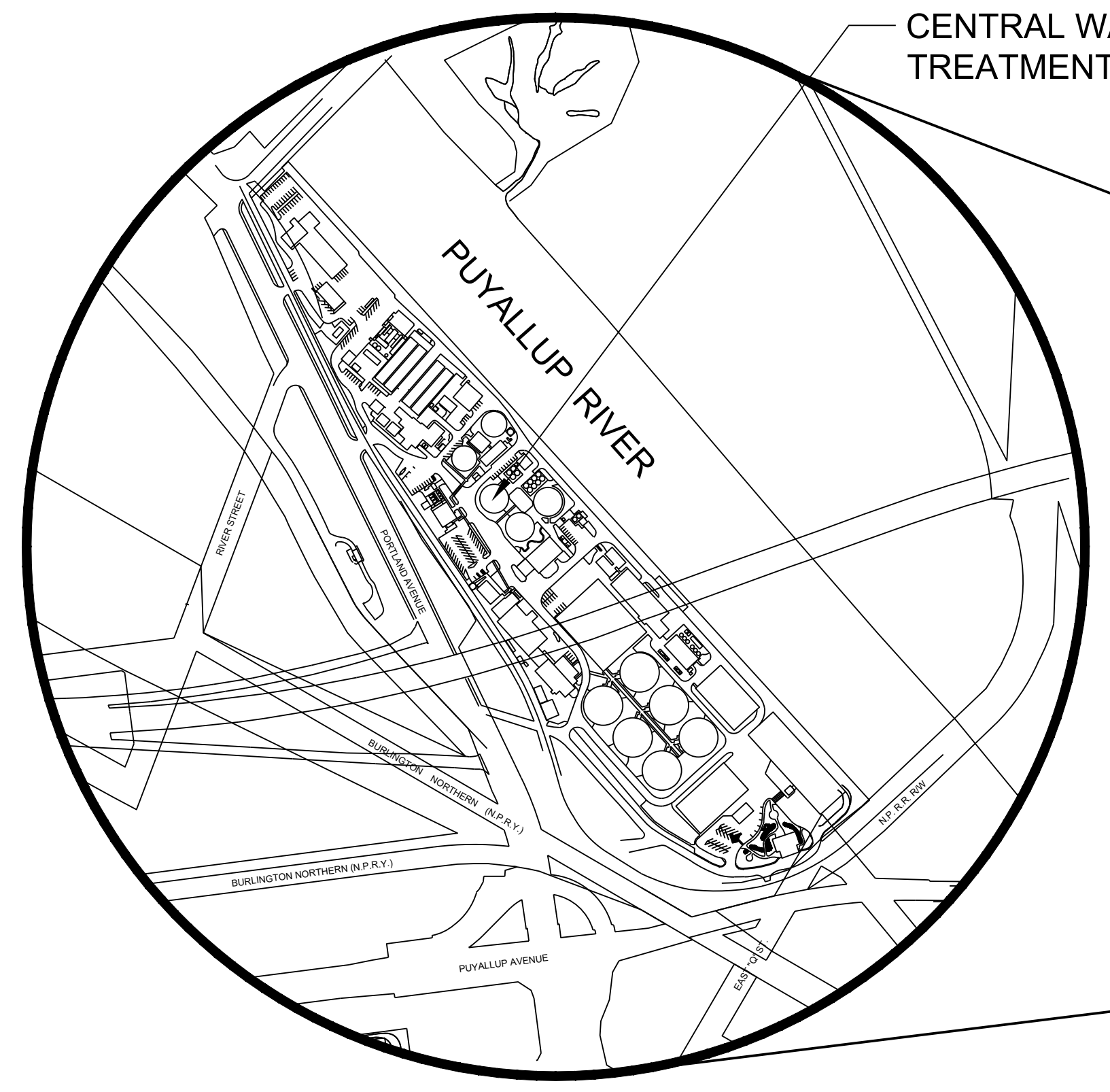
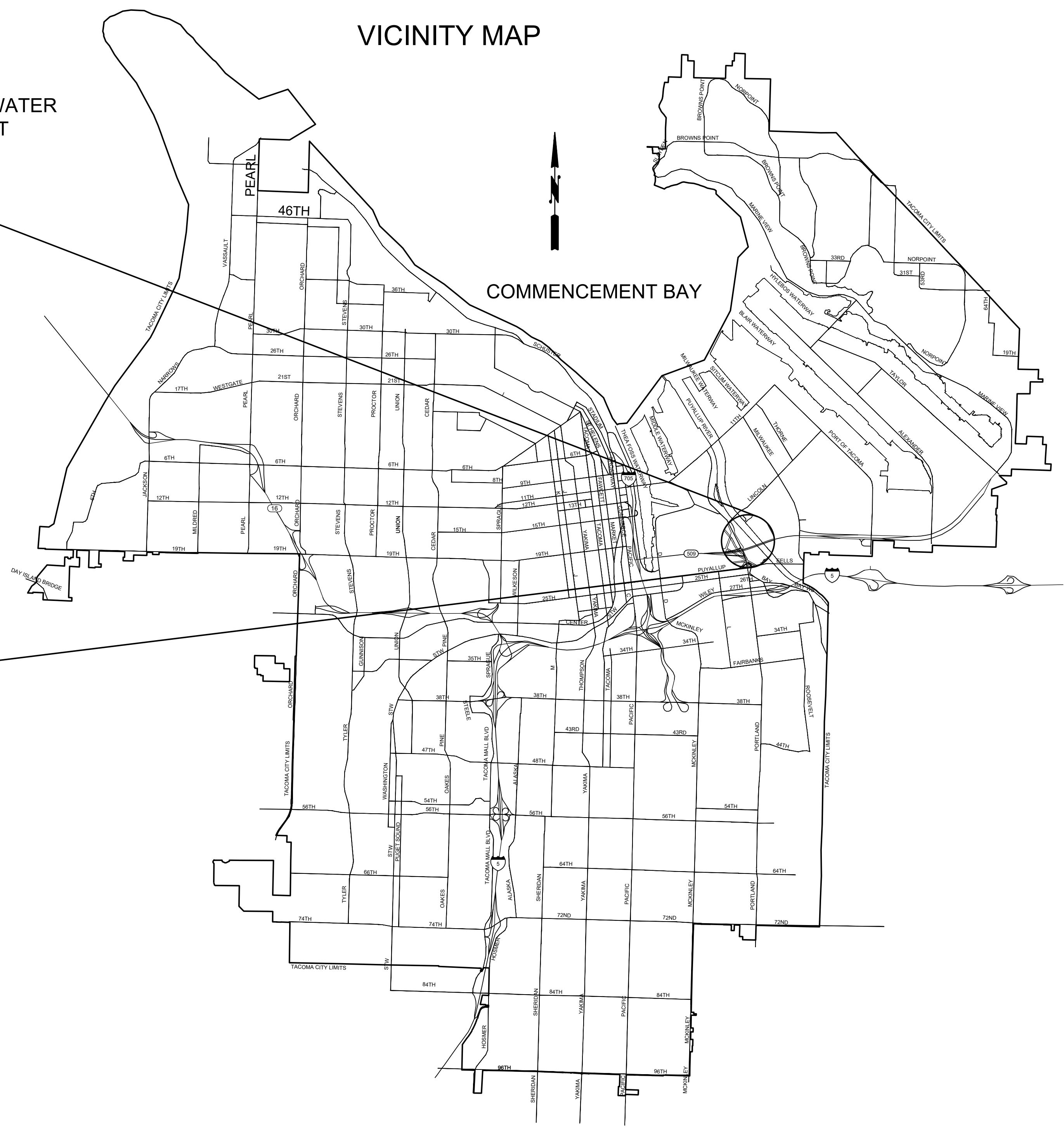


ENVIRONMENTAL SERVICES DEPARTMENT  
SPECIFICATION NO. ES26-0002F  
ENV-04030-11  
MARCH 2026



CENTRAL WASTEWATER TREATMENT PLANT



VICINITY MAP

COMMENCEMENT BAY

CITY OF TACOMA

# CENTRAL WASTEWATER TREATMENT PLANT MIXED LIQUOR CHANNEL PIPE REPLACEMENT PROJECT

## BID SET

Last saved by: VKARAT/SP/A

Date saved: 2/23/2026

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# INDEX OF DRAWINGS

DWG #	TITLE OF DRAWING
G01	COVER SHEET
G02	INDEX OF DRAWINGS
G03	TRAFFIC CONTROL & SITE PLAN
G04	GENERAL SYMBOLS

DEMOLITION

D01	DEMOLITION PLAN 1
D02	DEMOLITION PLAN 2
D03	DEMOLITION PLAN 3
D04	DEMOLITION PLAN 4
D05	DEMOLITION PLAN 5
D06	DEMOLITION PLAN 6
D07	DEMOLITION PLAN DETAILS 1
D08	DEMOLITION PLAN DETAILS 2
D09	DEMOLITION PHOTOS 1
D10	DEMOLITION PHOTOS 2
D11	DEMOLITION PHOTOS 3

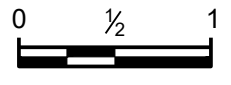
MECHANICAL

GM01	PIPE MATERIAL / LABELING / EQPM PAINT / ASSET TAG PREFIXES
M01	MECHANICAL PIPE LAYOUT 1
M02	MECHANICAL PIPE LAYOUT 2
M03	MECHANICAL PIPE LAYOUT 3
M04	MECHANICAL PIPE LAYOUT 4
M05	MECHANICAL PIPE LAYOUT 5
M06	MECHANICAL PIPE LAYOUT 6
M07	MECHANICAL PIPE LAYOUT 7
M08	MECHANICAL PIPE LAYOUT 8
M09	MECHANICAL PIPE LAYOUT ENLARGED DETAILS 1
M10	MECHANICAL PIPE LAYOUT ENLARGED DETAILS 2
M11	MECHANICAL PIPE LAYOUT ENLARGED DETAILS 3
M12	MECHANICAL PIPE LAYOUT ENLARGED DETAILS 4
M13	MECHANICAL PIPE LAYOUT ENLARGED DETAILS 5
M14	MECHANICAL PIPE LAYOUT ENLARGED DETAILS 6

STRUCTURAL

S01	RESTRAINED AND UNRESTRAINED PIPE SUPPORT
S02	PIPE CLAMP DETAIL

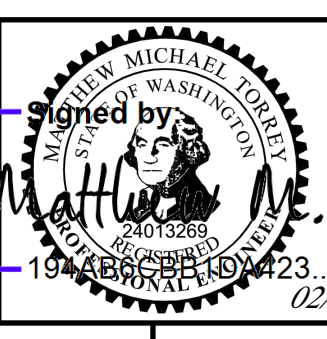
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 (IF NOT 1", SCALE ACCORDINGLY)



NO	REVISION	DATE	APPD

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BY	DESIGNED MT	CHECKED LB
DATE	DRAWN VK	PROJECT NO.
FILE NAME CTP-G-2050-01.DWG	19488183810423...	



CITY OF TACOMA  
 ENVIRONMENTAL SERVICES DEPARTMENT

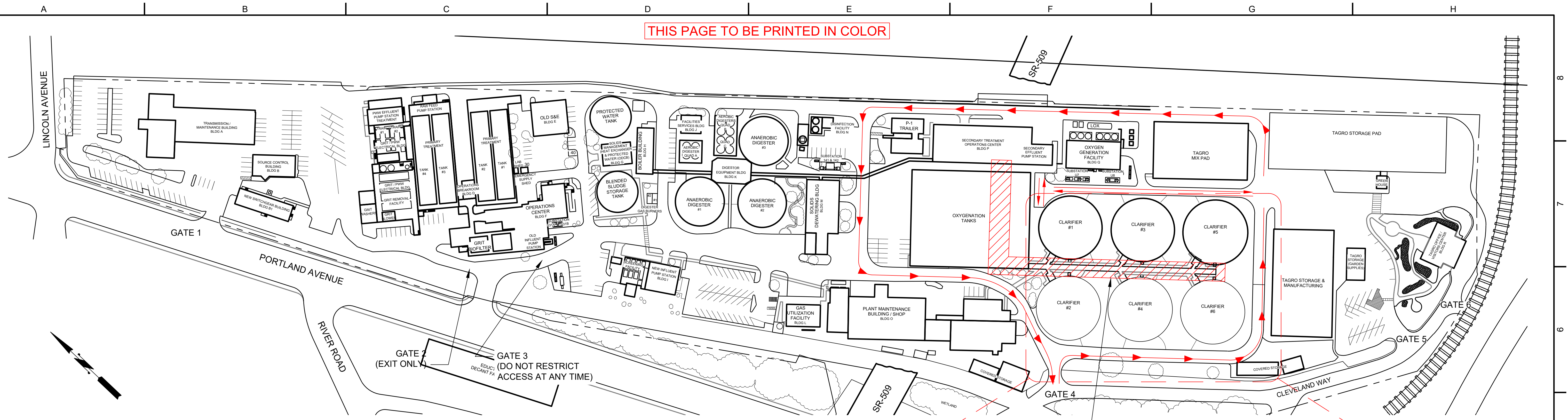
**CENTRAL WASTEWATER TREATMENT PLANT  
 MIXED LIQUOR CHANNEL PIPE REPLACEMENT PROJECT**

INDEX OF DRAWINGS

ES26-0002F
ENV-04030-11
DRAWING NO. G02
SHEET OF

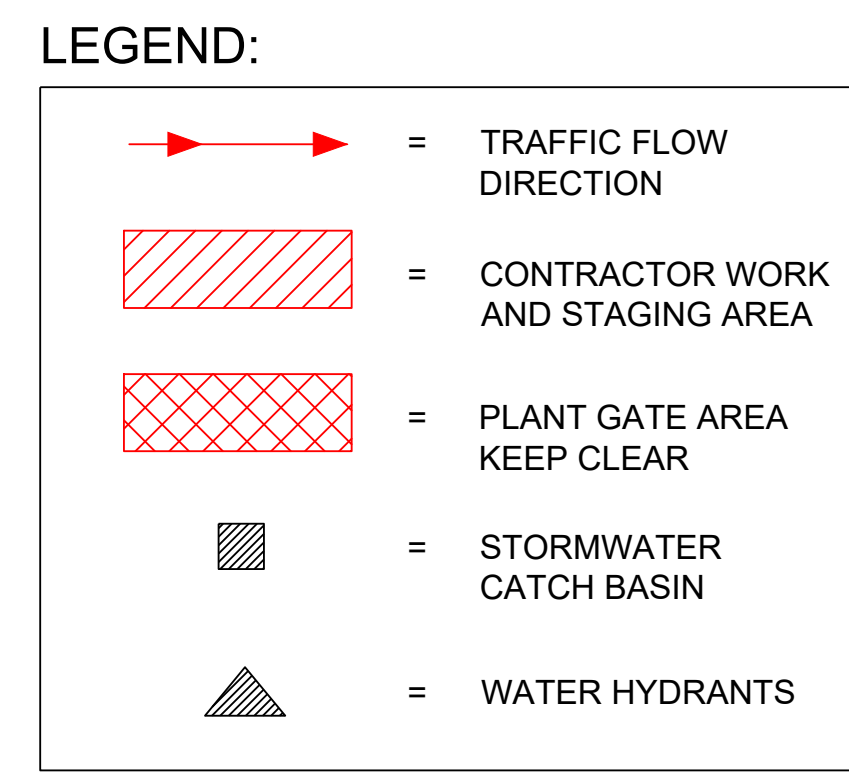
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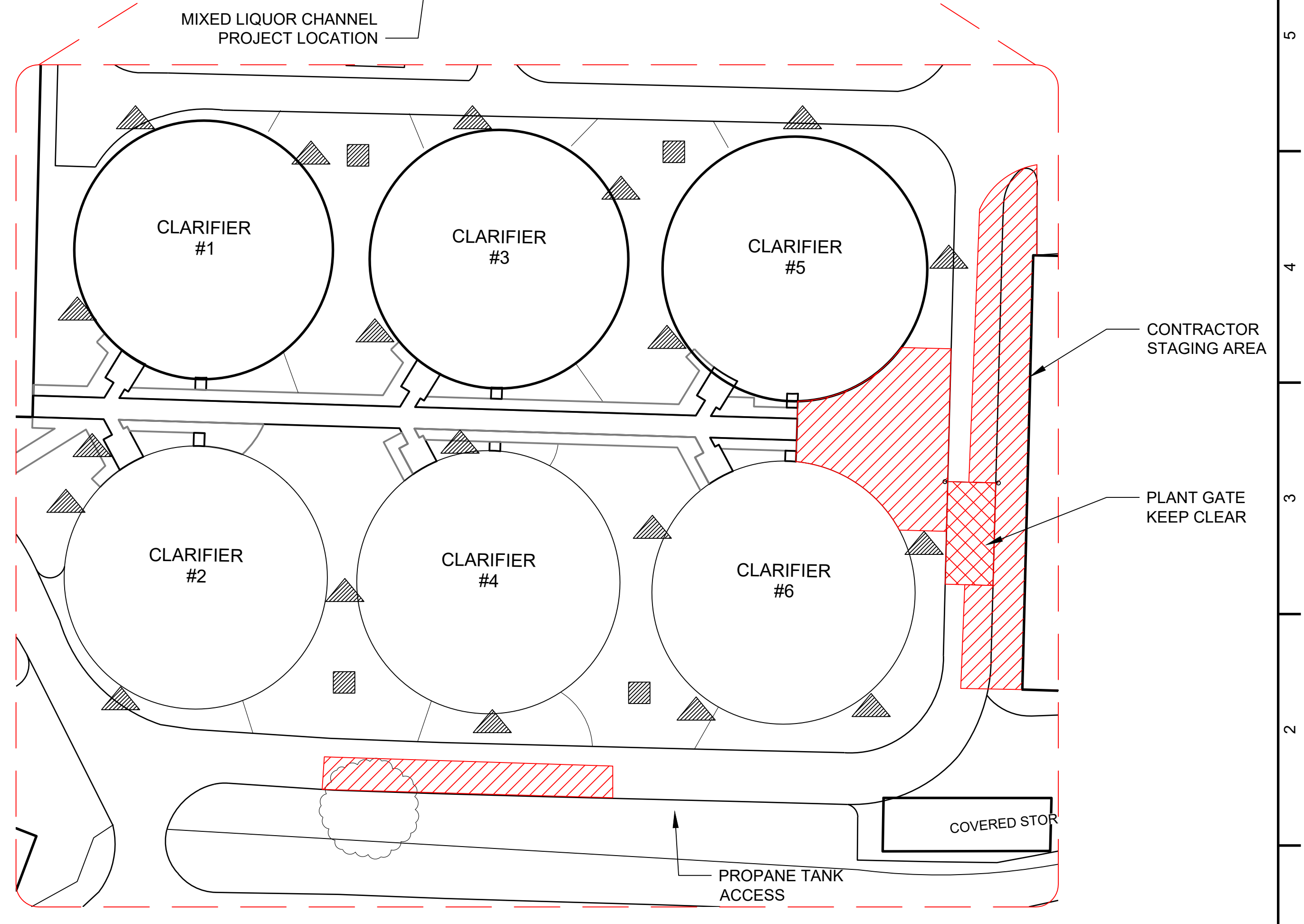
- GENERAL NOTES:**
- THE CENTRAL TREATMENT PLANT MUST ALWAYS MAINTAIN OPERATIONS (24/7/365). THE MIXED LIQUOR CHANNEL MUST REMAIN IN OPERATION FOR DURATION OF THE PROJECT AND WILL NOT BE SHUT DOWN FOR ANY REASON. ALL WORK SHALL TAKE PLACE WITH CHANNEL IN OPERATION.
  - CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS IN THE FIELD PRIOR TO BEGINNING WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER.
  - CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND QUANTITIES PRIOR TO ORDERING MATERIALS OR CONSTRUCTING THIS PROJECT. ANY MATERIAL DISCREPANCIES SHALL BE ADDRESSED AT CONTRACTORS EXPENSE.
  - ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, APPLICABLE CODES, AND INDUSTRY STANDARDS.
  - COORDINATE CLOSELY WITH STRUCTURAL, AND PROCESS MECHANICAL DISCIPLINES DURING ALL PHASES OF DEMOLITION AND INSTALLATION.
  - PROVIDE ALL NECESSARY BARRICADES, SIGNAGE, AND SAFETY MEASURES DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.
  - CONTRACTOR SHALL ALWAYS ALLOW OWNER ACCESS TO THE MIXED LIQUOR CHANNEL AND CLARIFIERS #1 - #6.
  - ALL WATER HYDRANTS AT THE CENTRAL WASTEWATER TREATMENT PLANT ARE NON-POTABLE.
  - PROTECT EXISTING STRUCTURES, UTILITIES, AND EQUIPMENT NOT INDICATED FOR REMOVAL. CONTRACTOR SHALL BE LIABLE FOR DAMAGE TO SUCH ITEMS.
  - SUBMIT SHOP DRAWINGS, TEMPORARY SYSTEM PLANS, AND MATERIAL DATA PER 01\_33\_00. NO FABRICATION OR INSTALLATION SHALL BEGIN WITHOUT APPROVED SUBMITTALS.
  - TEMPORARY OPERATIONS:
    - CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN A TEMPORARY LOW PRESSURE AIR AND SPRAY WATER SYSTEMS TO MAINTAIN SCUM CONTROL AND MIXING IN THE MIXED LIQUOR CHANNEL DURING CONSTRUCTION, SEE SECTION 01\_50\_00.
    - TEMPORARY SYSTEMS MUST BE APPROVED BY THE ENGINEER AND FULLY OPERATIONAL PRIOR TO SHUTDOWN OR REMOVAL OF EXISTING SYSTEMS.
    - COORDINATE AIR SUPPLY SOURCE, WATER SUPPLY SOURCE, POWER, AND BYPASS PIPING AS NEEDED. SUBMIT A TEMPORARY SYSTEM PLAN FOR REVIEW PER SECTION 01\_33\_00.
  - CONTRACTOR SHALL INSTALL AND MAINTAIN INLET PROTECTION AT ALL STORMWATER CATCH BASINS AND DRAINAGE STRUCTURES AFFECTED BY CONSTRUCTION ACTIVITIES. PROTECTION SHALL BE IN PLACE PRIOR TO CONSTRUCTION ACTIVITIES AND MAINTAINED TO PREVENT SEDIMENT OR DEBRIS FROM ENTERING THE STORMWATER SYSTEM. REMOVE ACCUMULATED MATERIAL AS NECESSARY AND REMOVE PROTECTION UPON PROJECT COMPLETION.

**TRAFFIC CONTROL & SITE PLAN**



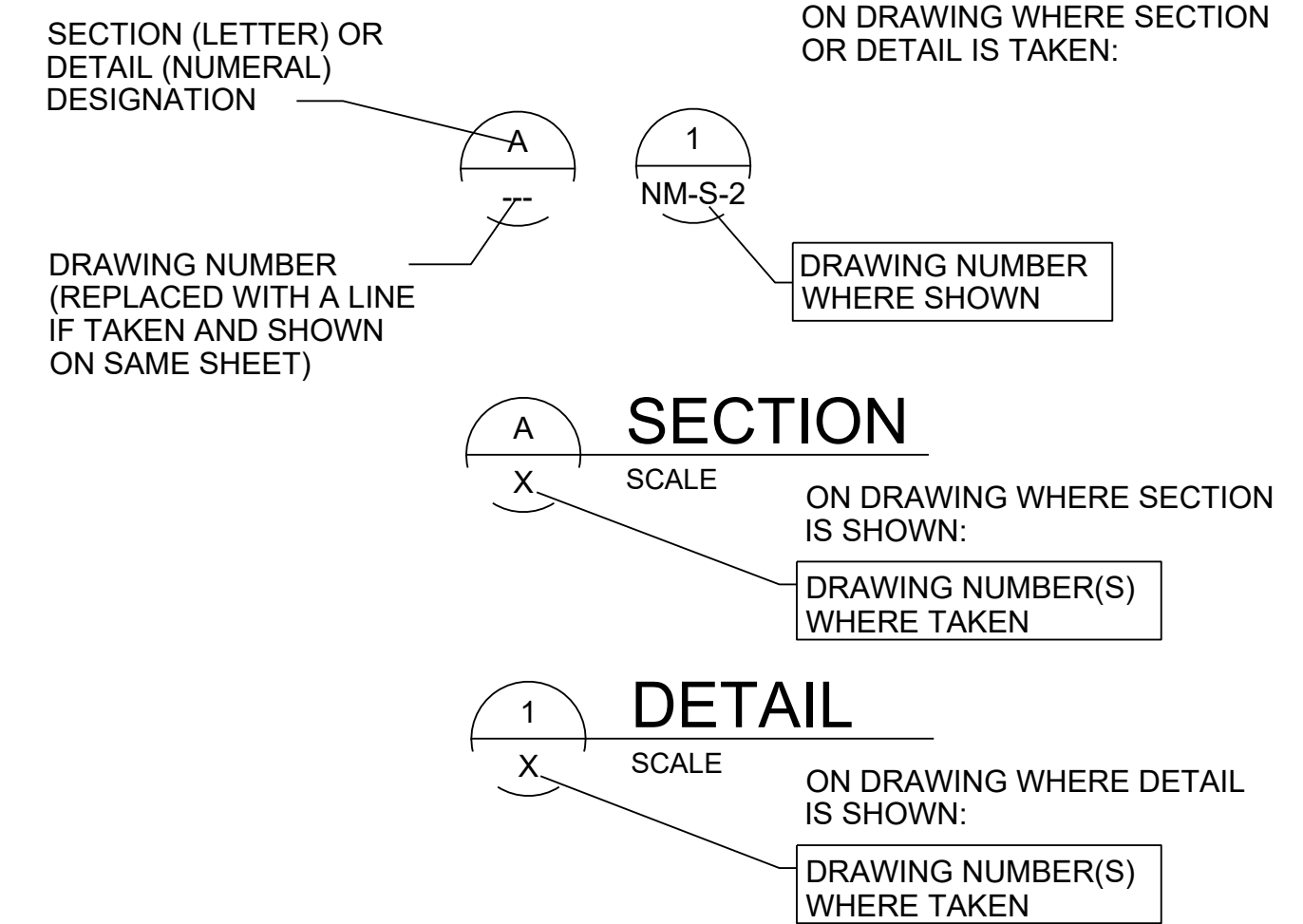
**ADDRESS**  
2201 E. PORTLAND AVE.  
TACOMA, WA 98421

**NOTE:**  
DUE TO UNDERGROUND UTILITIES AND SOFT SOILS, CONTRACTOR CONSTRUCTION VEHICLES AND EQUIPMENT IS NOT ALLOWED ON GRASS AREA ADJACENT TO CLARIFIER OR GRAVEL WITHOUT GROUND PROTECTION MATS OR STEEL ROAD PLATES TO DISTRIBUTE VEHICLE AND EQUIPMENT LOADING. CONTRACTOR SHALL REPAIR AND REPLACE ALL DAMAGED LANDSCAPING, CURBING AND ROAD SURFACES AND UTILITIES AT CONTRACTORS EXPENSE.

