

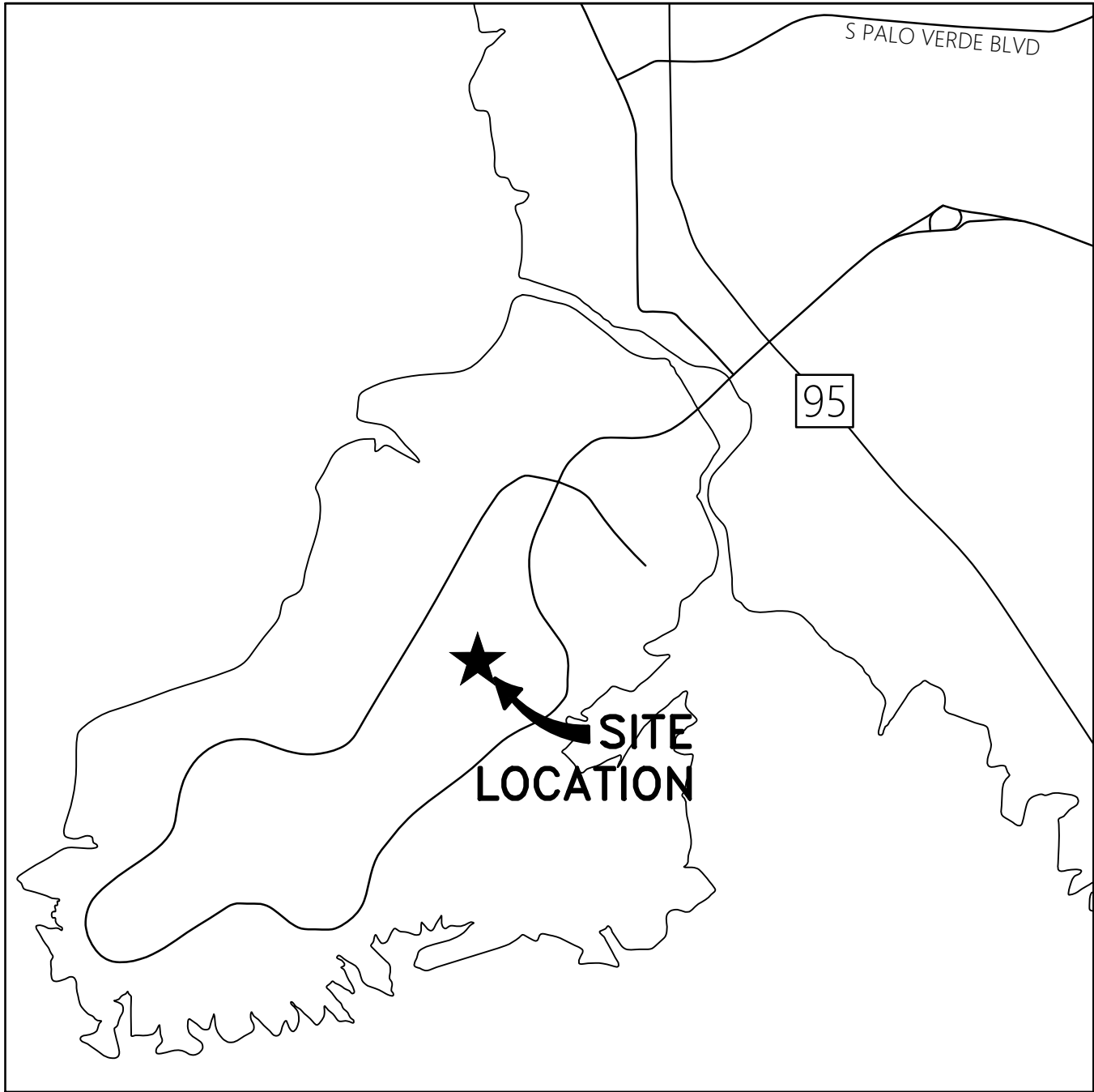
# LAKE HAVASU CITY, ARIZONA - ISLAND WWTP FILTER UPGRADES PROJECT

JULY 2025

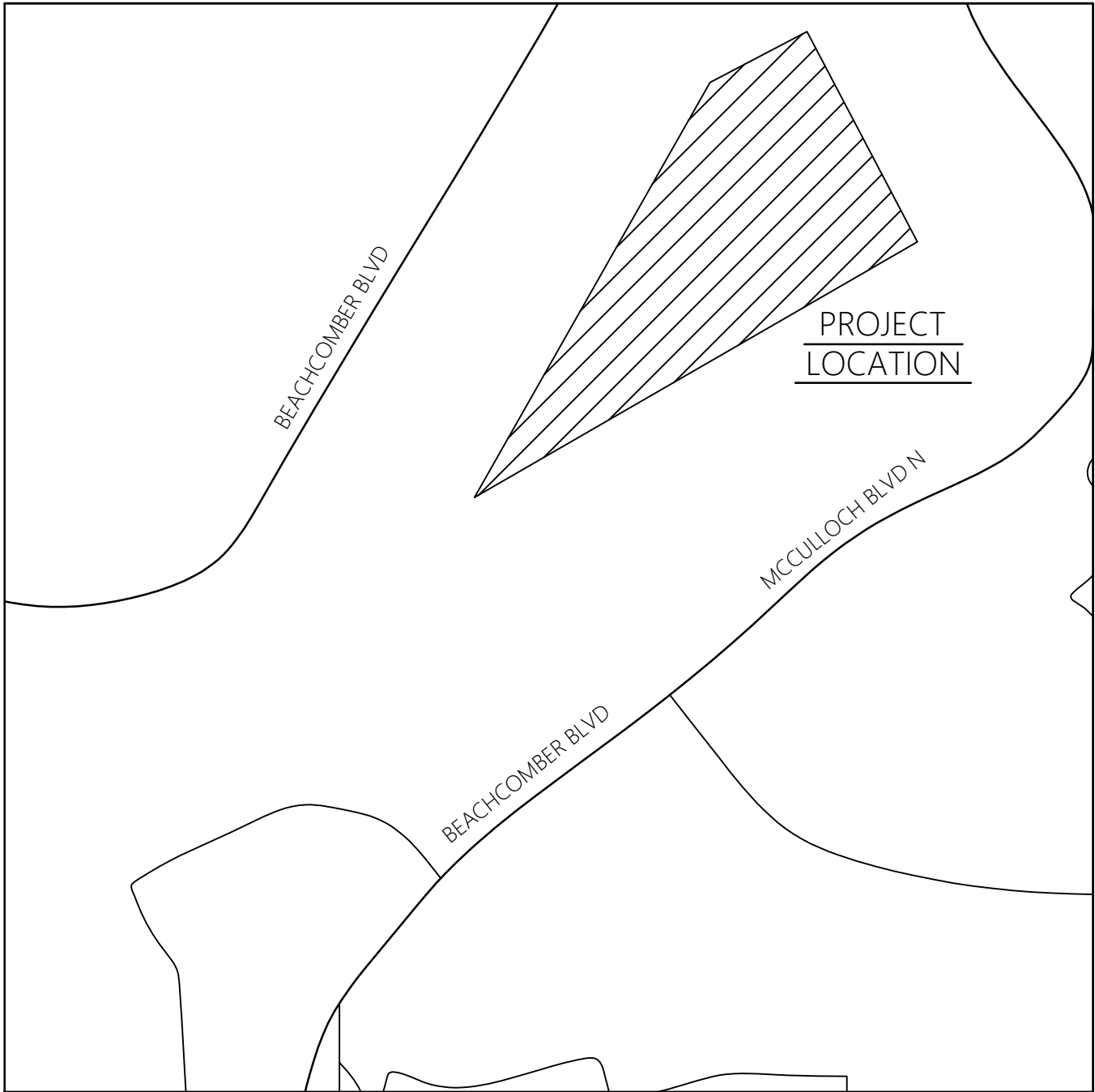
PROJECT NO. B26-PW-107026-500605  
CONSTRUCTION DRAWINGS

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LOCATION MAP  
SCALE: 1" = 2000'



VICINITY MAP  
SCALE: 1" = 500'



CITY COUNCIL

CAL SHEEHY	MAYOR
MICHELE LIN	VICE MAYOR
JENI COKE	COUNCIL MEMBER
NANCY CAMPBELL	COUNCIL MEMBER
CAMERON MOSES	COUNCIL MEMBER
JIM DOLAN	COUNCIL MEMBER
DAVID DIAZ	COUNCIL MEMBER

CITY MANAGER

JESS KNUDSON

PUBLIC WORKS DIRECTOR

RON FOGGIN

PROJECT MANAGER

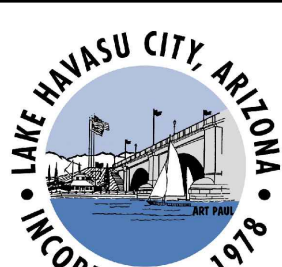
JASON HART

UTILITY CONTACTS

LAKE HAVASU CITY (WASTEWATER)	(928) 855-3999
LAKE HAVASU CITY (WATER)	(928) 855-2618
OPTIMUM	(928) 855-9855
FRONTIER COMMUNICATION	(928) 453-0541
UNISOURCE ENERGY SERVICES (GAS)	(877) 837-4968
UNISOURCE ENERGY SERVICES (ELECTRIC)	(928) 505-7016
ALLO FIBER	(928) 899-3300, EX +2

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LAKE HAVASU CITY  
ISLAND WWTP FILTER UPGRADES  
CONSTRUCTION DRAWINGS



EXPIRATION DATE: 06/30/2025

Drawn: JIL

Design: VM

Approved: BH

Client Project No.

B26-PW-107026-500605

Project No.

2477

Sheet No.

