW 4" ASPHALT PAVEMENT ON NEW AGGREGATE BASE PER DETAIL 100-C-02.
3. NEW CONCRETE SIDEWALK PER DETAIL SHEET 100-C-01.

STRUCTURE SCHEDULE	
10	EX SERVICE BUILDING
15	EX INFLUENT SCREEN BUILDING
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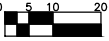
	BENCH MARK	ELEV
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#2	NORTH FLANGE BOLT ON HYDRANT, SW OF STR 45	848.05

GRADING PLAN

2024 WASTEWATER IMPROVEMENTS
TERTIARY FILTERS AND DISINFECTION

Village of Jackson, Wisconsin

PROJECT NO.: JK 18
DRAWING FILE: 05-SITE
DRAWN BY: R.T.G.
CHECKED BY: G.J.D.
DATE: 1-4-24
REVISIONS:
SCALE:

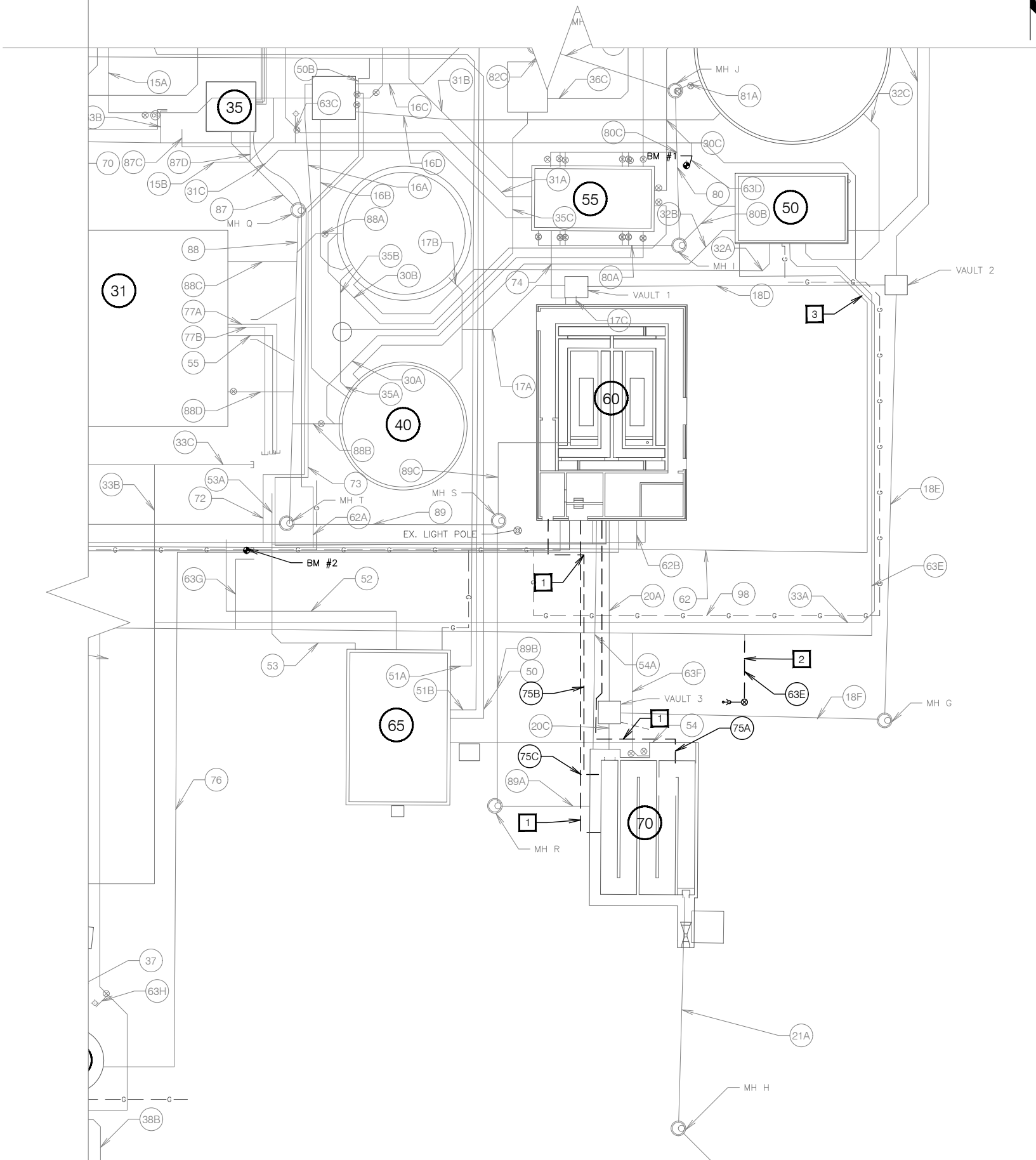


SHEET: 10

05-C-04

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(608) 273-3350
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tc TOWN & COUNTRY
ENGINEERING, INC.



GENERAL NOTES

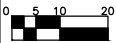
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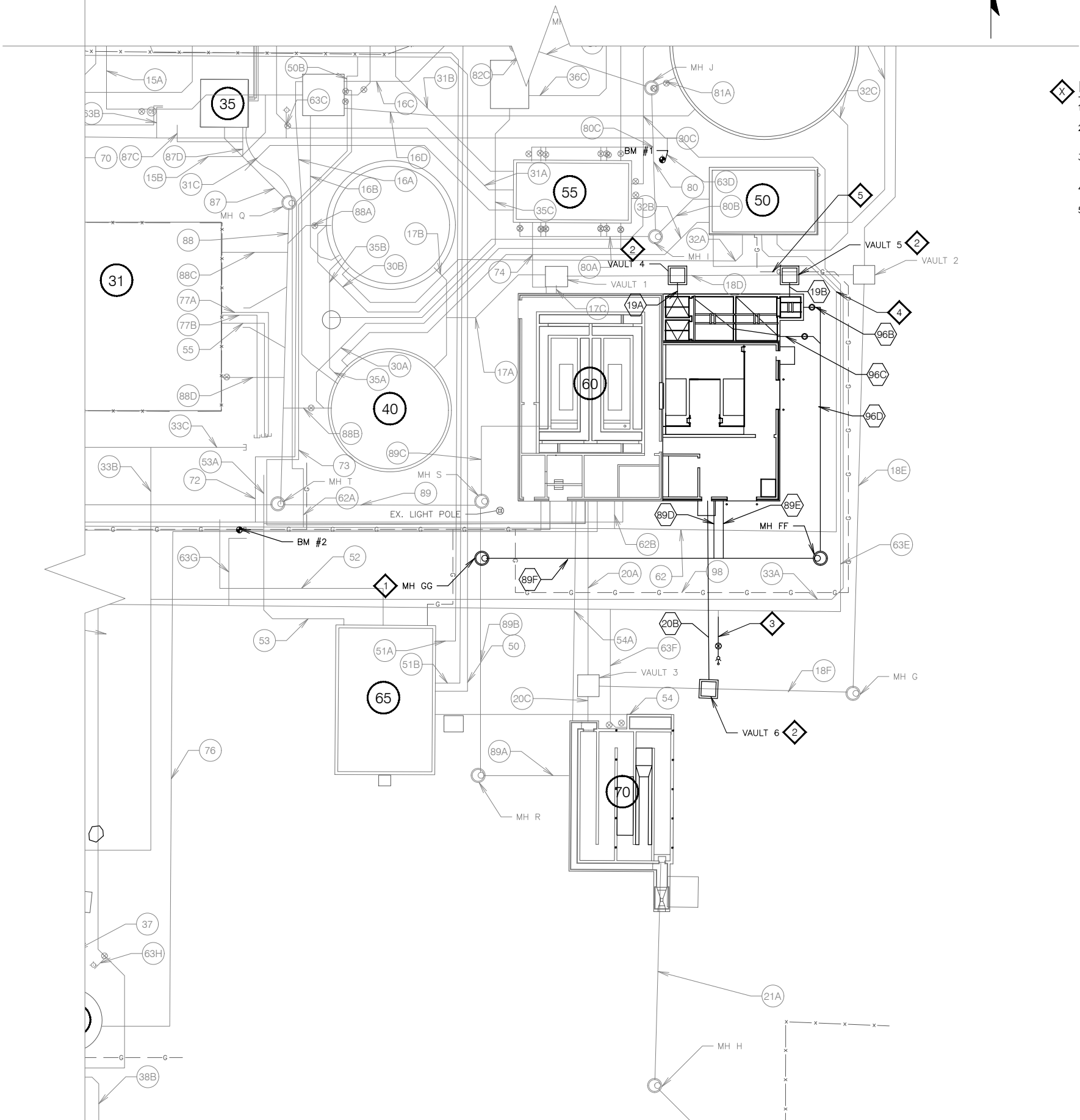
X REMOVAL NOTES

- 1. ABANDON AND/OR REMOVE THE EXISTING PIPES SHOWN BY DISCONNECTING OR PLUGGING AT THE EXISTING STRUCTURES AS SHOWN.
- 2. REMOVE EXISTING 6" HYDRANT LEAD, VALVE, AND HYDRANT. SALVAGE HYDRANT FOR REUSE.
- 3. RELOCATE EXISTING WATER AND NATURAL GAS PIPING FOR NEW STRUCTURE PER 05-M-02.

STRUCTURE SCHEDULE	
10	EX SERVICE BUILDING
15	EX INFLUENT SCREEN BUILDING
20	EX PRETREATMENT BUILDING
22	EX WASTE RECEIVING STATION
25	EX SEPTAGE TANKS
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95	EX STORAGE GARAGE

	BENCH MARK	ELEV
#1	SOUTH FLANGE BOLT ON HYDRANT, WEST OF STR 50	851.21
#2	NORTH FLANGE BOLT ON HYDRANT, SW OF STR 45	848.05





- GENERAL NOTES**
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 2. EXISTING UTILITIES AND PIPING ARE BASED ON OWNER INFORMATION. CONTRACTOR SHALL SPOT DIG TO VERIFY ALL HORIZONTAL AND VERTICAL LOCATIONS.
 3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING AND RESTORING ALL CONCRETE SURFACES, LANDSCAPING AND GRADING, AND FENCING THAT ARE IMPACTED DURING CONSTRUCTION.

- KEY NOTES**
1. CUT IN NEW 4' DIA. PRECAST MANHOLE WITH EXTERIOR DROP FOR NEW SITE DRAIN PIPING.
 2. CUT IN NEW PRECAST VAULT AT EXISTING RCP PIPE. CAST-IN-PLACE NEW BASE AND INSTALL NEW STRUCTURE PER DETAILS ON SHEET 60-M-05.
 3. REMOVE EXISTING HYDRANT AND VALVE FOR INSTALLATION OF VAULT 6. INSTALL NEW 6" HYDRANT LEAD FROM EXISTING TEE WITH NEW 6" GATE VALVE AND REUSE EXISTING HYDRANT.
 4. RELOCATE EXISTING 2" WATER SERVICE NORTH OF VAULT 5 WITH NEW HDPE PIPE AND COUPLINGS TO FACILITATE INSTALLATION.
 5. RELOCATE EXISTING 1 1/2" NG SERVICE NORTH OF VAULT 5 WITH NEW HDPE PIPE AND COUPLINGS TO FACILITATE INSTALLATION.

STRUCTURE SCHEDULE	
10	EX SERVICE BUILDING
15	EX INFLUENT SCREEN BUILDING
20	EX PRETREATMENT BUILDING
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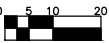
6264 Nesbitt Road
Madison, WI 53719
(608) 273-3350
www.tceengineering.net



PROCESS AND UTILITY IMPROVEMENTS PLAN

2024 WASTEWATER IMPROVEMENTS
TERTIARY FILTERS AND DISINFECTION
Village of Jackson, Wisconsin

PROJECT NO.: JK 18
DRAWING FILE: 05-SITE
DRAWN BY: R.T.G.
CHECKED BY: G.J.D.
DATE: 1-4-24
REVISIONS:
SCALE:



SHEET: 12

05-M-02

PIPE SCHEDULE

COPY	MEDIA	DIA./MATL	FROM	TO	COMMENTS
1	SAN	8"	SENECA LAGOON	MH A	
2A	SAN	21"	NORTH	MH A	
2B	SAN	21"	MH A	MH B	
2C	SAN	21"	MH B	MH D	
3A	SAN	27"	SOUTH	MH C	
3B	SAN	27"	MH C	MH D	
4	SAN	36"	MH D	MH E	
5	SAN	36"	MH E	STR 15	
10A	RAW	36"	STR 15	INFL SPLITTER	
10B	RAW	30"	INFL SPLITTER	MH F	
10C	RAW	30"	MH F	STR 10	
10D	RAW	30"	INFL SPLITTER	STUB	FUTURE
11A	SEPT	6"	STR 22	STR 25 (SOUTH)	SECONDARY SEPTAGE TANK NO.1
11B	SEPT	6"	STR 22	STR 25 (NORTH)	SECONDARY SEPTAGE TANK NO.2
11C	SEPT	6"	STR 25 (SOUTH)	CLEANOUT	SEPTAGE CLEANOUT
11D	SEPT	6"	STR 25 (NORTH)	CLEANOUT	SEPTAGE CLEANOUT
11E	SEPT	6"	CLEANOUT	STR 10	
11F	SEPT	4"	STR 10	STR 15	
12A	RAW	16"	STR 10	STR 20	
13A	RAW	24"	STR 20	SPLITTER BOX NO.1	
13B	RAW	20"	STR 20	SPLITTER BOX NO.1	
14A	RAW	20"	SPLITTER BOX NO.1	STR 30 (WEST)	AERATION BASIN NO.1
14B	RAW	20"	SPLITTER BOX NO.1	STR 30 (EAST)	AERATION BASIN NO.2
14C	RAW	20"	SPLITTER BOX NO.1	STUB	FUTURE AERATION BASIN
15A	MLSS	24"	STR 30 (WEST)	SPLITTER BOX NO.2	
15B	MLSS	30"	PIPE 15B	STUB	
15C	MLSS	24"	STR 30 (EAST)	SPLITTER BOX NO.2	
16A	MLSS	20"	SPLITTER BOX NO.2	STR 40 (SOUTH)	SECONDARY CLARIFIER NO.1
16B	MLSS	20"	SPLITTER BOX NO.2	STR 40 (NORTH)	SECONDARY CLARIFIER NO.2
16C	MLSS	30"	SPLITTER BOX NO.2	STR 45 (NORTH)	SECONDARY CLARIFIER NO.4
16D	MLSS	30"	SPLITTER BOX NO.2	STR 45 (SOUTH)	SECONDARY CLARIFIER NO.3
17A	SE	24"	STR 40 (SOUTH)	VAULT 1	
17B	SE	24"	STR 40 (NORTH)	PIPE 16A	
17C	SE	36"	VAULT 1	STR 60	
18A	SE	24"	STR 45 (SOUTH)	PIPE 18C	
18B	SE	24"	STR 45 (NORTH)	PIPE 18C	
18C	SE	30"	PIPE 18A & 18B	VAULT 2	
18D	SE	30"	VAULT 2	VAULT 1	PIPE IS SECTIONED INTO 3 PARTS AFTER VAULT 4 & 5 ARE ADDED
18E	BYP	36"	VAULT 2	MH G	
18F	BYP	36"	MH G	VAULT 3	PIPE IS SECTIONED INTO 2 PARTS AFTER VAULT 6 IS ADDED
19A	SE	30"	VAULT 4	STR 60	
19B	SE	30"	STR 60	VAULT 5	
20A	TE	24"	STR 60	VAULT 3	
20B	TE	24"	STR 60	VAULT 6	
20C	TE	36" CONC	VAULT 4	STR 70	
21A	FE	30"	STR 70	MH H	
21B	FE	30"	MH H	OUTFALL	
30A	RAS	12"	STR 40 (SOUTH)	STR 55	
30B	RAS	12"	STR 40 (NORTH)	STR 55	
30C	RAS	12"	STR 45 (SOUTH)	STR 55	
30D	RAS	12"	STR 45 (NORTH)	STR 55	
31A	RAS	12"	STR 55	STR 30	AERATION BASIN NO.1
31B	RAS	12"	STR 55	STR 30	AERATION BASIN NO.2
31C	RAS	16"	STR 55	STUB	FUTURE AERATION BASIN
32A	WAS	6"	STR 40 (SOUTH)	STR 50	
32B	WAS	6"	STR 40 (NORTH)	STR 50	
32C	WAS	6"	STR 45 (SOUTH)	STR 50	
32D	WAS	6"	STR 45 (NORTH)	STR 50	
33A	WAS	6"	STR 50	STR 80	
33B	WAS	6"	PIPE 33A	STUB	
33C	WAS	6"	PIPE 33B	STUB	
34A	WAS	6"	STR 80	STR 75	
34B	WAS	6"	STR 80	STR 75	
35A	SCUM	6"	STR 40 (SOUTH)	GRINDER STATION NO.1	
35B	SCUM	6"	STR 40 (NORTH)	GRINDER STATION NO.1	
35C	SCUM	2"	GRINDER STATION NO.1	SECONDARY SCUM WELL	
36A	SCUM	6"	STR 45 (SOUTH)	GRINDER STATION NO.2	
36B	SCUM	6"	STR 45 (NORTH)	GRINDER STATION NO.2	
36C	SCUM	2"	GRINDER STATION NO.2	SECONDARY SCUM WELL	
37	SCUM	6"	STR 75	SCUM BOX	
38A	DIG SLG	6"	STR 80	STR 81	
38B	DIG SLG		SHED	PIPE 38A	

PIPE NO.	MEDIA	DIA./MATL	FROM	TO	COMMENTS
38C	DIG SLG	6"	PIPE 38A	STR 85	
39	DIG SLG	6"	STR 85	SLG LOADOUT	
40	DIG SLG	18"	STR 85	STR 90	
41	DIG SLG	18"	STR 85	STR 90	
42	DIG SLG	6"	STR 90	PIPE 39	
43A	DIG SLG	8"	STR 90	STR 85	
43B	DIG SLG	8"	STR 90	STR 85	
43C	DIG SLG	8"	STR 90	STR 85	
43D	DIG SLG	8"	STR 90	STR 85	
43E	DIG SLG	8"	STR 90	STR 85	
43F	DIG SLG	8"	STR 90	STR 85	
43G	DIG SLG	8"	STR 90	STR 85	
50	ALP	4"	STR 65	STR 20	
50B	ALP	4"	PIPE 50	SPLITTER BOX NO.1	
50C	ALP	4"	PIPE 50	SPLITTER BOX NO.2	
51A	ALP	8"	STR 65	STR 30 (WEST)	AERATION BASIN NO.1
51B	ALP	8"	STR 65	STR 30 (EAST)	AERATION BASIN NO.2
52	ALP	8"	STR 65	STUB	
53	ALP	8"	STR 65	STR 60	
53A	ALP	8"	PIPE 53	STUB	
54A	ALP	4"	PIPE 54	STR 60	
55	ALP	8"	STR 31	STUB	ABANDONED
60	WATER	3"	EAGLE DR	STR 10	
60A	WATER	3"	PIPE 60	FIRE HYDRANT	
61	W1	3"	STR 10	STR 20	
61A	W1	1-1/4"	PIPE 61	STR 80	
62	W1	1-1/4"	PIPE 61	STR 50	
62A	W1	2"	PIPE 62	STR 35	
62B	W1	2"	PIPE 62	STR 60	
63	W2	6"	STR 20	STR 90	LINE MOVES CLOCKWISE
63A	W2	6"	PIPE 63	YD HYD	SOUTH OF SEPTAGE TANK NO.2
63B	W2	6"	PIPE 63	ACETIC BUILDING	
63C	W2	6"	PIPE 63	YD HYD	EAST OF STR 35
63D	W2	6"	PIPE 63	YD HYD	BETWEEN STR 55 & STR 50
63E	W2	6"	PIPE 63	YD HYD	NORTH OF STR 70
63F	W2	6"	PIPE 63	STR 70	
63G	W2	6"	PIPE 63	YD HYD	NORTHEAST OF STR 65
63H	W2	6"	PIPE 63	YD HYD	NORTH OF STR 75
63I	W2	6"	PIPE 63	YD HYD	NORTHEAST OF STR 90
63J	W2	6"	PIPE 63	YD HYD	NORTHWEST OF STR 90
63K	W2	6"	PIPE 63	STR 15	
64	W2	6"	PIPE 63K	YD HYD	NORTH OF STR 15
65	W2	6"	PIPE 63K	PIPE 63	
70	CHEM	1"	ACETIC BUILDING	SPLITTER BOX NO.1	
71	CHEM	2"	STR 60	STR 10	
72	CHEM	1"	STR 60	SPLITTER BOX NO.2	
72A	CHEM	1"	PIPE ??	STUB	
73	CHEM	2"	STR 60	SPLITTER BOX NO.2	
74	CHEM	1"	STR 60	STR 55	
75A	CHEM	1-1/2"	STR 60	STR 70	ABANDON
75B	CHEM	1-1/2"	STR 60	STR 70	ABANDON
75C	CHEM	1-1/2"	STR 60	STR 70	ABANDON
76	CHEM	2"	STR 60	STR 75	
77A	CHEM	2"	STR 31	STUB	ABANDONED
77B	CHEM	1"	STR 31	STUB	ABANDONED
80	DRN	6"	MH I	MH J	
80A	DRN	6"	STR 55	MH I	SOUTH SIDE VALVES OF STR 55
80B	DRN	4"	STR 50	MH I	
80C	DRN	6"	STR 55	PIPE 80	NORTH SIDE VALVES OF STR 55
81	DRN	8"	MH J	MH L	
81A	DRN	8"	STR 45	MH J	CLARIFIER 3
82	DRN	8"	MH K	MH L	
82A	DRN	8"	STR 45	MH K	CLARIFIER 4
82B	DRN	8"	STR 30	MH K	AERATION BASIN NO.2
82C	DRN	8"	SECONDARY SCUMWELL	MH L	
83	DRN	8"	MH L	MH M	
83A	DRN	1-1/2"	STR 30	PIPE 83	AERATION BASIN NO.1
84	DRN	6"	MH M	MH N	
84A	DRN	6"	TRENCH DRAIN	MH M	
85	DRN	6"	MH N	MH P	

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tcTOWN & COUNTRY
ENGINEERING, INC.

PIPING SCHEDULE

2024 WASTEWATER IMPROVEMENTS
TERTIARY FILTERS AND DISINFECTION

Village of Jackson, Wisconsin

PROJECT NO.:
JK 18
DRAWING FILE:
05-SITE
DRAWN BY:
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N.T.S.

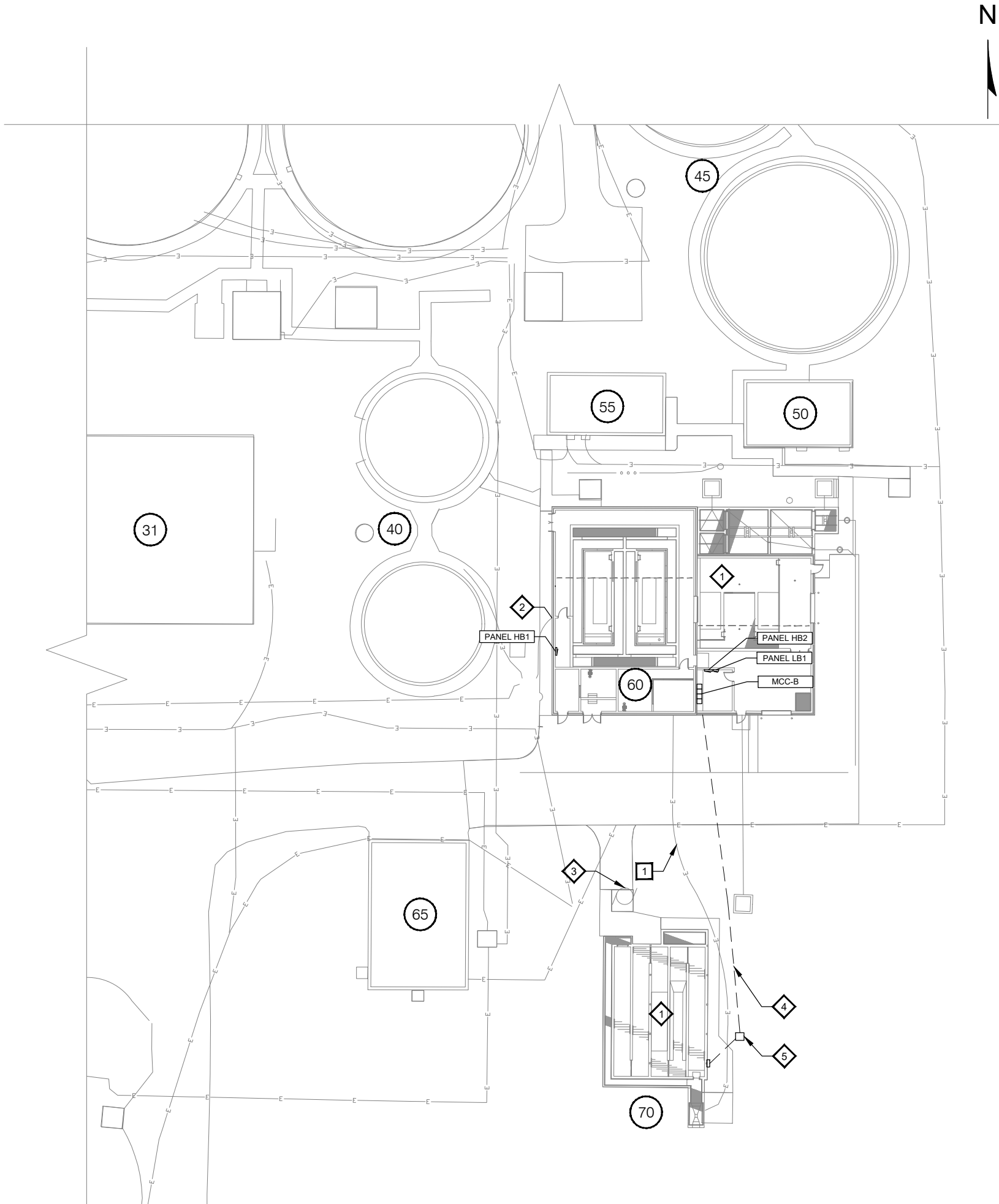
SHEET: 13

PIPE SCHEDULE (CONT.)

PIPE NO.	MEDIA	DIA.	FROM	TO	COMMENTS
85A	DRN	8"	STR 20	GREASE/SCUM WELL	
85B	DRN	8"	GREASE/SCUM WELL	MH O	
85C	DRN	6"	STR 20	PIPE 85B	
85D	DRN	6"	MH O	MH P	
86	DRN	8"	MH P	MH V	
87	DRN	4"	STR 35	MH Q	
87A	DRN	1-1/2"	STR 30	STR 35	AERATION BASIN NO.1
87B	DRN	1-1/2"	STR 30	STR 35	AERATION BASIN NO.2
87C	DRN	4"	ACETIC BUILDING	PIPE 87	
87D	DRN	8"	STR 35	PIPE 87	
88	DRN	6"	MH Q	MHT	
88A	DRN	8"	PIPE 30B	PIPE 87	
88B	DRN	8"	PIPE 30A	PIPE 87	
88C	DRN	6"	STR 31	PIPE 87	ABANDONED
88D	DRN	8"	STR 31	PIPE 87	ABANDONED
89	DRN	8"	MH S	MH T	
89A	DRN	8"	STR 70	MH R	
89B	DRN	8"	MH R	MH S	PIPE IS SECTIONED INTO 2 PARTS AFTER MH GG IS ADDED
89C	DRN	8"	STR 60	MH S	
89D	DRN	6"	STR 60	PIPE 89F	
89E	DRN	4"	STR 60	PIPE 89F	
89F	DRN	6"	MH FF	MH GG	
90	DRN	8"	MH T	MH U	
91	DRN	8"	MH U	MH V	
92	DRN	8"	MH V	MH W	
92A	DRN	8"	MH W	MH F	
93	DRN	8"	MH W	MH X	
94	DRN	8"	MH X	MH B	
95	DRN	8"	MH Z	MH C	
95A	DRN	8"	MH Y	MH Z	
95B	DRN	8"	STR 90	PIPE 94	
95C	DRN	8"	STR 81	MH Y	
96	DRN	8"	MH Z	INFL SPLITTER	
96A	DRN	6"	STR 80	PIPE 95	
96B	DRN	6"	STR 60	PIPE 96D	
96C	DRN	6"	STR 60	PIPE 96D	
96D	DRN	6"	STR 60	MH FF	
97A	DEC	6"	STR 75	STR 80	
97B	DEC	6"	STR 80	STR 10	
98	NG	1-1/2"	UTILITY	SITE	
98A	WG	3"	STR 80	BURNER	WASTE GAS
99A	SAMP	1-1/4"	STR 30	STR 35	AERATION BASIN NO.1
99B	SAMP	1-1/4"	STR 30	STR 35	AERATION BASIN NO.2

MANHOLE SCHEDULE

MANHOLE	PRECAST	CATALOG	LID	RIM	INVERT ELEVATIONS (1)				Comments
	SIZE	NUMBER		ELEVATION	DIRECTION				
MH A	48"	EX	EX	847.07	837.01 (E)	831.55 (N)	831.55 (S)		
MH B	48"	EX	EX	846.96	832.11 (E)	831.49 (N)	831.49 (S)		
MH C	48"	EX	EX	847.28	832.26 (SW)	831.62 (N)			
MH D	96"	EX	EX	846.16	831.08 (N)	831.08 (W)	831.08 (E)		
MH E	60"	EX	EX	846.17	831.00 (W)	831.00 (E)			
MH F	60"	EX	EX	846.41	833.51 (NE)	829.59 (W)	829.59 (S)	829.59 (E)	
MH G	72"	EX	EX	849.10	840.60				
MH H	48"	EX	EX	845.02	835.90 (N)	835.90 (SE)			
MH I	48"	EX	EX	850.87	841.70 (W)	841.93 (W)	839.88 (N)		
MH J	48"	EX	EX						
MH K	48"	EX	EX	849.86	837.03 (NE)	837.06 (W)	836.94 (S)		
MH L		EX	EX	850.72	836.63 (N)	838.32 (S)	836.58 (E)	836.56 (W)	
MH M	48"	EX	EX	852.62	835.04 (N)	835.04 (SE)	844.02 (NW)		
MH N	48"	EX	EX	853.29	834.64 (NE)	834.64 (S)	848.89 (E)		
MH O		EX	EX	854.51	844.74 (N)	844.59 (E)			
MH P	24"	EX	EX						
MH Q	48"	EX	EX						
MH R		EX	EX	847.74	835.30 (E)	835.23 (N)			
MH S	48"	EX	EX	849.33	840.42 (N)	834.84 (S)	834.67 (W)		
MH T	48"	EX	EX	847.77	834.54 (E)	834.59 (N)	834.45 (W)		
MH U	48"	EX	EX	849.26	834.07 (E)	834.07 (W)			
MH V	48"	EX	EX	850.16	833.93 (E)	833.98 (N)	833.93 (W)		
MH W	48"	EX	EX	850.68	833.63 (E)	832.86 (S)			
MH X	48"	EX	EX	847.09	843.83 (N)	843.73 (NW)	843.78 (SE)		
MH Y	72"x48"	EX	EX	846.14	836.86 (E)	838.89 (W)	833.43 (W)	835.00 (S)	
MH Z	48"	EX	EX	845.83	832.65 (SE)	832.54 (N)			
MH AA	48"	EX	EX	846.08	836.10 (N)	835.85 (E)			
MH BB	24"x24"	EX	EX	845.27	843.51 (N)				
MH CC	19"	EX	EX	845.52	842.02 (NE)				
MH DD	24"	EX	EX	845.16					
MH EE	36"x36"	EX	EX	846.10					
MH FF	48"	NEW		849.00	835.55 (W)	835.55 (N)			
MH GG	48"	NEW		849.00	835.00 (N)	835.00 (S)	835.10 (E)		
VAULT 1	66"x72"	EX	EX	850.18	841.18				
VAULT 2	66"x78"	EX	EX	849.13	841.13				
VAULT 3	66"x78"	EX	EX	848.66	840.66				
VAULT 4	60"x60"	NEW		851.00	841.77 (W)	841.77 (E)	843.41 (S)		
VAULT 5	60"x60"	NEW		851.00	841.75 (W)	841.75 (E)	843.50 (S)		
VAULT 6	60"x60"	NEW		849.00	840.50 (W)	840.50 (E)	842.00 (N)		
Note: Final rim elevations could vary up to 3 inches depending on final grading.									
(1) Provide external manhole drop connection when invert elevation is greater than 2 ft above manhole outlet invert per dtl 102 on 100-C-01.									
(2) Provide square precast cover with opening for R-1550 casting. Gate/valve operator penetration to be coordinated with contractor.									
(3) Bench configuration should match chemical manhole bench and drain. See detail 417 on 100-M-03.									
(4) Contractor to pothole to locate and verify invert of existing line prior to submitting manhole shop drawings.									
(5) Install "Doghouse" style manhole base per detail 400 on sheet 100-M-02.									
(6) Install chemical manhole per detail 417 on 100-M-03.									
UD #1: Neenah Foundry Type "B" Lid, Non-Rocking, Gasketed, with Concealed Pick-hole									
UD #2: Neenah Foundry Type "C" Flat Radial Grate, Non-Rocking									



GENERAL NOTES

- 1. DO NOT SCALE DRAWINGS TO DETERMINE EXACT LOCATION OF ELECTRICAL EQUIPMENT AND CONNECTIONS.
- 2. DUCT BANK ROUTING IS DIAGRAMMATIC IN NATURE AND IS NOT INTENDED TO DICTATE EXACT ROUTING. CONTRACTOR IS TO DETERMINE BEST ROUTING BASED ON OTHER UTILITIES AND FIELD CONDITIONS.
- 3. 120V HOMERUN WIRING SHALL BE A MINIMUM OF (2) #12 & #12G IN 3/4" UNLESS OTHERWISE NOTED. SIZE FOR VOLTAGE DROP.
- 4. SEE ONE-LINE DIAGRAM, PANEL SCHEDULE, AND FIELD DEVICE WIRING SCHEDULE FOR WIRING OF ALL PROCESS AND INSTRUMENTATION.
- 4. INSTALL FIELD INSTRUMENTS PER DETAIL REFERENCED IN FIELD DEVICE WIRING SCHEDULE.
- 5. ALL CONDUIT STUBBED UP THROUGH CONCRETE SHALL BE PVC COATED GRS.
- 6. SEE SCADA OVERVIEW FOR COMMUNICATIONS CABLING REQUIREMENTS.
- 7. REFER TO SPECIFICATION 26 05 00 FOR CONDUIT, BOX, AND HARDWARE USAGE REQUIREMENTS.
- 8. ALL UNDERGROUND CONDUIT SHALL BE CONCRETE ENCASED PER DETAIL E2-09, UNLESS OTHERWISE NOTED.
- 9. COORDINATE ALL ELECTRICAL REMOVAL IN FIELD WITH ENGINEER AND EXISTING CONDITIONS. PLANS DEPICT KNOWN EQUIPMENT TO BE REMOVED BASED ON EXISTING DOCUMENTATION AND FIELD OBSERVATION. CONTRACTOR TO VERIFY ACTUAL FIELD CONDITIONS.
- 10. REMOVE ALL ABANDONED CONDUCTORS BACK TO SOURCE TO EXTENT FEASIBLE.
- 11. REMOVE ALL ABANDONED EXPOSED RACEWAY. CUT CONDUIT BELOW GRADE OR FINISHED FLOOR AND PATCH FLUSH TO MATCH ADJOINING SURFACE.
- 12. PATCH ALL ABANDONED ELECTRICAL PENETRATIONS AND FINISH TO MATCH ADJOINING.
- 13. REFER TO ELECTRICAL, PROCESS, ARCHITECTURAL/STRUCTURAL, AND HVAC PLANS FOR EQUIPMENT TO REMAIN AND FOR NEW WORK.
- 14. REFER TO CONSTRUCTION SEQUENCE IN DIVISION 1 AND COORDINATE ALL OUTAGES WITH ENGINEER.
- 15. MAINTAIN OPERATION OF ALL LOADS THAT ARE TO REMAIN DURING CONSTRUCTION. COORDINATE ANY OUTAGES WITH ENGINEER AND OWNER.

REMOVAL NOTES

- 1. EXISTING UNDERGROUND FEEDER SERVING EFFLUENT STRUCTURE FROM TERTIARY FILTER BUILDING TO BE ABANDONED IN PLACE.

KEY NOTES

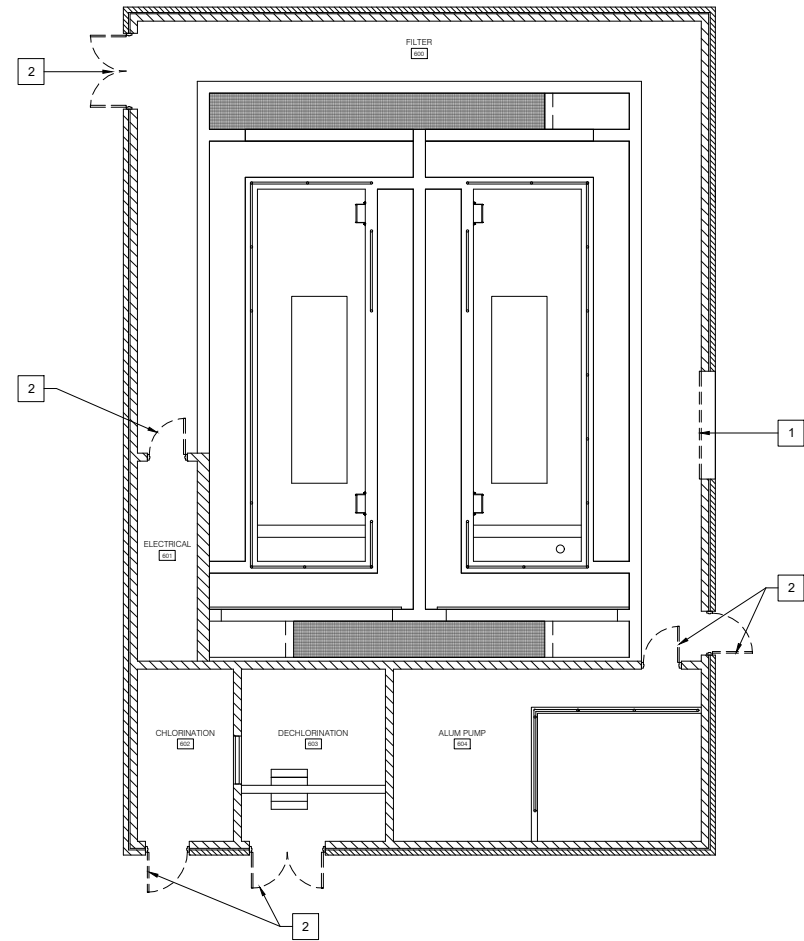
- 1. SEE ELECTRICAL SHEETS FOR WORK IN THIS STRUCTURE.
- 2. EXISTING ELECTRICAL SERVICE ENTRY POINT. CONFIRM ACTUAL LOCATION IN FIELD.
- 3. EXISTING GATE ACTUATOR TO REMAIN.
- 4. PROVIDE CONCRETE ENCASED DUCT BANK PER DETAIL E2-09.
 - 4.1. (1) 2" FIBER OPTIC CABLE
 - 4.2. (1) 2" 480V FEEDER
 - 4.3. (1) 2" 480V FEEDER
 - 4.4. (1) 2" 120V POWER
 - 4.5. (1) 2" SPARE
- 5. PROVIDE ELECTRICAL HANDHOLE PER DETAIL E2-12.

STRUCTURE SCHEDULE	
10	EX SERVICE BUILDING
15	EX INFLUENT SCREEN BUILDING
20	EX PRETREATMENT BUILDING
22	EX WASTE RECEIVING STATION
25	EX SEPTAGE TANKS
30	EX AERATION BASINS
31	EX RBC TANKS
35	EX AERATION CONTROL BUILDING
40	EX SECONDARY CLARIFIERS #1 & #2
45	EX SECONDARY CLARIFIERS #3 & #4
50	EX SECONDARY SLUDGE BUILDING
55	EX RAS PUMPING STATION
60	EX TERTIARY FILTER BUILDING
65	EX BLOWER BUILDING
70	EX DISINFECTION TANK
75	EX GRAVITY THICKENER
80	EX ANAEROBIC DIGESTERS AND BUILDING
81	EX SLUDGE DRYING BEDS
85	EX SLUDGE STORAGE TANKS
90	EX SLUDGE PUMPING BUILDING
95	EX STORAGE GARAGE

BASIS OF STRUCTURAL DESIGN		
[1.0] ROOF LIVE LOADS:		
SNOW- GROUND (P _g)/ROOF FLAT (P _f)		30/25 PSF
UNBAL. SNOW LOAD (ASCE-7 FIG. 7-5)		40/25 PSF
IMPORTANCE FACTOR (I _s)		1.0
THERMAL FACTOR (C _t)		1.0
SNOW EXPOSURE FACTOR (C _e)		1.2
[1.1] SUPERIMPOSED ROOF DEAD LOADS (LOADS ON COMPONENTS):		
ROOFING, INSUL., FP, MEP, MISC.		20 PSF
[1.2] FLOOR LIVE LOADS:		
SLAB-ON-GRADE		250 PSF
[2.0] WIND (SIMPLIFIED PROCEDURE LOW-RISE BUILDINGS):		
WIND RISK CATEGORY		II
ENCLOSURE LEVEL		FULL
ULTIMATE DESIGN WIND SPEED (V _{ult})		115 MPH
NOMINAL DESIGN WIND SPEED (V _{asd})		90 MPH
IMPORTANCE FACTOR (I _w)		1.0
EXPOSURE CATEGORY		C
INTERNAL PRESSURE COEFFICIENT		±0.18
[3.0] SEISMIC (EQUIVALENT LATERAL FORCE PROCEDURE):		
SEISMIC RISK CATEGORY		II
SEISMIC IMPORTANCE FACTOR (I _s)		1.00
SITE CLASS		D
SEISMIC DESIGN CATEGORY		A
SEISMIC FORCE-RESISTING SYSTEM		NOTE-2
[4.0] ALLOWABLE SOIL BEARING CAPACITY & SUBGRADE MODULUS (ASSUMED):		
FOOTINGS		2,000 PSF
SLAB-ON-GRADE		150 PCI

BASIS OF STRUCTURAL DESIGN NOTES

1. PROVIDE FOR ADDITIONAL 5 PSF LL AT ALL ATTIC SPACES.
2. SEISMIC FORCE-RESISTING SYSTEM: A. BEARING WALL SYSTEMS, 9. ORDINARY REINFORCED MASONRY SHEAR WALLS (PER ASCE 7).
3. COMPONENT DELEGATED DESIGN AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH PROVISIONS OF THE WISCONSIN DEPARTMENT OF ADMINISTRATIVE CODE, CHAPTER SPS 362 (CURRENT EDITION). COMPONENT SUBMITTAL SHALL INCLUDE: WOOD ROOF TRUSSES.



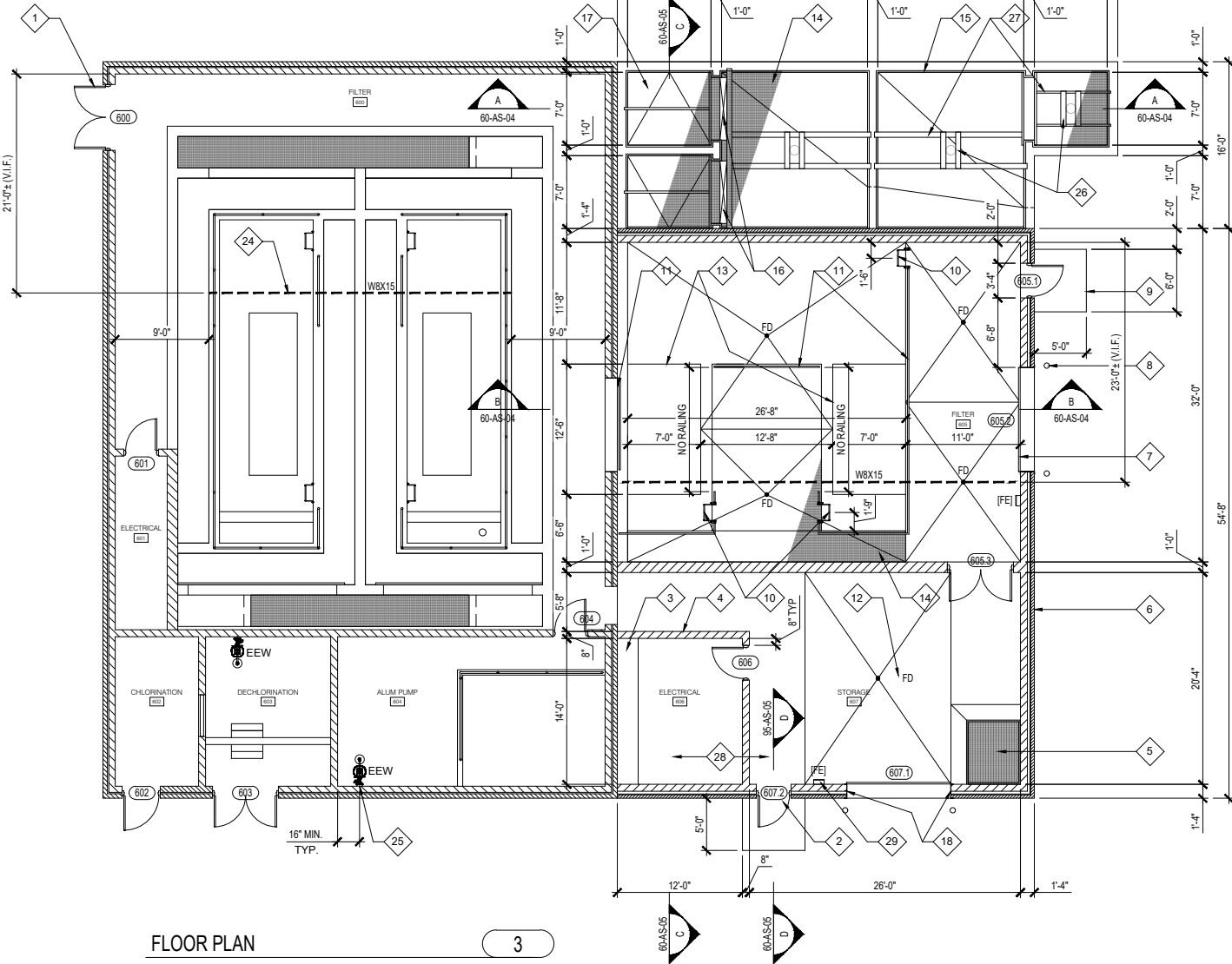
REMOVAL PLAN

2

BUILDING CODE SUMMARY		
BUILDING INFORMATION		
PROJECT TYPE		ADDITION
STRUCTURE PURPOSE		NOTE-3
USE & OCCUPANCY		NOTE-4
NO. STORIES		1
CONSTRUCTION CLASS		IIIB
GROSS AREA NEW CONSTRUCTION		2,827 SF
GROSS AREA EXIST. & NEW		6,313 SF
GROSS ENCLOSED VOLUME		87,200 CF
FIRE SUPPRESSION (Y/N)		N
FIRE ALARM (Y/N)		N
EXIT TRAVEL DIST. (MAX. PER T.1017.2)		300'
ACCESSIBILITY		NOTE-5
CODE AUTHORITY SUBMITTAL (Y/N)		Y

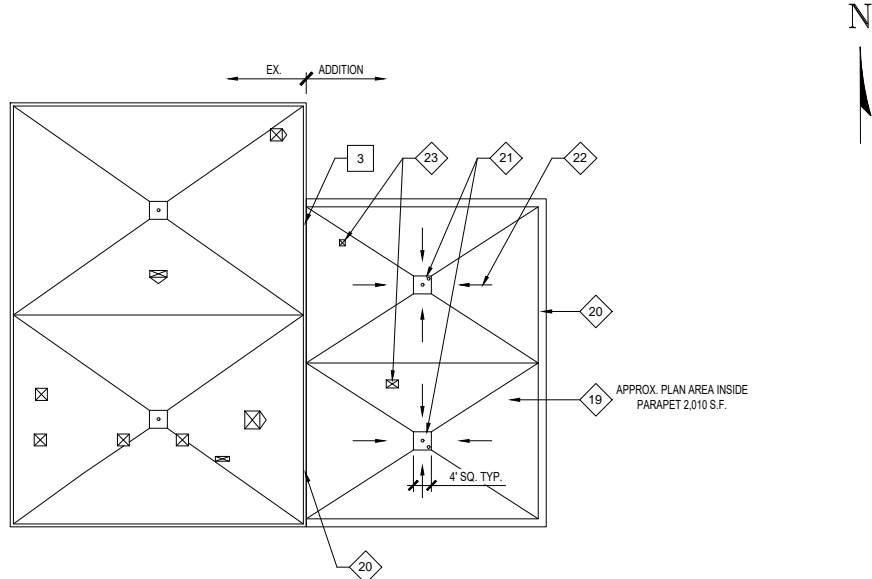
BUILDING CODE SUMMARY NOTES

1. PROJECT ADDRESS: - W194N16658 EAGLE DRIVE, JACKSON, WI
2. COMMERCIAL BUILDINGS DELEGATED AUTHORITY: WISCONSIN DEPARTMENT OF SAFETY & PROFESSIONAL SERVICES (IBC 2015)
3. STRUCTURE PURPOSE: CONSTRUCT ADDITION TO ADD SCREENING EQUIPMENT
4. USE & OCCUPANCY: FACTORY GROUP F-2, NO SEPARATIONS REQUIRED, TABLE 508.4, ALLOWABLE BUILDING AREA = 18,000 SQ. FT. (NS, MOST RESTRICTIVE), TABLE 508.2
5. ACCESSIBILITY: EXEMPT AREAS PER IBC1103.2.7 AND/OR 1103.2.9



FLOOR PLAN

3



ROOF PLAN

SCALE: NONE

1

GENERAL NOTES

1. GENERAL NOTES, REMOVAL NOTES, AND KEY NOTES SHOWN ON THE DRAWINGS ARE INTENDED TO CONVEY TYPICAL CONDITIONS AND SHALL BE TAKEN TO ALSO APPLY TO SIMILAR CONSTRUCTION DEPICTED ELSEWHERE THROUGHOUT THE PROJECT DOCUMENTS.
2. EXISTING INFORMATION SHOWN ON DRAWINGS WAS OBTAINED, IN PART, FROM EXISTING DOCUMENTATION, FIELD MEASUREMENTS, AND INFORMATION PROVIDED BY OTHERS. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ACCURACY OF INFORMATION AS REQUIRED TO ACCOMMODATE REMOVALS & NEW CONSTRUCTION.
3. CONCRETE REMOVAL METHOD SHALL UTILIZE STRAIGHT UNIFORM SAW-CUTS WHERE PARTIAL REMOVAL IS REQUIRED.
4. FURNISH COLOR SELECTION CHARTS FOR ALL FACTORY-FINISHED COMPONENTS.
5. REFERENCE ROOM FINISH SCHEDULE FOR REQUIREMENTS AT EXISTING AND NEW STRUCTURE.

REMOVAL NOTES

1. REMOVE AND SALVAGE EX. OVERHEAD DOOR AND HARDWARE
2. REMOVE ALL EX. INTERIOR & EXTERIOR DOORS, HARDWARE, AND FRAMES, TYP.
3. REMOVE EX. PARAPET METAL COPING AS NECESSARY TO ACCOMMODATE NEW ADDITION ROOFING INSTALLATION

KEY NOTES

1. NEW REPLACEMENT HOLLOW METAL DOOR, FRAME & HARDWARE, REF. APPLICABLE SCHEDULE AND SPECIFICATION, TYP. ALL EX. DOORS
2. HOLLOW METAL DOOR(S), FRAME & HARDWARE, REF. DOOR SCHEDULE, TYP.
3. 4" RAISED EQUIP. PAD, REF. ELEC. DWGS
4. NON-LOAD BEARING 8" CMU INTERIOR PARTITION WALL
5. 18" RECESSED FLOOR WITH ALUM. I-BAR GRATING, REF. FOUNDATION PLAN FOR DIMENSIONS & GRATING SUPPORT PLAN FOR SUPPORT FRAMING REQUIREMENTS
6. MASONRY CAVITY WALL WITH SPLIT-FACED CMU VENEER
7. INSULATED SECTIONAL METAL OVERHEAD DOOR, REF. DOOR SCHEDULE, TYP.
8. 8" STEEL PIPE BOLLARD, TYP. AT OVERHEAD DOORS
9. STRUCTURAL CONCRETE STOOP, TYP. AT EXT. WALK DOORS, REF. FOUNDATION PLAN ON 60-AS-02 FOR DIMENSIONS, TYP.
10. ALUM. ACCESS LADDER
11. FIXED ALUMINUM GUARDRAIL, TYP.
12. FLOOR DRAIN (FD), REF. FOUNDATION PLAN FOR ELEVATIONS AND FLOOR SLOPE INFORMATION, ALSO REF. PLUMBING DWGS
13. 6" RAISED EQUIPMENT PAD, REF. 'M' DWGS, TYP.
14. ALUMINUM GRATING, TYP. ALL LOCATIONS OF NEW ADDITION
15. ALUM. GRATING SUPPORT ANGLES, REF. SHEET 60-AS-02 FOR INSTRUCTION ON TYPE & FASTENING
16. GRATING OPENING FOR GATES, REF. 'M' DWGS FOR REQUIRED CLEARANCES
17. SLOPED CONCRETE GROUT, TYP. WHERE SHOWN
18. 1/8" GALVANIZED & PAINTED STEEL JAMB-PROTECTION PLATES, MIN. 3" RETURN TO I.F. STRUCTURAL WYTHE CMU, ANCHOR WITH RECESSED SCREWS INTO BOTH WYTHES AT MAX. SPACING 24" O.C. STARTING 3" A.F.F. & CONTINUING FULL HEIGHT OF PLATE, CONT. SEALANT AT EDGES ALL AROUND BETWEEN PLATE AND CMU, TYP. EA. JAMB AT O.H.D.s
19. NEW ADHERED 60 MIL EPDM ROOF SYSTEM ON TAPERED POLYISOCYANURATE, MIN. 3" INSULATION THICKNESS AT ROOF DRAINS, MIN. SLOPE 1/4" PER FOOT TO DRAINS AS SHOWN, REF. SPECIFICATION 07 53 20 FOR COMPLETE SYSTEM SPECIFICATIONS, EPDM TO RETURN UP INSIDE FACE OF PARAPET WALL AND TERMINATE UNDER THE PROTECTION OF NEW FACTORY-FINISHED ALUMINUM PARAPET COPING(S)
20. NEW FACTORY-FINISHED PARAPET COPING AROUND PERIMETER EXT. WALLS AND AT NEW-TO-EX. ROOF TRANSITION
21. PRIMARY & OVERFLOW ROOF DRAIN, (2) LOCATIONS ADDITION, REF. 1/100-AS-04 & PLUMBING DRAWINGS,
22. 1/4" PER FT. SLOPE MIN.
23. DUCT OPENINGS, REF. HVAC DRAWINGS, COORD. LOCATIONS WITH PRECAST PLANK SUBMITTALS
24. NEW 1/2T. CAPACITY LIFT BEAM & TROLLEY ABOVE, FASTEN TO EX. & NEW PRECAST ROOF STRUCTURE, AS DETAILED FOR EA. LOCATION
25. NEW WALL-MOUNTED EMERGENCY EYE WASH (EEW) STATION, TYP. (2) LOC., REF. PLUMBING DWGS
26. MIXER SUPPORT MEMBERS BY MIXER SUPPLIER, REF. 'M' DWGS
27. PRIMARY MIXER AND/OR ALUM. GRATING SUPPORT BEAMS, REF. 60-AS-02 FOR LOCATIONS, SIZES AND ATTACHMENT REQUIREMENTS NOT SHOWN THIS SHEET, TYP.
28. CONCRETE FLOOR SLAB-ON-GRADE, REF. FOUNDATION PLAN FOR THICKNESS AND REINFORCING REQUIRED AT SPECIFIED LOCATIONS, TYP.
29. FIRE EXTINGUISHER [FE], IN WALL-MOUNTED CABINET, REF. MOUNTING DETAIL ON SHEET 100-AS-01, TYP. WHERE SHOWN

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TOWN & COUNTRY
ENGINEERING, INC.

REMOVAL PLAN, FLOOR & ROOF PLANS

2024 WASTEWATER IMPROVEMENTS
TERTIARY FILTERS AND DISINFECTION

Village of Jackson, Wisconsin

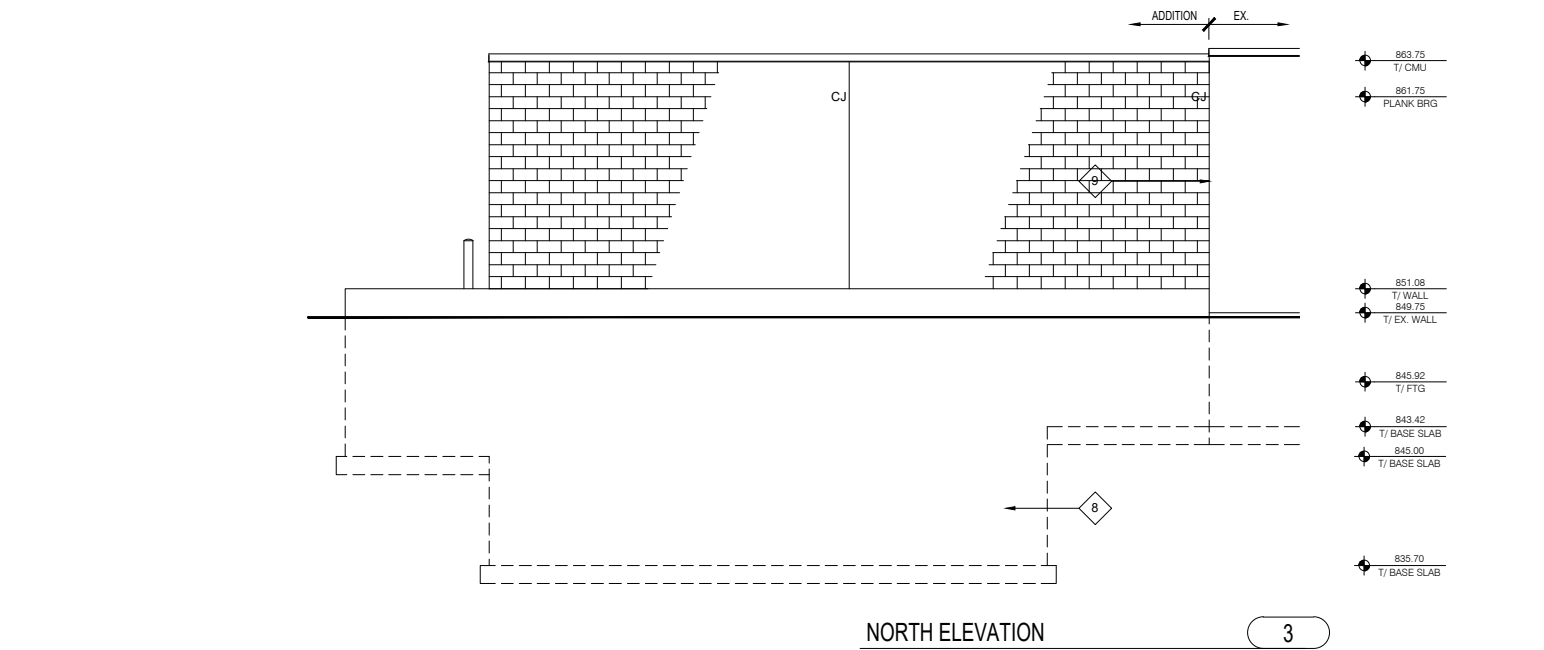
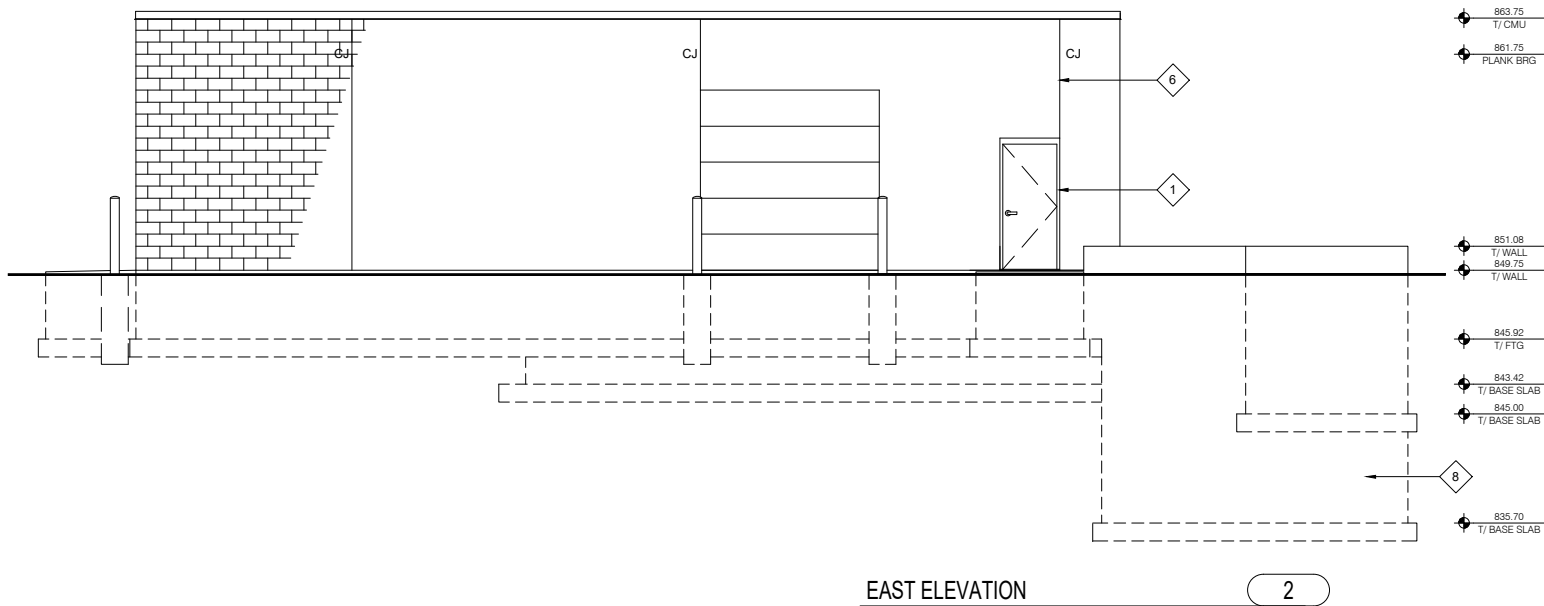
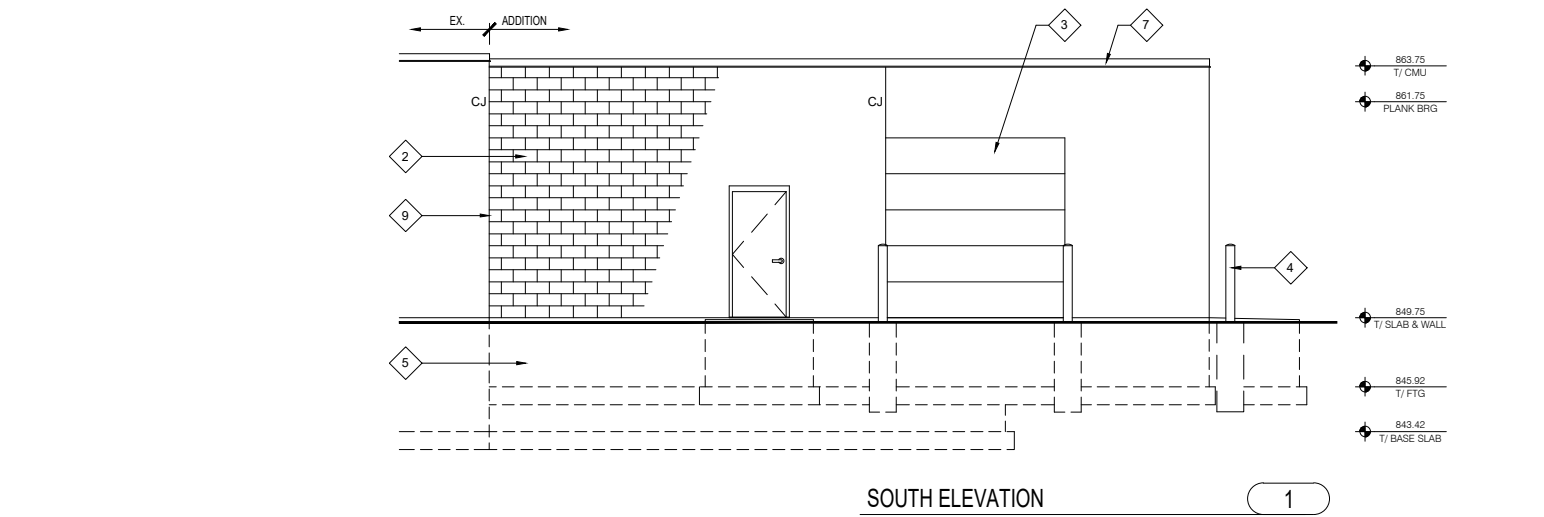
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REVISIONS:

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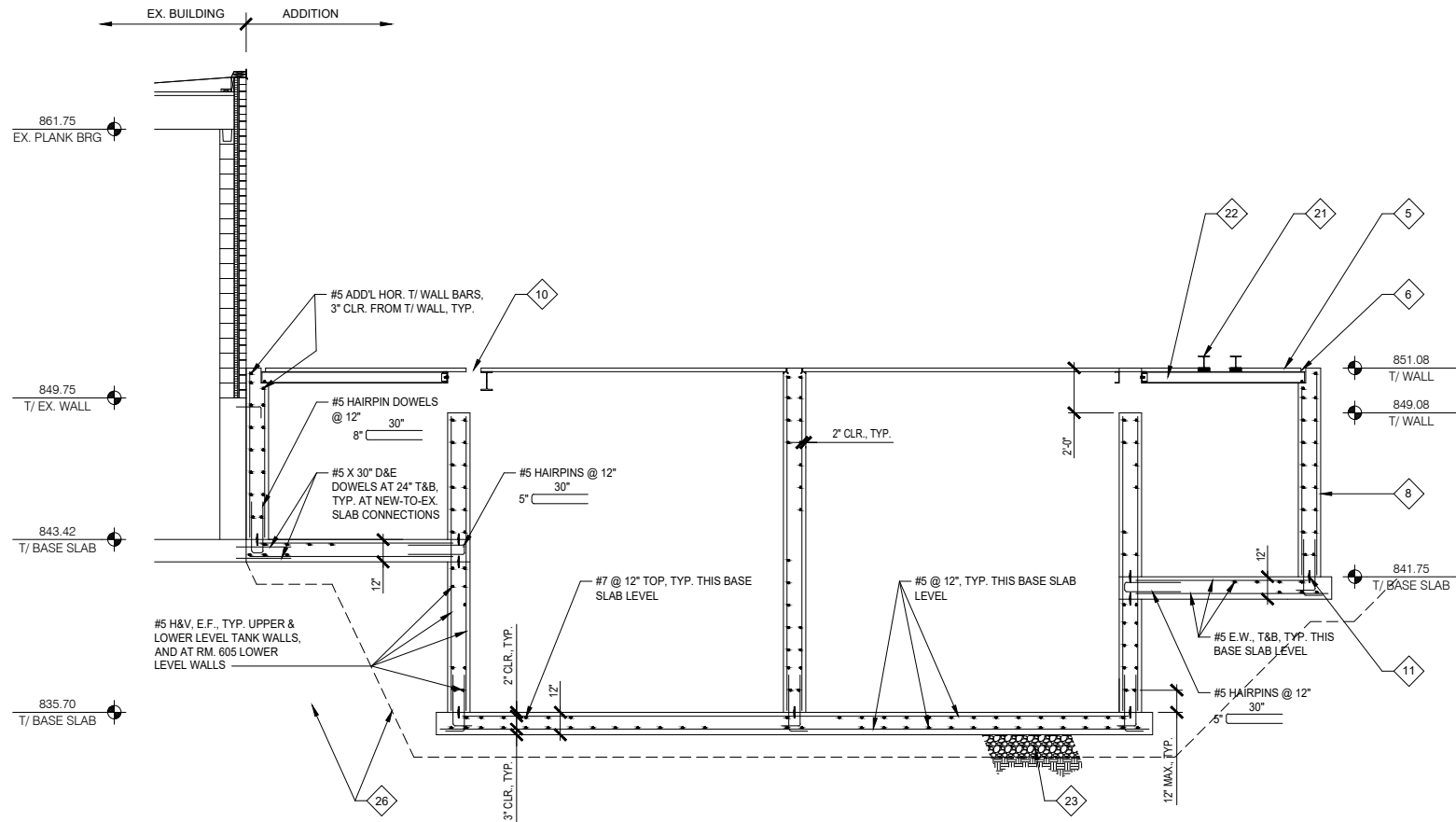
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60-AS-01



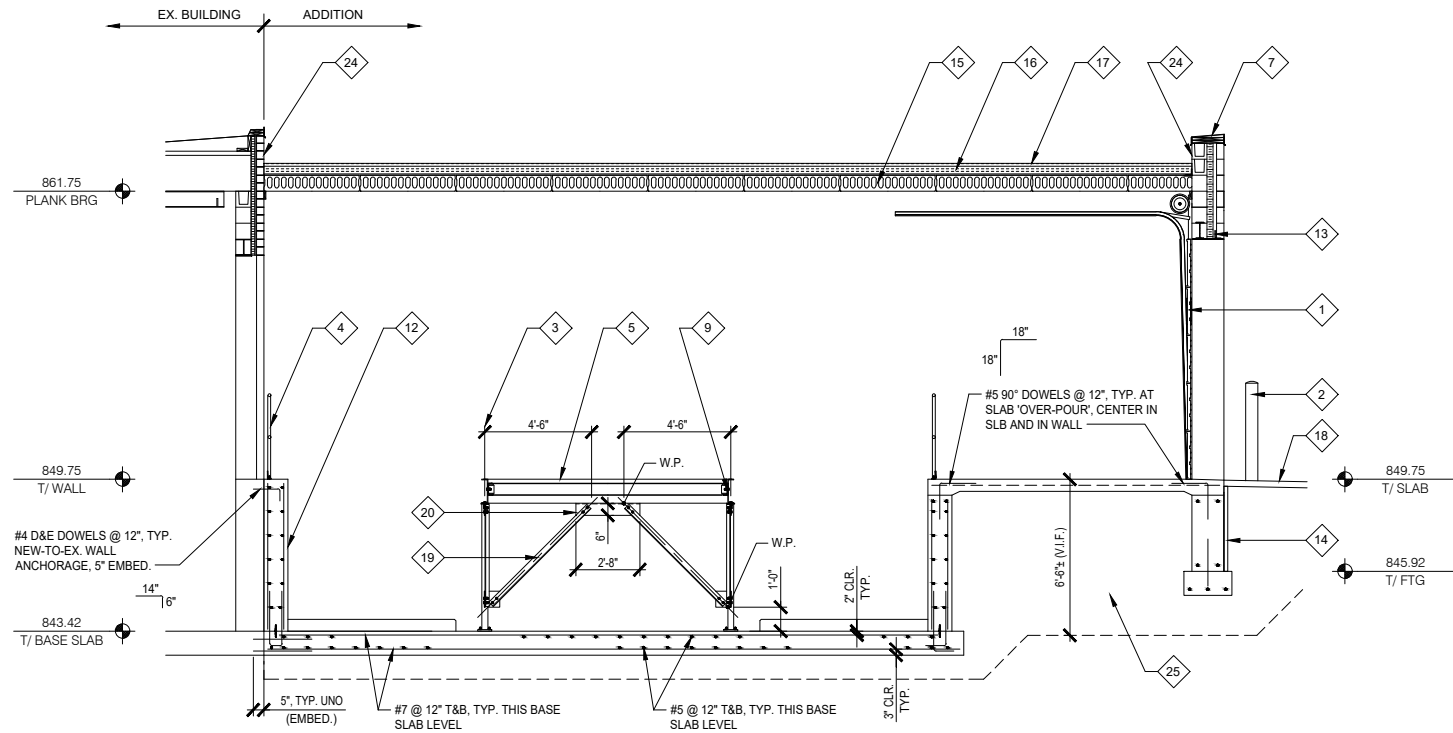
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- KEY NOTES**
- HOLLOW METAL DOOR(S), FRAME & HARDWARE, REF. DOOR SCHEDULE
 - MASONRY CAVITY WALL WITH SPLIT-FACED CMU VENEER
 - INSULATED SECTIONAL METAL OVERHEAD DOOR, REF. DOOR SCHEDULE, TYP.
 - 8" STEEL PIPE BOLLARD, TYP. AT OVERHEAD DOORS
 - STRUCTURAL CONCRETE STOOP, TYP. AT EXT. WALK DOORS
 - MASONRY WALL CONTROL JOINT, REF. 3/100-AS-03, TYP.
 - FACTORY-FINISHED PARAPET CAP COPING TO MATCH EX.
 - BELOW-GRADE CONCRETE WETWELL(S)
 - REF. KEY-NOTE 33 & 34 ON 60-AS-02 FOR CONTROL JOINT AND MASONRY WALL CONNECTION REQUIREMENTS AT NEW-TO-EX. MASONRY



STRUCTURE SECTION

A



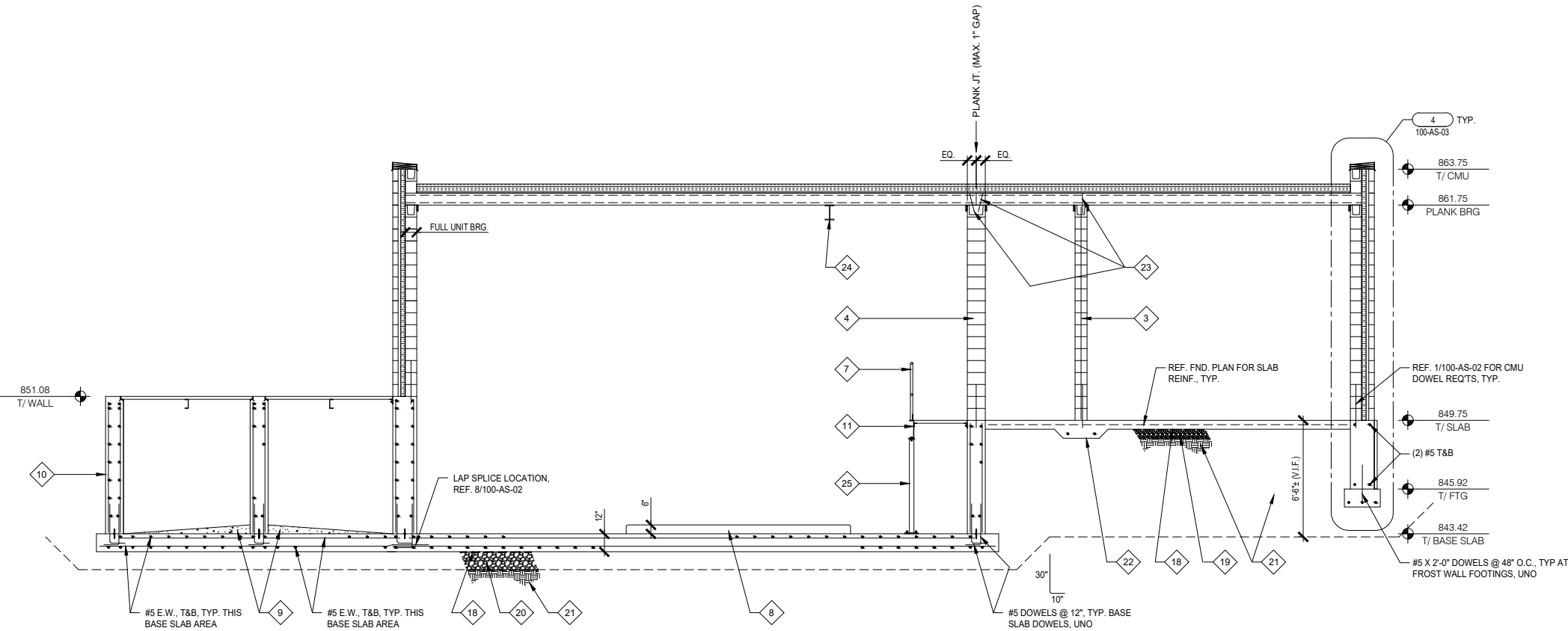
STRUCTURE SECTION

B

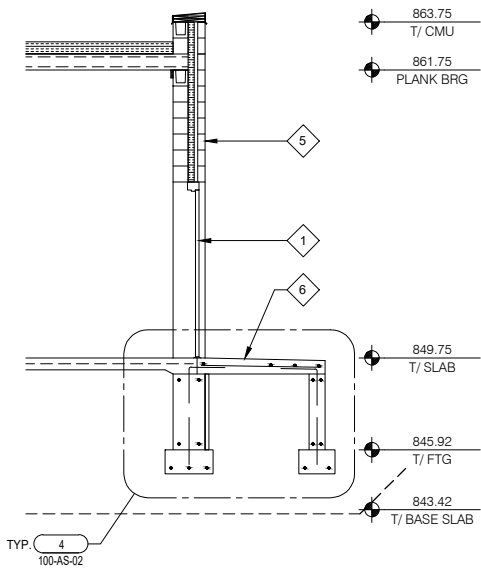
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- KEY NOTES**
- INSULATED SECTIONAL METAL OVERHEAD DOOR, REF. DOOR SCHEDULE, TYP.
 - 8" STEEL PIPE BOLLARD, TYP. AT OVERHEAD DOORS
 - FIXED ALUMINUM GUARDRAIL, TYP.
 - REMOVABLE ALUM. GUARDRAIL, ONLY WHERE SPECIFICALLY NOTED BY THIS KEY NOTE
 - ALUMINUM BAR GRATING
 - EMBEDDED ALUM. GRATING SUPPORT ANGLES (OR SURFACE-MOUNTED WHERE SPECIFICALLY NOTED)
 - FACTORY-FINISHED PARAPET CAP COPING TO MATCH EX.
 - BELOW-GRADE CONCRETE WETWELL(S)
 - ACCESS PLATFORM ALUM. SUPPORT STRUCTURE
 - GRATING OPENING FOR GATES, REF. "M" DWGS FOR REQUIRED CLEARANCES
 - CONT. P.V.C. WATER-STOP AT CONCRETE PLACEMENT JOINTS BELOW TANK HIGH LIQUID LEVEL (HLL), REF. 2/100-AS-04, TYP.
 - NEW 12" CONCRETE TANK WALL CAST AGAINST EX. FOUNDATION WALL, TYP. AT NEW WETWELLS AND RECESSED EQUIPMENT PIT ONLY, REF. FND PLAN
 - STEEL LINTEL, REF. LINTEL SCHEDULE, TYP.
 - 2" POLYSTYRENE INSULATION AROUND HEATED STRUCTURE PERIMETER, EXTEND TO MIN. 48" BELOW FIN. GRADE, TYP.
 - 8" HOLLOW-CORE PRECAST CONCRETE PLANK
 - TAPERED POLYISOCYANURATE INSULATION SYSTEM, 3" MIN. THICKNESS AT ROOF PRIMARY AND OVERFLOW DRAINS, MIN. 1/4" PER FT. SLOPE
 - 60 MIL MIN. EPDM ROOFING SYSTEM, REF. SPEC
 - SITE PAVING, REF. CIVIL DWGS
 - ALUM. ANGLE KNEE BRACE
 - ALUM. KNEE BRACE CONN. ANGLE
 - MIXER SUPPORT MEMBERS BY MIXER SUPPLIER, REF. "M" DWGS
 - PRIMARY MIXER AND/OR ALUM. GRATING SUPPORT BEAMS, REF. 60-AS-02 FOR LOCATIONS, SIZES AND ATTACHMENT REQUIREMENTS NOT SHOWN, TYP.
 - REF. C/60-AS-05 FOR BELOW-SLAB BEARING MATERIAL & VAPOR-RETARDER REQUIREMENTS, TYP.
 - EXTEND EPDM UP UNDER PARAPET COPING, TYP.
 - SUB-GRADE REMOVAL AND REPLACEMENT ZONE, REF. GEOTECHNICAL NOTES ON 100-AS-01
 - MAX. EXCAVATION IN BEARING SOIL INFLUENCE ZONE EX. BUILDING 1:1, MAINTAIN EX. FOUNDATION SUPPORT AT ALL TIMES DURING CONSTRUCTION. G.C. SHALL PROVIDE FOR TEMPORARY SHEETING IF DEEMED NECESSARY BASED ON PROJECT CONDITIONS AT TIME OF CONSTRUCTION

NOTE:
REINFORCING NOT SHOWN ALL LOCATIONS, WHERE TYPICAL REF. CONSTRUCTION NOTES ELSEWHERE THIS SHEET FOR SIMILAR REINFORCING REQUIREMENTS.