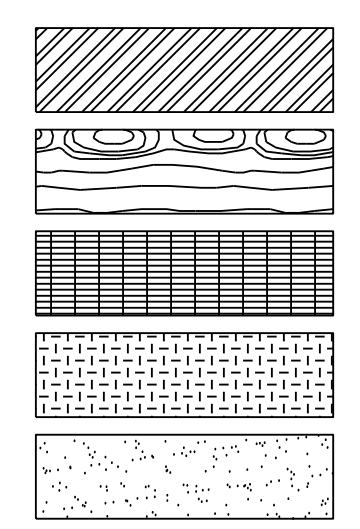
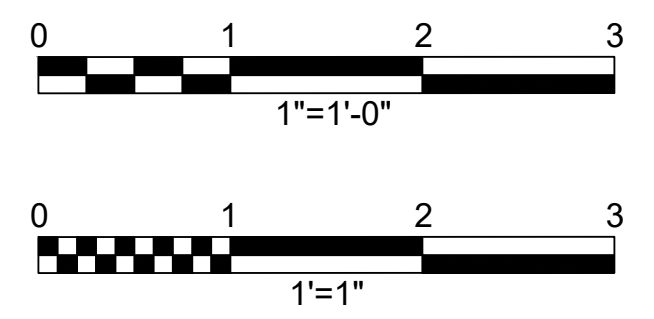
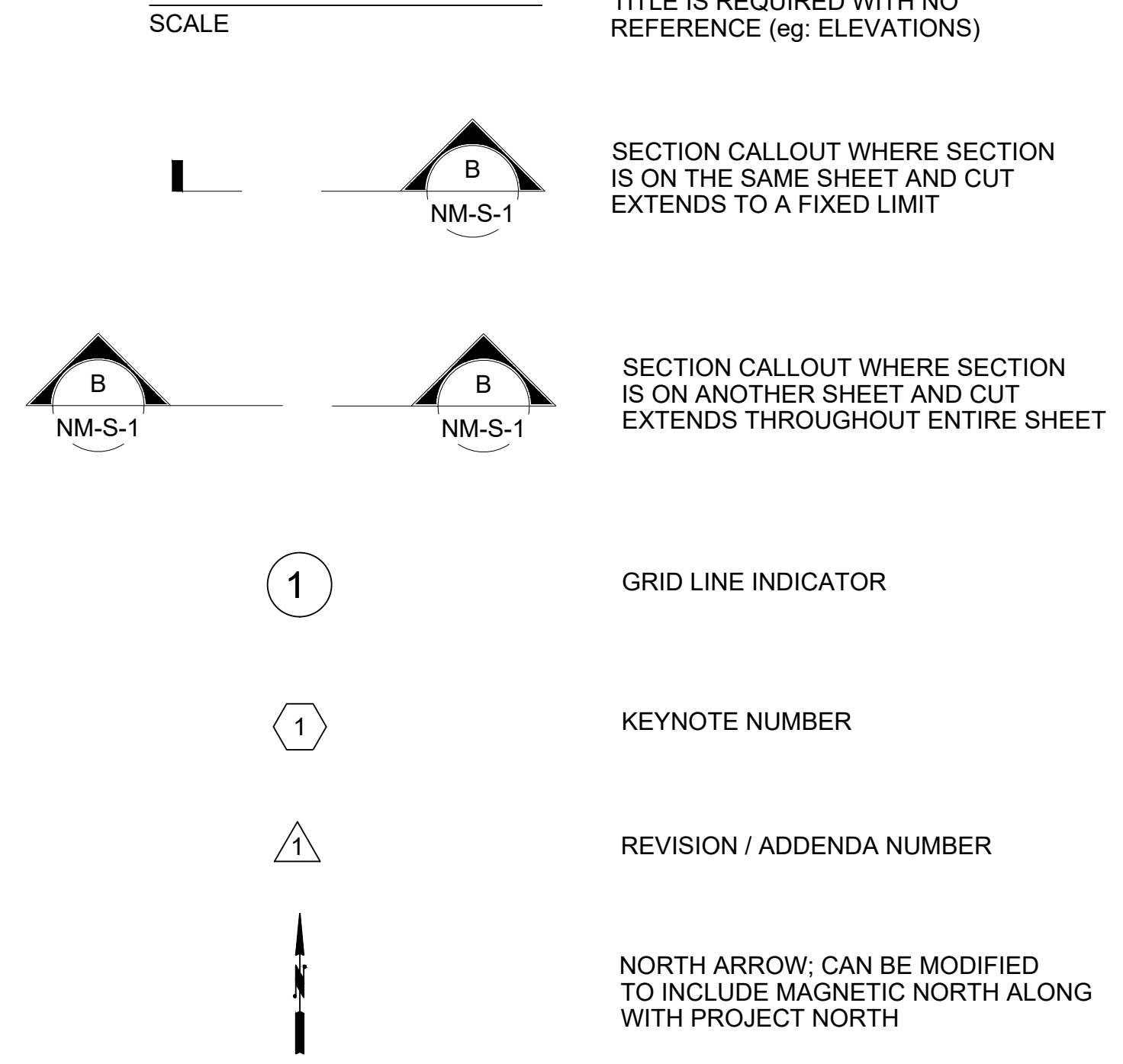


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	BY MT						CHECKED LB	DESIGNED MT	PROJECT NO.			ENV-04030-11
							FILE NAME CTP-G-2050-01.DWG	DATE 02/26/2026				DRAWING NO. G03
											SHEET OF	

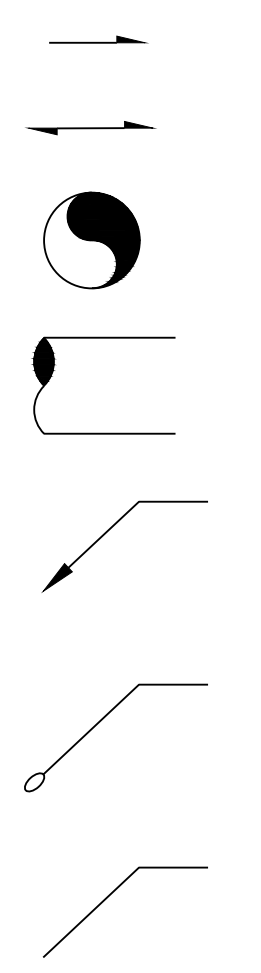
### SECTION / DETAIL DESIGNATIONS



### DRAWING TITLE

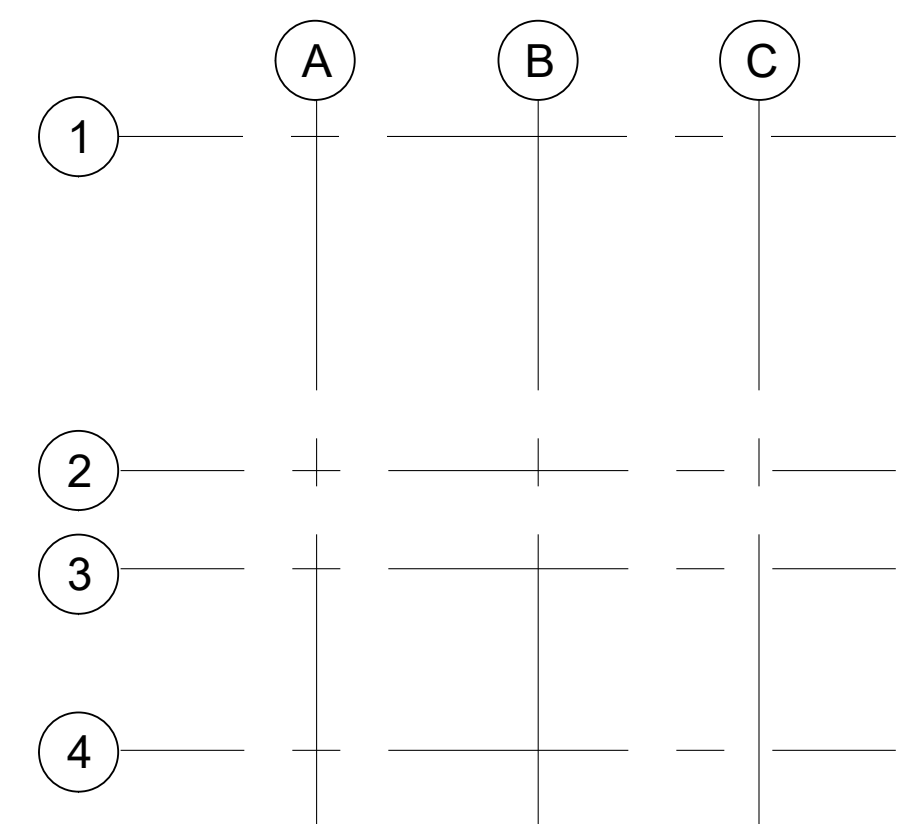


- ARCHITECTURAL SCALE
- ENGINEERING SCALE
- STEEL (IN SECTION)
- WOOD (IN SECTION)
- GRATING (IN PLAN)
- CHECKER PLATE
- SAND



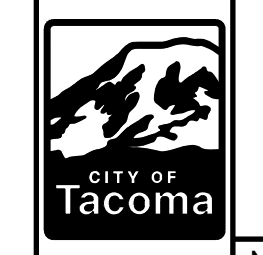
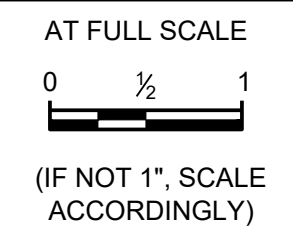
- SLOPE SINGLE DIRECTION
- SLOPE DOUBLE DIRECTION
- PIPE END
- PIPE BREAK
- ARROW TERMINATOR
- LOOP TERMINATOR
- NO TERMINATOR

### COLUMN GRID SYSTEM



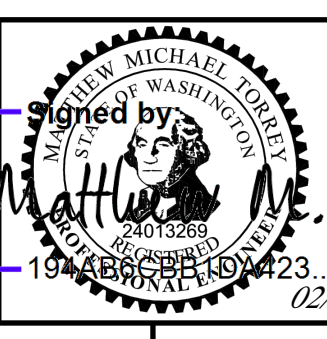
USE FOR BUILDING COLUMNS, LARGE BUILDINGS, OR IF THERE ARE A LOT OF VARIATIONS OR BUMPOUTS (CORNERS) IN THE BUILDING.

BID SET



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FINAL CONSTRUCTION CHECKED	DATE MARCH 2026	SCALE AS NOTED
BY	DESIGNED MT	CHECKED LB
DATE	DRAWN VK	PROJECT NO.
FILE NAME G04.DWG		



CITY OF TACOMA  
ENVIRONMENTAL SERVICES DEPARTMENT

**CENTRAL WASTEWATER TREATMENT PLANT  
MIXED LIQUOR CHANNEL PIPE REPLACEMENT PROJECT**

GENERAL SYMBOLS

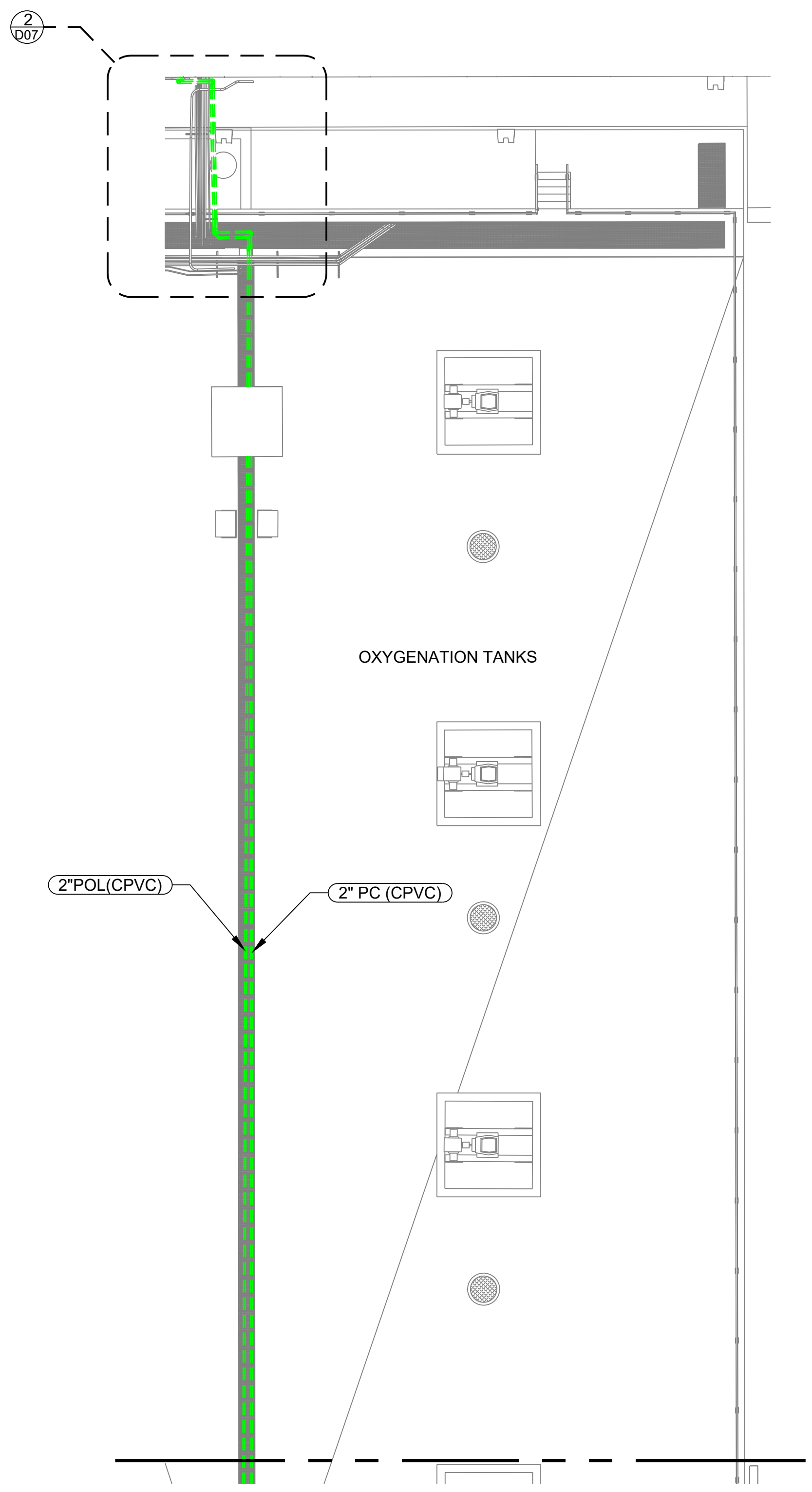
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Date saved: 2/24/2026

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SEE SHEET D02 FOR CONTINUATION

**DEMOLITION VIEW**  
SCALE: 3/32" = 1'-0"

**PLAN NOTES:**

1. DEMOLITION LIMITS ARE SHOWN ON THE DRAWINGS. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE REMOVAL TO AVOID SERVICE DISRUPTION. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER.
2. DEMOLITION OUTSIDE OF INDICATED LIMITS, AND/OR DAMAGE TO ANY EXISTING ASSET(S) NOT IDENTIFIED FOR DEMOLITION OR REMOVAL WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE AND PER ENGINEER'S APPROVAL.
3. PROVIDE TEMPORARY PIPING, POWER, CONTROLS, AND SUPPORT STRUCTURES REQUIRED TO KEEP THE MIXED LIQUOR (ML) CHANNEL OPERATIONAL DURING CONSTRUCTION, PER SECTION 01\_50\_00.
4. CAP OR PLUG ANY OPEN ENDS OF ABANDONED PIPING SYSTEMS AS NECESSARY TO PREVENT CONTAMINATION OR DEBRIS INFILTRATION AND MAINTAIN SAFETY.
5. CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORTS FOR ADJACENT SYSTEMS DURING DEMOLITION IF NEEDED.
6. CONTRACTOR SHALL COORDINATE DEMOLITION SEQUENCING WITH FACILITY OPERATIONS AS REQUIRED UNDER 01\_12\_00 AND SUBMIT PROPOSED SEQUENCE FOR REVIEW.
7. RESTORE ALL DISTURBED AREAS AND LANDSCAPING IN ACCORDANCE WITH SPECIFICATIONS AND AS DETAILED ON DRAWINGS.
8. EXISTING SAFETY HANDRAILS SHALL REMAIN IN PLACE THROUGHOUT CONSTRUCTION. WHERE REMOVAL IS UNAVOIDABLE, THE CONTRACTOR SHALL PROVIDE OSHA-COMPLIANT TEMPORARY FALL PROTECTION MEASURES FOR THE DURATION OF THE REMOVAL AND SHALL REINSTALL THE HANDRAILS TO THEIR ORIGINAL CONDITION IMMEDIATELY UPON COMPLETION OF THE WORK AT CONTRACTORS EXPENSE.

**GENERAL NOTES:**

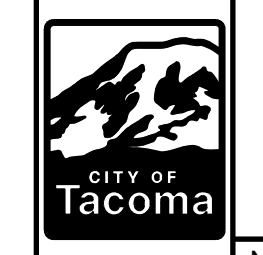
1. FOR GENERAL NOTES REFER TO SHEET G03.

**LEGEND:**

- - - - -	=	DEMOLISH PIPES
—————	=	EXISTING TO REMAIN

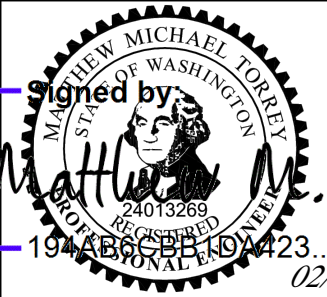
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NO	REVISION	DATE	APPD

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BY	DESIGNED MT	CHECKED LB
DATE	DRAWN VK	PROJECT NO.
FILE NAME CTP-M-420020-501.DWG	194 ARB 02/26/2026	



CITY OF TACOMA  
ENVIRONMENTAL SERVICES DEPARTMENT

**CENTRAL WASTEWATER TREATMENT PLANT  
MIXED LIQUOR CHANNEL PIPE REPLACEMENT PROJECT**

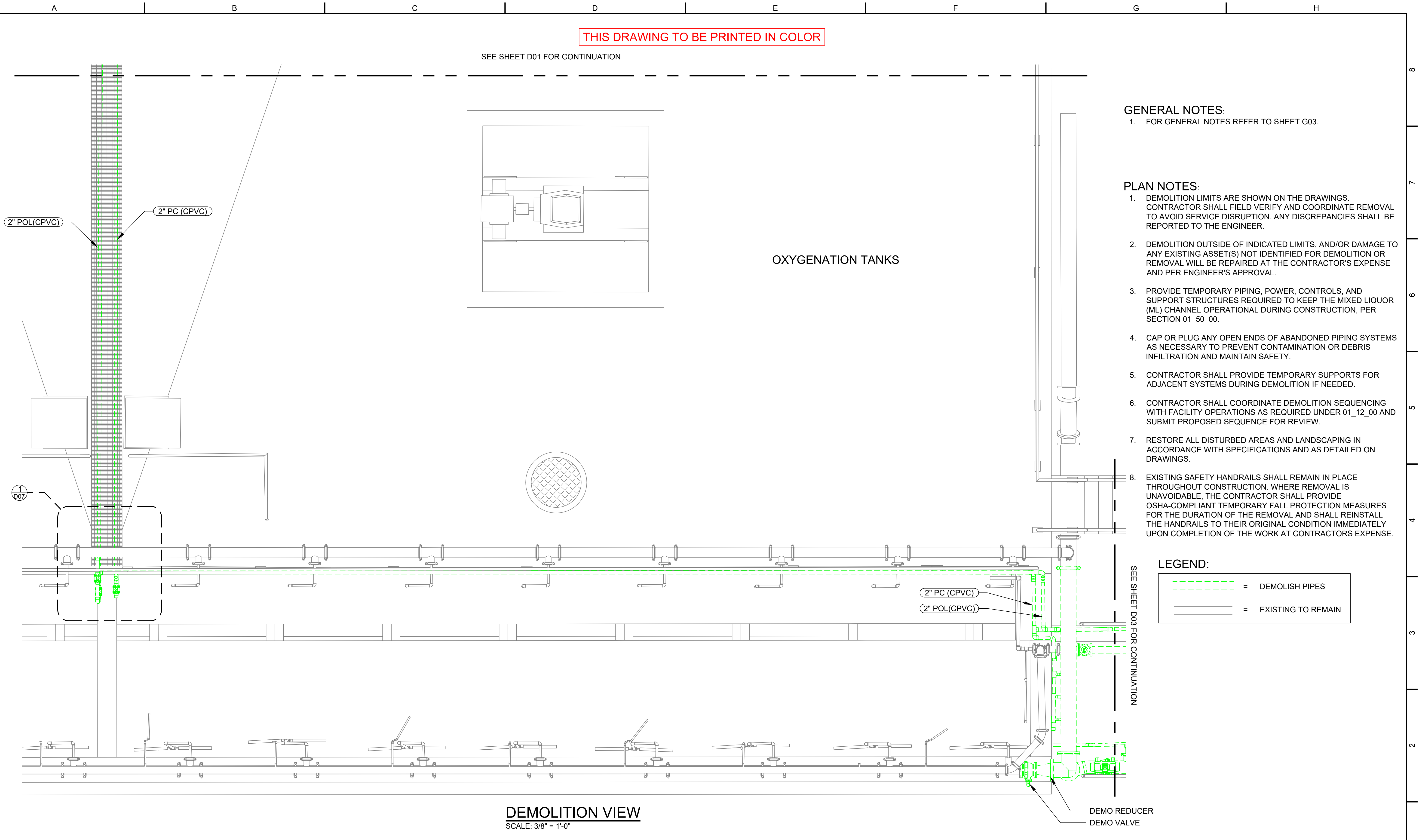
**DEMOLITION PLAN 1**

ES26-0002F
ENV-04030-11
DRAWING NO. D01
SHEET OF

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SEE SHEET D01 FOR CONTINUATION

**GENERAL NOTES:**

- FOR GENERAL NOTES REFER TO SHEET G03.

**PLAN NOTES:**

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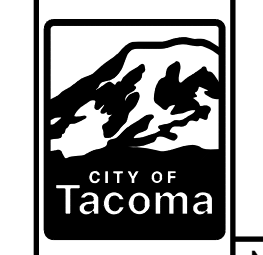
**LEGEND:**

	= DEMOLISH PIPES
	= EXISTING TO REMAIN

**DEMOLITION VIEW**  
SCALE: 3/8" = 1'-0"

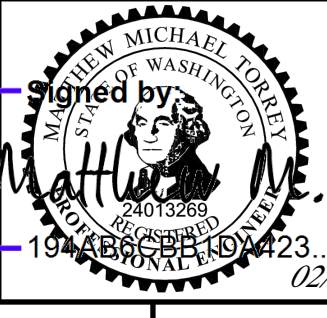
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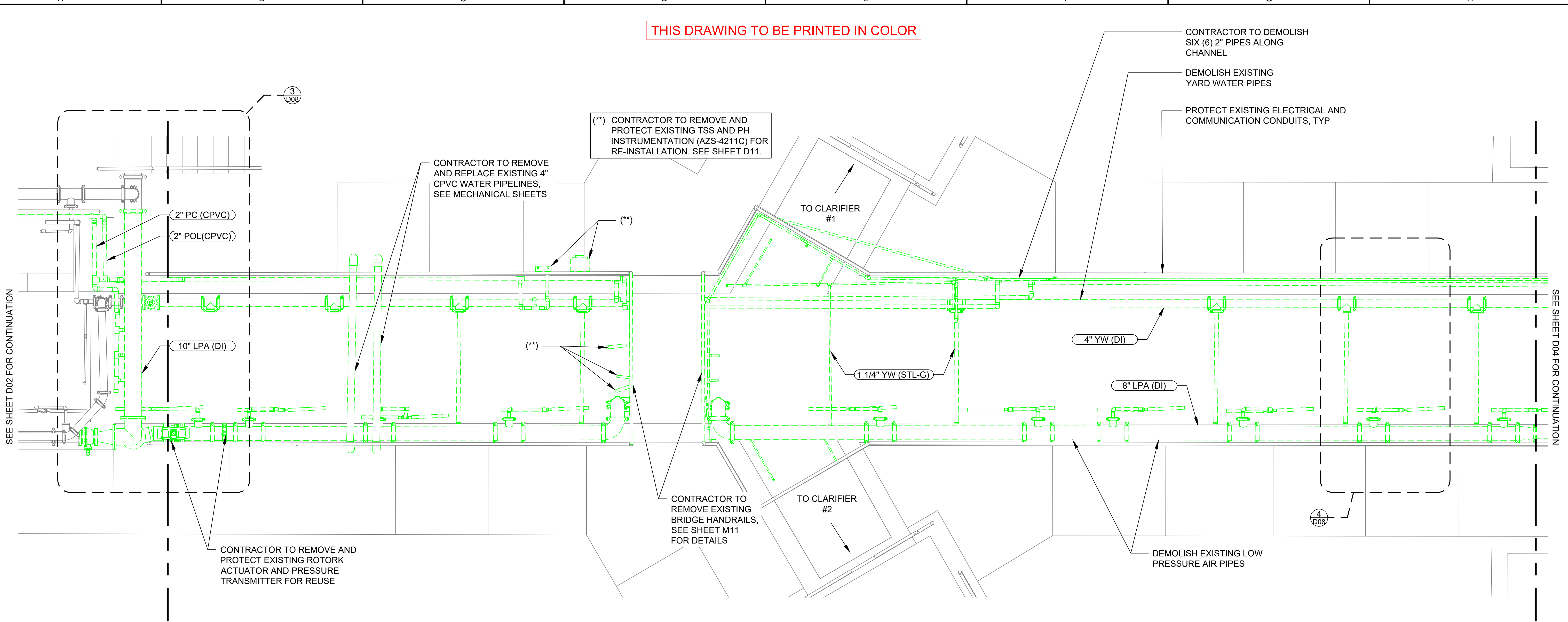


CITY OF TACOMA  
 ENVIRONMENTAL SERVICES DEPARTMENT  
 CENTRAL WASTEWATER TREATMENT PLANT  
 MIXED LIQUOR CHANNEL PIPE REPLACEMENT PROJECT  
 DEMOLITION PLAN 2

ES26-0002F
ENV-04030-11
DRAWING NO. D02
SHEET OF

Last saved by: VKARATIS/UPA

Date saved: 2/24/2026



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SEE SHEET D02 FOR CONTINUATION

SEE SHEET D04 FOR CONTINUATION

### DEMOLITION VIEW

SCALE: 3/8" = 1'-0"

#### LEGEND:

	= DEMOLISH PIPES
	= EXISTING TO REMAIN

#### GENERAL NOTES:

- FOR GENERAL NOTES REFER TO SHEET G03.