G-01

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Aug 22, 2025 - 2:31pm  
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GENERAL NOTES

GENERAL

- THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT ALL IMPROVEMENTS ARE BUILT, CONSTRUCTED, AND/OR INSTALLED IN ACCORDANCE WITH THESE PROJECT PLANS AND THE TECHNICAL SPECIFICATIONS FOR THE WORK.
- THE CONTRACTOR IS RESPONSIBLE FOR THE SURVEY, LAYOUT, AND STAKING OF THE PROPOSED IMPROVEMENTS FOR CONSTRUCTION PURPOSES.
- IF THERE ARE ANY QUESTIONS REGARDING THE PLANS OR THE INTENT OF THE DESIGN, THE CONTRACTOR SHALL CONTACT THE ENGINEER AND DISCUSS THE ISSUE SO THAT IT IS CLARIFIED OR RESOLVED PRIOR TO THE START OF CONSTRUCTION.
- THE CONTRACTOR SHALL TAKE THE NECESSARY STEPS AND PRECAUTIONS TO PROTECT AND SAFEGUARD ADJACENT IMPROVEMENTS AND PROPERTY FROM DAMAGE DUE TO CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS PROJECT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND OBTAINING ANY PERMITS NEEDED TO COMPLETE THE PROJECT, POTENTIALLY INCLUDING AN AGENCY BUSINESS LICENSE, RIGHT OF WAY WORK PERMIT, WATER USAGE AGREEMENT, ETC., AND INCLUDE THE COSTS FOR THE SAME, IF ANY, IN THE PROJECT BID PRICES.
- ALL PROJECT IMPROVEMENTS INCLUDING BUT NOT LIMITED TO MANHOLE FRAMES, VALVE BOXES, VAULTS, HANDHOLES, FIRE HYDRANTS, ETC., SHALL BE SET OR RESET TO FINISHED GRADE OF THE SURROUNDING GROUND OR PAVEMENT SURFACE WHETHER OR NOT SPECIFICALLY CALLED OUT ON THE PLANS OR IN THE SPECIFICATIONS.

UTILITIES

- THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES OR UTILITY STRUCTURES SHOWN ON THESE PLANS SHOULD BE VERIFIED BASED ON AN AZ 811 UTILITY MAPPING REQUEST.
- THE LOCATION OF THE UTILITIES MAY OR MAY NOT BE ACCURATELY SHOWN ON THE UTILITY MAPPING PROVIDED AND ON THE PROJECT PLANS.
- THERE MAY BE OTHER UTILITY LINES AND FACILITIES PRESENT THAT ARE IN SERVICE OR HAVE BEEN ABANDONED WITHIN THE PROJECT CORRIDOR OR AREA THAT ARE NOT SHOWN ON THE MAPPING AND ON THE PLANS.
- THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING AZ811 (BLUE STAKE) PRIOR TO COMMENCING ANY DIGGING ACTIVITIES TO HAVE THE LOCATIONS OF THE UTILITIES MARKED IN THE FIELD AT THE PROJECT SITE. EXISTING PIPING, ELECTRICAL, AND UTILITIES ARE BASED ON EXISTING RECORDS. CONTRACTOR IS RESPONSIBLE FOR VERIFYING LOCATIONS OF ALL EXISTING PIPING, ELECTRICAL, AND UTILITIES AND AVOIDING DAMAGE TO THE SAME.
- THE CONTRACTOR IS ALSO RESPONSIBLE FOR VISUALLY INSPECTING THE MARKED UTILITIES AT THE PROJECT SITE TO ASCERTAIN IF ANY POTENTIAL CONFLICTS EXIST BETWEEN THE PROPOSED IMPROVEMENTS UNDER THIS PROJECT AND THE EXISTING UTILITY FACILITIES.
- THE CONTRACTOR SHALL 'POTHOLE' TO DETERMINE THE EXACT LOCATION AND DEPTH OF EXISTING UTILITY FACILITIES TO IDENTIFY ANY POTENTIAL CONFLICTS BETWEEN UTILITY FACILITIES AND THE PROPOSED IMPROVEMENTS AND, IF NEEDED, REVIEW THE INFORMATION WITH THE OWNER AND THE ENGINEER TO RESOLVE ANY POTENTIAL CONFLICT PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL OBSERVE ALL POSSIBLE PRECAUTIONS WHEN WORKING IN CLOSE PROXIMITY TO EXISTING UTILITY LINES AND/OR STRUCTURES TO PROTECT THE SAME AND AVOID ANY DAMAGE TO THE UTILITY FACILITIES.
- SHOULD ANY UTILITY FACILITY BE DAMAGED BY THE CONTRACTOR'S ACTIVITIES, THE CONTRACTOR SHALL CONTACT AND COORDINATE WITH THE UTILITY OWNER FOR THE REPAIR OF THE FACILITY AT NO ADDITIONAL COST TO THE PROJECT.

CONSTRUCTION JOBSITE SAFETY NOTES

- THE CONTRACTOR ASSUMES SOLE AND COMPLETE RESPONSIBILITY FOR JOBSITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT INCLUDING SAFETY OF ALL PERSONS AND PROPERTY.
- THIS SAFETY REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
- NEITHER THE OWNER NOR THE ENGINEER WILL ENFORCE SAFETY MEASURES OR REGULATIONS.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE DESIGN, CONSTRUCTION, AND MAINTENANCE OF ALL SAFETY DEVICES INCLUDING SHORING.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE, AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS, AND REGULATIONS.
- THE CONTRACTOR SHALL FOLLOW THE GUIDELINES AND REGULATIONS AS SET FORTH BY OSHA CONCERNING THE PROJECT WORK AND JOBSITE ACTIVITIES.
- CONTRACTOR IS RESPONSIBLE FOR REVIEWING ALL PLANS FOR DEMOLITION ITEMS.
- PROVIDE TEMPORARY THRUST RESTRAINT FOR EXISTING PIPING WHENEVER THE WORK REQUIRES. CONTRACTOR SHALL REPLACE OR RESTORE THE EXISTING RESTRAINT SYSTEM TO LIKE-NEW CONDITION.
- DIMENSIONS AND ELEVATIONS FOR EQUIPMENT INSTALLATION TO BE DETERMINED BASED UPON EQUIPMENT MANUFACTURER SELECTED.
- WHERE INDICATED, DIMENSIONS AND ELEVATIONS SHALL BE FIELD VERIFIED.
- EXISTING EQUIPMENT TO BE REMOVED AND SALVAGED SHALL BE MARKED BY ENGINEER OR OWNER PRIOR TO WORK, UNLESS OTHERWISE NOTED ON THE CONTRACT DOCUMENTS.
- ALTHOUGH SUCH WORK MAY NOT BE SPECIFICALLY INDICATED, FURNISH AND INSTALL SUPPLEMENTARY OR MISCELLANEOUS ITEMS, APPURTENANCES AND DEVICES INCIDENTAL TO, OR NECESSARY FOR A SOUND, SECURE AND COMPLETE INSTALLATION.
- CONTRACTOR TO MAINTAIN ACCESS FOR EMERGENCY RESPONSE VEHICLES DURING CONSTRUCTION.
- CONTRACTOR SHALL PROVIDE TEMPORARY SAFETY AND SECURITY FENCING AND SITE IMPROVEMENTS AS NEEDED AT NO EXTRA COST.
- CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE SITE AND LEGALLY DISPOSED OF AT LEAST WEEKLY BY THE CONTRACTOR. KEEP SITE AREA CLEAN.
- EXCAVATED SOIL IS TO BE USED TO FILL IN LOW SPOTS PRIOR TO BEING HAULED OFF SITE. CONTRACTOR SHALL ESTABLISH A SUITABLE STAGING AREA FOR STORAGE OF EXCAVATED SOIL.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY AT THE SITE WHILE CONSTRUCTION IS IN PROGRESS. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE PUBLIC FROM ANY HAZARDS ARISING FROM CONSTRUCTION OPERATIONS AND PROTECTING EXISTING AND NEW IMPROVEMENTS FROM DAMAGE DUE TO ACCIDENT OR VANDALISM.
- REFER TO PROJECT SPECIFICATION FOR ANY SUPPLEMENT DETAILS REFERRED TO IN THE DRAWINGS.
- MAINTAIN, RELOCATE, OR REPLACE EXISTING SURVEY MONUMENTS, CONTROL POINTS, AND STAKES WHICH ARE DISTURBED OR DESTROYED. PERFORM THE WORK TO PRODUCE THE SAME LEVEL OF ACCURACY AS THE ORIGINAL MONUMENT(S) IN A TIMELY MANNER, AND AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING EROSION CONTROL DEVICES DURING CONSTRUCTION. EROSION CONTROL DEVICES, SILT FENCING, RUNOFF CONTAINMENT BERMS, AND STRAW BALES ARE THE

MINIMUM REQUIRED.