STRUCTURE SECTION C

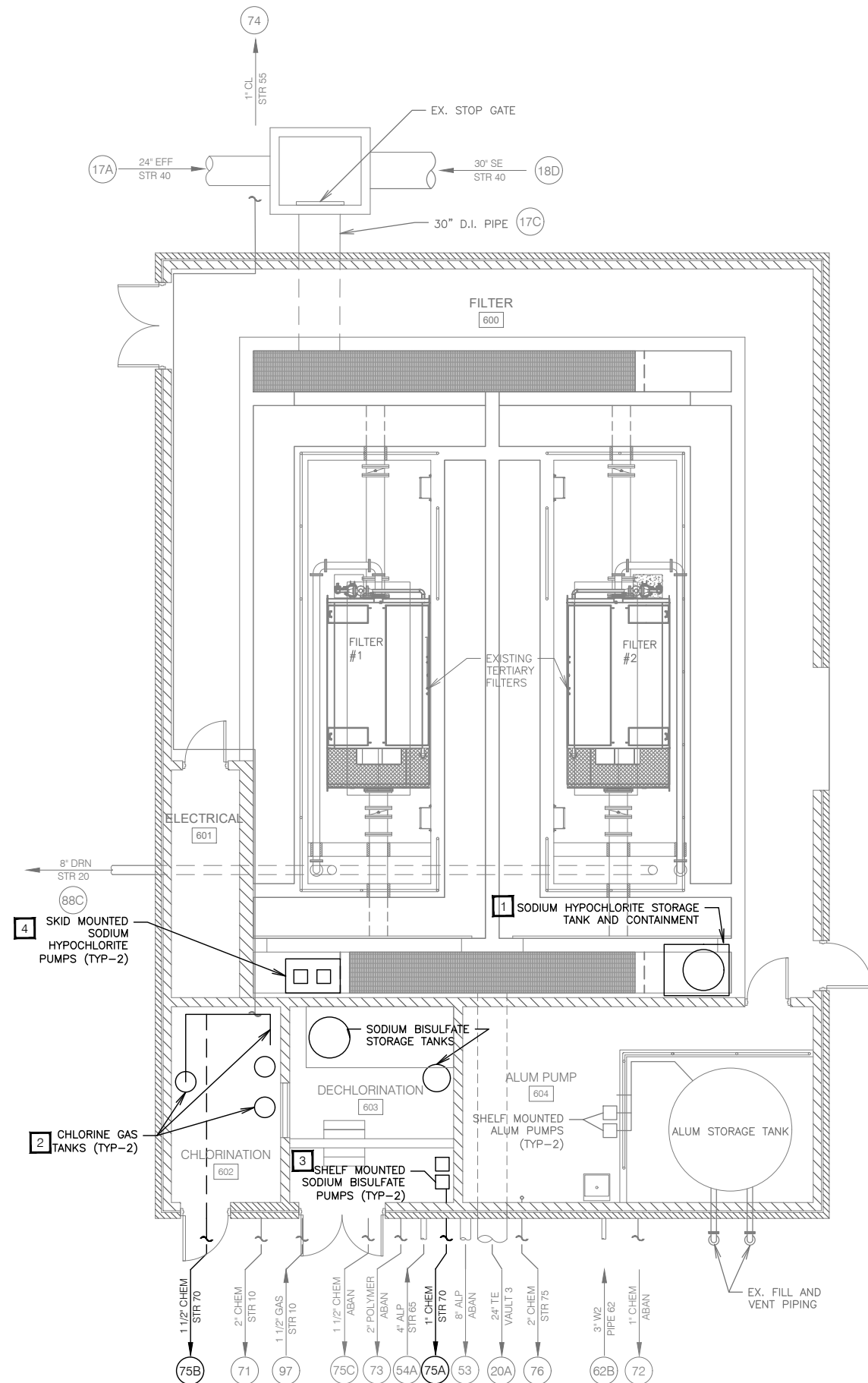


STRUCTURE SECTION D

- GENERAL NOTES**
1. GENERAL NOTES, REMOVAL NOTES, AND KEY NOTES SHOWN ON THE DRAWINGS ARE INTENDED TO CONVEY TYPICAL CONDITIONS AND SHALL BE TAKEN TO ALSO APPLY TO SIMILAR CONSTRUCTION DEPICTED ELSEWHERE THROUGHOUT THE PROJECT DOCUMENTS.
 2. EXISTING INFORMATION SHOWN ON DRAWINGS WAS OBTAINED, IN PART, FROM EXISTING DOCUMENTATION, FIELD MEASUREMENTS AND INFORMATION PROVIDED BY OTHERS. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ACCURACY OF INFORMATION AS REQUIRED TO ACCOMMODATE REMOVALS & NEW CONSTRUCTION.

- KEY NOTES**
1. HOLLOW METAL DOOR(S), FRAME & HARDWARE, REF. DOOR SCHEDULE
 2. 4" RAISED EQUIP. PAD, REF. ELEC. DWGS
 3. NON-LOAD BEARING 8" CMU PARTITION WALL, VERTICALLY REINF. W/ #4 BARS @ 24" O.C., INSTALL #4 X 30" D&E DOWELS INTO THICKENED SLAB FOOTING @ 24" O.C., GROUT CORES WITH DOWELS & VERT. REINF., TYP. LOAD-BEARING 12" REINFORCED CMU WALL
 4. MASONRY CAVITY WALL WITH SPLIT-FACED CMU VENEER
 5. STRUCTURAL CONCRETE STOOP
 6. FIXED ALUMINUM GUARDRAIL, TYP.
 7. 4" RAISED EQUIPMENT PAD, REF. 'M' DWGS, TYP.
 8. SLOPED CONCRETE GROUT, TYP. WHERE SHOWN
 9. BELOW-GRADE CONCRETE WETWELL(S)
 10. ACCESS PLATFORM ALUM. SUPPORT STRUCTURE
 11. 10 MIL POLY VAPOR RETARDER, TYP. IMMEDIATELY BELOW ALL INTERIOR SLAB-ON-GRADE FLOORS & BASE SLABS
 12. MIN. 8" COMPACTED CRUSHED AGGREGATE SUB-BASE BELOW INTERIOR SLAB-ON-GRADE FLOORS
 13. MIN. 12" COMPACTED CRUSHED AGGREGATE SUB-BASE BELOW BASE SLABS
 14. REF. GEOTECHNICAL REPORT RECOMMENDATIONS FOR BEARING SOILS PREPARATION, TYP., ALSO REF. 100-AS-01 FOR ADDITIONAL BEARING SOIL NOTES REGARDING ANTICIPATED SUB-GRADE REPLACEMENT
 15. THICKENED SLAB FOOTING, TYP. BELOW INTERIOR NON-LOAD-BEARING CMU WALLS, REF. 11/100-AS-02
 16. #4 X 14" DRILL-IN DOWELS AT 24" O.C., FURNISHED & SET BY PRECAST SUPPLIER, DO NOT EPOXY, TYP.
 17. 1/2T. CAPACITY STEEL TROLLEY BEAM
 18. ALUM. SUPPORT POST

NOTE:
REINFORCING NOT SHOWN ALL LOCATIONS, WHERE TYPICAL REF. CONSTRUCTION NOTES ELSEWHERE THIS SHEET FOR SIMILAR REINFORCING REQUIREMENTS.



GENERAL NOTES

1. DRAWINGS IN GENERAL DO NOT SHOW DIMENSIONS OF EXISTING CONSTRUCTION, BUT ARE DRAWN APPROXIMATELY TO SCALE. CONTRACTOR SHALL OBTAIN ALL DIMENSIONS REQUIRED FOR CONSTRUCTION.
2. ROOM NAMES SHOWN ON DEMOLITION (EXISTING) PLANS MAY DIFFER FROM ROOM DESIGNATIONS FOR IMPROVEMENTS PLANS.
3. SEE SPECIFICATIONS FOR GENERAL DEMOLITION REQUIREMENTS.
4. PLANS DO NOT NECESSARILY CALL FOR ALL ITEMS REQUIRING DEMOLITION REMOVAL, CUTTING, OR PATCHING. WHERE NOT SHOWN, ALL DEMOLITION, REMOVAL, CUTTING, PATCHING AND OTHER WORK NECESSARY TO ACCOMMODATE NEW CONSTRUCTION SHALL BE PROVIDED AS A PART OF THE CONTRACT.
5. REFER TO ARCHITECTURAL, STRUCTURAL, PLUMBING, HVAC, AND ELECTRICAL DRAWINGS FOR ADDITIONAL DEMOLITION AND MODIFICATIONS NOT LISTED HERE.
6. EXISTING STRUCTURE IS TO REMAIN IN SERVICE DURING CONSTRUCTION. REFER TO SPECIFICATION SECTION 01 00 00 FOR ANTICIPATED SEQUENCE OF CONSTRUCTION. COORDINATE DEMOLITION SCHEDULE WITH THE OWNER.

[X] REMOVAL NOTES

1. REMOVE AND SALVAGE EXISTING SODIUM HYPOCHLORITE TANKS AND CONTAINMENT TO VILLAGE.
2. REMOVE EXISTING CHLORINE GAS TANKS, SCALES, PIPING, AND REGULATOR EQUIPMENT. CAP EXISTING PIPES AT THE FLOOR AND ABANDON BELOW GRADE PIPES IN-PLACE. SALVAGE SCALES TO THE VILLAGE.
3. REMOVE EXISTING SODIUM BISULFATE TANKS, PUMPS, PIPING AND REGULATOR EQUIPMENT.

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(608) 273-3350
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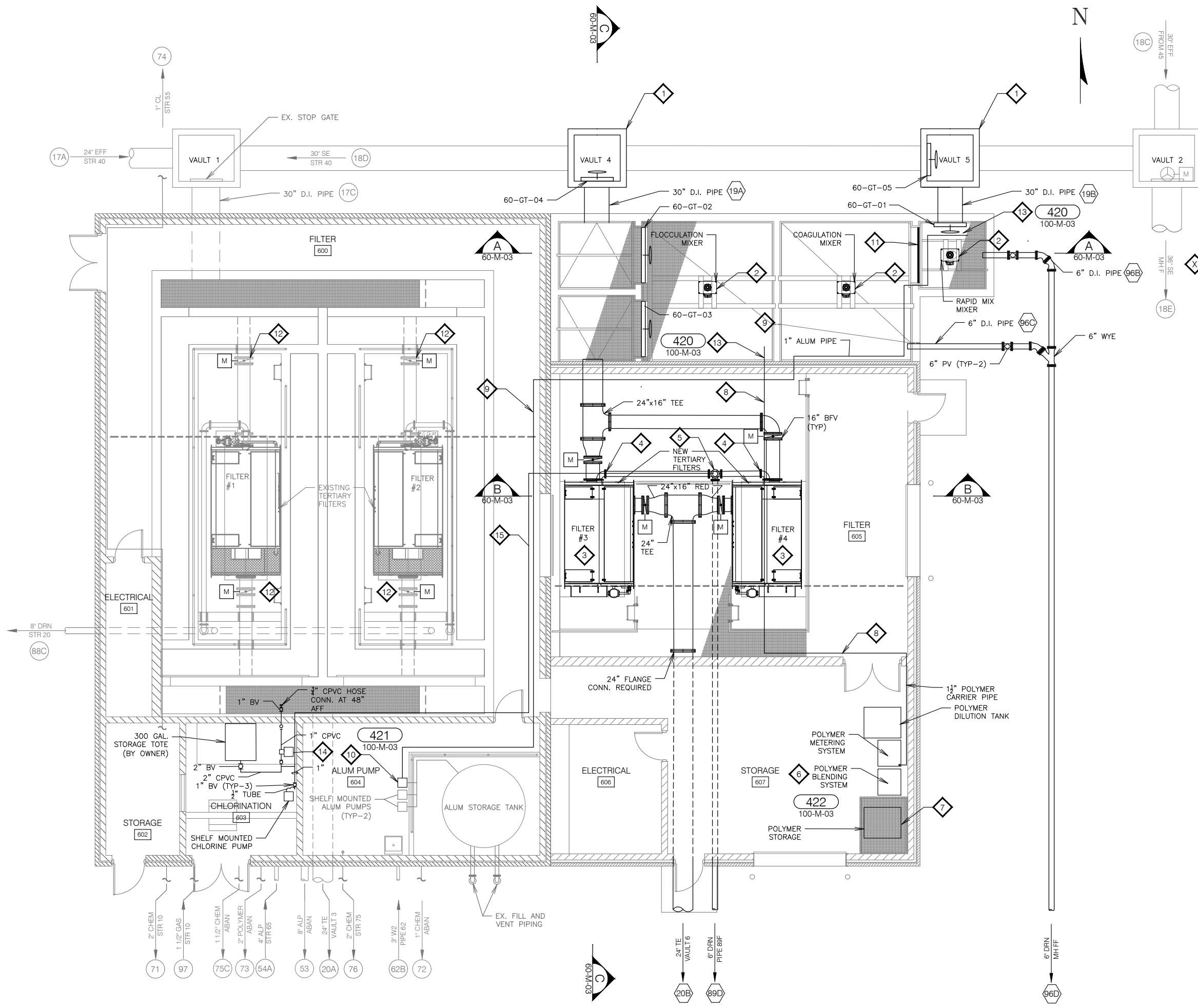
PROCESS REMOVAL PLAN
STRUCTURE 60

2024 WASTEWATER IMPROVEMENTS
TERTIARY FILTERS AND DISINFECTION

Village of Jackson, Wisconsin

PROJECT NO.:	JK 18
DRAWING FILE:	60-M
DRAWN BY:	J.L.R.
CHECKED BY:	G.J.D.
DATE:	1-3-24
REVISIONS:	
SCALE:	
0 1 2 3 5 FEET	
SHEET:	21
60-M-01	

Page 39 of 155



- GENERAL NOTES**
1. DRAWINGS IN GENERAL DO NOT SHOW DIMENSIONS OF EXISTING CONSTRUCTION, BUT ARE DRAWN APPROXIMATELY TO SCALE. CONTRACTOR SHALL OBTAIN ALL DIMENSIONS REQUIRED FOR CONSTRUCTION.
 2. ROOM/TANK NAMES SHOWN ON DEMOLITION (EXISTING) PLANS MAY DIFFER FROM ROOM/TANK DESIGNATIONS FOR IMPROVEMENTS PLANS.
 3. SEE SPECIFICATIONS FOR GENERAL DEMOLITION REQUIREMENTS.
 4. PLANS DO NOT NECESSARILY CALL FOR ALL ITEMS REQUIRING DEMOLITION REMOVAL, CUTTING, OR PATCHING. WHERE NOT SHOWN, ALL DEMOLITION, REMOVAL, CUTTING, PATCHING AND OTHER WORK NECESSARY TO ACCOMMODATE NEW CONSTRUCTION SHALL BE PROVIDED AS A PART OF THE CONTRACT.
 5. REFER TO ARCHITECTURAL, STRUCTURAL, PLUMBING, HVAC, AND ELECTRICAL DRAWINGS FOR ADDITIONAL DEMOLITION AND MODIFICATIONS NOT LISTED HERE.
 6. EXISTING STRUCTURE IS TO REMAIN IN SERVICE DURING CONSTRUCTION. REFER TO SPECIFICATION SECTION 01 00 00 FOR ANTICIPATED SEQUENCE OF CONSTRUCTION. COORDINATE DEMOLITION SCHEDULE WITH THE OWNER.
 7. THE TERTIARY DISC FILTERS, MIXERS, AND POLYMER FEED SYSTEM HAVE BEEN PRE-SELECTED. MANUFACTURER INFORMATION IS INCLUDED IN THE SPECIFICATION SECTION 01 02 00 AND THE PRE-SELECTED EQUIPMENT MANUAL.
 8. ALTERNATE BID ITEMS: THE PROCESS PIPE IS SHOWN WITH D.I. FITTINGS. THE BASE BID FOR ALL NEW PROCESS PIPE IN THE FILTER ROOM IS SCH 80 PVC. ALTERNATE BIDS FOR D.I. AND S.S. ARE INCLUDED ON THE BID FORM.

- KEY NOTES**
1. PRECAST VAULT TO BE CUT INTO EXISTING 30\"/>

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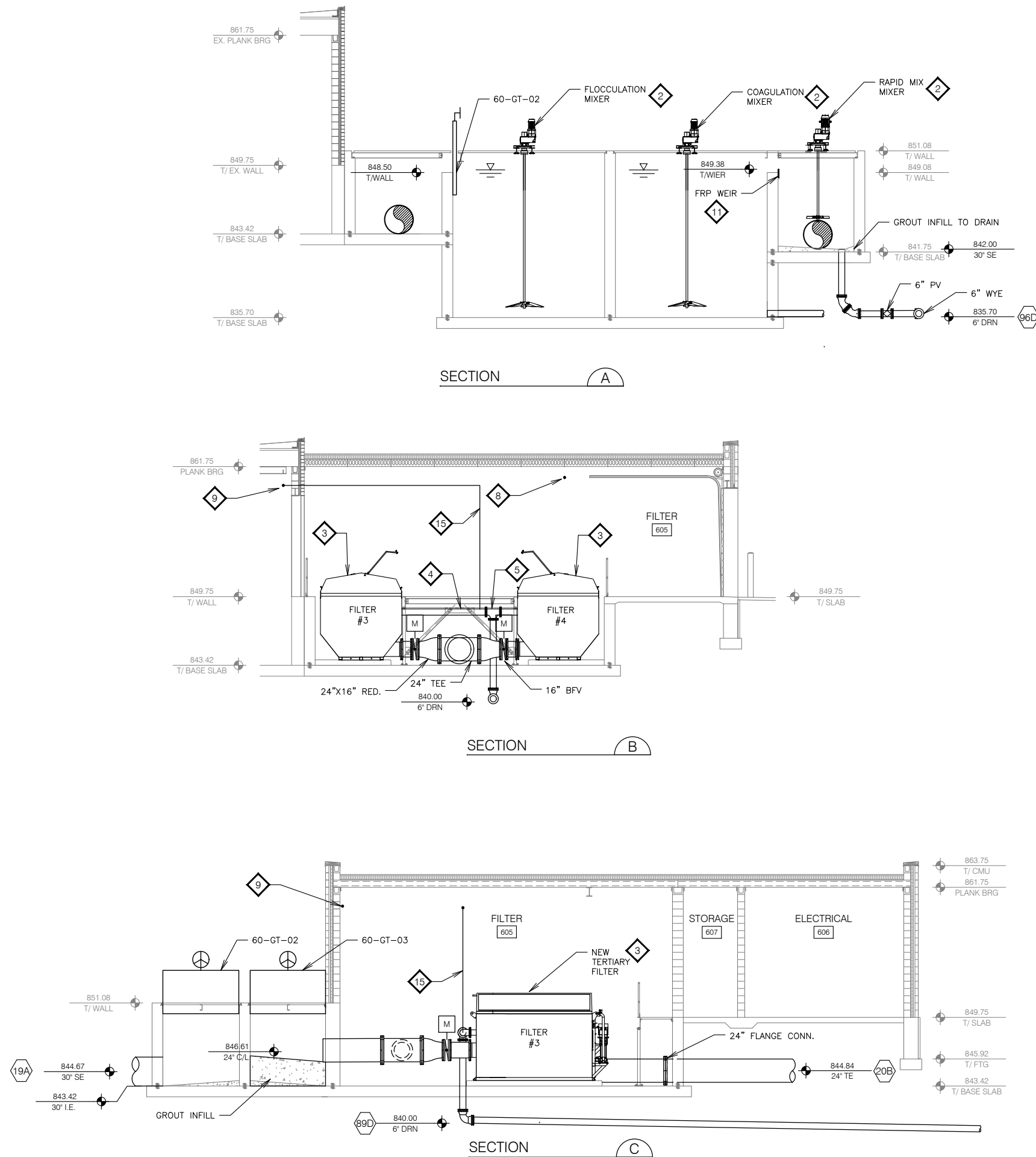
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PROCESS PLAN
STRUCTURE 60

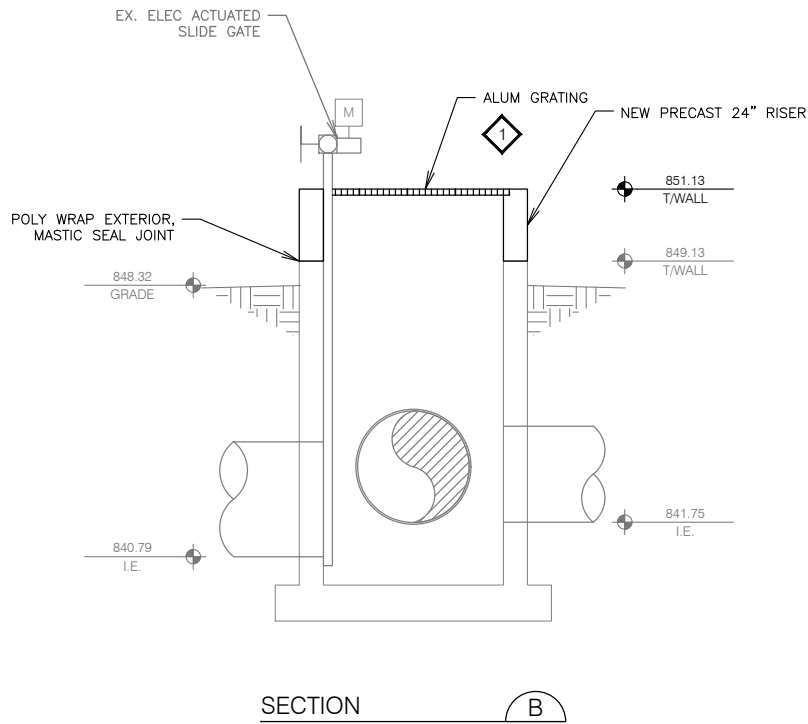
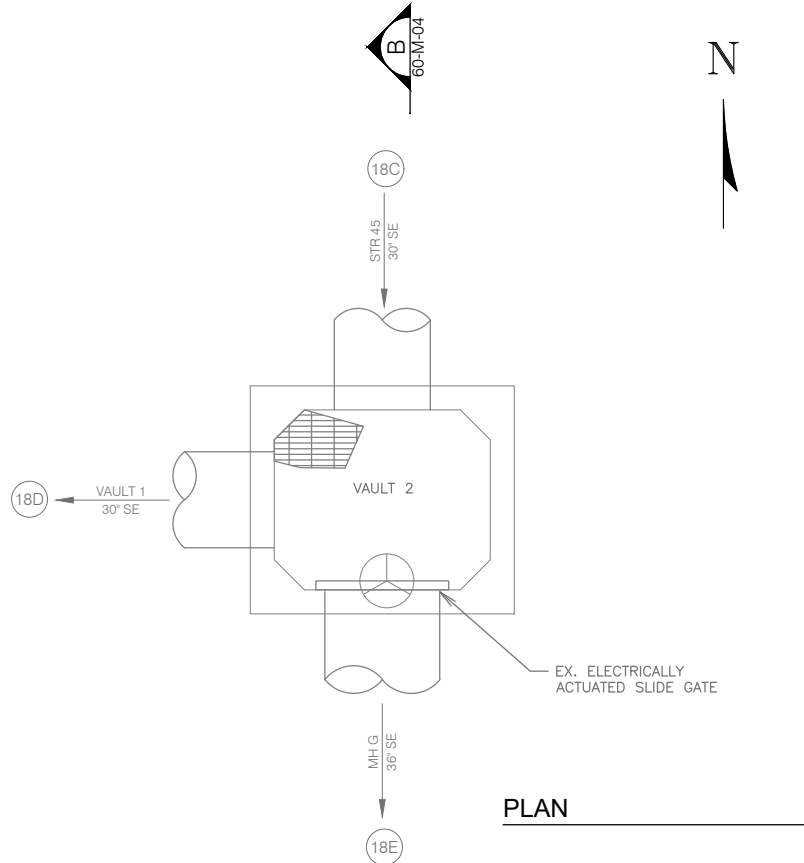
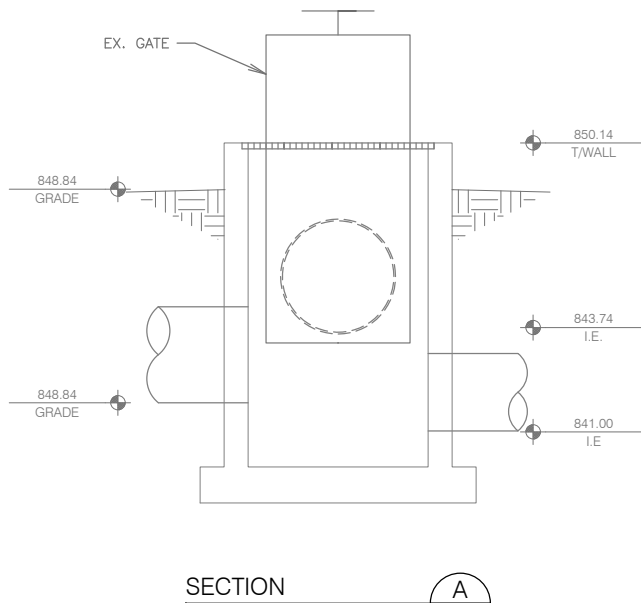
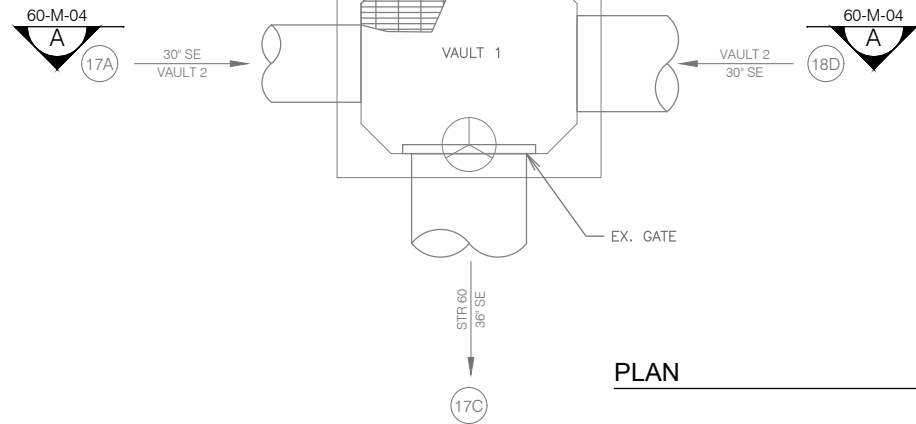
2024 WASTEWATER IMPROVEMENTS
TERTIARY FILTERS AND DISINFECTION

Village of Jackson, Wisconsin

PROJECT NO.:
JK 18
DRAWING FILE:
60-M
DRAWN BY:
J.L.R.
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G.J.D.
DATE:
1-3-24
REVISIONS:
SCALE:
0 1 2 3 5
FEET
SHEET:
22
60-M-02

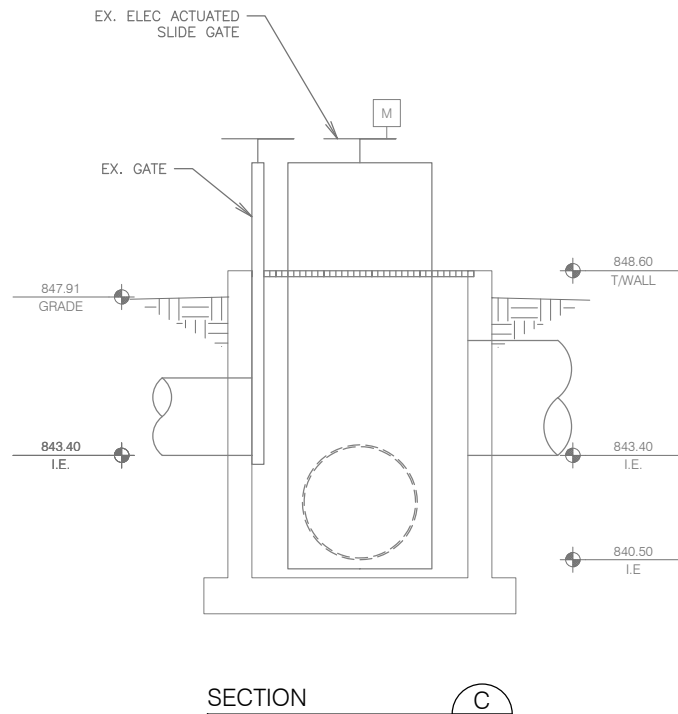
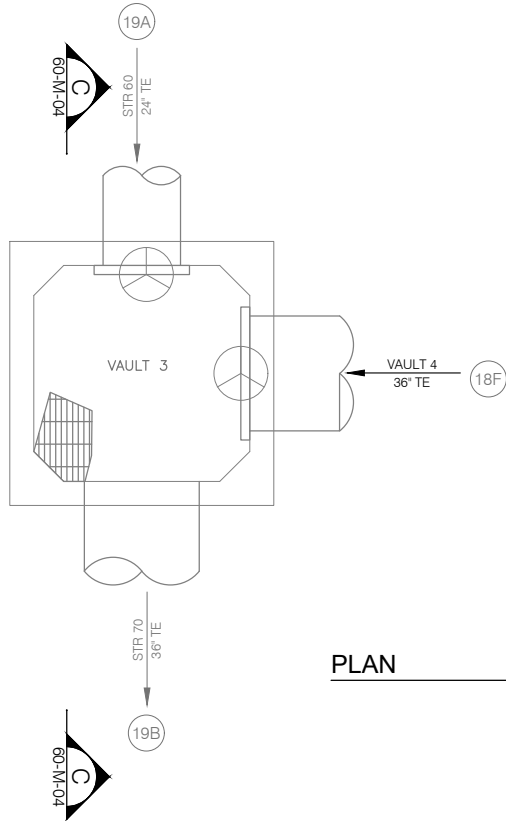


- KEY NOTES**
1. PRECAST VAULT TO BE CUT INTO EXISTING 30" REINFORCED CONCRETE PIPE. SEE SECTION 01 20 00 - SEQUENCE OF CONSTRUCTION FOR BYPASS REQUIREMENTS FOR THE EXISTING FILTER BUILDING.
 2. NEW TOP-MOUNT MIXERS TO BE PROVIDED PER SECTION 46 61 41 BY THE FILTER MANUFACTURER. MOUNT MIXERS ON PLATE/BEAMS PER THE MANUFACTURER'S REQUIREMENTS.
 3. NEW TERTIARY DISC FILTERS PROVIDED PER SECTION 46 61 41.
 4. NEW 6" DRAIN PIPING FROM DISC FILTER FLANGE CONNECTION TO THE FLANGE CONNECTION AT THE FLOOR.
 5. NEW 6" DRAIN PIPING FROM A FLANGE MOUNTED 6" ABOVE THE FLOOR TO THE EXTERIOR PIPE CONNECTION AS SHOWN ON THE SITE PIPING PLAN.
 6. NEW POLYMER BLENDING SYSTEM AS PROVIDED PER SECTION 46 61 41 BY THE FILTER MANUFACTURER. CONNECT TO WATER SUPPLY PER SHEET 60-P-01.
 7. POLYMER STORAGE TOTE BY OWNER.
 8. 1 1/2" CPVC POLYMER CARRIER PIPE FROM THE POLYMER METERING SYSTEM TO THE FLOCCULATION TANK AS SHOWN. ROUTE PIPE ALONG THE CEILING OF THE FILTER ROOM, EXIT ROOM THROUGH THE WALL NEAR THE FLOOR OF THE FILTER SPACE WITH A LINK-SEAL THROUGH THE WALL. ROUTE THE PIPE TO 6" OFF THE FLOOR OF THE FLOCCULATION TANK FOR 4' WITH A DIFFUSER PIPE ALONG THE WALL OPENING.
 9. 1" CPVC ALUM CARRIER PIPE TO BE ROUTED FROM THE NEW ALUM PUMP TO THE RAPID MIX TANK AS SHOWN. ROUTE THE PIPE ALONG THE CEILING OF THE CHEMICAL ROOM AND FILTER ROOM, DROP PIPE AND EXIT WALL TO THE COAGULATION TANK / RAPID MIX TANK BELOW THE GRATING TO THE LOCATION SHOWN.
 10. NEW ALUM PUMP TO BE MOUNTED WHERE SHOWN. SEE DETAIL 421 ON SHEET 100-M-03 FOR ALUM FEED SYSTEM.
 11. NEW 12" TALL BY 7' LONG FIBERGLASS WEIR TO BE MOUNTED AT THE FACE OF THE WALL OPENING. SEE DETAILS FOR WEIR MOUNTING.
 12. INSTALL NEW ELECTRIC VALVE ACTUATOR ON EXISTING 16" BFV, 4 LOCATIONS. ROTATE EXISTING VALVES AS NEEDED TO FIT THE ACTUATOR ADDITION. SEE SHEET 60-E-02 FOR ELECTRICAL REQUIREMENTS.
 13. MOUNT CHEMICAL DIFFUSERS AT 6" ABOVE FLOOR AT OPENING.
 14. NEW VANTON SIZE 30 CHEMICAL TRANSFER PUMP MOUNTED ON EXISTING ELEVATED PAD. CONNECT 1" CPVC PIPE TO PUMP, BOTH SIDES, WITH 1" BRAIDED HOSE CONNECTION.
 15. NEW 1" CPVC SODIUM HYPOCHLORITE (BLEACH) CARRIER PIPE FROM PUMP TO NEW TERTIARY FILTER DRAIN PIPE. ROUTE THE PIPE ALONG THE CEILING ALONG THE ROUTE SHOWN AND CONNECT TO THE NEW DRAIN LINE WITH A CHEMICAL INJECTION QUILL PER DETAIL ON SHEET 100-M-03.



KEY NOTES

1. REMOVE EXISTING GRATING AND MODIFY TO FIT THE NEW INSTALLATION AS NEEDED.



PROCESS SECTIONS
VAULTS

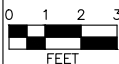
2024 WASTEWATER IMPROVEMENTS
TERTIARY FILTERS AND DISINFECTION

Village of Jackson, Wisconsin

PROJECT NO.: JK 18
DRAWING FILE: 60-M
DRAWN BY: J.L.R.
CHECKED BY: G.J.D.

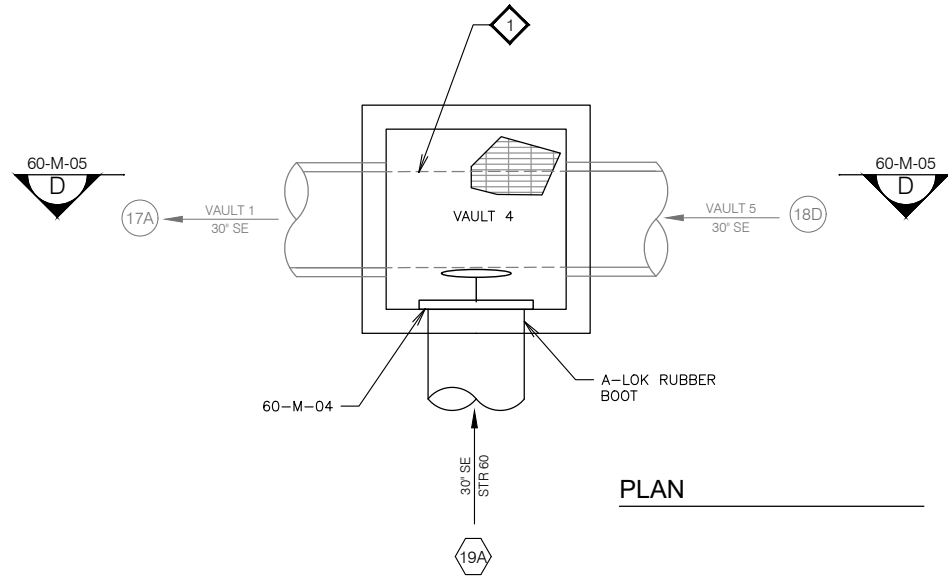
DATE: 1-3-24
REVISIONS:

SCALE:

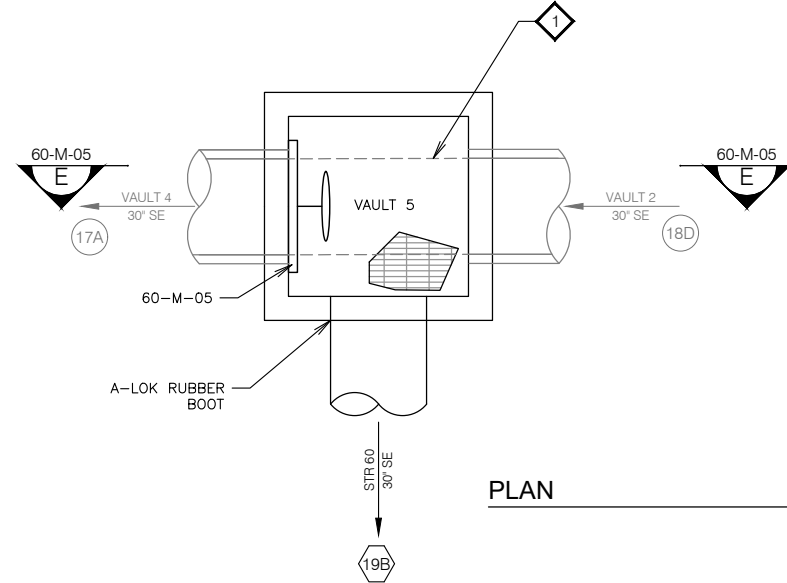
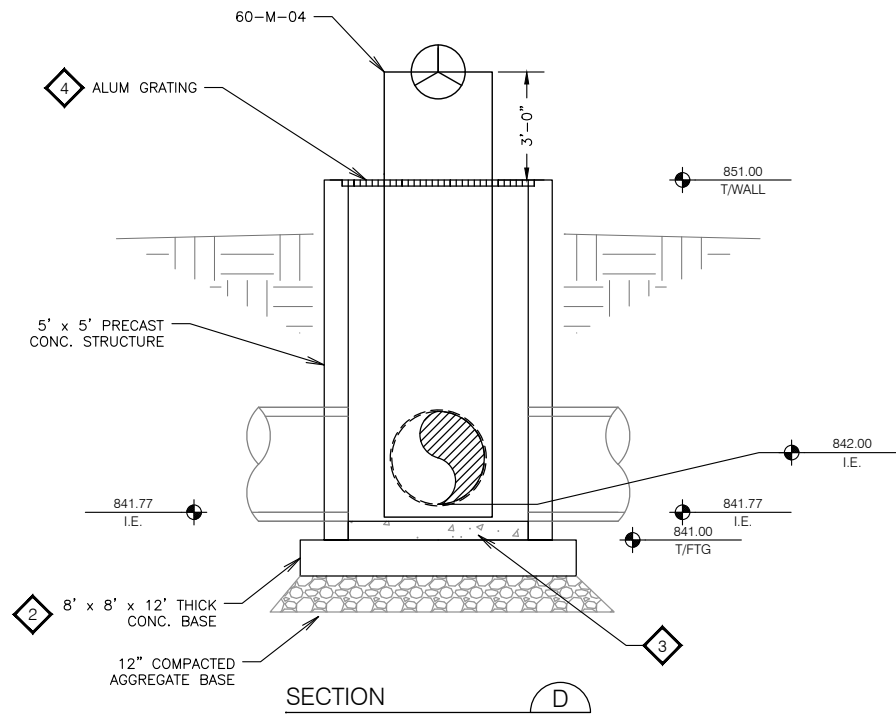


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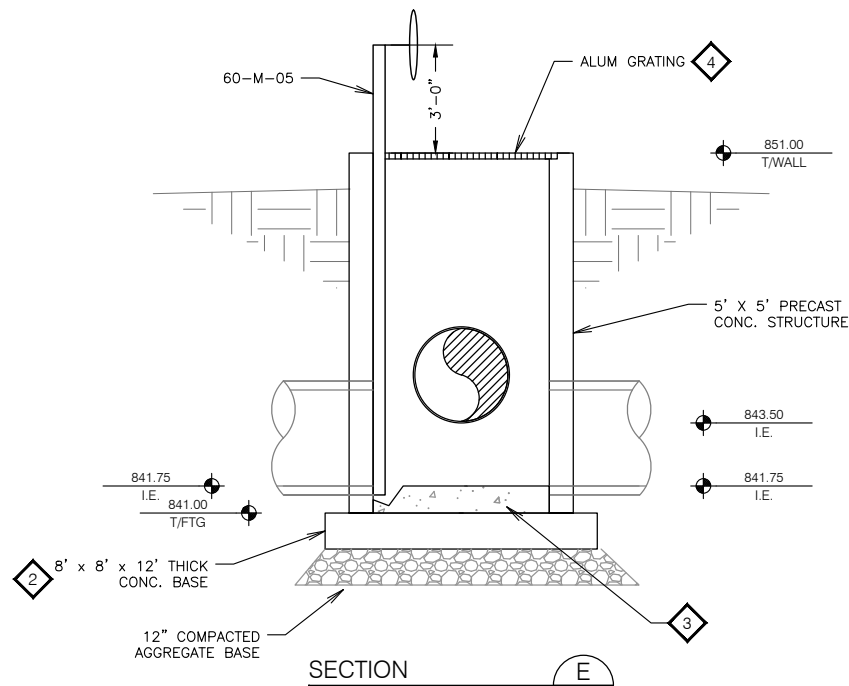
60-M-04



PLAN

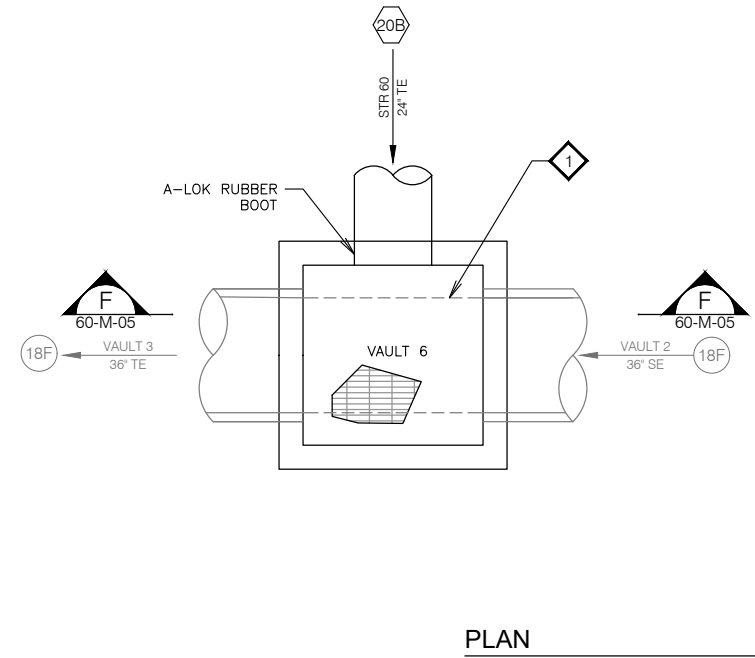


PLAN

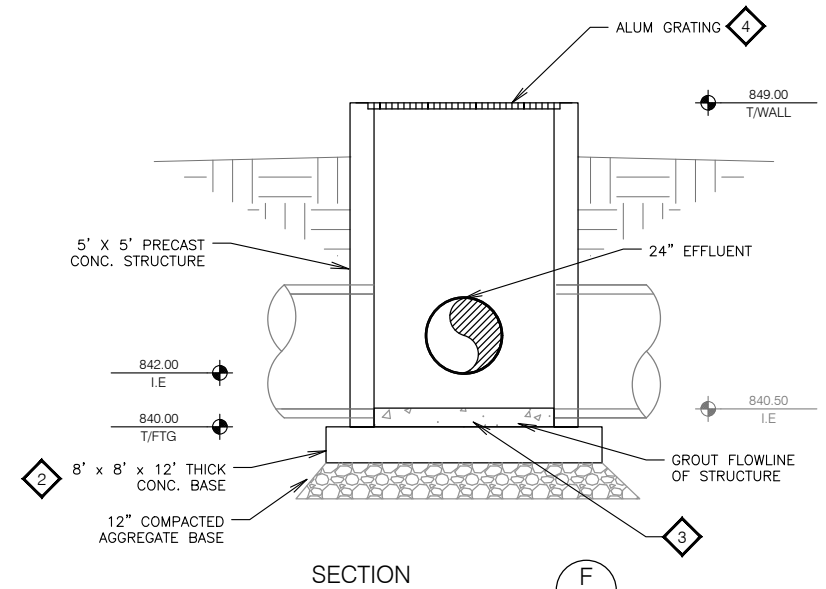


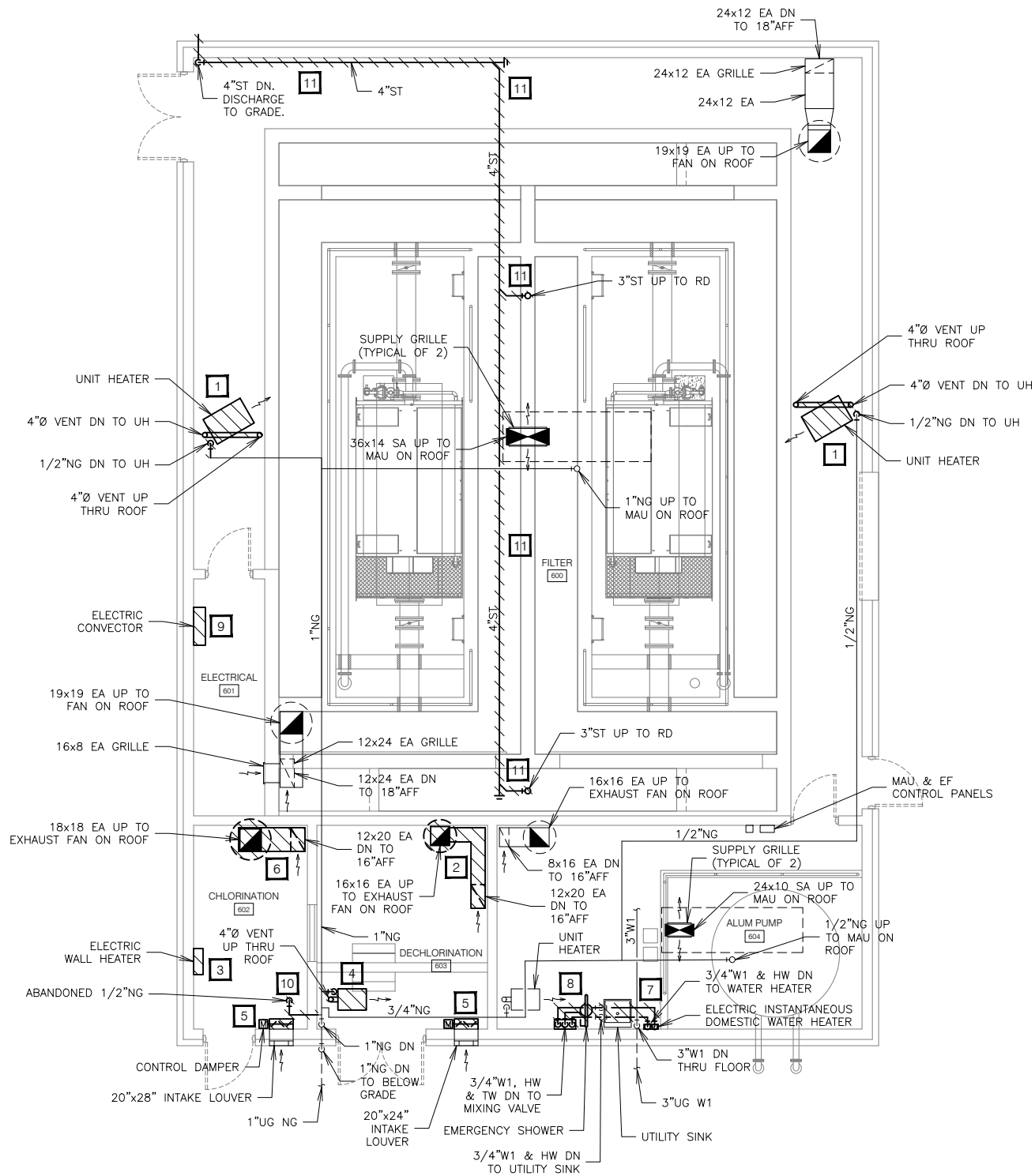
KEY NOTES

1. CONTRACTOR TO MODIFY EXISTING RCP TO FIT NEW STRUCTURE. SEAL CONNECTION WITH EXISTING PIPE WITH BENTONITE AND NON-SHRINK GROUT. NEW CONNECTIONS WITH A-LOCK RUBBER BOOT.
2. #5 BARS 12" O.C. EACH WAY FOR CONCRETE BASES. CONTRACTOR MAY ALSO USE PRECAST BASES IF PREFERRED.
3. GROUT BASE OF EACH STRUCTURE, 4" MIN.
4. EMBED ALUM. SUPPORTS AND SIZE GRATING PER DETAILS ON SHEET 100-AS-06.



PLAN





PLUMBING/HVAC REMOVAL PLAN

- X
- REMOVAL NOTES
1.

REMOVE GAS FIRED UNIT HEATER ALONG WITH ALL ASSOCIATED VENTING, WIRING, AND CONTROL. UNIT HEATER TO BE REPLACED WITH NEW AS SHOWN ON NEW WORK PLAN. MODIFY NG PIPING AS NECESSARY TO INSTALL NEW UNIT HEATER. ROOF OPENING TO BE REUSED.
2.

REMOVE ROOF MOUNTED EXHAUST FAN ALONG WITH ALL ASSOCIATED DUCTWORK, WIRING AND CONTROL. FAN TO BE REPLACED WITH NEW. ROOF OPENING AND ROOF CURB TO BE RE-USED.
3.

REMOVE ELECTRIC WALL HEATER ALONG WITH ALL ASSOCIATED WIRING AND CONTROL. PATCH WALL TO MATCH EXISTING.
4.

REMOVE GAS FIRED UNIT HEATER ALONG WITH ALL ASSOCIATED VENTING, WIRING, AND CONTROL. PATCH ROOF OPENING TO MATCH EXISTING. REMOVE NG PIPING BACK TO MAIN AND CAP.
5.

REMOVE ELECTRIC CONTROL DAMPER ALONG WITH ALL ASSOCIATED DUCTWORK, WIRING AND CONTROL. LOUVER TO REMAIN.
6.

REMOVE ROOF MOUNTED EXHAUST FAN ALONG WITH ALL ASSOCIATED DUCTWORK, WIRING AND CONTROL. PROVIDE INSULATED ROOF CURB CAP OVER ROOF CURB. FLASH AND SEAL WATERTIGHT.
7.

REMOVE ELECTRIC INSTANTANEOUS DOMESTIC WATER HEATER ALONG WITH ALL ASSOCIATED W1 & HW PIPING, WIRING AND CONTROL.
8.

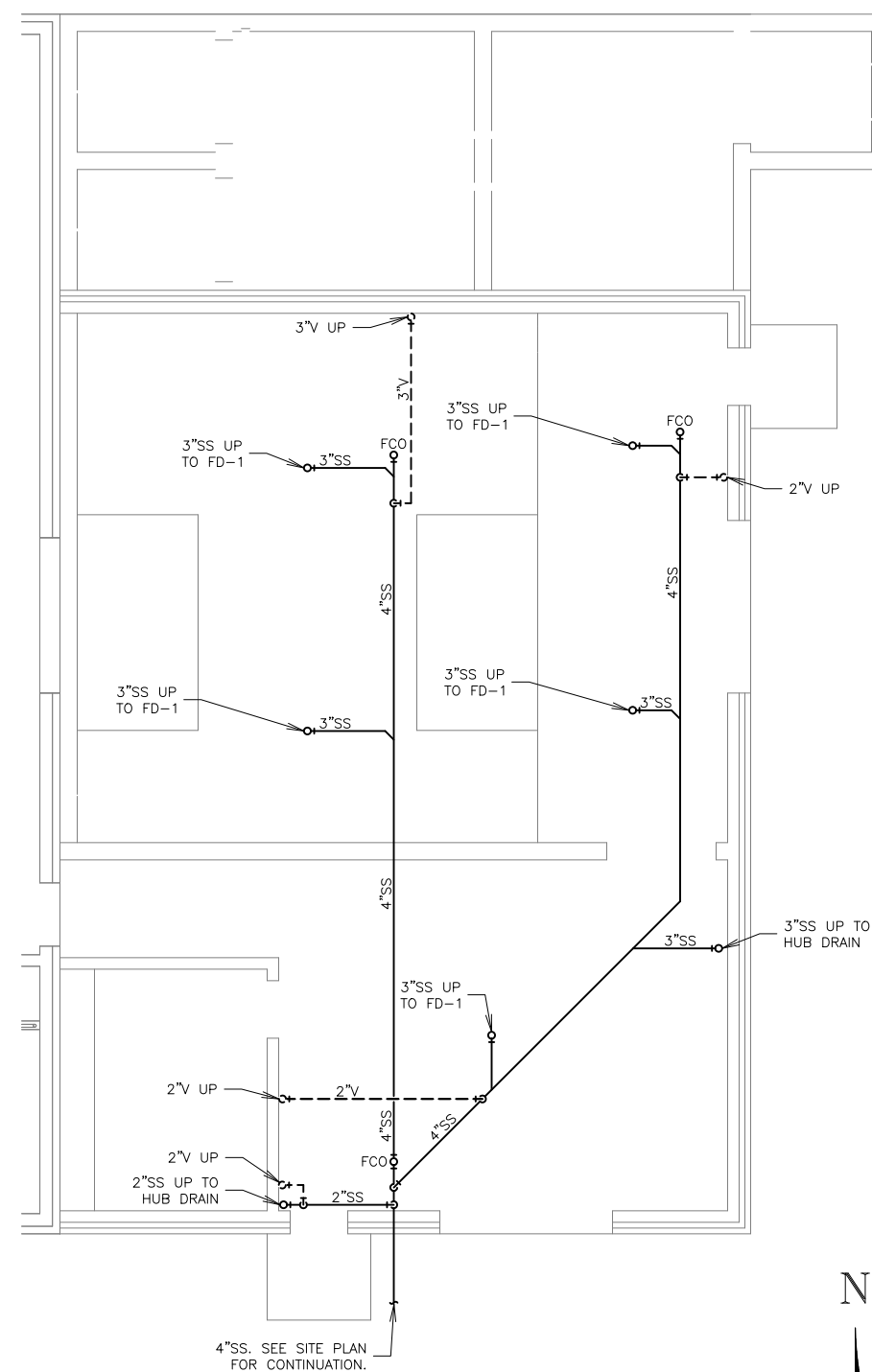
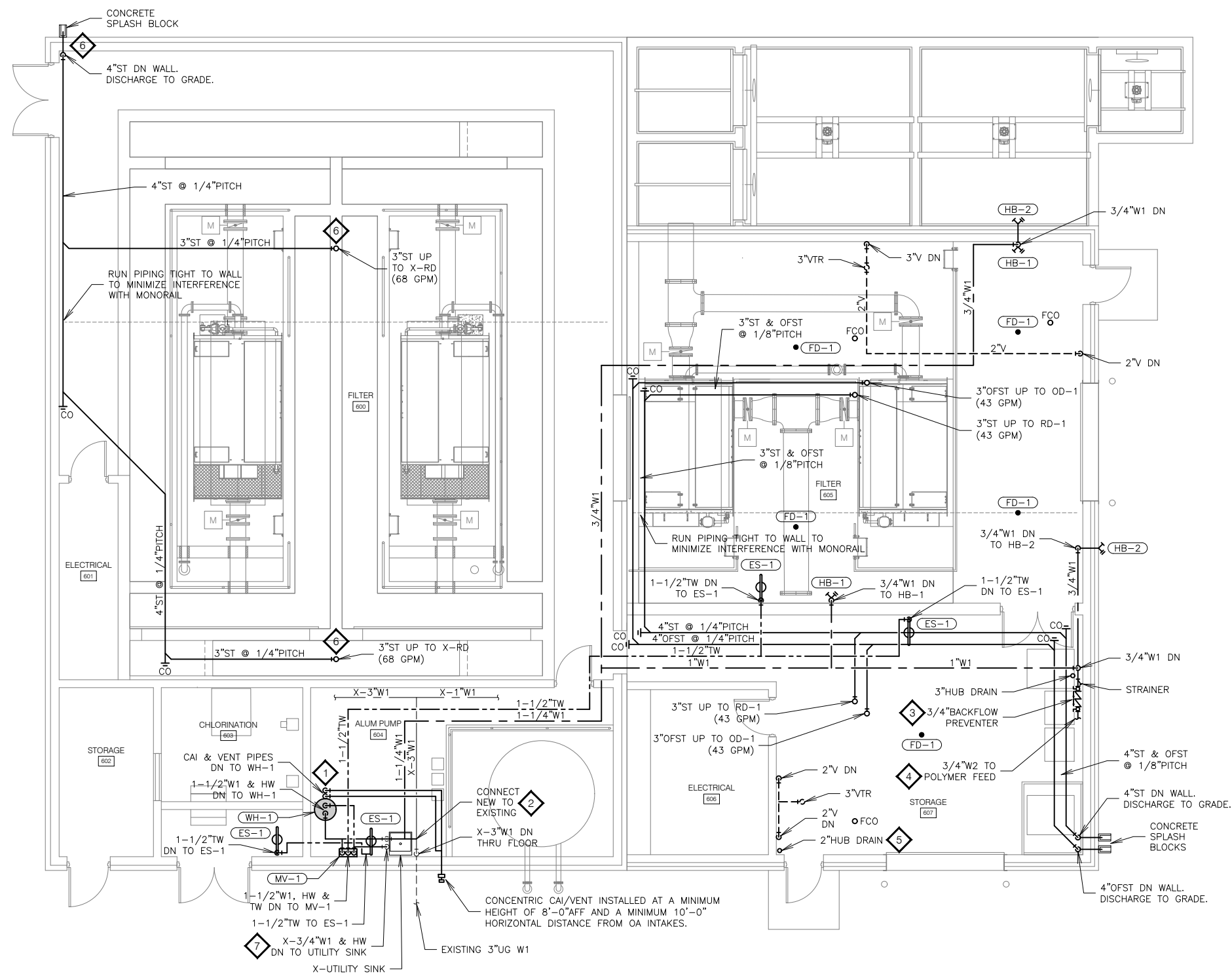
REMOVE EMERGENCY SHOWER AND MIXING VALVE ALONG WITH ALL ASSOCIATED W1, HW AND TW PIPING.
9.

REMOVE ELECTRIC CONVECTOR ALONG WITH ALL ASSOCIATED WIRING AND CONTROL. CONVECTOR TO BE REPLACED WITH NEW.
10.

REMOVE ABANDONED 1/2"NG BRANCH BACK TO MAIN AND CAP. PATCH WALL OPENING TO MATCH EXISTING.
11.

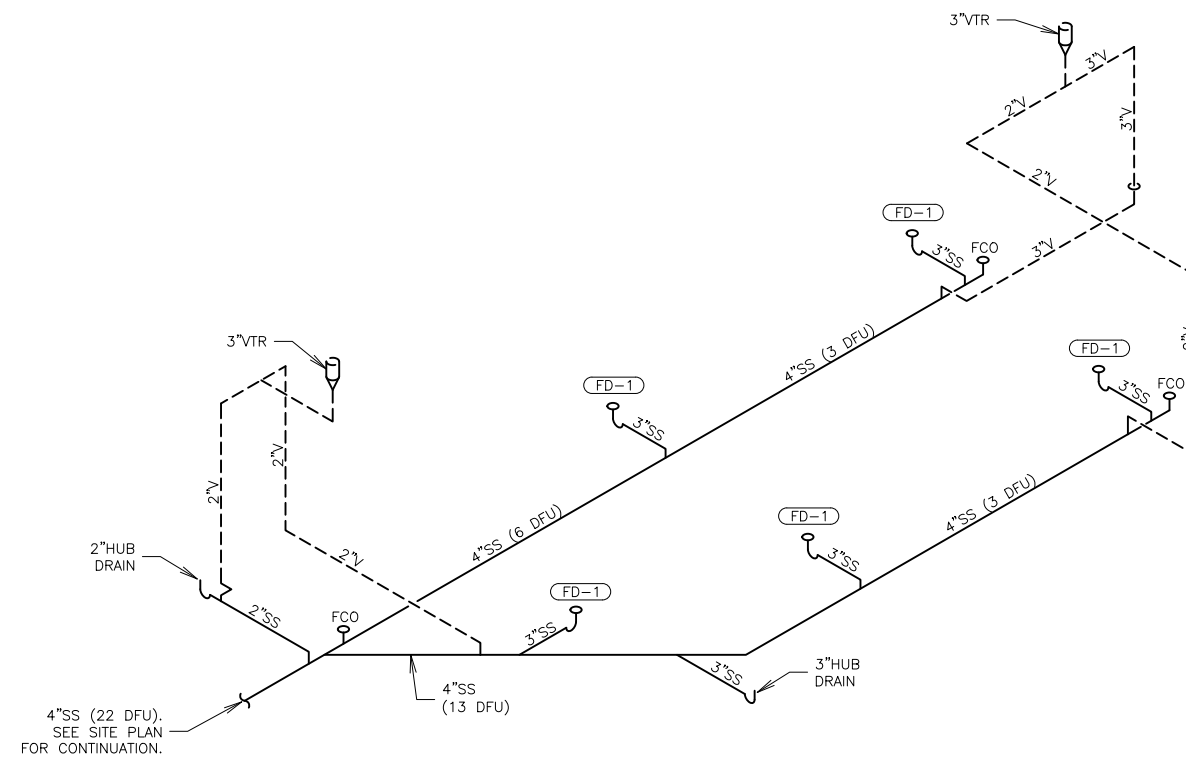
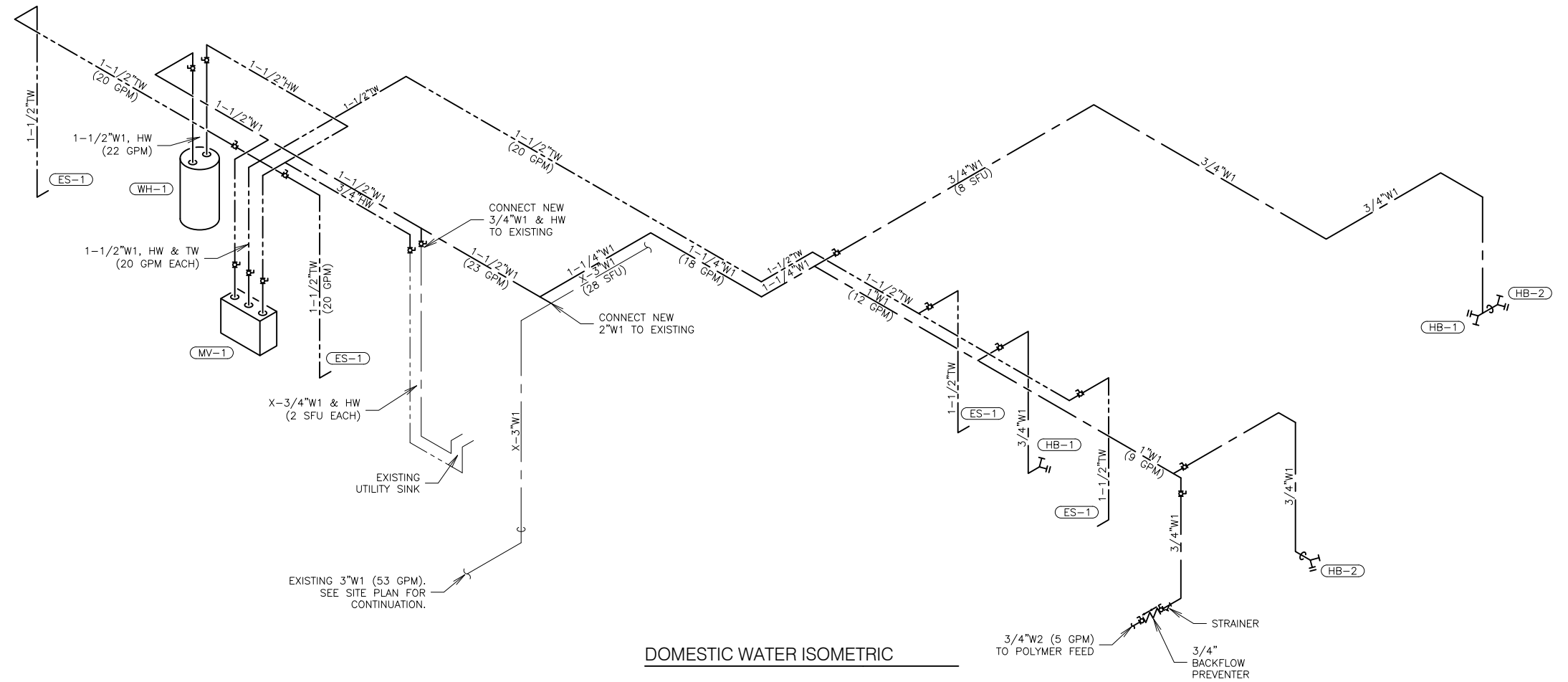
REMOVE ALL INTERIOR STORM DRAIN PIPING. ROOF DRAINS TO REMAIN. DISCONNECT STORM PIPING FROM ROOF DRAINS AS REQUIRED. ALL STORM DRAIN PIPING TO BE REPLACED WITH NEW AS SHOWN ON NEW WORK PLAN.