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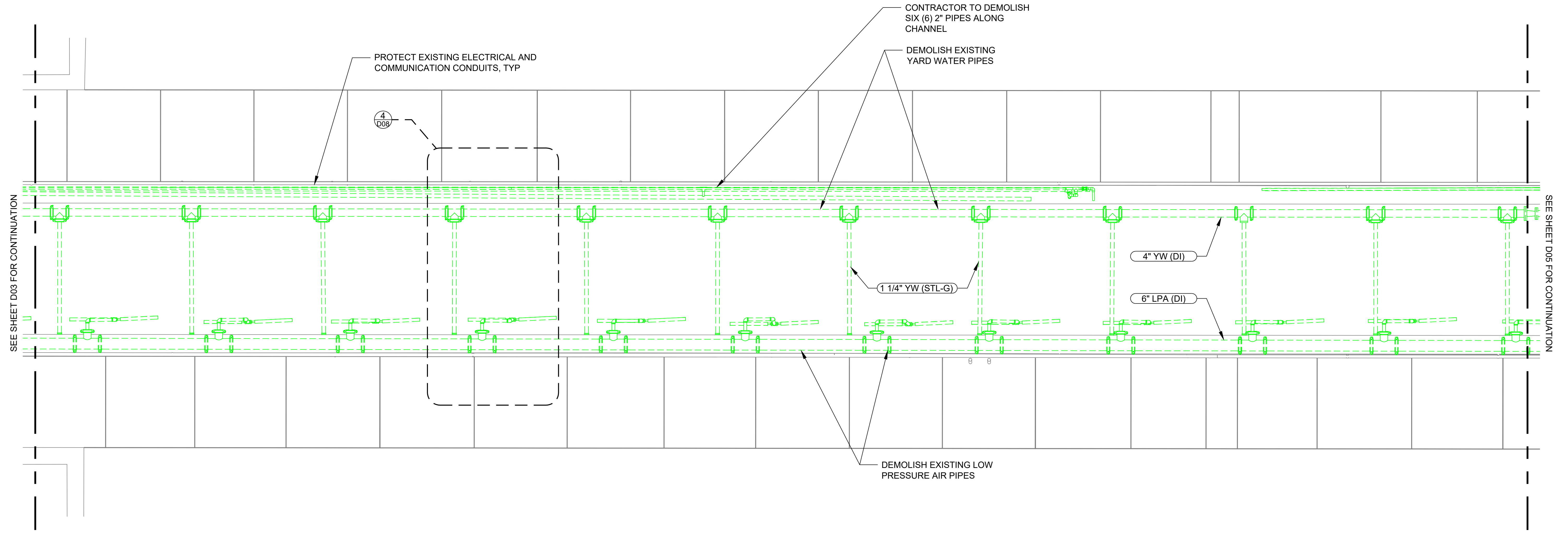
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							BY	MARCH 2026	AS NOTED		ENVIRONMENTAL SERVICES DEPARTMENT	
							DESIGNED	MT	CHECKED	LB	CENTRAL WASTEWATER TREATMENT PLANT	
							DRAWN	VK	PROJECT NO.		MIXED LIQUOR CHANNEL PIPE REPLACEMENT PROJECT	DRAWING NO.
							FILE NAME	CTP-M-420020-501.DWG		19 APR 2026 10:42:31 AM	DEMOLITION PLAN 3	D03
										02/26/2026	SHEET	OF

Last saved by: VKARATIS/UPA

Date saved: 2/24/2026

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THIS DRAWING TO BE PRINTED IN COLOR



SEE SHEET D03 FOR CONTINUATION

SEE SHEET D05 FOR CONTINUATION

**DEMOLITION VIEW**  
SCALE: 3/8" = 1'-0"

**LEGEND:**

	= DEMOLISH PIPES
	= EXISTING TO REMAIN

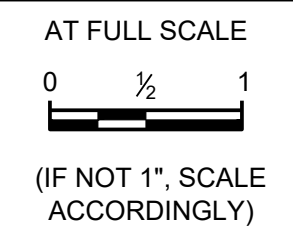
**GENERAL NOTES:**

- FOR GENERAL NOTES REFER TO SHEET G03.

**PLAN NOTES:**

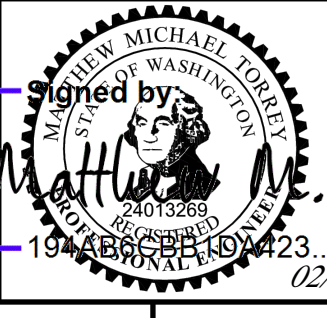
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BID SET



NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED	DATE MARCH 2026	SCALE AS NOTED
BY	DESIGNED MT	CHECKED LB
DATE	DRAWN VK	PROJECT NO.
FILE NAME	CTP-M-420020-501.DWG	



CITY OF TACOMA  
ENVIRONMENTAL SERVICES DEPARTMENT  
CENTRAL WASTEWATER TREATMENT PLANT  
MIXED LIQUOR CHANNEL PIPE REPLACEMENT PROJECT  
DEMOLITION PLAN 4

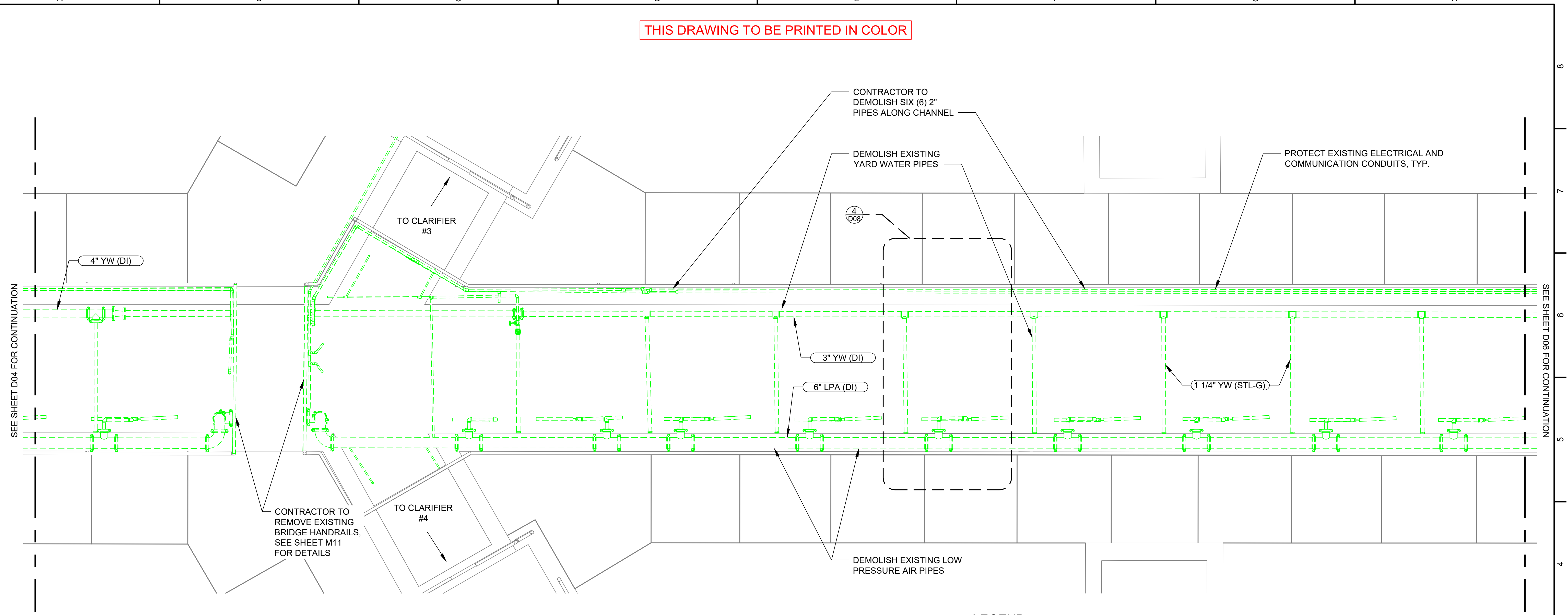
ES26-0002F
ENV-04030-11
DRAWING NO. D04
SHEET OF

Last saved by: VKARAT/SP/A

Date saved: 2/24/2026

File path & name: S:\Plant 3DIES-As-Built\Orthos\DWGs\Area 20\CTP-M-420020-501.dwg

THIS DRAWING TO BE PRINTED IN COLOR



**DEMOLITION VIEW**  
SCALE: 3/8" = 1'-0"

**LEGEND:**

	= DEMOLISH PIPES
	= EXISTING TO REMAIN

**GENERAL NOTES:**

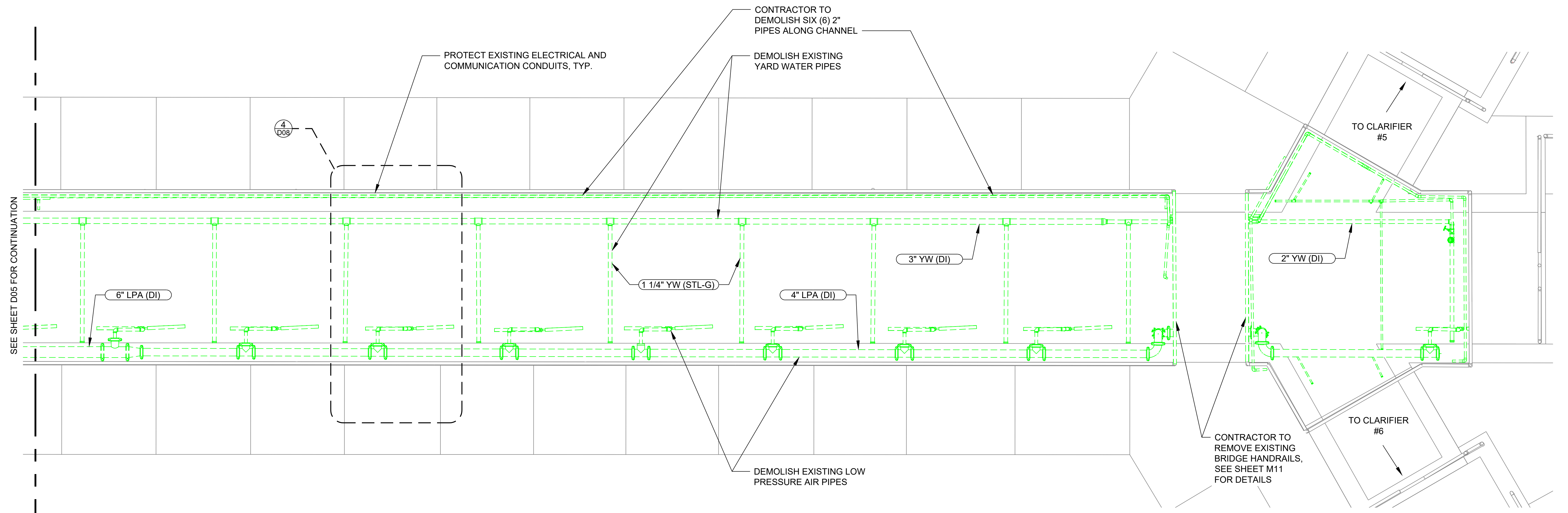
- FOR GENERAL NOTES REFER TO SHEET G03.

**PLAN NOTES:**

- DEMOLITION LIMITS ARE SHOWN ON THE DRAWINGS. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE REMOVAL TO AVOID SERVICE DISRUPTION. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER.
- DEMOLITION OUTSIDE OF INDICATED LIMITS, AND/OR DAMAGE TO ANY EXISTING ASSET(S) NOT IDENTIFIED FOR DEMOLITION OR REMOVAL WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE AND PER ENGINEER'S APPROVAL.
- PROVIDE TEMPORARY PIPING, POWER, CONTROLS, AND SUPPORT STRUCTURES REQUIRED TO KEEP THE MIXED LIQUOR (ML) CHANNEL OPERATIONAL DURING CONSTRUCTION, PER SECTION 01\_50\_00.
- CAP OR PLUG ANY OPEN ENDS OF ABANDONED PIPING SYSTEMS AS NECESSARY TO PREVENT CONTAMINATION OR DEBRIS INFILTRATION AND MAINTAIN SAFETY.
- CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORTS FOR ADJACENT SYSTEMS DURING DEMOLITION IF NEEDED.
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- RESTORE ALL DISTURBED AREAS AND LANDSCAPING IN ACCORDANCE WITH SPECIFICATIONS AND AS DETAILED ON DRAWINGS.
- EXISTING SAFETY HANDRAILS SHALL REMAIN IN PLACE THROUGHOUT CONSTRUCTION. WHERE REMOVAL IS UNAVOIDABLE, THE CONTRACTOR SHALL PROVIDE OSHA-COMPLIANT TEMPORARY FALL PROTECTION MEASURES FOR THE DURATION OF THE REMOVAL AND SHALL REINSTALL THE HANDRAILS TO THEIR ORIGINAL CONDITION IMMEDIATELY UPON COMPLETION OF THE WORK AT CONTRACTORS EXPENSE.

<b>BID SET</b>	AT FULL SCALE  (IF NOT 1" SCALE ACCORDINGLY)		NO	REVISION	DATE	APPD	FINAL CONSTRUCTION CHECKED	DATE	SCALE		CITY OF TACOMA ENVIRONMENTAL SERVICES DEPARTMENT	ES26-0002F	
							BY	MARCH 2026	AS NOTED		DESIGNED	CHECKED	DRAWN
							FILE NAME	CTP-M-420020-501.DWG		DATE	02/26/2026		
												DRAWING NO.	D05
												SHEET	OF

THIS DRAWING TO BE PRINTED IN COLOR



**DEMOLITION VIEW**  
SCALE: 3/8" = 1'-0"

**LEGEND:**

	= DEMOLISH PIPES
	= EXISTING TO REMAIN

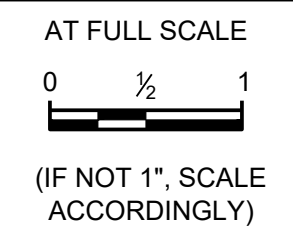
**GENERAL NOTES:**

- FOR GENERAL NOTES REFER TO SHEET G03.

**PLAN NOTES:**

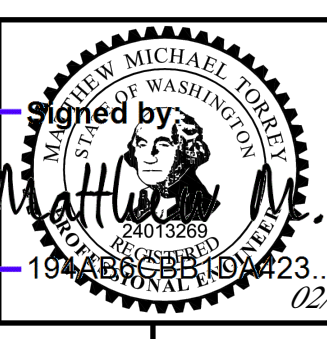
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BID SET



NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED	DATE MARCH 2026	SCALE AS NOTED
BY	DESIGNED MT	CHECKED LB
DATE	DRAWN VK	PROJECT NO.
FILE NAME CTP-M-420020-501.DWG	19 APR 2025 12:23 PM	



CITY OF TACOMA  
ENVIRONMENTAL SERVICES DEPARTMENT

**CENTRAL WASTEWATER TREATMENT PLANT  
MIXED LIQUOR CHANNEL PIPE REPLACEMENT PROJECT**

DEMOLITION PLAN 6

ES26-0002F
ENV-04030-11
DRAWING NO. D06
SHEET OF



Last saved by: VKARATSI/PA Date saved: 2/24/2026

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**GENERAL NOTES:**

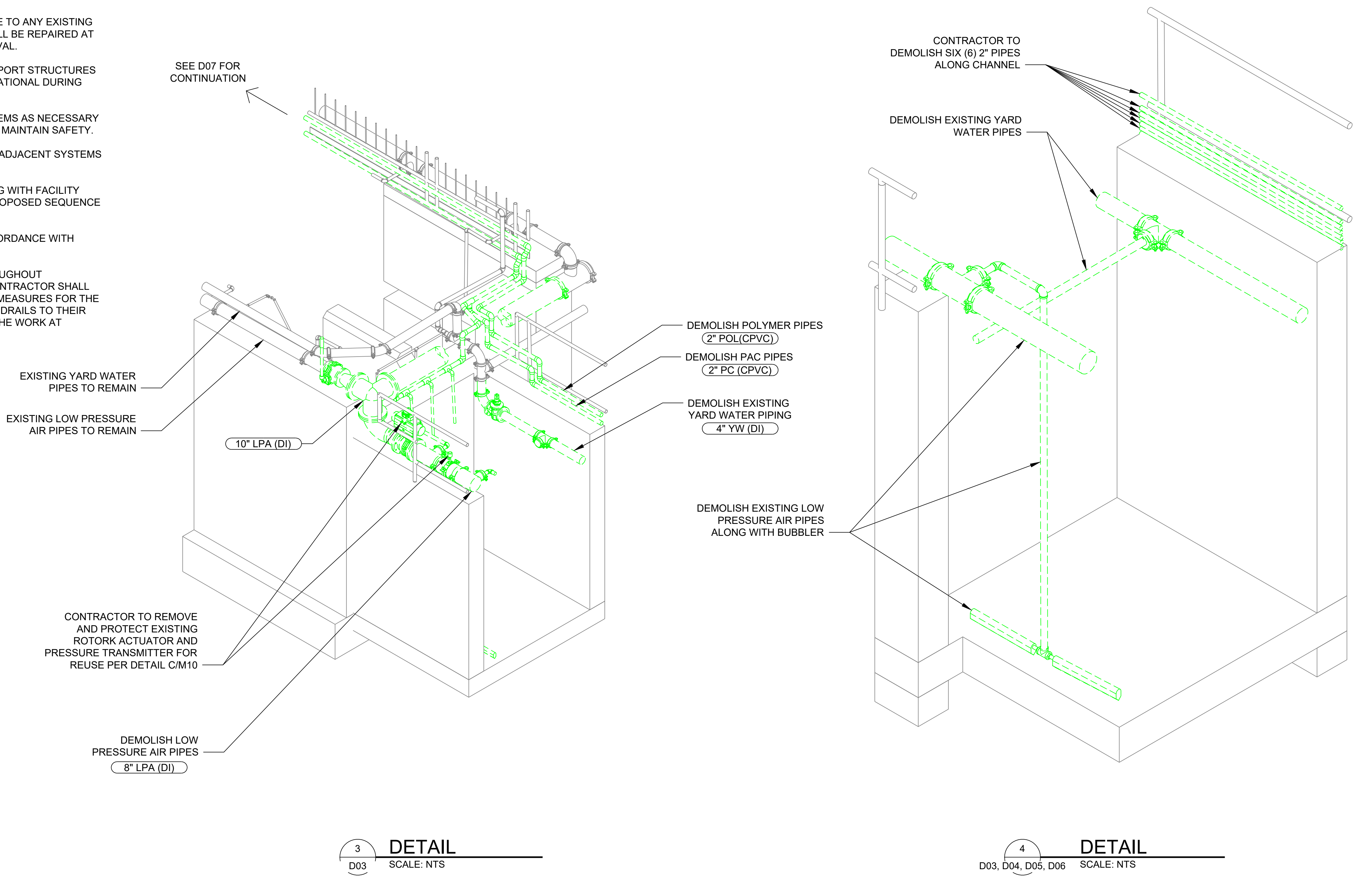
- FOR GENERAL NOTES REFER TO SHEET G03.

**PLAN NOTES:**

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**LEGEND:**

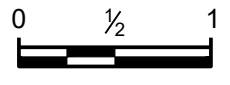
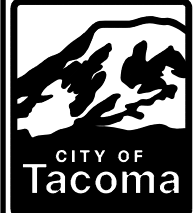
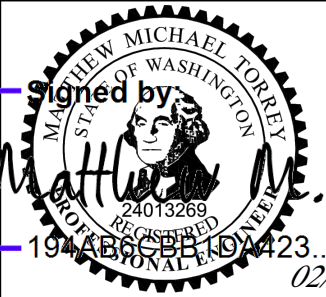
	= DEMOLISH PIPES
	= EXISTING TO REMAIN



**3** **DETAIL**  
D03 SCALE: NTS

**4** **DETAIL**  
D03, D04, D05, D06 SCALE: NTS

File path & name: S:\Plant\_3DIES-As-Built\Orthos\DWGs\Area 20\CTP-M-420020-501.dwg

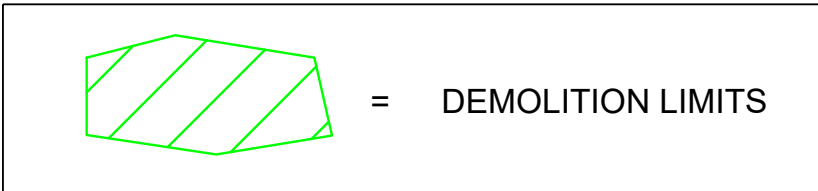
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			FILE NAME CTP-M-420020-501.DWG	DATE MARCH 2026	SCALE AS NOTED	Tomy						



GENERAL NOTES:

- 1. FOR GENERAL NOTES REFER TO SHEET G03.

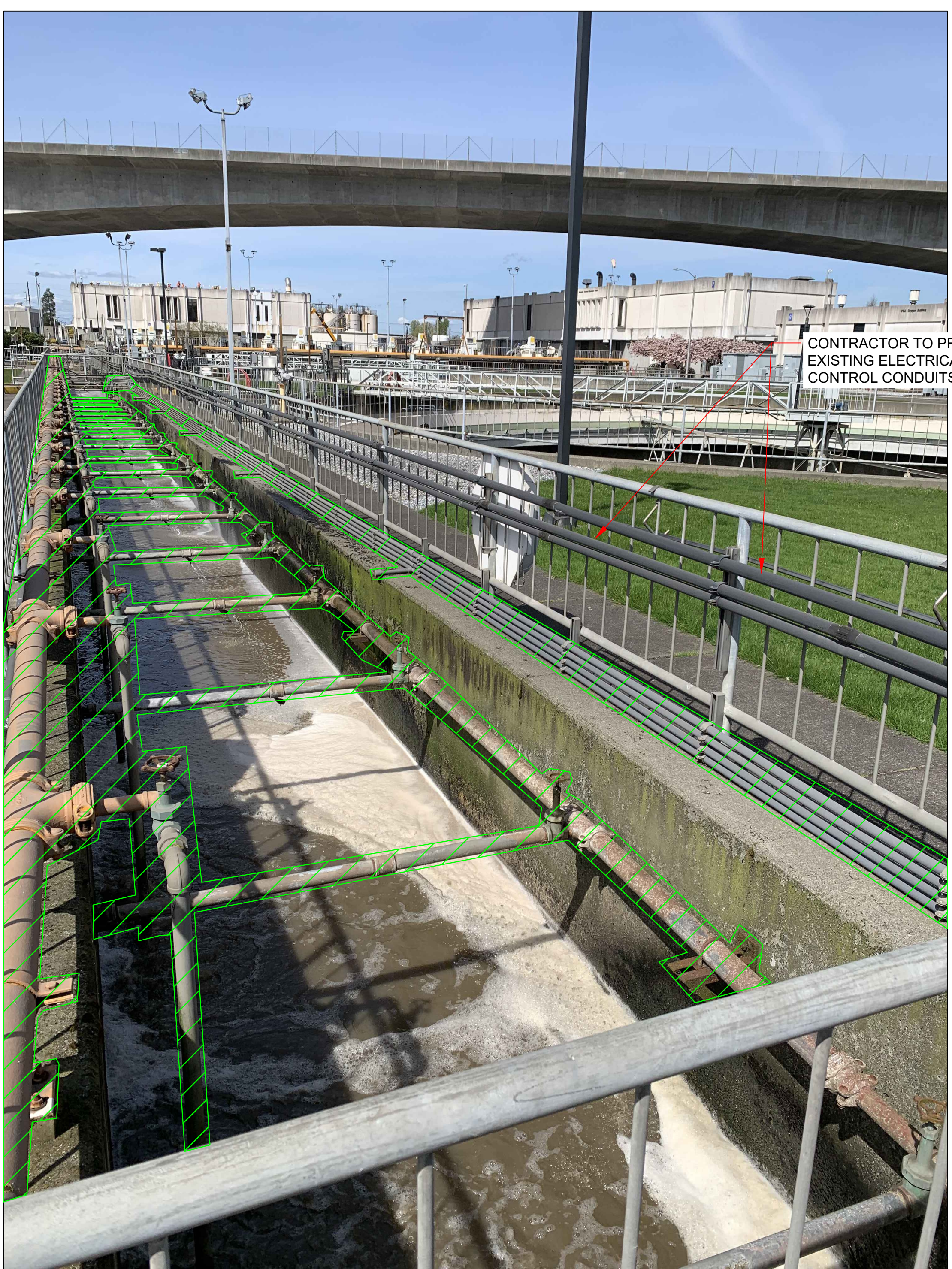
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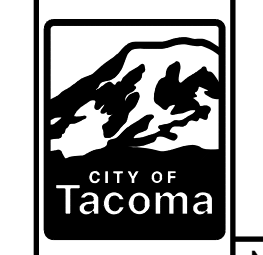
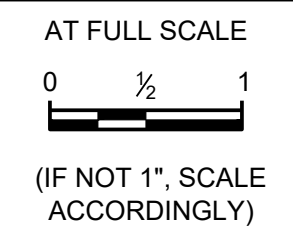
THIS DRAWING TO BE PRINTED IN COLOR

PLAN NOTES:

- 1. DEMOLITION LIMITS ARE SHOWN ON THE DRAWINGS. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE REMOVAL TO AVOID SERVICE DISRUPTION. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER.
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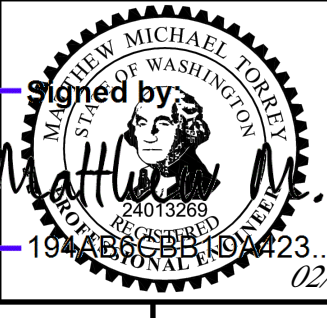


BID SET



NO	REVISION	DATE	APPD
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FINAL CONSTRUCTION CHECKED	DATE	SCALE
	MARCH 2026	AS NOTED
DESIGNED BY	MT	CHECKED BY
		LB
DRAWN BY	VK	PROJECT NO.
FILE NAME	CTP-M-420020-501.DWG	



CITY OF TACOMA  
ENVIRONMENTAL SERVICES DEPARTMENT  
CENTRAL WASTEWATER TREATMENT PLANT  
MIXED LIQUOR CHANNEL PIPE REPLACEMENT PROJECT  
DEMOLITION PHOTOS 2

ES26-0002F
ENV-04030-11
DRAWING NO. D10
SHEET OF

Last saved by: VKARATIS/UPA

Date saved: 2/24/2026

File path & name: S:\Plant\_3D\IES-As-Built\Orthos\DWGs\Area 20\CTP-M-420020-501.dwg

**GENERAL NOTES:**

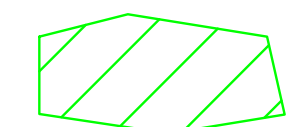
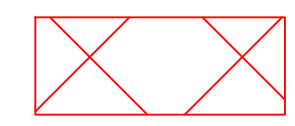
- 1. FOR GENERAL NOTES REFER TO SHEET G03.