- CONTRACTOR SHALL TAKE ALL OTHER MEASURES TO POSITIVELY PRECLUDE EROSION MATERIALS FROM LEAVING THE SITE.
- WHERE ALUMINUM IS TO BE EMBEDDED IN CONCRETE, THE ALUMINUM SHALL FIRST BE COATED WITH COAL TAR EPOXY.
- UNLESS OTHERWISE NOTED, ALL PVC INSTALLED ABOVE GROUND SHALL BE PAINTED PER SPECIFICATION SECTION 09800.
- ALL WORK SHALL CONFORM TO THE BUILDING CODES SHOWN BELOW:  
GOVERNING BUILDING CODES:  
2018 INTERNATIONAL BUILDING CODE  
2017 NATIONAL ELECTRICAL CODE  
2018 INTERNATIONAL PLUMBING CODE  
2018 INTERNATIONAL FIRE CODE
- CONTRACTOR TO SUBMIT A PROCUREMENT AND OVERALL PROJECT SCHEDULE TO THE ENGINEER AND OWNER WITHIN TWO WEEKS OF THE NOTICE TO PROCEED. CONTRACTOR WILL PROVIDE AN UPDATED PROJECT SCHEDULE WITH THE MONTHLY PAYMENT APPLICATION.
- CONTRACTOR TO PROVIDE A THREE WEEK LOOK-AHEAD SCHEDULE TO THE OWNER EVERY TWO WEEKS.
- CONTRACTOR TO TAKE PHOTOGRAPHS AND VIDEO THE TERTIARY FILTERS PRIOR TO CONSTRUCTION TO DOCUMENT THE EXISTING CONDITIONS. PROVIDE THE PHOTOGRAPHS AND VIDEO TO THE OWNER.
- CONTRACTOR SHALL NOTIFY THE OWNER/ENGINEER AT LEAST 48 HOURS IN ADVANCE TO INSPECT THE FILTER POROUS PLATES AFTER THE MEDIA IS REMOVED. DEPENDING ON THE POROUS PLATES AND CELL DIVIDERS CONDITION, OWNER MAY REQUEST THEY ARE REPLACED AS PART OF THIS PROJECT.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND STRUCTURAL CALCULATIONS FOR GRATING AND HANDRAILS PRIOR TO STARTING CONSTRUCTION FOR OWNER/ENGINEER APPROVAL. CONTRACTOR TO FIELD VERIFY THE THICKNESS OF THE EXISTING GRATING TO ENSURE THE NEW GRATING DOES NOT CREATE A TRIPPING HAZARD. CALCULATIONS MUST BE SEALED BY AN ARIZONA REGISTERED STRUCTURAL ENGINEER.
- CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS FOR TRAVELING BRIDGE AND ASSOCIATED FILTER EQUIPMENT FOR OWNER/ENGINEER APPROVAL PRIOR TO STARING CONSTRUCTION. SEE SPECIFICATION 15501.
- ELEVATIONS SHOWN IN THIS DRAWINGS ARE AS PER RECORD DRAWINGS BY MOORE AND ASSOCIATES, INC. DATED : 07-08-1986.

ABBREVIATIONS & SYMBOLS

Ø	DIAMETER
*	FIELD VERIFY
**	VERIFY WITH VENDOR
EL	ELEVATION
IE	INVERT ELEVATION
MAX	MAXIMUM
MIN	MINIMUM
MOPO	MAINTENANCE OF PLAN OPERATIONS
MJ	MECHANICAL JOINT
PVC	POLYVINYL CHLORIDE
SCH	SCHEDULE
SS	SANITARY SEWER, STAINLESS STEEL
TYP	TYPICAL

LEGEND

	BASE
	BURIED/HIDDEN
	CENTERLINE
	CONCRETE
	CONSTRUCTION KEYNOTE
	EARTH
	EXISTING PIPE
	FLANGED 90° BEND
	GROUT
	NEW PIPE
	PIPE CONTINUATION
	REMOVALS
	REMOVALS KEYNOTE

MARKERS

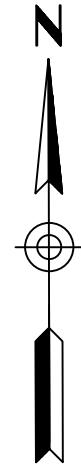
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	SECTION CUT		DETAIL TITLE SCALE
	SECTION TITLE SCALE		TYPICAL DETAIL

(SECTIONS ARE LETTERED, DETAILS ARE NUMBERED)

Rev No	Revision Note	Date	Design	Checked
Sheet Title: GENERAL NOTES				
Project name LAKE HAVASU CITY, ARIZONA - ISLAND WWTP FILTER UPGRADES PROJECT				
Project Location LAKE HAVASU CITY, ARIZONA				
		Drawn By: JIL	Date: 8/22/25	
		Design By: VM	Project No. 2477	
		Approved By: BH	Client Project No. 826-PW-107026-500605	
		Scale: 1"=X' HORIZ.	Sheet: G-02	

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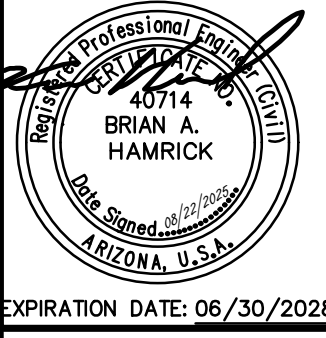
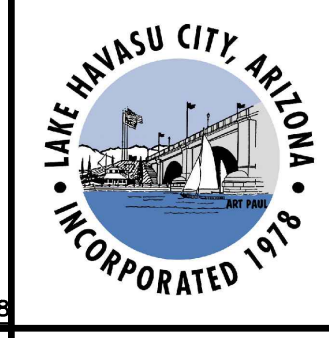
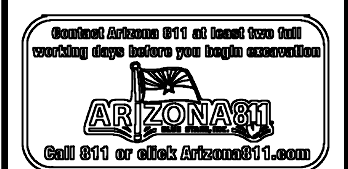
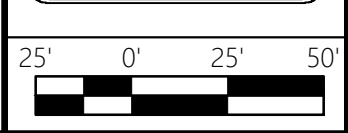


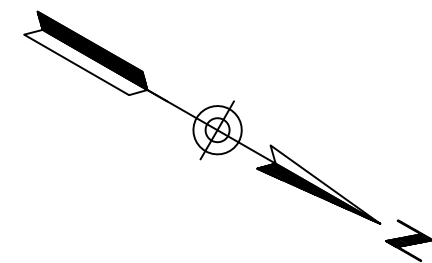





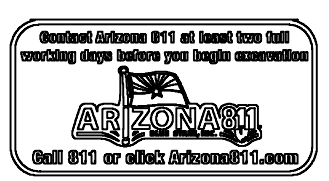
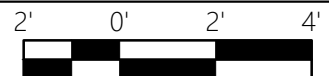
OVERALL SITE PLAN

SCALE: 1" = 50'

- NOTE:
- 1) SITE PLAN RECREATED FROM GOOGLE EARTH IMAGERY, DATED APRIL 2023

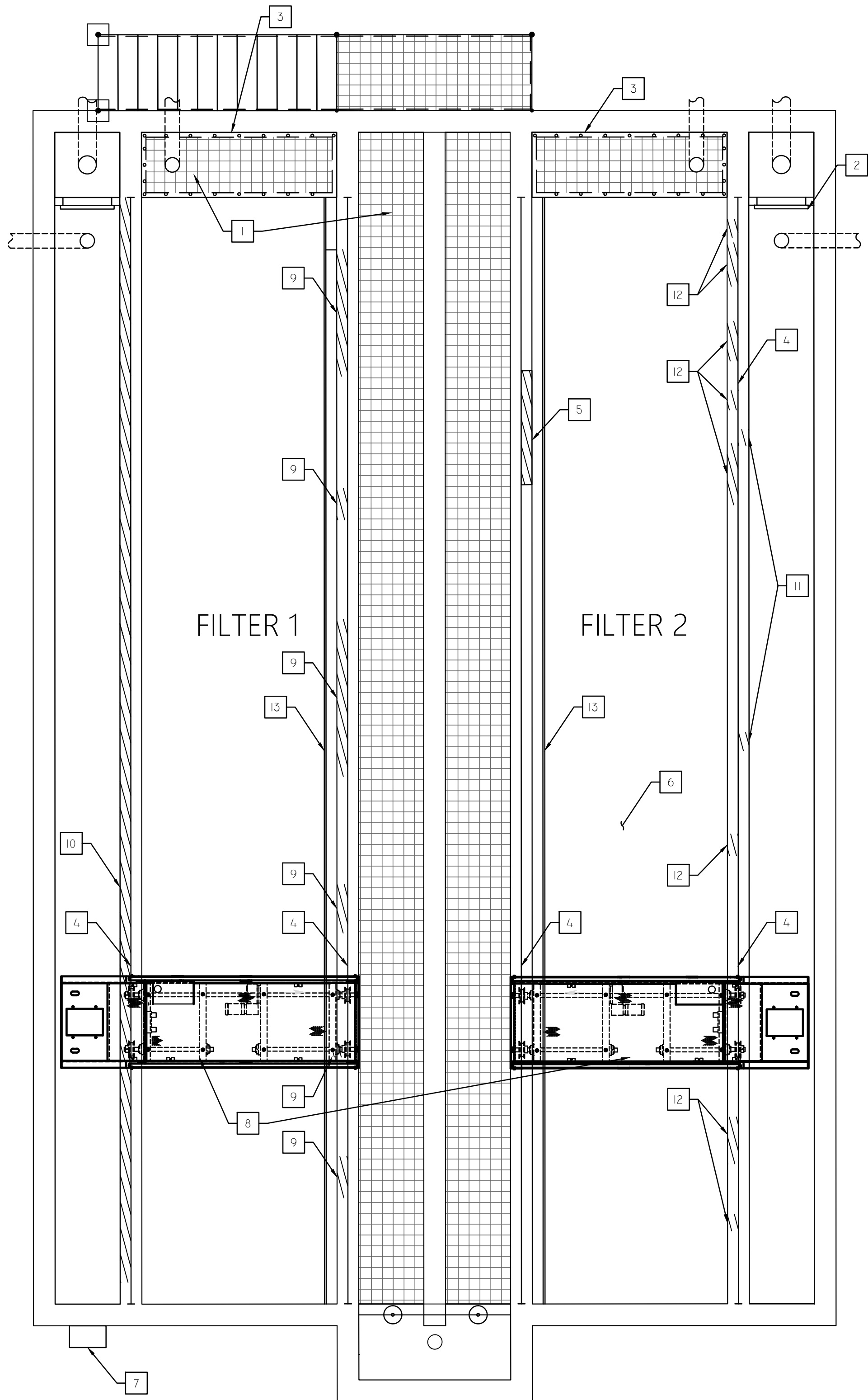
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Sheet Title: OVERALL SITE PLAN				
Project name: LAKE HAVASU CITY, ARIZONA - ISLAND WWTP FILTER UPGRADES PROJECT				
Project Location: LAKE HAVASU CITY, ARIZONA				
 202 EAST EARLL DRIVE, STE 110 PHOENIX, AZ 85012 (602) 629-0206		 EXPIRATION DATE: 06/30/2028		 INCORPORATED 1978
		Drawn By: JIL	Date: 8/22/25	
		Design By: VM	Project No. 2477	
		Approved By: BH	Client Project No. 326-PW-107026-500605	
		Scale: 1"=X' HORIZ.	Sheet: C-01	