 KEY NOTES

1. MOUNT NEW DOMESTIC WATER HEATER (WH-1) ON NEW CONCRETE HOUSEKEEPING PAD. FIELD VERIFY EXACT SIZE AND LOCATION.
2. CONNECT NEW 2"W1 TO EXISTING 3"W1 AS REQUIRED. FIELD VERIFY EXACT SIZE AND LOCATION.
3. NEW 3/4"BACKFLOW PREVENTER SHALL BE WATTS MODEL LF909QT-S. PROVIDE WITH AIR GAP AND DRAIN LINE PIPED TO HUB DRAIN BELOW.
4. CONNECT 3/4"W2 TO POLYMER FEED SYSTEM. COORDINATE EXACT CONNECTION SIZE AND LOCATION WITH PROCESS CONTRACTOR.
5. HUB DRAIN FOR AIR CONDITIONING CONDENSATE. COORDINATE EXACT LOCATION WITH HVAC CONTRACTOR.
6. CONNECT NEW STORM PIPING TO EXISTING ROOF DRAIN AS REQUIRED. DISCHARGE NEW PIPING THRU EXISTING EXTERIOR WALL OPENING. FIELD VERIFY EXACT SIZE AND LOCATION.
7. RECONNECT EXISTING 3/4"W1 & HW SERVING EXISTING UTILITY SINK AS REQUIRED. FIELD VERIFY EXACT SIZE AND LOCATION.



WATER CALCULATION WORKSHEET

Information Needed for Water Service Sizing

- 1 53 Demand of building in gallons per minute.
- 2 60 Low pressure at building entrance.
- 3 0 Difference in elevation from main to meter (or external pressure tank to building control valve).
- 4 NA Size of water meter (if applicable).
- 5 0 Developed length from main to meter (or external pressure tank to building control valve).
- First Find Available Pressure After the Water Meter
(or at building control valve)
- 6 0 Find pressure loss due to friction in 3 inch diameter water service.
- 7 0.0 Find pressure loss due to elevation, main to meter (or external pressure tank to building control valve). Multiply the difference in elevation by .434 psi/ft.
- 8 0 Find pressure loss due to meter. (from manufacturer or AWWA)
- 9 60.0 Subtract the loss due to friction (Step 6), loss due to elevation (Step 7), and loss due to meter (Step 8) from the low main pressure (or low pressure at external pressure tank) (Step 2). This calculation is the available pressure after the water meter (or at the building control valve). This answer is entered in Line B, below.

Information Needed for Water Distribution Sizing

Using the following formula, find the pressure available for uniform loss (psi/100' of pipe)

A = [B - (C + D + E)] / F x 100

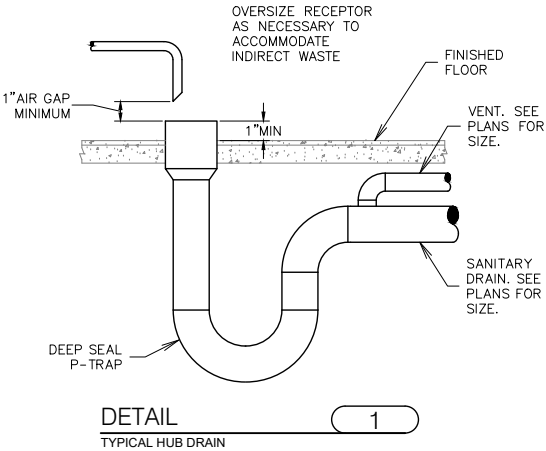
- A 19.6 Pressure available for uniform loss (psi/100' of pipe).
- B 60.0 Available pressure after water meter (at the building control valve or low pressure at internalpressure tank). (See step 9 above)
- C 35 Pressure needed at controlling fixture.
- D 0.0 Difference in elevation between water meter (building control valve or internal pressure tank) and controlling fixture in feet 0 x .434 psi/ft.
- E 0 Pressure loss due to water softeners, water treatment devices, instantaneous water heaters and backflow preventors which serve the controlling fixture. Conventional water heaters usually do not have a pressure loss.
- F 127.5 Developed length from water meter (building control valve or internal pressure tank) to controlling fixture in feet 85 x 1.5

PLUMBING FIXTURE SCHEDULE

MARK	MANUFACTURER	MODEL	DESCRIPTION	WSFU			DFU VALUE
				HW	CW	TOTAL	
ES-1	BRADLEY	S19314TT	COMBINATION EMERGENCY SHOWER AND EYE/FACE WASH STATION. UNIT SHALL INCLUDE ABS PLASTIC SPINTEC SHOWER HEAD WITH INTEGRAL FLOW CONTROL, STAINLESS STEEL SHROUD AND 1"CHROME PLATED BRASS STAY-OPEN SHOWER BALL VALVE ACTIVATED BY STAINLESS STEEL TRIANGULAR PULL HANDLE, ABS PLASTIC HALO EYE/FACE WASH HEADS WITH INTEGRAL FLOW CONTROL, FUP TOP DUST COVERS, STAINLESS STEEL BOWL AND 1/2"CHROME PLATED BRASS, STAY-OPEN BALL VALVE ACTIVATED BY STAINLESS STEEL PUSH HANDLE. UNIT CONSTRUCTED OF 1-1/4" SCHEDULE 40 GALVANIZED STEEL PIPE AND FITTINGS AND FLOOR FLANGE WITH BRADTECT SAFETY YELLOW COATING. EYE/FACE WASH BOWL SHALL BE PIPED TO FLOOR.	NA	NA	NA	NA
FD-1	SIOUX CHIEF	863-43NR	ADJUSTABLE 3"FLOOR DRAIN, PVC ADAPTER BODY WITH PVC TOP HOUSING AND ROUND CAST NICKEL RING AND STRAINER. PROVIDE 3"SCHEDULE 40 HUB ADAPTER.	NA	NA	NA	3.0
HB-1	WOODFORD	24	NON-FREEZE AREA, ANTI-SIPHON VACUUM BREAKER PROTECTED WALL FAUCET, 3/4" MALE HOSE THREAD NOZZLE, BRASS VALVE BODY, ONE PIECE VALVE PLUNGER, HARDENED STAINLESS STEEL OPERATING STEM AND METAL WHEEL HANDLE. PROVIDE WITH POLISHED CHROME FINISH.	NA	4.0	4.0	NA
HB-2	WOODFORD	19	AUTOMATIC DRAINING, ANTI-SIPHON VACUUM BREAKER PROTECTED, FREEZELESS WALL FAUCET, 3/4" MALE HOSE THREAD NOZZLE, BRASS VALVE BODY, ONE PIECE VALVE PLUNGER TO CONTROL BOTH FLOW AND DRAINAGE, HARDENED STAINLESS STEEL OPERATING STEM AND OVAL, POWDER COATED DIE CAST ALUMINUM HANDLE. COORDINATE FINISH WITH ARCHITECT.	NA	4.0	4.0	NA
MV-1	LEONARD VALVE	TM-800-LF-STSTL-EXP	THERMOSTATIC MIXING VALVE WITH INTEGRAL STRAINER CHECKSTOPS ON INLETS, ADJUSTABLE SET POINT AND DIAL THERMOMETER IN SURFACE MOUNTED STAINLESS STEEL CABINET.	NA	NA	NA	NA
OD-1	JAY R SMITH	1070	15.25"Ø ROOF OVERFLOW DRAIN WITH BOTTOM NO-HUB OUTLET, COMBINED FLASHING CLAMP AND GRAVEL STOP, CAST IRON BODY, PVC STANDPIPE, LOW PROFILE CAST IRON VANDAL PROOF DOME, EXTENSION COLLAR, UNDERDECK CLAMP AND SUMP RECEIVER. SEE PLANS FOR SIZE.	NA	NA	NA	NA
RD-1	JAY R SMITH	1010	15.25"Ø ROOF DRAIN WITH BOTTOM NO-HUB OUTLET, COMBINED FLASHING CLAMP AND GRAVEL STOP, CAST IRON BODY, LOW PROFILE CAST IRON VANDAL PROOF DOME, EXTENSION COLLAR, UNDERDECK CLAMP AND SUMP RECEIVER. SEE PLANS FOR SIZE.	NA	NA	NA	NA

GAS FIRED WATER HEATER SCHEDULE

MARK	MANUFACTURER	TYPE	MODEL	STORAGE CAPACITY (GAL)	BTUH (INPUT)	GPH RECOVERY @ 90 F	VOLTS/PHASE	DIMENSIONS	REMARKS
WH-1	AMERICAN	SEALED COMB.	PDVGG62-40S40-NV	40	40,000	45	120V / 1Ø	22"Ø x 50"H	1, 2, 3
1. PROVIDE DISCONNECT									
2. PROVIDE CONCENTRIC CA/VENT									
3. PROVIDE SPARE ANODE RODS									



PLUMBING GENERAL NOTES

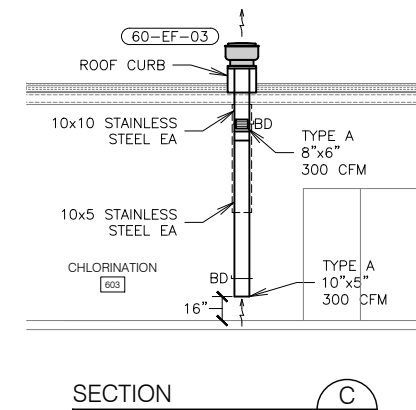
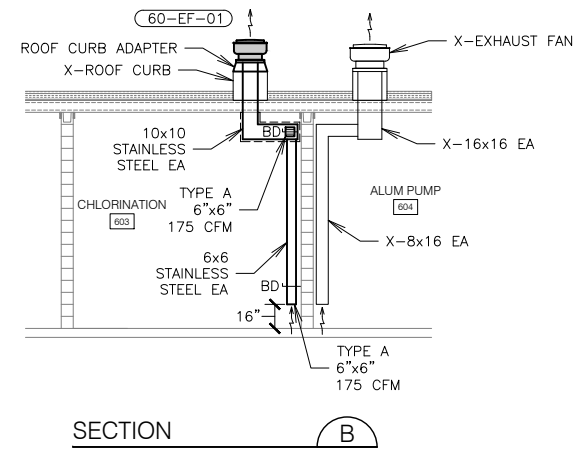
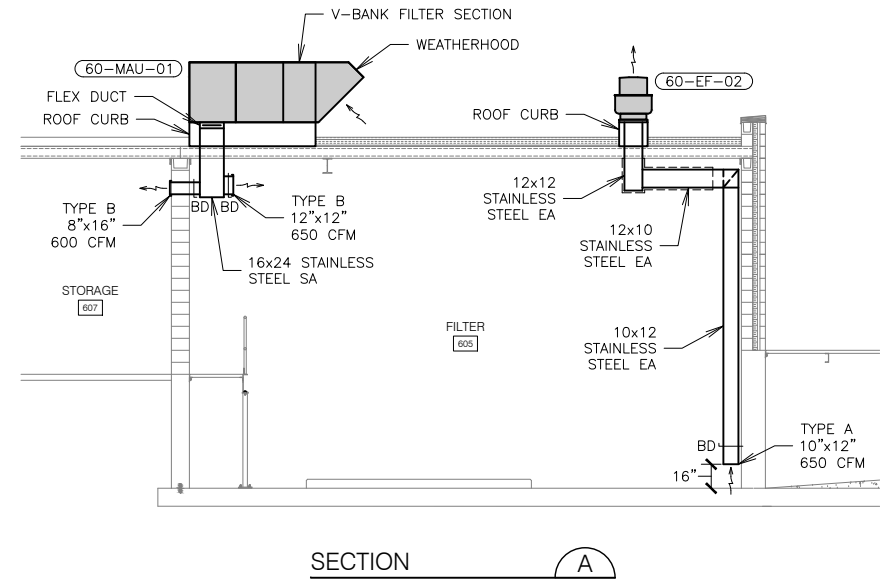
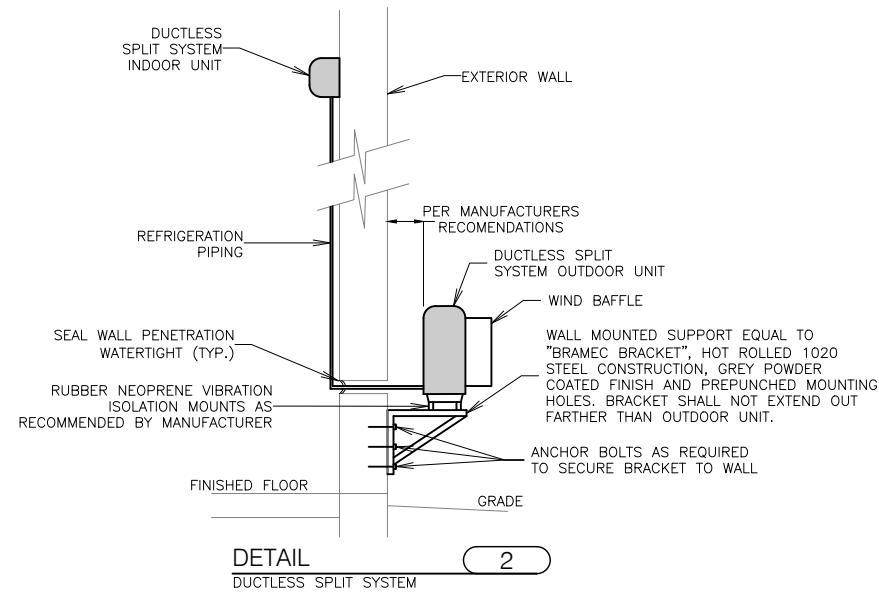
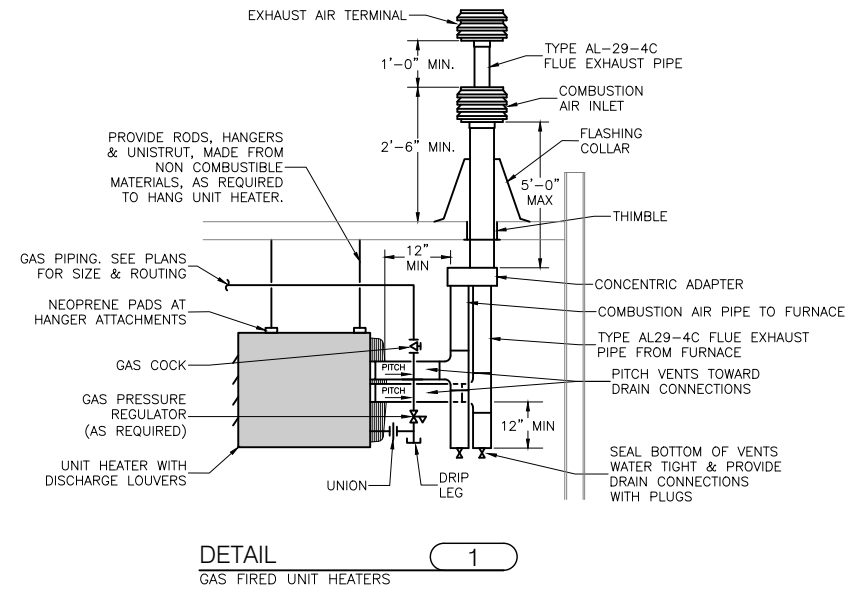
1. THESE DRAWINGS DO NOT ATTEMPT TO SHOW THE COMPLETE DETAILS OF BUILDING CONSTRUCTION, WHICH AFFECT THE PLUMBING INSTALLATION. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND REFER TO THE ARCHITECTURAL, CIVIL, STRUCTURAL, HVAC AND ELECTRICAL DRAWINGS FOR ADDITIONAL DETAILS WHICH AFFECT THE PROPER INSTALLATION OF THIS WORK. NO EXTRA PAYMENT WILL BE ALLOWED FOR THE FAILURE TO OBTAIN THIS INFORMATION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXISTING FIELD CONDITIONS. THE CONTRACTOR SHALL REVIEW EXISTING FIELD CONDITIONS PRIOR TO BID AND SHALL TAKE INTO ACCOUNT IN BID PROPOSAL. NO ADDITIONAL COMPENSATION WILL BE ALLOWED DUE TO CONTRACTORS FAILURE TO INCLUDE ALL NECESSARY WORK IN BID PROPOSAL.
3. CONTRACTOR SHALL COORDINATE HIS WORK WITH THE WORK OF OTHER TRADES. RESOLVE ALL CONFLICTS AT NO ADDITIONAL COST TO THE OWNER OR ARCHITECT.
4. THESE DRAWINGS ARE A DIAGRAMMATIC REPRESENTATION OF WORK TO BE ACCOMPLISHED AND AS SUCH DO NOT SHOW ALL REQUIRED OFFSETS OF PIPING. PLUMBING CONTRACTOR SHALL INSTALL MATERIAL AND EQUIPMENT AS TO CONFORM TO THE STRUCTURE, EQUIPMENT CONNECTIONS AND MAINTAIN HEADROOM AND PASSAGWAY.
5. ALL NON-POTABLE WATER PIPING AND FIXTURES SHALL CLEARLY BE LABELED AS SUCH.

PLUMBING ABBREVIATIONS

AHP	AIR PIPING-HIGH PRESSURE
BFP	BACKFLOW PREVENTER
CA	COMPRESSED AIR
CO	CLEANOUT
DN	DOWN
ES	EMERGENCY SHOWER
EW	EYE WASH
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
HB	HOSE BIB
HD	HUB DRAIN
LAV	LAVATORY
RD	ROOF DRAIN
SH	SHOWER
SPD	SUMP PUMP DISCHARGE
UG	UNDERGROUND
WC	WATER CLOSET
WCO	WALL CLEANOUT
WH	WATER HEATER
VTR	VENT THRU ROOF
X-...	EXISTING ...

PLUMBING LEGEND

----	NEW DOMESTIC COLD WATER (W1)
----	EXISTING DOMESTIC COLD WATER (X-W1)
-----	NEW DOMESTIC HOT WATER (HW)
-----	EXISTING DOMESTIC HOT WATER (X-HW)
-----	NEW DOMESTIC TEMPERED WATER (TW)
-----	EXISTING DOMESTIC TEMPERED WATER (TW)
-----	NEW NON-POTABLE WATER (W2)
-----	EXISTING NON-POTABLE WATER (X-W2)
-----	NEW SANITARY SEWER (SS)
-----	EXISTING SANITARY SEWER (X-SS)
-----	NEW STORM PIPING (ST)
-----	EXISTING STORM PIPING (X-ST)
-----	NEW VENT (V)
-----	EXISTING VENT (X-V)
	EQUIPMENT TO BE REMOVED
	BALL VALVE
	GATE VALVE
	BUTTERFLY VALVE
	CHECK VALVE
	CONTROL VALVE
	PRESSURE REGULATOR
	STRAINER
	HOSE BIB
	PIPE ELBOW/TEE DOWN
	PIPE ELBOW/TEE UP
	CAPPED PIPE END



DUCTLESS SPLIT SYSTEM																				
MARK	MANUFACTURER	TYPE	LOCATION	REFRIGERANT	COOLING CAPACITY (BTUH)	HEATING CAPACITY (BTUH)	INDOOR UNIT						OUTDOOR UNIT						REMARKS	
							MODEL	AMPS	VOLTS / PHASE	DIMENSIONS (W x D x H)	OPERATING WEIGHT	NOISE RATING dB(A)	MODEL	MCA	MOCp	VOLTS / PHASE	DIMENSIONS (W x D x H)	OPERATING WEIGHT		NOISE RATING dB(A)
60-DSS-01	LG	HIGH WALL	ELECTRICAL 606	R-410A	12,000	13,600	LSN120HSV5	0.4	208-230V/1Ø	34" x 8" x 12"	20 LBS	41 / 35 / 25	LSU120HSV5	10	15	208-230V/1Ø	32" x 12" x 22"	75 LBS	47	1, 2, 3, 4, 5
1. PROVIDE DISCONNECT. 2. INDOOR UNIT IS POWERED FROM OUTDOOR UNIT. 3. PROVIDE WALL MOUNTED WIRED THERMOSTAT. 4. PROVIDE LOW AMBIENT WIND BAFFLE TO PERMIT OPERATION DOWN TO 0°F. 5. PROVIDE WALL MOUNTING BRACKETS FOR OUTDOOR UNIT.																				

GAS FIRED MAKEUP AIR UNITS																				
MARK	MANUFACTURER	MODEL	SERVICE	SUPPLY FAN					HEATING			FILTERS	UNIT ELECTRICAL			PHYSICAL DATA				REMARKS
				SUPPLY AIR (CFM)	ESP (IN WC)	MOTOR HP	BHP	RPM	INPUT (MBH)	OUTPUT (MBH)	STAGES		MCA	MOP	VOLTS / PH	LENGTH	WIDTH	HEIGHT	WEIGHT (LBS)	
60-MAU-01	GREENHECK	DGX-P112-H12-MF	FILTER 605 & STORAGE 607	1,250	0.5	1/2	0.44	1,779	205	189	MODULATING	ALUMINUM	1.7	15	480V / 3Ø	116"	34"	39"	750	1, 2, 3, 4, 5, 6
1. PROVIDE DISCONNECT SWITCH. UNIT TO BE PROVIDED WITH INTEGRAL STARTER. 2. PROVIDE REMOTE CONTROL PANEL. 3. PROVIDE INLET DAMPER. 4. PROVIDE WEATHERHOOD WITH BIRDSCREEN. 5. PROVIDE 18"HIGH ROOF CURB. 6. PROVIDE V-BANK FILTER SECTION																				

FANS																
MARK	MANUFACTURER	MODEL	SERVICE	LOCATION	CONSTRUCTION			AIR			ELECTRICAL			WEIGHT (LBS)	SONES	REMARKS
					TYPE	FAN MATERIAL	DRIVE	AIRFLOW (CFM)	ESP (IN WC)	RPM	HP	BHP	VOLTS / PH			
60-EF-01	GREENHECK	CUE-090-VG	CHLORINATION 603	ROOF	UPBLAST	ALUMINUM	DIRECT	350	0.25	1,276	1/10	0.05	115V / 1Ø	30	5.5	1, 2, 3, 4, 5
60-EF-02	GREENHECK	CUE-099-VG	FILTER 605	ROOF	UPBLAST	ALUMINUM	DIRECT	650	0.5	1,408	1/4	0.13	115V / 1Ø	55	7.7	1, 2, 3, 4, 5
60-EF-03	GREENHECK	CUE-095-VG	STORAGE 607	ROOF	UPBLAST	ALUMINUM	DIRECT	600	0.25	1,515	1/6	0.11	115V / 1Ø	50	7.8	1, 2, 3, 4, 5
1. PROVIDE GRAVITY BACKDRAFT DAMPER. 2. PROVIDE FACTORY MOUNTED AND WIRED DISCONNECT SWITCH. 3. PROVIDE HI-PRO POLYESTER COATING ON ALL PARTS INCLUDING DAMPER. COLOR TO BE EITHER GREY OR IVORY. FINAL SELECTION BY ARCHITECT. 4. PROVIDE ROOF CURB/ROOF CURB ADAPTER. 5. PROVIDE VARI-GREEN EC MOTOR WITH DIAL SPEED CONTROL MOUNTED ON MOTOR FOR BALANCING PURPOSES.																

DIFFUSERS AND GRILLES										
TYPE	MANUFACTURER	MODEL	TYPE	SERVICE	MATERIAL	BLADES		MOUNTING / FRAME	FINISH	REMARKS
						SPACING	ANGLE			
A	CONTR. FABRICATED	-	-	EXHAUST	STAINLESS STEEL	-	-	DUCT	MILL	1
B	TITUS	132RS	DOUBLE DEFLECTION	SUPPLY	ALUMINUM	3"	-	SIDEWALL	WHITE	
1. 1" x 1" STAINLESS STEEL SCREENING WITH STAINLESS STEEL FRAMED BORDER.										

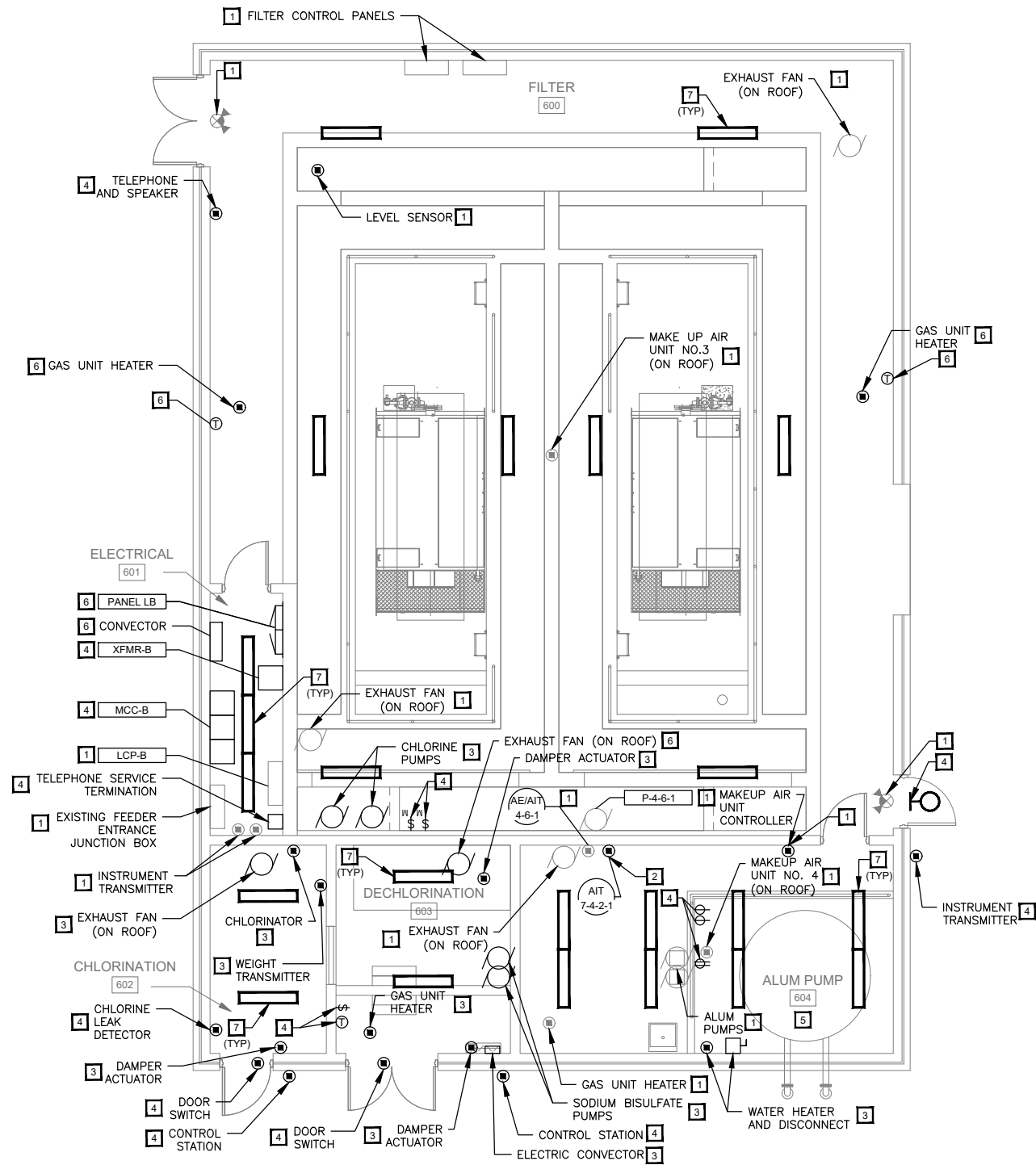
ELECTRIC CONVECTOR									
MARK	MANUFACTURER	MODEL	MOUNTING	LOCATION	ELECTRICAL			OPERATING WEIGHT	REMARKS
					KW	AMPS	VOLTS / PH		
60-CONV-01	CHROMALOX	HCH-201	SURFACE	ELECTRICAL 601	2	9.6	208V / 1Ø	41 LBS	1, 2
1. PROVIDE FACTORY MOUNTED AND WIRED INTEGRAL THERMOSTAT. 2. PROVIDE DISCONNECT SWITCH.									

ELECTRIC CONTROL DAMPERS							
MARK	MANUFACTURER	MODEL	BLADE CONFIGURATION	SIZE	LOCATION	VOLTS/ PHASE	REMARKS
60-D-01	TAMCO	SERIES 1000	PARALLEL	20" x 24"	CHLORINATION 603	115V / 1Ø	1, 2, 3, 4
1. PROVIDE WITH BELIMO ACTUATOR. VERIFY NUMBER OF ACTUATORS REQUIRED AND COORDINATE WITH ELECTRICAL CONTRACTOR. 2. PROVIDE WITH 3 COAT BAKED PHENOLIC COATING. 3. PROVIDE WITH CORROSION RESISTANT ACTUATOR HOUSING. 4. DAMPER TO BE MOUNTED TO EXISTING LOUVER. FIELD VERIFY EXACT SIZE PRIOR TO ORDERING NEW DAMPER.							

GAS FIRED UNIT HEATERS											
MARK	MANUFACTURER	MODEL	NATURAL GAS INPUT (MBH)	MINIMUM EFFICIENCY	CFM	MOTOR		ELECTRICAL		OPERATING WEIGHT	REMARKS
						HP	RPM	AMPS	VOLTS / PH		
60-GUH-01	MODINE	HDS SIZE 60	60	82%	990	1/12	1,625	3.3	115V / 1Ø	80 LBS	1, 2, 3, 4
60-GUH-02	MODINE	HDS SIZE 60	60	82%	990	1/12	1,625	3.3	115V / 1Ø	80 LBS	1, 2, 3, 4
60-GUH-03	MODINE	HDS SIZE 45	45	82%	720	1/15	1,550	3.8	115V / 1Ø	60 LBS	1, 2, 3, 4
60-GUH-04	MODINE	HDS SIZE 30	30	82%	505	1/15	1,550	3.8	115V / 1Ø	55 LBS	1, 2, 3, 4
1. PROVIDE DISCONNECT. 2. PROVIDE CONCENTRIC COMBUSTION AIR INTAKE/VENT KIT. 3. PROVIDE STAINLESS STEEL HEAT EXCHANGER AND FLUE COLLECTOR BOX. 4. MOUNT HEATER SUCH THAT THE BOTTOM OF THE UNIT IS AT A HEIGHT OF 8'-0" AFF.											

ELECTRIC UNIT HEATERS										
MARK	MANUFACTURER	MODEL	KW	CFM	MOTOR		ELECTRICAL		OPERATING WEIGHT	REMARKS
					HP	RPM	AMPS	VOLTS / PH		
60-EUH-01	Q-MARK	MUH03-41	3	350	1/100	1,600	3.6	480V / 3Ø	27 LBS	1, 2, 3
60-EUH-02	INDEECO	234-U11N-0080U	7.5	700	1/4	1,750	11.0	480V / 3Ø	56 LBS	1, 2, 3, 4, 5
60-EUH-03	INDEECO	234-U11N-0080U	7.5	700	1/4	1,750	11.0	480V / 3Ø	56 LBS	1, 2, 3, 4, 5
60-EUH-04	Q-MARK	MUH03-41	3	350	1/100	1,600	3.6	480V / 3Ø	27 LBS	1, 2, 3
1. PROVIDE FACTORY MOUNTED AND WIRED INTEGRAL THERMOSTAT. 2. PROVIDE FACTORY MOUNTED AND WIRED INTEGRAL DISCONNECT SWITCH. 3. MOUNT HEATER SUCH THAT THE BOTTOM OF THE UNIT IS AT A HEIGHT OF 8'-0" AFF. 4. PROVIDE STAINLESS STEEL MOUNTING BRACKET WITH EPOXY COATING. 5. UNIT HEATER SHALL BE CORROSION RESISTANT (316 STAINLESS STEEL CONSTRUCTION).										

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REMOVAL PLAN

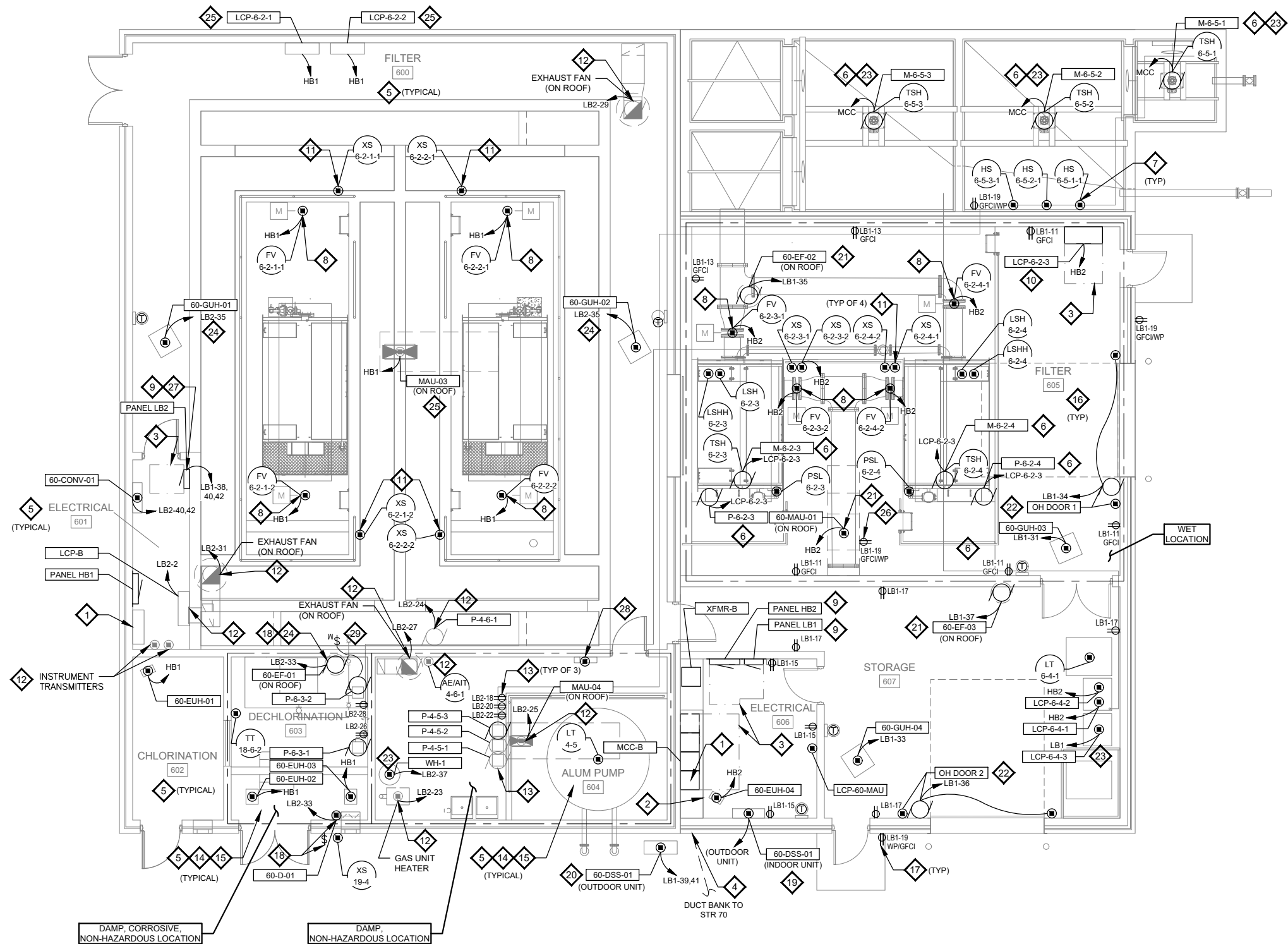


GENERAL NOTES

1. DO NOT SCALE DRAWINGS TO DETERMINE EXACT LOCATION OF ELECTRICAL EQUIPMENT AND CONNECTIONS.
2. COORDINATE ALL ELECTRICAL REMOVAL IN FIELD WITH ENGINEER AND EXISTING CONDITIONS. PLANS DEPICT KNOWN EQUIPMENT TO BE REMOVED BASED ON EXISTING DOCUMENTATION AND FIELD OBSERVATION. CONTRACTOR TO VERIFY ACTUAL FIELD CONDITIONS.
3. REMOVE ALL ABANDONED CONDUCTORS BACK TO SOURCE TO EXTENT FEASIBLE.
4. REMOVE ALL ABANDONED EXPOSED RACEWAY. CUT CONDUIT BELOW GRADE OR FINISHED FLOOR AND PATCH FLUSH TO MATCH ADJOINING SURFACE.
5. PATCH ALL ABANDONED ELECTRICAL PENETRATIONS AND FINISH TO MATCH ADJOINING.
6. REFER TO ELECTRICAL, PROCESS, ARCHITECTURAL/STRUCTURAL, AND HVAC PLANS FOR EQUIPMENT TO REMAIN AND FOR NEW WORK.
7. REFER TO CONSTRUCTION SEQUENCE IN DIVISION 1 AND COORDINATE ALL OUTAGES WITH ENGINEER.
8. MAINTAIN OPERATION OF ALL LOADS THAT ARE TO REMAIN DURING CONSTRUCTION. COORDINATE ANY OUTAGES WITH ENGINEER AND OWNER.

X REMOVAL NOTES

1. EXISTING EQUIPMENT TO REMAIN.
2. DISCONNECT EQUIPMENT TO BE RELOCATED.
3. DISCONNECT EQUIPMENT TO BE REMOVED.
4. DISCONNECT AND REMOVE ELECTRICAL AND ASSOCIATED EQUIPMENT.
5. EQUIPMENT IN THIS ROOM TO REMAIN UNLESS OTHERWISE NOTED.
6. DISCONNECT EQUIPMENT TO BE REMOVED AND REPLACED IN SAME LOCATION. EXISTING CIRCUITS MAY BE RECONNECTED IF CONDUCTORS PASS CONTINUITY TESTING.
7. REMOVE LIGHT FIXTURES WHICH ARE TO BE REPLACED IN SAME LOCATION.



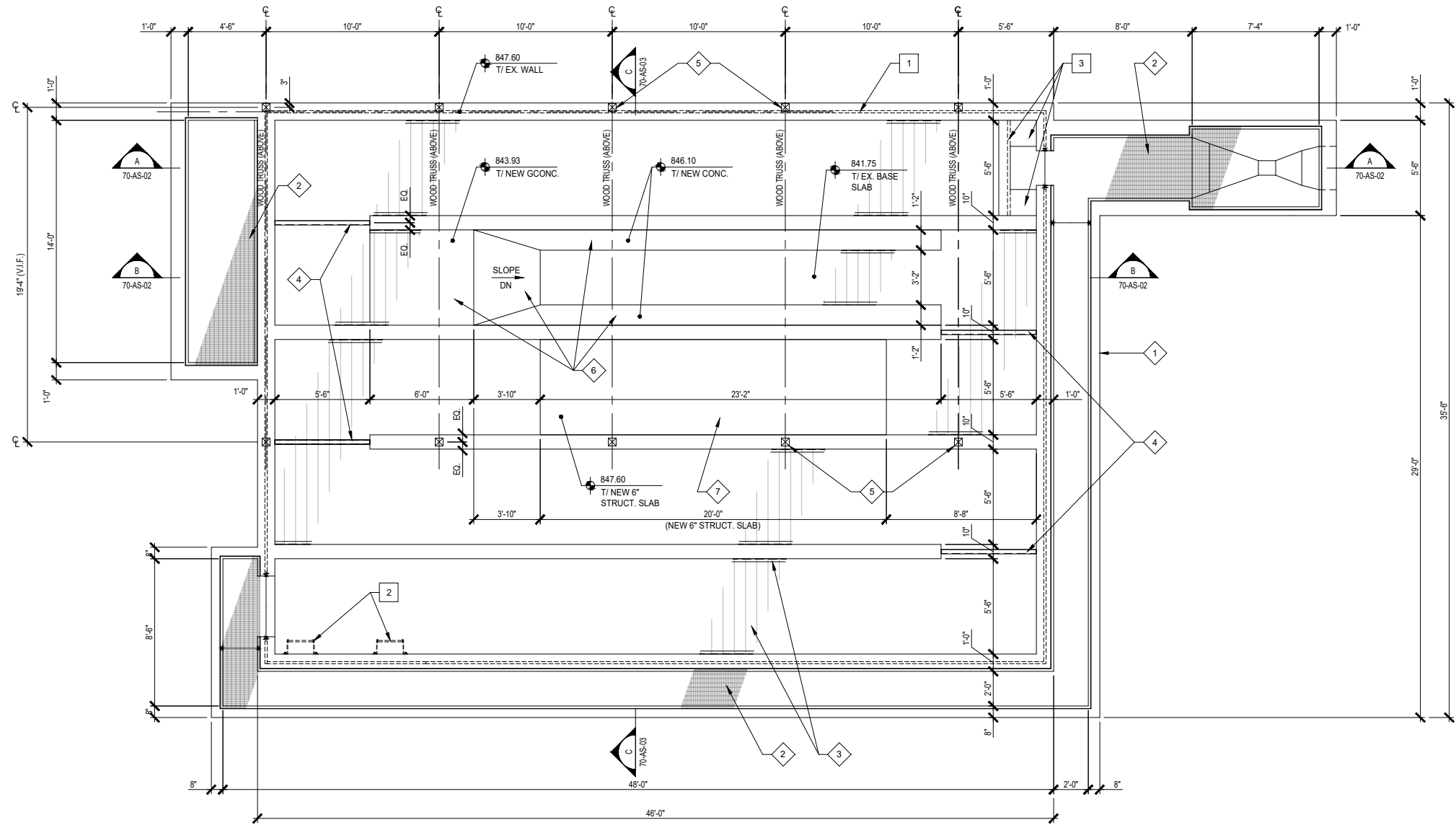
GENERAL NOTES

1. DO NOT SCALE DRAWINGS TO DETERMINE EXACT LOCATION OF ELECTRICAL EQUIPMENT AND CONNECTIONS.
2. 120V HOMERUN WIRING SHALL BE A MINIMUM OF (2) #12 & #12G IN 3/4" UNLESS OTHERWISE NOTED. SIZE FOR VOLTAGE DROP.
3. SEE ONE-LINE DIAGRAM, PANEL SCHEDULE, AND FIELD DEVICE WIRING SCHEDULE FOR WIRING OF ALL PROCESS AND INSTRUMENTATION.
4. PROVIDE RACEWAY FOR ALL HVAC EQUIPMENT CIRCUITS. PROVIDE WIRING FOR ALL HVAC POWER AND CONTROL CIRCUITS AT LINE VOLTAGE AND ABOVE.
5. INSTALL FIELD INSTRUMENTS PER DETAIL REFERENCED IN FIELD DEVICE WIRING SCHEDULE.
6. ALL CONDUIT STUBBED UP THROUGH CONCRETE SHALL BE PVC COATED GRS.
7. REFER TO SPECIFICATION 26 05 00 FOR CONDUIT, BOX, AND HARDWARE USAGE REQUIREMENTS.
8. SEE SCADA OVERVIEW FOR COMMUNICATIONS CABLING REQUIREMENTS.
9. ALL EXTERIOR RECEPTACLES OR RECEPTACLES MOUNTED IN WET LOCATIONS SHALL BE WET LOCATION GFCI TYPE WITH WEATHERPROOF WHILE-IN-USE COVERS.
10. ALL CONDUIT IN CHEMICAL ROOMS SHALL BE EXPOSED, SCH 80 PVC.
11. PROVIDE GFCI CIRCUIT BREAKERS FOR ALL RECEPTACLE LOADS IN CHEMICAL ROOMS.
12. VERIFY CONTINUITY OF ALL NEW AND EXISTING CIRCUITS THAT ARE TO BE CONNECTED OR RE-CONNECTED AS A PART OF THIS PROJECT AND PROVIDE TESTING REPORT TO ENGINEER. REFER TO REQUIREMENTS IN SPECIFICATION 26 05 19.

KEY NOTES

1. CONNECT EXISTING BUILDING FEEDER TO NEW MAIN CIRCUIT BREAKER IN PANEL HB1.
2. GC TO PROVIDE 4" CONCRETE HOUSEKEEPING PAD FOR MCC AND TRANSFORMER PER ARCHITECTURAL/STRUCTURAL REQUIREMENTS. PAD TO EXTEND 4" IN FRONT OF AND 2" TO THE SIDES OF EQUIPMENT. COORDINATE SIZE WITH EQUIPMENT TO BE SUPPLIED. MAINTAIN SPACE FOR FUTURE SECTION ON NORTH END OF LINEUP AS SHOWN.
3. MAINTAIN NEC REQUIRED WORKING CLEARANCES.
4. PROVIDE CONDUIT ENTRANCE PER E2-14. TERMINATE POWER CIRCUITS BELOW DISTRIBUTION PANELS LB1 AND HB2. ROUTE FIBER OPTIC AND FUTURE CONDUIT TO JUST INSIDE SOUTH WALL OF ELECTRICAL ROOM STUBBED UP 2" AFF. EXTEND FIBER OPTIC CONDUIT TO PANEL LCP-B. PROVIDE CAP FOR FUTURE CONDUIT. REFER TO SITE PLAN.
5. EXISTING LIGHT SWITCHES AND RECEPTACLES IN THIS AREA, UNLESS OTHERWISE NOTED, ARE TO REMAIN IN SERVICE AND BE RE-CIRCUITED TO NEW PANEL AS SCHEDULED. EXTEND RACEWAY AND CONDUCTORS AS NEEDED.
6. PROVIDE MOTOR CONNECTION PER DETAIL E1-01 OR E1-02, DEPENDING ON CONDUIT ROUTING.
7. WALL MOUNT CONTROL STATIONS AND DISCONNECT SWITCHES AT 48" AFF.
8. PROVIDE MOTOR RATED SWITCH, SQUARE D TYPE 2510, OR EQUAL, TO SERVE AS LOCAL DISCONNECT. PROVIDE PEDESTAL PER DETAIL E1-03 OR WALL-MOUNT IN LOCATION WITHIN SIGHT OF VALVE. COORDINATE LOCATION IN FIELD WITH ENGINEER.
9. MOUNT PANEL PER DETAIL E2-01.
10. MOUNT CONTROL PANEL PER DETAIL E2-05.
11. MOUNT CONTROL STATION ON RAILING PER DETAIL E2-04.
12. EXISTING EQUIPMENT TO REMAIN. EXTEND CIRCUIT AS NEEDED AND RECONNECT EXISTING CIRCUIT TO NEW PANEL LB2 AS SCHEDULED. VERIFY CIRCUIT CONTINUITY PER SPECIFICATIONS. CONFIRM CIRCUITS IN FIELD. REFER TO HVAC PLANS AND ELECTRICAL REMOVAL PLANS.
13. PROVIDE STAINLESS STEEL STRUT FOR NEW RECEPTACLES AND CONTROL CIRCUITS SERVING ONE NEW AND TWO EXISTING ALUM PUMPS.
14. ALL NEW CONDUIT AND WIRING DEVICES IN CHEMICAL ROOMS SHALL BE SURFACE-MOUNTED SCH 80 PVC.
15. ALL RECEPTACLES IN THE CHEMICAL ROOMS SHALL BE CHEMICAL RESISTANT TYPE WITH WEATHERPROOF WHILE IN USE COVERS, AND SHALL BE PROTECTED BY GFCI CIRCUIT BREAKERS IN LIGHTING PANEL.
16. ALL RECEPTACLES IN THIS AREA SHALL BE WET LOCATION, GFCI TYPE WITH WEATHERPROOF COVERPLATES.
17. PROVIDE GFCI RECEPTACLES WITH METALLIC WEATHERPROOF WHEN IN USE COVERPLATES.
18. INTERLOCK FAN, DAMPER AND LIGHTS PER HVAC PLANS AND SEQUENCE AND P&ID REFER TO LIGHTING PLAN NOTES.
19. INDOOR UNIT POWERED BY OUTDOOR UNIT.
20. PROVIDE 2-#10 AND 1-#10 GROUND PER MANUFACTURER'S RECOMMENDATIONS FOR POWER CONDUCTORS TO DSS OUTDOOR UNIT.
21. INTERLOCK FAN OPERATION WITH MAKEUP AIR UNIT PER P&IDS AND HVAC SEQUENCE OF OPERATION.
22. PROVIDE RACEWAY AND CONDUCTOR FOR LOCAL CONTROL STATION AND SAFETY SYSTEM OF OVERHEAD DOOR OPERATOR PER MANUFACTURER'S INSTALLATION REQUIREMENTS.
23. PROVIDE LOCAL NON-FUSED DISCONNECT SWITCH. MOUNT ON WALL NEAR EQUIPMENT.
24. NEW EQUIPMENT TO BE REPLACED IN SAME LOCATION AS EXISTING. EXTEND CIRCUIT AS NEEDED AND CONNECT EXISTING CIRCUIT TO NEW PANEL AS SCHEDULED. VERIFY CIRCUIT CONTINUITY PER SPECIFICATIONS. CONFIRM CIRCUITS IN FIELD. REFER TO HVAC PLANS AND ELECTRICAL REMOVAL PLANS.
25. EXISTING EQUIPMENT TO REMAIN. EXTEND CIRCUIT TO NEW PANEL HB1 AS SCHEDULED. PROVIDE JUNCTION BOX AT EXISTING MCC TO EXTEND CIRCUIT TO NEW PANEL. VERIFY CIRCUIT CONTINUITY PER SPECIFICATIONS. CONFIRM CIRCUITS IN FIELD AND REFER TO ELECTRICAL REMOVAL PLAN.
26. PROVIDE GFCI RECEPTACLE WITH METALLIC WEATHERPROOF COVERPLATE AND MOUNT ON ROOF NEAR MAKEUP AIR UNIT.
27. PROVIDE 3-#3 & #8G IN 1" CONDUIT FROM PANEL LB1 TO SERVE PANEL LB2.
28. EXISTING MAKEUP AIR UNIT AND FAN CONTROL STATIONS TO REMAIN.
29. PROVIDE MOTOR RATED SWITCH TO SERVE CHLORINE PUMP.

POWER AND INSTRUMENTATION PLAN



STRUCTURE PLAN

1

GENERAL NOTES

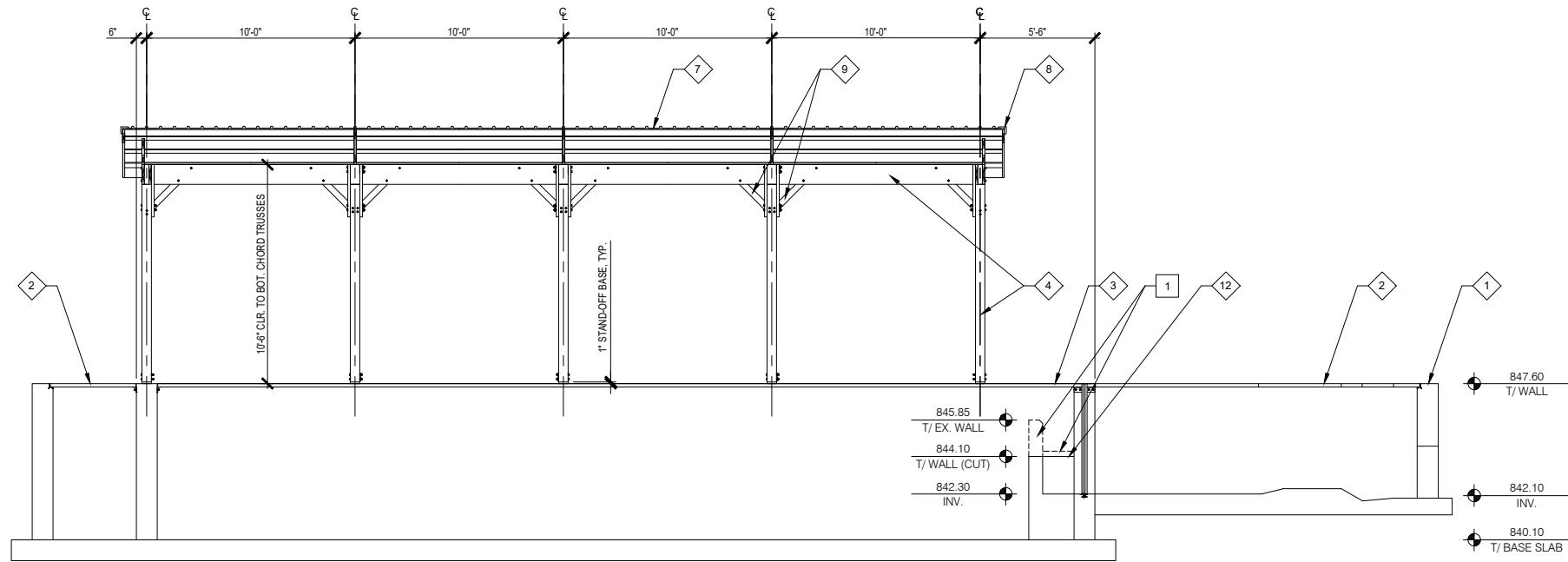
1. GENERAL NOTES, REMOVAL NOTES, AND KEY NOTES SHOWN ON THE DRAWINGS ARE INTENDED TO CONVEY TYPICAL CONDITIONS AND SHALL BE TAKEN TO ALSO APPLY TO SIMILAR CONSTRUCTION DEPICTED ELSEWHERE THROUGHOUT THE PROJECT DOCUMENTS.
2. EXISTING INFORMATION SHOWN ON DRAWINGS WAS OBTAINED, IN PART, FROM EXISTING DOCUMENTATION, FIELD MEASUREMENTS AND INFORMATION PROVIDED BY OTHERS. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ACCURACY OF INFORMATION AS REQUIRED TO ACCOMMODATE REMOVALS & NEW CONSTRUCTION.
3. NEW WOOD FRAME SHELTER STRUCTURE ABOVE EL. 847.60 SHALL BE A DELEGATED DESIGN PRE-ENGINEERED POLE-TYPE STRUCTURE, INCLUDING BUT NOT LIMITED TO: PRIMARY & SECONDARY STRUCTURAL FRAMING SYSTEMS, BRACING, METAL ROOFING, TRIM, ANCHORS, AND ACCESSORIES.
4. PRE-ENGINEERED BUILDING SUPPLIER (PEBS) SHALL FURNISH DESIGN DRAWINGS AND CALCULATIONS SEALED BY A WISCONSIN LICENSED PROFESSIONAL ENGINEER. DESIGN SHALL BE COMPLETED BASED ON LOADINGS INDICATED, AND ACCORDING TO APPLICABLE PROVISIONS OF THE WISCONSIN DEPARTMENT OF SAFETY AND PROFESSIONAL SERVICES SPS 362 (IBC 2009 WITH WI AMENDMENTS).
5. DELEGATED DESIGN LOADS
GRAVITY SNOW, SEISMIC & WIND LOAD DESIGN PER ASCE 7-05. REFERENCE SPECIFICATION FOR ADDITIONAL REQTS.
6. DESIGN AND CONSTRUCTION SHALL COMPLY WITH AF&PA "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (NDS)".
7. PERMANENT TRUSS BRACING INSTALLATION SHALL BE IN ACCORDANCE WITH "BUILDING COMPONENT SAFETY INFORMATION" (BCSI) MANUAL JOINTLY PRODUCED BY THE TRUSS PLATE INSTITUTE (TPI) AND STRUCTURAL BUILDING COMPONENTS ASSOCIATION (SBCA), 2013 EDITION, UPDATED MARCH 2015.
8. INSTALL PERMANENT TRUSS BRIDGING AS REQUIRED BY DESIGN.
9. MISC. WOOD CONNECTIONS SHALL BE PER IBC TABLE 2304.9.1
10. LIMIT DEFLECTION FOR LIVE OR SNOW LOADS TO L/180.
11. LIMIT BUILDING LATERAL DRIFT TO H/180.
12. COMPLY WITH APPLICABLE TPI STANDARDS.
13. PRE-ENGINEERED WOOD SYSTEM SHALL BE CONSTRUCTED OF PRESSURE-TREATED (P.T.) WOOD COMPONENTS.
14. ALL FASTENERS CONNECTING PRESSURE-TREATED WOOD COMPONENTS AND INCLUDING CONNECTION TO FOUNDATION SHALL BE ZINC PLATED OR HOT-DIP GALVANIZED.
15. TRUSSES SHALL BE CLEAR SPAN.

REMOVAL NOTES

1. REMOVE ALL EX. ALUM. GUARDRAIL, SALVAGE FOR REUSE BY OWNER
2. REMOVE EX. LADDER RUNGS
3. REMOVE EX. CONC. STEM WALL AND GROUT BENCH TO LIMITS SHOWN

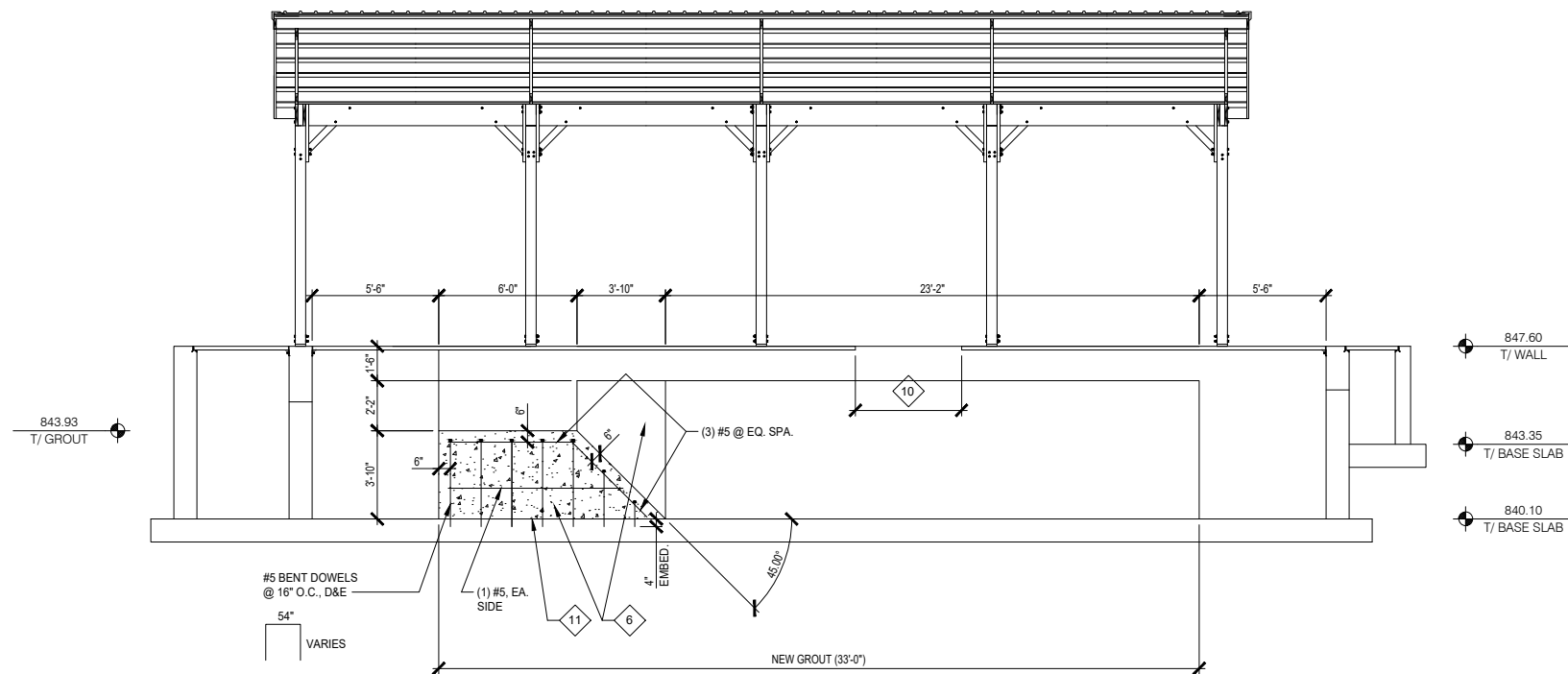
KEY NOTES

1. EX. CONCRETE STRUCTURE
2. EX. ALUM. GRATING OVER CHANNEL TO REMAIN
3. NEW ALUM. CLOSED PLANK & SURFACE MOUNT ALUM. SUPPORT ANGLES AT ALL LOCATIONS WITHOUT EX. GRATING, PROVIDE HINGED SECTIONS AT STOP GATES. REF. SHEET 100-AS-06 FOR TYPICAL DETAILS OF DESIGN, CONSTRUCTION & INSTALLATION
4. CS ALUM. PLANKING SUPPORT BEAM, TYP.
5. NEW P.T. 6X6 WOOD POST, TYP. AT (10) LOC., PRE-ENGINEERED BUILDING (PEB) POLE-TYPE STRUCTURE, REF. SPECIFICATION 13 34 00
6. NEW CONCRETE GROUT
7. NEW 6" STRUCTURAL CONCRETE SLAB



STRUCTURE SECTION

A



STRUCTURE SECTION

B

GENERAL NOTES

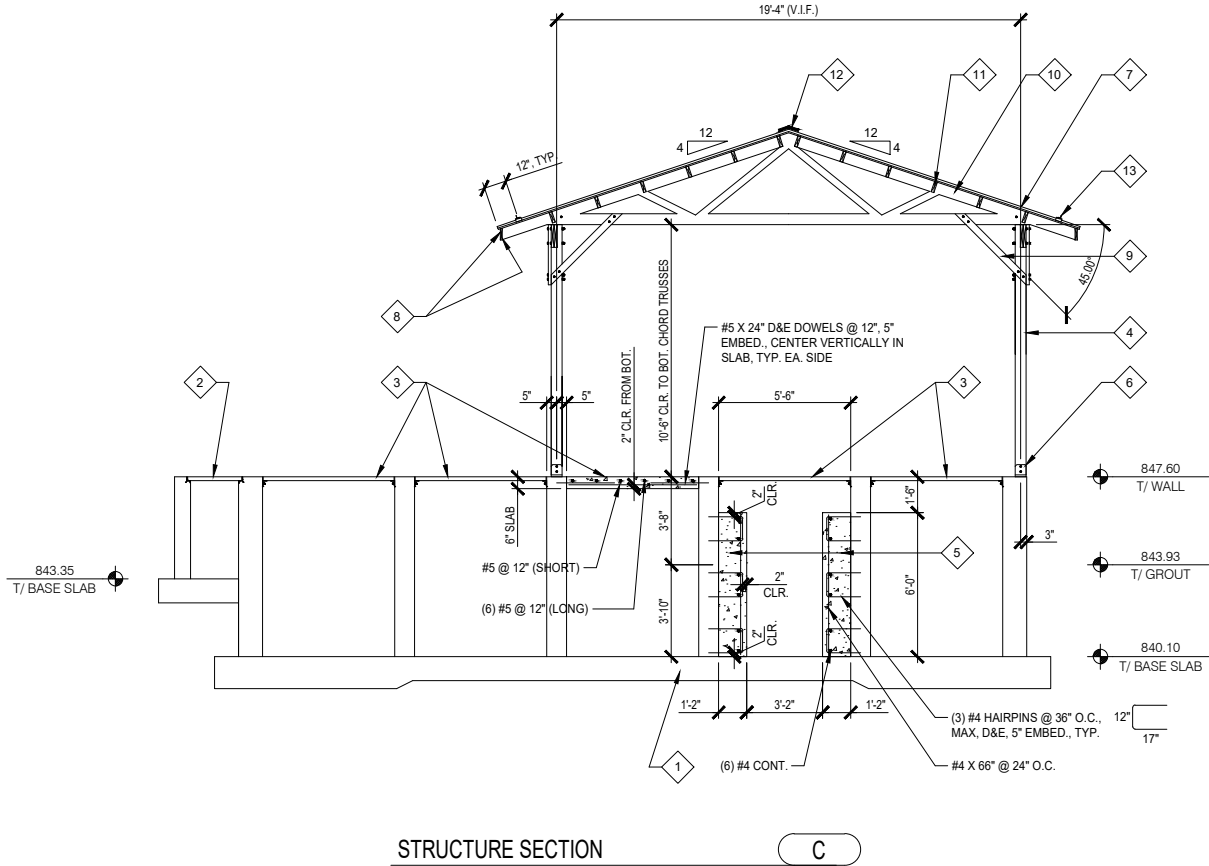
- 1. GENERAL NOTES, REMOVAL NOTES, AND KEY NOTES SHOWN ON THE DRAWINGS ARE INTENDED TO CONVEY TYPICAL CONDITIONS AND SHALL BE TAKEN TO ALSO APPLY TO SIMILAR CONSTRUCTION DEPICTED ELSEWHERE THROUGHOUT THE PROJECT DOCUMENTS.
- 2. EXISTING INFORMATION SHOWN ON DRAWINGS WAS OBTAINED, IN PART, FROM EXISTING DOCUMENTATION, FIELD MEASUREMENTS, AND INFORMATION PROVIDED BY OTHERS. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ACCURACY OF INFORMATION AS REQUIRED TO ACCOMMODATE REMOVALS & NEW CONSTRUCTION.

REMOVAL NOTES

- 1. REMOVE EX. CONC. STEM WALL AND GROUT BENCH TO LIMITS SHOWN, SAW-CUT AND GRIND SURFACE LEVEL.

KEY NOTES

- 1. EX. CONCRETE STRUCTURE
- 2. EX. ALUM. GRATING OVER TANK, CHANNEL & PARSHALL FLUME STRUCTURE TO REMAIN
- 3. NEW ALUM. PLANKING & SURFACE MOUNT ALUM. SUPPORT ANGLE TYPE '2P' AS SHOWN ON SHEET 100-AS-06, TYP. AT ALL LOCATIONS WITHOUT EX. GRATING, PROVIDE HINGED PLANK SECTIONS AT STOP GATES
- 4. NEW 6X6 WOOD STRUCTURE, POST ANCHORAGE TO EX. STRUCTURE BY PEBBS
- 5. EX. FLOW CONTROL GATE, TYP.
- 6. NEW CONCRETE GROUT
- 7. FACTORY-FINISHED METAL ROOF SYSTEM
- 8. FACTORY-FINISHED COPINGS & TRIM, WRAP FASCIA AT EAVE AND RAKE & RETURN MIN. 1" UP INSIDE FACE
- 9. WOOD KNEE BRACES AS REQUIRED BY DESIGN
- 10. OPENING IN NEW ALUM. PLANKING SYSTEM, REF. 'M' DWGS FOR EXACT LOCATION & EXTENTS
- 11. CLEAN EX. CONCRETE, REMOVE ANY LAITANCE, COAT WITH BONDING AGENT PRIOR TO NEW CONCRETE PLACEMENT, TYP. PREP. AT NEW-TO-EX. CONCRETE SURFACES
- 12. COAT REINFORCING AND CONCRETE SURFACE EXPOSED BY REMOVAL, WITH EPOXY PAINT



- GENERAL NOTES**
1. GENERAL NOTES, REMOVAL NOTES, AND KEY NOTES SHOWN ON THE DRAWINGS ARE INTENDED TO CONVEY TYPICAL CONDITIONS AND SHALL BE TAKEN TO ALSO APPLY TO SIMILAR CONSTRUCTION DEPICTED ELSEWHERE THROUGHOUT THE PROJECT DOCUMENTS.
 2. EXISTING INFORMATION SHOWN ON DRAWINGS WAS OBTAINED, IN PART, FROM EXISTING DOCUMENTATION, FIELD MEASUREMENTS AND INFORMATION PROVIDED BY OTHERS. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ACCURACY OF INFORMATION AS REQUIRED TO ACCOMMODATE REMOVALS & NEW CONSTRUCTION.

- KEY NOTES**
1. EX. CONCRETE STRUCTURE
 2. EX. ALUM. GRATING OVER CHANNEL TO REMAIN
 3. NEW ALUM. PLANKING & SURFACE MOUNT ALUM. SUPPORT ANGLE TYPE '2P' AS SHOWN ON SHEET 100-AS-06, TYP. AT ALL LOCATIONS WITHOUT EX. GRATING. PROVIDE HINGED PLANK SECTIONS AT STOP GATES
 4. NEW P.T. 6X6 WOOD POST, TYP. AT (10) LOC., PRE-ENGINEERED BUILDING (PEB) POLE-TYPE STRUCTURE, REF. SPECIFICATION 13 34 00
 5. NEW CONCRETE GROUT
 6. BASE BRACKET POST ANCHORAGE BY PEBS, TYP. AT ALL NEW WOOD POST LOCATIONS
 7. FACTORY-FINISHED LAP-SEAM METAL ROOF SYSTEM
 8. FACTORY-FINISHED COPINGS & TRIM, WRAP FASCIA AT EAVE AND RAKE & RETURN MIN. 1" UP INSIDE FACE
 9. P.T. WOOD KNEE BRACES AS REQUIRED BY DESIGN
 10. P.T. WOOD TRUSSES AT 10'-0" O.C.
 11. P.T. 2X PURLINS AT 24" O.C.
 12. FACTORY-FINISHED CONT. METAL RIDGE COPING
 13. INSTALL CONT. BAR-TYPE SNOW GUARD ALONG EACH EAVE LINE AS SHOWN, 'S-5 BAR-TYPE' AS MANUFACTURED/SUPPLIED BY WWW.ROCKYMOUNTAINSNOWGUARDS.COM, OR APPROVED EQUAL, INSTALL PER MANUFACTURER RECOMMENDATIONS, SET GASKET/FASTENERS IN CLEAR SILICONE SEALANT

STRUCTURE SECTION

2024 WASTEWATER IMPROVEMENTS
TERTIARY FILTERS AND DISINFECTION

Village of Jackson, Wisconsin

PROJECT NO.:
JK 18
DRAWING FILE:

DRAWN BY:
WTS
CHECKED BY:

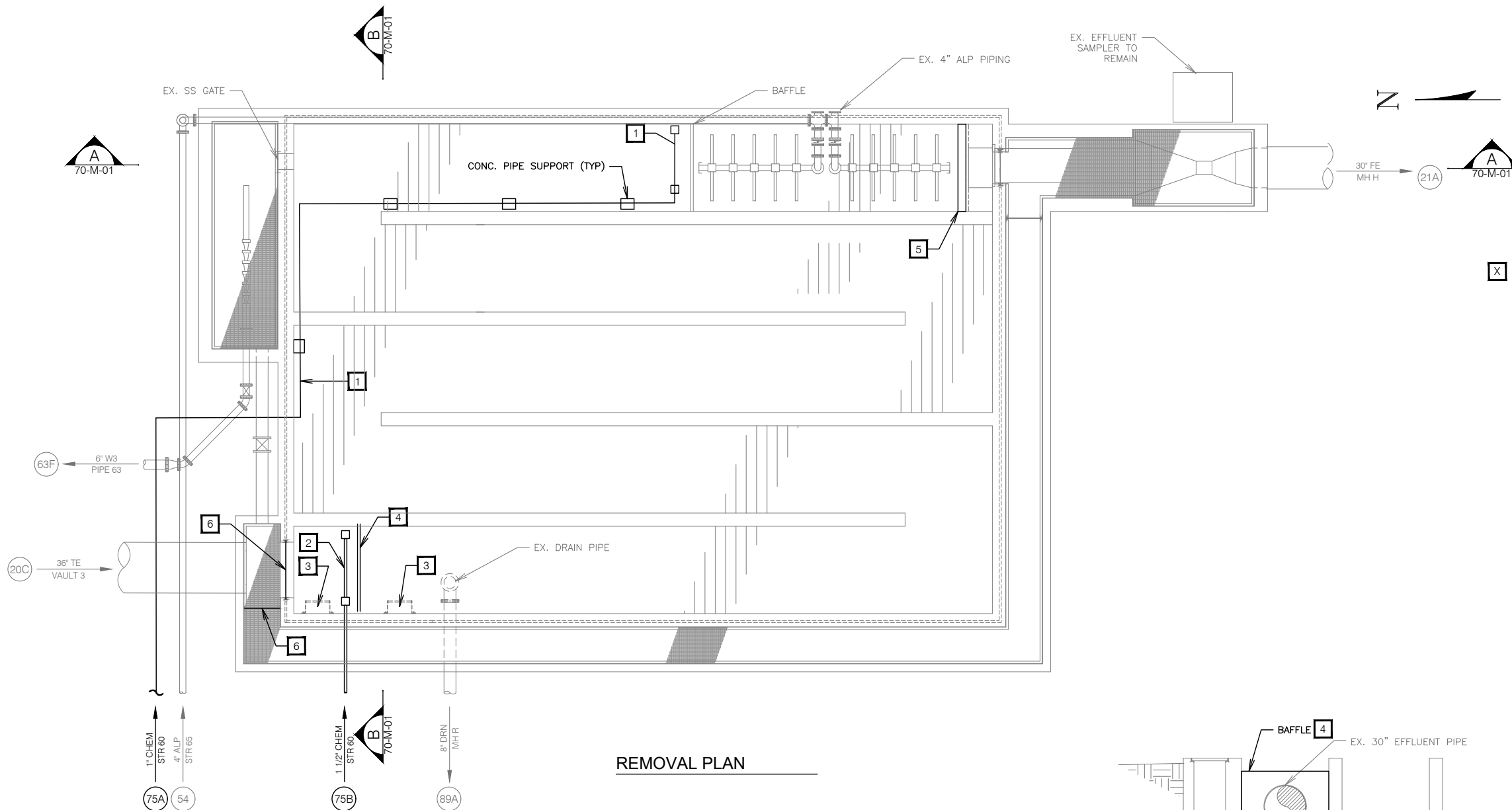
DATE:
1/3/24

REVISIONS:

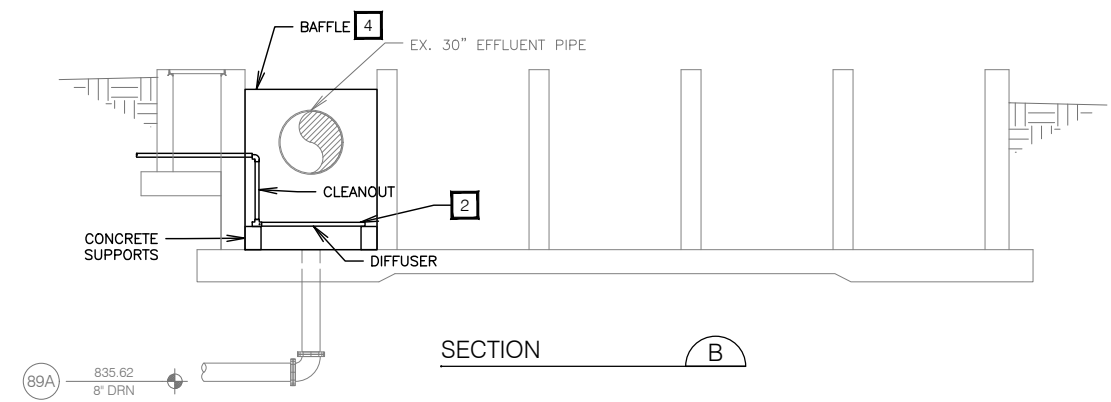
SCALE:
0 1 2 4
FEET

SHEET:
38
70-AS-03

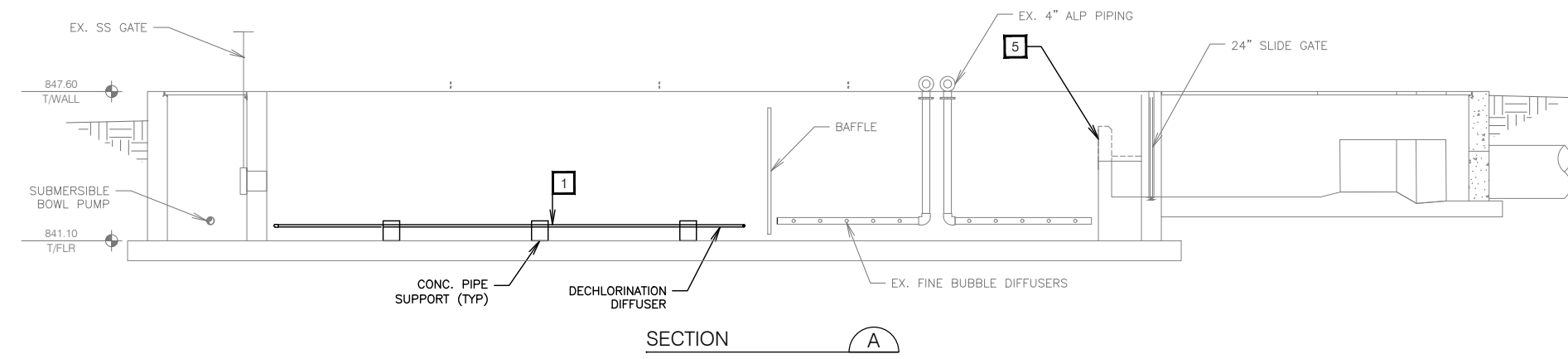
6264 Nesbitt Road
Madison, WI 53719
(608) 273-3350
www.tcengineers.net
tc
TOWN & COUNTRY
ENGINEERING, INC.