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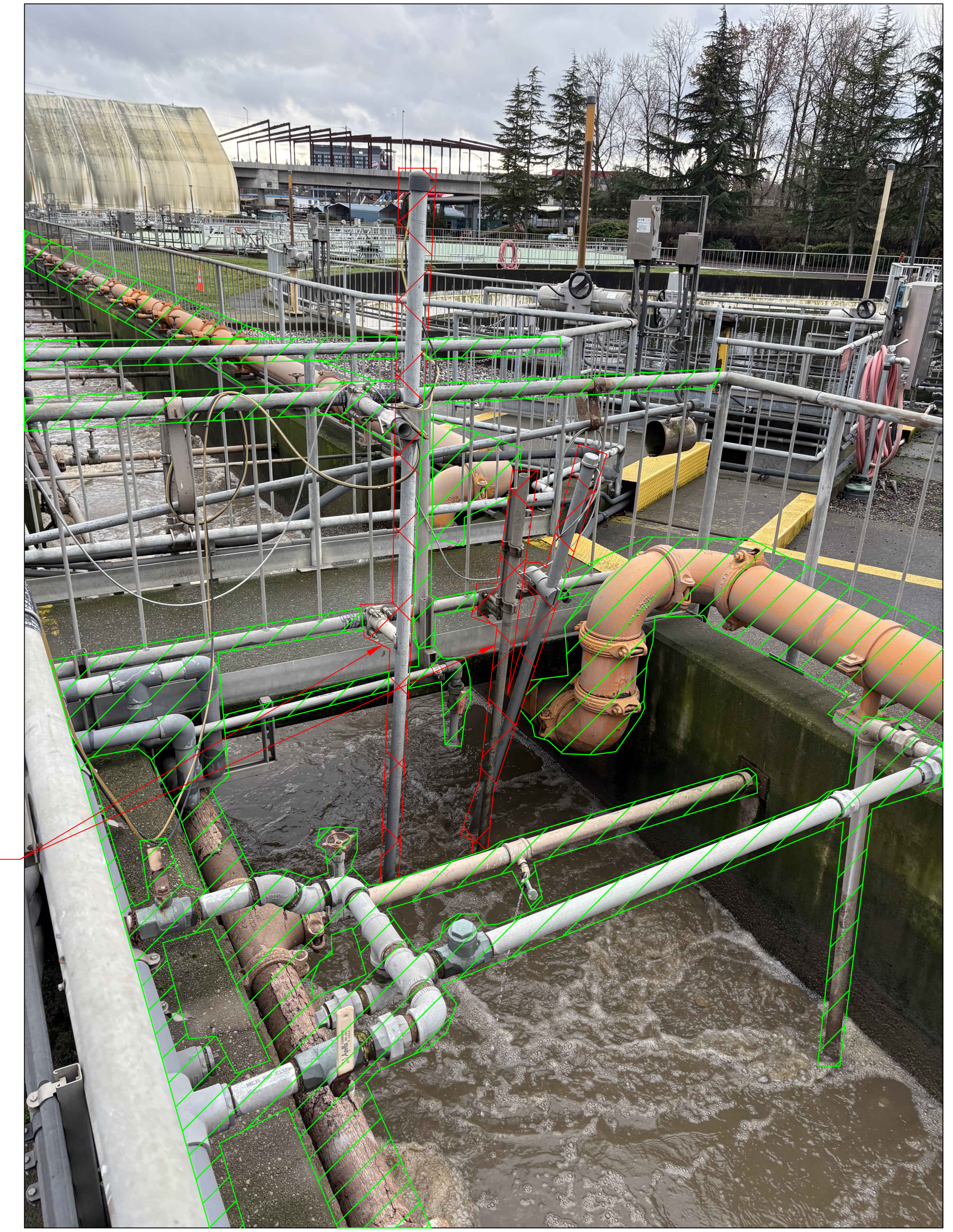
THIS DRAWING TO BE PRINTED IN COLOR

**LEGEND:**

	= DEMOLITION LIMITS
	= LIMITS OF CONTRACTOR TO REMOVE AND PROTECT

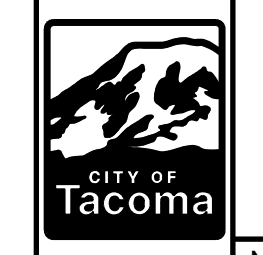


CONTRACTOR TO REMOVE AND PROTECT EXISTING TSS AND PH INSTRUMENTATION (AZS-4211C) FOR RE-INSTALLATION



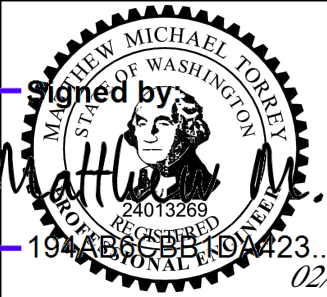
BID SET

AT FULL SCALE  
0 1/2 1  
(IF NOT 1", SCALE ACCORDINGLY)



NO	REVISION	DATE	APPD
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FINAL CONSTRUCTION CHECKED	DATE	SCALE
	MARCH 2026	AS NOTED
BY	DESIGNED	CHECKED
	MT	LB
DATE	DRAWN	PROJECT NO.
	VK	
FILE NAME	CTP-M-420020-501.DWG	



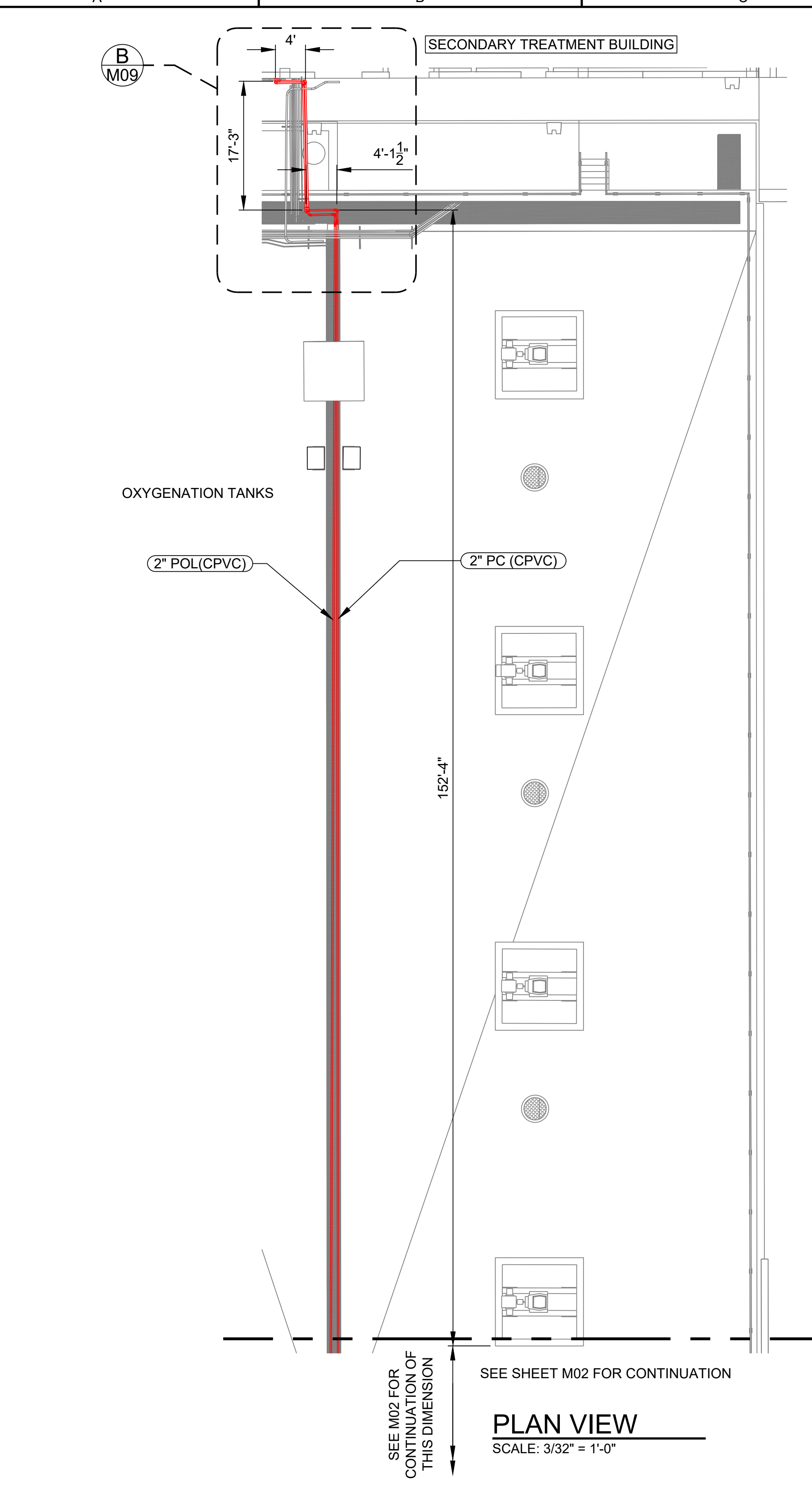
CITY OF TACOMA  
ENVIRONMENTAL SERVICES DEPARTMENT

**CENTRAL WASTEWATER TREATMENT PLANT  
MIXED LIQUOR CHANNEL PIPE REPLACEMENT PROJECT**

**DEMOLITION PHOTOS 3**

ES26-0002F
ENV-04030-11
DRAWING NO. D11
SHEET OF





THIS DRAWING TO BE PRINTED IN COLOR

**GENERAL NOTES:**

- 1. FOR GENERAL NOTES REFER TO SHEET G03.

**PLAN NOTES:**

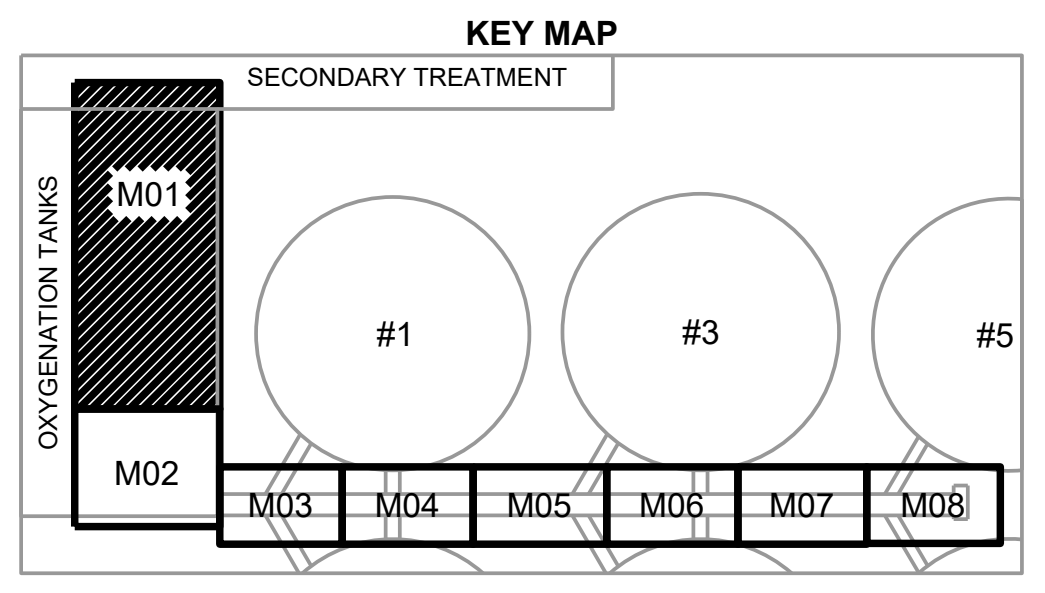
- 1. ALL NEW YARD WATER SPRAY SYSTEM AND LOW-PRESSURE AIR SYSTEM PIPING SHALL BE 316 STAINLESS STEEL, SCHEDULE 10S, ROLL GROOVED, WITH VICTAULIC GROOVED FITTINGS RATED FOR 500 PSI AND COMPLIANT WITH ASME B31.3.
- 2. ALL PIPING, COUPLING, FITTINGS AND VALVES 2 1/2" IN DIAMETER AND LARGER SHALL BE STAINLESS STEEL, ASTM A312 TP316L, GROOVED-END TYPE FOR VICTAULIC MECHANICAL JOINTS. GROOVED JOINTS AND COMPONENTS SHALL CONFORM TO VICTAULIC "STAINLESS STEEL 2 1/2" AND LARGER" SPECIFICATIONS. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
- 3. GASKETS SHALL BE SELECTED FOR SERVICE AND CERTIFIED FOR WASTEWATER WHEN APPLICABLE. PROTECT STAINLESS PIPE FROM CONTAMINATION AND DISSIMILAR METAL CONTACT.
- 4. USE RX GROOVING ROLLS DESIGNED FOR SCHEDULE 10S STAINLESS STEEL TO ENSURE PROPER GROOVE PROFILE AND FITMENT.
- 5. ALL CHEMICAL DOSING LINES (PAC, POLYMER) TO BE REPLACED WITH NEW SOLVENT GLUED SCHEDULE 80 CPVC PIPING OF MATCHING DIAMETER PER SPECIFICATIONS.
- 6. INSTALL NEW PAC DOSING SPARGER AT HEAD OF MIXED LIQUOR CHANNEL PER DETAIL.
- 7. PAINT ALL EXPOSED CPVC PIPING WITH EXTERIOR-GRADE LATEX PAINT IN ACCORDANCE WITH CITY STANDARDS AND CHEMICAL IDENTIFICATION COLOR CODE. SEE PLAN SHEET FOR COATING SPECIFICATIONS.
- 8. PIPING REALIGNMENT IN THE ML CHANNEL SHALL CONSIDER ERGONOMIC ACCESS, FUTURE MAINTENANCE, AND AVOID CONFLICTS WITH OTHER SYSTEMS.
- 9. FINAL PIPE LAYOUT MUST BE COORDINATED WITH OWNER TO CONFIRM SUPPORT AND CLEARANCE REQUIREMENTS PRIOR TO FABRICATION OR INSTALLATION.

SEE M02 FOR CONTINUATION OF THIS DIMENSION

152'-4"

SEE SHEET M02 FOR CONTINUATION

**PLAN VIEW**  
SCALE: 3/32" = 1'-0"



<b>BID SET</b>	AT FULL SCALE  (IF NOT 1", SCALE ACCORDINGLY)		NO	REVISION	DATE	APPD	FINAL CONSTRUCTION CHECKED	DATE	SCALE		CITY OF TACOMA ENVIRONMENTAL SERVICES DEPARTMENT <b>CENTRAL WASTEWATER TREATMENT PLANT</b> MIXED LIQUOR CHANNEL PIPE REPLACEMENT PROJECT MECHANICAL PIPE LAYOUT 1	ES26-0002F
							BY	DESIGNED	CHECKED		DATE	DRAWN

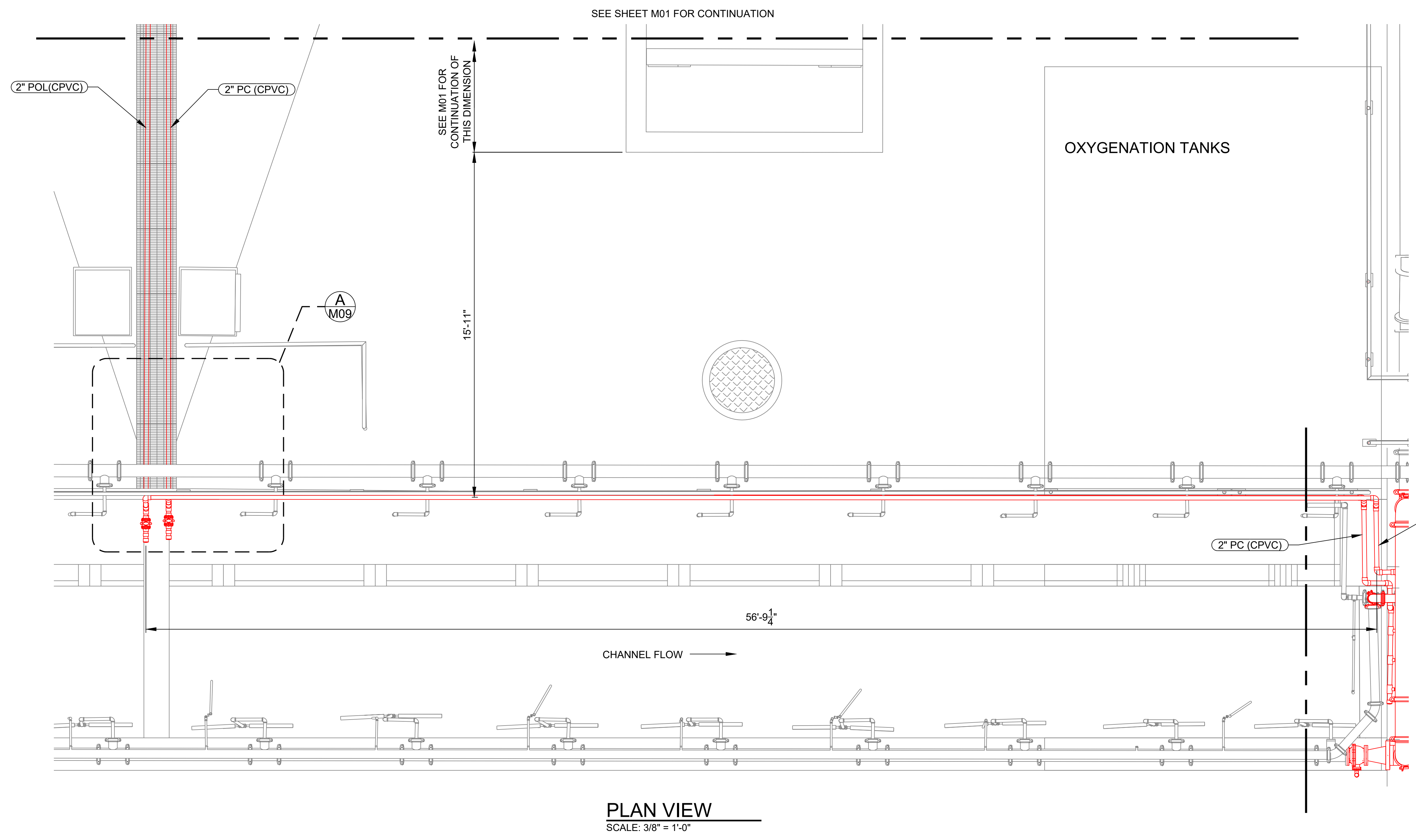
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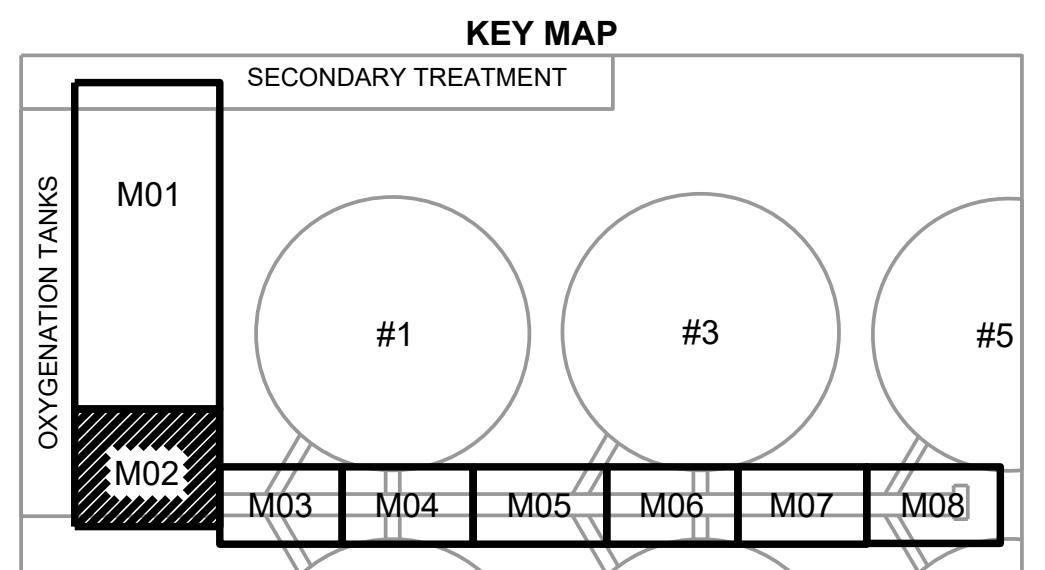
- 1. FOR GENERAL NOTES REFER TO SHEET G03.

PLAN NOTES:

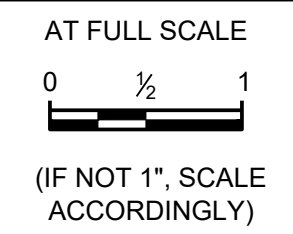
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PLAN VIEW  
SCALE: 3/8" = 1'-0"

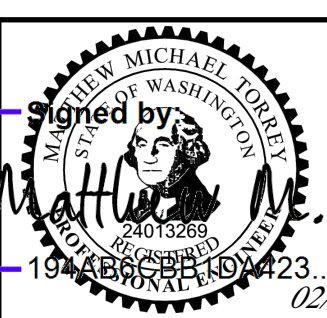


BID SET



NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED	DATE: MARCH 2026	SCALE: AS NOTED
BY: MT	DESIGNED: MT	CHECKED: LB
DATE: VK	DRAWN: VK	PROJECT NO:
FILE NAME: CTP-M-420020-501.DWG	19 APR 2026 10:42:31	



CITY OF TACOMA  
 ENVIRONMENTAL SERVICES DEPARTMENT  
 CENTRAL WASTEWATER TREATMENT PLANT  
 MIXED LIQUOR CHANNEL PIPE REPLACEMENT PROJECT  
 MECHANICAL PIPE LAYOUT 2

ES26-0002F
ENV-04030-11
DRAWING NO. M02
SHEET OF

Last saved by: VKARATIS/UPA

Date saved: 2/24/2026

File path & name: S:\Plant 3DIES-As-Built\Orthos\DWGs\Area 20\CTP-M-420020-501.dwg

THIS DRAWING TO BE PRINTED IN COLOR

**GENERAL NOTES:**

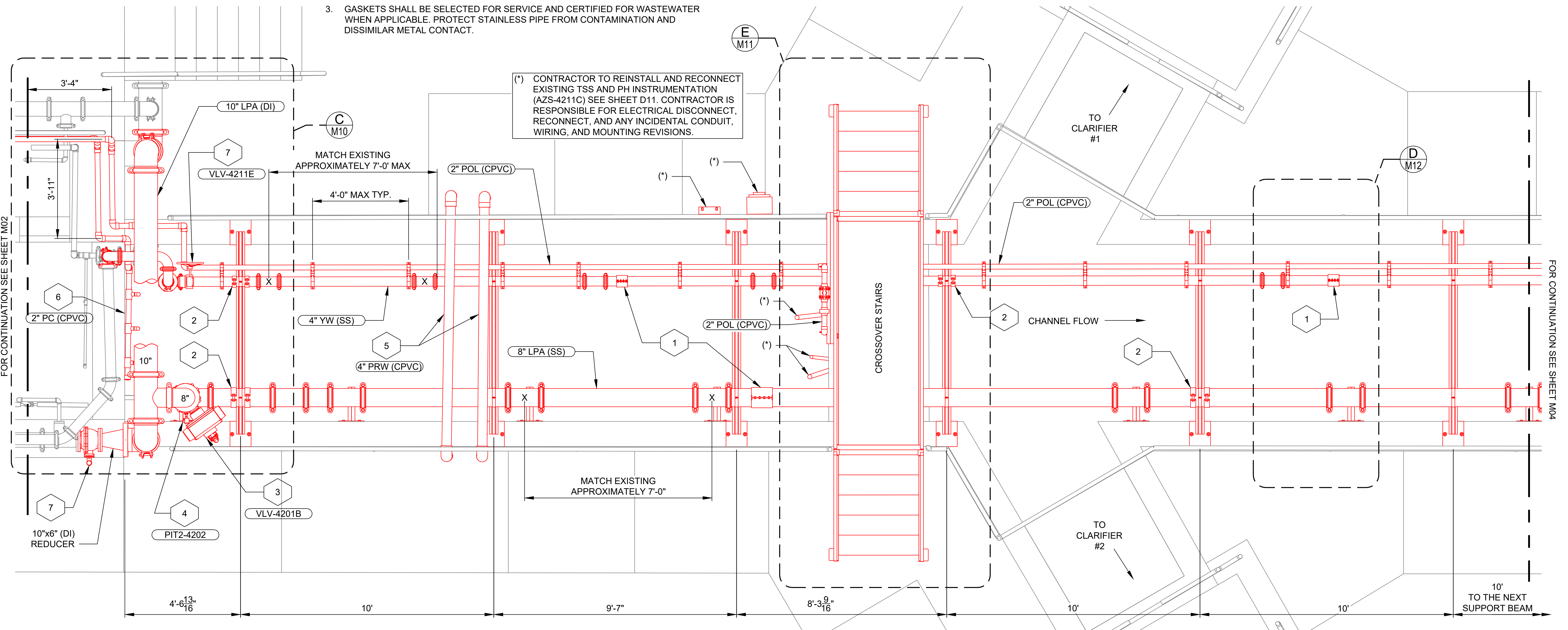
- 1. FOR GENERAL NOTES REFER TO SHEET G03.