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Sheet Title:					
TERTIARY FILTER PLAN					
Project name LAKE HAVASU CITY, ARIZONA - ISLAND WWTP FILTER UPGRADES PROJECT					
Project Location LAKE HAVASU CITY, ARIZONA					
 <b>NCS</b> <b>ENGINEERS</b> 202 EAST EARL DRIVE, STE 110 PHOENIX, AZ 85012 (602) 629-0206					
EXPIRATION DATE: 06/30/2026					
		Drawn By: JIL Design By: VM Approved By: BH		Date: 8/22/25 Project No. 2477 Client Project No. 326-PW-107026-500605	
		Scale: 1" = X' HORIZ.			
Sheet: C-02					



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TERTIARY FILTER PLAN  
SCALE: 1" = 4'

REMOVAL AND RECONSTRUCTION NOTES

1	GRATING TO BE REPLACED (TYP)
2	EXISTING WEIR PLATES TO BE REPLACED WITH NEW SS PLATE. SEE SHEET M-03
3	EXISTING HANDRAIL TO BE REPLACED PER TYP 100 IN SHEET M-03
4	STEEL GUIDE RAILS AND GROUT PAD TO BE REPLACED PER MFR. SEE NOTE: 2
5	CONCRETE REPAIR AREA*
6	MEDIA FILTER CELLS AND POROUS PLATES TO BE INSPECTED AFTER MEDIA REMOVALS, SEE NOTE: 3
7	POWER DISCONNECT PANEL TO BE REUSED.
8	TRAVELING BRIDGES TO BE REPLACED, SEE NOTE: 2
9	SW WALL CONCRETE REPAIR AREA* SEE DETAIL IN SHEET M-02
10	SE OUTER WALL CONCRETE REPAIR AREA* SEE DETAIL IN SHEET M-02
11	NW OUTER WALL CONCRETE REPAIR AREA * SEE DETAIL IN SHEET M-01
12	NW WALL CONCRETE REPAIR AREA* SEE DETAIL IN SHEET M-02
13	WASH WATER TROUGHS TO BE REMOVED TO ACCOMMODATE THE REHABILITATION WORK AND SHOULD BE RE-INSTALLED AFTER THE REPAIR AND REHABILITATION WORK IS COMPLETED.

- NOTE:
- CONTRACTOR SHALL REPAIR THE DEGRADED CONCRETE AS PER THE APPROVED PROCEDURE BY THE OWNER/ENGINEER SHOWN ON SHEET S-01.
  - SHOP DRAWINGS FOR GRATINGS, HANDRAILS, AND TRAVELING BRIDGE SHALL BE SUBMITTED FOR OWNER/ENGINEER APPROVAL PRIOR TO CONSTRUCTION (SEE GENERAL NOTE 29 ON SHEET G-02).
  - OWNER/ENGINEER SHOULD BE NOTIFIED BY THE CONTRACTOR FOR THE EVALUATION OF THE FILTER POROUS PLATES.

\* FIELD VERIFY FOR DIMENSIONS AND ACCURATE LOCATION OF REPAIR AREA

Rev No.	Revision Note	Date	Design	Checked

Sheet Title:

REHABILITATION AND UPGRADES PLAN

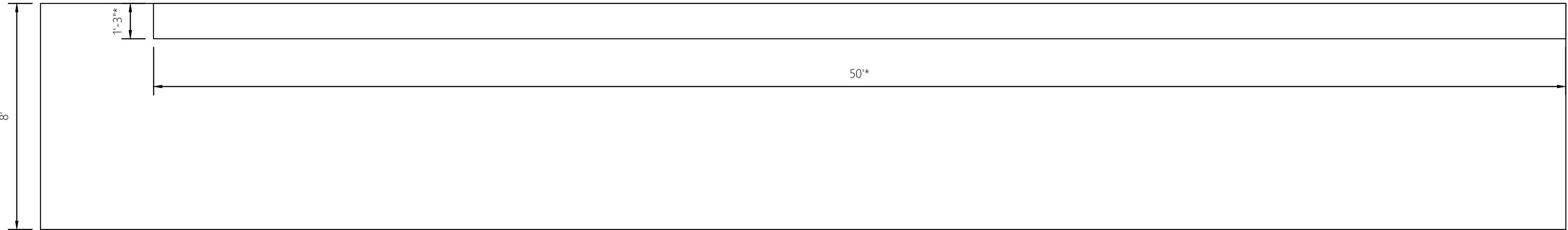
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LAKE HAVASU CITY, ARIZONA - ISLAND WWTP FILTER UPGRADES PROJECT

Project Location  
LAKE HAVASU CITY, ARIZONA

**NCS ENGINEERS**  
EST. 1988  
202 EAST EARLL DRIVE, STE 110  
PHOENIX, AZ 85012  
(602) 629-0206

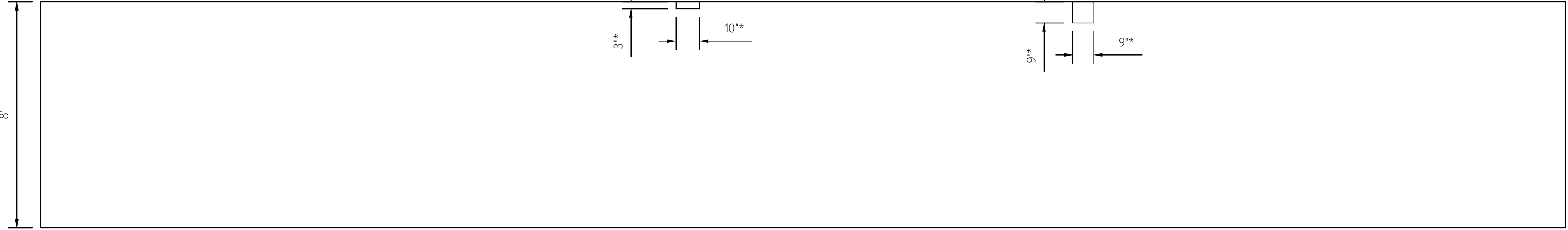
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	Design By: VM	Project No. 2477
	Approved By: BH	Client Project No. 326-PW-107026-500605
	Scale: 1"=X' HORIZ.	Sheet: C-03

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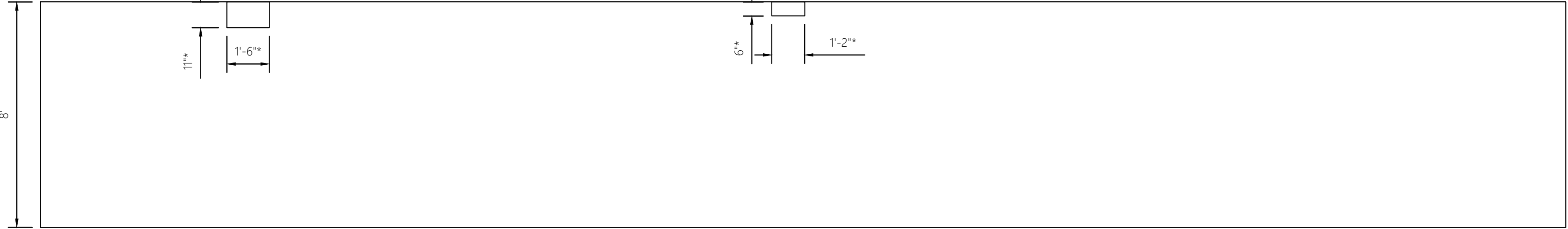
TERTIARY FILTER - TANK 1 SE OUTER WALL

SCALE: 1" = 3'



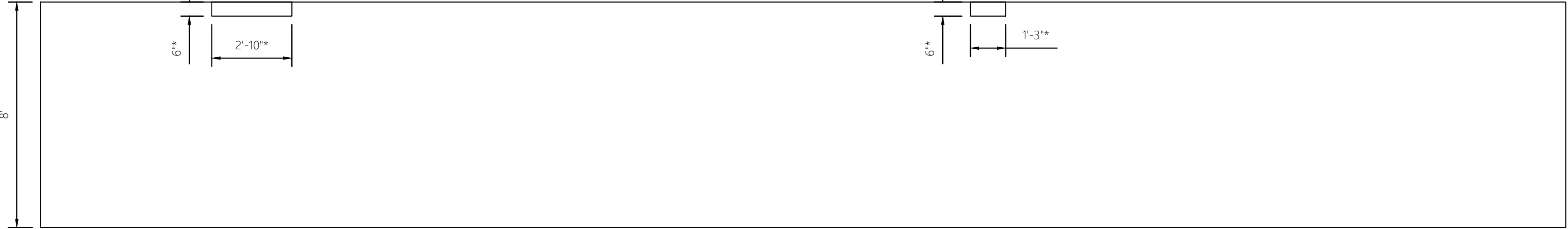
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SCALE: 1" = 3'