REMOVAL PLAN



SECTION



SECTION

GENERAL NOTES

1. REFER TO STRUCTURAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL DEMOLITION AND MODIFICATIONS NOT LISTED HERE.
2. THE EXISTING STRUCTURE IS TO REMAIN IN SERVICE DURING CONSTRUCTION. COORDINATE DEMOLITION SCHEDULE WITH OWNER PER SECTION 01 00 00 OF SPECIFICATIONS.

REMOVAL NOTES

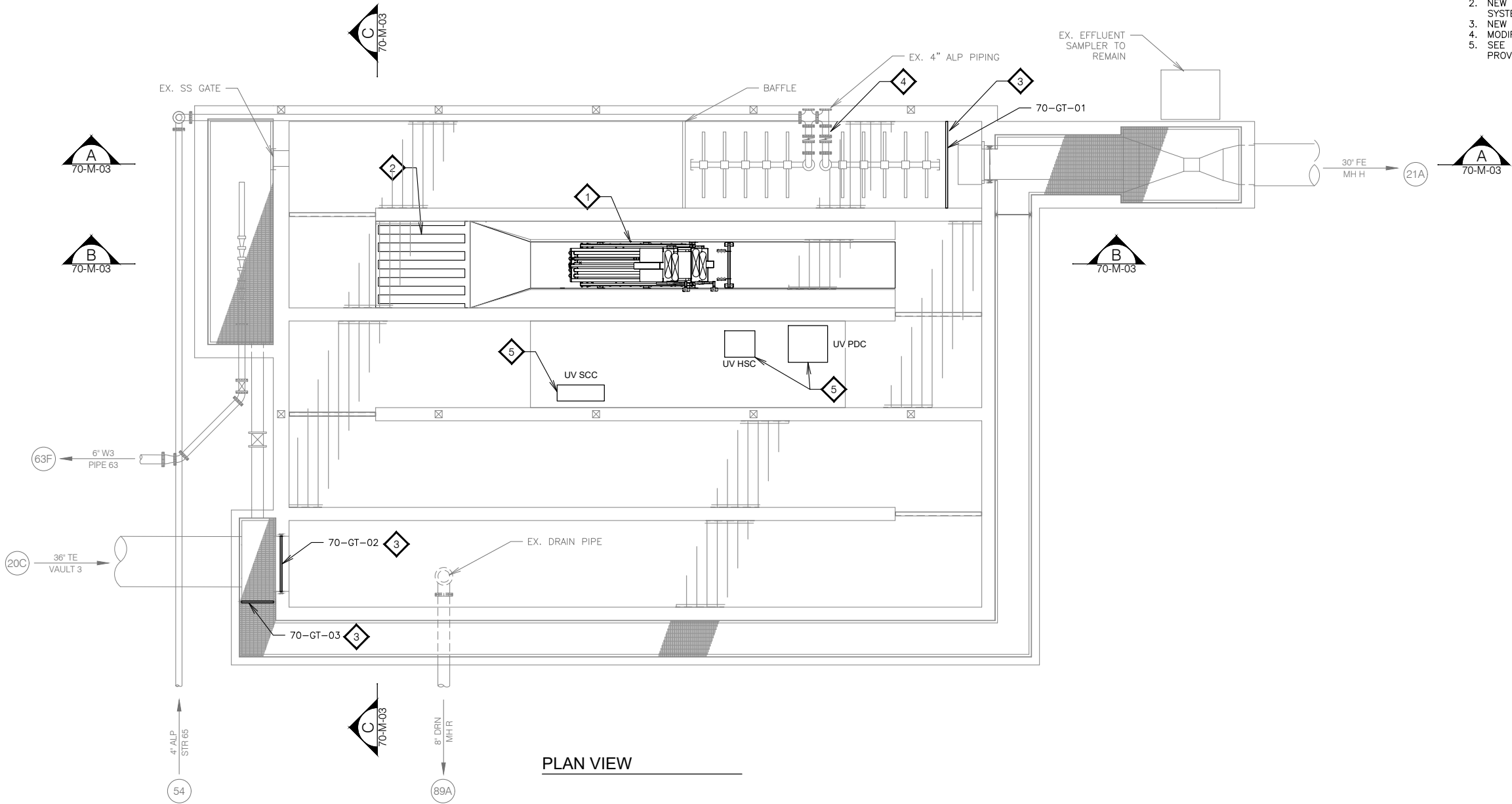
1. REMOVE EXISTING SODIUM BISULFATE PIPING AND SUPPORTS BACK TO THE WALL PENETRATION. CAP PIPE AT THE INTERIOR WALL.
2. REMOVE EXISTING CHLORINATION PIPING AND SUPPORTS BACK TO THE WALL PENETRATION. CAP PIPE AT THE INTERIOR WALL.
3. REMOVE ALL EXISTING MANHOLE RUNGS.
4. REMOVE EXISTING BAFFLE WALL.
5. SAWCUT AND REMOVE THE TOP 20" OF WALL. SEE SHEET 70-AS-01.
6. REMOVE EXISTING GATE AND FRAME.

GENERAL NOTES

- 1. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL DEMOLITION AND MODIFICATIONS NOT LISTED HERE.
- 2. THE EXISTING STRUCTURE IS TO REMAIN IN SERVICE DURING CONSTRUCTION. COORDINATE DEMOLITION SCHEDULE WITH OWNER.
- 3. THE UV DISINFECTION EQUIPMENT HAS BEEN PRE-SELECTED. MANUFACTURER'S INFORMATION IS INCLUDED IN THE SPECIFICATION SECTION 01 20 00 AND PRE-SELECTED EQUIPMENT MANUAL.

KEY NOTES

- 1. NEW TROJAN SIGNA UV DISINFECTION SYSTEM. REFERENCE SECTION 46 66 55 FOR EQUIPMENT.
- 2. NEW S.S. LEVEL CONTROL WEIR PROVIDED WITH UV DISINFECTION SYSTEM.
- 3. NEW STOP LOG GATE WITH FRAME GROUTED IN PLACE.
- 4. MODIFY GRATING TO FIT EXISTING PIPE LOCATION.
- 5. SEE 70-E-01 FOR PLACEMENT OF NEW ELECTRICAL EQUIPMENT PROVIDED WITH UV DISINFECTION SYSTEM.



PLAN VIEW

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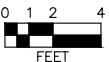
PROCESS PLAN
STRUCTURE 70

2024 WASTEWATER IMPROVEMENTS
TERTIARY FILTERS AND DISINFECTION
Village of Jackson, Wisconsin

PROJECT NO.: JK 18
DRAWING FILE: 70-M
DRAWN BY: J.L.R.
CHECKED BY: G.J.D.

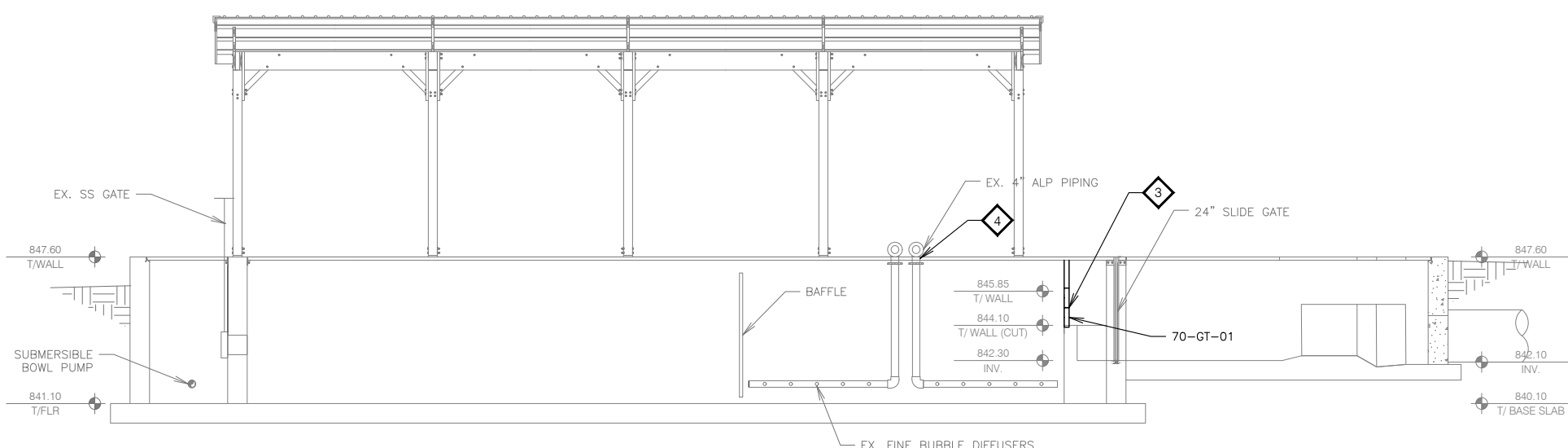
DATE: 1-4-24
REVISIONS:

SCALE:

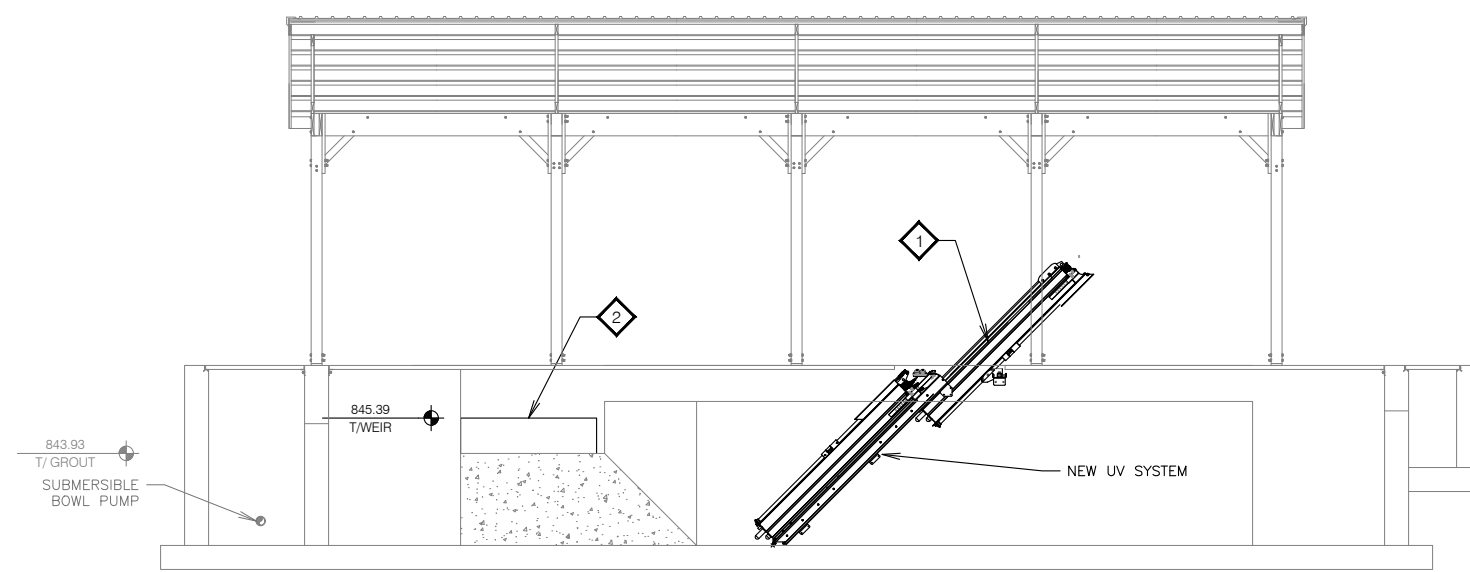


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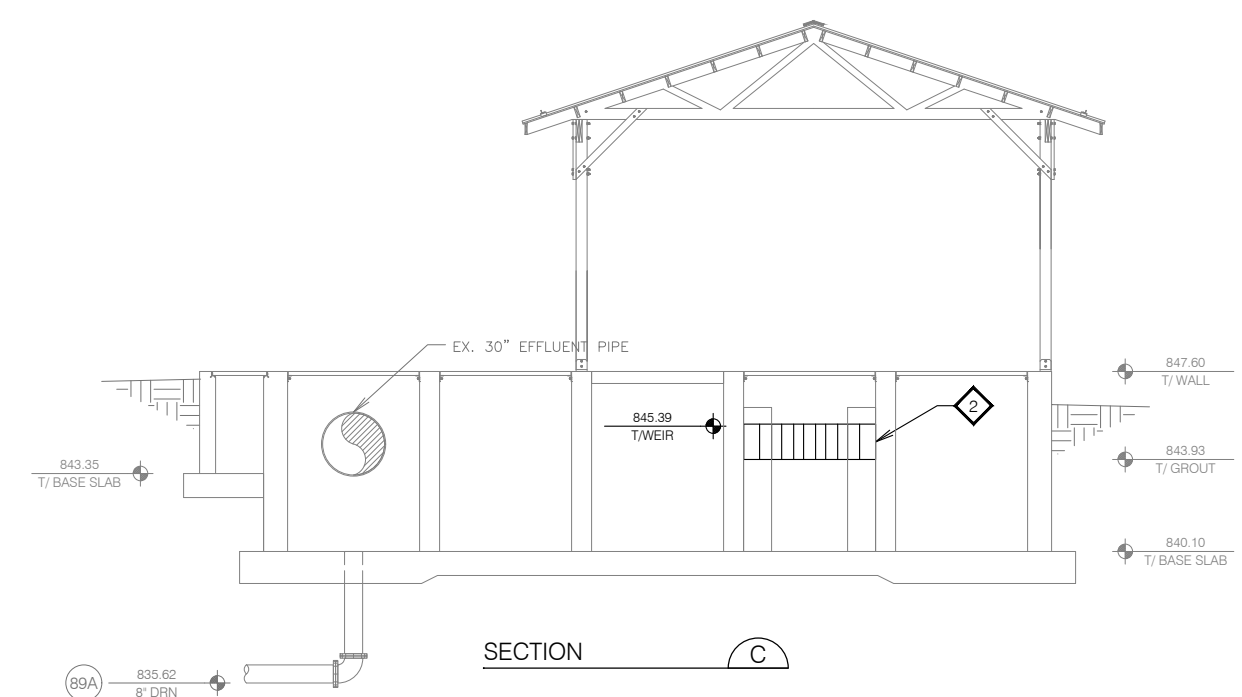
70-M-02



SECTION A



SECTION B



SECTION C

- KEY NOTES**
1. NEW TROJAN SIGNA UV DISINFECTION SYSTEM. REFERENCE SECTION 46 66 55 FOR EQUIPMENT.
 2. NEW S.S. LEVEL CONTROL WEIR PROVIDED WITH UV DISINFECTION SYSTEM.
 3. NEW STOP LOG GATE WITH FRAME GROUTED IN PLACE.
 4. MODIFY GRATING TO FIT EXISTING PIPE LOCATION.
 5. SEE 70-E-01 FOR PLACEMENT OF NEW ELECTRICAL EQUIPMENT PROVIDED WITH UV DISINFECTION SYSTEM.

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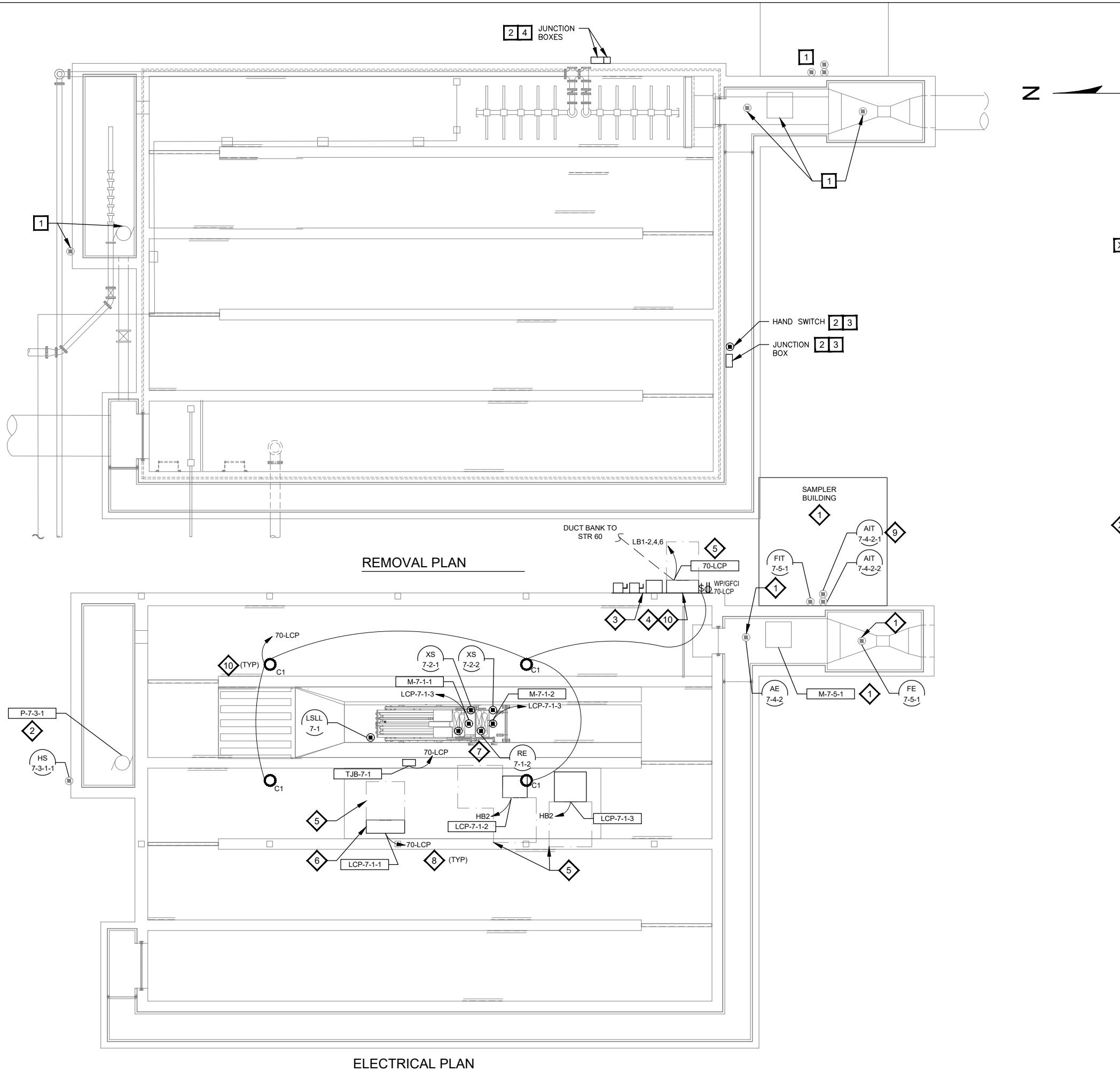
tc TOWN & COUNTRY
ENGINEERING, INC.

PROCESS SECTIONS
STRUCTURE 70

2024 WASTEWATER IMPROVEMENTS
TERTIARY FILTERS AND DISINFECTION
Village of Jackson, Wisconsin

PROJECT NO.: JK 18
DRAWING FILE: 70-M
DRAWN BY: J.L.R.
CHECKED BY: G.J.D.
DATE: 1-4-24
REVISIONS:
SCALE:
0 1 2 4
FEET
SHEET: 41
70-M-03

Page 59 of 155



GENERAL NOTES

- DO NOT SCALE DRAWINGS TO DETERMINE EXACT LOCATION OF ELECTRICAL EQUIPMENT AND CONNECTIONS.
- EXISTING CONDITIONS ARE SHOWN BASED ON THE EXISTING DOCUMENTATION AVAILABLE. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS IN FIELD.
- PATCH ALL ELECTRICAL PENETRATIONS TO MATCH ADJOINING SURFACES.
- MAINTAIN OPERATION OF ALL LOADS THAT ARE TO REMAIN DURING CONSTRUCTION. COORDINATE ANY OUTAGES WITH ENGINEER AND OWNER.
- 120V HOMERUN WIRING SHALL BE A MINIMUM OF (2) #12 & #12G IN 3/4" UNLESS OTHERWISE NOTED. SIZE FOR VOLTAGE DROP.
- ALL CONDUIT STUBBED UP THROUGH CONCRETE SHALL BE PVC COATED GRS.
- REFER TO SPECIFICATION 26 05 00 FOR CONDUIT, BOX, AND HARDWARE USAGE REQUIREMENTS.
- SEE ONE-LINE DIAGRAM, PANEL SCHEDULE, AND FIELD DEVICE WIRING SCHEDULE FOR WIRING OF ALL PROCESS AND INSTRUMENTATION.
- INSTALL FIELD INSTRUMENTS PER DETAIL REFERENCED IN FIELD DEVICE WIRING SCHEDULE.
- ALL CONDUIT STUBBED UP THROUGH CONCRETE SHALL BE PVC COATED GRS.
- SEE SCADA OVERVIEW FOR COMMUNICATIONS CABLING REQUIREMENTS.
- ALL EXTERIOR RECEPTACLES OR RECEPTACLES MOUNTED IN WET LOCATIONS SHALL BE GFCI WITH WEATHERPROOF WHILE-IN-USE COVERS.

X REMOVAL NOTES

- EXISTING EQUIPMENT TO REMAIN.
- DISCONNECT AND REMOVE ELECTRICAL AND ASSOCIATED EQUIPMENT. REMOVE ALL ABOVE GRADE CONDUIT AND CONDUCTORS.
- CUT CONDUIT TO BELOW CONCRETE SURFACE AND PATCH FLUSH.
- CUT CONDUIT TO BELOW CONCRETE THAT IS TO BE REMOVED AND REPLACED.

X KEY NOTES

- EXISTING SAMPLER BUILDING, SAMPLER, AND INSTRUMENTATION TO REMAIN.
- PUMP AND CONTROL STATION TO REMAIN. MAINTAIN EXISTING EQUIPMENT POWER AND CONTROL CIRCUITS TO BLOWER BUILDING.
- PROVIDE STAINLESS STEEL SUPPORT STRUCTURE PER DETAIL E2-17 SIZED FOR EQUIPMENT TO BE FURNISHED, AND COORDINATE LOCATION IN FIELD WITH ENGINEER. AVOID ADJACENT AIR PIPING. SECURE TO SHELTER STRUCTURE FOR:
 - STAINLESS STEEL JUNCTION BOX TO TERMINATE 480V POWER CIRCUITS FROM DUCT BANK
 - NETWORK DISTRIBUTION PANEL.
 - NON-FUSED DISCONNECT SWITCHES IN NEMA 4X STAINLESS STEEL ENCLOSURES TO SERVE LCP-7-1-2 AND LCP-7-1-3
 - GFCI RECEPTACLE WITH METALLIC WEATHERPROOF WHEN IN USE COVERPLATE.
 - LIGHT SWITCH.
- NETWORK DISTRIBUTION PANEL:
 - ROUTE 208V POWER AND FIBER OPTIC CABLE FROM DUCT BANK INTO BOTTOM OF PANEL.
 - RECONNECT ALL EXISTING SIGNAL CIRCUITS TO REMAIN.
 - RECONNECT EXISTING POWER CIRCUIT SERVING EFFLUENT STRUCTURE TO NEW DEDICATED CIRCUIT LOCATED IN NEW DISTRIBUTION PANEL 70-LCP.
- MAINTAIN NEC REQUIRED WORKING CLEARANCE AND DEDICATED EQUIPMENT SPACE.
- MOUNT UV SYSTEM CONTROL PANEL, LCP-7-1-1 ON CONCRETE DECKING PER MANUFACTURER'S REQUIREMENTS. COORDINATE LOCATION IN FIELD WITH ENGINEER.
- ROUTE UV CABLES FROM POWER DISTRIBUTION PANEL LCP-7-1-3 IN TROUGH TO UV UNITS, M-7-1-1 AND M-7-1-2. COORDINATE WITH MANUFACTURER REQUIREMENTS AND WITH ENGINEER IN FIELD.
- COORDINATE CONDUIT ROUTING FOR UV EQUIPMENT, POWER CIRCUITS, AND INSTRUMENTATION TO 70-LCP AND DUCT BANK IN FIELD WITH ENGINEER.
- RELOCATE DO TRANSMITTER AIT-7-4-2-1 FROM ALUM ROOM TO SAMPLER HUT AND CONNECT TO EXISTING AIT-7-4-2-2. ROUTE NEW ANALOG SIGNAL CIRCUITS TO 70-LCP AS SCHEDULED.
- MOUNT C1 FIXTURES TO BOTTOM OF TRUSS.

MATERIAL STRENGTH SPECIFICATION SUMMARY				
MATERIAL (AS APPLICABLE)				
[1.0] CAST-IN-PLACE CONCRETE:				
CONCRETE CLASS (NORMAL WEIGHT):	F'c	W/C	SLUMP	% AIR
– CLASS A: FOOTINGS, GRADE BEAMS & TIE BEAMS	4,000 PSI	0.45	4"	NOTE-3
– CLASS B: FOUNDATION WALLS	4,000 PSI	0.45	4"	NOTE-3
– CLASS C: INTERIOR SLAB-ON-GRADE	4,000 PSI	0.45	4"	NOTE-3
– CLASS D: INTERIOR SUSPENDED SLABS	4,000 PSI	0.45	4"	NOTE-3
– CLASS F: CONCRETE TOPPINGS & MASONRY GROUT	3,500 PSI	0.45	4"	NOTE-3
– CLASS G: BUILDING FRAME MEMBERS	4,500 PSI	0.45	4"	NOTE-3
– CLASS H: BUILDING WALLS	4,500 PSI	0.45	4"	NOTE-3
– CLASS I: INTERIOR METAL PAN STAIRS & LANDINGS	3,000 PSI	0.50	3"	N/A
– CLASS J: EXTERIOR RETAINING WALLS	4,000 PSI	0.45	4"	NOTE-3
[2.0] PRECAST CONCRETE:				
– PLANK, BEAMS & COLUMNS	5,000 PSI	–	–	NOTE-4
[3.0] REINFORCING STEEL:				
REBAR	ASTM A615/A775, GR. 60			
CMU HORIZONTAL REINF., GALV. TRUSS	9 GA.			
WELDED WIRE FABRIC (FURNISH IN FLAT SHEETS)	ASTM A185, PLAIN			
[4.0] STRUCTURAL STEEL:				
HSS	ASTM A500B			
STRUCTURAL SHAPES	ASTM A992, GR. 50			
PLATES	ASTM A36, GR. 36			
[5.0] STRUCTURAL ALUMINUM				
MISC. SHAPES	6061-T6, OR AS OTHERWISE INDICATED IN NOTE-5 BELOW			
[6.0] ANCHORING SYSTEMS:				
STRUCTURAL BONDING EPOXY	HILTI HVA, OR EQ. (USE AT DRILL & EPOXY BARS = D&E)			
HIGH STRENGTH BOLTS	ASTM A325X			
ANCHOR BOLTS & RODS	ASTM F1554, GR. 36			
[7.0] CONCRETE MASONRY				
PORTLAND CEMENT	F'm = 1,900 PSI			
WEIGHT CLASSIFICATION	NORMAL WEIGHT			
MORTAR	TYPE-S			

- NOTES:
- TABLE IS INTENDED AS A SUMMARY ONLY, AS APPLICABLE. REFER TO PROJECT MANUAL FOR COMPREHENSIVE SPECIFICATIONS.
 - REF. APPLICABLE ACI & ASTM SPECIFICATIONS FOR PROPER MIX DESIGN, BATCHING, HANDLING, AND TESTING REQUIREMENTS.
 - REF. SPECIFICATION 03 30 00 FOR AIR PERCENTAGE REQUIRED AT EACH EXPOSURE CLASS.
 - REF. SPECIFICATION 03 41 00 FOR AIR PERCENTAGE REQUIRED BASED ON EXPOSURE AND PER PCI MNL 116.
 - REF. SHEETS 100-AS-08 & 100-AS-09 FOR GUARDRAIL, GRATING, PLANKING & ASSOCIATED EXTRUSIONS MATERIAL GRADES.

GENERAL STRUCTURAL NOTES:

- COMPONENT DELEGATED DESIGN AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH PROVISIONS OF THE WISCONSIN DEPARTMENT OF ADMINISTRATIVE CODE, CHAPTER SPS 362 (CURRENT EDITION).
- G.C. SHALL SUBMIT THE FOLLOWING COMPONENT DESIGNS TO A/E FOR STATE OF WISCONSIN DEFERRED SUBMITTAL(S) TO FOLLOW PERMIT DOCUMENTS: PRECAST CONCRETE, ALUMINUM AND/OR FIBERGLASS GUARDRAILS, WALKWAYS, STAIR SYSTEMS, LADDERS, GRATINGS, PLANKINGS & LANDINGS.
- COORDINATE WITH ARCHITECTURAL, PROCESS MECHANICAL, HVAC, PLUMBING, AND ELECTRICAL DRAWINGS & TRADES FOR LOCATION AND DIMENSIONS OF CURBS, DEPRESSIONS, AND OTHER PROJECT REQUIREMENTS NOT SHOWN ON 'S' AND/OR 'AS' DRAWINGS.
- G.C. SHALL VERIFY AND COORDINATE DIMENSIONS AND DETAILS AS SHOWN ON COLLECTIVE DRAWINGS. WHEN DISCREPANCIES OR QUESTIONS ARISE, THE A/E SHALL BE NOTIFIED.
- VERIFY SIZE AND LOCATION OF ALL ROOF, FLOOR, AND WALL OPENINGS WITH PROCESS MECHANICAL, HVAC AND ELECTRICAL CONTRACTORS. OPENINGS LESS THAN 12 INCHES IN DIMENSION ARE GENERALLY NOT SHOWN.
- STANDARD DETAILS INCLUDED IN DRAWING 100-AS SHEETS AND NOT SPECIFICALLY REFERENCED SHALL BE CONSIDERED TO APPLY TO COLLECTIVE PROJECT, AS MAY BE RELEVANT TO STANDARD DETAIL INCLUDED.
- REF. 10/100-AS-02 FOR MISC. OPENINGS IS FOUNDATION FROSTWALLS, TYP.
- REF. 6/100-AS-03 FOR MISC. SLAB-ON-GRADE REMOVAL REPAIR, COORD. WITH OTHER TRADES FOR SIZE AND LOCATIONS AT APPLICABLE STRUCTURES.

GEOTECHNICAL INFORMATION:

A SITE-SPECIFIC GEOTECHNICAL SUBSURFACE INVESTIGATION AND REPORT WAS COMPLETED FOR THE SITE. RECOMMENDATIONS THEREIN SHALL BE INCORPORATED INTO THE PROJECT REQUIREMENTS. IN GENERAL, BIDDER SHALL PROVIDE FOR PROJECT BASE BID TO INCLUDE THE FOLLOWING SOILS WORK:

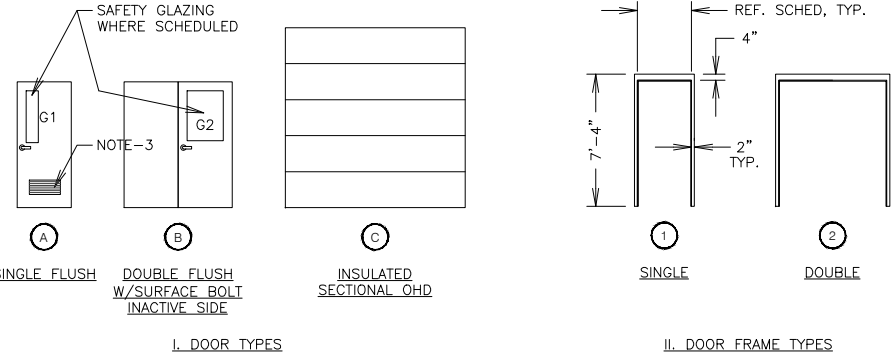
STRUCTURE 60 ADDITION
PREPARE BUILDING FOOTING AND BASE SLAB BEARING SOILS TO MEET MINIMUM CAPACITY INDICATED IN 'BASIS OF BUILDING STRUCTURAL DESIGN' TABLE ON SHEET 60-AS-01. SUBSTANDARD SOILS ARE EXPECTED TO BE ENCOUNTERED REQUIRING ADDITIONAL SUB-GRADE REMOVAL & REPLACEMENT IN SOME AREAS WITH ENGINEERED FILL, AS APPROVED IN ADVANCE BY ENGINEER AT TIME OF CONSTRUCTION. IN GENERAL, BIDDER SHALL PROVIDE FOR SUB-GRADE REMOVAL AND REPLACEMENT IN THE AREA BOUNDED BY BUILDING FOUNDATION FOOTPRINT FOR THE AREA SOUTH AND EAST OF THE FILTER PIT, TO APPROX. EL. 843.00. PREPARE CONCRETE FLOOR SLAB-ON-GRADE SUB-GRADE AS DETAILED IN REPORT, OR AS OTHERWISE DETAILED ON DRAWINGS, WHICHEVER PROVIDES FOR GREATER SUB-GRADE CAPACITY. ONCE SUB-GRADE SOILS ARE RESTORED TO REQUIRED ELEVATIONS WITH ENGINEERED FILL, PROVIDE MIN. 6" COMPACTED AGGREGATE BASE BELOW INTERIOR FLOOR SLAB-ON-GRADE.

FOR DETAILED DESCRIPTION OF SOILS AND FOUNDATION SUB-GRADE PREPARATION, REFER TO:

GEOTECHNICAL EXPLORATION REPORT
BY: CGC, INC.
DATE: JANUARY 2, 2024
REPORT NO.: CM23205
CONTACT: PAUL J. GIESE, PE
PHONE: 414-443-2099

DOOR, FRAME & HARDWARE SCHEDULE																												
BUILDING		DOOR NO.	ROOM NO.	ROOM NAME	DOOR														FRAME ⊖	THRESHOLD			MISC.			REMARKS		
					SIZE				'T'		TYPE		MATERIAL	'G'	HAND					HOLLOW METAL	HOLLOW FIBERGLASS	NONE	ALUMINUM	PVC	HW SET (NOTE-1)		INSULATED	UL RATING (HRS)
					3'-0"W. x 7'-0"H.	3'-4"W. x 7'-0"H.	(2)3'-0"W. x 7'-0"H.	(2)3'-2"W. x 7'-0"H.	10'-0"W. x 10'-0"H.	1 3/4"	2"	(A)	(B)	(C)	HOLLOW METAL	HOLLOW FIBERGLASS	GLAZING TYPE	RIGHT HAND	LEFT HAND									
STRUCTURE-60 (FILTER)	600	600	FILTER			●			●			●					●	2		●		1	●		●	NOTE-1, 2, 4, 6		
	601	601	ELECTRICAL	●					●		●						●	1				2			●	NOTE-1, 4, 6		
	602	602	CHLORINATION		●				●		●						●	1		●		5	●		●	NOTE-1, 4, 6		
	603	603	DECHLORINATION			●			●			●					●	1		●		7	●		●	NOTE-1, 4, 6		
	604	604	ALUM PUMP	●					●		●		G1				●	1	●		2			●	NOTE-1, 4, 6			
	605.1	605	FILTER	●					●		●					●		1		●		6			●	NOTE-1, 6		
	605.2	605	FILTER				●		●					●									●		●	NOTE-5, 6		
	605.3	605	FILTER			●			●			●		G1			●	2		●		4	●		●	NOTE-1, 2, 6		
	606	606	ELECTRICAL		●				●		●		G1				●	1		●		3			●	NOTE-1, 2, 6		
	607.1	607	STORAGE				●		●			●											●		●	NOTE-5, 6		
	607.2	607	STORAGE	●					●		●						●	1		●		6	●		●	NOTE-1, 6		

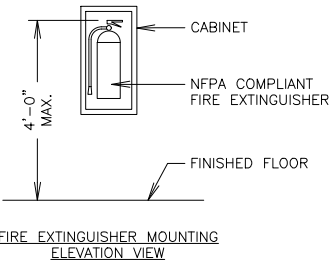
- NOTES:
- REF. SPECIFICATION SECTION 08 71 00 (3.3) FOR DOOR HARDWARE SETS INDICATED 1 THRU 7 IN SCHEDULE. HARDWARE FINISHES AS SPECIFIED. LOCKSETS SHALL BE KEYED PER OWNER.
 - 'HAND' DENOTES ACTIVE SIDE ON DOUBLE DOORS.
 - PROVIDE VENT PANEL INSERT IN DOOR WHERE 'NOTE-3' IS INDICATED IN SCHEDULE REMARKS.
 - VERIFY IN FIELD ROUGH OPENING (R.O.) AND MASONRY OPENING (M.O.) AT EXISTING DOORS SCHEDULED FOR REPLACEMENT.
 - DOOR TRACKS SHALL BE HIGH-CLEARANCE.
 - REF. 5/100-AS-03 FOR TYPICAL WALL JAMB, HEAD & THRESHOLD DETAILS AT DOORS.



ROOM FINISH SCHEDULE											
BUILDING	ROOM NO.	ROOM NAME	WALLS				FLOOR	BASE	CEILING		REMARKS
			N	E	S	W			MAT'L	HEIGHT	
STRUCTURE-60 (FILTER)	600	FILTER	CMU/PT	CMU/PT	CMU/PT	CMU/PT	C	NONE	PC	12'-0"	NOTE-1
	601	ELECTRICAL	CMU/PT	CMU/PT	CMU/PT	CMU/PT	C	NONE	PC	12'-0"	NOTE-1
	602	CHLORINATION	CMU/PT	CMU/PT	CMU/PT	CMU/PT	C	NONE	PC	12'-0"	NOTE-1
	603	DECHLORINATION	CMU/PT	CMU/PT	CMU/PT	CMU/PT	C	NONE	PC	12'-0"	NOTE-1
	604	ALUM PUMP	CMU/PT	CMU/PT	CMU/PT	CMU/PT	C	NONE	PC	12'-0"	NOTE-1
	605	FILTER	CMU/PT	CMU/PT	CMU/PT	CMU/PT	SC	NONE	PC	12'-0"	NOTE-2, 3
	606	ELECTRICAL	CMU/PT	CMU/PT	CMU/PT	CMU/PT	SC	NONE	PC	12'-0"	NOTE-2, 3
	607	STORAGE	CMU/PT	CMU/PT	CMU/PT	CMU/PT	SC	NONE	PC	12'-0"	NOTE-2, 3

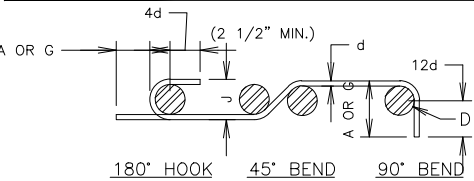
- ABBREVIATIONS:
- C - CONCRETE
EP - EPOXY PAINTED, BROADCAST QUARTZ
M - MASONRY
PC - PRECAST PLANK
- PT - PAINT
SC - ETCHED & SEALED CONCRETE
U - UNFINISHED

- NOTES:
- CLEAN AND PAINT EX. EXPOSED SURFACES WITH (1) COAT.
 - PREPARE SURFACES TO BE PAINTED OR SEALED PER SPEC. SECTION 09 96 00.
 - SUBMIT COLOR SELECTION OPTIONS CHART(S) DURING SUBMITTAL REVIEW PHASE FOR SELECTION BY ENGINEER/OWNER.

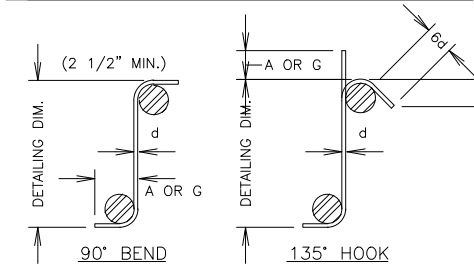


FIRE EXTINGUISHER NOTE:
PROVIDE WALL SURFACE-MOUNTED FIRE EXTINGUISHER IN CABINET AT LOCATIONS SHOWN ON STRUCTURE FLOOR PLANS (NO CABINET REQ'D WHERE MARKED 'SIM', AS APPLICABLE).

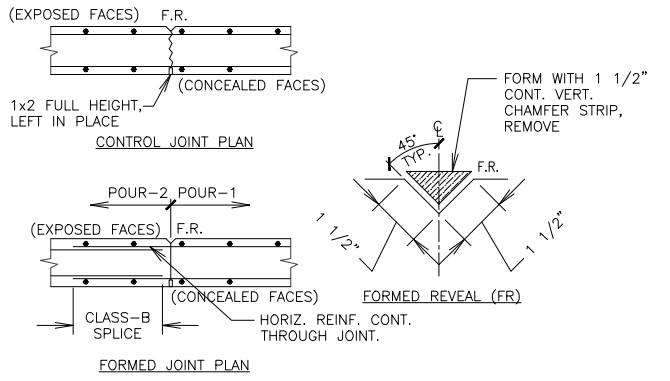
BAR SIZE	D	180°		90°	
		A OR G	J	A OR G	
#3	2 1/4"	6d	5"	3"	6"
#4	3"		6"	4"	8"
#5	3 3/4"		7"	5"	10"
#6	4 1/2"		8"	6"	12"
#7	5 1/4"		10"	7"	14"
#8	6"		11"	8"	6"
#9	9 1/2"		8d	15"	11 3/4"
NOTE: "D" DENOTES FINISHED BAR BEND DIAMETER.					



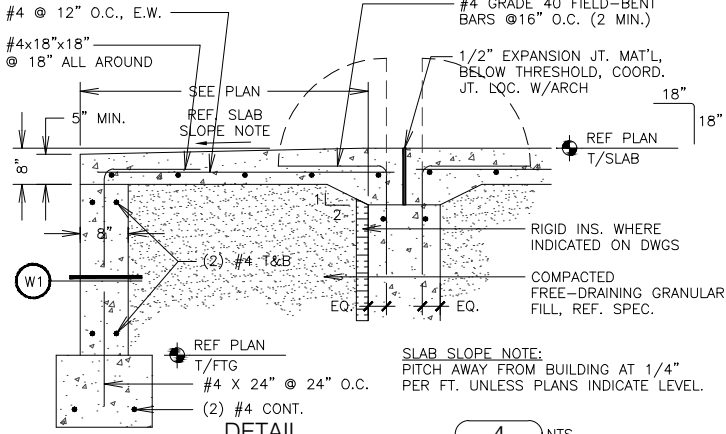
BAR SIZE	D	90° HOOK		135° HOOK
		A OR G	A OR G	H
#3	1 1/2"	4"	4 1/4"	3"
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"



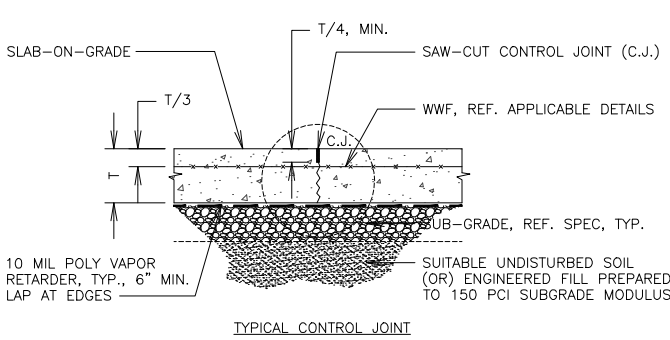
DETAIL 3 NTS
MILD REINFORCING BENDS



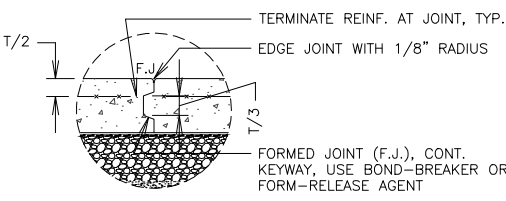
DETAIL 1 NTS
FOUNDATION WALL CONTROL JOINT



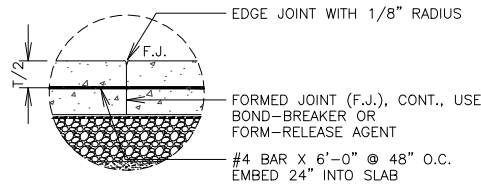
DETAIL 4 NTS
STRUCTURAL CONCRETE STOOP



TYPICAL CONTROL JOINT

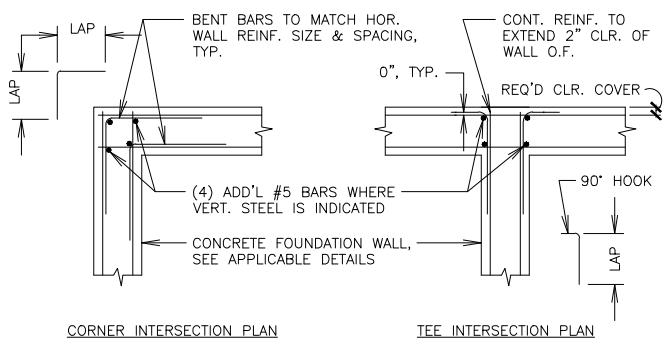


TYPICAL CONSTRUCTION JOINT TYPE-1



TYPICAL DOWELED CONSTRUCTION JOINT TYPE-2

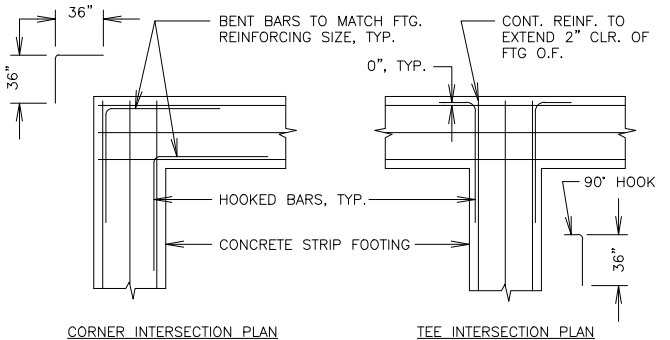
DETAIL 5 NTS
SLAB-ON-GRADE JOINTS



CORNER INTERSECTION PLAN

TEE INTERSECTION PLAN

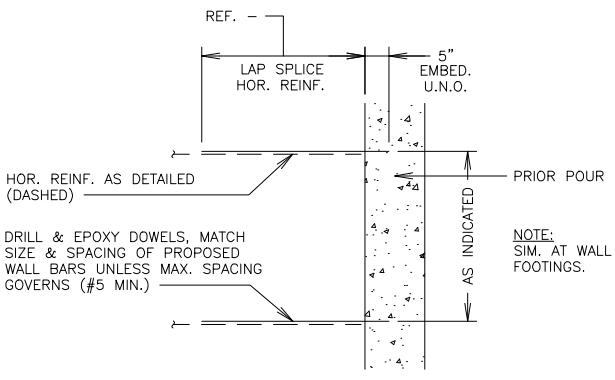
DETAIL 2 NTS
CONC. WALL INTERSECTION REINFORCING (TYP. UNLESS NOTED OTHERWISE)



CORNER INTERSECTION PLAN

TEE INTERSECTION PLAN

DETAIL 6 NTS
FOOTING INTERSECTION REINFORCING



SECTION/ELEVATION

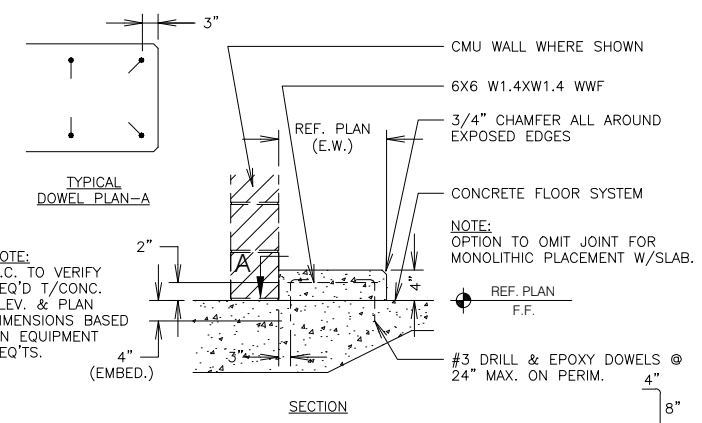
DETAIL 7 NTS
SEQUENCED CONCRETE PLACEMENT

CLASS-B TENSION LAP SPLICE SCHEDULE												
CLASS BAR SIZE	COL. (N/A)		FOUNDATIONS				SLABS					
			f'c = 4 KSI		f'c = 5 KSI		f'c = 4 KSI		f'c = 5 KSI		f'c = 5 KSI	
	f'c = 4 KSI	f'c = 5 KSI	BOT. BARS	TOP *BARS	BOT. BARS	TOP *BARS	BOT. BARS	TOP *BARS	BOT. BARS	TOP *BARS	BOT. BARS	TOP *BARS
#3	16	16	16	18	24	16	21	16	18	24	16	21
#4	19	17	19	24	32	17	22	28	19	24	32	17
#5	23	21	23	30	40	21	27	35	23	30	40	21
#6	28	25	28	36	47	25	33	42	28	36	47	25
#7	33	29	33	42	55	29	38	50	33	43	57	30
#8	39	35	39	51	67	35	46	60	44	57	75	39
#9	50	44	50	64	84	44	58	75	56	72	94	50
#10	88	79	63	82	107	56	73	96	70	92	120	63
#11	108	97	77	100	131	69	90	117	86	112	147	77

NOTES:
1. * DENOTES EPOXY-COATED REINFORCING, AS APPLICABLE WHERE INDICATED ON DWGS ONLY.

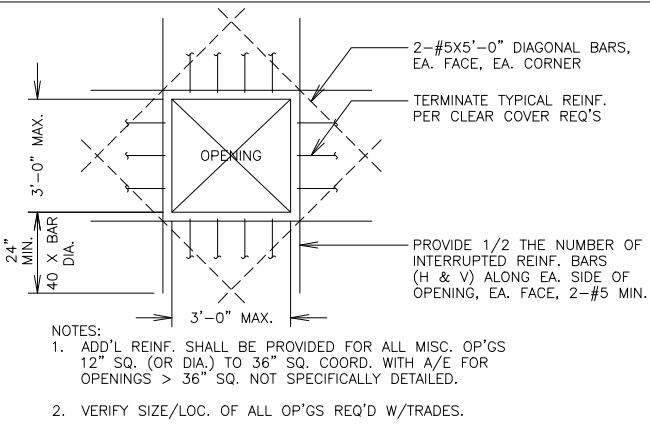
CONCRETE REINFORCING SHALL HAVE THE FOLLOWING MINIMUM COVER, TYPICAL UNLESS DETAILED OTHERWISE:
- CONCRETE IN CONTACT AND/OR PLACED AGAINST EARTH (3")
- CONCRETE EXPOSED TO WEATHER: #5 & SMALLER (2")
- CONCRETE WITH INTERIOR EXPOSURE (1 1/2")

DETAIL 8 NTS
REINF. LAP SPLICE & PROTECTIVE COVER

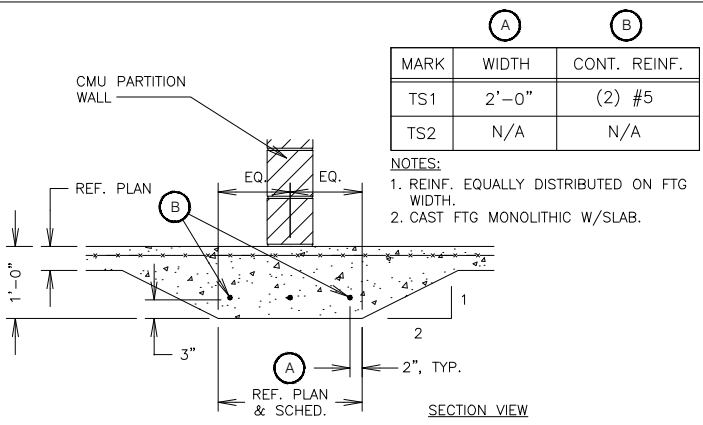


SECTION

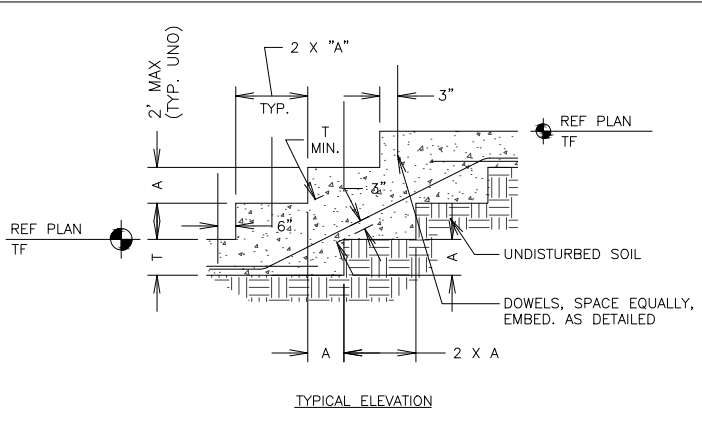
DETAIL 9 NTS
NON-ISOLATED EQUIPMENT PAD



DETAIL 10 NTS
ADD'L REINF. AT CONC. WALL OPENINGS

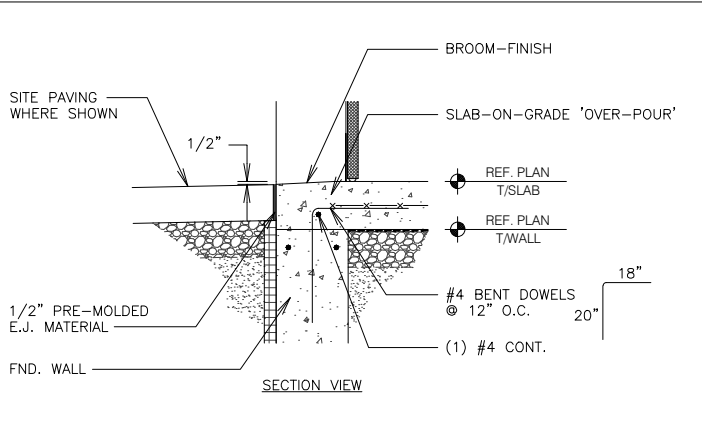


DETAIL 11 NTS
THICKENED SLAB FOOTING (TS#)



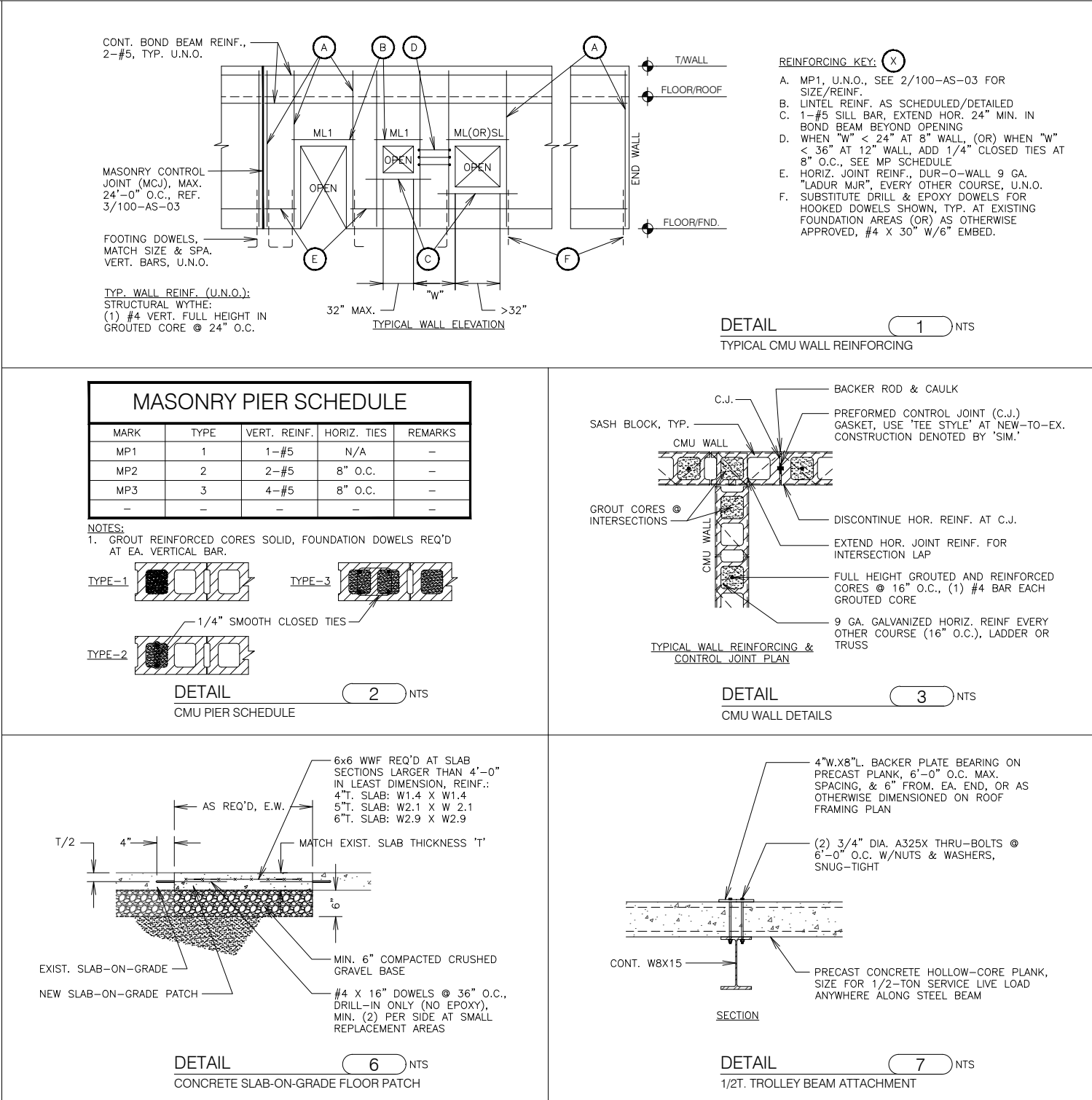
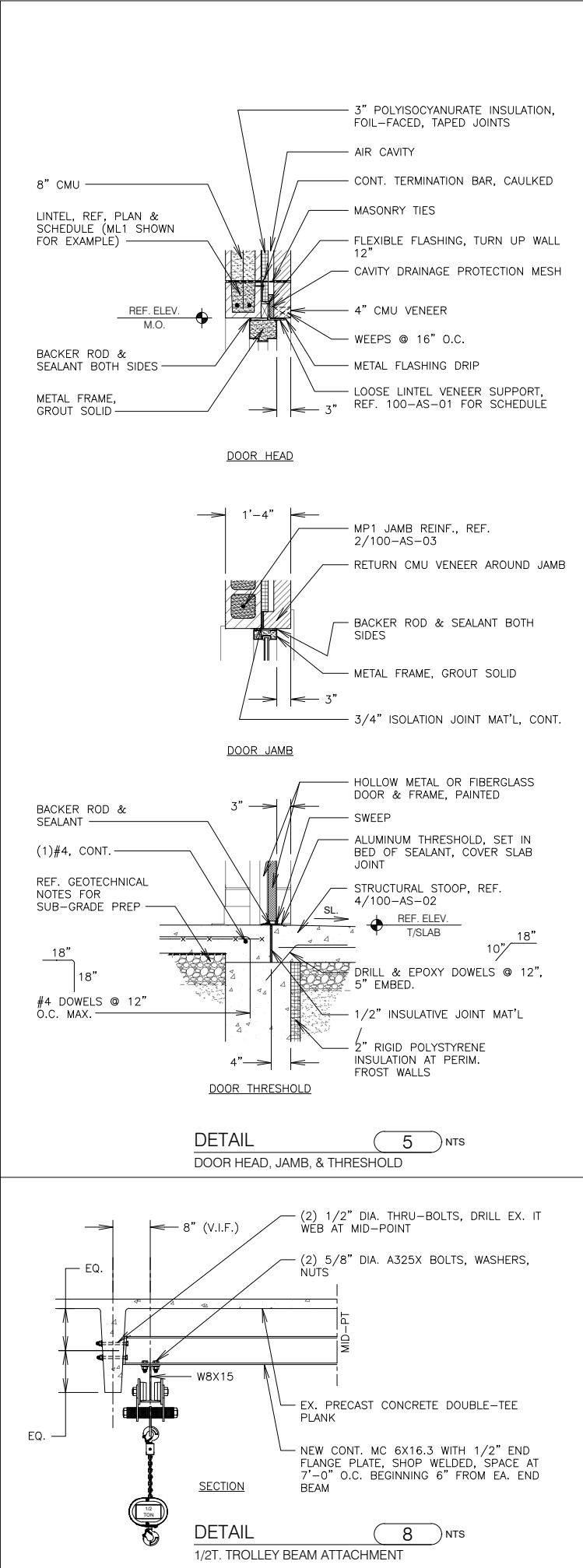
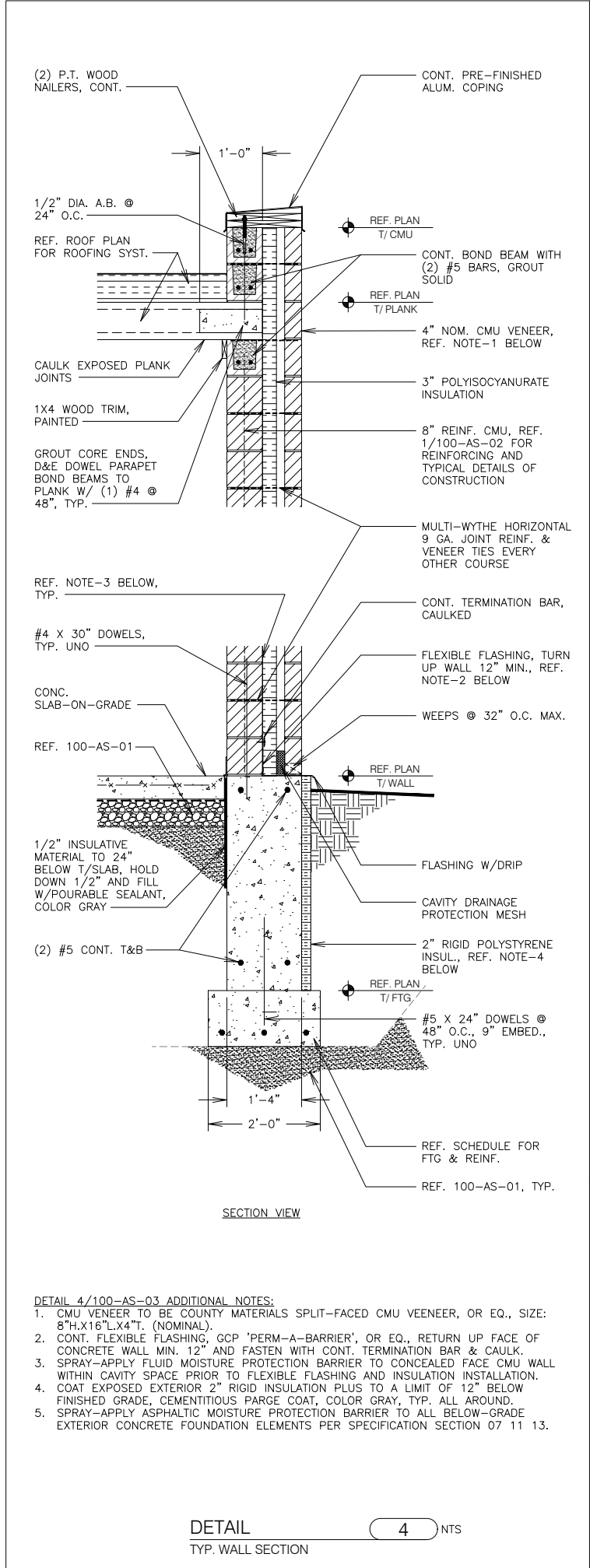
TYPICAL ELEVATION

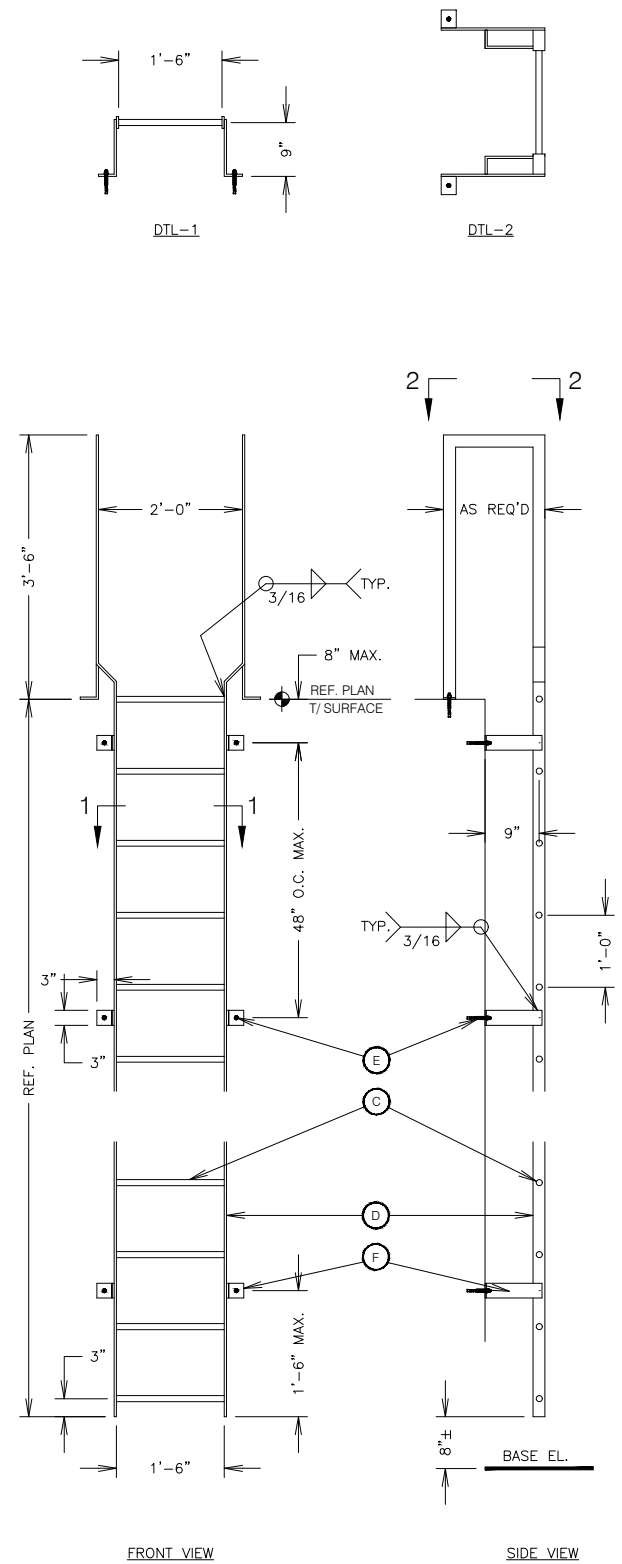
DETAIL 12 NTS
STEPPED FOOTING



SECTION VIEW

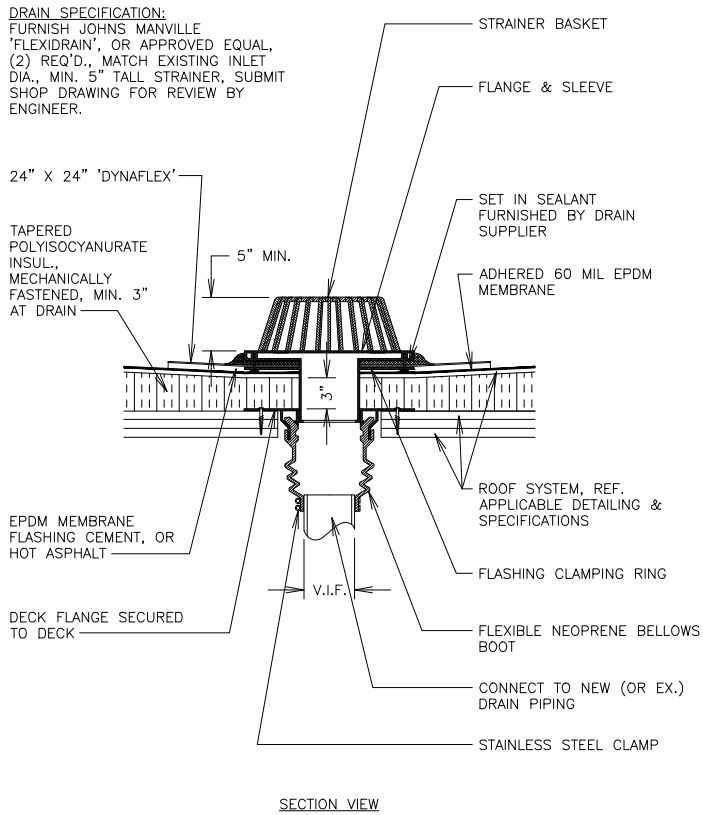
DETAIL 13 NTS
THRESHOLD AT OVERHEAD DOOR



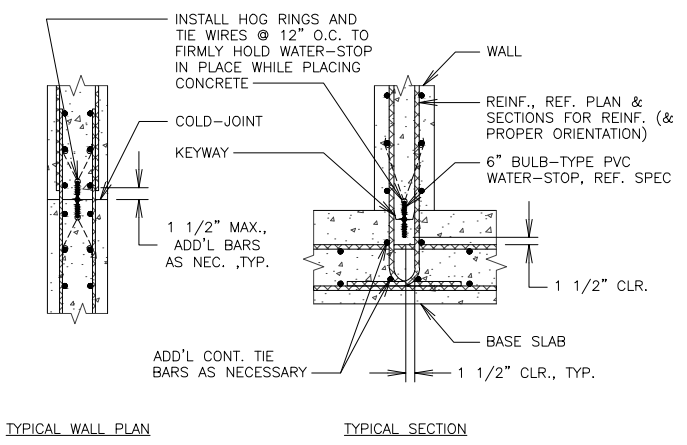


- KEY NOTES**
- A. CONSTRUCT LADDER IN CONFORMANCE WITH OSHA 1910.27.
 - B. LADDER SHALL BE SHOP-FABRICATED ALUM. 6061-T6.
 - C. 1" DIAMETER BAR RUNGS SHALL BE KNURLED OR COATED WITH A NON-SLIP MATERIAL.
 - D. 3/8" T. X 2" W. ALUM. 6061-T6 BAR MATERIAL.
 - E. 1/2" DIA. X 3, 1/2" S.S. EXPANSION ANCHORS INTO CONC.
 - F. 1/4" ALUM. 6061-T6 ATTACHMENT BRACKETS.