**PLAN NOTES:**

- 1. ALL NEW YARD WATER SPRAY SYSTEM AND LOW-PRESSURE AIR SYSTEM PIPING SHALL BE 316 STAINLESS STEEL, SCHEDULE 10S, ROLL GROOVED, WITH VICTAULIC GROOVED FITTINGS RATED FOR 500 PSI AND COMPLIANT WITH ASME B31.3.
- 2. ALL PIPING, COUPLING, FITTINGS AND VALVES 2 1/2" IN DIAMETER AND LARGER SHALL BE STAINLESS STEEL, ASTM A312 TP316L, GROOVED-END TYPE FOR VICTAULIC MECHANICAL JOINTS. GROOVED JOINTS AND COMPONENTS SHALL CONFORM TO VICTAULIC "STAINLESS STEEL 2 1/2" AND LARGER" SPECIFICATIONS. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
- 3. GASKETS SHALL BE SELECTED FOR SERVICE AND CERTIFIED FOR WASTEWATER WHEN APPLICABLE. PROTECT STAINLESS PIPE FROM CONTAMINATION AND DISSIMILAR METAL CONTACT.

- 4. USE RX GROOVING ROLLS DESIGNED FOR SCHEDULE 10S STAINLESS STEEL TO ENSURE PROPER GROOVE PROFILE AND FITMENT.
- 5. ALL CHEMICAL DOSING LINES (PAC, POLYMER) TO BE REPLACED WITH NEW SOLVENT GLUED SCHEDULE 80 CPVC PIPING OF MATCHING DIAMETER PER SPECIFICATIONS.
- 6. INSTALL NEW PAC DOSING SPARGER AT HEAD OF MIXED LIQUOR CHANNEL PER DETAIL.

- 7. PAINT ALL EXPOSED CPVC PIPING WITH EXTERIOR-GRADE LATEX PAINT IN ACCORDANCE WITH CITY STANDARDS AND CHEMICAL IDENTIFICATION COLOR CODE. SEE PLAN SHEET FOR COATING SPECIFICATIONS.
- 8. PIPING REALIGNMENT IN THE ML CHANNEL SHALL CONSIDER ERGONOMIC ACCESS, FUTURE MAINTENANCE, AND AVOID CONFLICTS WITH OTHER SYSTEMS.
- 9. FINAL PIPE LAYOUT MUST BE COORDINATED WITH OWNER TO CONFIRM SUPPORT AND CLEARANCE REQUIREMENTS PRIOR TO FABRICATION OR INSTALLATION.



**SHEET KEY NOTES:**

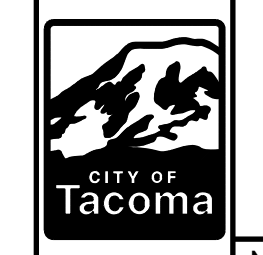
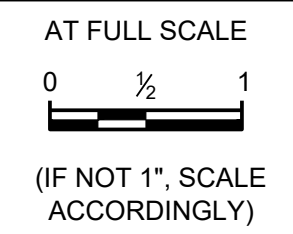
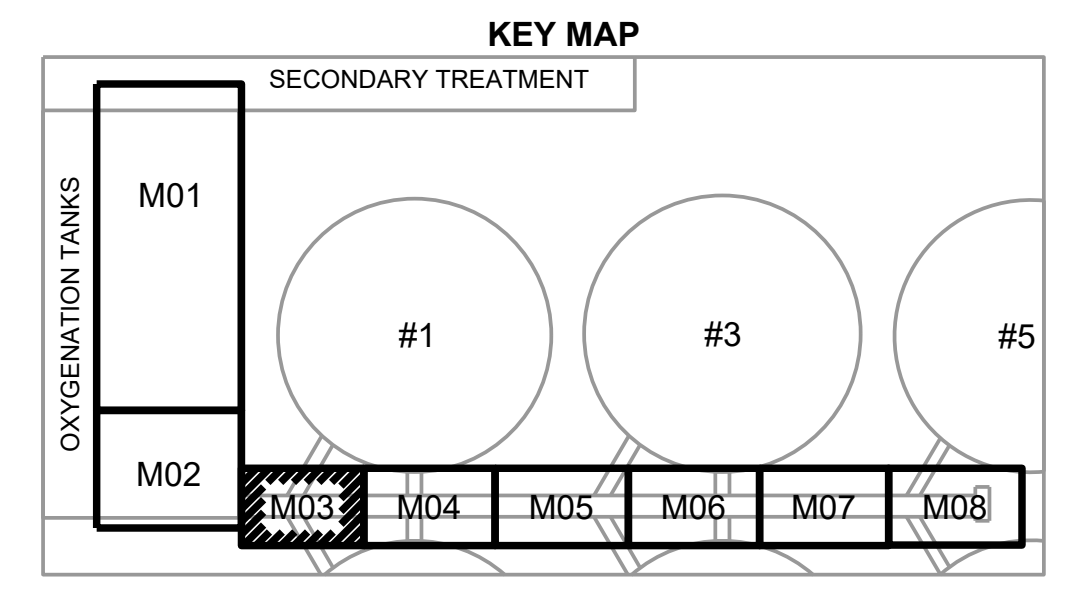
- 1 - VICTAULIC STYLE 231S NON-RESTRAINED FLEXIBLE EXPANSION COUPLING
- 2 - USE RESTRAINED PIPE SUPPORT AT THIS LOCATION PER S01 AND S02
- 3 - CONTRACTOR TO REPLACE BALL VALVE (VLV-4201B) AND REUSE ROTORK ACTUATOR, RELOCATE VALVE AND ACTUATOR TO NEW LOCATION PER PLANS. USE AMERICAN VALVE 4000 SERIES BALL VALVE. CONTRACTOR IS RESPONSIBLE FOR ELECTRICAL DISCONNECT, RECONNECT, AND ANY INCIDENTAL CONDUIT AND WIRING REVISIONS.

- 4 - CONTRACTOR TO REUSE AND RELOCATE EXISTING PRESSURE TRANSMITTER (PIT2-4202) TO NEW LOCATION PER PLANS. CONTRACTOR IS RESPONSIBLE FOR ELECTRICAL DISCONNECT, RECONNECT, AND ANY INCIDENTAL CONDUIT AND WIRING REVISIONS.
- 5 - CONTRACTOR TO RELOCATE PROTECTED WATER (NON-POTABLE) CROSSOVER PIPES TO NOT CONFLICT WITH NEW PIPING INSTALLED AS PART OF THE PROJECT. INSTALL NEW 4" CPVC PIPING AND PAINT ALL SURFACES OF NEW EXISTING PIPING PER PLANS.

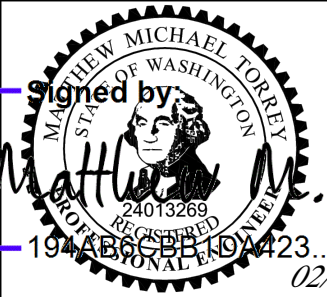
**PLAN VIEW CONT.**

SCALE: 1/2" = 1'-0"

- 6 - CONTRACTOR TO REPLACE PAC SPARGER IN-KIND WITH NEW CPVC PIPING AND FITTINGS
- 7 - CONTRACTOR TO REPLACE VALVE WITH 6" AMERICAN VALVE 4000 SERIES BALL VALVE WITH HANDWHEEL OPERATOR.



FINAL CONSTRUCTION CHECKED	DATE	SCALE
	MARCH 2026	AS NOTED
DESIGNED	CHECKED	
MT	LB	
DRAWN	PROJECT NO.	
VK		
FILE NAME		
CTP-M-420020-501.DWG		



CITY OF TACOMA  
**ENVIRONMENTAL SERVICES DEPARTMENT**  
**CENTRAL WASTEWATER TREATMENT PLANT**  
**MIXED LIQUOR CHANNEL PIPE REPLACEMENT PROJECT**  
**MECHANICAL PIPE LAYOUT 3**

ES26-0002F  
 ENV-04030-11  
 DRAWING NO. M03  
 SHEET OF

BID SET

NO	REVISION	DATE	APPD

02/26/2026

Last saved by: VKARAT/SP/A

Date saved: 2/24/2026

File path & name: S:\Plant\_3D\IES-As-Built\Orthos\DWGs\Area 20\CTP-M-420020-501.dwg

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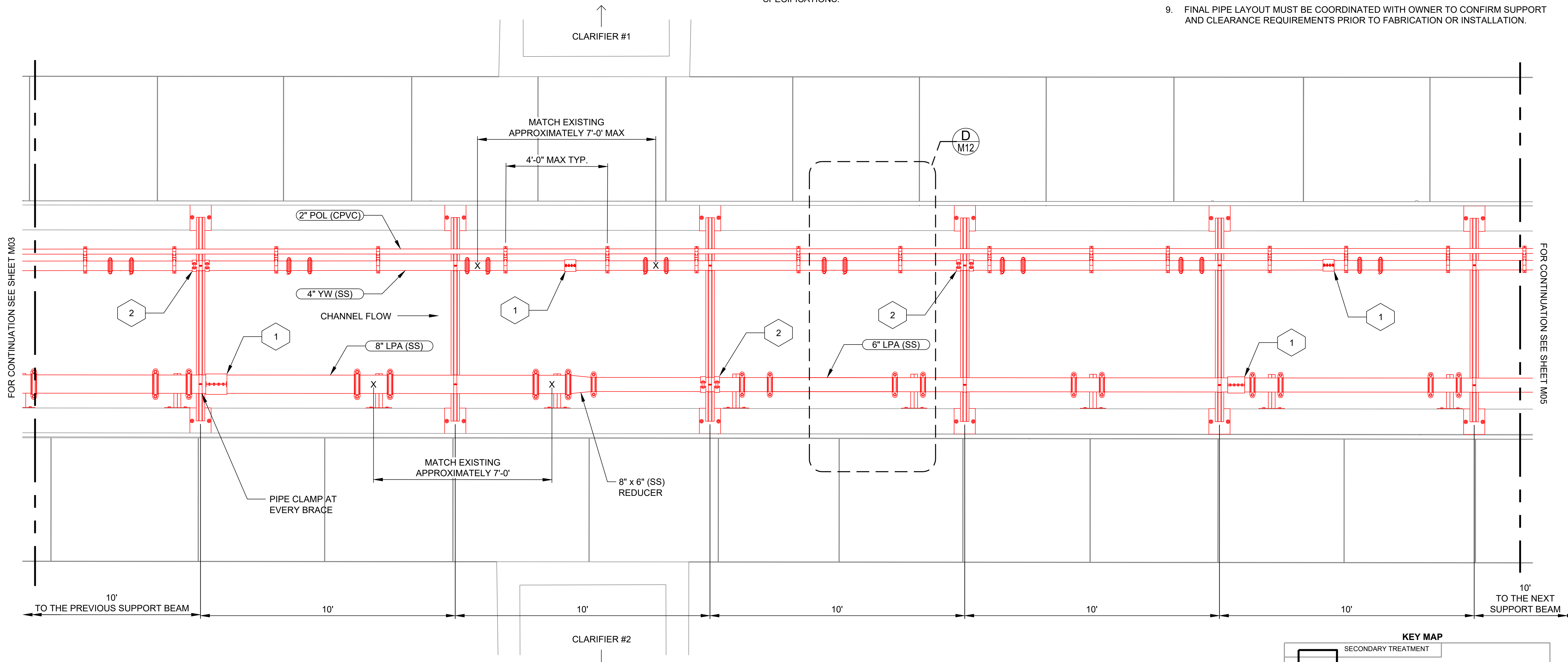
GENERAL NOTES:

- 1. FOR GENERAL NOTES REFER TO SHEET G03.

PLAN NOTES:

- 1. ALL NEW YARD WATER SPRAY SYSTEM AND LOW-PRESSURE AIR SYSTEM PIPING SHALL BE 316 STAINLESS STEEL, SCHEDULE 10S, ROLL GROOVED, WITH VICTAULIC GROOVED FITTINGS RATED FOR 500 PSI AND COMPLIANT WITH ASME B31.3.
- 2. ALL PIPING, COUPLING, FITTINGS AND VALVES 2 1/2" IN DIAMETER AND LARGER SHALL BE STAINLESS STEEL, ASTM A312 TP316L, GROOVED-END TYPE FOR VICTAULIC MECHANICAL JOINTS. GROOVED JOINTS AND COMPONENTS SHALL CONFORM TO VICTAULIC "STAINLESS STEEL 2 1/2" AND LARGER" SPECIFICATIONS. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
- 3. GASKETS SHALL BE SELECTED FOR SERVICE AND CERTIFIED FOR WASTEWATER WHEN APPLICABLE. PROTECT STAINLESS PIPE FROM CONTAMINATION AND DISSIMILAR METAL CONTACT.
- 4. USE RX GROOVING ROLLS DESIGNED FOR SCHEDULE 10S STAINLESS STEEL TO ENSURE PROPER GROOVE PROFILE AND FITMENT.
- 5. ALL CHEMICAL DOSING LINES (PAC, POLYMER) TO BE REPLACED WITH NEW SOLVENT GLUED SCHEDULE 80 CPVC PIPING OF MATCHING DIAMETER PER SPECIFICATIONS.

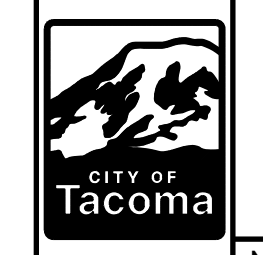
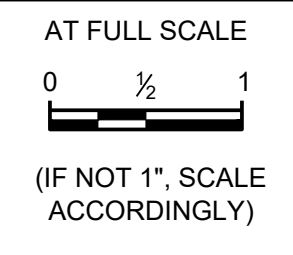
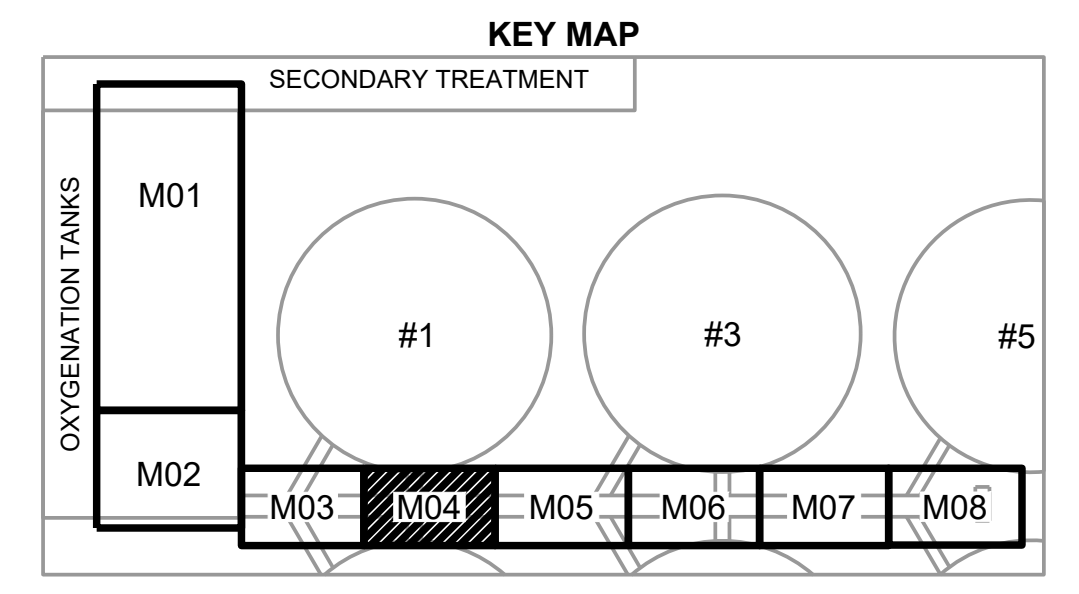
- 6. INSTALL NEW PAC DOSING SPARGER AT HEAD OF MIXED LIQUOR CHANNEL PER DETAIL.
- 7. PAINT ALL EXPOSED CPVC PIPING WITH EXTERIOR-GRADE LATEX PAINT IN ACCORDANCE WITH CITY STANDARDS AND CHEMICAL IDENTIFICATION COLOR CODE. SEE PLAN SHEET FOR COATING SPECIFICATIONS.
- 8. PIPING REALIGNMENT IN THE ML CHANNEL SHALL CONSIDER ERGONOMIC ACCESS, FUTURE MAINTENANCE, AND AVOID CONFLICTS WITH OTHER SYSTEMS.
- 9. FINAL PIPE LAYOUT MUST BE COORDINATED WITH OWNER TO CONFIRM SUPPORT AND CLEARANCE REQUIREMENTS PRIOR TO FABRICATION OR INSTALLATION.



SHEET KEY NOTES:

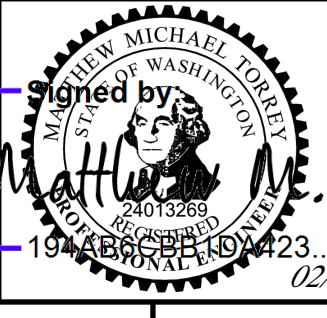
- 1 - VICTAULIC STYLE 231S NON-RESTRAINED FLEXIBLE EXPANSION COUPLING
- 2 - USE RESTRAINED PIPE SUPPORT AT THIS LOCATION PER S01 AND S02

PLAN VIEW CONT.  
SCALE: 1/2" = 1'-0"



NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED	DATE: MARCH 2026	SCALE: AS NOTED
BY: MT	DESIGNED: MT	CHECKED: LB
DATE: VK	DRAWN: VK	PROJECT NO:
FILE NAME: CTP-M-420020-501.DWG		



CITY OF TACOMA  
 ENVIRONMENTAL SERVICES DEPARTMENT  
 CENTRAL WASTEWATER TREATMENT PLANT  
 MIXED LIQUOR CHANNEL PIPE REPLACEMENT PROJECT  
 MECHANICAL PIPE LAYOUT 4

ES26-0002F
ENV-04030-11
DRAWING NO. M04
SHEET OF

BID SET

Last saved by: VKARATISUPA

Date saved: 2/24/2026

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GENERAL NOTES:

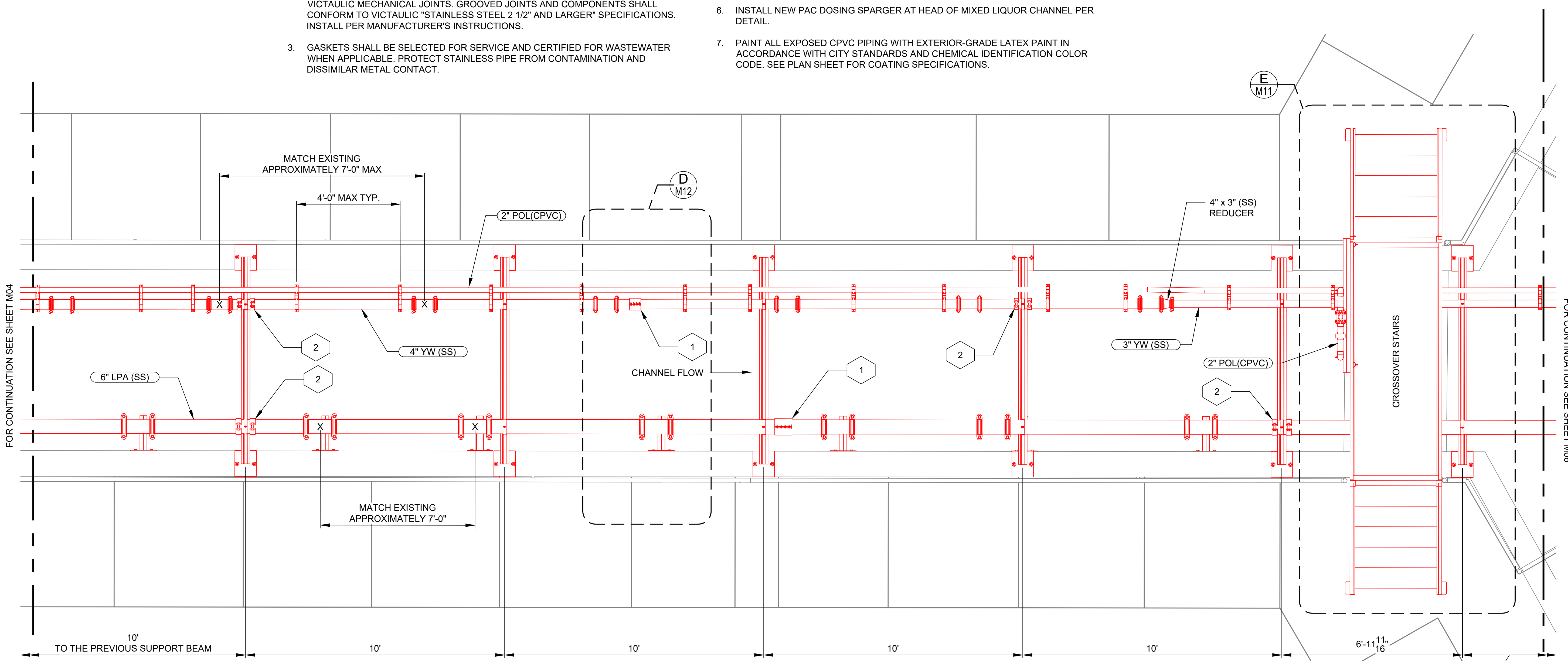
1. FOR GENERAL NOTES REFER TO SHEET G03.

PLAN NOTES:

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- 2. ALL PIPING, COUPLING, FITTINGS AND VALVES 2 1/2" IN DIAMETER AND LARGER SHALL BE STAINLESS STEEL, ASTM A312 TP316L, GROOVED-END TYPE FOR VICTAULIC MECHANICAL JOINTS. GROOVED JOINTS AND COMPONENTS SHALL CONFORM TO VICTAULIC "STAINLESS STEEL 2 1/2" AND LARGER" SPECIFICATIONS. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
- 3. GASKETS SHALL BE SELECTED FOR SERVICE AND CERTIFIED FOR WASTEWATER WHEN APPLICABLE. PROTECT STAINLESS PIPE FROM CONTAMINATION AND DISSIMILAR METAL CONTACT.

- 4. USE RX GROOVING ROLLS DESIGNED FOR SCHEDULE 10S STAINLESS STEEL TO ENSURE PROPER GROOVE PROFILE AND FITMENT.
- 5. ALL CHEMICAL DOSING LINES (PAC, POLYMER) TO BE REPLACED WITH NEW SOLVENT GLUED SCHEDULE 80 CPVC PIPING OF MATCHING DIAMETER PER SPECIFICATIONS.
- 6. INSTALL NEW PAC DOSING SPARGER AT HEAD OF MIXED LIQUOR CHANNEL PER DETAIL.
- 7. PAINT ALL EXPOSED CPVC PIPING WITH EXTERIOR-GRADE LATEX PAINT IN ACCORDANCE WITH CITY STANDARDS AND CHEMICAL IDENTIFICATION COLOR CODE. SEE PLAN SHEET FOR COATING SPECIFICATIONS.

- 8. PIPING REALIGNMENT IN THE ML CHANNEL SHALL CONSIDER ERGONOMIC ACCESS, FUTURE MAINTENANCE, AND AVOID CONFLICTS WITH OTHER SYSTEMS.
- 9. FINAL PIPE LAYOUT MUST BE COORDINATED WITH OWNER TO CONFIRM SUPPORT AND CLEARANCE REQUIREMENTS PRIOR TO FABRICATION OR INSTALLATION.