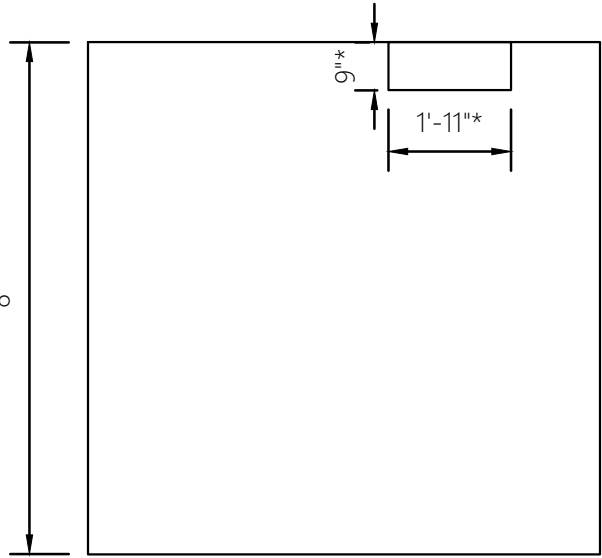
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SCALE: 1" = 3'



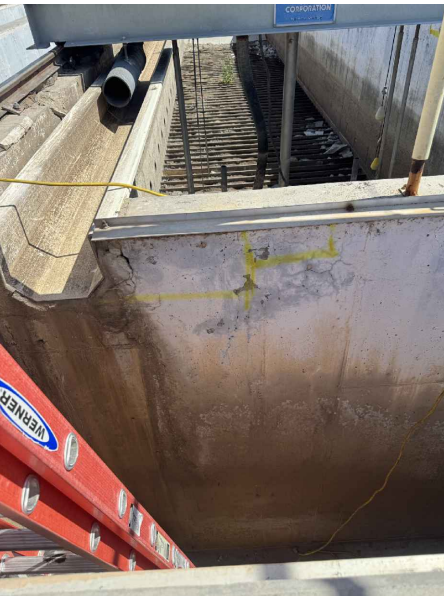
TERTIARY FILTER - TANK 2 SW OUTER WALL

SCALE: 1" = 3'



TERTIARY FILTER - WEST OUTER WALL

SCALE: 1" = 3'




\* FIELD VERIFY FOR DIMENSIONS  
AND ACCURATE LOCATION

Rev No.	Revision Note	Date	Design	Checked

Sheet Title: TERTIARY FILTER WALL SECTIONS

Project name LAKE HAVASU CITY, ARIZONA -  
ISLAND WWTP FILTER UPGRADES  
PROJECT

Project Location LAKE HAVASU CITY, ARIZONA




**NCS**  
ENGINEERS  
EST. 1998  
202 EAST EARLL DRIVE, STE  
110  
PHOENIX, AZ 85012  
(602) 629-0206

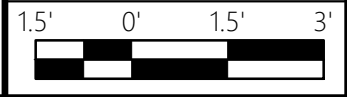


Professional Engineer  
40714  
BRIAN A.  
HAMRICK  
Exp. 06/30/2028  
ARIZONA, U.S.A.



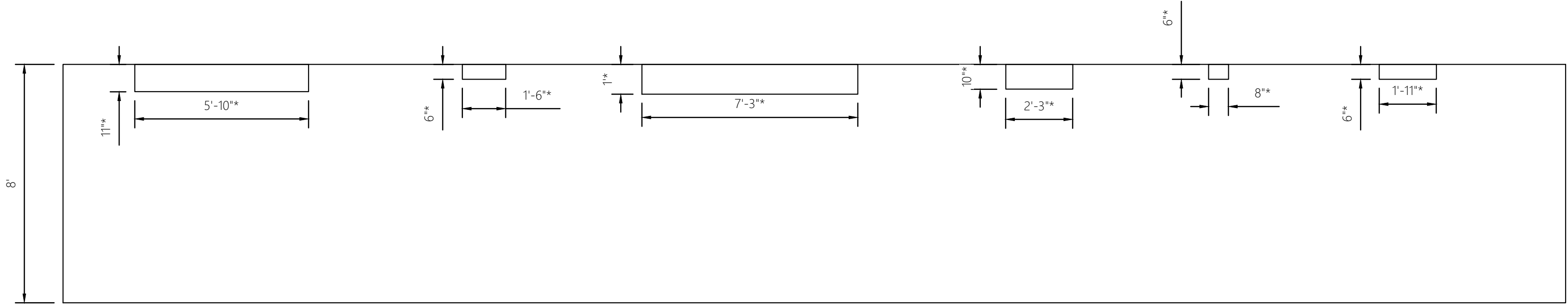
LAKE HAVASU CITY, ARIZONA  
INCORPORATED 1976

 <p>Official Arizona 811 call center that verifies depth before you dig! excavations call 811 or visit <a href="http://arizona811.com">arizona811.com</a></p>	Drawn By: JIL	Date: 8/22/25
	Design By: VM	Project No. 2477
	Approved By: BH	Client Project No. 326-PW-107026-500605
	Scale: 1"=X' HORIZ.	Sheet: M-01

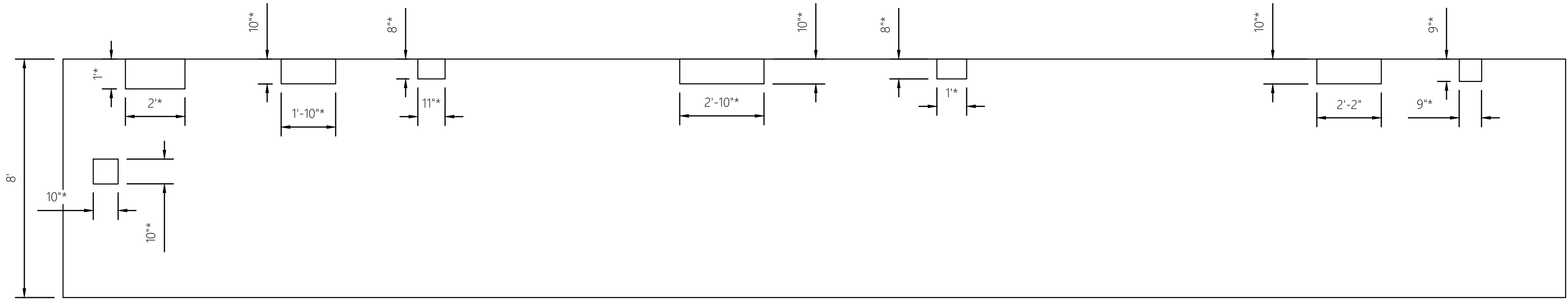


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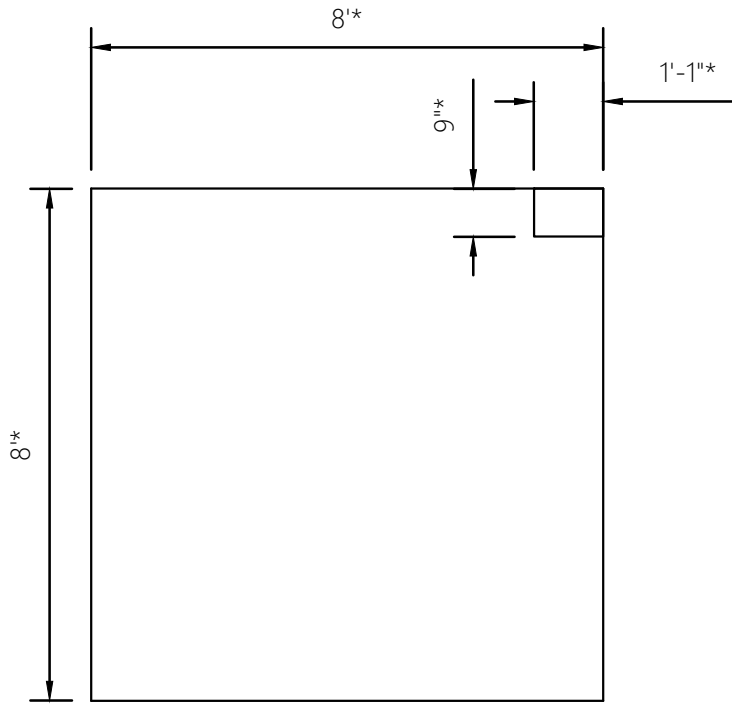




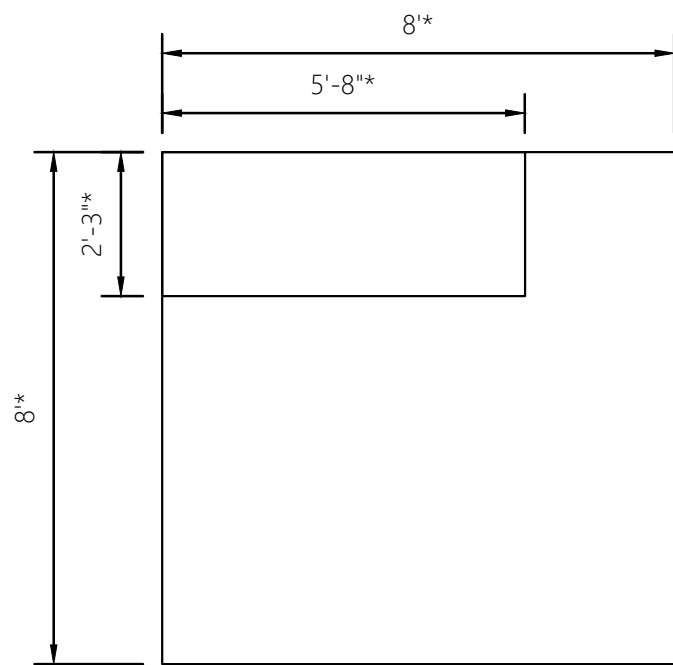
TERTIARY FILTER - TANK 1 SOUTH EAST WALL  
SCALE: 1" = 3'