DETAIL 4 NTS
FIXED ACCESS LADDER

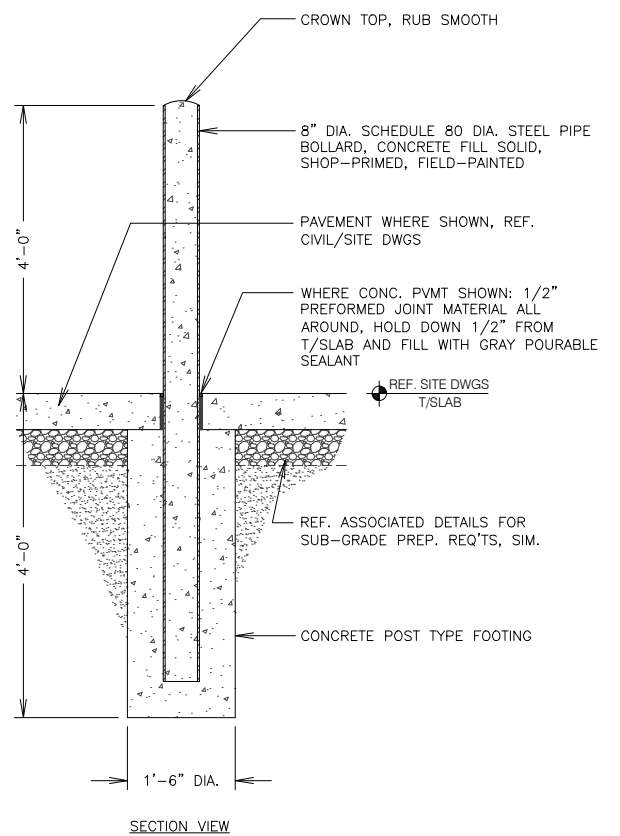


DETAIL 1 NTS
ROOF DRAIN

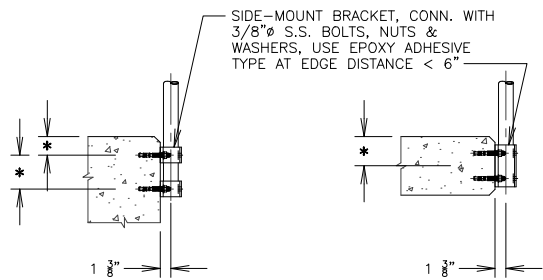


- WATER-STOP NOTES:**
1. REF. SPECIFICATION SECTION 03 30 00 FOR ACCEPTABLE PRODUCTS & MANUFACTURERS.
 2. FACTORY CORNERS AND TRANSITIONS SHALL BE USED, LEAVING ONLY STRAIGHT BUTT JOINT SPLICES FOR FIELD WELDING OF EMBEDDED WATER-STOP.
 3. INSTALL WATER-STOP IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
 4. USE ONLY SPLICING IRON SPECIFICALLY RECOMMENDED BY THE MANUFACTURER FOR HEAT FUSED WELDING OF PVC.
 5. SECURE EMBEDDED WATER-STOP ALONG ITS LENGTH WITH HOG RINGS, AS REQUIRED TO MAINTAIN CENTER BULB CENTERED ON COLD JOINT.
 6. PLACE CONCRETE WITHOUT DISPLACING WATER-STOP.
 7. THOROUGHLY VIBRATE THE CONCRETE AROUND WATER-STOP TO MINIMIZE VOIDS.
 8. CLEAN CONCRETE SPATTER OFF PVC WATER-STOP FROM PRIOR POUR, PRIOR TO SUBSEQUENT CONCRETE PLACEMENT.

DETAIL 2 NTS
CONT. 6" PVC WATER-STOP

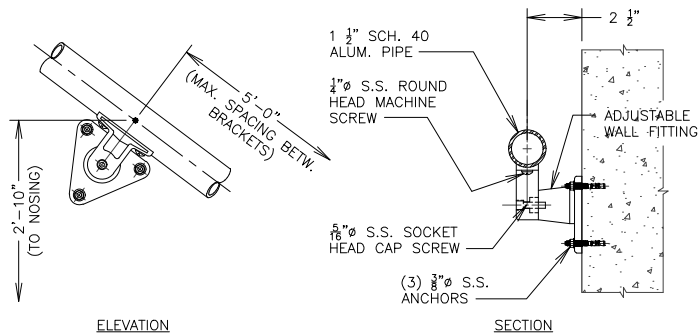


DETAIL 3 NTS
PIPE BOLLARD

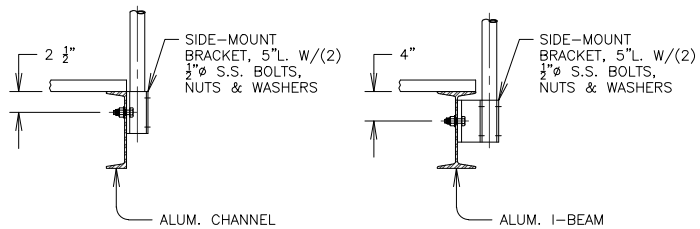


TYPICAL SIDE MOUNT CONN.
TO CONC. WALL

TYPICAL SIDE MOUNT CONN.
TO CONC. SLAB

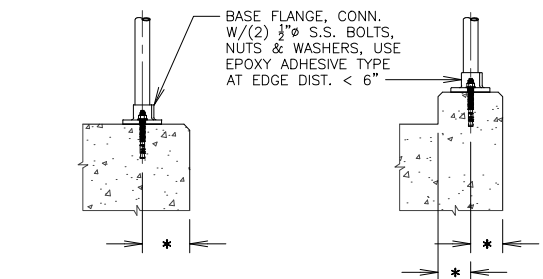


WALL RAIL CONNECTION



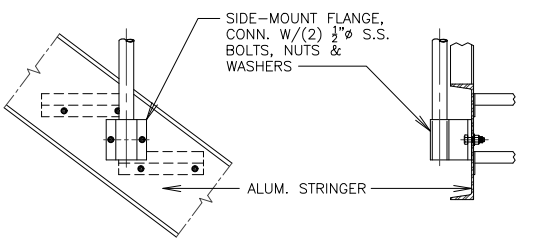
TYPICAL SIDE MOUNT CONN.
TO CHANNEL

TYPICAL SIDE MOUNT CONN.
TO BEAM

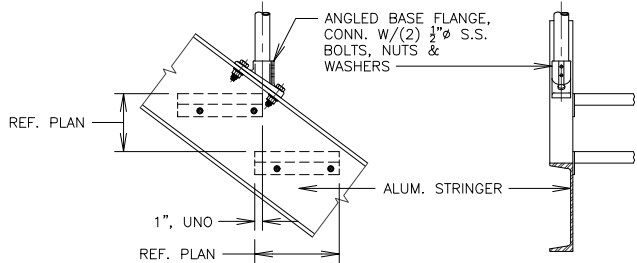


TYPICAL TOP MOUNT CONN.
TO CONC. WALL

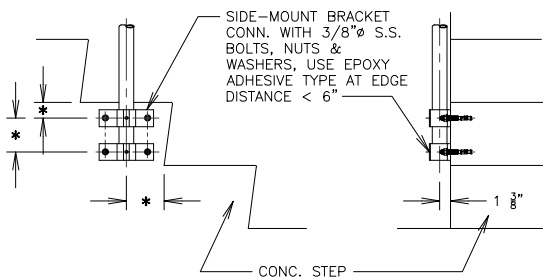
TYPICAL TOP MOUNT CONN.
TO CONC. CURB



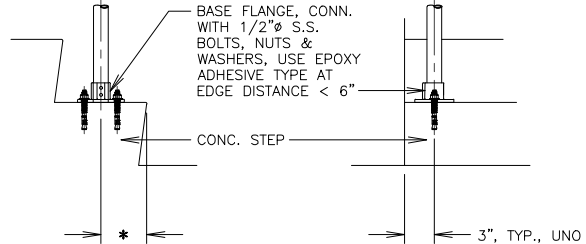
TYPICAL SIDE MOUNT CONN.
TO STEEL STRINGER



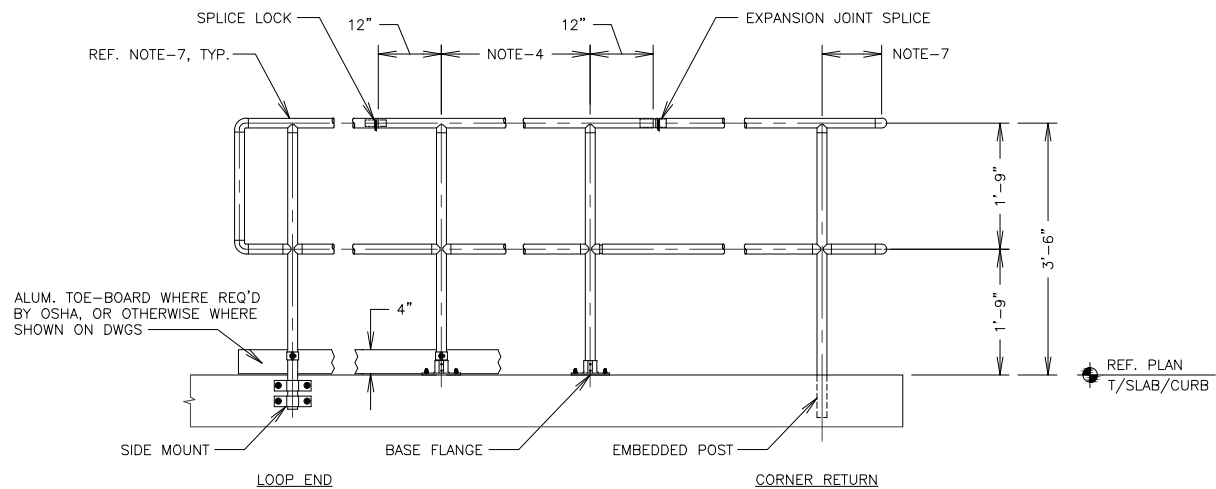
TYPICAL TOP MOUNT CONN.
TO STEEL STRINGER



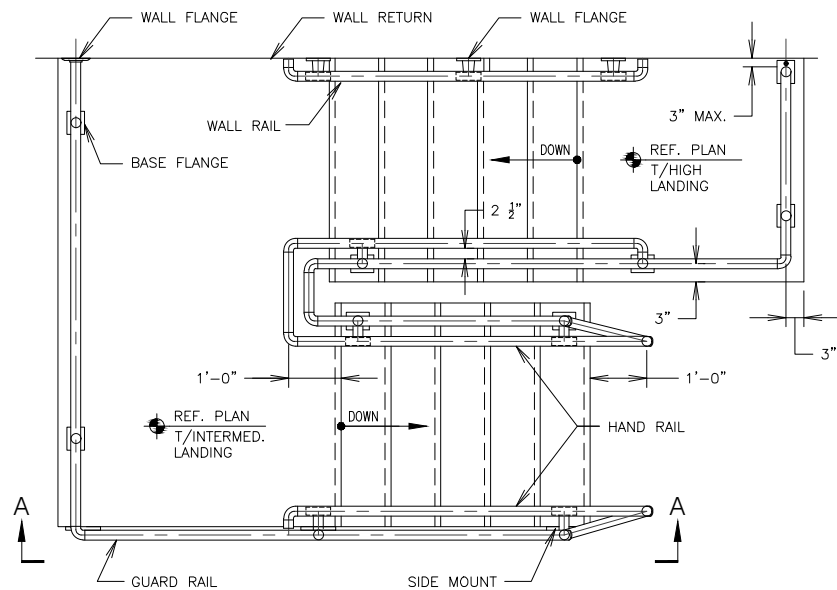
TYPICAL SIDE MOUNT CONN.
TO CONC. STAIR



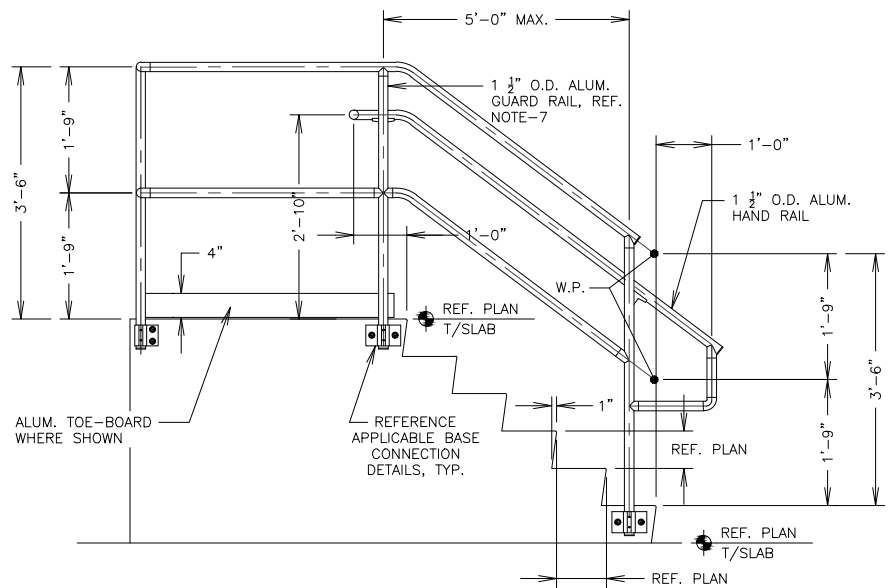
TYPICAL TOP MOUNT CONN.
TO CONC. STAIR



TYPICAL GUARD RAIL ELEVATION
(GUARDRAILS SHALL BE BASE FLANGE
MOUNTED UNLESS INDICATED OTHERWISE)



TYPICAL OSHA GUARD RAIL AT STAIRS - PLAN
(GUARDRAILS SHALL BE BASE FLANGE
MOUNTED UNLESS INDICATED OTHERWISE)



VIEW A-A
(GUARDRAILS SHALL BE BASE FLANGE
MOUNTED UNLESS INDICATED OTHERWISE)

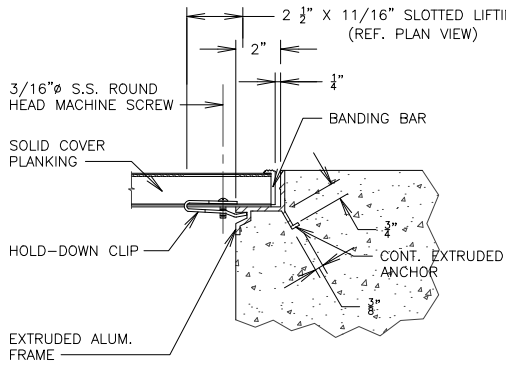
DESIGN SPECIFICATION SUMMARY - OSHA TYPE ALUM. GUARD RAIL:

- COMPONENTS SHOWN ON THIS SHEET ARE A DELEGATED DESIGN. CONCEPT SHOWN IS FOR GENERAL REFERENCE ONLY TO CONVEY MINIMUM STANDARDS. FINAL DESIGN BY COMPONENT SUPPLIER SHALL MEET APPLICABLE CODES AND INDUSTRY STANDARDS. REF. ADDITIONAL NOTES ON 100-AS-01 REGARDING COMPONENT MANUFACTURER DESIGN AND SUBMITTAL REQUIREMENTS.
- GUARDRAILS AND HANDRAILS SHALL BE THE PRODUCT OF A COMPANY NORMALLY ENGAGED IN THE MANUFACTURE OF PIPE RAILING. RAILING SHALL BE SHOP ASSEMBLED IN LENGTHS NOT TO EXCEED 24 FEET FOR FIELD ERECTION.
- HANDRAIL SHALL BE MADE OF PIPES JOINED TOGETHER WITH COMPONENT FITTINGS. SAMPLES OF ALL COMPONENTS, BASES, TOE PLATE AND PIPE SHALL BE SUBMITTED FOR APPROVAL AT THE REQUEST OF THE ENGINEER. COMPONENTS THAT ARE POP-RIVETED OR GLUED AT THE JOINTS WILL NOT BE ACCEPTABLE. ALL COMPONENTS MUST BE MECHANICALLY FASTENED WITH STAINLESS STEEL HARDWARE. HANDRAIL AND COMPONENTS SHALL BE TUFRAIL, AS MANUFACTURED BY THOMPSON FABRICATING, LLC (BIRMINGHAM, ALABAMA) OR APPROVED EQUAL.
- RAILINGS SHALL BE 1 1/2" SCHEDULE 40 ALUMINUM PIPE ALLOY 6105-T5, ASTM-B-429 OR ASTM-B-221. POSTS SHALL BE 1 1/2" SCHEDULE 40 ALUMINUM PIPE OF THE SAME ALLOY. POST SPACING SHALL BE A MAXIMUM OF 5'-0".
- GUARDRAILS AND HANDRAILS SHALL BE DESIGNED TO WITHSTAND A 200 LB CONCENTRATED LOAD APPLIED IN ANY DIRECTION AND AT ANY POINT ON THE TOP RAIL.
- ALUMINUM ASSOCIATION APPROVED LAB TEST RESULTS OF BASE CASTINGS OR BASE EXTRUSIONS SHALL BE INCLUDED IN CALCULATION SUBMITTAL.
- POSTS SHALL NOT INTERRUPT THE CONTINUATION OF THE TOP RAIL AT ANY POINT ALONG THE RAILING, INCLUDING CORNERS AND END TERMINATIONS (OSHA 1910.23). THE TOP SURFACE OF THE TOP RAILING SHALL BE SMOOTH AND SHALL NOT BE INTERRUPTED BY PROJECTED FITTINGS.
- THE MID-RAIL AT A CORNER RETURN SHALL BE ABLE TO WITHSTAND A 200 LB LOAD WITHOUT LOOSENING. THE MANUFACTURER IS TO DETERMINE THIS DIMENSION FOR THEIR SYSTEM AND PROVIDE CALCULATIONS OR PHYSICAL LABORATORY TESTS TO CONFIRM COMPLIANCE.
- CONCRETE ANCHORS SHALL BE STAINLESS STEEL TYPE 303 OR 304 AND SHALL BE DESIGNED AND FURNISHED BY THE HANDRAIL MANUFACTURER. THE ANCHOR DESIGN SHALL INCLUDE THE APPROPRIATE REDUCTION FACTORS FOR SPACING AND EDGE DISTANCES IN ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED DATA.
- CONCRETE ANCHOR EDGE DISTANCES SHALL BE AS SHOWN. WHERE NOT SHOWN AND/OR SPECIFICALLY SPECIFIED, PROVIDE DESIGN FOR EPOXY TYPE POST-INSTALLED ANCHORS AT EDGE DISTANCES < 6", EXPANSION OR SLEEVE TYPE AT EDGE DISTANCES AT OR > 6".
- TOE PLATE SHALL CONFORM TO OSHA STANDARDS. TOE PLATE SHALL BE A MINIMUM OF 4" HIGH AND SHALL BE AN EXTRUSION THAT ATTACHES TO THE POSTS WITH CLAMPS THAT WILL ALLOW FOR EXPANSION AND CONTRACTION BETWEEN POSTS. TOE PLATES SHALL BE SET 1/4" ABOVE THE WALKING SURFACE. TOE PLATES SHALL BE PROVIDED ON HANDRAILS AS REQUIRED BY OSHA AND/OR AS SHOWN ON DRAWINGS. TOE PLATES SHALL BE SHIPPED LOOSE IN STOCK LENGTHS FOR FIELD INSTALLATION.
- OPENINGS IN THE RAILING SHALL BE GUARDED BY A SELF-CLOSING GATE (OSHA 1910.23). SAFETY CHAINS SHALL NOT BE USED UNLESS SPECIFICALLY SHOWN ON THE DRAWINGS.
- FINISH SHALL BE ALUMINUM ASSOCIATION M10-C22-A41 (215-R1). THE PIPE SHALL BE PLASTIC-WRAPPED. THE PLASTIC WRAP IS TO BE REMOVED AFTER ERECTION.
- ALUMINUM SURFACES IN CONTACT WITH CONCRETE, GROUT OR DISSIMILAR METALS WILL BE PROTECTED WITH A COAT OF BITUMINOUS PAINT, MYLAR ISOLATORS OR OTHER APPROVED MATERIAL.

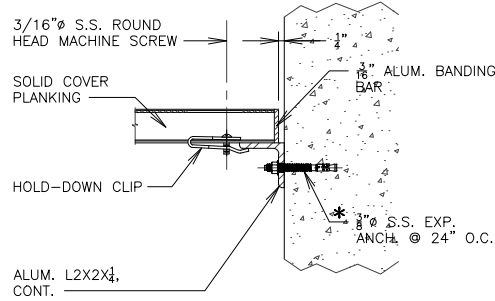
* CONCRETE ANCHOR DIAMETER, EDGE DISTANCES, EMBEDMENT, AND REQUIRED SPACING FINAL DESIGN TO BE DETERMINED BY COMPONENT DESIGNER.

DETAIL (ENTIRE SHEET) 1 NTS
TYPICAL OSHA-TYPE GUARD RAIL

SPAN CHART FOR ALUMINUM PLANK GRATING	
MAXIMUM SPAN	MIN. GRATING DEPTH
4'-0"	1 1/4"
4'-8"	1 1/2"
5'-2"	1 3/4"
5'-8"	2"
6'-2"	2 1/4"
6'-9"	2 1/2"

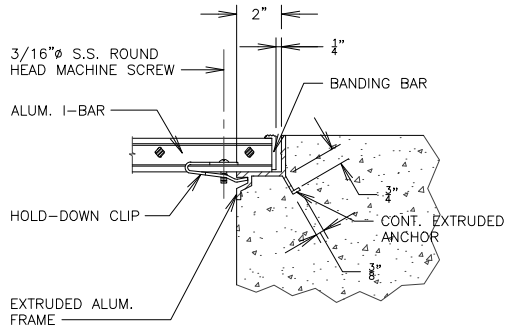


EMBEDDED SUPPORT TYPE-1P

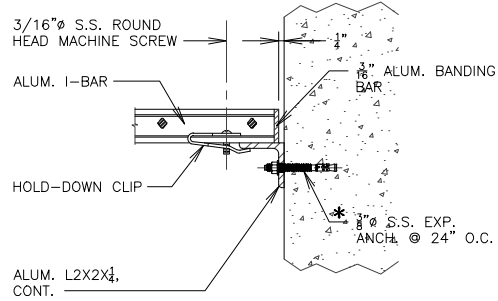


SHELF ANGLE SUPPORT TYPE-2P

SPAN CHART FOR ALUMINUM I-BAR GRATING	
MAXIMUM SPAN	MIN. GRATING DEPTH
3'-8"	1 1/4"
4'-2"	1 1/2"
4'-8"	1 3/4"
5'-2"	2"
5'-8"	2 1/4"
6'-2"	2 1/2"



EMBEDDED SUPPORT TYPE-1G

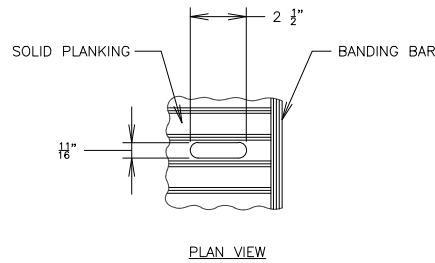


SHELF ANGLE SUPPORT TYPE-2G

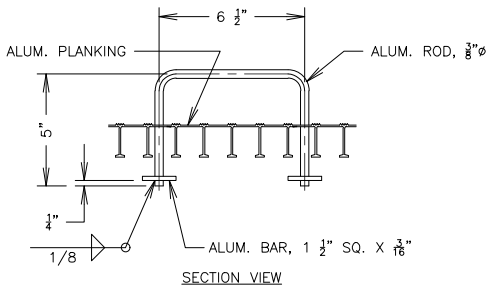
SOLID COVER UNPUNCHED ALUMINUM PLANKING
(REF. PLAN)

* CONCRETE ANCHOR DIAMETER, EDGE DISTANCES, EMBEDMENT, AND REQUIRED SPACING FINAL DESIGN TO BE DETERMINED BY COMPONENT DESIGNER.

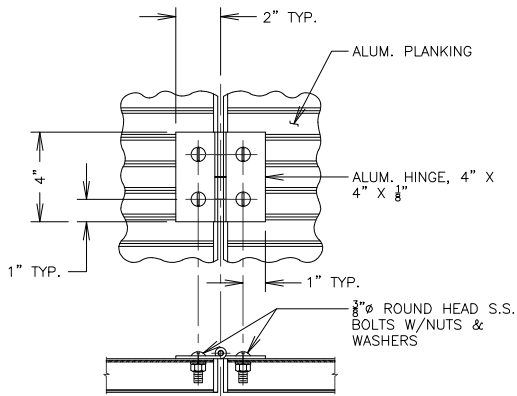
ALUMINUM I-BAR GRATING
(REF. PLAN)



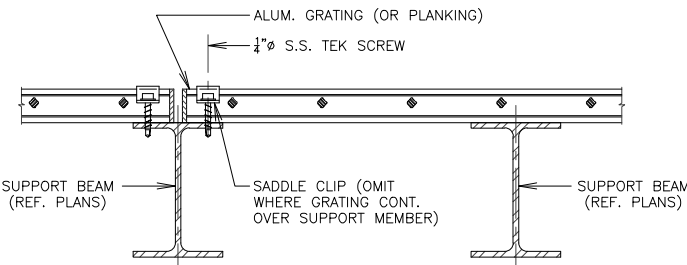
LIFTING HOLE AT PLANKING
(ALSO PROVIDES ACCESS TO HOLD-DOWN CLIP)



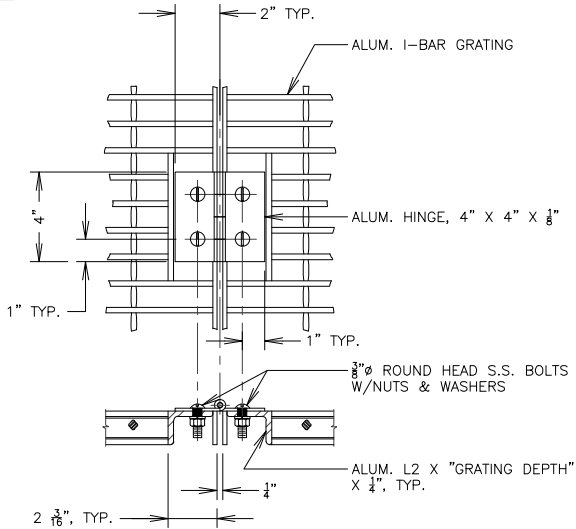
LIFT HANDLE AT PLANKING
(TYP. AT PLANK ENDS)



HINGE AT PLANKING
(WHERE SHOWN ON PLANS)



GRATING AT SUPPORT BEAMS
(TYP. AT PLANK ENDS)



HINGE AT I-BAR GRATING
(WHERE SHOWN ON PLANS)

DESIGN SPECIFICATION SUMMARY – ALUMINUM GRATING, PLANKING & TREADS:

- COMPONENTS SHOWN ON THIS SHEET ARE A DELEGATED DESIGN. CONCEPT SHOWN IS FOR GENERAL REFERENCE ONLY TO CONVEY MINIMUM STANDARDS. FINAL DESIGN BY COMPONENT SUPPLIER SHALL MEET APPLICABLE CODES AND INDUSTRY STANDARDS. REF. ADDITIONAL NOTES ON 100-AS-01 REGARDING COMPONENT MANUFACTURER DESIGN AND SUBMITTAL REQUIREMENTS.
- I-BAR GRATING SHALL BE FABRICATED OF ALUMINUM I-SHAPED BARS, ALLOY 6063-T6, WITH SWAGED CROSS BARS SPACED ON 4" CENTERS. BEARING BARS SHALL BE SPACED ON 1 3/16" CENTERS. TOP SURFACE OF BEARING BARS SHALL BE STRIATED TO PROVIDE A NON-SLIP SURFACE.
- PLANKING SHALL BE EXTRUDED FROM ALUMINUM ALLOY 6063-T6. TOP SURFACE SHALL BE PUNCHED (WITH UPSET EDGES) OR UN-PUNCHED, AS SPECIFIED ON THE PLANS, AND SHALL HAVE CONTINUOUS STRIATIONS FOR SKID RESISTANCE.
- GRATING AND PLANKING SHALL SUPPORT A UNIFORM LOAD OF 200 POUNDS PER SQUARE FOOT WITH A DEFLECTION OF NOT MORE THAN 1/4". MAXIMUM FIBER STRESS SHALL NOT EXCEED THAT ALLOWED BY THE ALUMINUM ASSOCIATION. MINIMUM DEPTH SHALL BE 1 1/4".
- STANDARD INSTALLATION CLEARANCES AND TOLERANCES SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT METAL BAR GRATING MANUAL PUBLISHED BY THE NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS.
- INSTALL ALUMINUM CLAMPS OR CLIPS TO ANCHOR GRATING AND PLANKING TO SUPPORTS. A MINIMUM OF FOUR FASTENERS IS REQUIRED PER PANEL UNLESS OTHERWISE NOTED ON THE DRAWINGS. CLIPS SHALL NOT PROTRUDE ABOVE THE TOP OF THE GRATING.
- CUT-OUTS FOR CIRCULAR OBSTRUCTIONS TO BE AT LEAST 2" LARGER IN DIAMETER THAN THE OBSTRUCTION. CUTOUTS FOR ALL PIPING 4" AND LESS IN DIAMETER TO BE MADE IN THE FIELD. ALL OPENINGS WHERE MORE THAN FOUR BEARING BARS ARE CUT SHALL BE Banded WITH BAR THE SAME DEPTH AS THE BEARING BARS. THE ENDS OF ALL GRATING AND PLANKING SHALL BE Banded.
- GRATING AND/OR PLANKING SUPPORTS SHALL BE EMBEDDED TYPE UNO. SHELF ANGLE TYPE ARE DENOTED ON PLANS BY "(S)".
- SHELF ANGLES SHALL BE ANCHORED TO CONCRETE WITH STAINLESS STEEL TYPE 303 OR 304 WEDGE ANCHORS, UNO. CONCRETE ANCHOR EDGE DISTANCES SHALL BE AS SHOWN. WHERE NOT SHOWN AND/OR SPECIFICALLY SPECIFIED, PROVIDE DESIGN FOR EPOXY TYPE POST-INSTALLED ANCHORS AT EDGE DISTANCES < 6", EXPANSION OR SLEEVE TYPE AT EDGE DISTANCES AT OR > 6".
- ALUMINUM STAIR TREADS SHALL BE I-BAR GRATING TYPE TREADS AND SHALL BE FURNISHED WITH EXTRUDED ALUMINUM CORRUGATED NOSING. ALUMINUM CARRIER ANGLES SHALL BE WELDED TO THE ENDS OF STAIR TREADS. MINIMUM DEPTH OF GRATING TREADS SHALL BE 1 1/4".
- ALUMINUM SURFACES IN CONTACT WITH CONCRETE OR DISSIMILAR METALS SHALL BE PROTECTED WITH A COAT OF BITUMINOUS PAINT.
- REINFORCE GRATING SUPPORT ANGLES ACROSS OPENINGS WITH L3X2X1/4(LLV), ANCHOR ENDS TO SIDES OF OPENINGS, AS APPLICABLE, TYP. UNO.

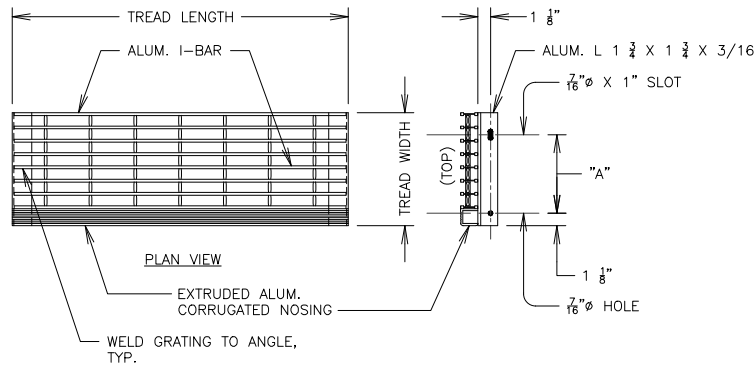
ALUMINUM I-BAR TREADS		
TREAD WIDTH	NUMBER OF BEARING BARS	DIM. A
6 5/8"	5	2 1/2"
7 13/16"	6	4 1/2"
9"	7	4 1/2"
10 3/16"	8	7"
11 3/8"	9	7"
12 9/16"	10	7"

TREAD TYPE-1T

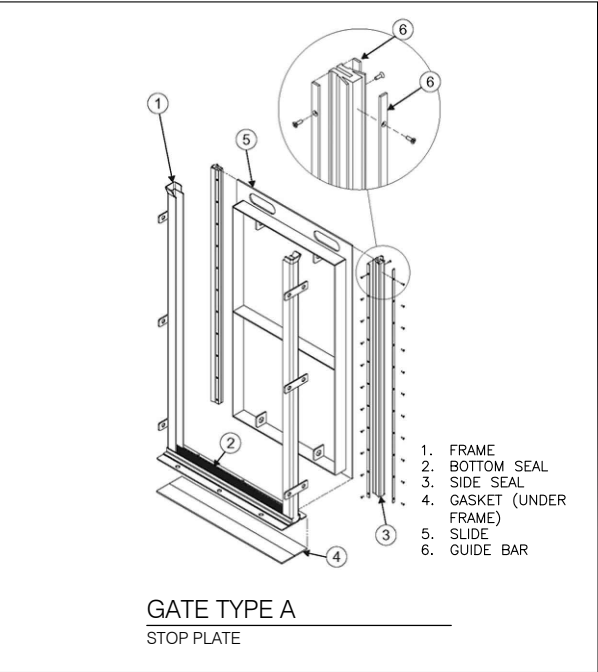
ALUMINUM I-BAR TREADS	
BEARING BAR SIZE	MAXIMUM TREAD **LENGTH
1 1/4"	2'-8"
1 1/2"	3'-6"
1 3/4"	4'-7"
2"	5'-8"

**BASED ON 400 LB. CONCENTRATED LOAD APPLIED ON THE CENTERLINE OF THE SPAN AND DISTRIBUTED OVER THE NOSING & 4 BEARING BARS
SAME TABLE FOR PLANKING TREADS WHEN SPECIFIED ON DRAWINGS

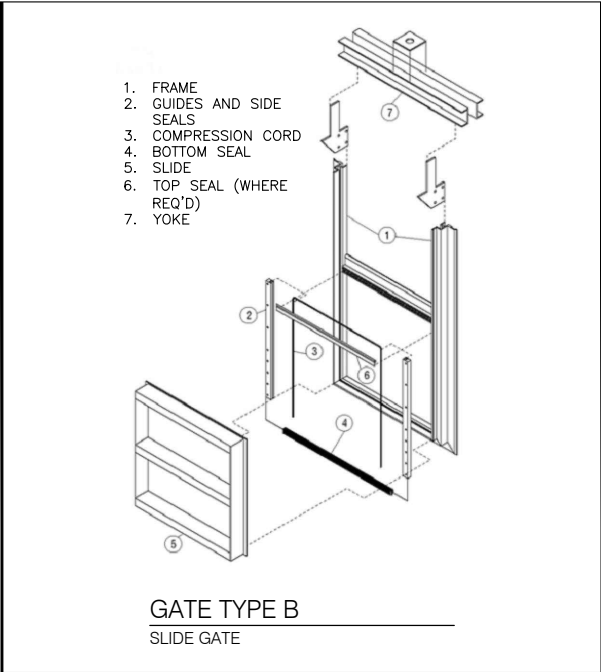
TREAD TYPE-2T



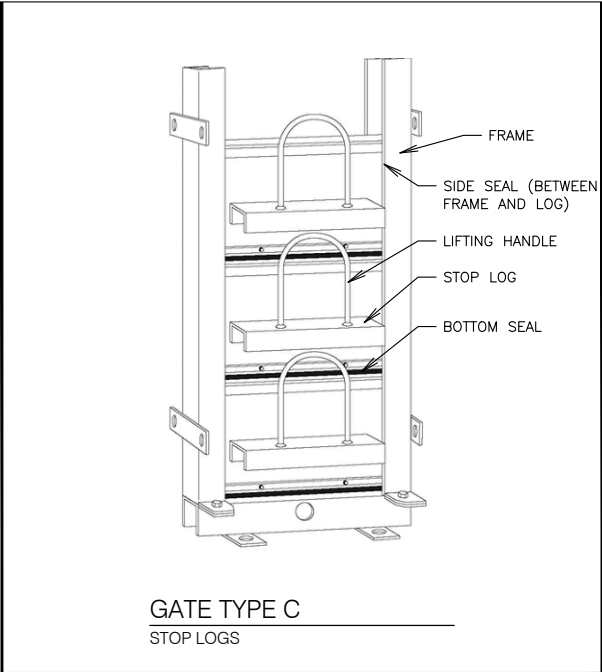
ALUMINUM I-BAR GRATING STAIR TREAD
(REF. PLAN)



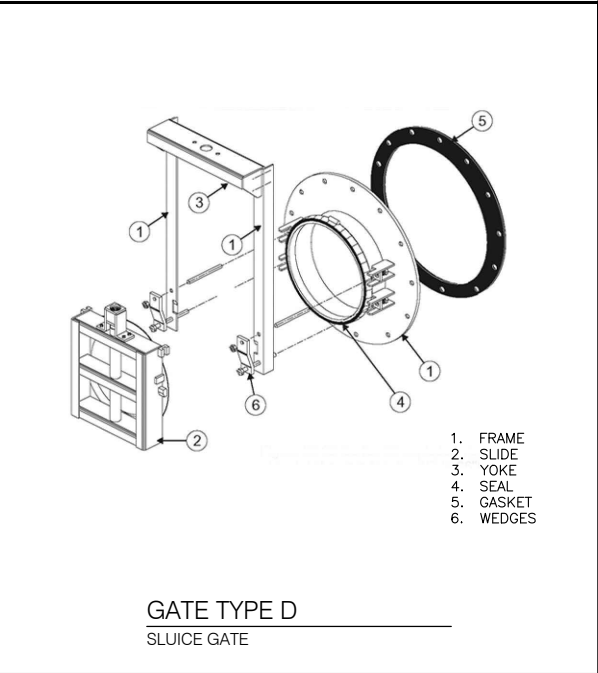
GATE TYPE A
STOP PLATE



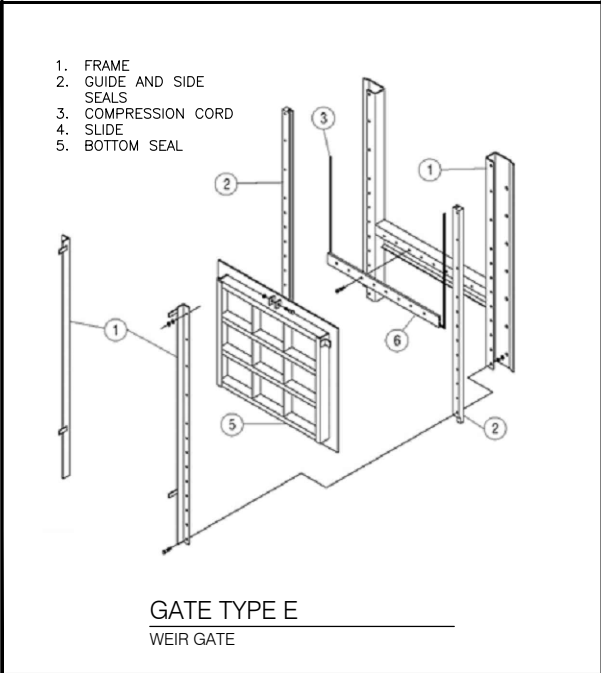
GATE TYPE B
SLIDE GATE



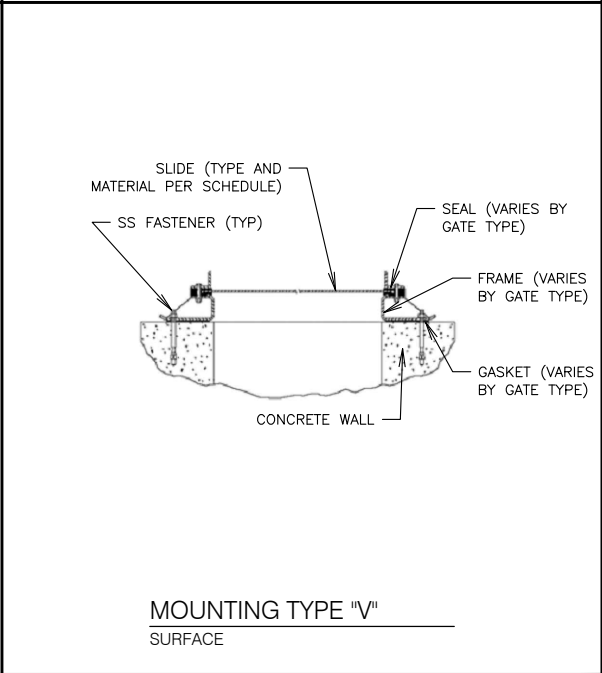
GATE TYPE C
STOP LOGS



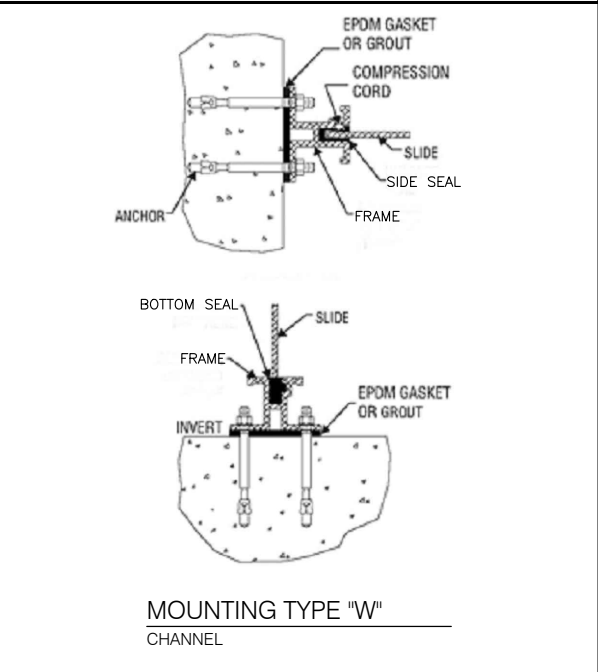
GATE TYPE D
SLUICE GATE



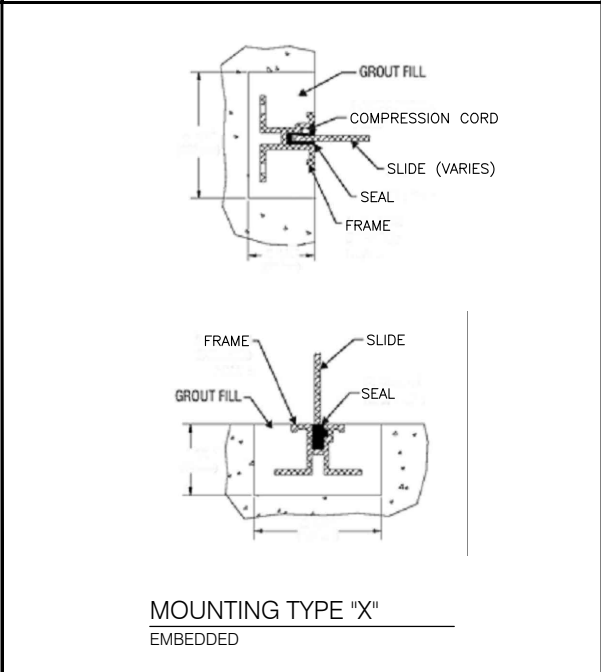
GATE TYPE E
WEIR GATE



MOUNTING TYPE "V"
SURFACE



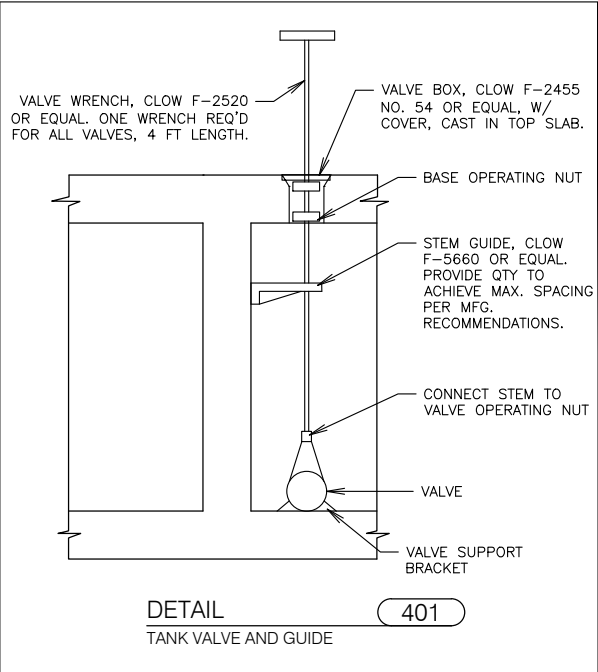
MOUNTING TYPE "W"
CHANNEL



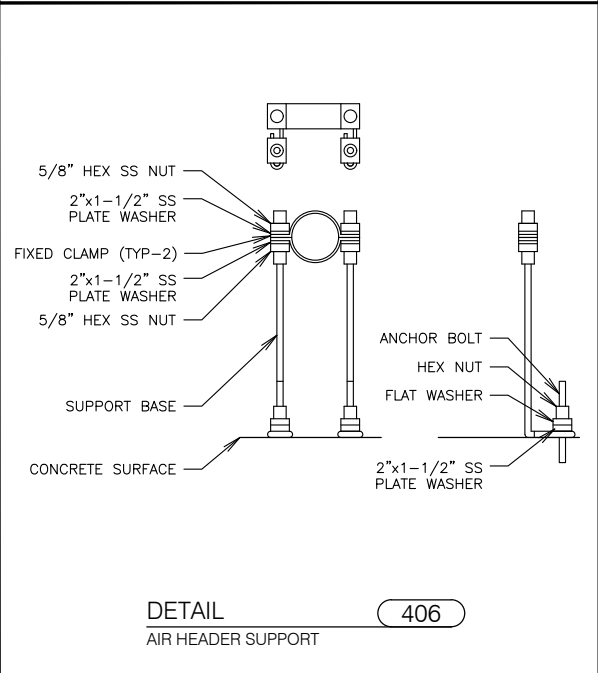
MOUNTING TYPE "X"
EMBEDDED

PROCESS GATE SCHEDULE

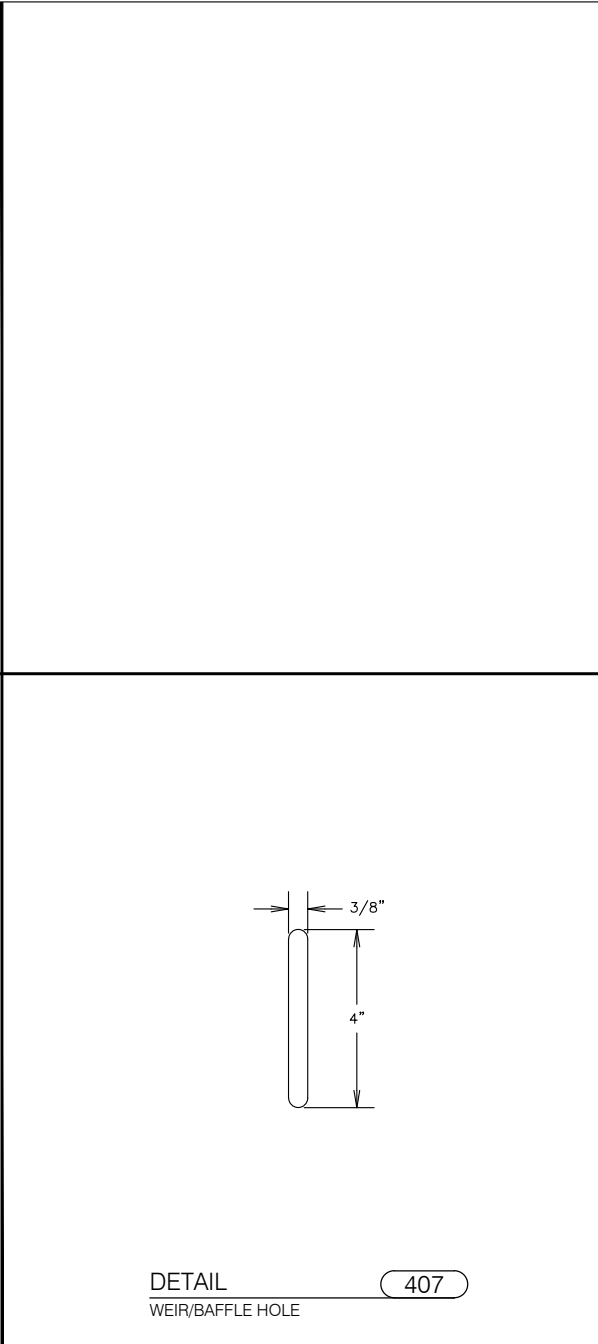
GATE					OPENING				DESIGN PARAMETERS			
NO.	TYPE	MOUNTING	OPERATOR	MATERIAL	INVERT*	WIDTH	HEIGHT	T/WALL	TRAVEL**	SEATING HEAD***	UNSEATING HEAD***	
60-GT-01	B	V	12	304 SS	843.42	30"	30"	851.08	30"	3'	3'	
60-GT-02	E	V	12	304 SS	847.00	72"	18"	851.08	18"	3'	3'	
60-GT-03	E	V	12	304 SS	847.00	72"	18"	851.08	18"	3'	3'	
60-GT-04	B	V	12	304 SS	843.41	30"	30"	851.00	30"	3'	3'	
60-GT-05	B	V	12	304 SS	841.75	30"	30"	851.00	30"	3'	3'	
70-GT-01	C	X	10	304 SS	843.20	78"	52"	847.60	-	2'	2'	
70-GT-02	C	X	10	304 SS	843.35	42"	51"	847.60	-	2'	2'	
70-GT-03	C	X	10	304 SS	843.35	24"	51"	847.60	-	2'	2'	
Notes:												
1.	OPERATOR TYPE 10 IS A MANUAL LIFTING DEVICE FOR STOP LOGS OR MANUAL FOR STOP PLATES; TYPE 11 IS A HANDWHEEL; TYPE 12 IS A SINGLE STEM AND GEARBOX; TYPE 13 IS A SINGLE NON-RISING STEM WITH OPERATING NUT; TYPE 14 IS A DUAL STEM AND GEARBOX; AND TYPE 15 IS AN ELECTRICALLY ACTUATED CRANK. SIDE MOUNT OPERATION TO BE ACCESSIBLE FROM WALKWAY.											
2.	FRP GATE OR ALUMINUM MATERIAL MAY BE USED IN LIEU OF STAINLESS STEEL AS LISTED.											
3.	PROVIDE THREE (3) 12" HIGH STOP LOGS, TWO (2) 6" HIGH STOP LOGS FOR EACH GATE											
4.	PROVIDE GUIDES/FRAMES ONLY. WILL SHARE STOP LOGS/PLATES WITH OTHER GATES.											
5.	SEE DETAILS FOR GATE TYPES AND MOUNTING.											
6.	TOP OF WALL FOR GATE FRAME AND OPERATOR DIFFER. REFER TO ASSOCIATED PLANS.											
*	INVERT IS OPENING INVERT. MANUFACTURER TO DETERMINE APPROPRIATE GATE INVERT.											
**	GATE TRAVEL IS MEASURED FROM THE INVERT OF THE OPENING UP THE DISTANCE OF TRAVEL.											
***	SEATING AND UNSEATING HEAD IS FROM THE CENTERLINE OF THE GATE TO THE MAXIMUM WATER LEVEL.											



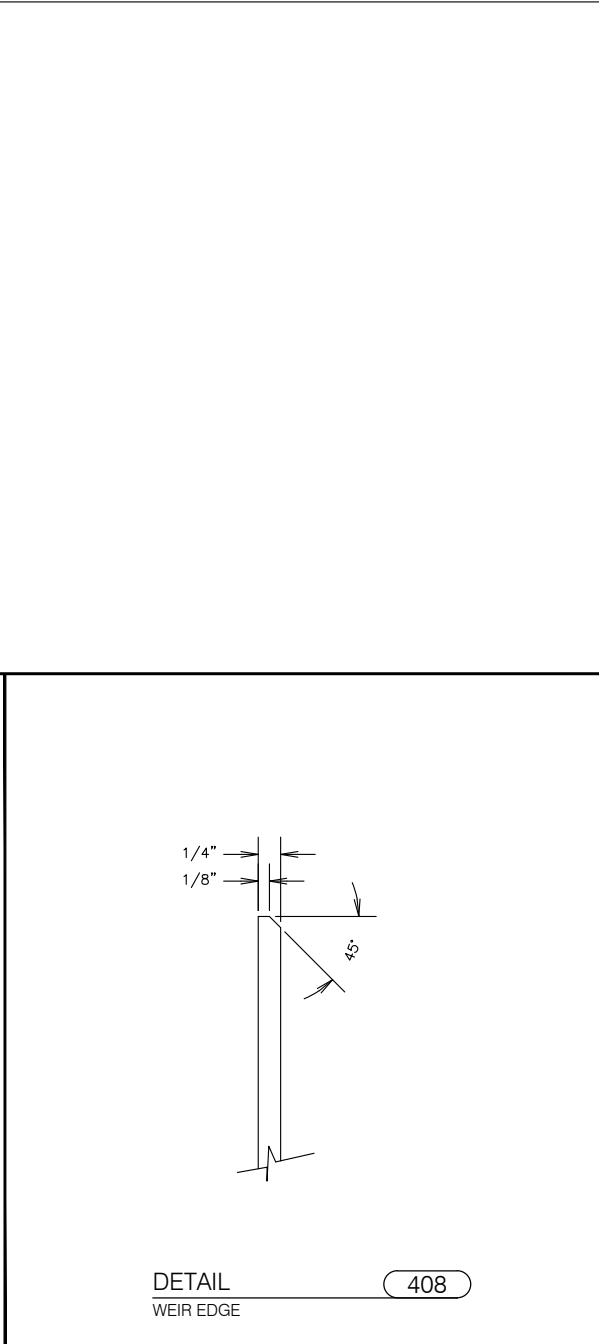
DETAIL 401
TANK VALVE AND GUIDE



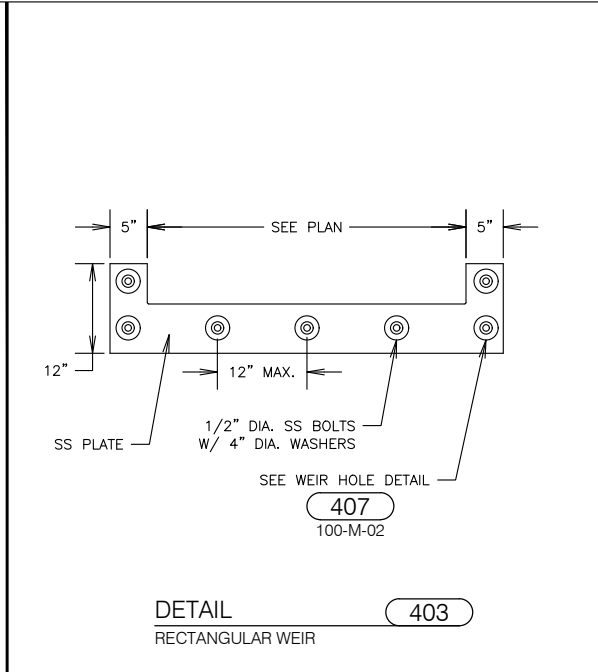
DETAIL 406
AIR HEADER SUPPORT



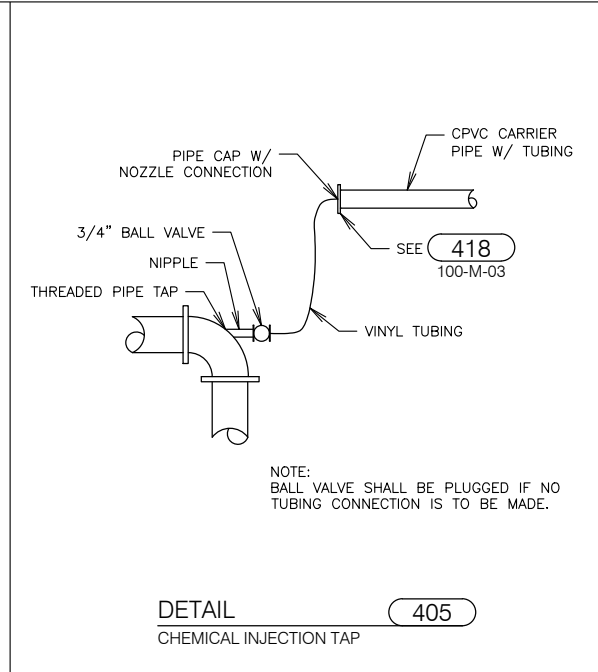
DETAIL 407
WEIR/BAFFLE HOLE



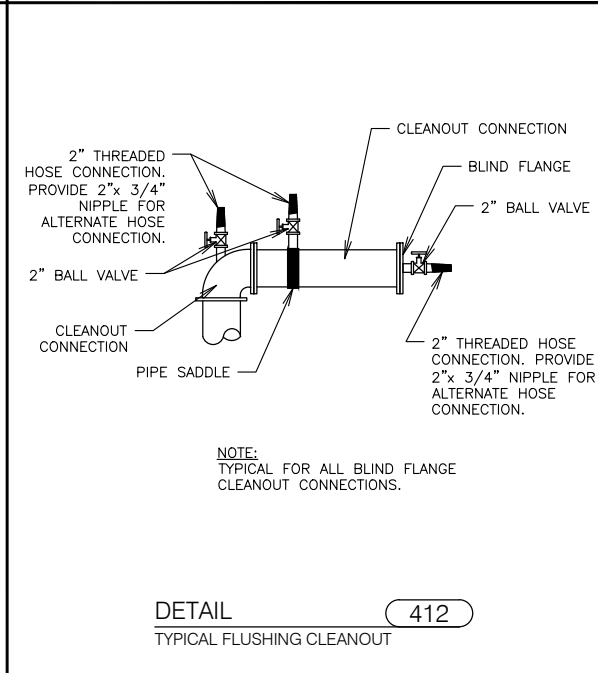
DETAIL 408
WEIR EDGE



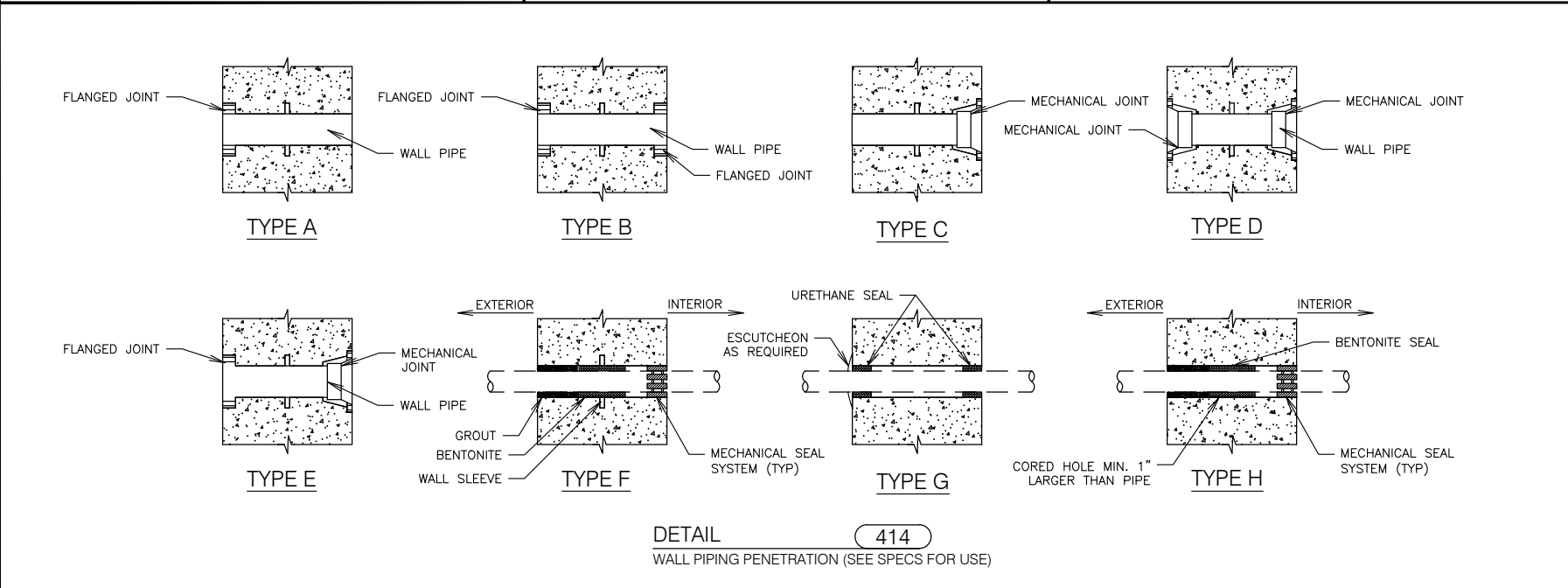
DETAIL 403
RECTANGULAR WEIR



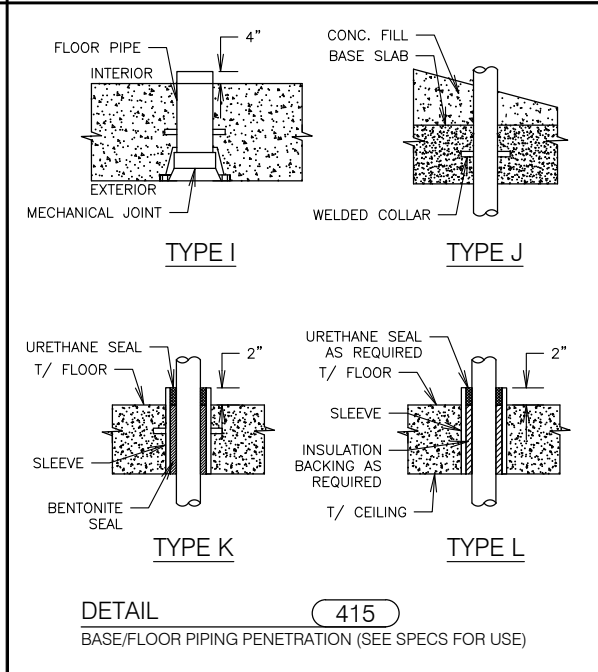
DETAIL 405
CHEMICAL INJECTION TAP



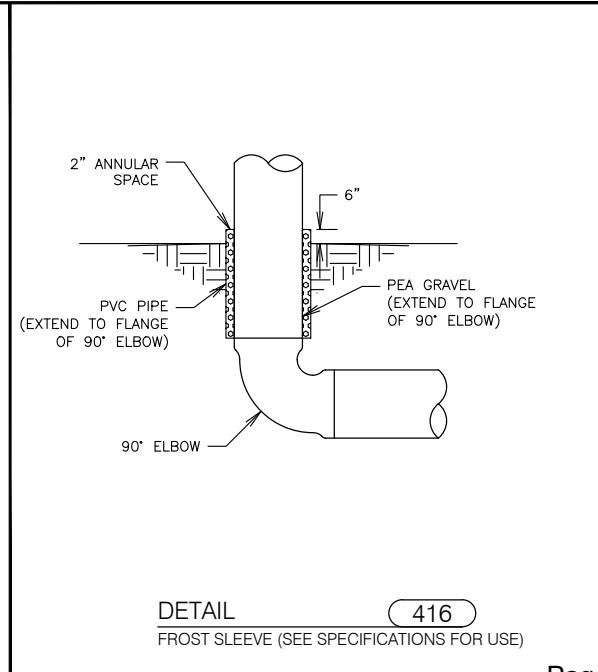
DETAIL 412
TYPICAL FLUSHING CLEANOUT



DETAIL 414
WALL PIPING PENETRATION (SEE SPECS FOR USE)



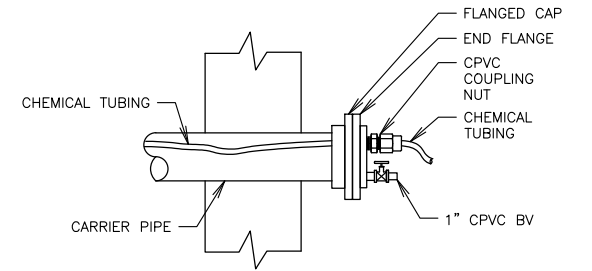
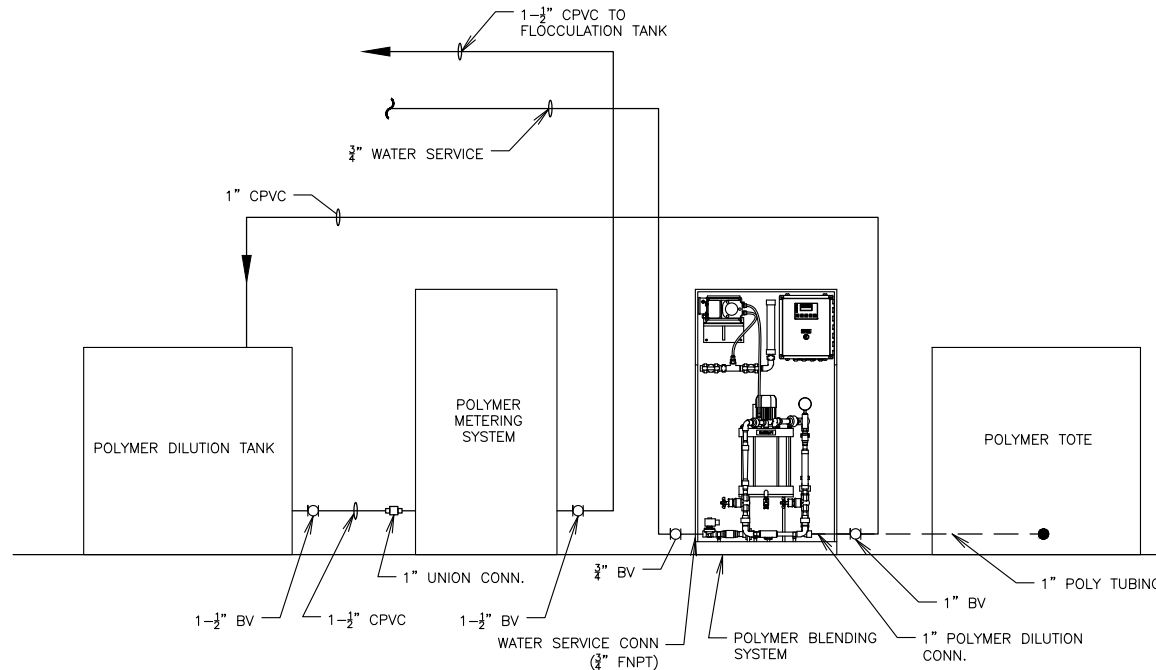
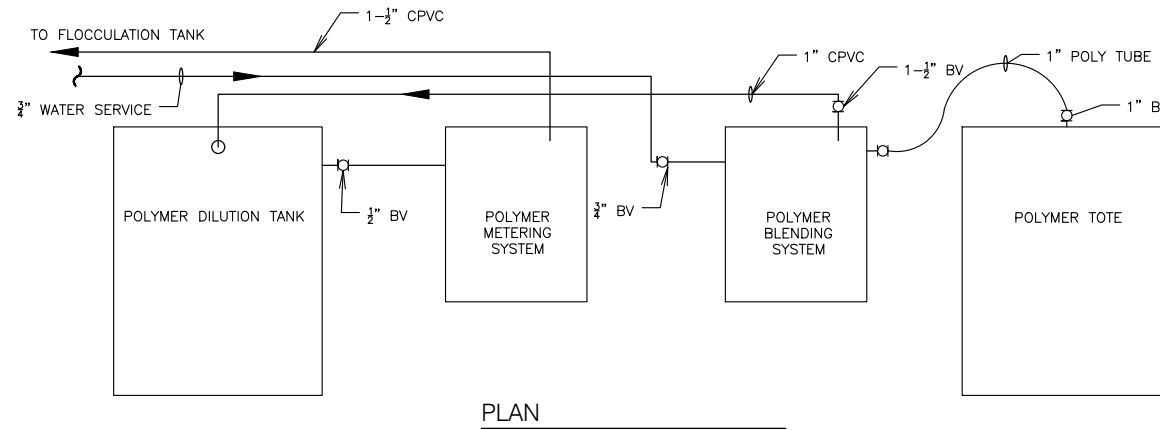
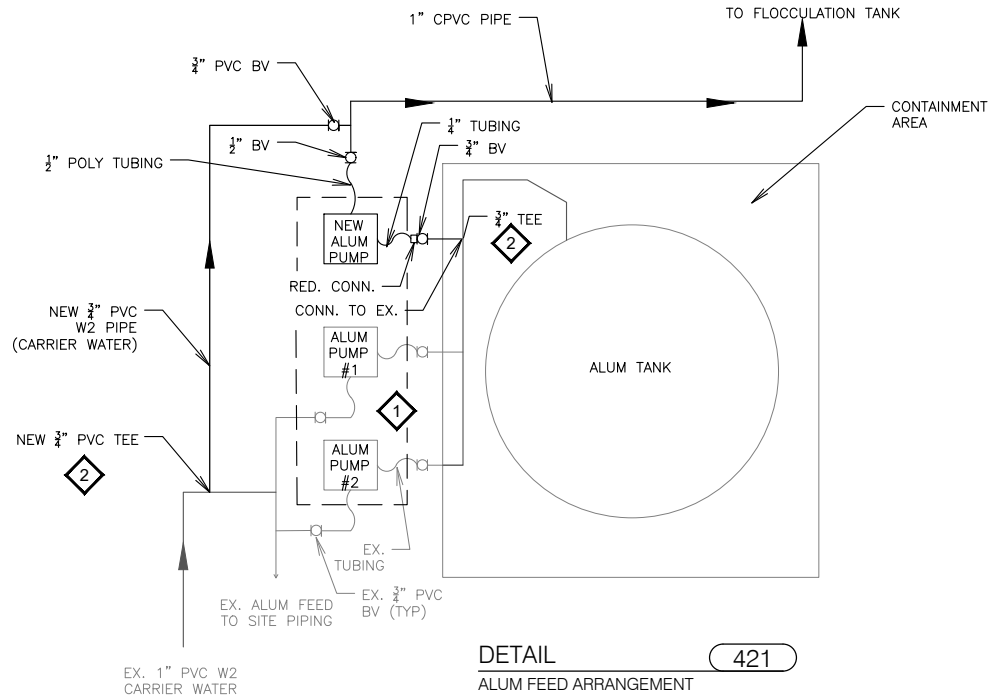
DETAIL 415
BASE/FLOOR PIPING PENETRATION (SEE SPECS FOR USE)



DETAIL 416
FROST SLEEVE (SEE SPECIFICATIONS FOR USE)

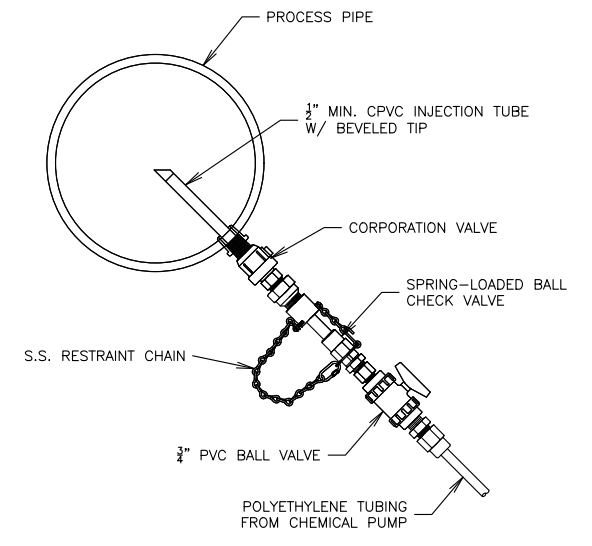
☒ X

1. PROVIDE NEW 16"W X 48"L X 42" TALL WOOD FRAME WORK BENCH FOR MOUNTING EXISTING AND NEW ALUM PUMPS AT CURRENT LOCATION.
2. CONTRACTOR TO CONFIRM THE EXISTING MATERIAL AND SIZE AT EACH CONNECTION LOCATION.