FOR CONTINUATION SEE SHEET M04

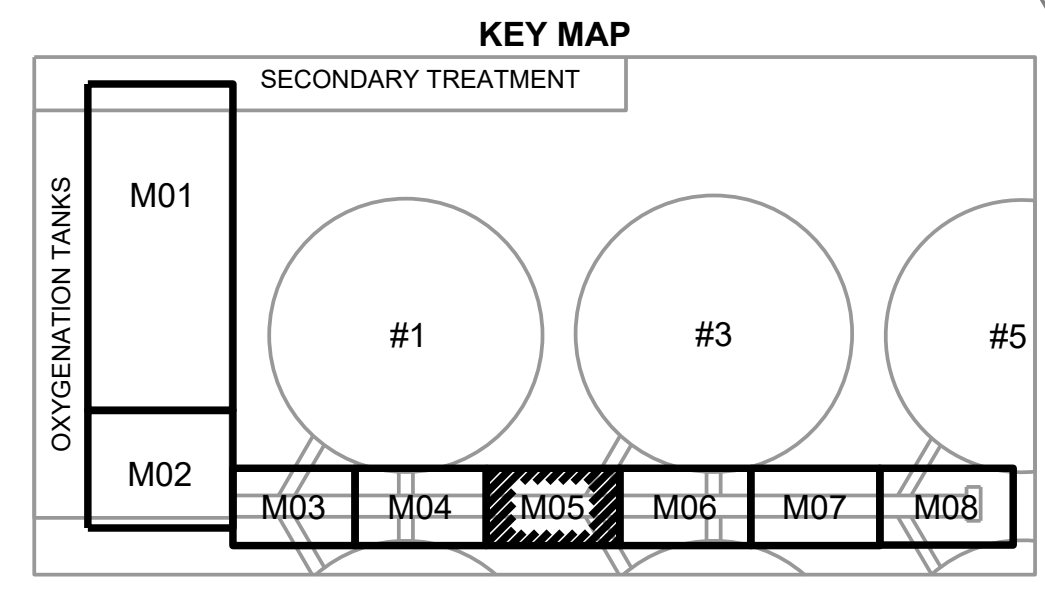
FOR CONTINUATION SEE SHEET M06

CROSSOVER STAIRS

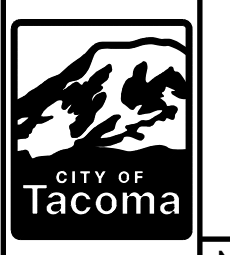
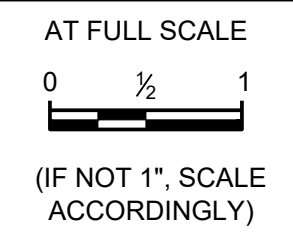
SHEET KEY NOTES:

- 1 - VICTAULIC STYLE 231S NON-RESTRAINED FLEXIBLE EXPANSION COUPLING
- 2 - USE RESTRAINED PIPE SUPPORT AT THIS LOCATION PER S01 AND S02

PLAN VIEW CONT.  
SCALE: 1/2" = 1'-0"

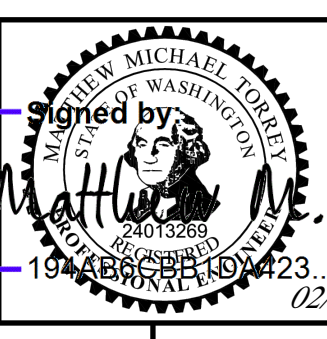


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NO	REVISION	DATE	APPD

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FILE NAME: CTP-M-420020-501.DWG	19 APR 2026 10:42:31	



CITY OF TACOMA  
 ENVIRONMENTAL SERVICES DEPARTMENT  
 CENTRAL WASTEWATER TREATMENT PLANT  
 MIXED LIQUOR CHANNEL PIPE REPLACEMENT PROJECT  
 MECHANICAL PIPE LAYOUT 5

ES26-0002F
ENV-04030-11
DRAWING NO. M05
SHEET OF

Last saved by: VKARATIS/UPA

Date saved: 2/24/2026

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GENERAL NOTES:

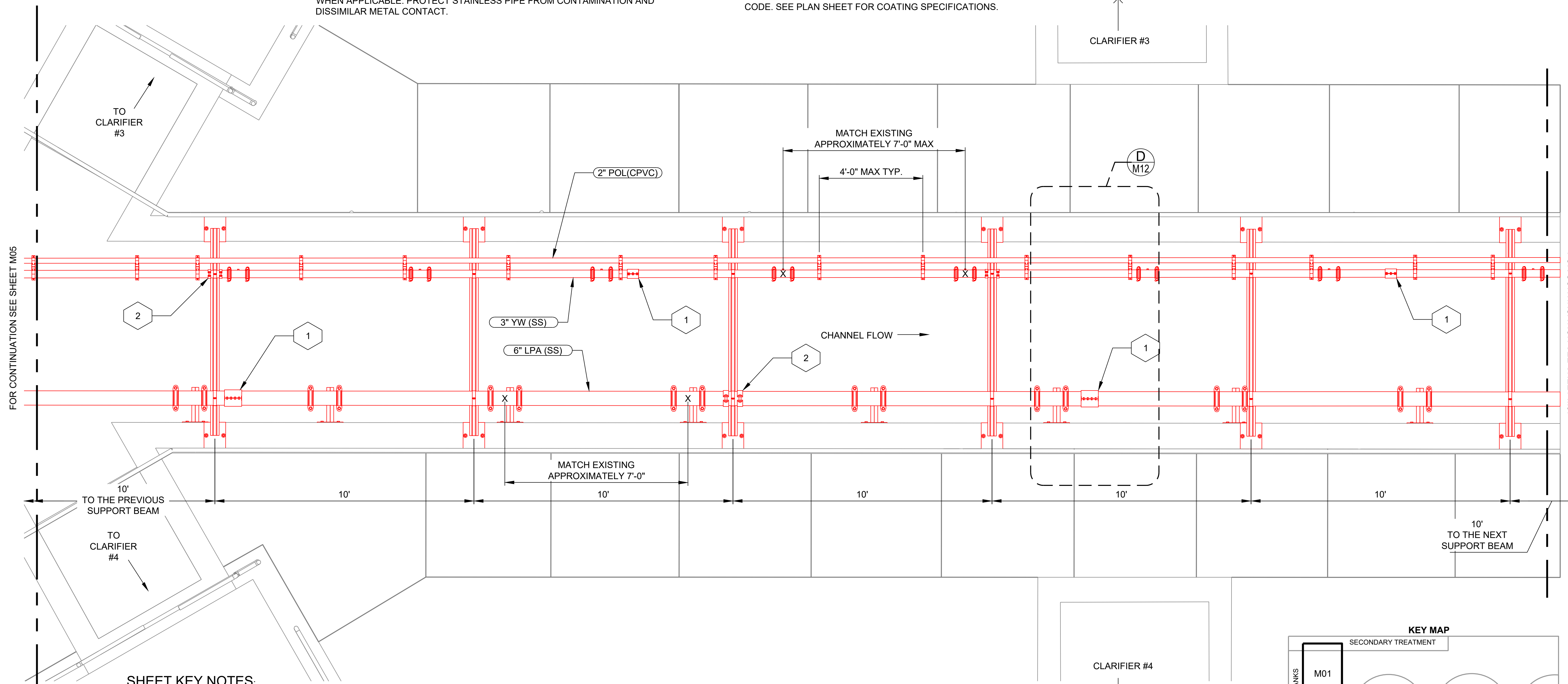
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- 5. ALL CHEMICAL DOSING LINES (PAC, POLYMER) TO BE REPLACED WITH NEW SOLVENT GLUED SCHEDULE 80 CPVC PIPING OF MATCHING DIAMETER PER SPECIFICATIONS.
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- 8. PIPING REALIGNMENT IN THE ML CHANNEL SHALL CONSIDER ERGONOMIC ACCESS, FUTURE MAINTENANCE, AND AVOID CONFLICTS WITH OTHER SYSTEMS.
- 9. FINAL PIPE LAYOUT MUST BE COORDINATED WITH OWNER TO CONFIRM SUPPORT AND CLEARANCE REQUIREMENTS PRIOR TO FABRICATION OR INSTALLATION.



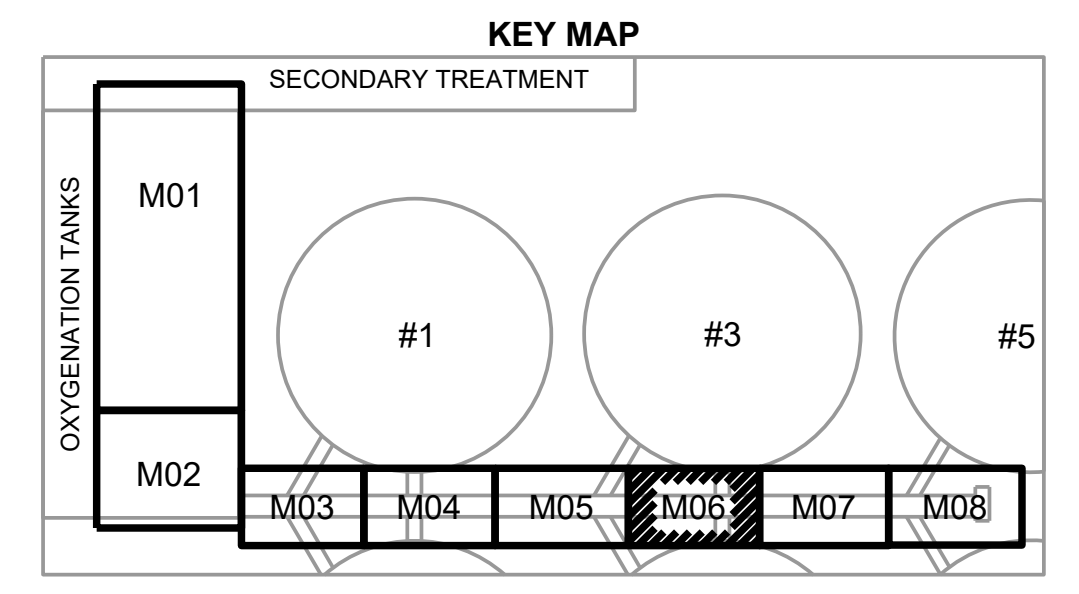
FOR CONTINUATION SEE SHEET M05

FOR CONTINUATION SEE SHEET M07

SHEET KEY NOTES:

- 1 - VICTAULIC STYLE 231S NON-RESTRAINED FLEXIBLE EXPANSION COUPLING
- 2 - USE RESTRAINED PIPE SUPPORT AT THIS LOCATION PER S01 AND S02

PLAN VIEW CONT.  
SCALE: 1/2" = 1'-0"



BID SET	AT FULL SCALE 0 1/2 1 (IF NOT 1", SCALE ACCORDINGLY)	CITY OF Tacoma	NO	REVISION	DATE	APPD	FINAL CONSTRUCTION CHECKED	DATE MARCH 2026	SCALE AS NOTED		CITY OF TACOMA ENVIRONMENTAL SERVICES DEPARTMENT CENTRAL WASTEWATER TREATMENT PLANT MIXED LIQUOR CHANNEL PIPE REPLACEMENT PROJECT MECHANICAL PIPE LAYOUT 6	ES26-0002F
	BY						DESIGNED MT	CHECKED LB	DRAWN VK			PROJECT NO.
FILE NAME: CTP-M-420020-501.DWG SHEET OF												

Last saved by: VKARAT/SP/A

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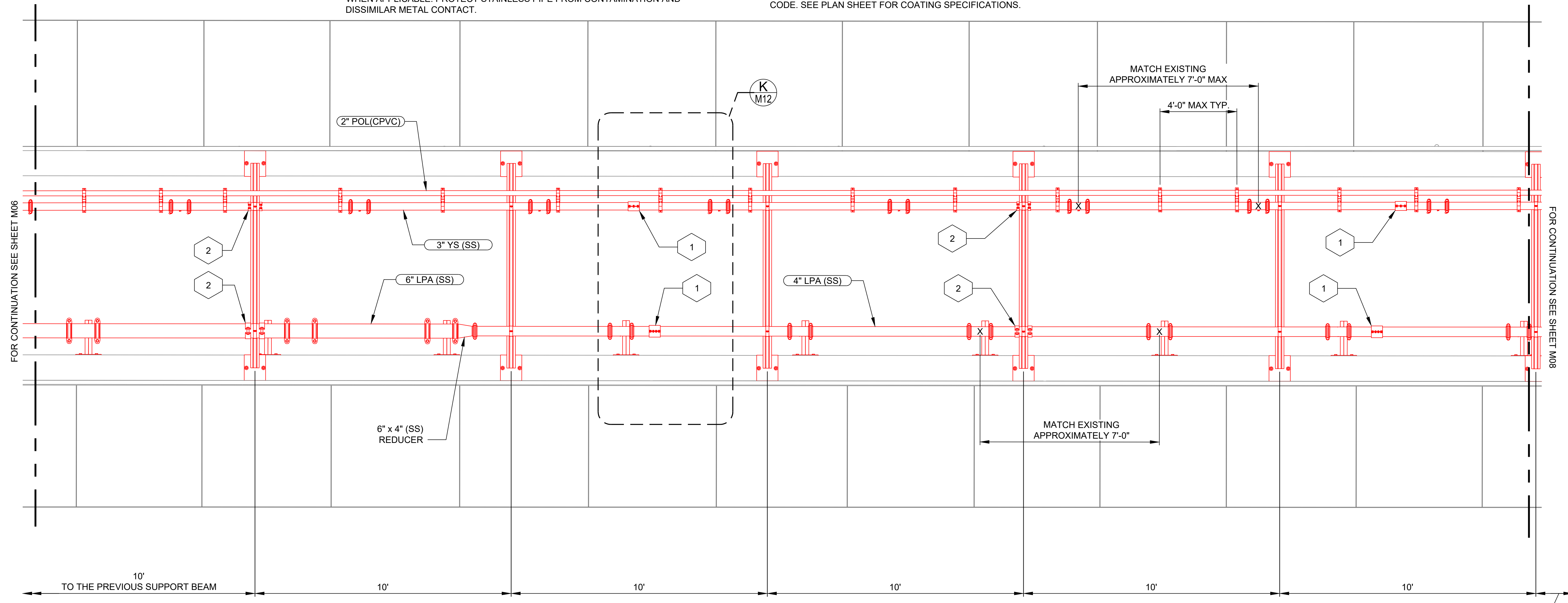
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**GENERAL NOTES:**

- 1. FOR GENERAL NOTES REFER TO SHEET G03.

**PLAN NOTES:**

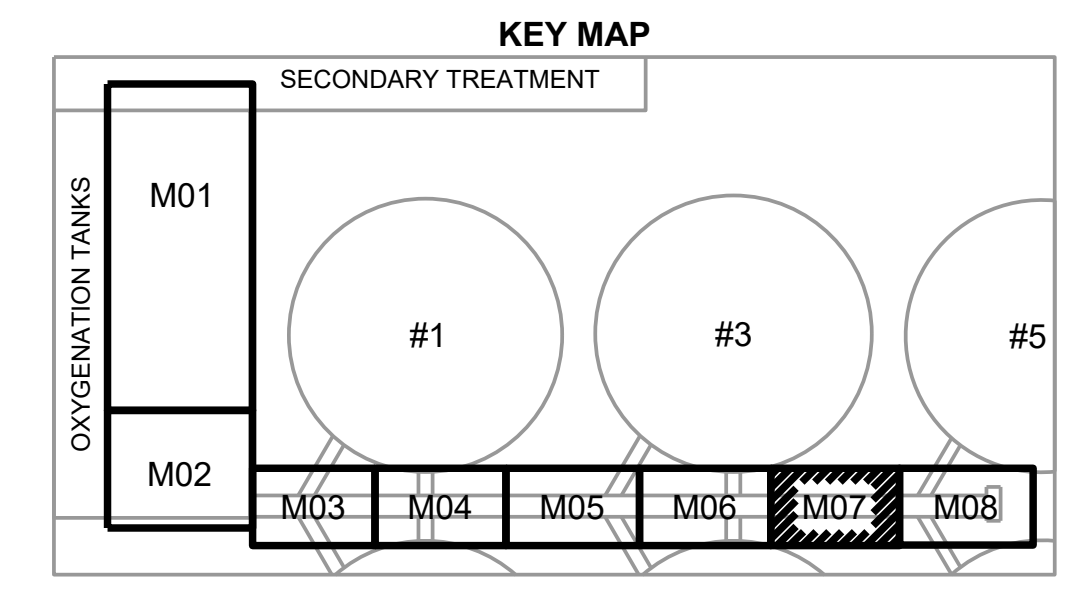
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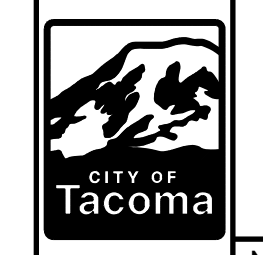
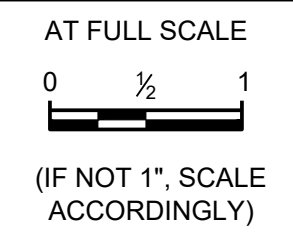
**SHEET KEY NOTES:**

- 1 - VICTAULIC STYLE 231S NON-RESTRAINED FLEXIBLE EXPANSION COUPLING
- 2 - USE RESTRAINED PIPE SUPPORT AT THIS LOCATION PER S01 AND S02

**PLAN VIEW CONT.**  
SCALE: 1/2" = 1'-0"

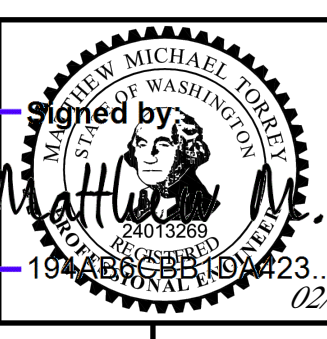


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NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED	DATE: MARCH 2026	SCALE: AS NOTED
DESIGNED: MT	CHECKED: LB	
DRAWN: VK	PROJECT NO:	
FILE NAME: CTP-M-420020-501.DWG		



CITY OF TACOMA  
ENVIRONMENTAL SERVICES DEPARTMENT  
**CENTRAL WASTEWATER TREATMENT PLANT**  
MIXED LIQUOR CHANNEL PIPE REPLACEMENT PROJECT  
MECHANICAL PIPE LAYOUT 7

ES26-0002F
ENV-04030-11
DRAWING NO. M07
SHEET OF



Last saved by: VKARAT/US/PA

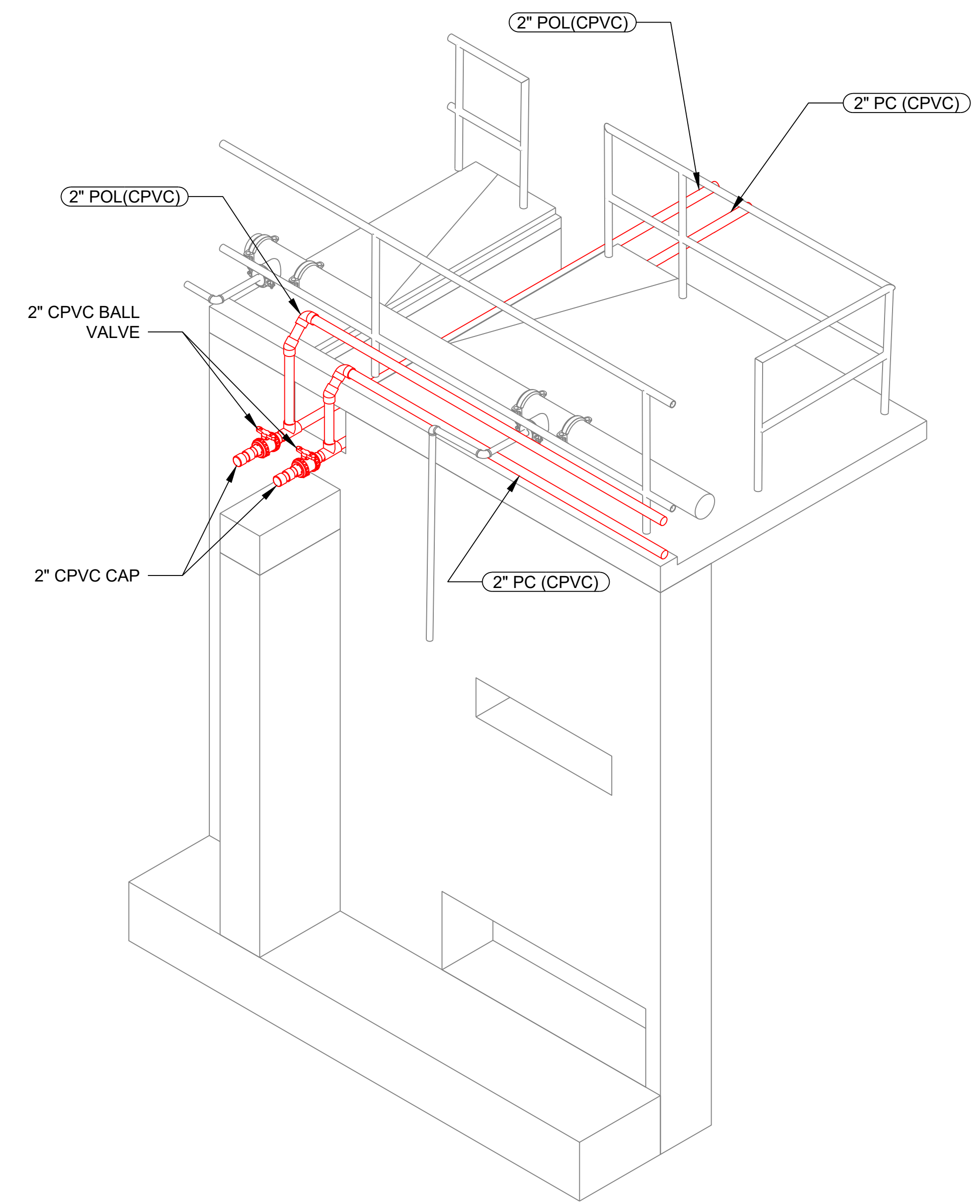
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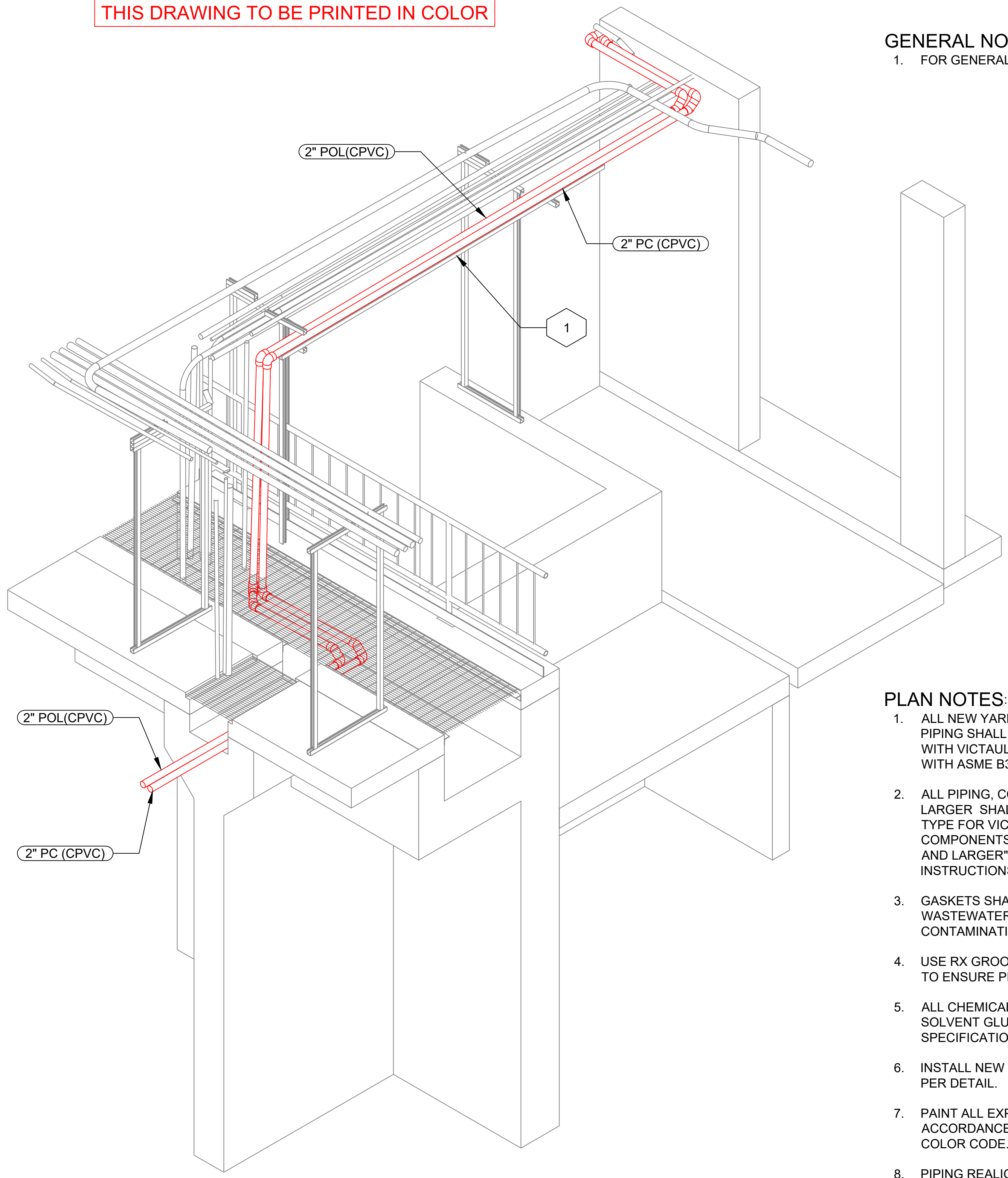
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**GENERAL NOTES:**  
1. FOR GENERAL NOTES REFER TO SHEET G03.

**SHEET KEY NOTES:**  
1 - CONTRACTOR TO REUSE EXISTING PIPE SUPPORTS



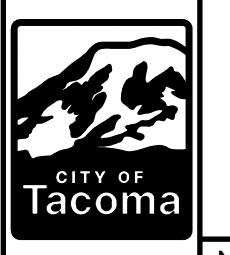
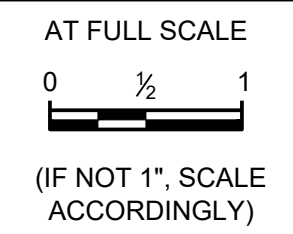
**A ISOMETRIC VIEW**  
SCALE: NTS



**B ISOMETRIC VIEW**  
SCALE: NTS

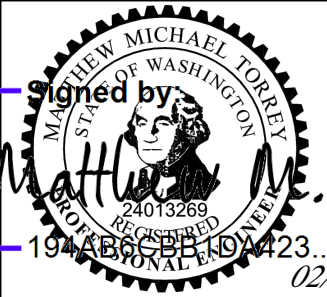
- PLAN NOTES:**
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  - FINAL PIPE LAYOUT MUST BE COORDINATED WITH OWNER TO CONFIRM SUPPORT AND CLEARANCE REQUIREMENTS PRIOR TO FABRICATION OR INSTALLATION.