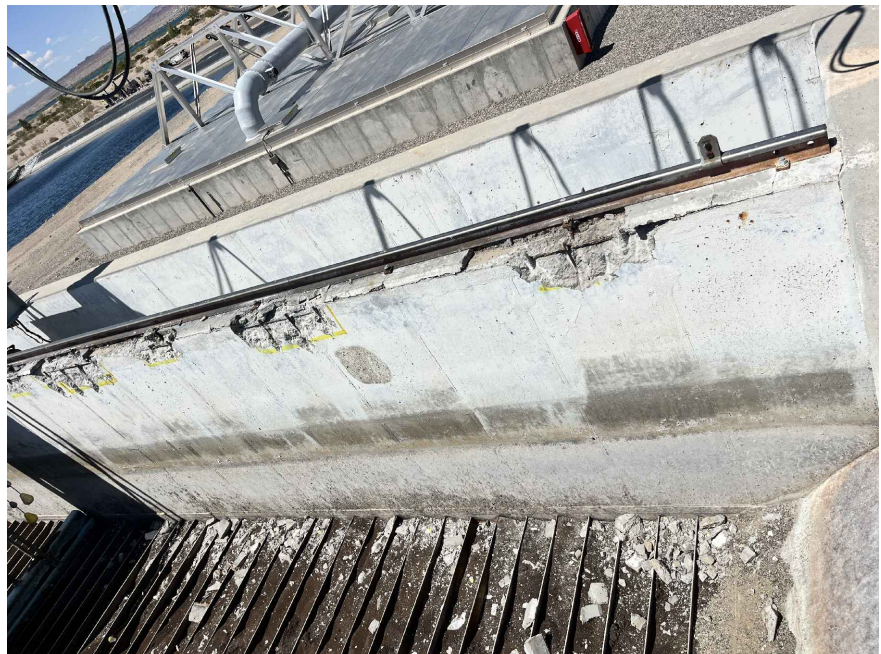
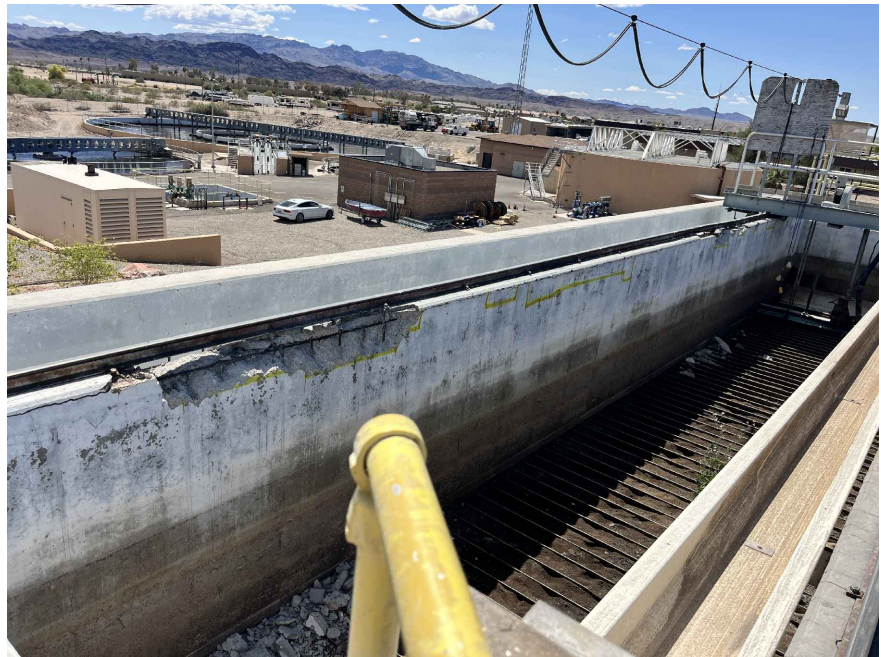
TERTIARY FILTER - TANK 2 NORTH WEST WALL  
SCALE: 1" = 3'



TERTIARY FILTER - TANK 1 WEST OUTER WALL  
SCALE: 1" = 3'



TERTIARY FILTER - TANK 2 WEST WALL  
SCALE: 1" = 3'






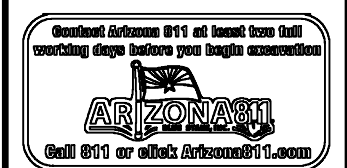
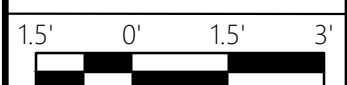
CONCRETE REPAIR NOTES:

- FOR THE CONCRETE DAMAGED AREAS, PERFORM POWER TOOL CLEANING TO REMOVE ALL LOOSE CONCRETE, DIRT, DEBRIS, AND OTHER CONTAMINANTS.
- PERFORM HIGH PRESSURE WASH, MINIMUM 2000 PSI, TO OBTAIN AGGREGATE SURFACE PROFILE OF 1/8" ± 1/16" (CONCRETE SURFACE PROFILE 5-6).
- LENGTH AND WIDTH OF THE EXISTING CONCRETE DAMAGED AREAS VARY BETWEEN 1' TO 50' AND 3" TO 23", RESPECTIVELY.



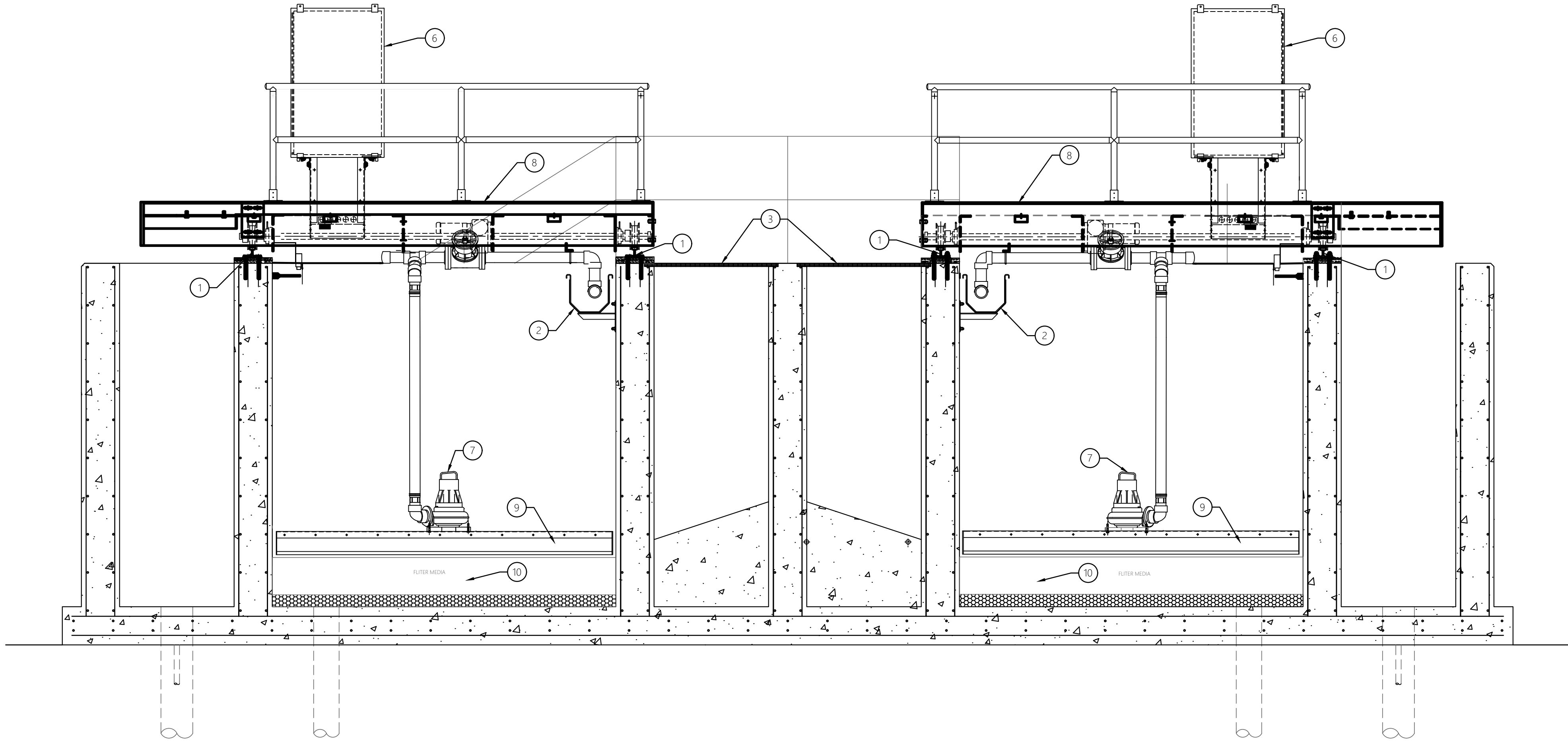
- FOR BIDDING PURPOSES, THE ESTIMATED CONCRETE DAMAGED AREAS THAT NEED TO BE POWER CLEANED, POWER WASHED, AND REPAIRED IS APPROXIMATELY 150 SQ. FT. CONTRACT TO PROVIDE A SQ FT UNIT PRICE WITH BID TO COVER ADDITIONAL REPAIR.
- FOR THE CONCRETE CRACKED SURFACE, SURFACE PREPARATION TO INCLUDE CLEANING WITH WIRE BRUSH TO REMOVE ANY LOOSE MATERIAL, DIRT, LAITANCE, AND OTHER CONTAMINANTS.
- FOR BIDDING PURPOSES, THE ESTIMATED LENGTH OF CONCRETE CRACKS THAT NEED TO BE PREPARED IS APPROXIMATELY 250 LF. CONTRACT TO PROVIDE A LF UNIT PRICE WITH BID TO COVER ADDITIONAL REPAIRS.
- PICTURES ATTACHED ARE FOR REFERENCE ONLY. THEY DO NOT SHOW THE ENTIRE SECTION OF THE WALL.