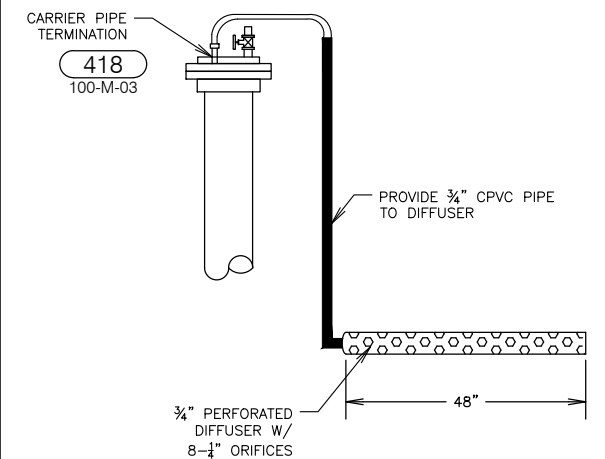


- NOTES:
1. CARRIER PIPE TO BE CAPPED AS DEPICTED AT ALL ENTRANCES AND EXITS TO AND FROM BUILDING INTERIORS, MANHOLES, AND WASTEWATER STRUCTURES.
 2. TUBING COUPLING NUT SHALL BE PROVIDED FOR EACH CHEMICAL TUBE LOCATED IN THE CARRIER PIPE.
 3. THE COUPLING NUT SHALL BE TAPPED THRU THE CAP AND FORM A TIGHT CONNECTION.
 4. EXCESS TUBING TO BE PROVIDED AT INTERIOR OF CAP TO ALLOW REMOVAL OF CAP.
 5. PROVIDE BALL VALVE FOR DRAIN LINES AT ROOM INTERIORS.

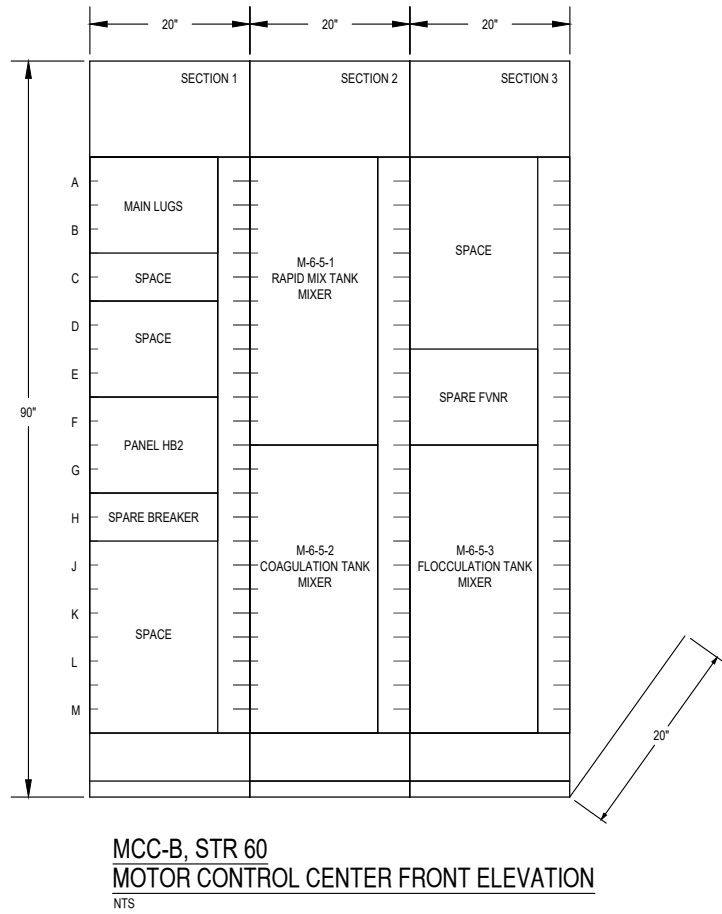
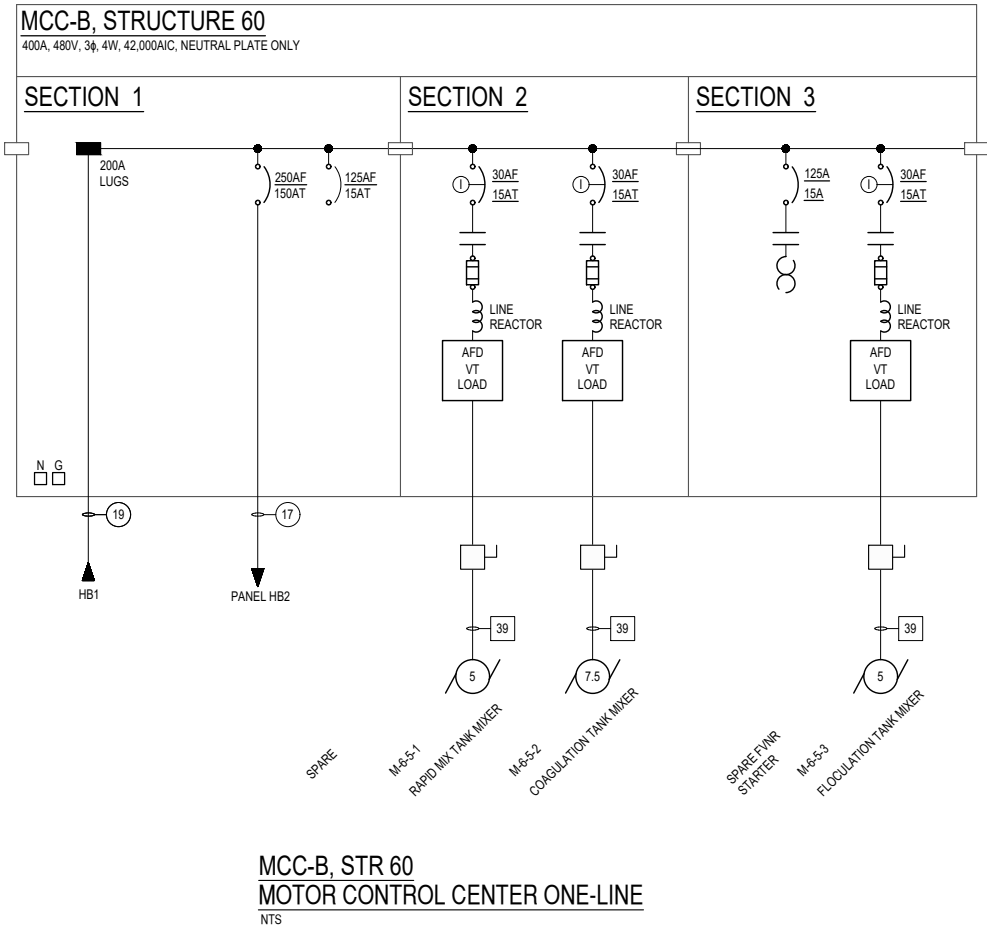
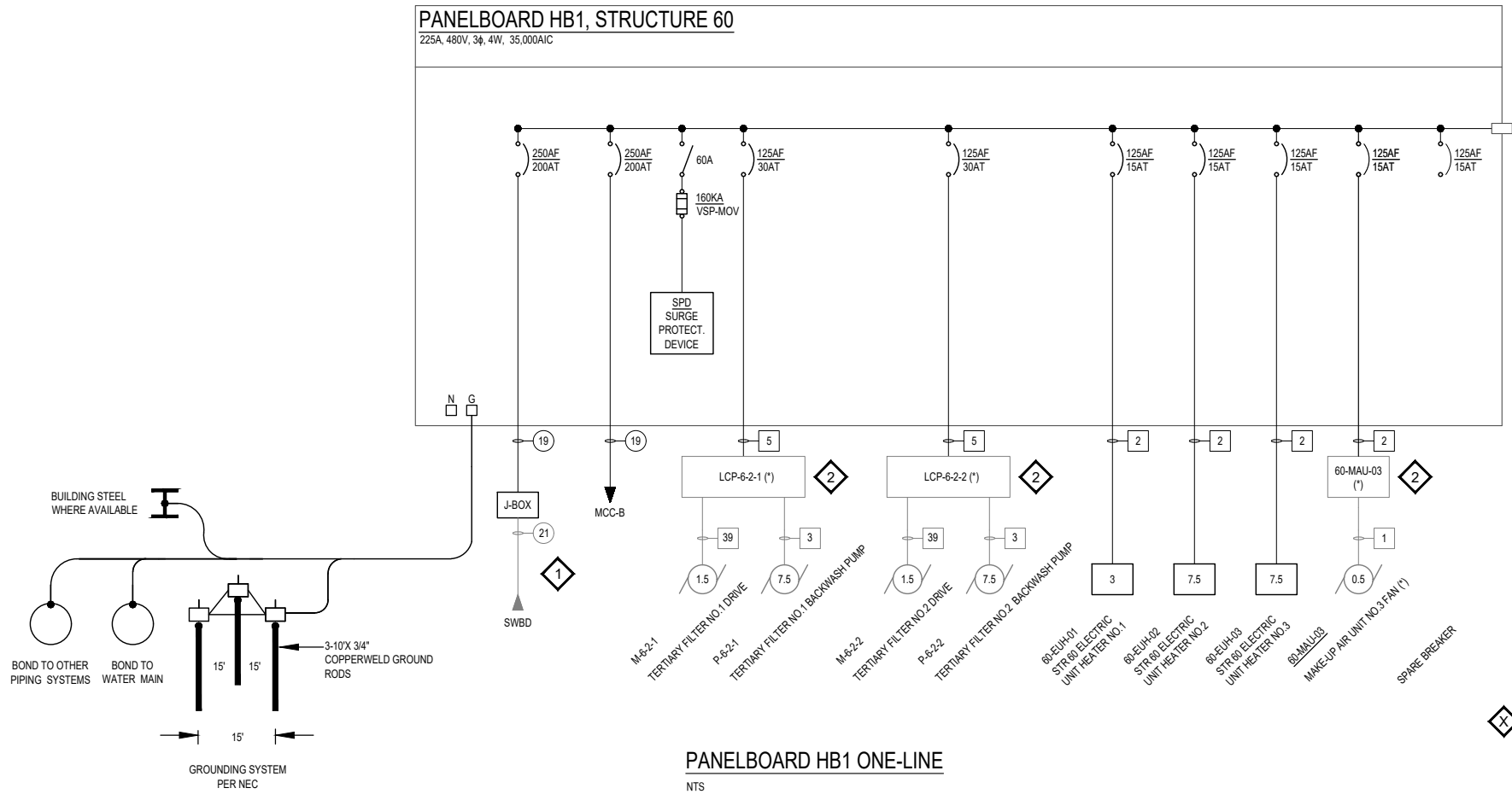
DETAIL 418
CARRIER PIPE TERMINATION

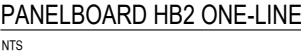


DETAIL 419
CHEMICAL INJECTION TAP



DETAIL 420
CHEMICAL DIFFUSER





FIXTURE SCHEDULE						
TYPE	DESCRIPTION	LAMP TYPE	WATTS/ FIXTURE	MANUFACTURER	CATALOG NUMBER	NOTE
B1	INDUSTRIAL LINEAR BAY	LED	31	METALUX	4ILED-LD5-5-W-UNV-L840-CD1-U	
B2	INDUSTRIAL LINEAR BAY	LED	60	METALUX	4ILED-LD5-9-W-UNV-L840-CD1-U	
C1	13-IN ROUND, WET LOCATION, ENCLOSED AND GASKETED	LED	24	KENALL	MR13FL-PP-MW020L40K-DV	
F1	UNDERWATER NICHE FIXTURE	LED	44	HYDREL	4426-SS-18LED-WHT41K-120-VWFL-CLS-NM-CSLX-SWM	1
D1	EXTERIOR WALL PACK	LED	28	GARDCO	121-16L-530-NW-G4-4-UNV-BL-IMR13-BZ	
D2	EXTERIOR AREA LIGHT	LED	38	LITHONIA	DSX0-LED-P1-40K-T3M-MVOLT-TWBA-DDL-CDBXD	
RH-1	SINGLE REMOTE HEAD, NEMA 4X	LED	3	DUAL LITE	DYNRS-4X	
RH-2	DUAL REMOTE HEAD, NEMA 4X	LED	6	DUAL LITE	DYNRD-4X	
X1	WALL MTD. EXIT FIXTURE COMBINATION, WET LOCATION	LED	6	DUAL LITE	DYNC-S-R-W-12	
X2	CEILING MTD. EXIT FIXTURE COMB., WET LOC., DUAL FACE	LED	6	DUAL LITE	DYNC-D-R-W-12	
FIXTURE NOTES:						
1. PROVIDE CORD LENGTH SUITABLE FOR INSTALLATION.						

THREE PHASE PANEL SCHEDULE										LB1			
TYPE: <u>LIGHTING & APPLIANCE</u> VOLTAGE: <u>208 / 120 - 3P4W</u> MOUNT: <u>SURFACE</u> <u>SINGLE TUB</u>										BUS CONSTRUCTION: <u>CU</u> GROUND BUS: <u>YES</u> ISOLATED GROUND BUS: <u>NO</u>		BUS AMPACITY: <u>225A</u> MAIN CIRCUIT BREAKER: <u>175A</u> SUB-FEED LUGS: <u>NONE</u> INTERRUPTING CAPACITY: <u>10 KAIC</u>	
NOTE		DESCRIPTION	LOAD	BKR	A	B	C	BKR	LOAD	DESCRIPTION		NOTE	
1	1	LIGHTS, ROOM 605	5.00	20/1	14.0	***	***		9.00			2	
	3	LIGHTS, ROOM 606	1.50	20/1	***	10.5	***	40/3	9.00	70-LCP	4		
	5	LIGHTS, ROOM 607	4.00	20/1	***	***	13.0		9.00		6		
	7	LIGHTS, EXTERIOR, TANKS	0.50	20/1	14.5	***	***	20/1	14.00	LCP-7-4-3	8		
	9	LIGHTS, EXTERIOR	1.00	20/1	***	1.0	***	20/1		SPARE	10		
	11	RECEPT, ROOM 605, UPPER	6.00	20/1	***	***	6.0	20/1		SPARE	12		
	13	RECEPT, ROOM 605, LOWER	3.00	20/1	3.0	***	***	20/1		SPARE	14		
	15	RECEPT, ROOM 606	4.50	20/1	***	4.5	***	20/1		SPARE	16		
	17	RECEPT, ROOM 607	6.00	20/1	***	***	6.0	20/1		SPARE	18		
	19	RECEPT, EXTERIOR	3.00	20/1	3.0	***	***	20/1		SPARE	20		
21	SPARE		20/1	***	0.0	***	20/1		SPARE	22			
23	SPARE		20/1	***	***	0.0	20/1		SPARE	24			
25	SPARE		20/1	0.0	***	***	20/1		SPARE	26			
27	SPARE		20/1	***	0.0	***	20/1		SPARE	28			
29	SPARE		20/1	***	***	0.0	20/1		SPARE	30			
31	60-GUH-03	4.00	20/1	4.0	***	***	***	20/1		SPARE	32		
33	60-GUH-04	4.00	20/1	***	14.0	***	***	20/1	10.00	OH DOOR 1, ROOM 605	34		
35	60-EF-02	6.00	20/1	***	***	16.0	***	20/1	10.00	OH DOOR 2, ROOM 607	36		
37	60-EF-03	5.00	20/1	45.0	***	***	***		40.00		38		
39	60-DSS-01		10.00		***	50.0	***	100/3	40.00	PANEL LB2	40		
41			10.00	15/2	***	***	50.0		40.00		42		
TOTAL AMPS / PHASE: 83.5 80.0 91.0												TOTAL CONNECTED KVA: 30.6	
KVA / PHASE: 10.0 9.6 10.9													

SCHEDULE NOTES:
1. PROVIDE GFCI TYPE BREAKER FOR CIRCUIT SERVING MIXING TANK LIGHTS.

FEEDER SCHEDULE															
IDENTIFIER	THERMAL-MAGNETIC CIRCUIT BREAKER	BREAKER PICKUP AMPS (80%)	SINGLE-PHASE TWO-WIRE CIRCUIT		SINGLE OR THREE-PHASE THREE-WIRE CIRCUIT		THREE-PHASE FOUR-WIRE CIRCUIT		ALL	MAX. DISTANCES (FT) 480V 3-PHASE		MAX. DISTANCES (FT) 240V 3-PHASE		MAX. DISTANCES (FT) 120/240V 1-PHASE	
			CONDUIT	CIRCUIT CONDUCTORS	CONDUIT	CIRCUIT CONDUCTORS	CONDUIT	CIRCUIT CONDUCTORS		FEEDER (2% DROP)	BRANCH (3% DROP)	FEEDER (2% DROP)	BRANCH (3% DROP)	FEEDER (2% DROP)	BRANCH (3% DROP)
1	10	8	3/4"	(2) #12	3/4"	(3) #12	3/4"	(4) #12	#12	335	502	167	251	145	218
2	15	12	3/4"	(2) #12	3/4"	(3) #12	3/4"	(4) #12	#12	223	335	112	167	97	145
3	20	16	3/4"	(2) #12	3/4"	(3) #12	3/4"	(4) #12	#12	167	251	84	126	73	109
4	25	20	3/4"	(2) #10	3/4"	(3) #10	3/4"	(4) #10	#10	212	317	106	159	92	138
5	30	24	3/4"	(2) #10	3/4"	(3) #10	3/4"	(4) #10	#10	176	264	88	132	76	115
6	35	28	3/4"	(2) #8	3/4"	(3) #8	3/4"	(4) #8	#10	241	361	120	181	104	157
7	40	32	3/4"	(2) #8	3/4"	(3) #8	3/4"	(4) #8	#10	211	316	105	158	91	137
8	45	36	3/4"	(2) #8	3/4"	(3) #8	3/4"	(4) #8	#10	187	281	94	140	81	122
9	50	40	3/4"	(2) #8	3/4"	(3) #8	3/4"	(4) #8	#10	169	253	84	126	73	110
10	60	48	3/4"	(2) #6	3/4"	(3) #6	3/4"	(4) #6	#10	224	336	112	168	97	146
11	70	56	1"	(2) #4	1"	(3) #4	1-1/4"	(4) #4	#8	305	457	152	228	132	198
12	80	64	1"	(2) #4	1"	(3) #4	1-1/4"	(4) #4	#8	266	400	133	200	115	173
13	90	72	1"	(2) #3	1"	(3) #3	1-1/4"	(4) #3	#8	290	436	145	218	126	189
14	100	80	1"	(2) #3	1"	(3) #3	1-1/4"	(4) #3	#8	261	392	131	196	113	170
15	110	88	1"	(2) #2	1"	(3) #2	1-1/2"	(4) #2	#6	307	461	154	230	133	200
16	125	100	1-1/4"	(2) #1	1-1/2"	(3) #1	1-1/2"	(4) #1	#6	340	510	170	255	147	221
17	150	120	1-1/4"	(1) #1/0	1-1/2"	(3) #1/0	2"	(4) #1/0	#6	355	533	178	266	154	231
18	175	140	N/A	N/A	2"	(3) #2/0	2"	(4) #2/0	#6	377	566	189	283	163	245
19	200	160	N/A	N/A	2"	(3) #3/0	2"	(4) #3/0	#6	413	619	206	310	179	268
20	225	180	N/A	N/A	2"	(3) #4/0	2-1/2"	(4) #4/0	#4	459	688	229	344	199	298
21	250	200	N/A	N/A	2-1/2"	(3) 250KCMIL	3"	(4) 250KCMIL	#4	484	725	242	363	210	314
22	300	240	N/A	N/A	3"	(3) 350KCMIL	3"	(4) 350KCMIL	#4	552	829	276	414	239	359
23	350	280	N/A	N/A	3"	(3) 500KCMIL	3-1/2"	(4) 500KCMIL	#3	647	970	323	485	280	420
24	400	320	N/A	N/A	3-1/2"	(3) 600KCMIL	4"	(4) 600KCMIL	#3	661	992	331	496	286	430
25	450	360	N/A	N/A	(2) 2"	2 SETS OF (3) #4/0	(2) 2-1/2"	2 SETS OF (4) #4/0	#2	459	688	229	344	199	298
26	500	400	N/A	N/A	(2) 2-1/2"	2 SETS OF (3) 250KCMIL	(2) 3"	2 SETS OF (4) 250KCMIL	#2	484	725	242	363	210	314
27	600	480	N/A	N/A	(2) 3"	2 SETS OF (3) 350KCMIL	(2) 3"	2 SETS OF (4) 350KCMIL	#1	552	829	276	414	239	359
28	700	560	N/A	N/A	(2) 3"	2 SETS OF (3) 500KCMIL	(2) 3-1/2"	2 SETS OF (4) 500KCMIL	#1/0	647	970	323	485	280	420
29	800	640	N/A	N/A	(2) 3-1/2"	2 SETS OF (3) 600KCMIL	(2) 4"	2 SETS OF (4) 600KCMIL	#1/0	661	992	331	496	286	430
39	20	16	N/A	N/A	1"	3C#12 SHIELDED MOTOR CABLE	N/A	N/A	(3) #10	167	251	84	126	73	109
40	30	24	N/A	N/A	1"	3C#10 SHIELDED MOTOR CABLE	N/A	N/A	(3) #10	176	264	88	132	76	115
41	50	40	N/A	N/A	1"	3C#8 SHIELDED MOTOR CABLE	N/A	N/A	(3) #10	169	253	84	126	73	110
42	60	48	N/A	N/A	1 1/4"	3C#6 SHIELDED MOTOR CABLE	N/A	N/A	(3) #10	224	336	112	168	97	146
43	80	64	N/A	N/A	1 1/4"	3C#4 SHIELDED MOTOR CABLE	N/A	N/A	(3) #10	266	400	133	200	115	173
44	100	80	N/A	N/A	1 1/2"	3C#3 SHIELDED MOTOR CABLE	N/A	N/A	(3) #10	261	392	131	196	113	170
45	125	100	N/A	N/A	2"	3C#1 SHIELDED MOTOR CABLE	N/A	N/A	(3) #8	340	510	170	255	147	221
46	175	140	N/A	N/A	2"	3C#2/0 SHIELDED MOTOR CABLE	N/A	N/A	(3) #6	377	566	189	283	163	245
PLAN NOTATION: Δ SINGLE-PHASE, TWO-WIRE FEEDER, NUMBER IS THE FEEDER IDENTIFIER □ SINGLE OR THREE-PHASE, THREE-WIRE FEEDER, NUMBER IS THE FEEDER IDENTIFIER ○ THREE-PHASE, FOUR-WIRE FEEDER, NUMBER IS THE FEEDER IDENTIFIER															

THREE PHASE PANEL SCHEDULE										LB2			
TYPE: LIGHTING & APPLIANCE VOLTAGE 208 / 120 - 3P4W MOUNT: SURFACE SINGLE TUB										BUS CONSTRUCTION: CU GROUND BUS: YES ISOLATED GROUND BUS: NO		BUS AMPACITY: 100A MAIN CIRCUIT BREAKER: 100A SUB-FEED LUGS: NONE INTERRUPTING CAPACITY: 10 KAIC	
NOTE		DESCRIPTION	LOAD	BKR	A	B	C	BKR	LOAD	DESCRIPTION			NOTE
1	1	LIGHTS, ROOM 600 N & S	2.00	20/1	7.0	***	***	20/1	5.00	CONTROL PANEL, LCP-B	2		1
1	3	LIGHTS, ROOM 600 EAST	1.00	20/1	***	2.0	***	20/1	1.00	FILTER LEVEL SENSOR	4		1
1	5	LIGHTS, ROOM 600 WEST	1.00	20/1	***	***	2.0	20/1	1.00	BACKWASH FLOW TRANSMITTER	6		1
1	7	LIGHTS, ROOM 603	1.00	20/1	1.0	***	***	20/1		SPARE	8		
1	9	LIGHTS, ROOM 602	1.00	20/1	***	1.0	***	20/1		SPARE	10		
1	11	LIGHTS, ROOM 604	4.00	20/1	***	***	4.0	20/1		SPARE	12		
1	13	EXIT LIGHTS	1.00	20/1	1.0	***	***	20/1		SPARE	14		
1	15	SPARE		20/1	***	1.0	***	20/1	1.00	COAGULANT PUMP CONTROLLER	16		1
1	17	RECEPT, RMS 602, 203, 604 & 600 S	6.00	20/1	***	***	7.5	20/1	1.50	P-4-5-1 RECEPT	18		3
1	19	RECEPT, ROOM 600 WEST	3.00	20/1	4.5	***	***	20/1	1.50	P-4-5-2 RECEPT	20		3
1	21	RECEPT, ROOM 600 N & E	7.50	20/1	***	9.0	***	20/1	1.50	P-4-5-3 RECEPT	22		3
2	23	GUH, ROOM 604	2.00	20/1	***	***	8.0	20/1	6.00	P-4-6-1	24		3
1	25	MAU-04	7.50	20/1	9.0	***	***	20/1	1.50	P-6-3-1 RECEPT	26		3
1	27	EXHAUST FAN, ROOM 604	4.50	20/1	***	6.0	***	20/1	1.50	P-6-3-2 RECEPT	28		3
1	29	EXHAUST FAN, ROOM 600 NORTH	4.50	20/1	***	***	6.0	20/1	1.50	TELEPHONE RECEPT.	30		1
1	31	EXHAUST FAN, ROOM 600 SOUTH	7.50	20/1	7.5	***	***	20/1		SPARE	32		
2	33	60-EF-01, 60-D-01	4.00	20/1	***	4.0	***	20/1		SPARE	34		
2	35	60-GUH-01, 60-GUH-02	7.00	20/1	***	***	7.0	20/1		SPARE	36		
1	37	WH-1	5.00	20/1	5.0	***	***	20/1		SPARE	38		
1	39	SUMP PUMPS, ROOM 600 EAST	10.00	20/1	***	19.6	***		9.60				
1	41	SUMP PUMPS, ROOM 600 WEST	10.00	20/1	***	***	19.6	20/2	9.60	60-CONV-01	42		2
TOTAL AMPS / PHASE:					35.0	42.6	54.1						
KVA / PHASE:					4.2	5.1	6.5	TOTAL CONNECTED KVA: 15.8					

STR 60 PROCESS INSTRUMENTATION AND EQUIPMENT WIRING SCHEDULE													
TAG NUMBER	DESCRIPTION	FIRST SIGNAL/CONTROL HOMERUN			SECOND SIGNAL/CONTROL HOMERUN			POWER HOMERUN				DETAIL	NOTES
		DESTINATION	WIRING TYPE	WIRING	DESTINATION	WIRING TYPE	WIRING	CIRCUIT	VOLTAGE	CKT. BKR.	WIRING		
TT-18-6-2	TEMPERATURE TRANSMITTER, ROOM 603	LCP-B	24VDC ANALOG	A1								E2-03	
XS-19-4	CONTROL STATION, EXHAUST FAN NO.1	LCP-B	120VAC DISCRETE	D5								E2-03	
LT-4-5	LEVEL TRANSMITTER, ALUM TANK	LCP-B	24VDC ANALOG	A1									
AE/AIT-4-6-1	PHOSPHATE ANALYZER	LCP-B	120VAC DISCRETE	D2				EXISTING					
LCP-60-MAU	MAKE-UP AIR UNIT REMOTE CONTROL STATION	60-MAU-01	120VAC DISCRETE	D10	60-MAU-01	24VDC ANALOG	A1						
LCP-60-MAU	MAKE-UP AIR UNIT REMOTE CONTROL STATION	LCP-B	120VAC DISCRETE	D4									
LCP-6-2-1	POLYMER METERING PUMP PANEL NO.1	LCP-6-2-3	120VAC DISCRETE	D10	LCP-6-2-3	24VDC ANALOG	A1	HB2-X			SEE ONE-LINE		
XS-6-2-1-1	TERTIARY FILTER NO.1 INFLUENT VALVE CONTROL STATION	FV-6-2-1-1	120VAC DISCRETE	D10								E2-04	
XS-6-2-1-2	TERTIARY FILTER NO.1 EFFLUENT VALVE CONTROL STATION	FV-6-2-2-1	120VAC DISCRETE	D10								E2-04	
LCP-6-2-2	POLYMER METERING PUMP PANEL NO.2	LCP-6-2-3	120VAC DISCRETE	D10	LCP-6-2-3	24VDC ANALOG	A1	HB2-X			SEE ONE-LINE		
XS-6-2-2-1	TERTIARY FILTER NO.2 INFLUENT VALVE CONTROL STATION	FV-6-2-2-1	120VAC DISCRETE	D10								E2-04	
XS-6-2-2-2	TERTIARY FILTER NO.2 EFFLUENT VALVE CONTROL STATION	FV-6-2-2-2	120VAC DISCRETE	D10								E2-04	
PSL-6-2-3	PRESSURE SWITCH LOW, TERTIARY FILTER NO.3 BACKWASH PUMP	LCP-6-2-3	120VAC DISCRETE	D2									
LSH-6-2-3	LEVEL SWITCH, HIGH, TERTIARY FILTER NO.3	LCP-6-2-3	120VAC DISCRETE	D2									
LCP-6-2-3	TERTIARY FILTER NO.3 & 4 LOCAL CONTROL PANEL	LCP-B	120VAC DISCRETE	D8	LCP-B	COPPER ETHERNET 600V	EH1						
LSHH-6-2-3	LEVEL SWITCH, HIGH ALARM, TERTIARY FILTER NO.3	LCP-6-2-3	120VAC DISCRETE	D2									
TSH-6-2-3	TEMPERATURE SWITCH, HIGH, TERTIARY FILTER NO.3 DRIVE MOTOR	LCP-6-2-3	120VAC DISCRETE	D2									
XS-6-2-3-1	TERTIARY FILTER NO.3 INFLUENT VALVE CONTROL STATION	FV-6-2-3-1	120VAC DISCRETE	D10								E2-04	
XS-6-2-3-2	TERTIARY FILTER NO.3 EFFLUENT VALVE CONTROL STATION	FV-6-2-2-3	120VAC DISCRETE	D10								E2-04	
LSHH-6-2-4	LEVEL SWITCH, HIGH ALARM, TERTIARY FILTER NO.4	LCP-6-2-3	120VAC DISCRETE	D2									
PSL-6-2-4	PRESSURE SWITCH LOW, TERTIARY FILTER NO.4 BACKWASH PUMP	LCP-6-2-3	120VAC DISCRETE	D2									
LSH-6-2-4	LEVEL SWITCH, HIGH, TERTIARY FILTER NO.4	LCP-6-2-3	120VAC DISCRETE	D2									
TSH-6-2-4	TEMPERATURE SWITCH, HIGH, TERTIARY FILTER NO.4 DRIVE MOTOR	LCP-6-2-3	120VAC DISCRETE	D2									
XS-6-2-4-1	TERTIARY FILTER NO.4 INFLUENT VALVE CONTROL STATION	FV-6-2-4-1	120VAC DISCRETE	D10								E2-04	
XS-6-2-4-2	TERTIARY FILTER NO.4 EFFLUENT VALVE CONTROL STATION	FV-6-2-2-4	120VAC DISCRETE	D10								E2-04	
LT-6-4-3	LEVEL TRANSMITTER, POLYMER AGING TANK	LCP-6-4-3	24VDC ANALOG	A1									
LCP-6-4-3	POLYMER MAKEDOWN SKID	LCP-6-2-3	120VAC DISCRETE	D8	LCP-6-2-3	24VDC ANALOG	A2	LB1-X	120V/1-PH	20A/1-POLE	2#12 & #12G		
TSH-6-5-1	TEMPERATURE SWITCH, HIGH, RAPID MIX TANK MIXER MOTOR	MCC-B	120VAC DISCRETE	D2									
HS-6-5-1-1	JOG-OFF-REMOTE, RAPID MIX TANK MIXER	MCC-B	120VAC DISCRETE	D3									
TSH-6-5-2	TEMPERATURE SWITCH, HIGH, COAGULATION TANK MIXER MOTOR	MCC-B	120VAC DISCRETE	D2									
HS-6-5-2-1	JOG-OFF-REMOTE, COAGULATION TANK MIXER	MCC-B	120VAC DISCRETE	D3									
TSH-6-5-3	TEMPERATURE SWITCH, HIGH, FLOCCULATION TANK MIXER MOTOR	MCC-B	120VAC DISCRETE	D2									
HS-6-5-3-1	JOG-OFF-REMOTE, FLOCCULATION TANK MIXER	MCC-B	120VAC DISCRETE	D3									
60-MAU-01	MAKE-UP AIR UNIT CONTROL PANEL	LCP-B	120VAC DISCRETE	D6									
-P-4-5-3	ALUM PUMP NO.3	LCP-B	120VAC DISCRETE	D2	LCP-B	24VDC ANALOG	A1						
-P-6-3-1	CHLORINE PUMP NO.1	LCP-B	120VAC DISCRETE	D2	LCP-B	24VDC ANALOG	A1						

STR 70 PROCESS INSTRUMENTATION AND EQUIPMENT WIRING SCHEDULE													
TAG NUMBER	DESCRIPTION	FIRST SIGNAL/CONTROL HOMERUN			SECOND SIGNAL/CONTROL HOMERUN			POWER HOMERUN				DETAIL	NOTES
		DESTINATION	WIRING TYPE	WIRING	DESTINATION	WIRING TYPE	WIRING	CIRCUIT	VOLTAGE	CKT. BKR.	WIRING		
LSLL-7-1	LEVEL SWITCH LOW ALARM, UV CHANNEL	TJB-7-1	120VAC DISCRETE	D2								E2-04	
TJB-7-1	UV LEVEL CONTROL TERMINAL JUNCTION BOX	LCP-7-1-3	12VDC DISCRETE	D2				70-LCP	120V/1-PH	20A/1-POLE	2#12 & #12G		
M-7-1-1	UV BANK A	LCP-7-1-3	MANUFACTURER'S CABLE	M10									
LCP-7-1-1	UV SCC - SYSTEM CONTROL CENTER	70-LCP	120VAC DISCRETE	D6	70-LCP	COPPER ETHERNET 600V	EH1	70-LCP	120V/1-PH	20A/1-POLE	2#12 & #12G		
RE-7-1-1	UV INTENSITY SENSOR, UV BANK A	LCP-7-1-3	MANUFACTURER'S CABLE	M1									
M-7-1-2	UV BANK B	LCP-7-1-3	MANUFACTURER'S CABLE	M10									
RE-7-1-2	UV INTENSITY SENSOR, UV BANK B	LCP-7-1-3	MANUFACTURER'S CABLE	M1									
LCP-7-1-2	UV HSC - HYDRAULIC SYSTEM CENTER	LCP-7-1-1	MODBUS	BELDEN 3106A	LCP-7-1-3	MODBUS	BELDEN 3106A	HB2-X			SEE ONE-LINE		
LCP-7-1-3	UV PDC - POWER DISTRIBUTION CENTER	LCP-7-1-2	MODBUS	BELDEN 3106A	TJB-7-1	120VAC DISCRETE	D2	HB2-X			SEE ONE-LINE		
XS-7-2-1	POSITION MONITOR, UV BANK A	LCP-7-1-3	MANUFACTURER'S CABLE	M1									
XS-7-2-2	POSITION MONITOR, UV BANK B	LCP-7-1-3	MANUFACTURER'S CABLE	M1									
AIT-7-4-2-1	EFFLUENT DO TRANSMITTER	70-MCP	24VDC ANALOG	A1				EXISTING					
FIT-7-5-1	EFFLUENT FLOW TRANSMITTER	70-LCP	24VDC ANALOG	A1									
70-LCP	STR 70 NETWORK DISTRIBUTION PANEL	LCP-B	FIBER OPTIC CABLE3	FO6				LB1-X	208V/3-PH	40A/3-POLE	3#8 & #10G		

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SCHEDULES

2024 WASTEWATER IMPROVEMENTS
TERTIARY FILTERS AND DISINFECTION

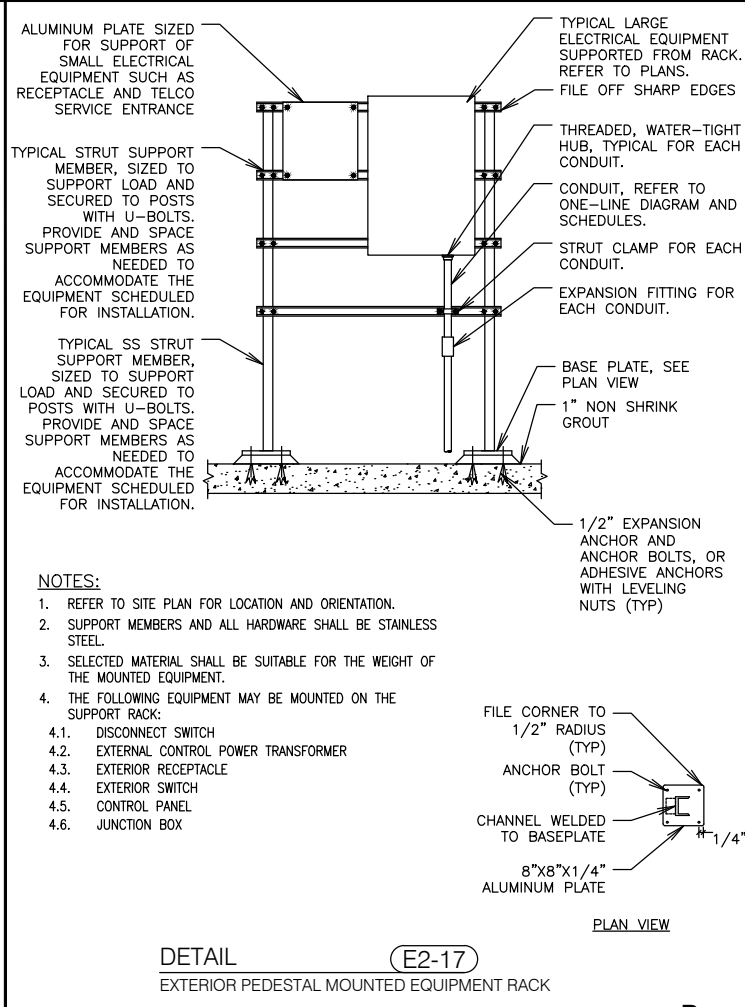
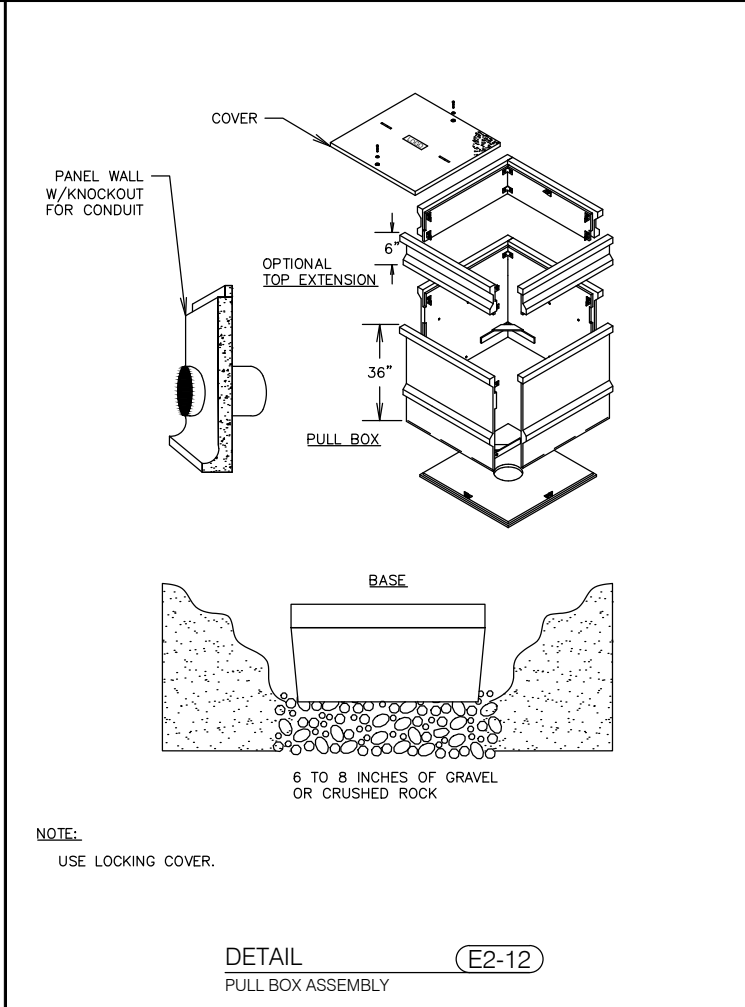
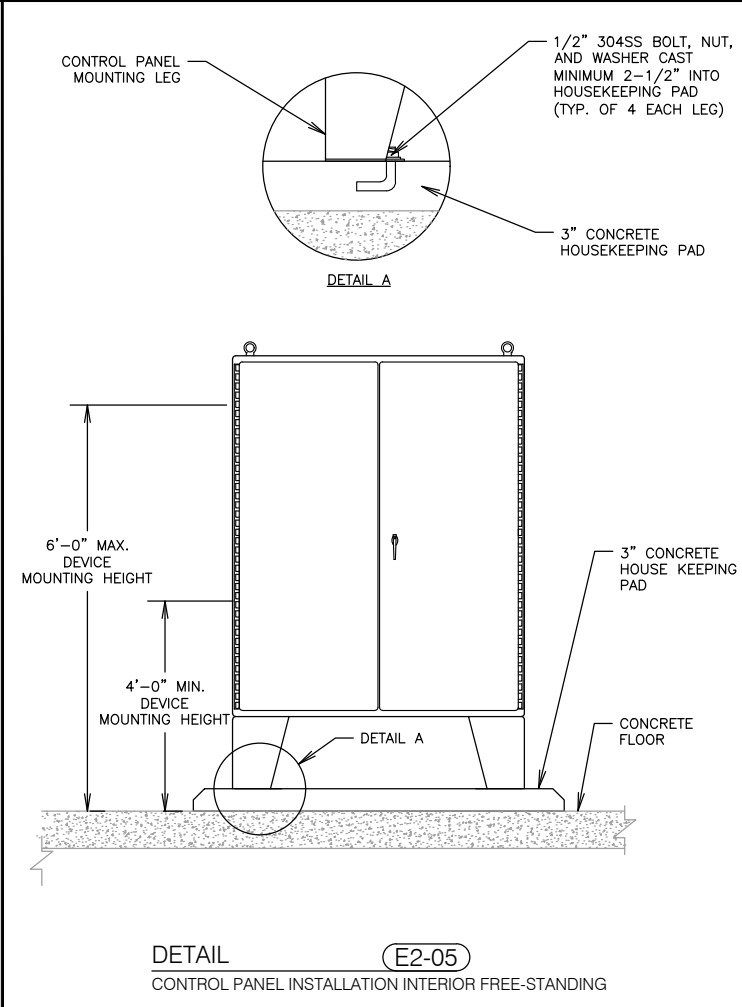
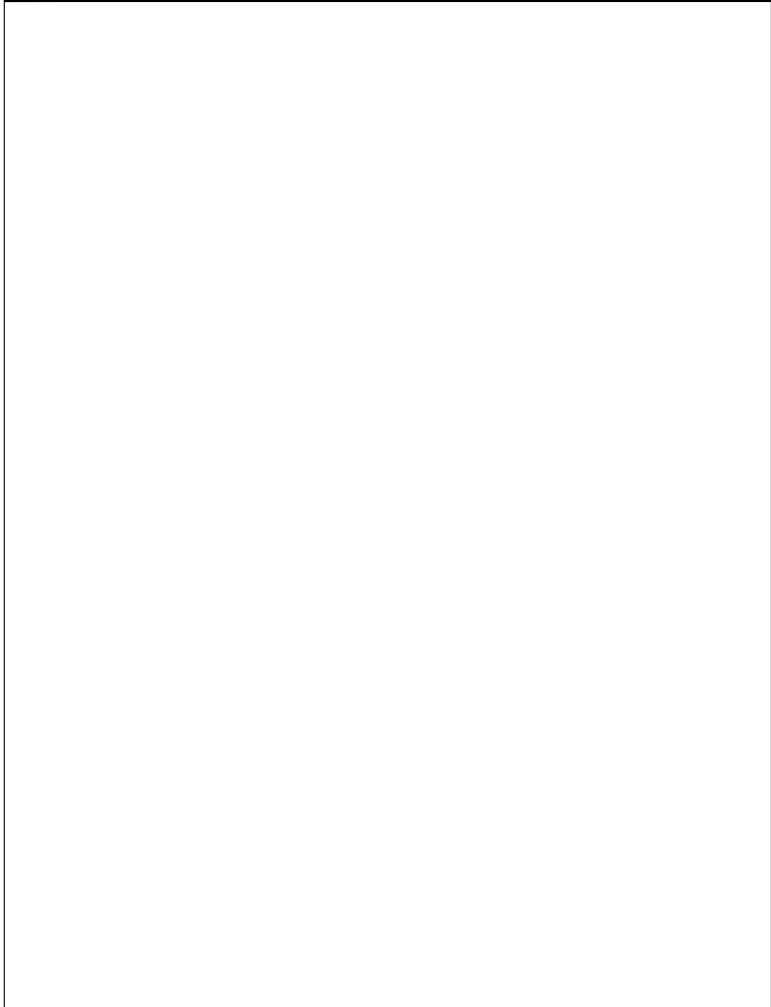
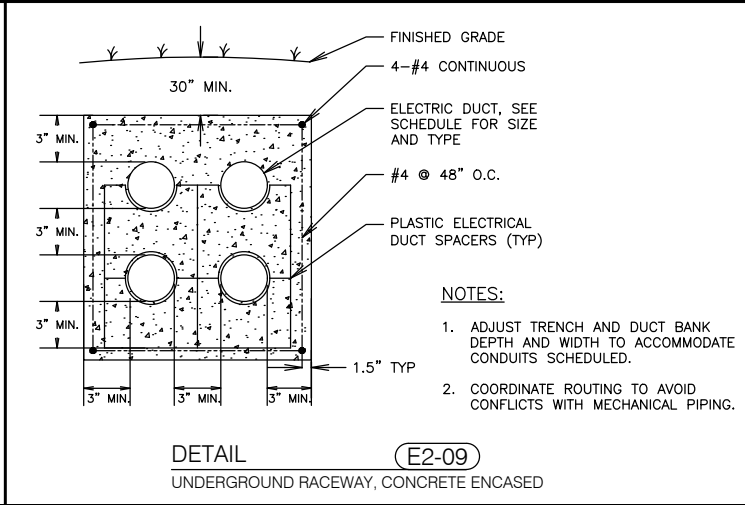
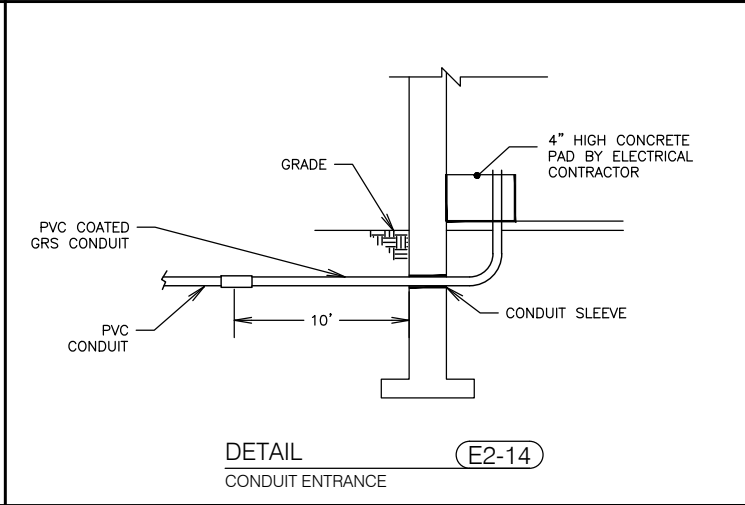
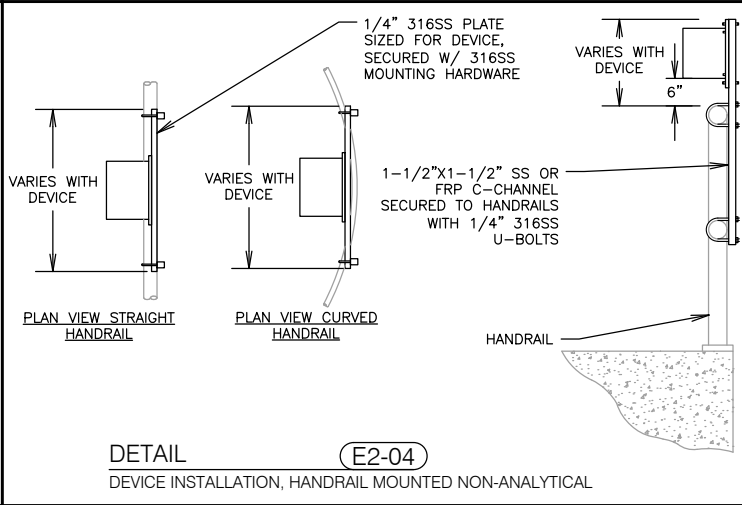
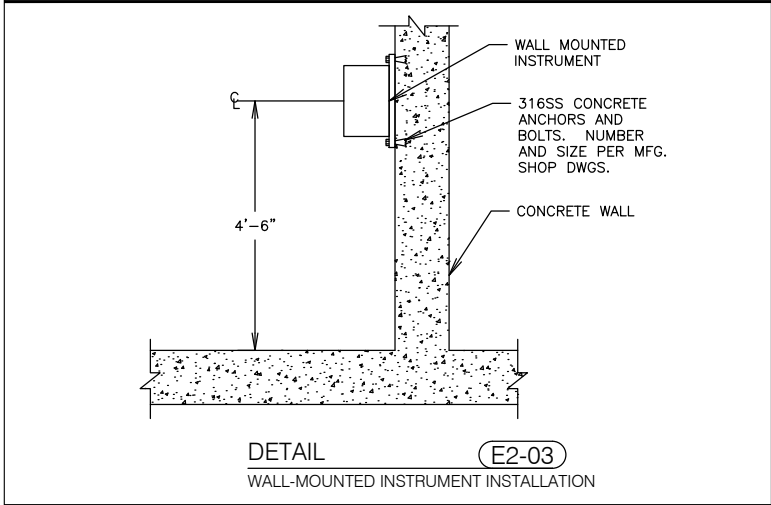
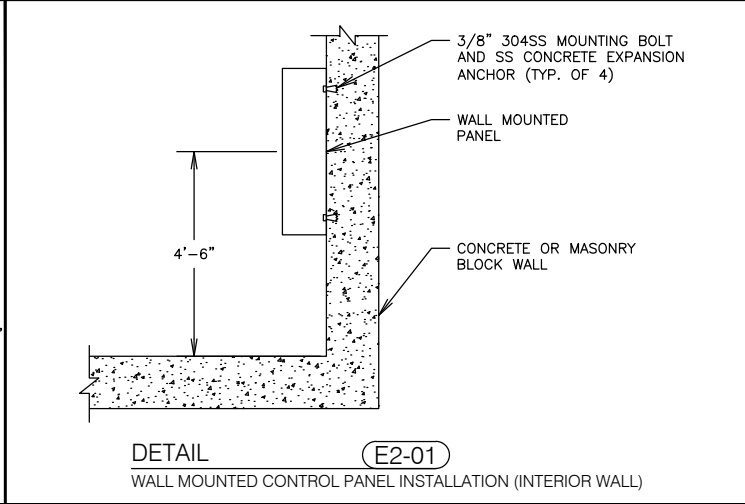
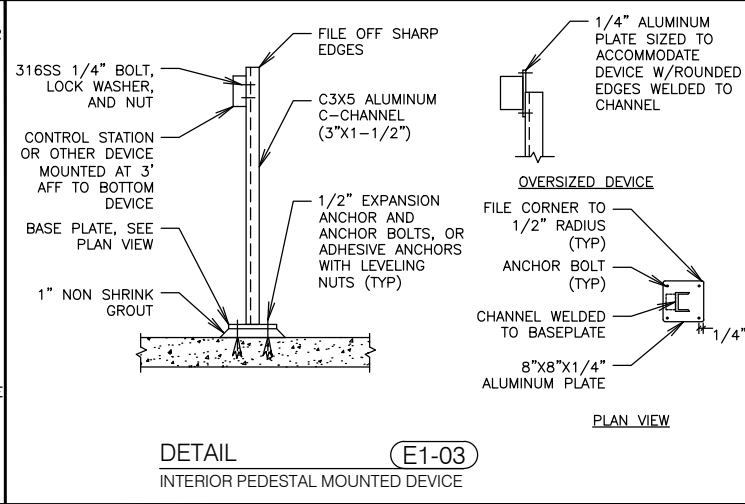
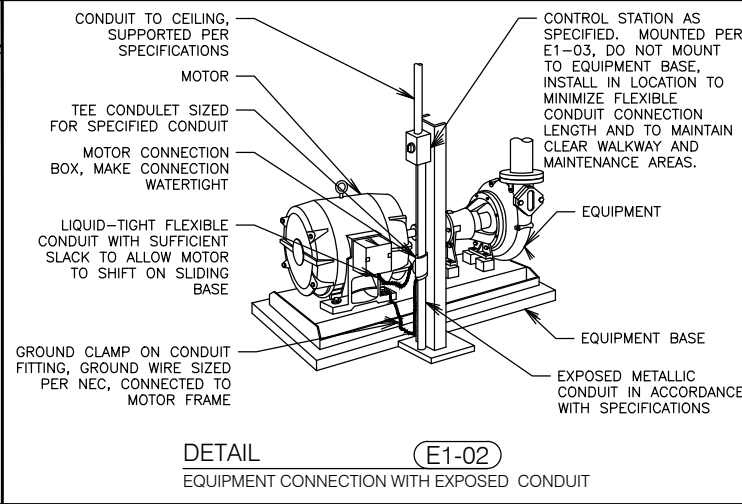
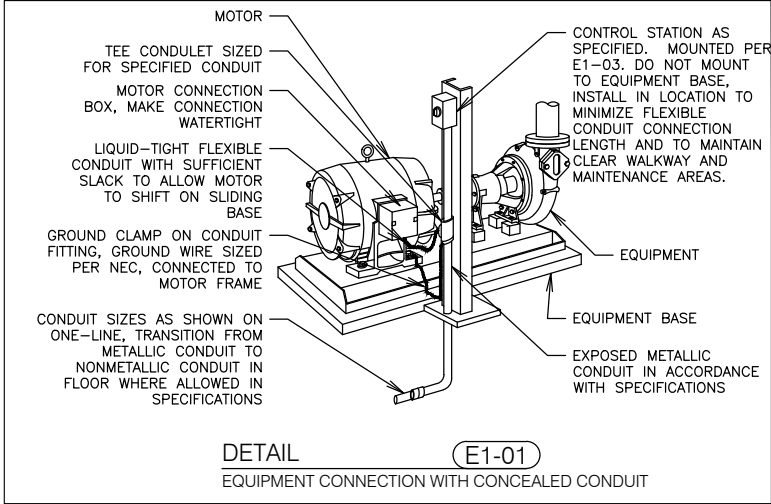
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JK 18
DRAWING FILE:
100-E-04
DRAWN BY:
N.W.W.
CHECKED BY:
D.L.G.
DATE:
1-3-24
REVISIONS:

SCALE:

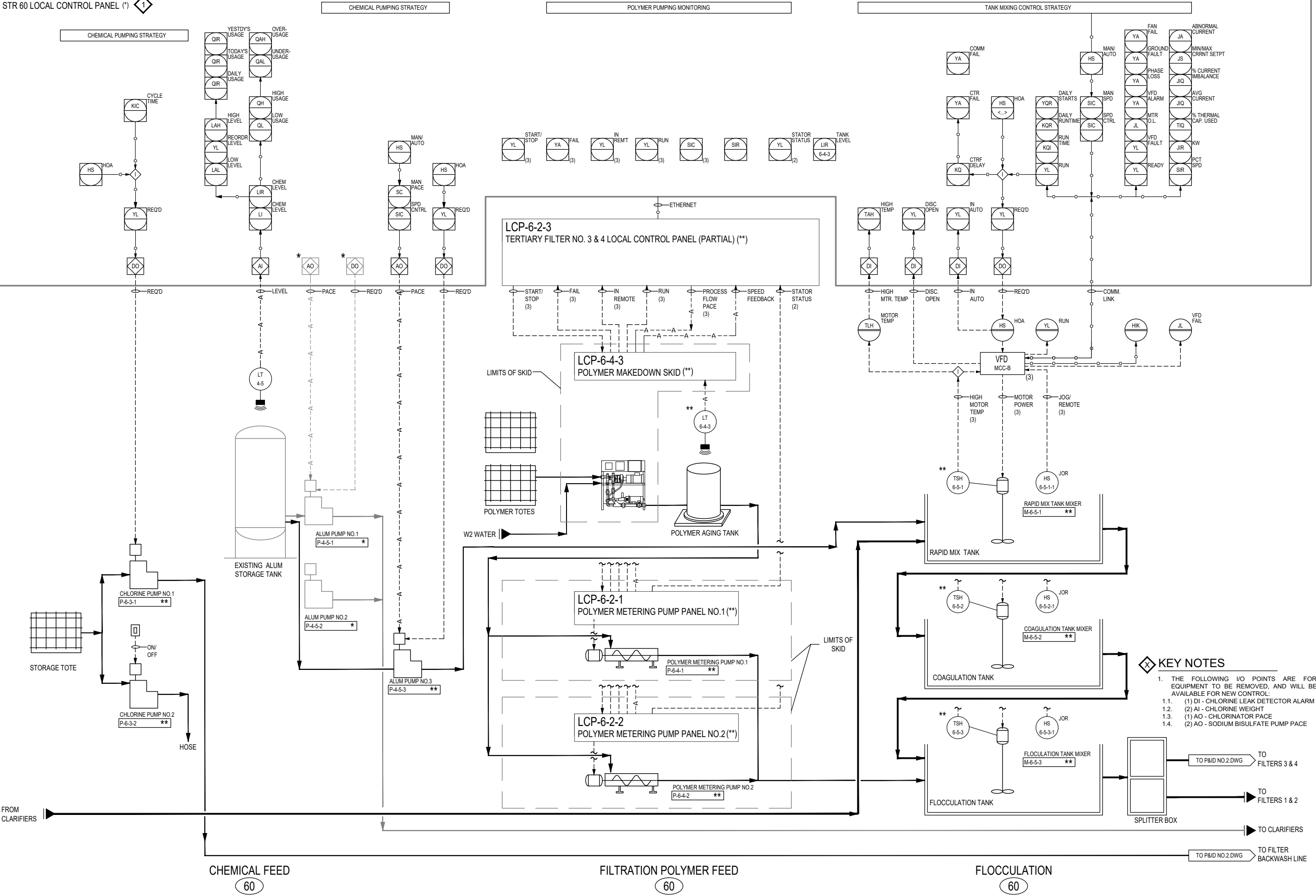
N.T.S.

SHEET:
55
100-E-04

Village of Jackson, Wisconsin



LCP-B
STR 60 LOCAL CONTROL PANEL (*) 1

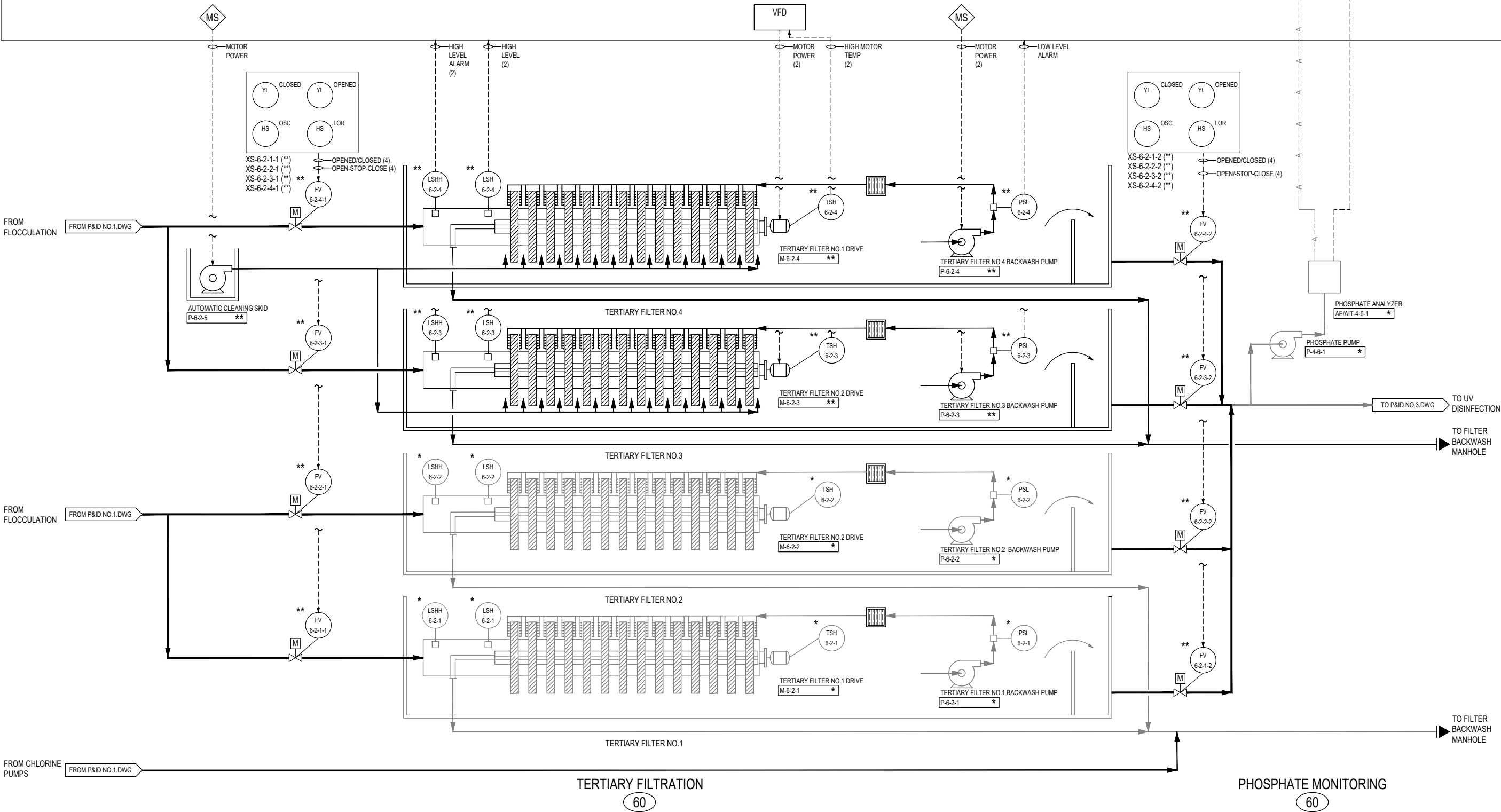


LCP-B
STR 60 LOCAL CONTROL PANEL (*)

LCP-6-2-1
TERTIARY FILTER NO.1 LOCAL CONTROL PANEL (*)

LCP-6-2-2
TERTIARY FILTER NO.2 LOCAL CONTROL PANEL (*)

LCP-6-2-3
TERTIARY FILTER NO.3 & 4 LOCAL CONTROL PANEL (**)



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ENGINEERING, INC.

P&ID NO.2

2024 WASTEWATER IMPROVEMENTS
TERTIARY FILTERS AND DISINFECTION

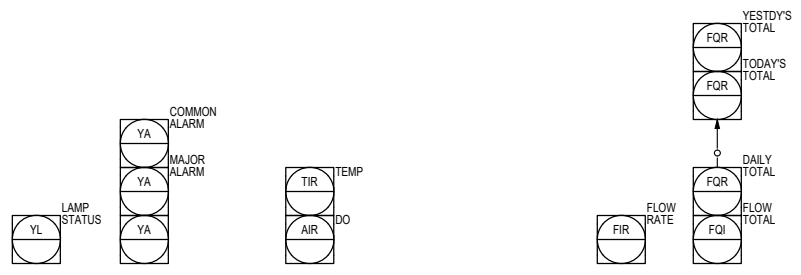
Village of Jackson, Wisconsin

PROJECT NO.: JK 18
DRAWING FILE: 100-W-02
DRAWN BY: N.W.W.
CHECKED BY: D.L.G.
DATE: 1-3-24
REVISIONS:

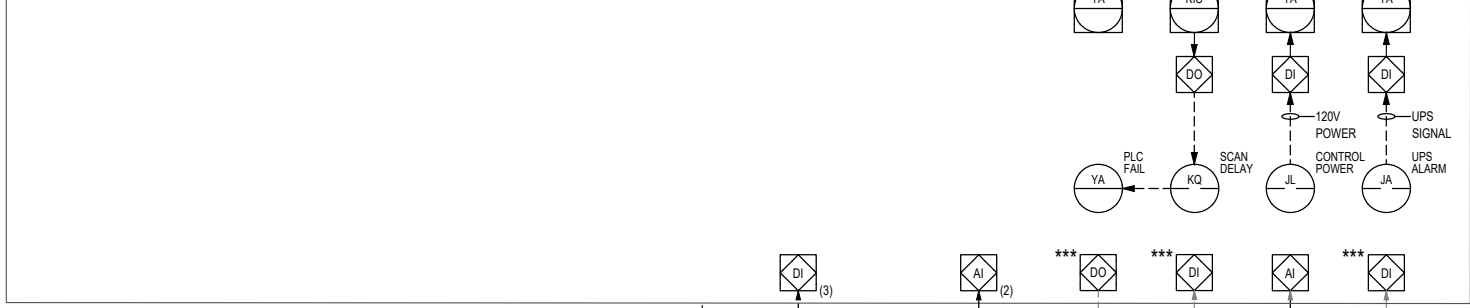
SCALE:
N.T.S.

SHEET: 58
100-W-02

LCP-B
STR 60 LOCAL CONTROL PANEL (*)



70-LCP
STR 70 NETWORK DISTRIBUTION PANEL

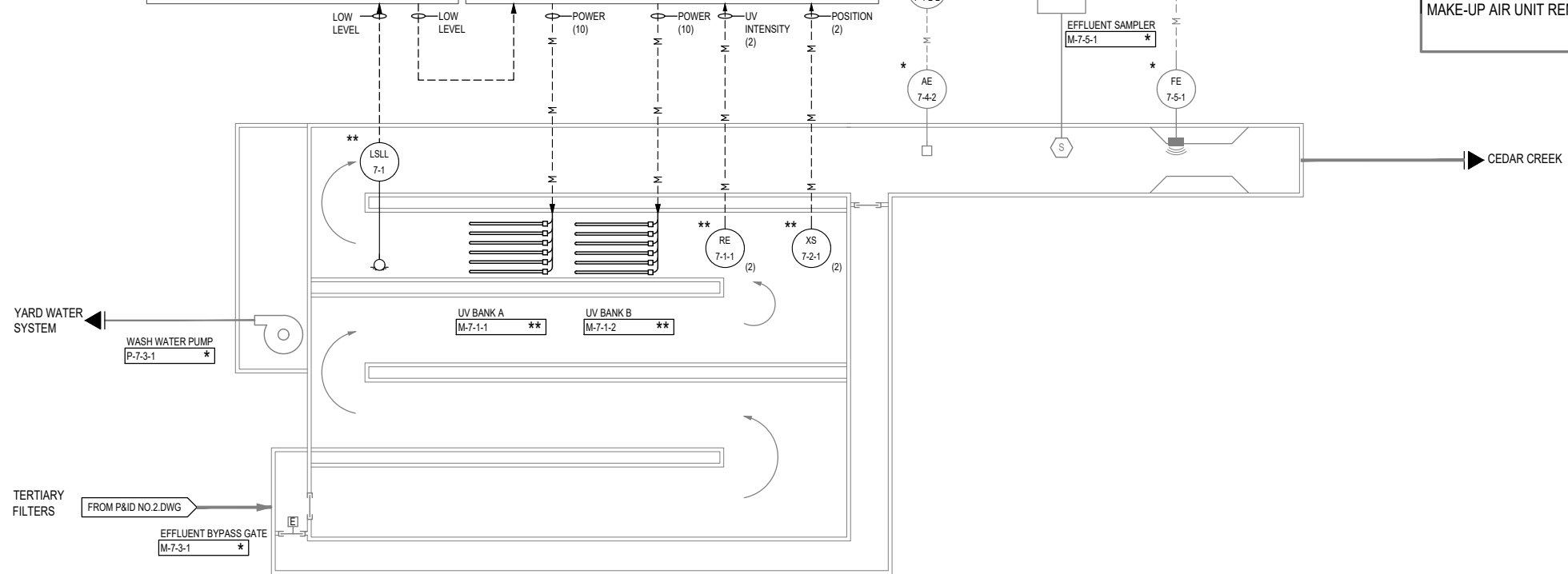


LCP-7-1-2 (**)
UV HSC - HYDRAULIC SYSTEM CENTER

LCP-7-1-1 (**)
UV SCC - SYSTEM CONTROL CENTER

TJB-7-1 (**)
UV LEVEL CONTROL TERMINAL JUNCTION BOX

LCP-7-1-3 (**)
UV PDC - POWER DISTRIBUTION CENTER



UV DISINFECTION

EFFLUENT MONITORING

HVAC AND ENVIRONMENTAL CONTROL
AND MONITORING

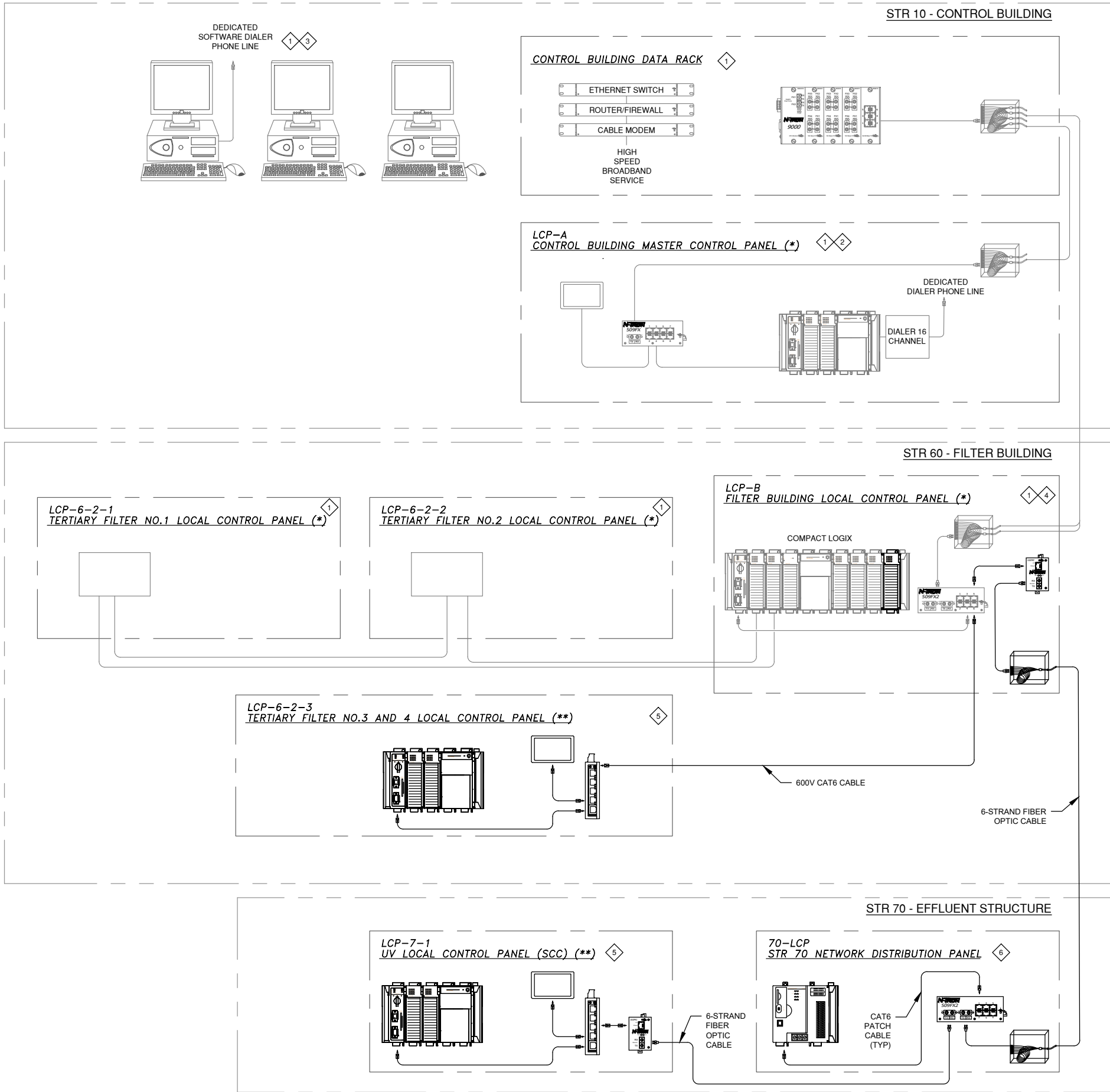
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Madison, WI 53719
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www.tcengineers.net

TOWN & COUNTRY
ENGINEERING, INC.