BID SET



NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED	DATE MARCH 2026	SCALE AS NOTED
BY	DESIGNED MT	CHECKED LB
DATE	DRAWN VK	PROJECT NO.
FILE NAME CTP-M-420020-501.DWG	19 APR 2026 10:42:31 AM	



CITY OF TACOMA  
ENVIRONMENTAL SERVICES DEPARTMENT

**CENTRAL WASTEWATER TREATMENT PLANT  
MIXED LIQUOR CHANNEL PIPE REPLACEMENT PROJECT**

**MECHANICAL PIPE LAYOUT ENLARGED DETAILS 1**

ES26-0002F
ENV-04030-11
DRAWING NO. M09
SHEET OF

Last saved by: VKARATIS/PA

Date saved: 2/24/2026

File path & name: S:\Plant\_3D\IES-As-Built\Orthos\DWGs\Area 20\CTP-M-420020-501.dwg

THIS DRAWING TO BE PRINTED IN COLOR

**SHEET KEY NOTES:**

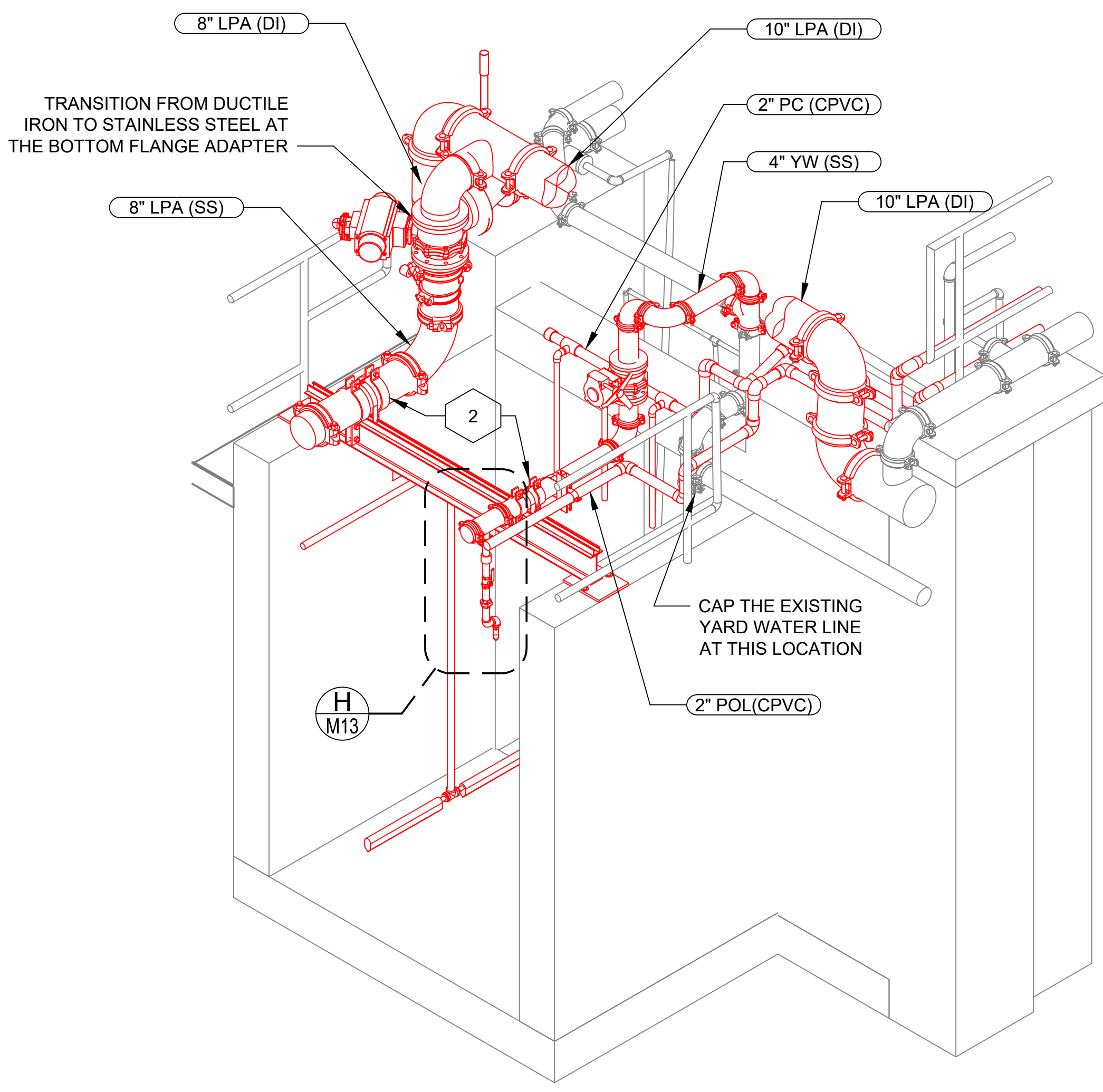
- 1 - VICTAULIC STYLE 231S NON-RESTRAINED FLEXIBLE EXPANSION COUPLING
- 2 - USE RESTRAINED PIPE SUPPORT AT THIS LOCATION PER S01 AND S02

**GENERAL NOTES:**

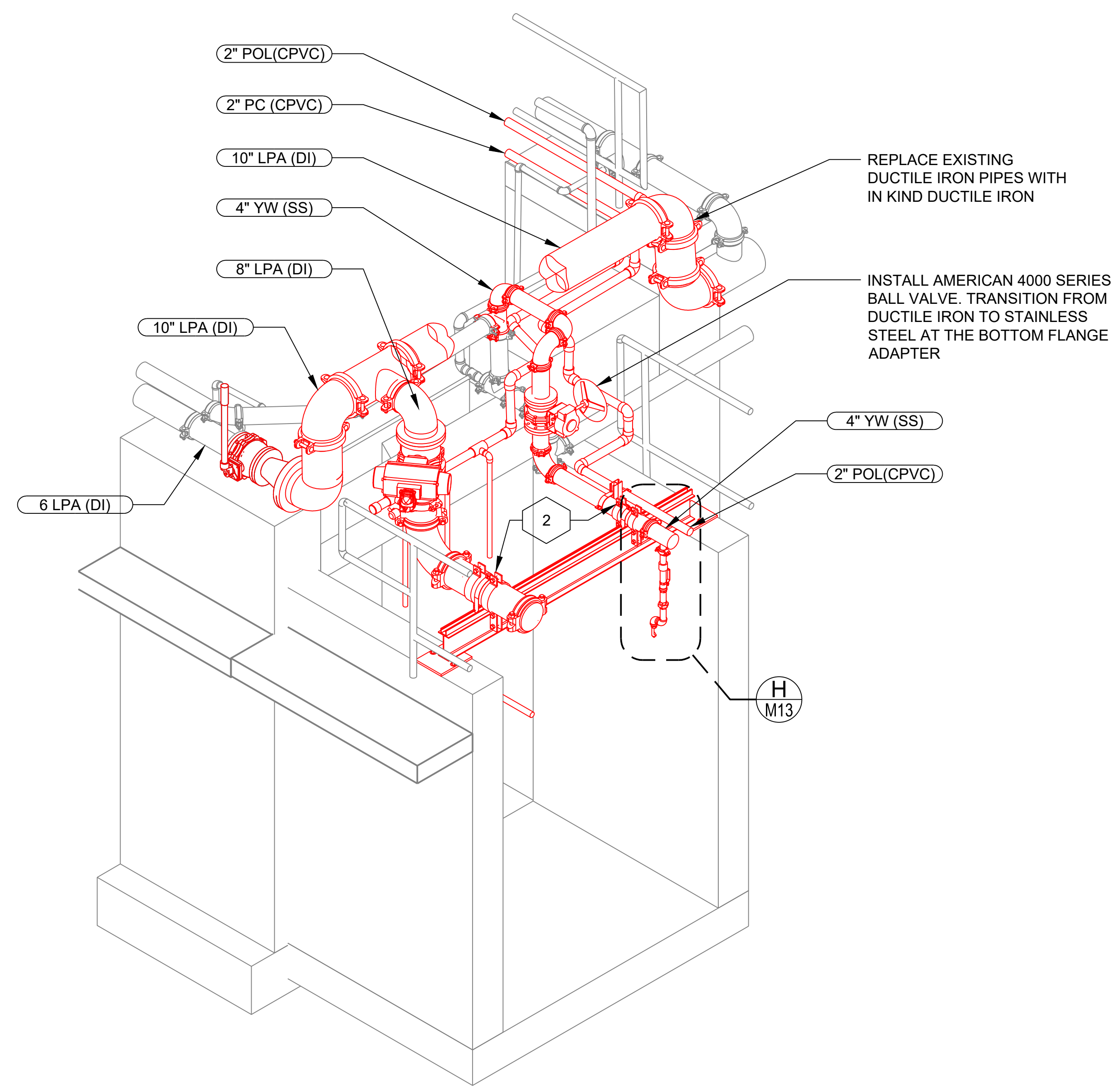
1. FOR GENERAL NOTES REFER TO SHEET G03.

**PLAN NOTES:**

1. ALL NEW YARD WATER SPRAY SYSTEM AND LOW-PRESSURE AIR SYSTEM PIPING SHALL BE 316 STAINLESS STEEL, SCHEDULE 10S, ROLL GROOVED, WITH VICTAULIC GROOVED FITTINGS RATED FOR 500 PSI AND COMPLIANT WITH ASME B31.3.
2. ALL PIPING, COUPLING, FITTINGS AND VALVES 2 1/2" IN DIAMETER AND LARGER SHALL BE STAINLESS STEEL, ASTM A312 TP316L, GROOVED-END TYPE FOR VICTAULIC MECHANICAL JOINTS. GROOVED JOINTS AND COMPONENTS SHALL CONFORM TO VICTAULIC "STAINLESS STEEL 2 1/2" AND LARGER" SPECIFICATIONS. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
3. GASKETS SHALL BE SELECTED FOR SERVICE AND CERTIFIED FOR WASTEWATER WHEN APPLICABLE. PROTECT STAINLESS PIPE FROM CONTAMINATION AND DISSIMILAR METAL CONTACT.
4. USE RX GROOVING ROLLS DESIGNED FOR SCHEDULE 10S STAINLESS STEEL TO ENSURE PROPER GROOVE PROFILE AND FITMENT.
5. ALL CHEMICAL DOSING LINES (PAC, POLYMER) TO BE REPLACED WITH NEW SOLVENT GLUED SCHEDULE 80 CPVC PIPING OF MATCHING DIAMETER PER SPECIFICATIONS.
6. INSTALL NEW PAC DOSING SPARGER AT HEAD OF MIXED LIQUOR CHANNEL PER DETAIL.
7. PAINT ALL EXPOSED CPVC PIPING WITH EXTERIOR-GRADE LATEX PAINT IN ACCORDANCE WITH CITY STANDARDS AND CHEMICAL IDENTIFICATION COLOR CODE. SEE PLAN SHEET FOR COATING SPECIFICATIONS.
8. PIPING REALIGNMENT IN THE ML CHANNEL SHALL CONSIDER ERGONOMIC ACCESS, FUTURE MAINTENANCE, AND AVOID CONFLICTS WITH OTHER SYSTEMS.
9. FINAL PIPE LAYOUT MUST BE COORDINATED WITH OWNER TO CONFIRM SUPPORT AND CLEARANCE REQUIREMENTS PRIOR TO FABRICATION OR INSTALLATION.



**ISOMETRIC VIEW (LEFT)**



**ISOMETRIC VIEW (RIGHT)**

**C**  
**ISOMETRIC VIEW**  
SCALE: NTS

<b>BID SET</b>	AT FULL SCALE  (IF NOT 1", SCALE ACCORDINGLY)		NO	REVISION	DATE	APPD	FINAL CONSTRUCTION CHECKED	DATE MARCH 2026	SCALE AS NOTED		CITY OF TACOMA <b>ENVIRONMENTAL SERVICES DEPARTMENT</b> <b>CENTRAL WASTEWATER TREATMENT PLANT</b> <b>MIXED LIQUOR CHANNEL PIPE REPLACEMENT PROJECT</b> <b>MECHANICAL PIPE LAYOUT ENLARGED DETAILS 2</b>	ES26-0002F
							BY DATE	DESIGNED MT	CHECKED LB		PROJECT NO.	DRAWN VK

Last saved by: VKARATIS/UPA Date saved: 2/24/2026 File path & name: S:\Plant\_3D\IES-As-Built\Orthos\DWGs\Area 20\CTP-M-420020-501.dwg

THIS DRAWING TO BE PRINTED IN COLOR

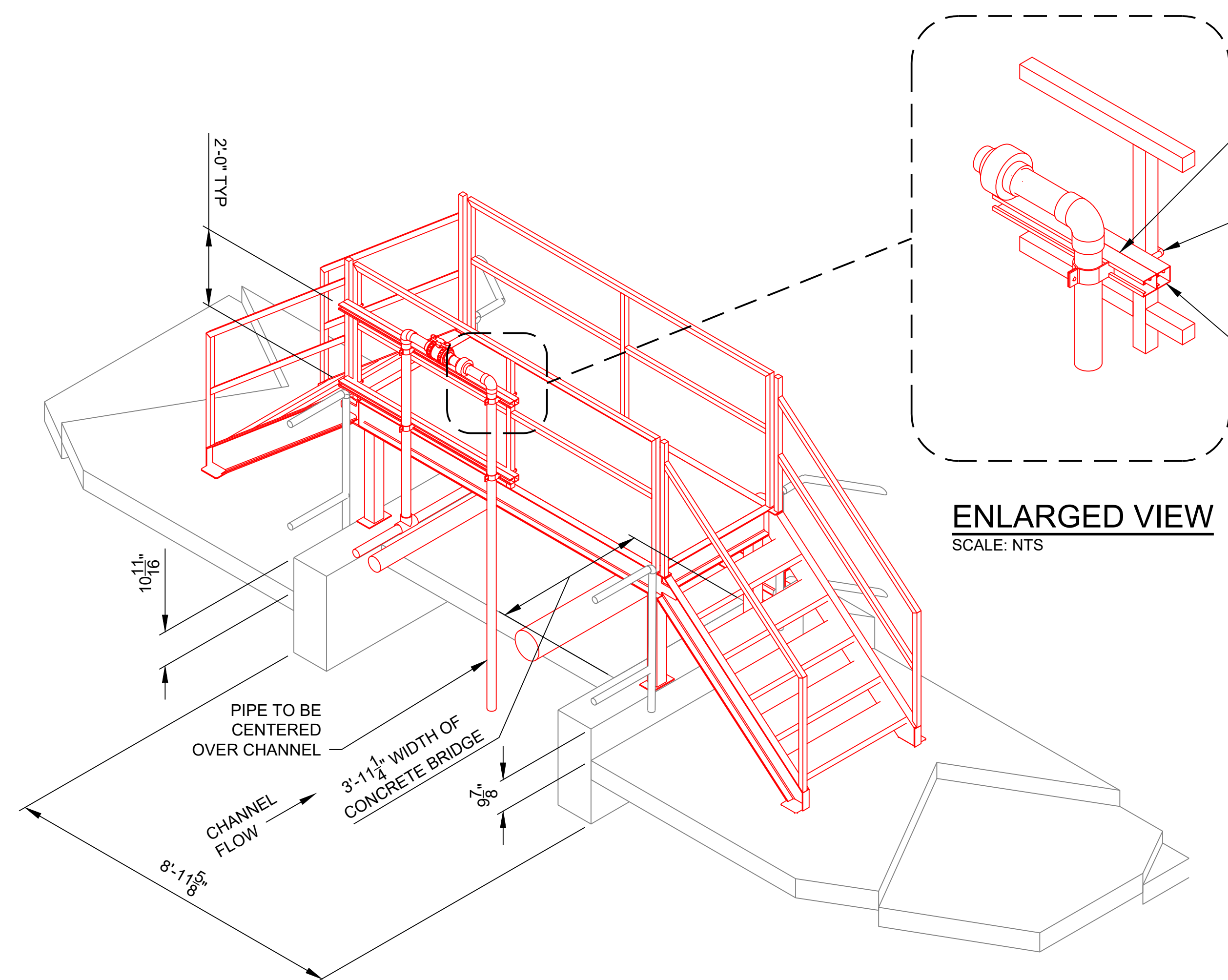
**GENERAL NOTES:**

- 1. FOR GENERAL NOTES REFER TO SHEET G03.

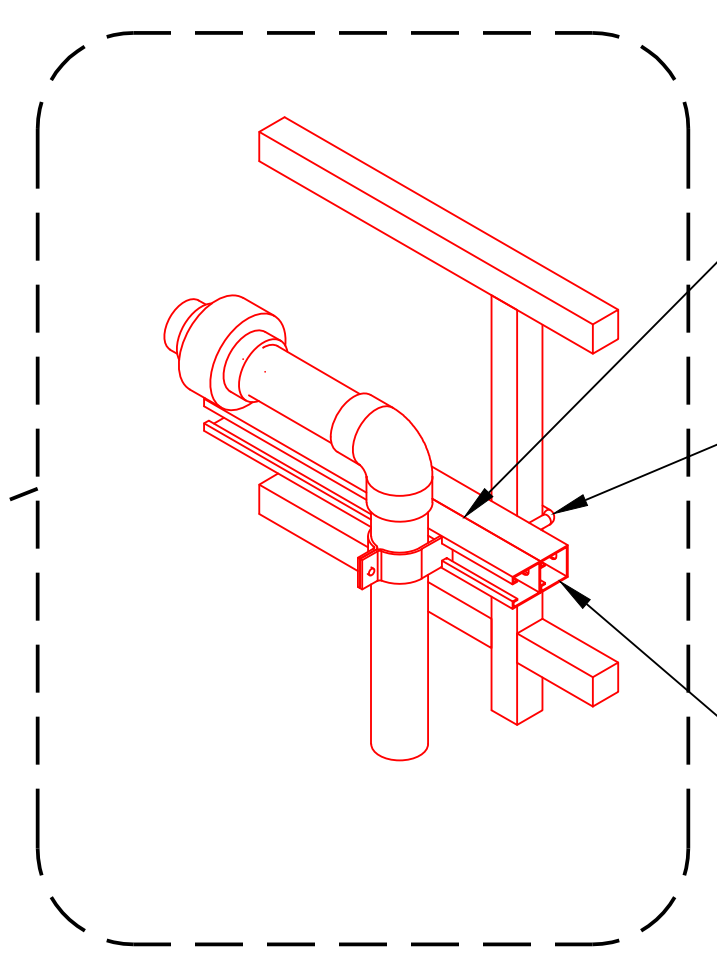
**PLEASE NOTE:**  
 THE CROSSOVER IS SHOWN FOR REFERENCE ONLY.  
 CONTRACTOR TO MEASURE AND FIELD VERIFY  
 DIMENSIONS AT EACH CROSSOVER LOCATION  
 PRIOR TO ORDERING. SEE SECTION 05\_51\_33

**PLAN NOTES:**

- ALL NEW YARD WATER SPRAY SYSTEM AND LOW-PRESSURE AIR SYSTEM PIPING SHALL BE 316 STAINLESS STEEL, SCHEDULE 10S, ROLL GROOVED, WITH VICTAULIC GROOVED FITTINGS RATED FOR 500 PSI AND COMPLIANT WITH ASME B31.3.
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- ALL CHEMICAL DOSING LINES (PAC, POLYMER) TO BE REPLACED WITH NEW SOLVENT GLUED SCHEDULE 80 CPVC PIPING OF MATCHING DIAMETER PER SPECIFICATIONS.
- INSTALL NEW PAC DOSING SPARGER AT HEAD OF MIXED LIQUOR CHANNEL PER DETAIL.
- PAINT ALL EXPOSED CPVC PIPING WITH EXTERIOR-GRADE LATEX PAINT IN ACCORDANCE WITH CITY STANDARDS AND CHEMICAL IDENTIFICATION COLOR CODE. SEE PLAN SHEET FOR COATING SPECIFICATIONS.
- PIPING REALIGNMENT IN THE ML CHANNEL SHALL CONSIDER ERGONOMIC ACCESS, FUTURE MAINTENANCE, AND AVOID CONFLICTS WITH OTHER SYSTEMS.
- FINAL PIPE LAYOUT MUST BE COORDINATED WITH OWNER TO CONFIRM SUPPORT AND CLEARANCE REQUIREMENTS PRIOR TO FABRICATION OR INSTALLATION.
- MANUFACTURED CROSSOVER BRIDGE SHOWN ON THIS PLAN SHOULD BE USED FOR REPRESENTATIVE PURPOSES ONLY.
- CONTRACTOR SHALL MEASURE AND FIELD-VERIFY DIMENSIONS FOR MANUFACTURED CROSSOVER BRIDGES AT EACH LOCATION. BRIDGES CANNOT CONFLICT WITH NEW OR EXISTING PIPING, HANDRAILS AND PROCESS COMPONENTS AND SHALL HAVE ADEQUATE SPACING.
- CONTRACTOR TO RECEIVE CONCRETE ANCHOR CALCULATIONS FROM MANUFACTURER OR LICENSED ENGINEER AND PROVIDE THEM TO OWNER FOR REVIEW.
- MANUFACTURED CROSSOVER BRIDGE STRUCTURAL MEMBERS AND HANDRAILS SHALL BE CONSTRUCTED OF ALUMINUM. FIBERGLASS REINFORCED PLASTIC GRATING SHALL BE USED FOR STAIR TREADS AND BRIDGE DECK. SEE SECTION 05\_51\_33.



**(LEFT) TYPICAL ISOMETRIC VIEW OF CROSSOVER STAIR**  
SCALE: NTS

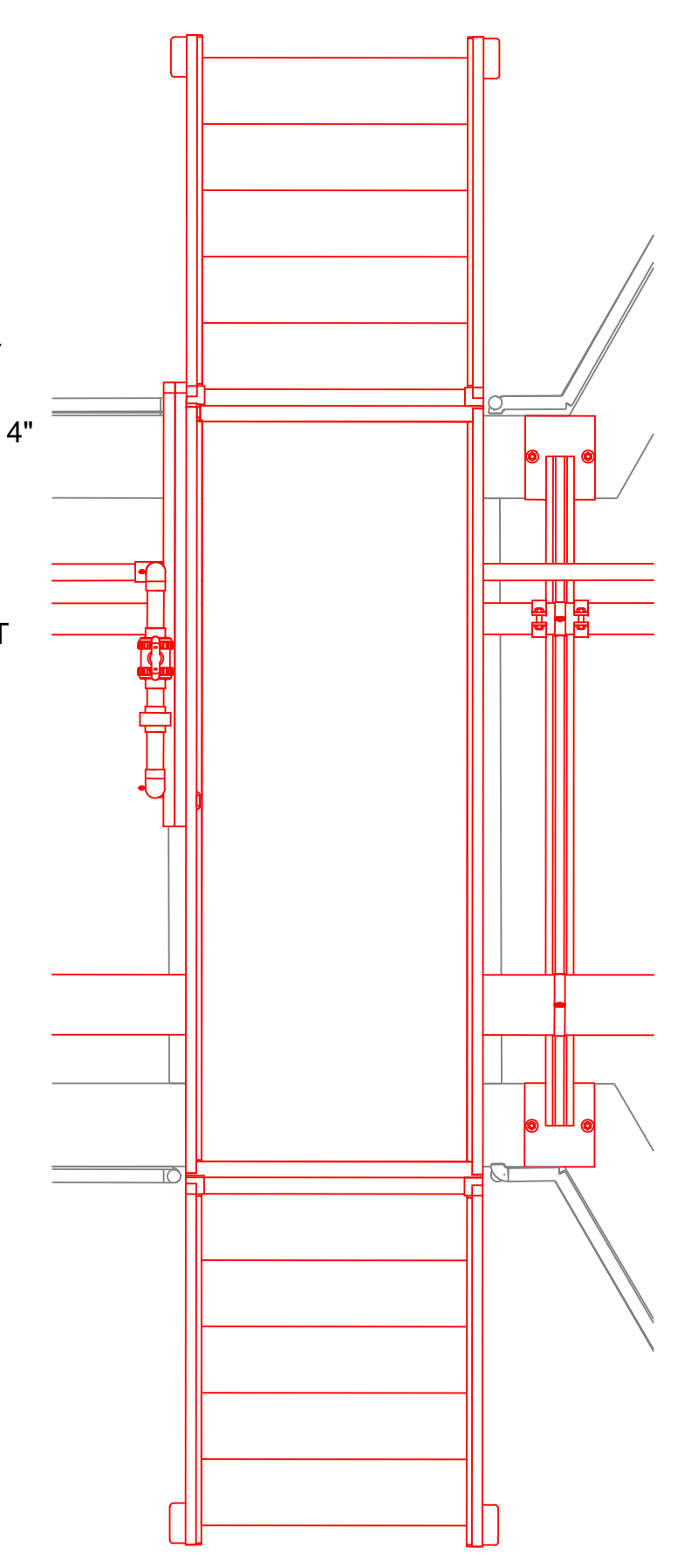


**ENLARGED VIEW**  
SCALE: NTS

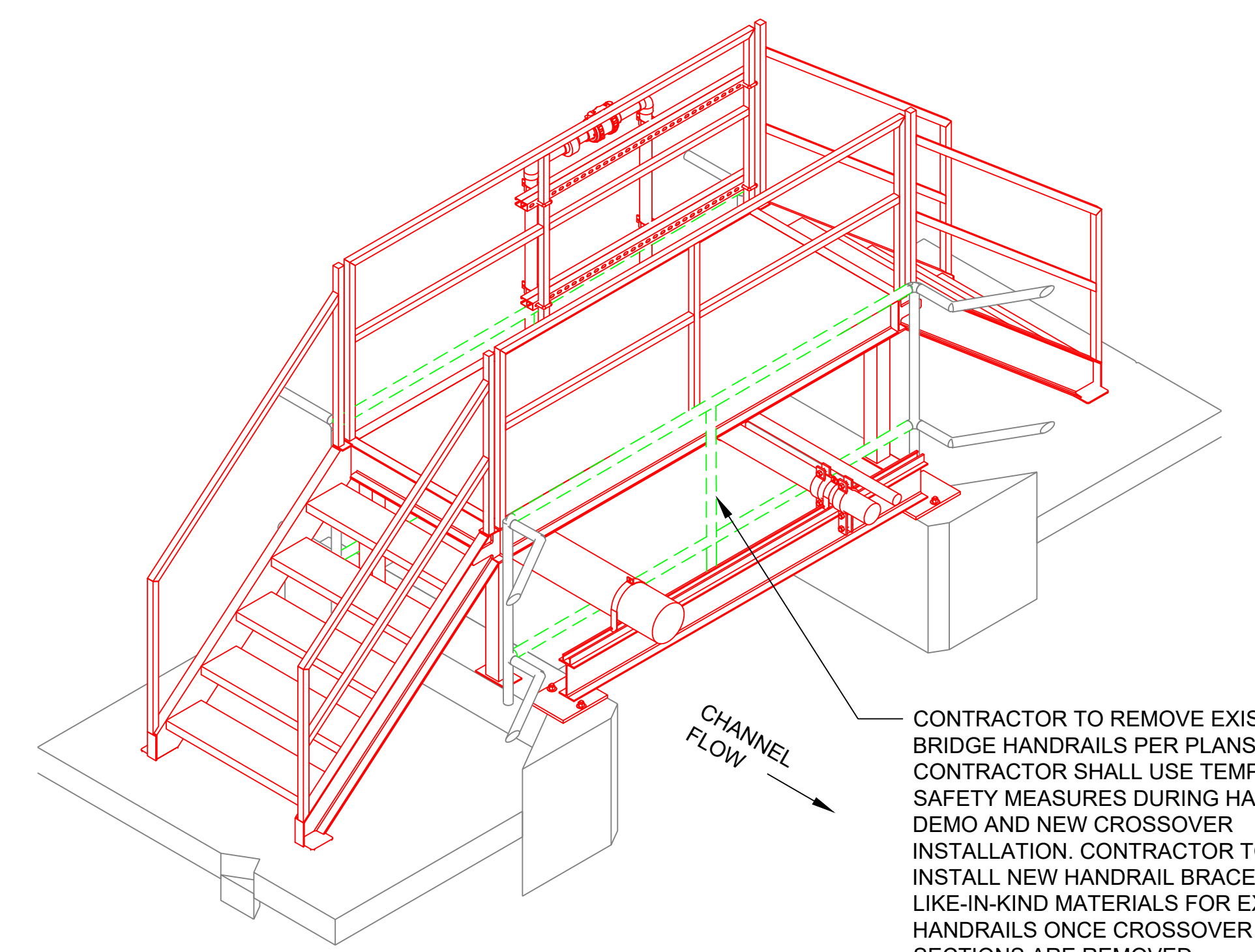
1/8  
1/8

ATTACH 304 SS UNISTRUT TO HANDRAIL USING SS SQUARE U-BOLT  $\frac{3}{8}$ " x  $1\frac{1}{2}$ " x 4"

DOUBLE UNISTRUT P1000T TYPE 304 SS SLOTTED  $1\frac{5}{8}$ " x  $1\frac{5}{8}$ ", 12 GA



**PLAN TYPICAL VIEW OF CROSSOVER STAIR**  
SCALE: 1/2" = 1'-0"

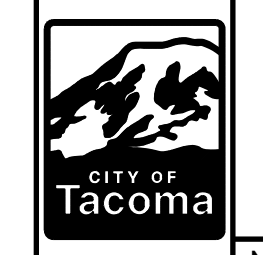
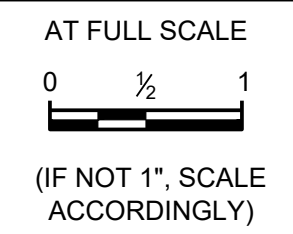


**(RIGHT) TYPICAL ISOMETRIC VIEW OF CROSSOVER**  
SCALE: NTS

CHANNEL FLOW

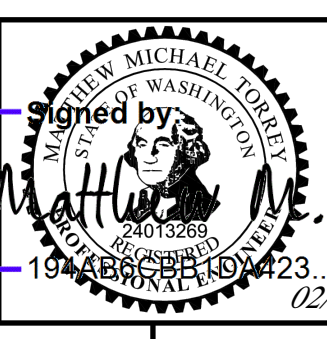
CONTRACTOR TO REMOVE EXISTING BRIDGE HANDRAILS PER PLANS. CONTRACTOR SHALL USE TEMPORARY SAFETY MEASURES DURING HANDRAIL DEMO AND NEW CROSSOVER INSTALLATION. CONTRACTOR TO INSTALL NEW HANDRAIL BRACES IN LIKE-IN-KIND MATERIALS FOR EXISTING HANDRAILS ONCE CROSSOVER SECTIONS ARE REMOVED.