\* FIELD VERIFY FOR DIMENSIONS  
AND ACCURATE LOCATION

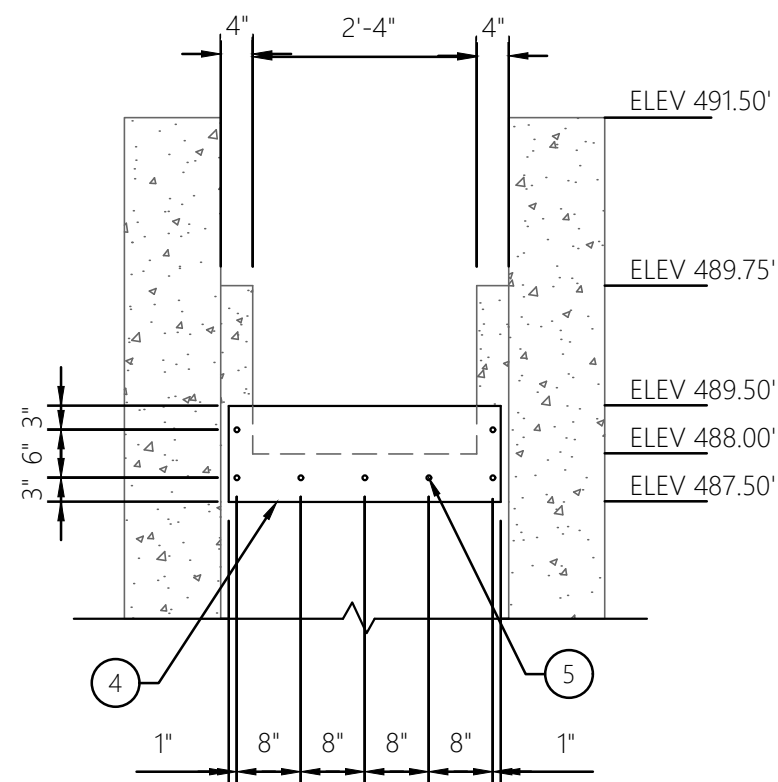
Rev No	Revision Note	Date	Design	Checked
Sheet Title: TERTIARY FILTER WALL SECTIONS CONT.				
Project name LAKE HAVASU CITY, ARIZONA - ISLAND WWTP FILTER UPGRADES PROJECT				
Project Location LAKE HAVASU CITY, ARIZONA				
 202 EAST EARLL DRIVE, STE 110 PHOENIX, AZ 85012 (602) 629-0206		 EXPIRATION DATE: 06/30/2028		
 Official Arizona Seal Call 800 or visit Arizona.gov		Drawn By: JIL	Date: 8/22/25	
		Design By: VM	Project No. 2477	
		Approved By: BH	Client Project No. 326-PW-107026-500605	
		Scale: 1"=X' HORIZ.	Sheet: M-02	



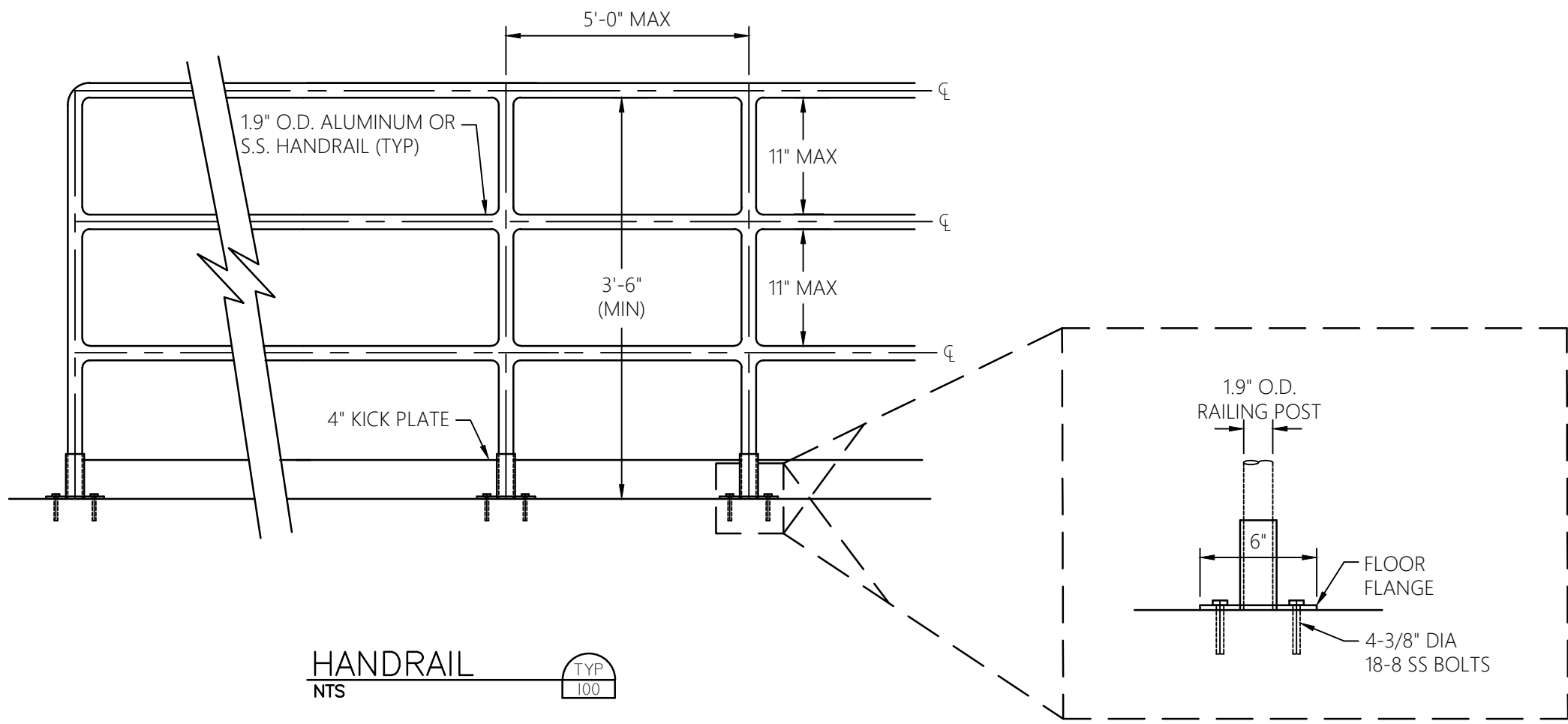
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SECTION A  
SCALE: 1" = 2'  
C-02 M-03



EFFLUENT WEIR  
SCALE: 1" = 2'



HANDRAIL  
NTS  
TYP 100

CONSTRUCTION NOTES

1	NEW GUIDE RAIL, ANCHOR BOLTS AND GROUT PER EQUIPMENT MANUFACTURE
2	REMOVE AND REINSTALL WASH WATER TROUGHS AFTER CONCRETE REHABILITATION IS COMPLETE, REPLACE ALL HARDWARE AND SUPPORT BRACKETS
3	REMOVE GRATINGS PER APPROVED MFR
4	1/2" ALUMINUM PLATE CUT OR FILE FOR SHARP UPSTREAM EDGE
5	PROVIDE SST NUT AND WASHER IN 3/8" X 2" SLOTTED HOLES. SEAL WEIR PLATE WITH NEOPRENE GASKET ALL AROUND
6	REPLACE FILTER CONTROL PANEL AND FESTOON CABLE SYSTEM
7	REPLACE BACKWASH PUMP AND ACCESSORIES
8	REPLACE TRAVELING BRIDGE AND ALL ASSOCIATED EQUIPMENT AND COMPONENTS
9	REPLACE WASHWATER HOOD ASSEMBLY
10	REPLACE FILTER MEDIA

NOTES:

- CONCRETE REPAIR AREA IS NOT SHOWN IN THIS SHEET. FIELD VERIFY FOR DIMENSIONS AND ACCURATE LOCATION OF THE REPAIR AREA.
- WASHER TROUGHS, INFLUENT AND EFFLUENT PORTS, AND FESTOON POSTS WILL NOT BE REPLACED.
- AFTER MEDIA IS REMOVED, INSPECT POROUS PLATES AND CELL DIVIDERS WITH ENGINEER. CITY WILL DETERMINE IF POROUS PLATES AND CELL DIVIDERS WILL BE REPLACED IN THIS PROJECT AFTER INSPECTION.

\* FIELD VERIFY FOR DIMENSIONS AND ACCURATE LOCATION

Rev No	Revision Note	Date	Design	Checked

Sheet Title: TERTIARY FILTER SECTION

Project name: LAKE HAVASU CITY, ARIZONA - ISLAND WWTP FILTER UPGRADES PROJECT

Project Location: LAKE HAVASU CITY, ARIZONA

**NCS ENGINEERS**  
202 EAST EARLL DRIVE, STE 110  
PHOENIX, AZ 85012  
(602) 629-0206

Professional Engineer  
40714  
BRIAN A. HAMRICK  
State of Arizona, U.S.A.  
EXPIRATION DATE: 06/30/2028

LAKE HAVASU CITY, ARIZONA  
INCORPORATED 1976

Great Seal of the State of Arizona  
1909  
ARIZONA  
Great Seal of the State of Arizona

Drawn By: JIL  
Design By: VM  
Approved By: BH

Date: 8/22/25  
Project No: 2477  
Client Project No: 326-PW-107026-500605

Scale: 1"=X' HORIZ.