P&ID NO.3

2024 WASTEWATER IMPROVEMENTS
TERTIARY FILTERS AND DISINFECTION
Village of Jackson, Wisconsin

PROJECT NO.:	JK 18
DRAWING FILE:	100-W-03
DRAWN BY:	N.W.W.
CHECKED BY:	D.L.G.
DATE:	1-3-24
REVISIONS:	
SCALE:	N.T.S.
SHEET:	59
	100-W-03



WWTF SCADA ARCHITECTURE (PARTIAL)

GENERAL NOTES

- THIS DRAWING INCLUDES PLAN NOTES THAT ARE REFERENCED ON THE SCADA SYSTEM ARCHITECTURE DRAWING.
- ALL EQUIPMENT SHOWN IS NEW, UNLESS OTHERWISE NOTED.
- REFER TO SCADA SYSTEM P&IDS FOR I/O REQUIREMENTS OF NEW PLC SYSTEM. PROVIDE A MINIMUM OF 10% SPARE I/O FOR EACH TYPE IN USE AT EACH PANEL.
- THE SYSTEM INTEGRATOR SHALL CONFIGURE ALL ETHERNET SWITCHING EQUIPMENT TO PROVIDE OPTIMAL NETWORK PERFORMANCE.
- CONFIGURE ROUTER/FIREWALL AS GATEWAY BETWEEN SCADA NETWORK AND OFFICE NETWORK.
- ETHERNET CABLES SHALL BE INDUSTRIAL UTP CAT 6 CABLE. PROVIDE ALL CABLE REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM.
- PROVIDE A GRAPHIC OPERATOR MANUAL. INCLUDE SCREEN PRINTOUTS OF EACH SCREEN, AND A NARRATIVE FOR WHAT IS DISPLAYED, ALL OPERATOR ADJUSTABLE SET-POINTS, AND PERMISSIBLE RANGES OF VALUES.
- SCADA GRAPHIC DESIGN, ALARM POINT ENABLE/DISABLE FUNCTIONALITY, AND ALARM AND EVENT LOGGING AND REPORTING SHALL COMPLY WITH TYPICAL TOWN & COUNTRY PROJECT REQUIREMENTS.

KEY NOTES

- EXISTING EQUIPMENT TO REMAIN.
- MAIN CONTROL PANEL (EXISTING) - INCORPORATE ALL NEW CONTROL, MONITORING, AND ALARMING INTO EXISTING MAIN PLC.
- OFFICE COMPUTERS (EXISTING) - INCORPORATE ALL NEW CONTROL, MONITORING AND ALARMING INTO EXISTING SCADA SOFTWARE AND ALARMING.
- MODIFY CONTROL PANEL AS FOLLOWS:
 - EXISTING ALLEN BRADLEY COMPACTLOGIX PLC SYSTEM, MODEL 1769-L33ER - PROVIDE NEW I/O TO INCORPORATE ALL NEW CONTROL, MONITORING AND ALARM POINTS AS SCHEDULED.
 - PROVIDE FIBER OPTIC BREAKOUT PANEL.
 - PROVIDE COPPER TO FIBER OPTIC CONVERTER.
- NEW MANUFACTURER-SUPPLIED CONTROL PANEL. COORDINATE CONTROL, MONITORING, AND ALARM POINTS WITH EQUIPMENT SUPPLIER. COORDINATE VPN ACCESS TO DISPLAY HMI ON EXISTING SCADA SYSTEM. ARRANGE FOR MANUFACTURER INTERNET ACCESS THROUGH PLANT FIREWALL FOR REMOTE TROUBLESHOOTING AND MODIFICATIONS UNDER WARRANTY.
- NETWORK DISTRIBUTION PANEL TO CONTAIN THE FOLLOWING:
 - COMPACTLOGIX L24 PROCESSOR
 - ETHERNET SWITCH
 - DC UPS
 - CIRCUIT BREAKERS AS SCHEDULED TO SERVE ALL LOADS. REFER TO SHEET 100-E-04.



PCCO #001

Hunzinger Construction Company
21100 Enterprise Avenue
Brookfield, Wisconsin 53045-5226
Phone: (262) 797-0797
Fax: (262) 797-0474

Project: 23-155 - Jackson - 2023 WWTF Storage Garage Expansion
W194N16658 Eagle Dr.
Jackson, Wisconsin 53037
Phone: 414-430-7196
Fax: 262-797-0474

Prime Contract Change Order #001: PCO's #01, 02, 03, & 04

TO:	Village of Jackson W194N16660 Eagle Drive Jackson, Wisconsin 53037	FROM:	Hunzinger Construction Company 21100 Enterprise Avenue Brookfield Wisconsin 53045-5226
DATE CREATED:	12/ 07 /2023	CREATED BY:	Matt Horton (Hunzinger Construction Company)
AIA CONTRACT#:		REVISION:	0
DESIGNATED REVIEWER:	Matt Horton (Hunzinger Construction Company)	REVIEWED BY:	
SCHEDULE IMPACT:	0 days	EXECUTED:	No
CONTRACT FOR:	1:HCCo. Prime/General Contract	TOTAL AMOUNT:	(\$51,677.00)

DESCRIPTION:

PCO#01/CE #001 - Shingle Roofing System

Provide an Alternate Shingle Roofing System in lieu of the specified Metal Panel Roofing System, per Hunzinger proposed V/E Alternate #1 Credit dated 8/31/23 and as approved by Owner during PreConstruction meeting. Refer to approved submittals for further detail on materials.

PCO#02/CE #002 - Alternate Metal Panel MFG & Thickness

Provide an Alternate Metal Wall Panel (Central States Manufacturing - Panel-Loc Plus) and a revised Metal Wall Panel Thickness of 26ga in lieu of the specified metal panel manufacturer and thickness, per Hunzinger proposed V/E Alternates #3 & #4 dated 9/19/23 and as approved by Owner via Email on 9/25/23. Refer to approved submittals for further detail on materials.

PCO#03/CE #003 - Alternate Vinyl Windows

Provide an Alternate Vinyl Windows in lieu of the specified Aluminum Clad Wood Windows, per Hunzinger proposed V/E Alternates credit dated 9/26/23 and as approved by Owner via Email on 9/27/23.

PCO#04/CE #004 - MAU Support Stand Modification

Provide modification to the MAU support stand to increase it's height to 10ft AFF and omit the associated specified concrete pad, per Owner Request.

ATTACHMENTS:

[PCO#04 - Jackson WWTF NTP - MAU Stand Mod COR.pdf](#) [PCO#03 - Jackson Approval for Alternate Vinyl Windows.pdf](#) [PCO#02 - Jackson Approval for Central States Siding Alts #3 & #4.pdf](#) [PCO#01 - COR Credit Shingles vs. Metal Panel Roofing.pdf](#)

POTENTIAL CHANGE ORDERS IN THIS CHANGE ORDER:

PCO #	Title	Schedule Impact	Amount
001	CE #001 - Alternate Shingle Roofing System	0 days	(48,250.00)
002	CE #002 - Alternate Metal Panel & Thickness	0 days	(4,189.00)
003	CE #003 - Alternate Vinyl Windows	0 days	(1,400.00)
004	CE #004 - MAU Support Stand Modification	0 days	2,162.00
TOTAL:			(\$51,677.00)

The original (Contract Sum)	\$ 867,000.00
Net change by previously authorized Change Orders	\$ 0.00
The contract sum prior to this Change Order was	\$ 867,000.00
The contract sum will be decreased by this Change Order in the amount of	(\$51,677.00)
The new contract sum including this Change Order will be	\$ 815,323.00
The contract time will not be changed by this Change Order by 0 days	



PCCO #001

**Gregory Droessler, P.E. (Town & Country
Engineering, Inc.)**
6264 Nesbitt Road
Madison Wisconsin 53719

Village of Jackson
W194N16660 Eagle Drive
Jackson Wisconsin 53037

Hunzinger Construction Company
21100 Enterprise Avenue
Brookfield Wisconsin 53045-5226

SIGNATURE **DATE**

Hunzinger Construction Company

SIGNATURE **DATE**

page 2 of 2

SIGNATURE **DATE**
 **12/7/23**
James R Hunzinger-EVP

Printed On: 12/7/ 2023 03:03 PM

Matt Horton

From: Matt Horton
Sent: Tuesday, September 19, 2023 3:40 PM
To: Brian Kober
Cc: Joel Becker; Gregory J. Droessler (gdroessler@tcengineers.net)
Subject: RE: Jackson WWTF - Storage Garage Expansion: V/E Alternatives for Consideration

Importance: High

Brian,

I just wanted to confirm our understanding of your direction for the proposed V/E Alternatives in the email below. Per the Preconstruction Meeting, you have accepted Item 1 below for the Shingled Roof System in lieu of Metal Roof. Conversely, item 2 regarding the Sectional OH Door options has been rejected (the OH submittal came back without those proposed changes being noted/accepted as well).

Please confirm,

Thanks,

Matt

From: Matt Horton
Sent: Thursday, August 31, 2023 4:15 PM
To: Brian Kober <brian.kober@villageofjacksonwi.gov>
Cc: Joel Becker <jbecker@hunzinger.com>; Marc Gilman <mgilman@hunzinger.com>; Gregory J. Droessler (gdroessler@tcengineers.net) <gdroessler@tcengineers.net>
Subject: Jackson WWTF - Storage Garage Expansion: V/E Alternatives for Consideration

Brian,

During our initial meeting last month, you indicated that you would like to know of any Value-Engineering opportunities that we may be able to propose for your review. To that end, we can provide the following items for your consideration:

- 1. All New Shingle Roof in lieu of Metal Panel Roofing: LUMP SUM DEDUCT: -\$48,250**
 - a. Remove existing shingle roofing (same as base bid)
 - b. Provide Ice & Water Shield at Gutter Edge/Eaves
 - c. Provide Synthetic Underlayment at all other roof areas without Ice & Water shield.
 - d. Provide Certainteed Landmark Series Shingles (Standard Landmark Shingle). Refer to attached product data and warranty information for the Landmark Series Shingles.
- 2. Sectional Overhead Doors:**
 - A. Omit Manual Slide Lock and associated operator interlock on (2) OH Doors with Motor Operators: LUMP SUM DEDUCT: -\$1,450**
 - B. Omit ADA Horn/Strobe on (2) OH Doors: LUMP SUM DEDUCT: -\$1,800**

Please note that we are not accepting any design responsibility with these proposed cost reduction alternatives. Please let us know if you wish to accept any these Alternatives, or discuss in further detail.

Thanks,

Matt

Matt Horton

From: Brian Kober <brian.kober@villageofjacksonwi.gov>
Sent: Monday, September 25, 2023 2:19 PM
To: Matt Horton; Gregory J. Droessler (gdroessler@tcengineers.net)
Cc: Joel Becker; Jeff Deitsch; Chad Russ
Subject: RE: Jackson WWTF - Garage Expansion: Metal Panel Siding Voluntary Alternates
Attachments: Central States Mfg color chart.pdf

Matt,

The Jackson Sewer Utility approves both Alternate #3 & #4 deducts. Use Central Sates Mfg. colors as described below.

If you have any questions please do not hesitate to ask.

Brian W. Kober. P.E.
Director of Public Works/Village Engineer
Village of Jackson
W194 N16660 Eagle Drive
Jackson, WI 53037
Phone: 262-677-0707
Fax: 262-677-8770

From: Matt Horton <mhorton@hunzinger.com>
Sent: Tuesday, September 19, 2023 3:19 PM
To: Brian Kober <brian.kober@villageofjacksonwi.gov>; Gregory J. Droessler (gdroessler@tcengineers.net) <gdroessler@tcengineers.net>
Cc: Joel Becker <JBecker@hunzinger.com>
Subject: Jackson WWTF - Garage Expansion: Metal Panel Siding Voluntary Alternates
Importance: High

Brian & Greg,
We are following up on our previous discussion regarding the potential for cost savings alternatives for the Metal Panel Siding Scope on this project.
To that end, we offer the following Voluntary Alternates for your consideration:

Voluntary Alternate #3 – Provide Interior Metal Panel Siding Material in 26 Ga. thickness (to match existing), in lieu of specified 24 Ga. thickness (All McElroy Standard Color material): **DEDUCT \$798**

Acceptance of this Alternate would mean that we would now be matching all the existing buildings metal panel siding thickness, for the new addition construction:

- A. Exterior Wall Siding - 26 Ga.
- B. Interior Wall Siding- 26 Ga.
- C. Interior Ceiling Siding – 29 Ga.

Voluntary Alternate #4 – Provide Central States Mfg. Metal Panel Siding Material (in the same thickness as in Voluntary Alternate #1), in lieu of Specified McElroy Material (ALL Material in Standard Colors): **DEDUCT \$3,391***

*Unfortunately, after our preconstruction meeting with you, we were informed by Drexel Building Supply, that Central States Manufacturing NO longer offers the good color match "CLAY" that we left a sample of with Greg on-site. So if you wish to proceed with the Alternate Central States Metal Panel Siding Deduct, in lieu of the specified McElroy material, it would need to be from the current available standard colors which I have attached herein. We did not see a real good remaining Central States color match available to the existing Exterior siding. We believe Taupe & Light Stone are the closest matches to the current exterior siding, and that the Burnished Slate is the closest match to the existing Exterior dark trim. The existing Interior of the building is white, and both McElroy and Central States only offer (1) white selection.

I have also attached The McElroy color chart for review. We believe "CLAY" is a decent match to the existing Exterior siding, and that Patrician Bronze is the closest match offered by McElroy to the existing Exterior trim.

Lastly, the panel profiles for both the Central States "Panel-Loc Plus" and McElroy "Max-Rib" match the existing building metal siding profile.

Please advise how you wish to proceed, and we will formally submit for approval accordingly.

Thanks,

Matt



Matt Horton LEED AP BD+C

Senior Project Manager

p. 262-780-9132 m. 414-640-0323

Hunzinger Construction Company

An ESOP Company

21100 Enterprise Ave. Brookfield, WI 53045

mhorton@hunzinger.com

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Matt Horton

From: Brian Kober <brian.kober@villageofjacksonwi.gov>
Sent: Wednesday, September 27, 2023 7:34 AM
To: Matt Horton; Gregory Droessler
Cc: Joel Becker; Phillip Moran, Jr.; Megan Campbell; Jeff Deitsch; Chad Russ
Subject: RE: Jackson WWTF - Window Submittal - Vinyl in Lieu of Aluminum Clad Credit

Matt,

Vinyl windows will work just fine. We will take the credit of \$1,400, and proceed with Vinyl Windows.

Brian W. Kober. P.E.
Director of Public Works/Village Engineer
Village of Jackson
W194 N16660 Eagle Drive
Jackson, WI 53037
Phone: 262-677-0707
Fax: 262-677-8770

From: Matt Horton <mhorton@hunzinger.com>
Sent: Tuesday, September 26, 2023 4:14 PM
To: Gregory Droessler <gdroessler@tcengineers.net>; Brian Kober <brian.kober@villageofjacksonwi.gov>
Cc: Joel Becker <JBecker@hunzinger.com>; Phillip Moran, Jr. <pmoran@hunzinger.com>; Megan Campbell <mcampbell@tcengineers.net>
Subject: Jackson WWTF - Window Submittal - Vinyl in Lieu of Aluminum Clad Credit
Importance: High

Brian & Greg,
Per my discussion with Greg last week, the windows on the existing building are Vinyl, 100% Vinyl frames. The Drawing Key Notes indicate to provide Aluminum Clad Wood windows. We have since submitted 100% Vinyl Framed Windows for approval.

Your Approval of the Vinyl windows submittal will result in a net credit in the amount of \$1,400. Please confirm how you wish to proceed.

Thanks,
Matt



Matt Horton LEED AP BD+C

Senior Project Manager

p. 262-780-9132 m. 414-640-0323

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Matt Horton *LEED AP BD+C*

Senior Project Manager

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Matt Horton

From: Brian Kober <brian.kober@villageofjacksonwi.gov>
Sent: Wednesday, November 22, 2023 8:46 AM
To: Gregory J. Droessler (gdroessler@tcengineers.net)
Cc: Matt Horton; Joel Becker; Chad Russ; Jeff Deitsch
Subject: RE: Jackson WWTF - Proposed MAU Raised Stand Drawing
Attachments: HCCo. COR - MAU Stand Modification.pdf; Metal MAU Stand 10 ' Tall .pdf

Importance: High

Greg,

The Jackson Sewer Utility accepts the pricing to raise the MUA unit. Please proceed accordingly with a change order or place as a line item in the pay request.

If you have any questions please do not hesitate to ask.

Happy Thanksgiving,

Brian W. Kober. P.E.
Director of Public Works/Village Engineer
Village of Jackson
W194 N16660 Eagle Drive
Jackson, WI 53037
Phone: 262-677-0707
Fax: 262-677-8770

From: Gregory Droessler <gdroessler@tcengineers.net>
Sent: Tuesday, November 21, 2023 4:34 PM
To: Brian Kober <brian.kober@villageofjacksonwi.gov>
Subject: FW: Jackson WWTF - Proposed MAU Raised Stand Drawing
Importance: High

Brian,

Here is the pricing for raising that MUA unit up. Please let me know if you want to proceed with this.

Thanks,

Greg

Gregory J. Droessler, P.E. – Vice President
gdroessler@tcengineers.net
Town and Country Engineering, Inc.
10505 Corporate Drive
Suite 105A
Pleasant Prairie, WI 53158
262.925.3210 (direct)
608.273.3350 (office)
262.620.2914 (cell)

From: Matt Horton <mhorton@hunzinger.com>
Sent: Tuesday, November 21, 2023 3:39 PM
To: Gregory Droessler <gdroessler@tcengineers.net>
Cc: Joel Becker <JBecker@hunzinger.com>
Subject: RE: Jackson WWTF - Proposed MAU Raised Stand Drawing
Importance: High

Greg,
Per your request, attached is the pricing for the modifications to the MAU Stand. The overall cost change to increase the height of the steel stand to 10ft, and omit the concrete pad is an ADD of \$2,162.
Please advise if this change is approved and that we are authorized to proceed accordingly.
Thanks,
Matt



Matt Horton LEED AP BD+C

Senior Project Manager

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From: Gregory Droessler <gdroessler@tcengineers.net>
Sent: Tuesday, November 14, 2023 2:57 PM
To: Matt Horton <mhorton@hunzinger.com>
Cc: Phillip Moran, Jr. <pmoran@hunzinger.com>; Joel Becker <JBecker@hunzinger.com>
Subject: RE: Jackson WWTF - Proposed MAU Raised Stand Drawing

Matt,

The sketch for this looks good, please proceed with getting pricing for this change swapping the concrete pad for the taller platform.

Thanks,

Greg

Gregory J. Droessler, P.E. – Vice President
gdroessler@tcengineers.net
Town and Country Engineering, Inc.
10505 Corporate Drive
Suite 105A

Pleasant Prairie, WI 53158
262.925.3210 (direct)
608.273.3350 (office)
262.620.2914 (cell)

From: Matt Horton <mhorton@hunzinger.com>
Sent: Monday, November 13, 2023 2:50 PM
To: Gregory Droessler <gdroessler@tcengineers.net>
Cc: Phillip Moran, Jr. <pmoran@hunzinger.com>; Joel Becker <JBecker@hunzinger.com>
Subject: Jackson WWTF - Proposed MAU Raised Stand Drawing
Importance: High

Greg,
Hope you had a safe and successful pheasant hunt in SD.
Not sure if you heard, but after reviewing the current drawings showing a 24" high MAU Stand on a concrete pad, Brian & the Village want to raise the MAU as high as possible (similar to existing MAU), with no concrete pad.
To that end, Rohde has sketched up a stand, similar in height to the existing MAU, see the attached sketch. Please review and advise if this is acceptable and we will price up this change accordingly.

Obviously, the intake to the MAU and the supply to the room would raise with the MAU, so you and your Engineer would need to be Okay with that as well.

Please advise,
Thanks,
Matt



Matt Horton LEED AP BD+C

Senior Project Manager

p. 262-780-9132 m. 414-640-0323

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From: Erik Johnsen <johnsene@rohdebros.com>
Sent: Friday, November 10, 2023 8:48 AM
To: Matt Horton <mhorton@hunzinger.com>
Cc: Phillip Moran, Jr. <pmoran@hunzinger.com>
Subject: Jackson WWTP Stand Drawing

Matt,

Attached is the proposed steel stand for the MAU. If this is acceptable I will move forward with providing a change order price to do this.

Thanks,



Erik Johnsen
Project Engineer
Rohde Brothers, Inc.
Phone: (920) 449-5738
Cell: (262) 363-6946
johnsene@rohdebros.com



Hunzinger Construction Company
21100 Enterprise Avenue
Brookfield, Wisconsin 53045-5226
Phone: (262) 797-0797
Fax: (262) 797-0474

Project: 23-155 - Jackson - 2023 WWTF Storage Garage Expansion
W194N16658 Eagle Dr.
Jackson, Wisconsin 53037
Phone: 414-430-7196
Fax: 262-797-0474

Prime Contract Change Order #002: CE #006 - Lighting Modifications

TO:	Village of Jackson W194N16660 Eagle Drive Jackson, Wisconsin 53037	FROM:	Hunzinger Construction Company 21100 Enterprise Avenue Brookfield Wisconsin 53045-5226
DATE CREATED:	1/ 16 /2024	CREATED BY:	Matt Horton (Hunzinger Construction Company)
AIA CONTRACT#:		REVISION:	0
DESIGNATED REVIEWER:		REVIEWED BY:	
SCHEDULE IMPACT:	0 days	EXECUTED:	No
CONTRACT FOR:	1:HCCo. Prime/General Contract	TOTAL AMOUNT:	\$ 684.00

DESCRIPTION:

CE #006 - Lighting Modifications

Provide Lighting modifications as requested by the Village of Jackson, including adding a night light above the new 10'x10' wall opening, modifying the light switching in the new addition. Refer to the attached HCCo email COR dated 1/9/24 for additional information.

ATTACHMENTS:

[Jackson & T&C NTP - Lighting Mods.pdf](#)

POTENTIAL CHANGE ORDERS IN THIS CHANGE ORDER:

PCO #	Title	Schedule Impact	Amount
005	CE #006 - Lighting Modifications	0 days	684.00
TOTAL:			\$ 684.00

The original (Contract Sum)	\$ 867,000.00
Net change by previously authorized Change Orders	(\$51,677.00)
The contract sum prior to this Change Order was	\$ 815,323.00
The contract sum would be changed by this Change Order in the amount of	\$ 684.00
The new contract sum including this Change Order will be	\$ 816,007.00
The contract time will not be changed by this Change Order by 0 days	

Gregory Droessler, P.E. (Town & Country Engineering, Inc.)

6264 Nesbitt Road
Madison Wisconsin 53719

Village of Jackson

W194N16660 Eagle Drive
Jackson Wisconsin 53037

Hunzinger Construction Company

21100 Enterprise Avenue
Brookfield Wisconsin 53045-5226

James R Hunzinger-EVP

SIGNATURE DATE

SIGNATURE DATE

SIGNATURE 1/16/23 DATE

Matt Horton

From: Gregory Droessler <gdroessler@tcengineers.net>
Sent: Tuesday, January 9, 2024 9:11 AM
To: Matt Horton
Subject: FW: Jackson WWTF - Storage Garage Expansion: Owner Requested Lighting Mods

Matt,

Yes please proceed with the night light.

Greg

Gregory J. Droessler, P.E. – Vice President
gdroessler@tcengineers.net
Town and Country Engineering, Inc.
10505 Corporate Drive
Suite 105A
Pleasant Prairie, WI 53158
262.925.3210 (direct)
608.273.3350 (office)
262.620.2914 (cell)

From: Brian Kober <brian.kober@villageofjacksonwi.gov>
Sent: Tuesday, January 9, 2024 9:02 AM
To: Gregory Droessler <gdroessler@tcengineers.net>
Cc: Jeff Deitsch <jeff.deitsch@villageofjacksonwi.gov>; Chad Russ <chad.russ@villageofjacksonwi.gov>
Subject: RE: Jackson WWTF - Storage Garage Expansion: Owner Requested Lighting Mods

Yes proceed.

Brian W. Kober. P.E.
Director of Public Works/Village Engineer
Village of Jackson
W194 N16660 Eagle Drive
Jackson, WI 53037
Phone: 262-677-0707
Fax: 262-677-8770

From: Gregory Droessler <gdroessler@tcengineers.net>
Sent: Tuesday, January 9, 2024 8:16 AM
To: Brian Kober <brian.kober@villageofjacksonwi.gov>
Cc: Jeff Deitsch <jeff.deitsch@villageofjacksonwi.gov>; Chad Russ <chad.russ@villageofjacksonwi.gov>
Subject: FW: Jackson WWTF - Storage Garage Expansion: Owner Requested Lighting Mods
Importance: High

Brian,

I forgot to mention this one yesterday when we talked. Hunzinger has a CO request to add the night light in the garage and modify the switches. It looks like they are adding a light in lieu of simply placing the closest overhead fixture on a separate switch. Please let me know if we're ok to proceed with this.

Thanks,

Greg

Gregory J. Droessler, P.E. – Vice President
gdroessler@tcengineers.net
Town and Country Engineering, Inc.
10505 Corporate Drive
Suite 105A
Pleasant Prairie, WI 53158
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From: Matt Horton <mhorton@hunzinger.com>
Sent: Monday, January 8, 2024 12:03 PM
To: Gregory Droessler <gdroessler@tcengineers.net>
Cc: Joel Becker <JBecker@hunzinger.com>
Subject: RE: Jackson WWTF - Storage Garage Expansion: Owner Requested Lighting Mods
Importance: High

Greg,

The pricing to Add the interior Night Light and lighting switch modifications is as follows:

1. Lemberg Electric Materials (Pipe, Wire & Light): \$217
2. Lemberg Electric Labor: \$405
3. Subtotal: \$622
4. Hunzinger OH&P @ 10%: \$62
5. Total: \$684

Please advise if we are to proceed accordingly.

Thanks,

Matt



Matt Horton LEED AP BD+C

Senior Project Manager

p. 262-780-9132 m. 414-640-0323

Hunzinger Construction Company

An ESOP Company

21100 Enterprise Ave. Brookfield, WI 53045

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From: Gregory Droessler <gdroessler@tcengineers.net>
Sent: Monday, December 18, 2023 11:47 AM
To: Matt Horton <mhorton@hunzinger.com>

Cc: Phillip Moran, Jr. <pmoran@hunzinger.com>; Joel Becker <JBecker@hunzinger.com>
Subject: RE: Jackson WWTF - Storage Garage Expansion: Owner Requested Lighting Mods

Matt,

That is fine with me, please proceed as directed by the staff.

Thanks,

Greg

Gregory J. Droessler, P.E. – Vice President
gdroessler@tcengineers.net
Town and Country Engineering, Inc.
10505 Corporate Drive
Suite 105A
Pleasant Prairie, WI 53158
262.925.3210 (direct)
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262.620.2914 (cell)

From: Matt Horton <mhorton@hunzinger.com>
Sent: Monday, December 18, 2023 11:22 AM
To: Gregory Droessler <gdroessler@tcengineers.net>
Cc: Phillip Moran, Jr. <pmoran@hunzinger.com>; Joel Becker <JBecker@hunzinger.com>
Subject: Jackson WWTF - Storage Garage Expansion: Owner Requested Lighting Mods
Importance: High

Greg,
Please see email below from HCCo Superintendent Phil Moran, indicating that there are some lighting modifications being requested by the Owner. Please advise as to how we should proceed.
Thanks,
Matt



Matt Horton LEED AP BD+C

Senior Project Manager

p. 262-780-9132 m. 414-640-0323

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From: Phillip Moran, Jr. <pmoran@hunzinger.com>
Sent: Monday, December 18, 2023 10:20 AM
To: Matt Horton <mhorton@hunzinger.com>

Cc: Joel Becker <JBecker@hunzinger.com>

Subject: Additional Light

Matt

After conversations with the Village, they would like to add an additional "night light" over the new 10' x 10' opening. They would also like all of the fixtures in the addition to be on the same switch. Per plan it currently says that the three lights to the east side of the addition would be on one switch and the remaining two on the west side would be on the other. They would like all 5 fixtures to be on one switch and the new Night Light to be on the other. Please advise if this is acceptable, and advise if we should proceed with pricing up this change in scope.

Thanks

JR



Phillip Moran, Jr.

Superintendent

m. 414-430-7196

Hunzinger Construction Company

An ESOP Company

21100 Enterprise Ave Brookfield, WI 53045

pmoran@hunzinger.com

www.hunzinger.com



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PCCO #003

Hunzinger Construction Company
21100 Enterprise Avenue
Brookfield, Wisconsin 53045-5226
Phone: (262) 797-0797
Fax: (262) 797-0474

Project: 23-155 - Jackson - 2023 WWTF Storage Garage Expansion
W194N16658 Eagle Dr.
Jackson, Wisconsin 53037
Phone: 414-430-7196
Fax: 262-797-0474

Prime Contract Change Order #003: CE #007 - Omit OH Dr. Horn/Strobe & Manual Slide Lock

TO:	Village of Jackson W194N16660 Eagle Drive Jackson, Wisconsin 53037	FROM:	Hunzinger Construction Company 21100 Enterprise Avenue Brookfield Wisconsin 53045-5226
DATE CREATED:	1/ 24 /2024	CREATED BY:	Matt Horton (Hunzinger Construction Company)
AIA CONTRACT#:		REVISION:	0
DESIGNATED REVIEWER:		REVIEWED BY:	
SCHEDULE IMPACT:	0 days	EXECUTED:	No
CONTRACT FOR:	1:HCCo. Prime/General Contract	TOTAL AMOUNT:	(\$1,200.00)

DESCRIPTION:

CE #007 - Omit OH Dr. Horn/Strobe & Manual Lock
Per Village of Jackson Request, Omit the Horn/Strobe and manual slide lock from the Overhead Doors work scope.

ATTACHMENTS:

[Village of Jackson NTP Omit OH Dr Horn & Strobe & Manual Lock.pdf](#) [Arbon COR - Omit Horn-Strobe & manual lock.pdf](#)

POTENTIAL CHANGE ORDERS IN THIS CHANGE ORDER:

PCO #	Title	Schedule Impact	Amount
006	CE #007 - Omit OH Dr. Horn/Strobe & Manual Slide Lock	0 days	(1,200.00)
TOTAL:			(\$1,200.00)

The original (Contract Sum)	\$ 867,000.00
Net change by previously authorized Change Orders	(\$51,677.00)
The contract sum prior to this Change Order was	\$ 815,323.00
The contract sum will be decreased by this Change Order in the amount of	(\$1,200.00)
The new contract sum including this Change Order will be	\$ 814,123.00
The contract time will not be changed by this Change Order by 0 days	

Gregory Droessler, P.E. (Town & Country Engineering, Inc.)

6264 Nesbitt Road
Madison Wisconsin 53719

Village of Jackson

W194N16660 Eagle Drive
Jackson Wisconsin 53037

Hunzinger Construction Company

21100 Enterprise Avenue
Brookfield Wisconsin 53045-5226

SIGNATURE DATE

SIGNATURE DATE

SIGNATURE DATE
James R Hunzinger-EVP 01/24/24

Matt Horton

From: Brian Kober <brian.kober@villageofjacksonwi.gov>
Sent: Tuesday, January 23, 2024 10:33 AM
To: Matt Horton
Cc: Joel Becker; Gregory J. Droessler (gdroessler@tcengineers.net); Phillip Moran, Jr.; Chad Russ; Jeff Deitsch
Subject: RE: Jackson WWTF - Storage Garage Expansion: V/E Alternatives for Consideration

Matt,

Proceed with the process of omitting the work.

Thanks,

Brian W. Kober. P.E.
Director of Public Works/Village Engineer
Village of Jackson
W194 N16660 Eagle Drive
Jackson, WI 53037
Phone: 262-677-0707
Fax: 262-677-8770

From: Matt Horton <mhorton@hunzinger.com>
Sent: Tuesday, January 23, 2024 8:53 AM
To: Brian Kober <brian.kober@villageofjacksonwi.gov>
Cc: Joel Becker <JBecker@hunzinger.com>; Gregory J. Droessler (gdroessler@tcengineers.net) <gdroessler@tcengineers.net>; Phillip Moran, Jr. <pmoran@hunzinger.com>
Subject: RE: Jackson WWTF - Storage Garage Expansion: V/E Alternatives for Consideration

Good Morning Brian,

I informed Arbon equipment of your request to omit these items now, and Raynor (Manufacturer) indicated that they would no longer accept the return of these items for material credit. However, Arbon has indicated that they can still credit the installation portion for these items which would equate to a Deduct of \$1,200. Please advise if you still wish to proceed with omitting this work from the scope of the project.

Thanks,

Matt



Matt Horton LEED AP BD+C

Senior Project Manager

p. 262-780-9132 m. 414-640-0323

Hunzinger Construction Company

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21100 Enterprise Ave. Brookfield, WI 53045

mhorton@hunzinger.com

www.hunzinger.com



NOTICE: This message is intended exclusively for the individual or entity to which it is addressed. This communication may contain information that is proprietary, privileged, or confidential. If you are not the named addressee, you are not authorized to read, print, retain, copy, or disseminate this message or any part of it. If you have received this message in error, please notify the sender immediately and delete all copies of this message.

From: Brian Kober <brian.kober@villageofjacksonwi.gov>
Sent: Monday, January 22, 2024 9:44 AM
To: Matt Horton <mhorton@hunzinger.com>
Cc: Joel Becker <JBecker@hunzinger.com>; Gregory J. Droessler (<gdroessler@tcengineers.net>); Phillip Moran, Jr. <pmoran@hunzinger.com>
Subject: RE: Jackson WWTF - Storage Garage Expansion: V/E Alternatives for Consideration

Matt,

The Jackson Sewer Utility will accept the Lump Sum Deducts as described in item 2:

2. **Sectional Overhead Doors:**
 - A. **Omit Manual Slide Lock and associated operator interlock on (2) OH Doors with Motor Operators: LUMP SUM DEDUCT: -\$1,450**
 - B. **Omit ADA Horn/Strobe on (2) OH Doors: LUMP SUM DEDUCT: -\$1,800**

Please make the necessary arrangements to create another change order.

If you have any questions please do not hesitate to ask.

Brian W. Kober. P.E.
Director of Public Works/Village Engineer
Village of Jackson
W194 N16660 Eagle Drive
Jackson, WI 53037
Phone: 262-677-0707
Fax: 262-677-8770

From: Matt Horton <mhorton@hunzinger.com>
Sent: Tuesday, September 19, 2023 3:40 PM
To: Brian Kober <brian.kober@villageofjacksonwi.gov>
Cc: Joel Becker <JBecker@hunzinger.com>; Gregory J. Droessler (<gdroessler@tcengineers.net>); Phillip Moran, Jr. <pmoran@hunzinger.com>
Subject: RE: Jackson WWTF - Storage Garage Expansion: V/E Alternatives for Consideration
Importance: High

Brian,

I just wanted to confirm our understanding of your direction for the proposed V/E Alternatives in the email below.
Per the Preconstruction Meeting, you have accepted Item 1 below for the Shingled Roof System in lieu of Metal Roof.

Conversely, item 2 regarding the Sectional OH Door options has been rejected (the OH submittal came back without those proposed changes being noted/accepted as well).

Please confirm,

Thanks,

Matt



Matt Horton LEED AP BD+C

Senior Project Manager

p. 262-780-9132 m. 414-640-0323

Hunzinger Construction Company

An ESOP Company

21100 Enterprise Ave. Brookfield, WI 53045

mhorton@hunzinger.com

www.hunzinger.com



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From: Matt Horton

Sent: Thursday, August 31, 2023 4:15 PM

To: Brian Kober <brian.kober@villageofjacksonwi.gov>

Cc: Joel Becker <jbecker@hunzinger.com>; Marc Gilman <mgilman@hunzinger.com>; Gregory J. Droessler <gdroessler@tcengineers.net> <gdroessler@tcengineers.net>

Subject: Jackson WWTF - Storage Garage Expansion: V/E Alternatives for Consideration

Brian,

During our initial meeting last month, you indicated that you would like to know of any Value-Engineering opportunities that we may be able to propose for your review. To that end, we can provide the following items for your consideration:

1. **All New Shingle Roof in lieu of Metal Panel Roofing: LUMP SUM DEDUCT: -\$48,250**
 - a. Remove existing shingle roofing (same as base bid)
 - b. Provide Ice & Water Shield at Gutter Edge/Eaves
 - c. Provide Synthetic Underlayment at all other roof areas without Ice & Water shield.
 - d. Provide CertainTeed Landmark Series Shingles (Standard Landmark Shingle). Refer to attached product data and warranty information for the Landmark Series Shingles.
2. **Sectional Overhead Doors:**
 - A. **Omit Manual Slide Lock and associated operator interlock on (2) OH Doors with Motor Operators: LUMP SUM DEDUCT: -\$1,450**
 - B. **Omit ADA Horn/Strobe on (2) OH Doors: LUMP SUM DEDUCT: -\$1,800**

Please note that we are not accepting any design responsibility with these proposed cost reduction alternatives. Please let us know if you wish to accept any these Alternatives, or discuss in further detail.

Thanks,

Matt

QUOTE: QT-346075

01/23/2024

PREPARED FOR:
Wwtp Storage Garage
W194 N16658 Eagle Drive
Jackson, Wisconsin 53037, United States

SEND PURCHASE ORDER TO:
Arbon Equipment Corporation - Northcentral
195 S Rite-Hite Way
Milwaukee, Wisconsin 53204, United States
414-410-2114
Trevor Baer
tbaer@ritehite.com
414-699-8477 (mobile)

LINE	PRODUCT DESCRIPTION	QTY	UNIT PRICE	EXTENDED PRICE
1	Horn/Strobe and Lock Labor Deduct	2	Included	Included

Freight and Handling	Included
Installation	Included
Tax	Included
TOTAL	- \$ 1,200.00

Quote Summary:

APPLICATION AND CERTIFICATE FOR PAYMENT

AIA DOCUMENT G702

TO: Village of Jackson, WI
Public Works
Attn: Brian Kober P.E.
W194 N16660 Eagle Dr,
Jackson, WI 53037

PROJECT: Jackson 2023 WWTF Garage Exp
W194 N16658 Eagle Dr.
Jackson, WI 53037

APPLICATION NO.: 23155-3
PERIOD TO: 12/15/2023
PROJECT NOS.: 23155

Distribution to:
☐ OWNER
☐ ARCHITECT
☐ CONTRACTOR
☐
☐

FROM CONTRACTOR: Hunzinger Construction Company
21100 Enterprise Ave.
Brookfield, WI 53045

VIA ARCHITECT: Town & Country Engineering
Attn: Greg Droessler

CONTRACT DATE: 8/8/2023
INVOICE #: 1123057

CONTRACT FOR: General Contract

Wiring instructions can only be changed by verbal confirmation from John Hunzinger - President of Hunzinger Construction Company

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract Continuation Sheet is attached.

1. ORIGINAL CONTRACT SUM	\$867,000.00
2. Net change by Change Orders	-\$51,677.00
3. CONTRACT SUM TO DATE (Line 1 + 2)	\$815,323.00
4. TOTAL COMPLETED & STORED TO DATE (Column G on Continuation Sheet)	\$623,910.97
5. RETAINAGE:	
a. 5.00 % of Completed Work (Columns D + E on Continuation Sheet)	\$31,195.56
b. 0.00 % of Stored Material (Column E.1 on Continuation Sheet)	\$0.00
Total Retainage (Line 5a + 5b or Total in Column I of Continuation Sheet)	\$31,195.56
6. TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)	\$592,715.41
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)	\$364,809.58
8. CURRENT PAYMENT DUE	\$227,905.83
9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 less line 6)	\$222,607.59

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	0.00	0.00
Total approved this Month	2,162.00	-53,839.00
TOTALS	2,162.00	-53,839.00
NET CHANGES by Change Order		-51,677.00

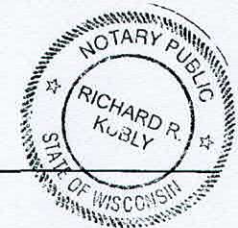
The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR: Hunzinger Construction Company

By:  Date: 12/11/23

State of: Wisconsin
County of: Waukesha
Subscribed and sworn before
me this 11th day of December, 2023

Notary Public: 
My Commission expires: 3/29/26



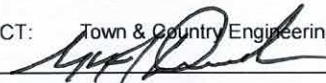
ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED \$ 227,905.83

(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this Application and on the Continuation Sheet that are changed to conform to the amount certified.)

ARCHITECT: Town & Country Engineering

By:  Date: 12/14/23

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

CONTINUATION SHEET

AIA DOCUMENT G703

AIA Document G702, APPLICATION AND CERTIFICATE FOR PAYMENT, containing Contractor's signed Certification, is attached.
In tabulations below, amounts are stated to the nearest dollar.
Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO.: 23155-3

APPLICATION DATE: 12/11/2023

PERIOD TO: 12/15/2023

ARCHITECT'S PROJECT NO: 23155

A	B	C	C.1	C.2	D	E	E.1	F	G	H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULE OF VALUES	APPROVED CHANGES TO DATE	REVISED SCHEDULE OF VALUES	PREVIOUS APPLICATIONS	THIS PERIOD	MATERIALS PRESENTLY STORED	TOTAL COMPLETED AND STORED TO DATE (D+E)	% (F/C)	BALANCE TO FINISH (C-F)	RETAINAGE (IF VARIABLE RATE)
1	General Conditions/Requirement	157,068.00	0.00	157,068.00	62,827.20	57,361.23	0.00	120,188.43	76.52	36,879.57	6,009.42
2	Site Demo & Earthwork	48,873.00	0.00	48,873.00	44,216.00	4,657.00	0.00	48,873.00	100.00	0.00	2,443.65
3	Selective Demolition	6,670.00	0.00	6,670.00	6,670.00	0.00	0.00	6,670.00	100.00	0.00	333.50
4	Concrete	53,541.00	0.00	53,541.00	48,186.90	5,354.10	0.00	53,541.00	100.00	0.00	2,677.06
5	Carpentry	125,801.00	0.00	125,801.00	124,542.99	0.00	0.00	124,542.99	99.00	1,258.01	6,227.15
6	Roofing & sheet Metal	122,323.00	0.00	122,323.00	50,000.00	72,323.00	0.00	122,323.00	100.00	0.00	6,116.15
7	Metal Wall/Ceiling Panel Sys	101,167.00	0.00	101,167.00	10,000.00	60,816.90	0.00	70,816.90	70.00	30,350.10	3,540.85
8	OH Doors	32,371.00	0.00	32,371.00	0.00	30,752.45	0.00	30,752.45	95.00	1,618.55	1,537.62
9	Plumbing Systems	23,685.00	0.00	23,685.00	12,000.00	3,500.00	0.00	15,500.00	65.44	8,185.00	775.00
10	HVAC Systems	155,262.00	0.00	155,262.00	9,100.00	42,550.00	0.00	51,650.00	33.27	103,612.00	2,582.50
11	Electrical Systems	23,772.00	0.00	23,772.00	0.00	14,263.20	0.00	14,263.20	60.00	9,508.80	713.16
12	GC Performance/Payment Bonds	6,361.00	0.00	6,361.00	6,361.00	0.00	0.00	6,361.00	100.00	0.00	318.05
13	GC Insurances	10,106.00	0.00	10,106.00	10,106.00	0.00	0.00	10,106.00	100.00	0.00	505.30
14	PCCO#1-PCO#1: Alt. Roofing	0.00	-48,250.00	-48,250.00	0.00	-48,250.00	0.00	-48,250.00	100.00	0.00	-2,412.50
15	PCCO#1-PCO#2: Alt. Metal Panel	0.00	-4,189.00	-4,189.00	0.00	-4,189.00	0.00	-4,189.00	100.00	0.00	-209.45
16	PCCO#1-PCO#3: Alt. Windows	0.00	-1,400.00	-1,400.00	0.00	-1,400.00	0.00	-1,400.00	100.00	0.00	-70.00
17	PCCO#1-PCO#4: MAU Stand	0.00	2,162.00	2,162.00	0.00	2,162.00	0.00	2,162.00	100.00	0.00	108.10
TOTALS		867,000.00	-51,677.00	815,323.00	384,010.09	239,900.88	0.00	623,910.97	76.52	191,412.03	31,195.56

APPLICATION AND CERTIFICATE FOR PAYMENT

AIA DOCUMENT G702

TO: Village of Jackson, WI Public Works Attn: Brian Kober P.E. W194 N16660 Eagle Dr, Jackson, WI 53037	PROJECT: Jackson 2023 WWTF Garage Exp W194 N16658 Eagle Dr. Jackson, WI 53037	APPLICATION NO.: 23155-4 PERIOD TO: 1/15/2024 PROJECT NOS.: 23155	Distribution to: ☐ OWNER ☐ ARCHITECT ☐ CONTRACTOR ☐ ☐
FROM CONTRACTOR: Hunzinger Construction Company 21100 Enterprise Ave. Brookfield, WI 53045	VIA ARCHITECT: Town & Country Engineering Attn: Greg Droessler	CONTRACT DATE: 8/8/2023 INVOICE #: 1223064	
CONTRACT FOR: General Contract			

Wiring instructions can only be changed by verbal confirmation from John Hunzinger - President of Hunzinger Construction Company

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract Continuation Sheet is attached.

1. ORIGINAL CONTRACT SUM	<u>\$867,000.00</u>
2. Net change by Change Orders	<u>-\$51,677.00</u>
3. CONTRACT SUM TO DATE (Line 1 + 2)	<u>\$815,323.00</u>
4. TOTAL COMPLETED & STORED TO DATE (Column G on Continuation Sheet)	<u>\$774,113.80</u>
5. RETAINAGE:	
a. <u>5.00</u> % of Completed Work (Columns D + E on Continuation Sheet)	<u>\$38,705.71</u>
b. <u>0.00</u> % of Stored Material (Column E.1 on Continuation Sheet)	<u>\$0.00</u>
Total Retainage (Line 5a + 5b or Total in Column I of Continuation Sheet)	<u>\$38,705.71</u>
6. TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)	<u>\$735,408.09</u>
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)	<u>\$592,715.41</u>
8. CURRENT PAYMENT DUE	<u>\$142,692.68</u>
9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 less line 6)	<u>\$79,914.91</u>

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	2,162.00	-53,839.00
Total approved this Month	0.00	0.00
TOTALS	2,162.00	-53,839.00
NET CHANGES by Change Order		-51,677.00

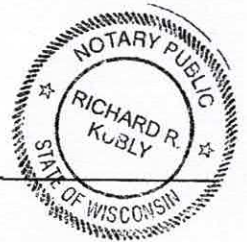
The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR: Hunzinger Construction Company

By: [Signature] Date: 1/11/24

State of: Wisconsin
County of: Waukesha
Subscribed and sworn before
me this 11th day of January, 2024

Notary Public: [Signature]
My Commission expires: 3/29/26



ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED \$ 142,692.68
(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this Application and on the Continuation Sheet that are changed to conform to the amount certified.)

ARCHITECT: Town & Country Engineering

By: [Signature] Date: 1/12/2024

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

CONTINUATION SHEET

AIA DOCUMENT G703

AIA Document G702, APPLICATION AND CERTIFICATE FOR PAYMENT ,
containing Contractor's signed Certification, is attached.
In tabulations below, amounts are stated to the nearest dollar.
Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO.: 23155-4
APPLICATION DATE: 1/11/2024
PERIOD TO: 1/15/2024
ARCHITECT'S PROJECT NO: 23155

A	B	C	C.1	C.2	D	E	E.1	F	G	H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULE OF VALUES	APPROVED CHANGES TO DATE	REVISED SCHEDULE OF VALUES	PREVIOUS APPLICATIONS	THIS PERIOD	MATERIALS PRESENTLY STORED	TOTAL COMPLETED AND STORED TO DATE (D+E)	% (F/C)	BALANCE TO FINISH (C-F)	RETAINAGE (IF VARIABLE RATE)
1	General Conditions/Requirement	157,068.00	0.00	157,068.00	120,188.43	29,026.17	0.00	149,214.60	95.00	7,853.40	7,460.73
2	Site Demo & Earthwork	48,873.00	0.00	48,873.00	48,873.00	0.00	0.00	48,873.00	100.00	0.00	2,443.65
3	Selective Demolition	6,670.00	0.00	6,670.00	6,670.00	0.00	0.00	6,670.00	100.00	0.00	333.50
4	Concrete	53,541.00	0.00	53,541.00	53,541.00	0.00	0.00	53,541.00	100.00	0.00	2,677.06
5	Carpentry	125,801.00	0.00	125,801.00	124,542.99	1,258.01	0.00	125,801.00	100.00	0.00	6,290.05
6	Roofing & sheet Metal	122,323.00	0.00	122,323.00	122,323.00	0.00	0.00	122,323.00	100.00	0.00	6,116.15
7	Metal Wall/Ceiling Panel Sys	101,167.00	0.00	101,167.00	70,816.90	30,350.10	0.00	101,167.00	100.00	0.00	5,058.36
8	OH Doors	32,371.00	0.00	32,371.00	30,752.45	1,618.55	0.00	32,371.00	100.00	0.00	1,618.55
9	Plumbing Systems	23,685.00	0.00	23,685.00	15,500.00	4,700.00	0.00	20,200.00	85.29	3,485.00	1,010.00
10	HVAC Systems	155,262.00	0.00	155,262.00	51,650.00	78,250.00	0.00	129,900.00	83.67	25,362.00	6,495.00
11	Electrical Systems	23,772.00	0.00	23,772.00	14,263.20	5,000.00	0.00	19,263.20	81.03	4,508.80	963.16
12	GC Performance/Payment Bonds	6,361.00	0.00	6,361.00	6,361.00	0.00	0.00	6,361.00	100.00	0.00	318.05
13	GC Insurances	10,106.00	0.00	10,106.00	10,106.00	0.00	0.00	10,106.00	100.00	0.00	505.30
14	PCCO#1-PCO#1: Alt. Roofing	0.00	-48,250.00	-48,250.00	-48,250.00	0.00	0.00	-48,250.00	100.00	0.00	-2,412.50
15	PCCO#1-PCO#2: Alt. Metal Panel	0.00	-4,189.00	-4,189.00	-4,189.00	0.00	0.00	-4,189.00	100.00	0.00	-209.45
16	PCCO#1-PCO#3: Alt. Windows	0.00	-1,400.00	-1,400.00	-1,400.00	0.00	0.00	-1,400.00	100.00	0.00	-70.00
17	PCCO#1-PCO#4: MAU Stand	0.00	2,162.00	2,162.00	2,162.00	0.00	0.00	2,162.00	100.00	0.00	108.10
TOTALS		867,000.00	-51,677.00	815,323.00	623,910.97	150,202.83	0.00	774,113.80	94.95	41,209.20	38,705.71



December 21, 2023

Village of Jackson
W194 N16660 Eagle Drive
Jackson, WI 53037

Attention: Brian Kober, P.E.
Director of Public Works

Subject: Project: VOJ 23-02
STH 60 – Street Lighting
Industrial Drive – Ridgeway Drive
Pay Request #2

Dear Mr. Kober:

Enclosed you will find Pay Request #2 for the STH 60 Street Lighting project in the Village of Jackson. The total amount, due to the contractor, has been reduced by five percent (5%) for retainage but not to exceed maximum retainage. The maximum retainage was met with this pay request #2. This is per Article 6.02.A.1 Progress Payments; Retainage, of Contract Document 00500, Agreement:

Total work completed to date	= \$216,770.71
Work completed, Pay Request # 2	= \$98,019.78
Retainage Pay Request #2	= \$3,516.85
Total Retainage	= \$9,454.40
Amount due to Contractor, Pay Request #2	= \$94,502.93

If you have any questions or comments, please contact me at (920) 924-5720.

Sincerely,

Blake Furlano

Blake Furlano
Project Inspector
Gremmer & Associates, Inc.

Project VOJ 23-02
 STH 60 - Street Lighting
 Industrial Drive - Ridgeway Drive

Pay Request #1
 Wil-Surge - Prime Contractor

Item No.	Description	Units	Total	Wil-Surge		Pay Request #1		Pay Request #2		Cumulative Totals		% Complete
				Unit Price	Bid Total	Actual Quantity	Total	Actual Quantity	Total	Actual Quantity	Total	
619.1000	Mobilization	EACH	1	\$15,428.00	\$15,428.00	1.0	\$15,428.00	0	\$0.00	1	\$15,428.00	100%
628.7015	Inlet Protection Type C	EACH	25	\$89.00	\$2,225.00	0.0	\$0.00	0	\$0.00	0	\$0.00	0%
643.5000	Traffic Control	LS	1	\$16,871.00	\$16,871.00	1.0	\$16,871.00	0	\$0.00	1	\$16,871.00	100%
653.0164	Pull Boxes Non-Conductive 24x42-Inch	EACH	17	\$987.00	\$16,779.00	0.0	\$0.00	0	\$0.00	0	\$0.00	0%
654.0105	Concrete Bases Type 5	EACH	36	\$891.00	\$32,076.00	0.0	\$0.00	36	\$32,076.00	36	\$32,076.00	100%
655.0610	Electrical Wire Lighting 12 AWG	LF	7,629	\$0.92	\$7,018.68	0.0	\$0.00	0	\$0.00	0	\$0.00	0%
655.0620	Electrical Wire Lighting 8 AWG	LF	20,342	\$1.68	\$34,174.56	0.0	\$0.00	0	\$0.00	0	\$0.00	0%
655.0625	Electrical Wire Lighting 6 AWG	LF	30,513	\$1.81	\$55,228.53	0.0	\$0.00	0.00	\$0.00	0	\$0.00	0%
671.0212	Conduit HDPE Directional Bore 1-Duct 2-Inch	LF	10,835	\$13.79	\$149,414.65	5267.0	\$72,631.93	4782	\$65,943.78	10049	\$138,575.71	93%
SPV.0060.01	Install Village Furnished Lighting Unit	EACH	36	\$832.00	\$29,952.00	0.0	\$0.00	0	\$0.00	0	\$0.00	0%
SPV.0060.02	Install Village Furnished Meter Breaker Pedestal	EACH	2	\$6,910.00	\$13,820.00	2.0	\$13,820.00	0	\$0.00	2	\$13,820.00	100%
SPV.0180.01	Concrete Restoration	SY	3.3	\$348.00	\$1,148.40	0.0	\$0.00	0	\$0.00	0	\$0.00	0%
SPV.0180.02	Asphalt Restoration	SY	5	\$808.00	\$4,040.00	0.0	\$0.00	0	\$0.00	0	\$0.00	0%
CO #1	Concrete Replacement (Replaces Item SPV.0180.01)	SF	700	\$13.00	\$9,100.00	0.0	\$0.00	0	\$0.00	0	\$0.00	0%
CTH P TOTAL					\$387,275.82		\$118,750.93		\$98,019.78		\$216,770.71	56%
TOTAL					\$387,275.82		\$118,750.93		\$98,019.78		\$216,770.71	55.97%

Wil-Surge original bid #
 \$378,175.82
 Difference / Increase of
 \$7,951.60

\$5,937.55 Retainage Est #1
 \$3,516.85 Retainage Est #2
 \$0.00 Retainage Est #3

Max retainage to hold = \$9,454.40
 Based off original bid price

Work completed, previous estimate	\$118,750.93
Work completed, this estimate	\$98,019.78
Total work completed	\$216,770.71
Retainage, this estimate	\$3,516.85
Total retainage, previous estimates	\$5,937.55
Total retainage	\$9,454.40
Amount due to contractor, this estimate	\$94,502.93



Amanda J. Yone



January 25, 2024

Village of Jackson
W194 N16660 Eagle Drive
Jackson, WI 53037

Attention: Brian Kober, P.E.
Director of Public Works

Subject: Project: VOJ 23-02
STH 60 – Street Lighting
Industrial Drive – Ridgeway Drive
Pay Request #3

Dear Mr. Kober:

Enclosed you will find Pay Request #3 for the STH 60 Street Lighting project in the Village of Jackson. The total amount, due to the contractor, has been reduced by five percent (5%) for retainage but not to exceed maximum retainage. The maximum retainage was met with the previous pay request #2. This is per Article 6.02.A.1 Progress Payments; Retainage, of Contract Document 00500, Agreement:

Total work completed to date	= \$341,895.50
Work completed, Pay Request #3	= \$125,124.79
Total Retainage	= \$9,454.40
Amount due to Contractor, Pay Request #3	= \$125,124.79

If you have any questions or comments, please contact me at (920) 924-5720.

Sincerely,

Blake Furlano

Blake Furlano
Project Inspector
Gremmer & Associates, Inc.

Project VOJ 23-02
 STH 60 - Street Lighting
 Industrial Drive - Ridgeway Drive

Pay Request #3
 Wil-Surge - Prime Contractor

Item No.	Description	Units	Total	Wil-Surge		Pay Request #1		Pay Request #2		Pay Request #3		Cumulative Totals		% Complete
				Unit Price	Bid Total	Actual Quantity	Total	Actual Quantity	Total	Actual Quantity	Total	Actual Quantity	Total	
619.1000	Mobilization	EACH	1	\$15,428.00	\$15,428.00	1.0	\$15,428.00	0	\$0.00	0.00	\$0.00	1	\$15,428.00	100%
628.7015	Inlet Protection Type C	EACH	25	\$89.00	\$2,225.00	0.0	\$0.00	0	\$0.00	0.00	\$0.00	0	\$0.00	0%
643.5000	Traffic Control	LS	1	\$16,871.00	\$16,871.00	1.0	\$16,871.00	0	\$0.00	0.00	\$0.00	1	\$16,871.00	100%
653.0164	Pull Boxes Non-Conductive 24x42-Inch	EACH	17	\$987.00	\$16,779.00	0.0	\$0.00	0	\$0.00	17.00	\$16,779.00	17	\$16,779.00	100%
654.0105	Concrete Bases Type 5	EACH	36	\$891.00	\$32,076.00	0.0	\$0.00	36	\$32,076.00	0.00	\$0.00	36	\$32,076.00	100%
655.0610	Electrical Wire Lighting 12 AWG	LF	7,629	\$0.92	\$7,018.68	0.0	\$0.00	0	\$0.00	256.00	\$235.52	256	\$235.52	3%
655.0620	Electrical Wire Lighting 8 AWG	LF	20,342	\$1.68	\$34,174.56	0.0	\$0.00	0	\$0.00	21467.00	\$36,064.56	21467	\$36,064.56	106%
655.0625	Electrical Wire Lighting 6 AWG	LF	30,513	\$1.81	\$55,228.53	0.0	\$0.00	0.00	\$0.00	32200.50	\$58,282.91	32201	\$58,282.91	106%
671.0212	Conduit HDPE Directional Bore 1-Duct 2-Inch	LF	10,835	\$13.79	\$149,414.65	5267.0	\$72,631.93	4782	\$65,943.78	100.00	\$1,379.00	10149	\$139,954.71	94%
SPV.0060.01	Install Village Furnished Lighting Unit	EACH	36	\$832.00	\$29,952.00	0.0	\$0.00	0	\$0.00	0.00	\$0.00	0	\$0.00	0%
SPV.0060.02	Install Village Furnished Meter Breaker Pedestal	EACH	2	\$6,910.00	\$13,820.00	2.0	\$13,820.00	0	\$0.00	0.00	\$0.00	2	\$13,820.00	100%
SPV.0180.01	Concrete Restoration	SY	3.3	\$348.00	\$1,148.40	0.0	\$0.00	0	\$0.00	0.00	\$0.00	0	\$0.00	0%
SPV.0180.02	Asphalt Restoration	SY	5	\$808.00	\$4,040.00	0.0	\$0.00	0	\$0.00	0.00	\$0.00	0	\$0.00	0%
CO #1	Concrete Replacement (Replaces Item SPV.0180.01)	SF	700	\$13.00	\$9,100.00	0.0	\$0.00	0	\$0.00	952.60	\$12,383.80	953	\$12,383.80	136%
STH 60 TOTAL					\$387,275.82		\$118,750.93		\$98,019.78		\$125,124.79		\$341,895.50	88.28%
TOTAL					\$387,275.82		\$118,750.93		\$98,019.78		\$125,124.79		\$341,895.50	88.28%

Wil-Surge original bid #
 \$378,175.82
 Difference / Increase of
 \$7,951.60

\$5,937.55 Retainage Est #1
 \$3,516.85 Retainage Est #2
 \$0.00 Retainage Est #3

Max retainage to hold = \$9,454.40
 Based off original bid price

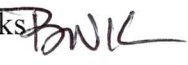
Work completed, previous estimate \$98,019.78
 Work completed, this estimate \$125,124.79
 Total work completed \$341,895.50
 Retainage, this estimate \$0.00
 Total retainage, previous estimates \$9,454.40
 Total retainage \$9,454.40
 Amount due to contractor, this estimate \$125,124.79



Amanda J. Yancey

Memo

To: Board of Public Works

From: Brian W. Kober, P. E., Director of Public Works 

Subject: Review of Bids
Eagle Drive & STH 60 Intersection – Roundabout Project

Date: January 26, 2024

WisDOT conducted the bid opening on January 9, 2024, for Eagle Drive & STH 60 Roundabout Project. A very competitive bidding occurred. The original agreement had the Village paying \$322,534.00 for the construction portion which was agreed upon on February 15, 2023. As of November 29, 2024, the estimated construction went up to \$404,769.64. After bidding the final number is \$294,459.02.

The intersection improvement is funded by TID #7. Recommend approval to proceed with the project.

If you have any questions, please do not hesitate to ask.

Brian W. Kober, P.E.

CORRESPONDENCE/MEMORANDUM

PROJECT AGREEMENT ACCEPTANCE

DATE: February 15, 2023

SUBJECT: Project Agreement: Initial

ID: 2310-13-01/71

Title: V JACKSON, EAGLE DR

Limits: INTERSECTION WITH STH 60

County: Washington

The Attached Agreement Is Recommended for Approval:

PROGRAM: 206 – STP OVER 200,000, 2023-2026

CONCEPTS COVERED by this AGREEMENT: Design Review, Construction

ESTIMATED COST: \$1,559,329

PARTICIPATION: Design is funded 100% Municipal and construction is funded 80% Federal/ 20% Local with a federal funding limit of \$1,210,135.

NON-PARTICIPATION: As Determined during design

EXECUTED BY: Village of Jackson

DATE: 2/15/2023

LET DATE: 1/09/24

NOTES:

REGION REVIEWER:

Jacob Varner

local sign
Local Program Engineer

2/15/2023

DATE

REGION: SE

Urbanized Area STP-Urban (206) Standard SMA Template

scheduled.

Extensions may be available upon approval of a written request by or on behalf of the Municipality to State. The written request shall explain the reasons for project implementation delay and revised timeline for project completion.

The dollar amounts shown in the Summary of Costs Table below are estimates. The final Municipal share is dependent on the final federal participation, and actual costs will be used in the final division of cost for billing and reimbursement. In no event shall federal or State funding exceed the estimate of \$1,210,135 in the Summary of Costs Table, unless such increase is approved in writing by the State through the State's Change Management Policy prior to the Municipality incurring the increased costs.

PHASE	SUMMARY OF COSTS				
	Total Est. Cost	Federal Funds	%	Municipal Funds	%
ID 2310-13-01					
State Review	\$21,660	\$0	0%	\$21,660	100%
ID 2310-13-71					
Participating Construction	\$1,512,669	\$1,190,135	80%	\$322,534	20% + BAL
Non-Participating Construction		\$0	0%	\$0	100%
State Review	\$25,000	\$20,000	80%	\$5,000	20% + BAL
Total Est. Cost Distribution	\$1,559,329	\$1,210,135	N/A	\$349,194	N/A

*Design ID# 2310-13-01 federal funding is limited to \$0.

*Construction ID# 2310-13-71 federal funding is limited to \$1,210,135

This request is subject to the terms and conditions that follow (pages 2 –7) and is made by the undersigned under proper authority to make such request for the designated Municipality and upon signature by the State and delivery to the Municipality shall constitute agreement between the Municipality and the State. No term or provision of neither the State/Municipal Agreement nor any of its attachments may be changed, waived or terminated orally but only by an instrument in writing executed by both parties to the State/Municipal Agreement.

Signatures certify the content has not been altered by the municipality.
Signed for and in behalf of: Village of Jackson (please sign in blue ink.)

Name B. W. [Signature] Title DIRECTOR OF PW/VILLAGE ENGINEER Date 2/15/2023

Signed for and in behalf of the State:

Name Tony J. Barth Title: SE Region Planning Chief Date 2/21/2023

GENERAL TERMS AND CONDITIONS:

- All projects must be in an approved Transportation Improvement Program (TIP) or State Transportation Improvement Program (STIP) prior to requesting authorization.
- Work prior to federal authorization is ineligible for federal funding.
- The Municipality, throughout the entire project, commits to comply with and promote all applicable federal and state laws and regulations that include, but are not limited to, the following:
 - Environmental requirements, including but not limited to those set forth in the 23 U.S.C. 139 and National Environmental Policy Act (42 U.S.C. 4321 et seq.)



Division of Transportation
System Development
Southeast Regional Office
141 N.W. Barstow Street
P.O. Box 798
Waukesha, WI 53187-0798

Governor Tony Evers
Secretary Craig Thompson
Internet: www.dot.wisconsin.gov

Telephone: (262) 548-5903
Facsimile (FAX): (262) 548-5662
E-Mail: waukesha.dtd@dot.wi.gov

November 29, 2023

Brian W. Kober, P.E.
Director of Public Works/Village Engineer
Village of Jackson
W194 N16660 Eagle Drive
Jackson, WI 53037

Dear Mr. Kober:

SUBJECT: I.D. 2310-13-71
Eagle Drive
Intersection with STH 60
Washington County

The above construction project is scheduled for a January 9, 2024 bid letting at an engineering estimated cost of \$1,614,904.64 including construction engineering. This estimate is confidential and should not be disclosed to potential bidders prior to bid opening. The project was authorized to incur costs effective November 17, 2023.

Based on the engineering estimate and the "Project Agreement", your share of the construction cost will be approximately \$404,769.64.

Unless we hear otherwise from you, we will proceed with the contract administration process of receiving bids and awarding a contract to the low bidder. If you have any questions, please contact Project Manager Andrew Pinter at (262) 548-6438.

Sincerely,

Kathy Bender

Kathy Bender
Transportation Program Coordinator

c: Andrew Pinter, WisDOT



Division of Transportation
System Development
Southeast Regional Office
141 N.W. Barstow Street
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January 24, 2024

Brian W. Kober, P.E.
Director of Public Works/Village Engineer
Village of Jackson
W194 N16660 Eagle Drive
Jackson, WI 53037

Dear Mr. Kober:

SUBJECT: I.D. 2310-13-71
Eagle Drive
Intersection with STH 60
Washington County

Bids were received on January 9, 2024 for the above project. The following Estimate of Costs and Financing is based on the awarded bid. A copy of bid items and costs are attached for your information.

ESTIMATE OF COSTS:

Bid of Vinton Construction Company	\$1,280,256.56
Engineering & Contingencies	<u>\$ 192,038.48</u>
	\$1,472,295.04

ESTIMATE-SOURCE OF FINANCING

Federal/State Aid	\$1,177,836.02
Village of Jackson	<u>\$ 294,459.02</u>
Total	\$1,472,295.04

You will be billed on the basis of actual costs incurred.