BID SET



NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED	DATE	SCALE
	MARCH 2026	AS NOTED
BY	DESIGNED	CHECKED
	MT	LB
DATE	DRAWN	PROJECT NO.
	VK	
FILE NAME		
CTP-M-420020-501.DWG		



CITY OF TACOMA  
 ENVIRONMENTAL SERVICES DEPARTMENT

**CENTRAL WASTEWATER TREATMENT PLANT**  
 MIXED LIQUOR CHANNEL PIPE REPLACEMENT PROJECT  
 MECHANICAL PIPE LAYOUT ENLARGED DETAILS 3

ES26-0002F
ENV-04030-11
DRAWING NO. M11
SHEET OF



Last saved by: VKARAT/SP/PA

Date saved: 2/24/2026

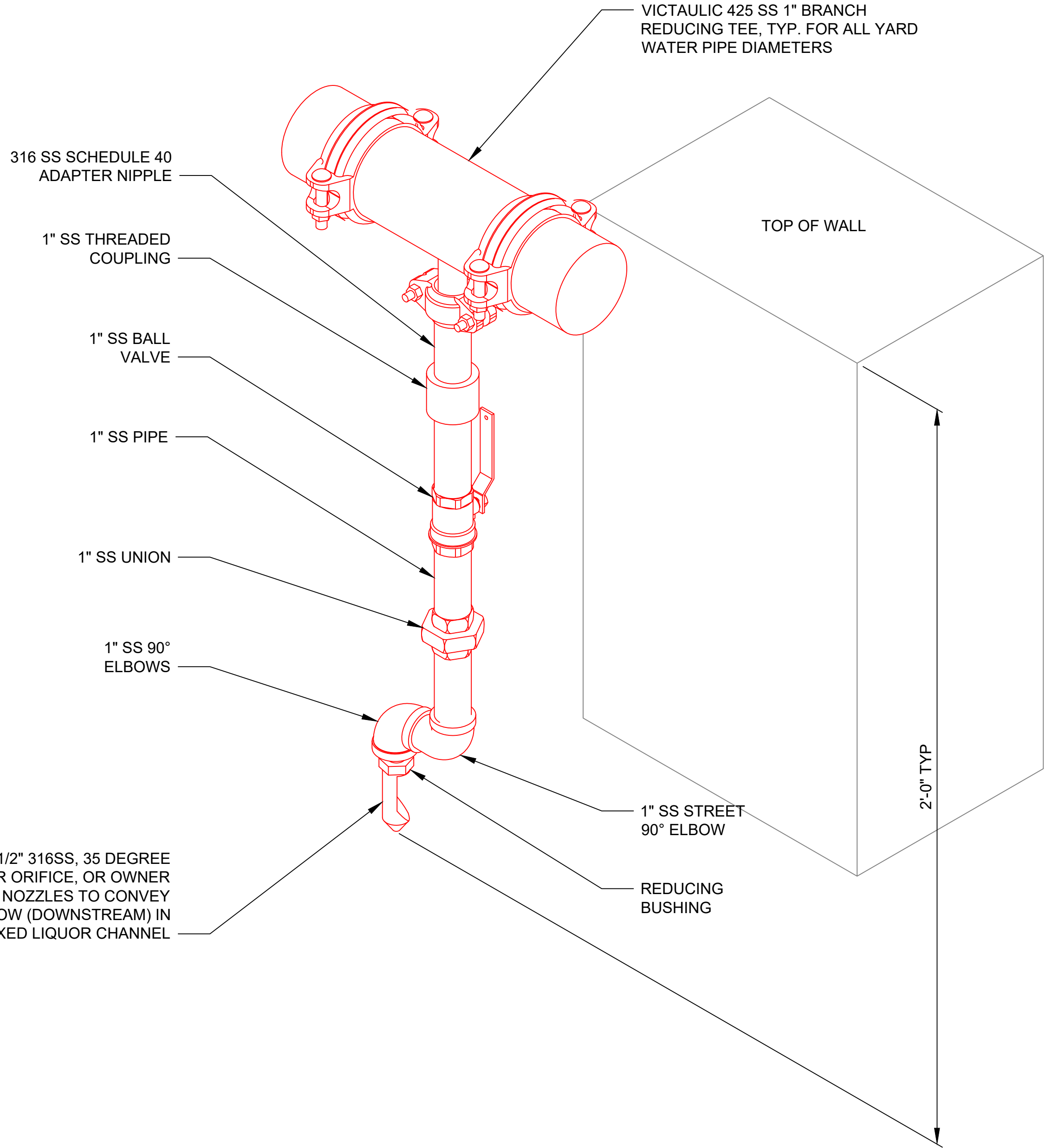
File path & name: S:\Plant\_3D\IES-As-Built\Orthos\DWGs\Area 20\CTP-M-420020-501.dwg

**GENERAL NOTES:**

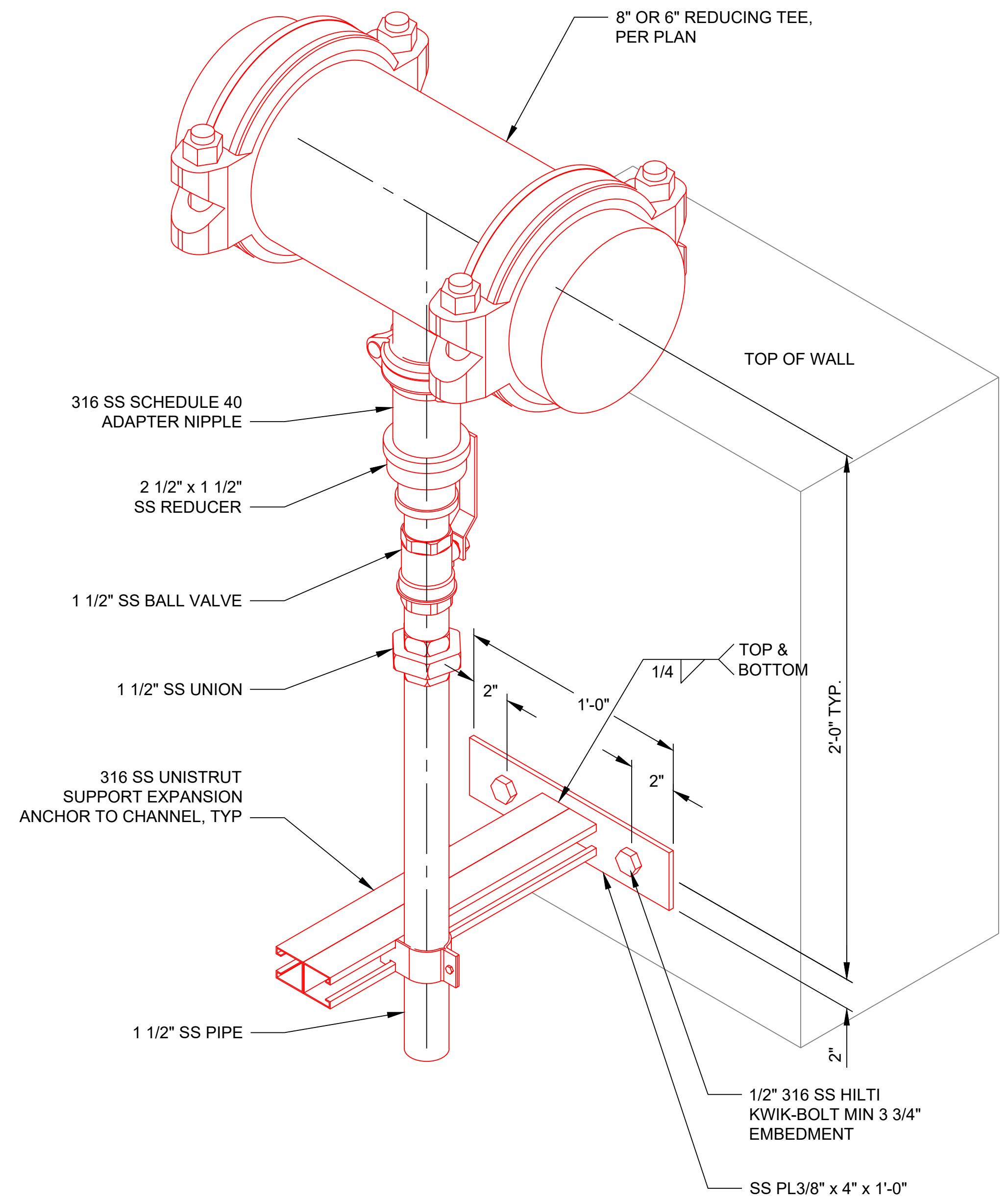
- 1. FOR GENERAL NOTES REFER TO SHEET G03.

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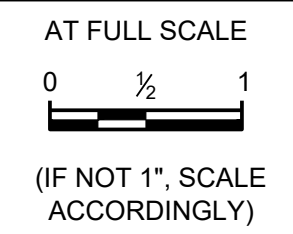
**H ISOMETRIC VIEW**  
SCALE: NTS



**J ISOMETRIC VIEW**  
SCALE: NTS

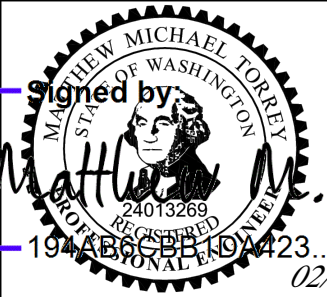
BETE SPN 60 SPRAY NOZZLE, 1/2" 316SS, 35 DEGREE SPRAY ANGLE, 0.187" DIAMETER ORIFICE, OR OWNER APPROVED EQUAL, TYP. POINT NOZZLES TO CONVEY SCUM IN THE DIRECTION OF FLOW (DOWNSTREAM) IN THE MIXED LIQUOR CHANNEL

BID SET



NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED	DATE	SCALE
DESIGNED	MARCH 2026	AS NOTED
DRAWN	MT	CHECKED
	VK	LB
		PROJECT NO.



CITY OF TACOMA  
ENVIRONMENTAL SERVICES DEPARTMENT

**CENTRAL WASTEWATER TREATMENT PLANT  
MIXED LIQUOR CHANNEL PIPE REPLACEMENT PROJECT**

**MECHANICAL PIPE LAYOUT ENLARGED DETAILS 5**

ES26-0002F
ENV-04030-11
DRAWING NO. M13
SHEET OF

Last saved by: VKARAT/SP/A

Date saved: 2/24/2026

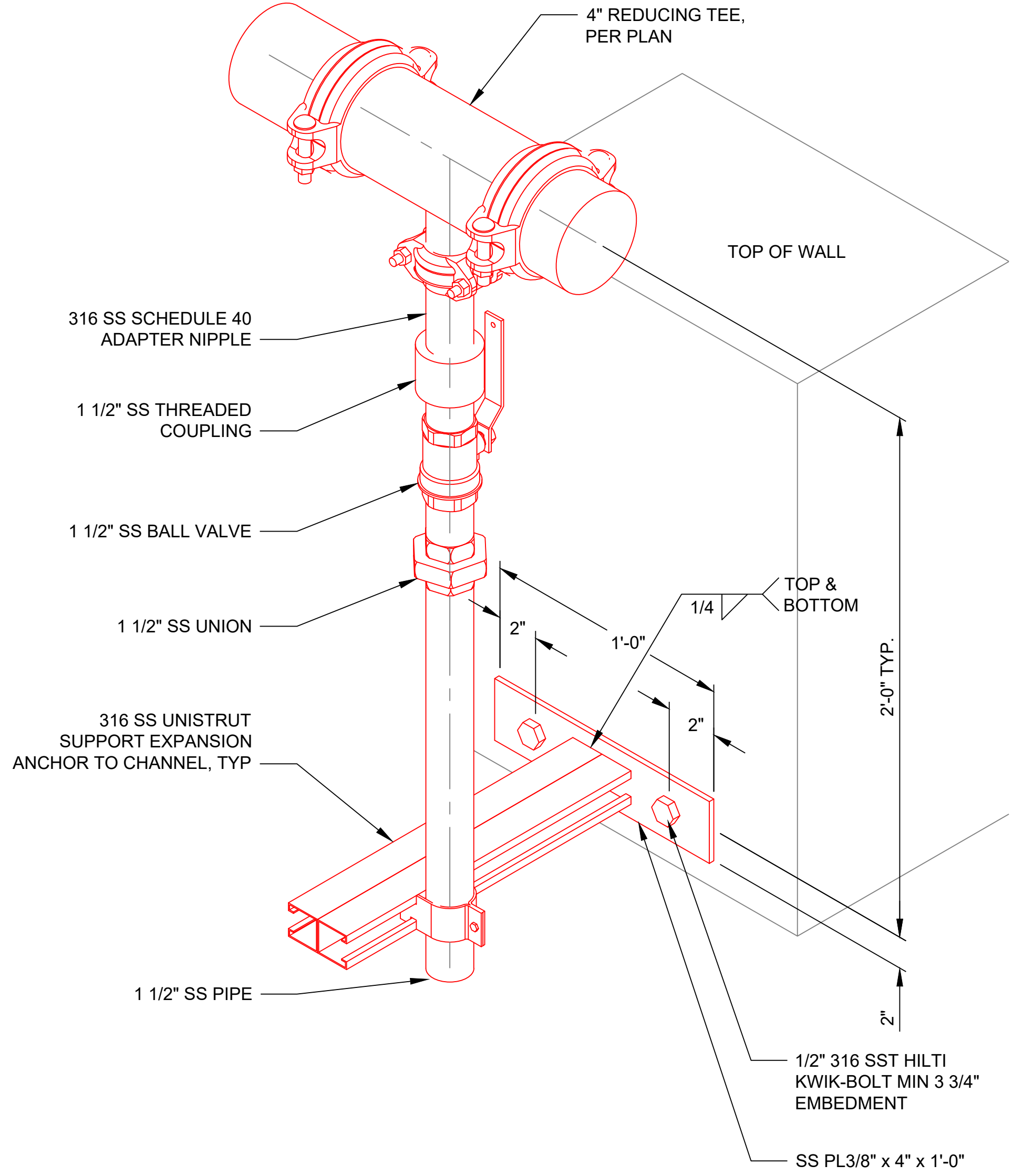
File path & name: S:\Plant\_3DIES-As-Built\Orthos\DWGs\Area 20\CTP-M-420020-501.dwg

**GENERAL NOTES:**

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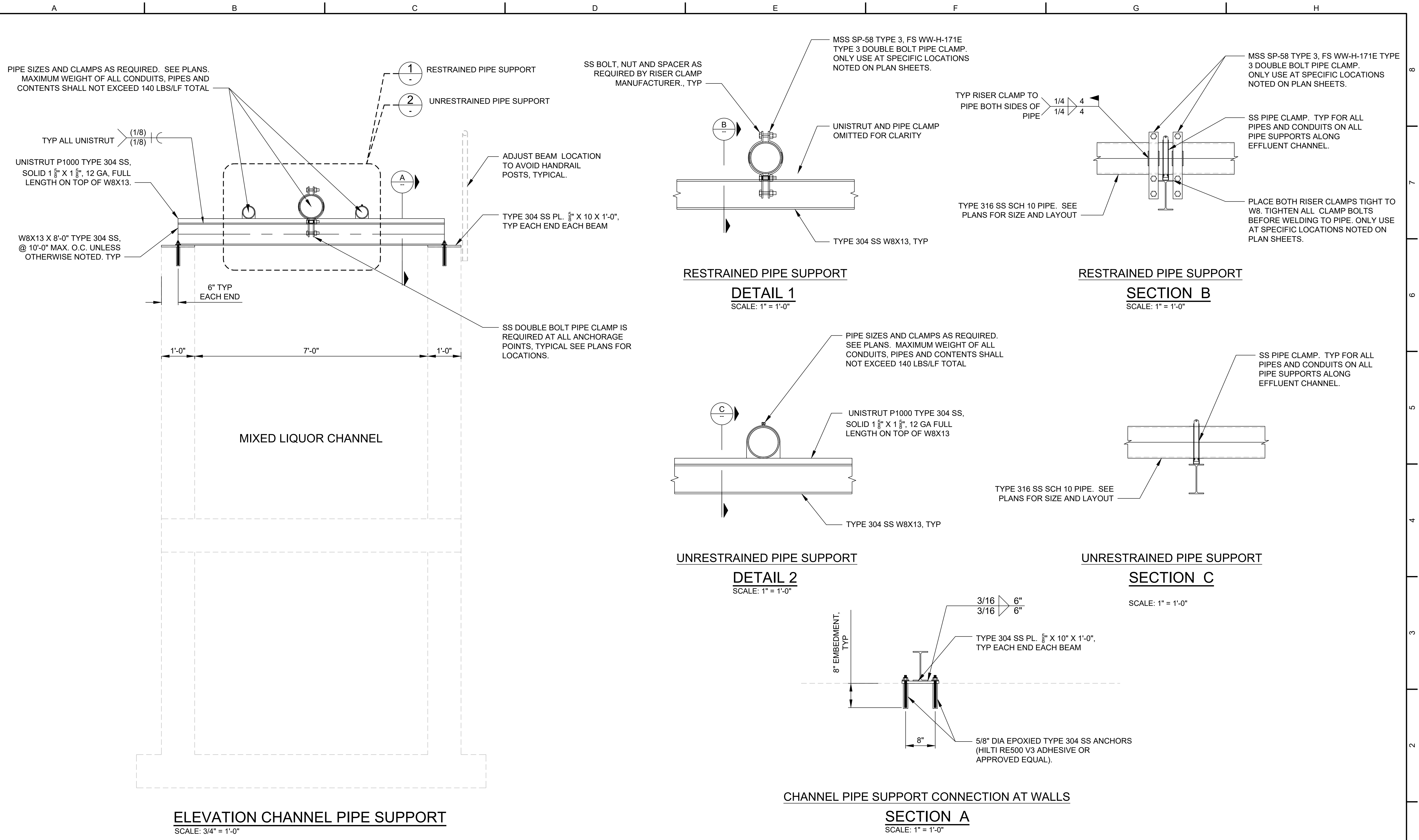
**ISOMETRIC VIEW**  
SCALE: NTS

<b>BID SET</b>	AT FULL SCALE  (IF NOT 1", SCALE ACCORDINGLY)		NO	REVISION	DATE	APPD	FINAL CONSTRUCTION CHECKED	DATE	SCALE		CITY OF TACOMA <b>ENVIRONMENTAL SERVICES DEPARTMENT</b>	ES26-0002F
							BY	MARCH 2026	AS NOTED		DESIGNED MT CHECKED LB DRAWN VK PROJECT NO.	<b>CENTRAL WASTEWATER TREATMENT PLANT</b> <b>MIXED LIQUOR CHANNEL PIPE REPLACEMENT PROJECT</b> <b>MECHANICAL PIPE LAYOUT ENLARGED DETAILS 6</b>
							FILE NAME	CTP-M-420020-501.DWG		DRAWING NO.		M14
											SHEET OF	

Last saved by: VKARATIS/UPA

Date saved: 2/23/2026

File path & name: S:\Plant 3DIES-As-Built\Orthos\DWGs\CTP\ENV-04030-11\_Mixed Liquor Channel Pipe Replacement\Working Folder\CTP-S-2050-01.dwg



BID SET	AT FULL SCALE  (IF NOT 1", SCALE ACCORDINGLY)		NO	REVISION	DATE	APPD	FINAL CONSTRUCTION CHECKED BY: _____ DATE: _____	DATE: MARCH 2026 DESIGNED: RR DRAWN: VK	SCALE: AS NOTED CHECKED: RR PROJECT NO.: _____		CITY OF TACOMA ENVIRONMENTAL SERVICES DEPARTMENT CENTRAL WASTEWATER TREATMENT PLANT MIXED LIQUOR CHANNEL PIPE REPLACEMENT PROJECT RESTRAINED AND UNRESTRAINED PIPE SUPPORT	ES26-0002F
							FILE NAME: CTP-S-2050-01.DWG February 26, 2026	DRAWING NO.: S01 SHEET OF				

THIS DRAWING TO BE PRINTED IN COLOR

NATIONAL PIPE HANGER CORPORATION

FIG. 410 Double Bolt Pipe Clamp

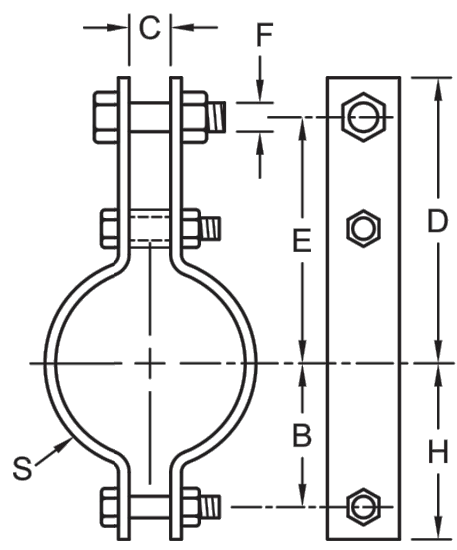
**SERVICE:** For suspension of insulated pipe lines. Normally used with a FIG. #740 Weldless Eyenut.

**MATERIAL:** Carbon Steel (ASTM A36) or **Stainless Steel** (ASTM A240, Types 304 and **316**)

**FINISH:** Black, Electro-Galvanized (ASTM B633) or Hot-Dip Galvanized (ASTM A123) with Electro-Galvanized hardware

**STANDARDS:** MSS SP-58 Type 3, FS WW-H-171E Type 3

**ORDERING:** Specify figure number, pipe size, material and finish.



PIPE SIZE	B	C	D	E	F	H	STOCK SIZE S	WEIGHT EACH, LBS.	MAX. REC. LOAD, LBS.
1/2	1	3/8	2 1/8	2 5/16	3/8	1 1/16	8ga x 1	0.54	950
3/4	1 1/8	3/8	3	2 7/16	3/8	1 1/8	8ga x 1	0.57	950
1	1 3/8	3/8	3 3/8	2 9/16	3/8	1 1/4	8ga x 1	0.61	950
1 1/4	1 1/2	3/8	3 1/2	2 11/16	3/8	1 3/8	8ga x 1	0.68	950
1 1/2	1 5/8	7/8	4 1/8	3 1/16	5/8	2 3/16	4ga x 1 1/4	1.72	1545
2	2 3/8	7/8	5 1/8	4 1/16	5/8	3 1/16	4ga x 1 1/4	1.93	1545
2 1/2	2 7/8	7/8	6 1/8	5 1/16	5/8	3 5/16	4ga x 1 1/4	2.12	1545
3	3 1/4	1	7	6 1/8	3/4	3 3/8	4ga x 1 1/4	2.26	1545
3 1/2	3 3/4	1	7 1/4	6 3/8	3/4	3 1/2	4ga x 1 1/4	2.37	1545
4	4 1/4	1 1/8	8 1/4	7 1/8	3/4	4 1/8	3/8 x 2	6.57	2500
5	5 1/4	1 1/8	9 1/4	8 1/8	3/4	5	3/8 x 2	7.17	2500
6	6 1/4	1 1/8	10 1/4	9 1/8	1	6 1/8	3/8 x 2 1/2	11.53	2865
8	8 1/4	1 1/8	14 1/4	13 1/8	1	8 1/8	3/8 x 2 1/2	13.22	2865
10	10 1/4	1 1/8	18 1/4	17 1/8	1	10 1/8	1/2 x 2 1/2	19.98	3240
12	12 1/4	1 1/8	22 1/4	21 1/8	1	12 1/8	1/2 x 2 1/2	22.16	3240
14	14 1/4	2	26 1/4	25 1/8	1 1/4	14 1/8	3/8 x 3	36.38	4300
16	16 1/4	2	30 1/4	29 1/8	1 1/4	16 1/8	3/8 x 3	39.77	4300
18	18 1/4	2	34 1/4	33 1/8	1 1/4	18 1/8	3/8 x 3	43.00	4300
20	20 1/4	2	38 1/4	37 1/8	1 1/2	20 1/8	3/8 x 3	59.00	4500
24	24 1/4	2	46 1/4	45 1/8	1 1/2	24 1/8	3/8 x 3	66.00	4500
30	30 1/4	2 1/2	54 1/4	53 1/8	1 1/2	30 1/8	3/8 x 5	134.0	7500

Pipe Clamps NJ (609) 261-5353 www.nationalpipehanger.com MD (301) 568-8805

March 20, 2025



DOUBLE BOLT PIPE CLAMP SCALE: NTS

BID SET	AT FULL SCALE 0 1/2 1 (IF NOT 1", SCALE ACCORDINGLY)	CITY OF Tacoma	NO	REVISION	DATE	APPD	FINAL CONSTRUCTION CHECKED	DATE	SCALE	CITY OF TACOMA ENVIRONMENTAL SERVICES DEPARTMENT	ES26-0002F
							BY	MARCH 2026	AS NOTED		ENV-04030-11
							DESIGNED			CENTRAL WASTEWATER TREATMENT PLANT	DRAWING NO.
							DRAWN			MIXED LIQUOR CHANNEL PIPE REPLACEMENT PROJECT	S02
							FILE NAME			PIPE CLAMP DETAIL	SHEET OF
							CTP-M-420020-501.DWG				