Sheet: M-03

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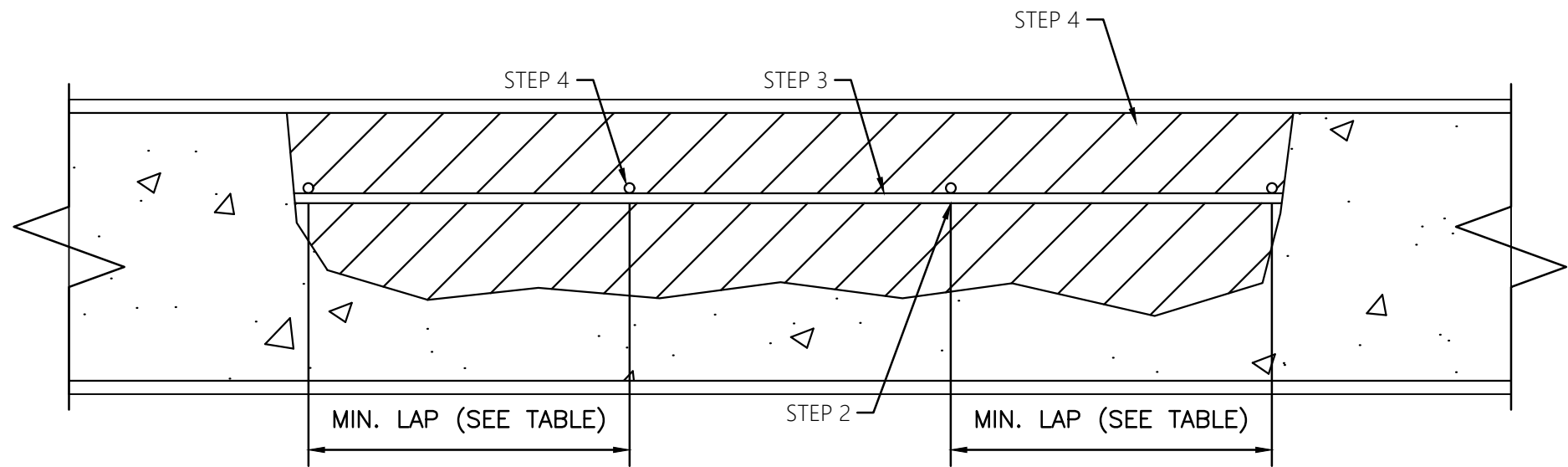




REPAIR DIRECTIONS AT CONCRETE SPALL AND DEGRADATION

SCALE: NTS

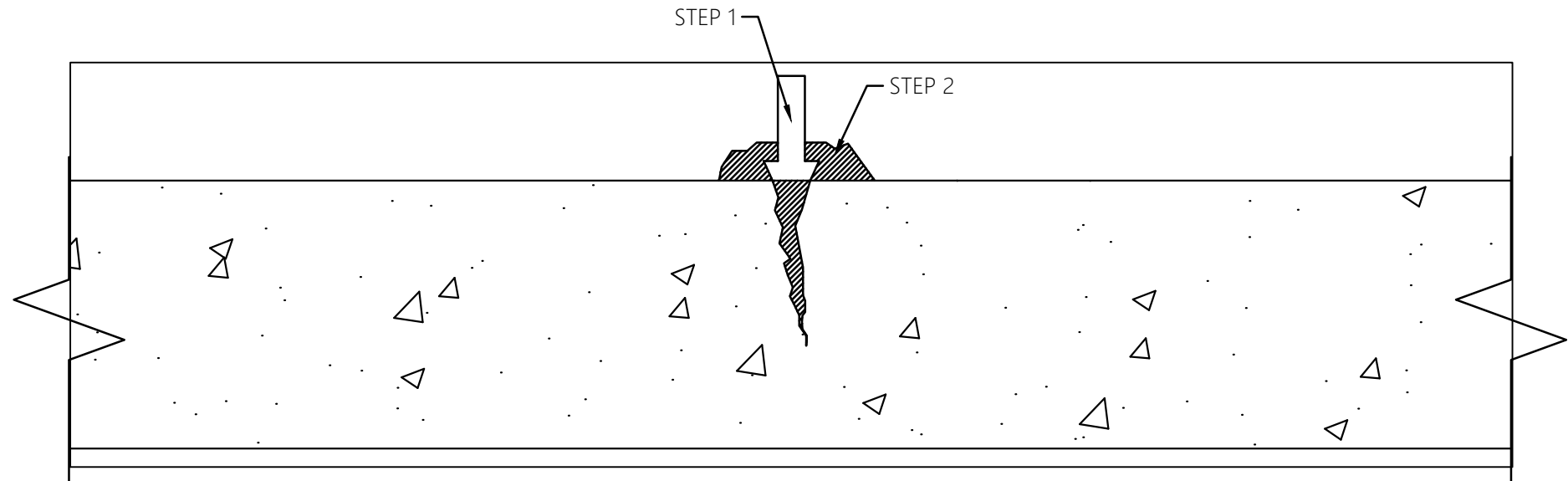
1. BREAKOUT/CHIP CRACKED OR DEGRADED CONCRETE TO EXPOSE SOLID CONCRETE.
2. PREPARE SURFACE ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
3. APPLY SIKA ARMATEC 110 EPOCEM, OR APPROVED EQUAL, TO ALL EXPOSED REINFORCEMENT IF ANY.
4. APPLY SIKREPAIR SHB REPAIR MORTAR, OR APPROVED EQUAL TO SPALLED AREA WITHIN THE RECOMMENDED OPEN TIME BETWEEN APPLICATION OF ARMATEC 110.
5. APPLY TWO (2) COATS OF SIKATOP SEAL 107, OR APPROVED EQUAL OVER THE CONCRETE.



DETERIORATED REINFORCING REPLACEMENT

SCALE: NTS

1. BREAKOUT CRACKED OR SPALLED CONCRETE UNTIL SOLID CONCRETE IS IN REACH.
2. DETERMINE AMOUNT OF STEEL REINFORCEMENT REQUIRED TO BE REPLACED. DETERMINE STEEL SECTION LOSS FOR EACH EXPOSED REINFORCING BARS. REPLACE BARS WHERE MORE THAN 25% LOSS HAS OCCURRED.
3. SPLICE EXISTING BAR WITH A NEW BAR (ASTM A615 GR 60) OF STEEL CROSS SECTIONAL AREA EQUIVALENT TO 68% OF THE CROSS-SECTIONAL AREA OF THE EXISTING BAR.
4. PREPARE SURFACE ACCORDING TO THE SPECIFICATION AND MANUFACTURE'S RECOMMENDATIONS. ALL SURFACE SHALL BE SATURATED SURFACE DRY (SSD) WITH NO STANDING WATER DURING APPLICATION.
5. APPLY SIKA ARMATEC 110 EPOCEM, OR APPROVED EQUAL, TO ALL NE AND EXISTING REINFORCEMENT.
6. WHILE SIKA ARMATEC 110 EPOCEM IS STILL WET OR WITHIN THE RECOMMENDED OPEN TIME BETWEEN APPLICATION OF ARMTEC 110, APPLY SIKREPAIR SHB OR APPROVED EQUAL.
7. APPLY TWO (2) COATS OF SIKATOP SEAL 107, OR APPROVED EQUAL OVER THE CONCRETE.
8. COMPLETE REPAIR



CRACK CONCRETE REPAIR DETAIL


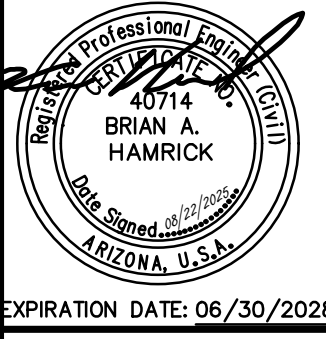


SCALE: NTS

1. SET PORTING DEVICES OVER CRACKS.
2. SEAL POSTS AND CRACKS WITH SIKADUR 31, HI-MOD GEL, OR APPROVED EQUAL.
3. APPLY SIKADUR 35, HI-MOD LV, OR APPROVED EQAUL, AS PER MANUFACTURER'S RECOMMENDATIONS.

BAR SIZE	DIAMETER (IN.)	CROSS-SECTIONAL AREA (IN <sup>2</sup> )	MIN. LAP (IN.)
#3	0.3750	0.1100	12
#4	0.5000	0.2000	15
#5	0.6250	0.3100	19
#6	0.7500	0.4400	23
#7	0.8750	0.6000	33

NOTES:

LAP LENGTHS SHOWN ARE FOR COVERS OF AT LEAST 1.0 BAR DIAMETER AND HORIZONTAL c.c. SPACING OF AT LEAST 2.0 BAR DIAMETERS. IF AN ADEQUATE SPLICE LEGTH CAPABLE OF DEVELOPING AT LEAST 125% OF THE SPECIFIED YIELD STRENGTH OF THE BAR. ALL WELDING SHALL CONFORM TO "STRUCTURAL WELDING CODE - REINFORCING STEEL" (ANSI/AWS D1.4). NEW REINFORCING TO BE WELDED SHALL CONFORM TO ASTM A706. IF A CHEMICAL ANALYSIS OF THE EXISTING BARS IS NOT KNOWN OR OBTAINED, THEN THE EXISTING BARS SHOULD BE PREHEATED PER ANSI/AWS D1.4

Rev No.	Revision Note	Date	Design	Checked
Sheet Title: STRUCTURAL DETAILS				
Project name LAKE HAVASU CITY, ARIZONA - ISLAND WWTP FILTER UPGRADES PROJECT				
Project Location LAKE HAVASU CITY, ARIZONA				
 202 EAST EARLL DRIVE, STE 110 PHOENIX, AZ 85012 (602) 629-0206				
		Drawn By: JIL	Date: 8/22/25	
		Design By: JT	Project No. 2477	
		Approved By: BH	Client Project No. 326-PW-107026-500605	
		Scale: 1"=X' HORIZ.	Sheet: S-01	