Sincerely,
Kathy Bender
Kathy Bender
Transportation Program Coordinator

**CONFIDENTIAL****Final Project Detail Estimate Report
Final Detail Cost Estimate**

Page 1 of 9

Project ID: 2310-13-71	Federal Project No.: WISC 2024118	Contract ID: 20240109012
Project Description: V Jackson, Eagle Dr; Intersection With STH 60		
Awarded Vendor: VI18	VINTON CONSTRUCTION COMPANY	

Category: 1000	Roadway Items		
Funding Source(s) and Participation:	1 FED Federal Funding	80.00%	1180135.00
	1 VIL Village of Jackson	20.00%	0.00
	2 VIL001 Village of Jackson	100.00%	0.00
Category Work Class: RDCN	Roadway Construction		
Fed Work Category: 04	Reconstruction - No Added Capacity		Category Length: 0.0000 MILES
Fed Construction Class: LET	Let Project Items		Category Width: 0.0000 FEET

Line No.	Item Number	Item Description	Units	Qty	Unit Price	Amount
0002	203.0100	Removing Small Pipe Culverts	EACH	3.000	1,260.00000	3,780.00
0004	204.0150	Removing Curb & Gutter	LF	564.000	6.75000	3,807.00
0006	204.0155	Removing Concrete Sidewalk	SY	238.000	13.50000	3,213.00
0008	204.0220	Removing Inlets	EACH	2.000	563.00000	1,126.00
0010	204.0245	Removing Storm Sewer (size) 01. 12-inch	LF	113.000	48.00000	5,424.00
0012	205.0100	Excavation Common	CY	6,700.000	20.35000	136,345.00
0014	211.0101	Prepare Foundation for Asphaltic Paving (project) 02. 2310-13-71	EACH	1.000	6,400.00000	6,400.00
0016	213.0100	Finishing Roadway (project) 02. 2310-13-71	EACH	1.000	3,500.00000	3,500.00
0018	305.0110	Base Aggregate Dense 3/4-Inch	TON	60.000	65.00000	3,900.00
0020	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	4,850.000	10.25000	49,712.50
0022	310.0110	Base Aggregate Open-Graded	TON	52.000	29.50000	1,534.00
0024	312.0110	Select Crushed Material	TON	5,425.000	19.50000	105,787.50
0026	405.0100	Coloring Concrete WisDOT Red	CY	140.000	110.00000	15,400.00
0028	415.2010	Concrete Truck Apron 12-inch	SY	342.000	101.00000	34,542.00
0030	455.0605	Tack Coat	GAL	372.000	2.30000	855.60

**CONFIDENTIAL****Final Project Detail Estimate Report
Final Detail Cost Estimate**

Page 2 of 9

Project ID: 2310-13-71 **Federal Project No.:** WISC 2024118 **Contract ID:** 20240109012
Project Description: V Jackson, Eagle Dr; Intersection With STH 60
Awarded Vendor: VI18 VINTON CONSTRUCTION COMPANY

Category: 1000 Roadway Items

Line No.	Item Number	Item Description	Units	Qty	Unit Price	Amount
0032	460.2000	Incentive Density HMA Pavement	DOL	870.000	1.00000	870.00
0034	460.6223	HMA Pavement 3 MT 58-28 S	TON	622.000	76.75000	47,738.50
0036	460.6424	HMA Pavement 4 MT 58-28 H	TON	727.000	97.40000	70,809.80
0038	465.0315	Asphaltic Flumes	SY	9.000	150.00000	1,350.00
0040	504.0900	Concrete Masonry Endwalls	CY	4.000	2,100.00000	8,400.00
0042	520.8000	Concrete Collars for Pipe	EACH	4.000	2,000.00000	8,000.00
0044	522.0421	Culvert Pipe Reinforced Concrete Class IV 21-Inch	LF	202.000	103.00000	20,806.00
0046	522.0448	Culvert Pipe Reinforced Concrete Class IV 48-Inch	LF	436.000	255.00000	111,180.00
0048	522.1012	Apron Endwalls for Culvert Pipe Reinforced Concrete 12-Inch	EACH	1.000	975.00000	975.00
0050	522.1015	Apron Endwalls for Culvert Pipe Reinforced Concrete 15-Inch	EACH	2.000	1,090.00000	2,180.00
0052	522.1021	Apron Endwalls for Culvert Pipe Reinforced Concrete 21-Inch	EACH	2.000	1,285.00000	2,570.00
0054	522.1048	Apron Endwalls for Culvert Pipe Reinforced Concrete 48-Inch	EACH	2.000	3,427.00000	6,854.00
0056	601.0405	Concrete Curb & Gutter 18-Inch Type A	LF	185.000	27.13000	5,019.05
0058	601.0411	Concrete Curb & Gutter 30-Inch Type D	LF	1,913.000	36.68000	70,168.84
0060	601.0551	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type A	LF	242.000	43.13000	10,437.46
0062	601.0580	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type R	LF	273.000	34.88000	9,522.24
0064	601.0600	Concrete Curb Pedestrian	LF	129.000	42.13000	5,434.77
0066	602.0405	Concrete Sidewalk 4-Inch	SF	2,949.000	7.10000	20,937.90
0068	602.0410	Concrete Sidewalk 5-Inch	SF	6,507.000	8.05000	52,381.35
0070	602.0505	Curb Ramp Detectable Warning Field Yellow	SF	256.000	35.00000	8,960.00

**CONFIDENTIAL****Final Project Detail Estimate Report
Final Detail Cost Estimate**

Page 3 of 9

Project ID: 2310-13-71	Federal Project No.: WISC 2024118	Contract ID: 20240109012
Project Description: V Jackson, Eagle Dr; Intersection With STH 60		
Awarded Vendor: VI18 VINTON CONSTRUCTION COMPANY		

Category: 1000	Roadway Items
-----------------------	---------------

Line No.	Item Number	Item Description	Units	Qty	Unit Price	Amount
0072	602.0810	Concrete Driveway 6-Inch	SY	53.000	70.00000	3,710.00
0074	606.0200	Riprap Medium	CY	46.000	110.00000	5,060.00
0076	608.0412	Storm Sewer Pipe Reinforced Concrete Class IV 12-Inch	LF	424.000	103.00000	43,672.00
0078	608.0415	Storm Sewer Pipe Reinforced Concrete Class IV 15-Inch	LF	53.000	109.00000	5,777.00
0080	611.0530	Manhole Covers Type J	EACH	2.000	495.00000	990.00
0082	611.0636	Inlet Covers Type HM-S	EACH	2.000	708.00000	1,416.00
0084	611.0639	Inlet Covers Type H-S	EACH	11.000	708.00000	7,788.00
0086	611.0651	Inlet Covers Type S	EACH	2.000	702.00000	1,404.00
0088	611.0652	Inlet Covers Type T	EACH	3.000	947.00000	2,841.00
0090	611.2004	Manholes 4-FT Diameter	EACH	2.000	4,037.00000	8,074.00
0092	611.3004	Inlets 4-FT Diameter	EACH	6.000	3,355.00000	20,130.00
0094	611.3230	Inlets 2x3-FT	EACH	9.000	2,760.00000	24,840.00
0096	611.9850.S	Pipe Grates (size) 01. 48-Inch	EACH	2.000	2,750.00000	5,500.00
0098	612.0106	Pipe Underdrain 6-Inch	LF	350.000	16.00000	5,600.00
0100	619.1000	Mobilization	EACH	0.050	276,500.00000	13,825.00
0102	620.0300	Concrete Median Sloped Nose	SF	308.000	12.00000	3,696.00
0104	624.0100	Water	MGAL	140.000	30.00000	4,200.00
0106	625.0100	Topsoil	SY	4,840.000	6.03000	29,185.20
0108	628.1504	Silt Fence	LF	980.000	2.12000	2,077.60
0110	628.1520	Silt Fence Maintenance	LF	980.000	0.10000	98.00

**CONFIDENTIAL****Final Project Detail Estimate Report
Final Detail Cost Estimate**

Page 4 of 9

Project ID: 2310-13-71 **Federal Project No.:** WISC 2024118 **Contract ID:** 20240109012
Project Description: V Jackson, Eagle Dr; Intersection With STH 60
Awarded Vendor: VI18 VINTON CONSTRUCTION COMPANY

Category: 1000 Roadway Items

Line No.	Item Number	Item Description	Units	Qty	Unit Price	Amount
0112	628.1905	Mobilizations Erosion Control	EACH	4.000	50.00000	200.00
0114	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	50.00000	100.00
0116	628.7005	Inlet Protection Type A	EACH	34.000	50.00000	1,700.00
0118	628.7015	Inlet Protection Type C	EACH	38.000	50.00000	1,900.00
0120	628.7555	Culvert Pipe Checks	EACH	25.000	20.00000	500.00
0122	629.0210	Fertilizer Type B	CWT	2.000	80.00000	160.00
0124	630.0120	Seeding Mixture No. 20	LB	9.000	8.00000	72.00
0126	630.0200	Seeding Temporary	LB	9.000	10.00000	90.00
0128	630.0500	Seed Water	MGAL	8.000	1.00000	8.00
0130	631.0300	Sod Water	MGAL	112.000	28.00000	3,136.00
0132	631.1000	Sod Lawn	SY	4,840.000	7.50000	36,300.00
0134	633.5100	Markers ROW	EACH	5.000	70.00000	350.00
0136	633.5200	Markers Culvert End	EACH	7.000	70.00000	490.00
0138	634.0618	Posts Wood 4x6-Inch X 18-FT	EACH	47.000	160.00000	7,520.00
0140	634.0622	Posts Wood 4x6-Inch X 22-FT	EACH	8.000	200.00000	1,600.00
0142	634.0814	Posts Tubular Steel 2x2-Inch X 14-FT	EACH	20.000	205.00000	4,100.00
0144	637.2210	Signs Type II Reflective H	SF	411.000	21.41000	8,799.51
0146	637.2230	Signs Type II Reflective F	SF	236.120	21.41000	5,055.33
0148	638.2102	Moving Signs Type II	EACH	2.000	50.00000	100.00
0150	638.2602	Removing Signs Type II	EACH	15.000	12.00000	180.00

**CONFIDENTIAL****Final Project Detail Estimate Report
Final Detail Cost Estimate**

Page 5 of 9

Project ID: 2310-13-71**Federal Project No.:** WISC 2024118**Contract ID:** 20240109012**Project Description:** V Jackson, Eagle Dr; Intersection With STH 60**Awarded Vendor:** VI18**VINTON CONSTRUCTION COMPANY****Category:** 1000

Roadway Items

Line No.	Item Number	Item Description	Units	Qty	Unit Price	Amount
0152	638.3000	Removing Small Sign Supports	EACH	18.000	15.00000	270.00
0154	643.0300	Traffic Control Drums	DAY	1,190.000	0.08000	95.20
0156	643.0420	Traffic Control Barricades Type III	DAY	810.000	0.45000	364.50
0158	643.0705	Traffic Control Warning Lights Type A	DAY	1,620.000	0.05000	81.00
0160	643.0715	Traffic Control Warning Lights Type C	DAY	605.000	0.05000	30.25
0162	643.0900	Traffic Control Signs	DAY	4,405.000	0.35000	1,541.75
0164	643.0910	Traffic Control Covering Signs Type I	EACH	4.000	175.00000	700.00
0166	643.1070	Traffic Control Cones 42-Inch	DAY	100.000	0.08000	8.00
0168	643.3165	Temporary Marking Line Paint 6-Inch	LF	1,335.000	0.40000	534.00
0170	643.5000	Traffic Control	EACH	0.050	57,439.70000	2,871.98
0172	644.1601	Temporary Pedestrian Curb Ramp	DAY	270.000	4.00000	1,080.00
0174	644.1605	Temporary Pedestrian Detectable Warning Field	SF	200.000	3.00000	600.00
0176	644.1810	Temporary Pedestrian Barricade	LF	400.000	5.50000	2,200.00
0178	645.0111	Geotextile Type DF Schedule A	SY	200.000	6.00000	1,200.00
0180	645.0120	Geotextile Type HR	SY	91.000	10.00000	910.00
0182	646.2020	Marking Line Epoxy 6-Inch	LF	4,009.000	0.82000	3,287.38
0184	646.4020	Marking Line Epoxy 10-Inch	LF	217.000	1.37000	297.29
0186	646.5020	Marking Arrow Epoxy	EACH	4.000	250.00000	1,000.00
0188	646.5120	Marking Word Epoxy	EACH	4.000	225.00000	900.00
0190	646.7120	Marking Diagonal Epoxy 12-Inch	LF	76.000	10.00000	760.00

**CONFIDENTIAL****Final Project Detail Estimate Report
Final Detail Cost Estimate**

Page 6 of 9

Project ID: 2310-13-71 **Federal Project No.:** WISC 2024118 **Contract ID:** 20240109012
Project Description: V Jackson, Eagle Dr; Intersection With STH 60
Awarded Vendor: VI18 VINTON CONSTRUCTION COMPANY

Category: 1000 Roadway Items

Line No.	Item Number	Item Description	Units	Qty	Unit Price	Amount
0192	646.7520	Marking Crosswalk Epoxy Block Style 24-Inch	LF	280.000	20.00000	5,600.00
0194	646.8020	Marking Corrugated Median Epoxy	SF	80.000	5.75000	460.00
0196	646.8120	Marking Curb Epoxy	LF	80.000	8.50000	680.00
0198	646.8220	Marking Island Nose Epoxy	EACH	8.000	275.00000	2,200.00
0200	646.9000	Marking Removal Line 4-Inch	LF	235.000	0.65000	152.75
0202	650.6000	Construction Staking Pipe Culverts	EACH	4.000	300.00000	1,200.00
0204	650.8501	Construction Staking Electrical Installations (project) 02. 2310-13-71	EACH	1.000	2,500.00000	2,500.00
0206	652.0225	Conduit Rigid Nonmetallic Schedule 40 2-Inch	LF	1,130.000	9.00000	10,170.00
0208	653.0164	Pull Boxes Non-Conductive 24x42-Inch	EACH	6.000	1,600.00000	9,600.00
0210	654.0105	Concrete Bases Type 5	EACH	12.000	1,100.00000	13,200.00
0212	654.0224	Concrete Control Cabinet Bases Type L24	EACH	1.000	1,600.00000	1,600.00
0214	655.0610	Electrical Wire Lighting 12 AWG	LF	1,728.000	0.90000	1,555.20
0216	655.0620	Electrical Wire Lighting 8 AWG	LF	5,828.000	1.20000	6,993.60
0218	656.0201	Electrical Service Meter Breaker Pedestal (location) 04. Cabinet JA	EACH	1.000	1,500.00000	1,500.00
0220	657.0255	Transformer Bases Breakaway 11 1/2-Inch Bolt Circle	EACH	12.000	518.00000	6,216.00
0222	657.0322	Poles Type 5-Aluminum	EACH	12.000	2,135.00000	25,620.00
0224	657.0715	Luminaire Arms Truss Type 4 1/2-Inch Clamp 15-FT	EACH	12.000	560.00000	6,720.00
0226	659.1115	Luminaires Utility LED A	EACH	12.000	185.00000	2,220.00
0228	659.2124	Lighting Control Cabinets 120/240 24-Inch	EACH	1.000	8,000.00000	8,000.00

**CONFIDENTIAL****Final Project Detail Estimate Report
Final Detail Cost Estimate**

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Project ID: 2310-13-71**Federal Project No.:** WISC 2024118**Contract ID:** 20240109012**Project Description:** V Jackson, Eagle Dr; Intersection With STH 60**Awarded Vendor:** VI18**VINTON CONSTRUCTION COMPANY****Category:** 1000

Roadway Items

Line No.	Item Number	Item Description	Units	Qty	Unit Price	Amount
0230	690.0150	Sawing Asphalt	LF	775.000	1.39000	1,077.25
0232	690.0250	Sawing Concrete	LF	15.000	1.95000	29.25
0234	715.0720	Incentive Compressive Strength Concrete Pavement	DOL	500.000	1.00000	500.00
0236	SPV.0060	Special 22. Saddle Inlet	EACH	2.000	1,715.00000	3,430.00
0238	SPV.0060	Special 23. Construction Staking Roundabout	EACH	1.000	11,000.00000	11,000.00
0240	SPV.0060	Special 27. Utility Line Opening (ULO)	EACH	2.000	1,175.00000	2,350.00
0252	204.0100	Removing Concrete Pavement	SY	1,565.000	5.00000	7,825.00

Category 1000 Total: \$1,253,296.55**Eng & Contg:** \$187,994.48**Total:** \$1,441,291.03

**CONFIDENTIAL****Final Project Detail Estimate Report
Final Detail Cost Estimate**

Page 8 of 9

Project ID: 2310-13-71**Federal Project No.:** WISC 2024118**Contract ID:** 20240109012**Project Description:** V Jackson, Eagle Dr; Intersection With STH 60**Awarded Vendor:** VI18**VINTON CONSTRUCTION COMPANY****Category:** 2000

Structure Items

Funding Source(s) and Participation:

1	FED	Federal Funding
1	VIL	Village of Jackson
2	VIL001	Village of Jackson

80.00%	30000.00
20.00%	0.00
100.00%	0.00

Category Work Class: RDCN

Roadway Construction

Fed Work Category: 44

Other

Category Length: 32.0000 FEET**Fed Construction Class:** LET

Let Project Items

Category Width: 0.0000 FEET

Line No.	Item Number	Item Description	Units	Qty	Unit Price	Amount
0242	203.0220	Removing Structure (structure) 01. R-66-87	EACH	1.000	4,500.00000	4,500.00
0244	513.8011	Railing Steel Pedestrian Type C2	LF	31.000	410.00000	12,710.00
0246	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	35.000	6.00000	210.00
0248	SPV.0165	Special 01. Wall Modular Block Mechanically Stabilized Earth (R-66-87)	SF	106.000	90.00000	9,540.00

Category 2000 Total:

\$26,960.00

Eng & Contg:

\$4,044.00

Total:

\$31,004.00



CONFIDENTIAL

Final Project Detail Estimate Report
Final Detail Cost Estimate

Project ID:2310-13-71	Federal Project No.: WISC 2024118	Contract ID: 20240109012
Project Description:V Jackson, Eagle Dr; Intersection With STH 60		
Awarded Vendor: VI18	VINTON CONSTRUCTION COMPANY	

Category: 3000	Non-Participating		
Funding Source(s) and Participation:	1 VIL001 Village of Jackson	100.00%	0.00
Category Work Class: RDCN	Roadway Construction		
Fed Work Category: 44	Other	Category Length: 0.0000 MILES	
Fed Construction Class: LET	Let Project Items	Category Width: 0.0000 FEET	

Line No.	Item Number	Item Description	Units	Qty	Unit Price	Amount
0250	618.0100	Maintenance and Repair of Haul Roads (project) 02. 2310-13-71	EACH	1.000	0.01000	0.01

Category 3000 Total:	\$0.01
Eng & Contg:	\$0.00
Total:	\$0.01

Project 2310-13-71 Engineer's Estimate w/o E&C Total:	\$1,446,326.04
Contractor's Bid w/o E&C Total:	\$1,280,256.56

**CONFIDENTIAL****Final Project Detail Estimate Report
Final Detail Estimate Funding Summary**

Page 1 of 1

Project ID: 2310-13-71**Project Description:** V Jackson, Eagle Dr; Intersection With STH 60**Awarded Vendor:** VI18**VINTON CONSTRUCTION COMPANY**

Category	Cost	E & C Percent	E&C Amount	Total	Funding Package	Fund	Funding Amount
1000	Roadway Items						
	1,253,296.55	15 %	187,994.48	1,441,291.03	1000 FED	Federal Funding	1,153,032.82
					1000 VIL	Village of Jackson	288,258.21
					1000 VIL001	Village of Jackson	0.00
Category Total 1000							\$1,441,291.03
3000	Non-Participating						
	0.01	15 %	0.00	0.01	V100 VIL001	Village of Jackson	0.01
Category Total 3000							\$0.01
2000	Structure Items						
	26,960.00	15 %	4,044.00	31,004.00	2000 FED	Federal Funding	24,803.20
					2000 VIL	Village of Jackson	6,200.80
					2000 VIL001	Village of Jackson	0.00
Category Total 2000							\$31,004.00
Project Total 2310-13-71							\$1,472,295.04

**CONFIDENTIAL****Final Project Detail Estimate Report
Final Detail Estimate Funding Summary By Unit**

Page 1 of 1

Project ID: 2310-13-71**Project Description:** V Jackson, Eagle Dr; Intersection With STH 60**Awarded Vendor:** VI18

VINTON CONSTRUCTION COMPANY

Unit	Cost	E&C Amount	Total	Funding Amount
Fund ID VIL	Fund Desc. Village of Jackson			
000	256,051.31	38,407.70	294,459.01	294,459.01
Fund VIL Totals	\$256,051.31	\$38,407.70	\$294,459.01	\$294,459.01
Fund ID VIL001	Fund Desc. Village of Jackson			
000	0.01	0.00	0.01	0.01
Fund VIL001 Totals	\$0.01	\$0.00	\$0.01	\$0.01
Fund ID FED	Fund Desc. Federal Funding			
000	1,024,205.24	153,630.78	1,177,836.02	1,177,836.02
Fund FED Totals	\$1,024,205.24	\$153,630.78	\$1,177,836.02	\$1,177,836.02
Project Total 2310-13-71	\$1,280,256.56	\$192,038.48	\$1,472,295.04	\$1,472,295.04

**Summary of Bids Received
January 9, 2024**

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Proposal Call: 012 **Proposal ID:** 20240109012**Project:** 1 **State Project:** 2310-13-70
Federal Project: WISC 2024117**Location:** Washington
Main St, Village Jackson; CTH P to Eagle Dr
STH 060, Washington County
Main St, Village Jackson**Project:** 2 **State Project:** 2310-13-71
Federal Project: WISC 2024118**Location:** Washington
V Jackson, Eagle Dr; Intersection With STH 60
LOC STR, Washington County
V Jackson, Eagle Dr**Type Of Work:** General Constr - No Dominant Work
Type

Order	Bid Amount	Contractor	Address	City & State
1	\$3,895,139.96	VINTON CONSTRUCTION COMPANY	2705 N. Rapids Road Po Box 1987	Manitowoc, WI 54221
2	\$3,945,786.39	ZIGNEGO COMPANY, INC.	W226 N2940 Duplainville Road	Waukesha, WI 53186
3	\$3,949,967.44	STARK PAVEMENT CORPORATION	12845 W. Burleigh Road	Brookfield, WI 53005
4	\$3,956,149.42	ROCK ROAD COMPANIES, INC.	Po Box 1818	Janesville, WI 53547-1818
5	\$3,997,371.71	PAYNE AND DOLAN, INC	Po Box 781	Waukesha, WI 53187-0781
6	\$4,070,410.69	JAMES PETERSON SONS, INC.	Po Box 120	Medford, WI 54451-0120

Cedar Creek BMP Report *DRAFT*

WDNR UNPS Planning Grant Services:
Cedar Creek BMP
for Village of Jackson, Wisconsin

VILLAGE OF JACKSON

N168 W19851 MAIN STREET
JACKSON, WI 53037

Date: December 22, 2023



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Section 1.0 Introduction

1.1 Urban Nonpoint Source Grant

An Urban Nonpoint Source (UNPS) Planning Grant is providing funding for an update to the Village of Jackson's 2017 Stormwater Compliance Report. This update will focus on a subwatershed on the Village's east side that contributes runoff to the Cedar Creek near a bridge that crosses the Creek at Hickory Lane. The update provides planning for Streambank Stabilization and Stormwater Management for the surrounding area.

UNPS grant funds are being utilized to evaluate and plan stormwater runoff management practices in the MI-21 subwatershed. These practices will allow us to determine the source of pollutants affecting stream health, which will aid in development of corrective solutions to meet the MS4 permit and improve water quality through reduced sedimentation and increased infiltration and pollutant capture.

This grant supports the planning phases and advancement of stormwater BMP design to support the Village's MS4 permit and improve water quality in Cedar Creek.

1.2 Project Information

The Village of Jackson is looking to enhance the existing village-wide stormwater plan to improve the water quality and habitats of Cedar Creek.

The Village of Jackson is currently evaluating suitable locations for the installation of stormwater best management practices (BMP) near the Hickory Lane bridge crossing of Cedar Creek. This project is part of a larger effort to develop a community-wide stormwater master plan for the Village.

CDM Smith has been tasked with identifying suitable locations for the proposed BMPs through wetland delineation and soil infiltration testing, and appropriate control devices for efficient runoff and pollutant concentration reduction to Cedar Creek.

Section 2.0 describes further the project purpose and updates to the current stormwater master plan. Section 3.0 details the hydrologic and hydraulic parameters considered for BMP evaluation and design. Section 4.0 describes the BMP evaluation and conceptual design elements used during modeling. Section 5.0 describes the site data that was collected to further inform the BMP evaluation. Section 6.0 details the recommendations that have resulted from these investigations and analyses.

1.3 Site Description

The site is located in the Village of Jackson, Washington County, Wisconsin. The locations proposed for BMP sites are empty grassy areas on the East side of Hickory Lane, and both North and South of Cedar Creek.

A topographic map and project location map shown in **Figure 1** depict the project location.

Section 2.0 Plan Update

The current Village-wide stormwater master plan addresses issues facing Cedar Creek such as erosion, sediment transport, and habitat loss. This plan update will build upon these resolutions in order to further improve the water quality of the creek. This project focuses on updating the current plan to include stormwater management where Hickory Lane drains into the Cedar Creek. Hickory Lane is planned for resurfacing, and storm water improvements have possible implications to Jackson's MS4 permit.

Various stormwater BMPs have been considered for this project including Detention ponds, Biofilters, mechanical BMPs, and grass swales.

Detention ponds are large dry or wet basins that are excavated have a pipe outlet to limit the discharge rate out of the pond. Detention basins capture and settle out pollutants and reduce runoff rates. However, a large area is needed for these basins, and the site's proximity to wetlands and low soil infiltration rates cause detention ponds to have little impact on runoff and pollutant reduction.

Biofilters or bioretention features are smaller control devices that utilize vegetation and high-permeability soils to allow water to drain more efficiently out of the area, while reducing pollutant concentrations. A drainage pipe is also typically added at the native soil layer to aid drainage with low native soil infiltration rates.

Vegetated swales are linear features that receive stormwater at one end and convey it over and through native vegetation to capture pollutants. Soil within the swale is often times amended with sand or compost mix to increase infiltration along the length of the swale.

Mechanical BMPs use hydraulics to settle and separate solids from water. They can also include filters to remove smaller pollutants.

Based on the site conditions, a combination of biofiltration and vegetated swales were evaluated further for BMP consideration.

Section 3.0 Hydrology and Hydraulics

3.1 Purpose

The purpose of this section is to describe the methodology used to perform hydrologic and hydraulic calculations which support the conceptual design of stormwater best management practices (BMPs) needed at the project site, as well as to describe the methodology used to perform a WinSLAMM analysis of the proposed BMPs to estimate proposed pollutant reduction from the treated project site.

3.2 Hydrology

3.2.1 Hydrologic Parameters

The portion of the Cedar Creek Watershed draining to the site is 53.6 square miles. Hydrologic Parameters including rainfall, flow paths, land use, and hydrologic soil parameters were evaluated in this section to better understand the hydrology of the watershed and the flows and discharges experienced by Cedar Creek at the area of interest for the proposed BMP conceptual designs. A rainfall-runoff hydrologic analysis was conducted with the Urban Hydrology for Small Watersheds TR-55 manual as guidance for calculations. The BMP analysis focuses on the immediate 8-acre surrounding area. Flow estimates are calculated from the entire watershed area draining to the point on the Creek at the proposed BMP site.

3.2.1.1 Rainfall

Rainfall quantities were taken from the National Oceanic and Atmospheric Administration (NOAA) Atlas 14. Intensity Duration Frequency (IDF) Rainfall curves and data tables from NOAA's Precipitation Frequency Data Server (PFDS) were used to analyze the rainfall patterns in the area. These are located in [Appendix ___](#).

Rainfall quantities were used for the 24-hour storm durations at recurrence intervals of 2-years, 10-years, and 100-years.

According to this data, rainfall for a 2-year, 24-hour storm in Jackson, Wisconsin is 2.66 inches, or an average of 0.11 inches per hr. A 10-year, 24-hour storm would produce 3.83 inches of rainfall, and a 100-year 24-hour storm would produce 6.42 inches.

The average yearly precipitation for the area is 33 inches.

3.2.1.2 Flowpaths

The National Hydrography Dataset from USGS was utilized to understand the flowpaths through the watershed. Cedar Creek extends approximately 15 miles upstream of the Hickory Lane bridge crossing, making up the HUC-12 Watershed 040400030302. Watershed 040400030301 also contributes to drainage at the Hickory Lane Bridge site. Combined, these watersheds make up the 53.6 acre area draining to the site. The extent of the Cedar Creek HUC-12 Watersheds along with flowpaths contributing to the watershed's drainage area is shown in [Figure 2](#).

3.2.1.3 Land Use and Soils

Curve numbers are an important aspect of the hydrologic analysis, as they aid in determining infiltration potential and runoff rates for an area. They are developed through soils information and land use. A soils shapefile from the USDA-NRCS Soil Survey Geographic Database (SSURGO) was overlaid with aerial imagery and a land use shapefile from the Southeastern

Wisconsin Regional Planning Commission (SEWRPC) for a comprehensive look into curve numbers.

Curve numbers are a conglomeration of land cover type, hydrologic condition, percent imperviousness, and hydrologic soil group. They represent the soil and cover conditions of the area. The dominant land uses for the surrounding site area are single family residential, and much of the modeled area contains Hickory Lane Road, a two-lane 30-ft wide street.

Soils consist of about 70% silty, 15% sandy, and 15 %clayey soils based on the USDA soil survey.

Curve numbers were calculated in WinSLAMM and are described further in Section 3.3.2.2.

3.2.2 Flow Estimates

Discharges

Peak discharges at Cedar Creek were evaluated, based on StreamStats data shown in [Appendix ____](#):

These flows for the 2-year, 10-year and 100-year flood events are summarized in Table 3-1 below:

Storm Frequency	Peak-Flow Stream Discharge, cfs
2-year	347
10-year	660
100-year	1090

Table 3-1. Peak Flow Discharges

Runoff Depths

The runoff depths were calculated using the SCS Runoff Curve Number method. The runoff equation parameters include rainfall depths, potential maximum retention after runoff begins (determined by curve numbers), and initial abstraction in inches.

These runoff depths are representative of the 8-acre site.

Using this equation, the following runoff depths were calculated for the 2, 10, and 100-year storm frequencies over a duration of 24 hours:

Storm Frequency	Runoff Depth, in	Cubic Feet of Runoff over 8-acre site
2-year	1.45	41,993
10-year	2.48	72,054
100-year	4.92	142,879

Table 3-2. Runoff Depths

3.3 Hydraulics

WinSLAMM v10.5 was used for the hydraulic analysis. “The Bureau of Watershed Management Program Guidance: Modeling Post-Construction Storm Water Management Treatment” was used

in conjunction with state regulations NR 151.002 (6), Wis. Adm. Code to conduct modeling in accordance with state standards.

3.3.1 Model Parameters

3.3.1.1 Rainfall Data

WinSLAMM uses USGS rainfall files to conduct the runoff analysis. According to PV&Associates, this is how rainfall data is created:

“The rainfall files created by the USGS are a result of data analysis of historical rainfall records from 1949 to 2008 from the National Weather Service. The periods selected were based on long-term average conditions that represent the average annual rainfall and average five year rainfall. The average five year period may not include the average annual rainfall if an extreme rainfall year occurred before or after that year. Users should choose a comprehensive rainfall file for your area of interest.”

For this project, the WisReg-Milwaukee WI 1969 rain file was chosen for an accurate representation of rainfall averages and patterns in the area, as shown in the WinSLAMM inputs in [Appendix ____](#).

3.3.2.2 Land Use Data

The land use inputs used in the model are based on WinSLAMM’s designated standard land uses, along with the SEWRPC 2010 Land Use Inventory and aerial imagery. WinSLAMM uses detailed land use characteristics from previous and current stormwater research projects throughout the area of Wisconsin to develop their standard land use values. These values were used as a base in the model, along with USDA soil data to determine percentages of sandy, silty, or clayey soils in the land use areas. Aerial imagery was then used to refine the data to be more accurate and site-specific. The land use inputs used in the model can be found in [Appendix ____](#).

NR 151.001 defines connected imperviousness as “an impervious surface connected to the waters of the state via a separate storm sewer, an impervious flow path, or a minimally pervious flow path.” Connected impervious areas generally make up about 50% of pitched roofs, and 75% of driveways.

In the model, three land use areas were modeled. One Suburban Residential area north of Cedar Creek, one Suburban Residential area South of Cedar Creek, and one Light Industrial area South of Cedar Creek. Curve numbers were defined by WinSLAMM based on the land use inputs described above. WinSLAMM calculates the average curve numbers for each land use area in the model based on the aforementioned land use inputs. The curve numbers for each land use area are below:

- Suburban Residential (South): 88.6
- Suburban Residential (North): 87.2
- Light Industrial: 82.4

3.3.2 Control Practices

3.3.2.1 Bioretention Basin

Wisconsin DNR Technical Standard #1004 was used for the model development of the Bioretention control practice. A bioretention device is an infiltration device where part of the existing ground is excavated out and filled with an engineered soil media, covered with a mulch layer and planted with a variety of vegetation. An underdrain and rock storage layer is also typically included to aid in infiltration and outflow.

The following parameters were taken into consideration during the modeling of the biofilter, per Technical Standard 1004:

- Area draining to bioretention device should not exceed 2 acres
- Bottom width between 2 and 8 ft
- Ponding depth shall not exceed 12 in.
- Underdrain pipe shall discharge to an existing drainage system such as swale
- Pipe should be placed at top of gravel or sand storage layer
- Design thickness of storage layer shall be that which results in a total device drain time of 72 hours, but shall not exceed 48 inches
- Engineered soil composition shall consist of mixture of 70-80% sand and 15-30% compost
- DNR requires an engineered soil infiltration rate of up to 3.6 inches per hour and an engineered soil porosity of 0.27
- DNR recommends a rock or sand storage area porosity of 0.33

Because the infiltration rate of the soil is so low, the focus is put more on the filtering aspect of the biofilter.

3.3.2.2 Vegetated Swale

Wisconsin DNR Technical Standard #1005 was used for the model development of vegetated swales. Two vegetated swales are included in the model, one North of Cedar Creek, and one South, in alignment with the soil test pits.

The following parameters were taken into consideration during the modeling of the swales, per Technical Standard 1005:

- Side slopes no steeper than 3:1 (H:V)
- Bottom width of trapezoidal cross section no more than 8 ft (to minimize channelization).
- Longitudinal slopes between 0.5 and 4%
- A retardance factor of C or D is typical for vegetated swales

An infiltration rate of 0.02 in/hr was used for both the biofiltration and vegetated swale control devices. This was based on the soil textures found during infiltration testing, along with Tech Standard 1002, Table 2. The static infiltration rate taken from this table was then halved, in

accordance with Standard 1002, to obtain a dynamic infiltration rate for analysis. This is explained further in Sections 5.3.3 and 5.3.4 for infiltration testing determinations.

3.3.2.3 Others

“Other Devices” are used in the model to take into account existing detention ponds in the area that contribute to runoff and pollutant reduction of drainage to the site. 8 acres were modeled to get a better image of land use in the surrounding area, but a maximum drainage area of 2 acres for biofilters and about 0.5 acres for each of the swales, is recommended. Past modeling that was done on Jackson’s existing detention ponds was used to estimate pollutant load and water volume reductions for these devices.

For this reason, the “Other Device” upstream of the Biofilter and Grass Swale #2 is modeled to serve 50% of the 4-acre drainage area and reduce 70% of the pollutant load and water volume, based on previous model results. The “Other Device #2” covers 80% of the 4-acre drainage area to the south and is modeled to reduce 80% of the pollutant load and volume reduction draining to Grass Swale #3.

3.3.3 Results

This WinSLAMM model was ran twice, to simulate different rainfall patterns. The first run is over a year-long period and uses a rainfall file created by WinSLAMM to simulate a typical year of rainfall in the Milwaukee region (this is explained further in 3.3.1.1).

The second run is over a 24-hour period and uses a manually created rainfall file that simulates the 2-year, 24-hour storm with a total of 2.66 inches of rainfall over the 24 hour period.

Results of both of these runs are located in [Appendix __](#). A summary of results for the entire site as a whole (including reductions from current BMPs in the area) is shown in Table 3-3 below:

Rainfall Simulation	At Model Outfall (Inflow to Cedar Creek)	No Controls	With Controls	Percent Reduction
2-Year, 24-Hour Storm Rainfall	Runoff Volume (cf)	41,984	9,507	77%
	Total Solids Concentration (mg/L)	491	178	92%
	Total Phosphorus Concentration (mg/L)	1.09	0.15	97%
Average Yearly Rainfall	Runoff Volume (cf)	374,437	81,712	78%
	Total Solids Concentration (mg/L)	271	96	92%
	Total Phosphorus Concentration (mg/L)	0.56	0.10	96%

Table 3-3. Runoff and Pollutant Reduction at Outfall

A summary of results for control device performance is shown in Table 3-4 below:

Rainfall Simulation	Control Device	Inflow Volume	Outflow Volume	Percent Reduction	Influent Pollutant Load (lbs)	Effluent Pollutant Load (lbs)	Percent Reduction
2-Year, 24-Hour Storm Rainfall	BioFilter	13,763	2,088	85%	233	35	85%
	Grass Swale (North)	2,088	2,072	0.8%	35	29	17%
	Grass Swale (South)	7,492	7,435	0.8%	64	53	17%
Average Yearly Rainfall	BioFilter	124,824	17,400	86%	894	85	90%
	Grass Swale (North)	17,400	17,252	0.9%	85	71	16%
	Grass Swale (South)	65,664	64,458	1.8%	287	235	18%

Table 3-4. Control Device Performance

The biofilter achieved 85% reduction of runoff flow during an average year of rainfall, while the swales achieved about 1% flow reduction each, resulting in about 100 cubic feet of runoff reduction a year for the north swale, and 1000 cubic feet of reduction for the south swale throughout the year.

The biofilter also achieved around 85-90% reduction in pollutant load, while the swales achieved about 16-18% reduction.

Section 4.0 BMP Evaluation

An image of the biofiltration device included in the WinSLAMM model is shown in [Appendix ____](#).

The modeled Biofiltration device has the following characteristics:

- 600 square feet footprint
- 4 ft depth (may change with seasonal groundwater depths)
- 0.5 ft Rock fill depth
- 1.25 ft Engineered media depth
 - Mix of 70% well graded sand and 30% compost
 - 3.6 in/hr infiltration rate
- Broad Crested Weir
 - 15 ft length, 3 ft width, 0.5 ft depth
- 2" diameter surface discharge pipe
- 5" diameter Underdrain

Section 5.0 Field Data, Wetland Delineation, and Infiltration Testing

The following section outlines the methodology used to conduct the wetland delineation and infiltration testing for the site. A desktop evaluation of existing public resources and field investigation was conducted, and field investigations/tests were conducted for the wetland delineation and infiltration testing separately to verify and supplement the desktop evaluations of the site.

5.1 Site Location and Survey Limits

Location Information:

Jackson, WI Quadrangle

Section 20, Township 10E, Range 20E

Village of Jackson, Washington County, Wisconsin

Latitude: 43.316079° Longitude: -88.150485°

The survey limits are located within Cedar Run Park (Tax Parcel ID: V3-0198 and V3-0204) and an undeveloped portion of a private property parcel (Tax Parcel ID: V3-CONDO0744752) that is located south of the park. Cedar Run Park is a primarily forested riparian area owned and managed by the Village. Cedar Creek bisects the park within the survey limits. Park amenities in this area include walking trails, picnic tables, and open greenspace. The portion of the private parcel included in the survey limits is undeveloped and includes surrounding forested areas.

5.2 Desktop Investigation

5.2.1 Topography

Countywide 1-foot contours were reviewed as part of this investigation. The developed residential areas to the north and south of the survey areas is generally in lower elevation than its surroundings. On the north side of Cedar Creek, the topography is relatively flat and gradually slopes down towards the creek. On the south side of Cedar Creek, the downward slope towards the creek is more apparent, particularly east of Hickory Lane. Contours are depicted on [Table __](#).

5.2.2 Antecedent Precipitation

Historic climatic data was retrieved from the Jackson, WI weather station (Station ID: 473930) and a WETS table was developed via the AgACIS that lists 2002 to 2023 monthly precipitation data to define the normal range. Conditions were retrieved for each of the three prior months from the date of the field investigation on April 26, 2023.

Table 5-1: Antecedent Precipitation Evaluation

Long-term Precipitation Statistics from WETS Table						
Month (Monthly Weighted Value)	Average Monthly Precipitation (in.)	30% Chance Precipitation Less Than (in.)	30% Chance Precipitation More Than (in.)	Observed Monthly Precipitation (in.)	Wetness Condition (Value)	Product of Value and Monthly Weighted Value
February (1)	1.75	1.08	2.12	3.16	Wet (3)	3
March (2)	2.23	1.32	2.71	2.67	Normal (2)	4
April (3)	3.54	2.41	4.23	3.96	Normal (2)	6
Total Value:						13
Overall Condition:						Normal

The results of the antecedent precipitation evaluation indicate that normal conditions were present and hydrological/climatic conditions were typical at the time of the site visit.

5.2.3 Soil Survey

The USDA-NRCS Soil Survey Geographic Database (SSURGO) was queried to identify mapped soils within the survey limits (USDA-NRCS 2021a). Mapped soils were referenced to the hydric soils list for Washington County to evaluate their potential for supporting wetlands (USDA-NRCS 2021b).

Five soil map units compose the entirety of the survey limits. As shown in Table 5-2, these include Colwood silt loam, 0 to 2 percent slopes (Cw), Hochheim loam, 2 to 6 percent slopes (HmC2), Montgomery silty clay loam (Mzb), and wet alluvial land (Ww), and water (W).

Table 5-2: Mapped Soils within the Survey Limits

Soil Map Unit	Slope	Hydric Rating	Hydric/Non-Hydric	Acres within Survey Limits
Colwood silt loam (Cw)	0 to 2 percent slopes	100	Hydric	8.1
Hochheim loam (HmC2)	2 to 6 percent slopes	0	Non-Hydric	0.4
Montgomery silty clay loam (Mzb)	-	95	Hydric	0.1
Wet alluvial land (Ww)	-	100	Hydric	0.7
Water (W)	-	0	Non-Hydric	1.9

5.2.4 Federal Emergency Management Agency Floodplains

FEMA's NFHL was reviewed to identify floodways and special flood hazard areas (SFHA) within the survey limits and are shown in [Appendix ___](#). The NFHL depicts SFHAs and floodways located

throughout the United States and can aid in the identification of areas where potential wetlands occur. The following is depicted within the survey limits:

- Zone AE regulatory floodway
- Zone AE SFHA (1% annual chance flood hazard, without base flood elevation)
- Zone X (Areas of minimal flood hazard)

The Zone AE regulatory floodway and SHFA are associated with Cedar Creek within the survey limits.

5.2.5 National Wetlands Inventory

The United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps were reviewed to identify potential wetlands within the survey limits and are shown in [Appendix ____](#). Table 5-3 summarizes the NWI wetlands within the survey limits.

Table 5-3: National Wetlands Inventory Wetlands within the Survey Limits

Type	Quantity within Survey Limits	Cowardin Code	Cowardin Description
Riverine	1	R5UBH	Riverine (R), Unknown Perennial (5), Unconsolidated Bottom (UB), Permanently Flooded (H)
Freshwater forested/shrub wetland	2	PF01C	Palustrine (P), Forested (FO), Broad-Leaved Deciduous (1), Seasonally Flooded (C)
Freshwater forested/shrub wetland	1	PF01/EM1C	Palustrine (P), Forested (FO), Broad-Leaved Deciduous (1), Emergent (EM), Persistent (1), Seasonally Flooded (C)

5.2.6 Wisconsin Wetland Inventory

The WDNR's WWI were reviewed to identify potential wetlands within the survey limits and are shown in [Appendix ____](#). The WWI maps were developed to identify the type, size, and location of wetlands throughout Wisconsin. Table 5-4 summarizes the WWI wetlands within the survey limits.

Table 5-4: Wisconsin Wetland Inventory Wetlands within the Survey Limits

Wetland Code	Quantity within Survey Limits	Wetland Class Description	Wetland Sub Class Description
T3K	2	Forested	Broad-leaved deciduous

Wetland Code	Quantity within Survey Limits	Wetland Class Description	Wetland Sub Class Description
T3/E2K	1	Forested and Emergent/Wet Meadow	Broad-leaved deciduous, narrow-leaved persistent

5.2.7 Watershed Boundary Dataset and National Hydrography Dataset

The survey limits are located within the Jackson Marsh State Wildlife Area-Cedar Creek watershed (12-Digit Hydrologic Unit Code [HUC]: 040400030303), which is a subwatershed to the Milwaukee Basin (8-Digit HUC Code: 04040003).

The USGS NHD maps were reviewed and are shown in [Appendix ____](#). Two streams/rivers are located within the survey limits, and they include the perennial Cedar Creek and an intermittent unnamed tributary to Cedar Creek. The unnamed tributary flows into Cedar Creek approximately 100 feet west of the Hickory Lane bridge crossing over Cedar Creek.

5.3 Wetland Delineation Field Investigation

On April 26, 2023, a wetland delineation was performed within the survey limits as depicted in [Appendix ____](#). The sampling points taken are depicted in Appendix B and a photographic log of the investigation is included in [Appendix ____](#). A total of four wetlands (Sites 1, 2, 3, and 4), two surface waters (Sites SW-1 and SW-2), and two roadway drainages features (DF-1 and DF-2) were identified within the survey limits. In addition, two areas (Sites 5 and 6) were investigated as potential wetlands but did not meet all three wetland indicators.

5.3.1 Wetlands

Site 1

Site 1 is a 0.18 acre forested wetland located approximately 50 feet north of Cedar Creek and west of Hickory Lane. The site is within a depressional area and surface water was observed in multiple locations. This site receives surface water from an existing open water pond to the northwest via a small channel that connects the two features outside of the survey limits. Two sampling points were taken within the wetland location and all three wetland criteria were identified, along with the following wetland indicators noted below:

- Wetland Hydrology
 - Primary Indicators: High Water Table (A2) and Saturation (A3)
 - Secondary Indicators: Geomorphic Position (D2) and FAC-Neutral Test (D5)
- Hydrophytic Vegetation Indicators: Dominance Test

- Hydric Soil Indicators: Depleted Dark Surface (F7)

Saturation was observed at the soil surface and a water table was noted at 2 inches below the surface at the wetland sampling location. Dominant vegetation observed throughout Site 1 included: box elder (*Acer negundo*), green ash (*Fraxinus pennsylvanica*), reed canary grass (*Phalaris arundinacea*), and wild gooseberry (*Ribes missouriense*).

Site 2

Site 2 is a 0.4 acre forested wetland located approximately 150 feet north of Cedar Creek and immediately west of Hickory Lane. It is a mostly flat area that slopes slightly to the south, with surface water present in multiple locations. Two sampling points were taken within the wetland location and all three wetland criteria were identified, along with the following wetland indicators noted below:

- Wetland Hydrology
 - Primary Indicators: Surface water (A1)
 - Secondary Indicators: Saturation Visible on Aerial Imagery (C9), Geomorphic Position (D2), and FAC-Neutral Test (D5)
- Hydrophytic Vegetation Indicators: Dominance Test
- Hydric Soil Indicators: 2 cm Muck (A10)

Approximately 2 inches of surface water was observed at the wetland sampling location. Dominant vegetation observed throughout Site 2 included: box elder, green ash, reed canary grass, orange jewelweed (*Impatiens capensis*), fowl manna grass (*Glyceria striata*), cursed crowfoot (*Ranunculus sceleratus*), and wild gooseberry.

Site 3

Site 3 is a 0.60 acre forested wetland located south of Cedar Creek and east of Hickory Lane. The site is a depressional area between Cedar Creek and a hillslope to the south, with surface water observed in multiple locations. Two sampling points were taken and all three wetland criteria were identified, along with the following wetland indicators noted below:

- Wetland Hydrology
 - Primary Indicators: Surface water (A1) and Inundation on Aerial Imagery (B7)
 - Secondary Indicators: Geomorphic Position (D2) and FAC-Neutral Test (D5)
- Hydrophytic Vegetation Indicators: Dominance Test
- Hydric Soil Indicators: 2 cm Muck (A10)

Approximately 1 inch of surface water was observed at the wetland sampling location. Dominant vegetation observed throughout Site 3 included: box elder, green ash, reed canary grass, orange jewelweed, cursed crowfoot, and wild gooseberry.

Site 4

Site 4 is 0.24 acre wet meadow and forested wetland located north of Cedar Creek and east of Hickory Lane. The site is a slightly depressional area that is mostly flat with surface water observed in multiple locations. Three sampling points were taken and all three wetland criteria were identified, along with the following wetland indicators noted below:

- Wetland Hydrology
 - Primary Indicators: High Water Table (A2) and Saturation (A3)
 - Secondary Indicators: Geomorphic Position (D2) and FAC-Neutral Test (D5)
- Hydrophytic Vegetation Indicators: Dominance Test and Rapid Test for Hydrophytic Vegetation
- Hydric Soil Indicators: Redox Dark Surface (F6)

Saturation was observed at the soil surface and a water table was noted at 4 inches below the surface at SP 4-1 and 10 inches below the surface at SP 4-2 and 4-3. Dominant vegetation observed throughout Site 4 included: box elder, reed canary grass, stinging nettle (*Urtica dioica*), and red osier dogwood (*Cornus sericea*).

5.3.2 Surface Waters

Site SW-1: Cedar Creek

Site SW-1 is Cedar Creek, which crosses through the center of the survey limits. This is a perennial stream that flows east and is approximately 40 to 60 feet wide, with a total of 0.73 acre of surface water located within the survey limits. The following ordinary high water mark (OHWM) indicators were identified to determine the boundary of the site: shelving, destruction of terrestrial vegetation, sediment sorting, natural line impressed on the bank, and bed and banks. Surface water was observed to be greater than 48 inches. Large banks were observed that were well vegetated and extended approximately 3 to 8 feet above the existing water level. Substrate within Site SW-1 primarily consisted of sand and silt with gravel, cobble and boulders present. Dominant vegetation on the banks primarily consisted of box elder, green ash, common buckthorn (*Rhamnus cathartica*), and reed canary grass.

Site SW-2: Tributary to Cedar Creek

Site SW-2 is an unnamed tributary that flows north into Cedar Creek within the survey limits located west of Hickory Lane. The stream appears to be an intermittent stream that is approximately 10 to 15 feet wide, with a total of 0.14 acre of surface water located within the survey limits. The following OHWM characteristics were identified to determine the boundary of

the site: shelving, destruction of terrestrial vegetation, deposition, presence of litter and debris, sediment sorting, natural line impressed on the bank, and bed and banks. Surface water was observed between 2 and 18 inches. Large banks were observed that were well vegetated and extended approximately 2 to 8 feet above the existing water level. Substrate within Site SW-2 primarily consisted of sand, silt, gravel, and cobble. Dominant vegetation on the banks primarily consisted of box elder, green ash, common buckthorn (*Rhamnus cathartica*), and reed canary grass.

5.3.3 Other Features

Site 5

Site 5 is a forested upland area located north of Cedar Creek, east of Hickory Lane. A sampling point was taken because the area was dominated by scouring rush (*equisetum hymele*). The topography in this area slopes downward to the south towards Cedar Creek. Site 5 did not meet the wetland hydrology or hydric soil criteria and is not considered a wetland. Dominant vegetation observed throughout the site included: box elder, green ash, and scouring rush.

Site 6

Site 6 is an upland meadow located immediately north of Cedar Creek, west of Hickory Lane. A sampling point was taken because the area was dominated by reed canary grass. The topography is mostly flat. Site 6 did not meet wetland hydrology or hydric soil criteria and is not considered a wetland. Dominant vegetation observed throughout the site included: box elder and reed canary grass.

Drainage Feature 1 (DF-1)

Site DF-1 is a manmade roadway drainage feature located west of Hickory Lane and north of Cedar Creek. The drainage feature receives stormwater from Hickory Lane and conveys it to the south into Cedar Creek. Portions of the site are conveyed underground via culverts and stormwater piping. Site DF-1 is approximately 5 to 10 feet wide, and 0 to 6 inches of surface water was observed throughout the site. The substrate consists of silt, sand, and gravel. Dominant vegetation present included: reed canary grass and box elder.

Drainage Feature 2 (DF-2)

Site DF-2 is a manmade roadway drainage feature located east of Hickory Lane and north of Cedar Creek. The drainage feature receives stormwater from Hickory Lane and conveys it to the south into Cedar Creek. Portions of the site are conveyed underground via culverts and stormwater piping. Site DF-2 is approximately 5 to 10 feet wide and up to 6 inches of surface water was observed throughout the site. The substrate consists of silt, sand, gravel, and pebbles. Dominant vegetation present included: reed canary grass, red osier dogwood, and box elder.

5.4 Infiltration Testing Field Investigation

Infiltration testing was conducted to determine and verify the soil composition within the Wisconsin Technical Standard #1002, *Site Evaluation for Stormwater Infiltration*, was followed for this project's infiltration testing methods and requirements.

5.4.1 Preliminary Field Verification

The purpose of the preliminary field verification is to field-verify information from the desktop investigation for all potential areas of the development site considered suitable for infiltration.

It was determined that two soil borings will be required to determine the depth to groundwater and bedrock, as well as to verify soil texture and determine infiltration rates. The soil survey from section 2.1.3 is used as a guide, but soil borings are ultimately what is used to determine infiltration rates. Test sites were chosen and deemed feasible for testing in this step.

5.4.2 Field Evaluation of Specific Infiltration Areas

The field evaluation conducted for specific infiltration areas was conducted by a Licensed Professional Soil Scientist or Licensed Professional Geologist as licensed by the DSPS. The purpose of this evaluation is to determine if locations identified for infiltration devices are suitable for infiltration and to provide the required information to design the device.

Technical Standard 1002 outlines requirements for soil borings. Test pit requirements were followed for Bioretention systems and vegetated swales. Two test pits were evaluated for soil infiltration, one just North of Cedar Creek, and one South, as shown in **Figure 2**. The test pits were excavated as far as possible to a limiting layer of groundwater.

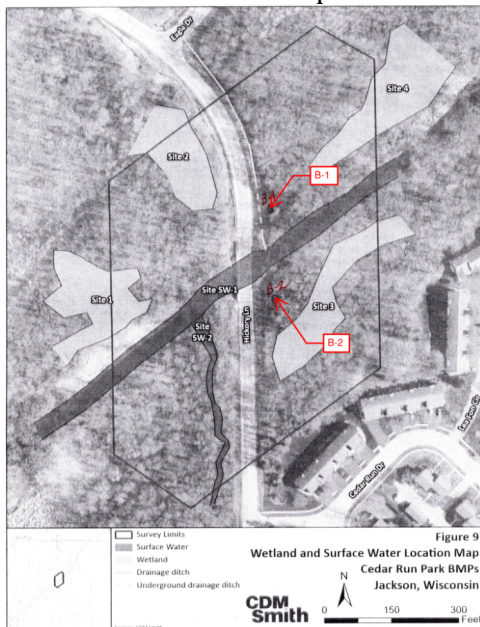


Figure 2. Soil Test Pit Locations

5.4.3 Results

The results of the infiltration testing are summarized in Table 5-5 below. Raw data is included in [Appendix ____](#).

Site	Depth	Texture (abbrev)	Texture	Hydraulic Application Rate (in/hr)
B-1	0-36	sil	Silt Loam	0.8
		sicl	Silty Loam	0.3
		sl	Sandy Loam	0.7
	36-46	sil	Silt Loam	0.8
	56-96	sicl	Silty Clay Loam	0.2
		vfsi	Very fine Sandy Loam	0.6
B-2	0-60	sil	Silt Loam	0.8
		sicl	Silty Clay Loam	0.3
		ls & gr	Loamy Sand and Gravel (Loamy Coarse Sand)	1.6
	60-66	sil	Silt Loam	0.8
	66-96	ls & gr	Loamy Sand and Gravel (Loamy Coarse Sand)	1.6
		sicl	Silty Clay Loam	0.3

Table 5-5. Soil Infiltration Testing Results

Groundwater was observed at 56 inches below the surface at test pit B-1, and at 66 inches at B-2. The depth of groundwater is a limiting factor for BMP sizing, and will change throughout the year, depending on seasonal changes such as variations in rainfall and temperature.

5.4.4 Infiltration Rate Determination

According to Technical Standard 1002, there are the following three options for determining infiltration rates:

1. Soil texture informs the design static infiltration rate in Table 2, assumes that soil compaction will be mitigated.
2. Infiltration rate measured with Double-Ring Infiltrometer
3. Soil compaction is not mitigated, soil texture informs the correction factor from Table 4.

For this analysis, Option 1 was chosen as the method for determining the static infiltration rate. Table 2 from Tech Standard 1002 is shown in [Appendix ____](#). Soil textures found during the test pit investigation were matched to the corresponding infiltration rates from this table.

Table 5-6 below shows the results of this infiltration rate determination method. Following guidance from standard 1002, an infiltration rate of 0.02 inches per hour was ultimately used for hydraulic analysis and BMP evaluation.

Site	Depth	Soil Texture	Static Infiltration Rate, in/hr	Dynamic Infiltration Rate, in/hr
B-1	0-36	Silt Loam	0.13	0.065
		Silty Loam	0.04	0.02
		Sandy Loam	0.5	0.25
	36-46	Silt Loam	0.13	0.065
	56-96	Silty Clay Loam	0.04	0.02
		Very fine Sandy Loam	0.5	0.25
B-2	0-60	Silt Loam	0.13	0.065
		Silty Clay Loam	0.04	0.02
		Loamy Sand and Gravel (Loamy Coarse Sand)	3.6	1.8
	60-66	Silt Loam	0.13	0.065
	66-96	Loamy Sand and Gravel (Loamy Coarse Sand)	3.6	1.8
		Silty Clay Loam	0.04	0.02

Table 5-6. Infiltration Rate Determination

Section 6.0 Recommendations

Biofilter Control Device Installation

It is recommended that a biofiltration control device be installed in the site just North of Cedar Creek on the East side of Hickory Lane. (pictured in [Appendix ____](#))

The biofilter needs to be designed, following Technical Standard #1005 for Currently, the biofilter is modeled with an engineered media of 70% of a well-graded sand and 30% compost for an infiltration rate of 3.6 in/hr. Many combinations of engineered media would be suitable, but it is recommended to achieve the highest infiltration rate possible, especially since the native soil infiltration rate is very low.

Vegetated Swale Installation

Vegetated swales are recommended at the north and south sides of Cedar Creek. Although these should not be the main control device because of their lower reduction potential, they are recommended to supplement the biofiltration device upstream.

Soil and Groundwater Testing

It is also recommended that seasonal groundwater evaluations be performed. The depth of the biofilter device is limited by the groundwater elevation, and this elevation also changes infiltration rates, so it is recommended that tests are done throughout the year to gain a clearer understanding of where this groundwater elevation is at during different times of the year.

Hickory Lane Regrading

Flow will also need to be redirected to through Hickory Lane into the Biofilter. As Hickory Lane gets re-graded in the future, it is recommended that it be slightly graded toward the biofilter site so that drainage can flow through the control device and runoff and pollution can be reduced before it enters Cedar Creek.

Section 7.0 References

(WinSLAMM (Source Loading And Management Model): An urban area nonpoint source water-quality model for Wisconsin | U.S. Geological Survey (usgs.gov))

(000001.ildoc) (wisconsin.gov)

Microsoft Word - WinSLAMM Model Algorithms v11.docx

Appendix A

Figures

Appendix B

Photos

B1. Proposed Biofilter Location Photos





Biofiltration Control Device

Drainage System Control Practice

Device Properties

Top Area (sf)	600
Bottom Area (sf)	500
Total Depth (ft)	4.00
Typical Width (ft) (Cost est. only)	10.00
Native Soil Infiltration Rate (in/hr)	0.020
Native Soil Infiltration Rate COV	N/A
Infil. Rate Fraction-Bottom (0.001-1)	1.000
Infil. Rate Fraction-Sides (0.001-1)	1.000
Rock Filled Depth (ft)	0.50
Rock Fill Porosity (0-1)	0.33
Engineered Media Type	Media Data
Engineered Media Infiltration Rate	3.60
Engineered Media Infiltration Rate COV	N/A
Engineered Media Depth (ft)	1.25
Engineered Media Porosity (0-1)	0.27
Percent solids reduction due to Engineered Media (0-100)	80.00
Inflow Hydrograph Peak to Average Flow Ratio	3.80
Number of Devices in Source Area or Upstream Drainage System	1

☐ Activate Pipe or Box Storage ☐ Pipe ☐ Box

Diameter (ft)

Length (ft)

Within Biofilter (check if Yes) ☐

Perforated (check if Yes) ☐

Bottom Elevation (ft above datum)

Discharge Orifice Diameter (ft)

Select Native Soil Infiltration Rate

☐ Sand - 8 in/hr	☐ Clay loam - 0.1 in/hr
☐ Loamy sand - 2.5 in/hr	☐ Silty clay loam - 0.05 in/hr
☐ Sandy loam - 1.0 in/hr	☐ Sandy clay - 0.05 in/hr
☐ Loam - 0.5 in/hr	☐ Silty clay - 0.04 in/hr
☐ Silt loam - 0.3 in/hr	☐ Clay - 0.02 in/hr
☐ Sandy silt loam - 0.2 in/hr	☐ Rain Barrel/Cistern - 0.00 in/hr

Use Random Number Generation to Account for Infiltration Rate Uncertainty

Copy Biofilter Data

Paste Biofilter Data

Estimated Surface Drain Time = 3.33 hrs.

Save or Delete Biofilter Data to Database File

Get Biofilter Data From Database File

Control Practice #: 3 CP Index #: 3

Add Sharp Crested Weir

Weir Length (ft)	
Height from datum to bottom of weir opening (ft)	

Remove **Broad Crested Weir-Reqd**

Weir crest length (ft)	15.00
Weir crest width (ft)	3.00
Height from datum to bottom of weir opening (ft)	3.50

Add Vertical Stand Pipe

Pipe diameter (ft)	
Height above datum (ft)	

Remove **Surface Discharge Pipe**

Pipe Diameter (ft)	0.17
Invert elevation above datum (ft)	2.75
Number of pipes at invert elev.	1

Remove **Drain Tile/Underdrain**

Pipe Diameter (ft)	0.40
Invert elevation above datum (ft)	0.17
Number of pipes at invert elev.	1

Add Other Outlet

Stage Number	Stage (ft)	Other Outflow Rate (cfs)
1		
2		
3		
4		
5		

Remove **Evapotranspiration**

Soil porosity (saturation moisture content, 0-1)	0.449
Soil field moisture capacity (0-1)	0.221
Permanent wilting point (0-1)	0.033
Supplemental irrigation used?	☐
Fraction of available capacity when irrigation starts (0-1)	0.000
Fraction of available capacity when irrigation stops (0-1)	0.000

Evaporation

Month	Evapotranspiration (in/day)	Evaporation (in/day)
Jan	0.00	
Feb	0.00	
Mar	0.00	
Apr	0.20	
May	0.40	
Jun	0.60	
Jul	0.80	
Aug	0.80	
Sep	0.60	
Oct	0.40	
Nov	0.20	
Dec	0.00	

Plant Types

1	2	3	4
0.95	0.05	0.00	0.00
Prairie P	Turfgras		
6.0	1.0	0.0	0.0
0.50	0.80	0.00	0.00

Biofilter Geometry Schematic

Refresh Schematic

Press 'F1' for Help

To Delete This Practice, Right Mouse Click on Icon and Select Delete

Cancel Continue

Appendix C

Maps

Appendix D

Model Results

Appendix E

Wetland Delineation Report

Public Works Report

January 30, 2024

Treatment Plant - Designed Capacity – 1.69 million gallons per day
Peak Flow Capacity – 6.0 million gallons per day

Year 2021

January	Avg. Flow 1.075 MGD	Min. Flow 880,000 g.p.d.	Max. 1.460 MGD
February	Avg. Flow 1.015 MGD	Min. Flow 830,000 g.p.d.	Max. 1.590 MGD
March	Avg. Flow 1.525 MGD	Min. Flow 1.160 MGD	Max. 1.970 MGD
April	Avg. Flow 1.264 MGD	Min. Flow 1.020 MGD	Max. 1.950 MGD
May	Avg. Flow 1.108 MGD	Min. Flow 880,000 g.p.d.	Max. 1.450 MGD
June	Avg. Flow 1.091 MGD	Min. Flow 810,000 g.p.d.	Max. 1.670 MGD
July	Avg. Flow 983,226 g.p.d.	Min. Flow 780,000 g.p.d.	Max. 1.410 MGD
August	Avg. Flow 1.281 MGD	Min. Flow 800,000 g.p.d.	Max. 2.530 MGD
September	Avg. Flow 932,333 g.p.d.	Min. Flow 710,000 g.p.d.	Max. 1.170 MGD
October	Avg. Flow 930,000 g.p.d.	Min. Flow 770,000 g.p.d.	Max. 1.140 MGD
November	Avg. Flow 853,667 g.p.d.	Min. Flow 720,000 g.p.d.	Max. 970,000 g.p.d.
December	Avg. Flow 952,581 g.p.d.	Min. Flow 720,000 g.p.d.	Max. 1.330 MGD

Year 2022

January	Avg. Flow 839,968 g.p.d.	Min. Flow 720,000 g.p.d.	Max. 960,000 g.p.d.
February	Avg. Flow 848,571 g.p.d.	Min. Flow 710,000 g.p.d.	Max. 1.080 MGD
March	Avg. Flow 1.499 MGD	Min. Flow 890,000 g.p.d.	Max. 3.910 MGD
April	Avg. Flow 2.245 MGD	Min. Flow 1.200 MGD	Max. 4.100 MGD
May	Avg. Flow 1.237 MGD	Min. Flow 850,000 g.p.d.	Max. 2.070 MGD
June	Avg. Flow 1.438 MGD	Min. Flow 780,000 g.p.d.	Max. 3.680 MGD
July	Avg. Flow 1.141 MGD	Min. Flow 760,000 g.p.d.	Max. 2.370 MGD
August	Avg. Flow 1.139 MGD	Min. Flow 810,000 g.p.d.	Max. 1.920 MGD
September	Avg. Flow 1.395 MGD	Min. Flow 780,000 g.p.d.	Max. 4.160 MGD
October	Avg. Flow 920,322 g.p.d.	Min. Flow 760,000 g.p.d.	Max. 1.130 MGD
November	Avg. Flow 1.259 MGD	Min. Flow 810,000 g.p.d.	Max. 2.660 MGD
December	Avg. Flow 1.267 MGD	Min. Flow 930,000 g.p.d.	Max. 2.190 MGD

Year 2023

January	Avg. Flow 1.247 MGD	Min. Flow 1.010 MGD	Max. 1.560 MGD
February	Avg. Flow 1.351 MGD	Min. Flow 950,000 g.p.d.	Max. 3.130 MGD
March	Avg. Flow 1.762 MGD	Min. Flow 1.250 MGD	Max. 2.560 MGD
April	Avg. Flow 1.594 MGD	Min. Flow 980,000 g.p.d.	Max. 3.290 MGD
May	Avg. Flow 1.094 MGD	Min. Flow 780,000 g.p.d.	Max. 1.520 MGD
June	Avg. Flow 875,333 g.p.d.	Min. Flow 750,000 g.p.d.	Max. 1.050 MGD
July	Avg. Flow 841,935 g.p.d.	Min. Flow 680,000 g.p.d.	Max. 1.050 MGD
August	Avg. Flow 1.022 MGD	Min. Flow 710,000 g.p.d.	Max. 2.070 MGD
September	Avg. Flow 968,667 g.p.d.	Min. Flow 740,000 g.p.d.	Max. 1.270 MGD
October	Avg. Flow 1.154 MGD	Min. Flow 770,000 g.p.d.	Max. 1.900 MGD
November	Avg. Flow 1.080 MGD	Min. Flow 870,000 g.p.d.	Max. 1.720 MGD
December	Avg. Flow 1.146 MGD	Min. Flow 850,000 g.p.d.	Max. 1.440 MGD

Years Summary of Water Consumption

2010 Total Pumpage 239,326,000 gallons	2011 Total Pumpage 240,268,000 gallons
2012 Total Pumpage 253,492,000 gallons	2013 Total Pumpage 228,371,000 gallons
2014 Total Pumpage 230,973,000 gallons	2015 Total Pumpage 222,621,000 gallons
2016 Total Pumpage 254,531,000 gallons	2017 Total Pumpage 251,387,000 gallons
2018 Total Pumpage 241,322,000 gallons	2019 Total Pumpage 253,427,000 gallons
2020 Total Pumpage 259,413,000 gallons	2021 Total Pumpage 242,216,000 gallons
2022 Total Pumpage 222,033,000 gallons	

Year 2021

Jan.	Avg.	565,650 g.p.d.	Highest Day 789,000 gals.	Total	17,535,000 gallons
Feb	Avg.	517,650 g.p.d.	Highest Day 913,000 gals.	Total	16,047,000 gallons
March	Avg.	583,770 g.p.d.	Highest Day 1.303 MGD	Total	18,097,000 gallons
April	Avg.	642,770 g.p.d.	Highest Day 1.190 MGD	Total	19,283,000 gallons
May	Avg.	659,610 g.p.d.	Highest Day 1.103 MGD	Total	20,448,000 gallons
June	Avg.	825,730 g.p.d.	Highest Day 1.311 MGD	Total	24,772,000 gallons
July	Avg.	750,190 g.p.d.	Highest Day 1.529 MGD	Total	23,256,000 gallons
August	Avg.	768,940 g.p.d.	Highest Day 1.920 MGD	Total	23,837,000 gallons
Sept	Avg.	633,060 g.p.d.	Highest Day 1.775 MGD	Total	19,625,000 gallons
Oct	Avg.	753,030 g.p.d.	Highest Day 1.992 MGD	Total	23,344,000 gallons
Nov	Avg.	619,870 g.p.d.	Highest Day 1.059 MGD	Total	18,596,000 gallons
Dec	Avg.	560,520 g.p.d.	Highest Day 1.167 MGD	Total	17,376,000 gallons

Year 2022

Jan.	Avg.	553,580 g.p.d.	Highest Day 707,000 gals.	Total	17,161,000 gallons
Feb.	Avg.	575,360 g.p.d.	Highest Day 683,000 gals.	Total	16,110,000 gallons
March	Avg.	578,290 g.p.d.	Highest Day 861,000 gals.	Total	17,927,000 gallons
April	Avg.	606,400 g.p.d.	Highest Day 1.084 MGD	Total	18,192,000 gallons
May	Avg.	605,190 g.p.d.	Highest Day 808,000 gals.	Total	18,761,000 gallons
June	Avg.	660,500 g.p.d.	Highest Day 1.034 MGD	Total	19,815,000 gallons
July	Avg.	685,520 g.p.d.	Highest Day 853,000 gals.	Total	21,251,000 gallons
August	Avg.	654,160 g.p.d.	Highest Day 800,000 gals.	Total	20,279,000 gallons
Sept	Avg.	602,170 g.p.d.	Highest Day 727,000 gals.	Total	18,065,000 gallons
October	Avg.	661,390 g.p.d.	Highest Day 1.185 MGD	Total	20,503,000 gallons
Nov	Avg.	561,670 g.p.d.	Highest Day 714,000 gals.	Total	16,850,000 gallons
Dec	Avg.	552,160 g.p.d.	Highest Day 712,000 gals.	Total	17,117,000 gallons

Year 2023

Jan.	Avg.	544,810 g.p.d.	Highest Day 716,000 gals.	Total	16,889,000 gallons
Feb.	Avg.	576,070 g.p.d.	Highest Day 762,000 gals.	Total	16,130,000 gallons
March	Avg.	532,060 g.p.d.	Highest Day 713,000 gals.	Total	16,494,000 gallons
April	Avg.	597,230 g.p.d.	Highest Day 869,000 gals.	Total	17,917,000 gallons
May	Avg.	651,650 g.p.d.	Highest Day 1.243 MGD	Total	20,201,000 gallons
June	Avg.	850,070 g.p.d.	Highest Day 1.018 MGD	Total	24,152,000 gallons
July	Avg.	793,870 g.p.d.	Highest Day 944,000 gals.	Total	24,610,000 gallons
August	Avg.	737,060 g.p.d.	Highest Day 1.019 MGD	Total	22,849,000 gallons
Sept	Avg.	616,330 g.p.d.	Highest Day 790,000 gals.	Total	18,490,000 gallons
Oct	Avg.	611,900 g.p.d.	Highest Day 986,000 gals.	Total	18,969,000 gallons
Nov	Avg.	531,570 g.p.d.	Highest Day 728,000 gals.	Total	15,947,000 gallons
Dec	Avg.	549,970 g.p.d.	Highest Day 770,000 gals.	Total	17,049,000 gallons

Pump Capacity Well #1- 400 g.p.m. Well #3 -900 g.p.m. Well #4 - 1200 g.p.m. Well #5 – 1,100 g.p.m. Well #6 – 800 g.p.m.

WWTP – Holding & Septage Receiving

2005	\$ 87,562.01	2006	\$101,115.11	2007	\$152,201.07	2008	\$210,441.47
2009	\$183,815.34	2010	\$197,653.66	2011	\$220,576.28	2012	\$236,224.70
2013	\$235,336.46	2014	\$203,938.32	2015	\$210,644.47	2016	\$220,473.17
2017	\$232,358.23	2018	\$245,767.74	2019	\$219,822.80	2020	\$204,656.11
2021	\$209,083.10	2022	\$251,109.46	2023	\$157,332.20		

2021	Holdings (gals)	Grease (gals)	G Decant (gals)	Septage (gals)	S Decant (gals)	Total Billings
January	1,284,600			6,650	77,250	\$12,507.30
February	1,386,475			3,000	44,450	\$12,338.05
March	1,633,050			27,600	206,050	\$19,457.65
April	1,425,850			38,000	268,500	\$19,829.30
May	1,297,900			34,550	232,100	\$17,740.45
June	1,392,350			52,800	258,500	\$19,977.30
July	1,338,500			31,600	245,050	\$18,256.25
August	1,499,450			31,200	196,250	\$18,305.85
September	1,389,200			23,900	213,400	\$17,524.10
October	1,275,550			16,250	297,260	\$18,367.15
November	1,249,400			22,400	224,200	\$16,608.20
December	1,448,000			32,000	205,900	\$18,171.50

2022	Holdings (gals)	Grease (gals)	G Decant (gals)	Septage (gals)	S Decant (gals)	Total Billings
January	1,311,750	2,700			40,650	\$11,780.25
February	1,321,050	8,000			48,350	\$12,577.15
March	2,076,350	2,000		40,750	303,750	\$26,238.30
April	1,791,650	5,400	1,500	101,700	326,050	\$27,660.95
May	1,703,450		5,200	164,850	288,100	\$28,456.35
June	1,759,050	3,000		100,400	373,050	\$28,348.65
July	1,437,400	2,700		92,100	186,800	\$20,583.70
August	1,670,350	1,200	3,500	63,700	242,850	\$22,560.55
September	1,479,850			73,350	168,950	\$19,363.30
October	1,204,370	3,000	5,500	47,650	253,200	\$18,629.21
November	1,264,850		1,000	48,300	228,250	\$18,038.55
December	1,454,750		4,000	24,100	159,600	\$16,872.50

2023	Holdings (gals)	Grease (gals)	G Decant (gals)	Septage (gals)	S Decant (gals)	Total Billings
January	1,232,950		1,000	2,800	72,460	\$11,841.10
February	1,299,600			1,000	27,000	\$11,121.30
March	849,250			18,800	62,550	\$ 9,203.75
April	Primary Clarifiers were receiving new diffusers.					
May	1,011,750			44,350	121,650	\$13,131.00
June	1,089,100			44,100	148,950	\$14,421.05
July	928,350		3,500	6,000	110,500	\$12,546.00
August	1,212,400			8,000	121,800	\$15,649.00
September	1,083,000			10,400	100,350	\$13,962.75
October	1,148,850			8,200	280,750	\$18,999.25
November	1,020,400			16,500	302,800	\$18,764.00
December	1,262,300			2,000	198,000	\$17,693.00

Morning Meadows Subdivision

Streetlights are being installed by the Village in Phase 1 and 2. Phase 3 has the north Cal du sac did not pass the proof roll for compaction of the road base, so the road will not be paved until 2024. Final plat is being approved minus the north Cal du sac. Duplexes will start construction soon.

Eagle Drive & STH 60 Intersection Improvement

Bidding opening occurred on January 9, 2024, with favorable numbers for construction.

Midwest Fiber Installation

Street Opening Permits have been approved for the Fiber to the Home Project. Now the request will be made with Mid-West for fiber to Utility owned properties. Have email Mid-West Fiber for an update. No update.

WWTP 2024 Tertiary Filters and UV Disinfection

Bid opening is schedule for Tuesday, January 30, 2024, at 1:00 PM. Results will be shared at the meeting.

Stormwater Ponds Management Inspection Program

A new schedule has been created to have all reports completed by May 1, 2024.

CTH P (Sherman Road to STH 60) Utility Project

All punch list items have been addressed and we are holding the retainage for landscaping touchup in 2024.

Maple Fields Subdivision

Streetlights are being installed in Phase 1. The final lift will be the remaining item. Phase 2 plans are being reviewed for a possible start in April 2024.

Next Generation Housing

Streetlights are being installed. Houses are being constructed.

Hickory Lane Reconstruction Project

Survey work has been collected during the warmer no snow weather in December 2023. We are waiting on the completion of the DNR UNPS Planning Grant Report. Once the report is approved by the DNR, we will proceed accordingly.

Main Street Streetlight Replacement Project

The snow was not kind to the project. We would have to pay overtime to remove the snow from Main St to get to the pole bases. We are waiting for the snow to melt to complete the project. We have until April 1st to complete the project.

WWTP Storage Building Addition

Minor punch list for the building to be turned over to start using.

DNR UNPS Planning Grant

CDM Smith Engineering is finalizing the report of the DNR Urban Nonpoint Source Grant. Once completed we will use the report for the Hickory Lane Reconstruction Project. The DNR is scheduled to have the report by January 26, 2024.

Respectfully submitted, Brian W. Kober, P.E.