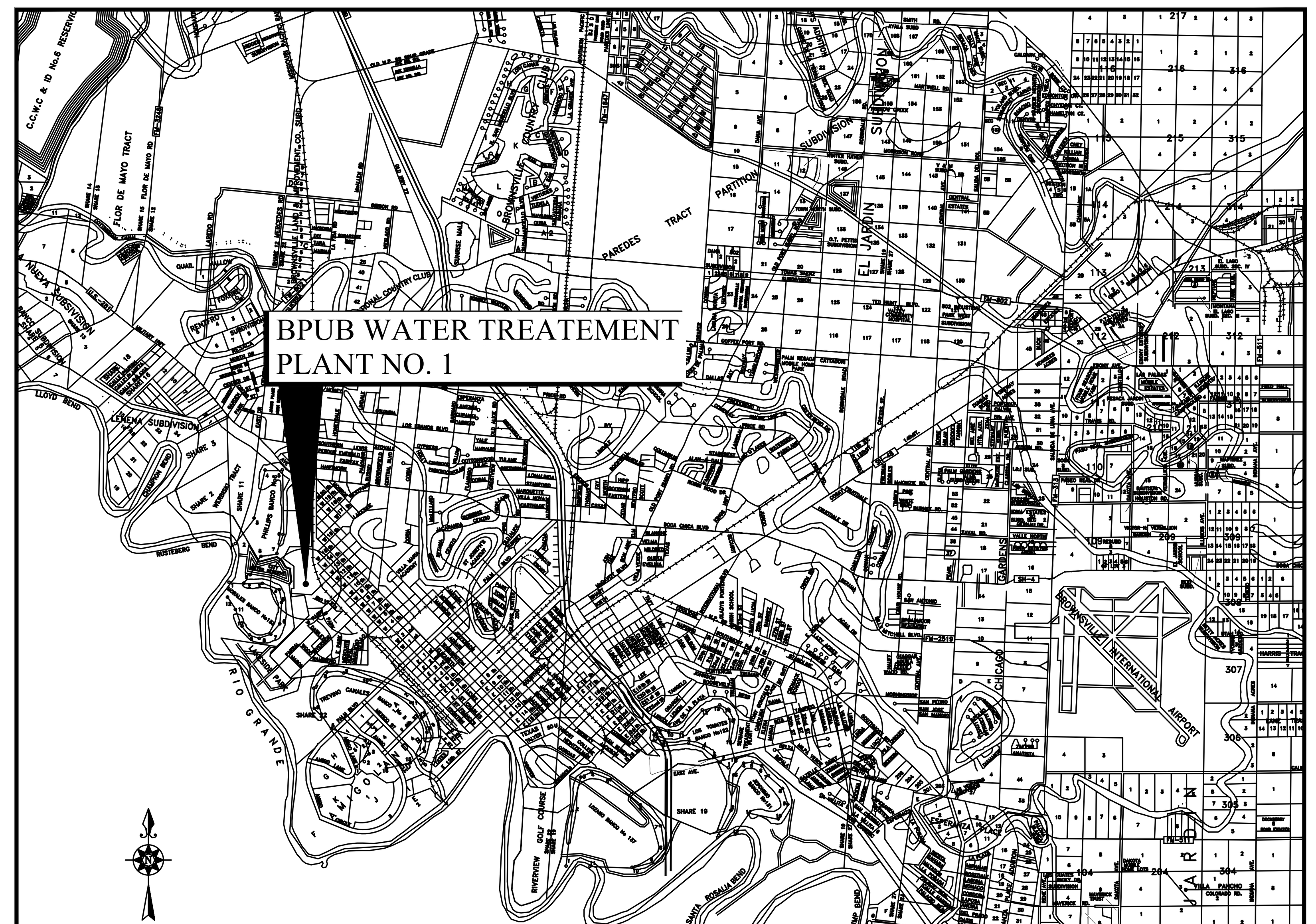
CONSTRUCTION PLANS
FOR
BPUB Train A and Train C Concrete Structure Repair Project

BID No. B058-22

BROWNSVILLE
PUBLIC UTILITIES BOARD



LOCATION MAP *1" = 5000'*

SHEET INDEX

SHEET **TITLE**

BROWNSVILLE
PUBLIC UTILITIES BOARD

JNB
ENGINEERING
TBPE No. F-9898

STATE OF TEXAS
JUAN J. BUJANOS
97472
REGISTERED
PROFESSIONAL ENGINEER

3/11/22

GENERAL NOTES

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE 2018 INTERNATIONAL BUILDING CODE, INCLUDING LOCAL SUPPLEMENTS, EXCEPT WHERE APPLICABLE CODES OR THE CONTRACT DOCUMENTS ARE MORE RESTRICTIVE.
2. VERIFY ALL DIMENSIONS, ELEVATIONS, OPENING SIZES, AND MECHANICAL EQUIPMENT WEIGHTS PRIOR TO STARTING WORK.
3. FIELD VERIFY ALL EXISTING CONDITIONS, INCLUDING LOCATION AND DIMENSIONS OF ALL EXISTING CONSTRUCTION AND UTILITIES. NOTIFY ENGINEER IF THERE IS A CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND EXISTING CONDITIONS BEFORE PROCEEDING WITH WORK. PROVIDE EXCAVATION SHORING TO PROTECT AND SUPPORT FOUNDATION SOILS UNDER EXISTING STRUCTURES.
4. THE STRUCTURE IS DESIGNED FOR STABILITY IN THE FINAL CONDITION ONLY. PROVIDE TEMPORARY BRACING AND SHORING AS REQUIRED FOR STABILITY DURING CONSTRUCTION.
5. PLANS, SECTIONS, AND DETAILS ARE NOT TO BE SCALED FOR DETERMINATION OF QUANTITIES, LENGTHS, OR FIT OF MATERIALS.
6. SEE OTHER DISCIPLINE DRAWINGS FOR SIZE AND LOCATION OF ALL OPENINGS, DEPRESSIONS, OFFSETS, SLEEVES, CURBS, PADS, INSERTS, ETC. NOT SHOWN ON STRUCTURAL DRAWINGS. BEFORE FABRICATION OF MATERIALS, COORDINATE WITH MECHANICAL AND ELECTRICAL EQUIPMENT REQUIREMENTS.
7. THE GENERAL NOTES AND TYPICAL DETAILS ARE GENERAL AND APPLY TO THE ENTIRE PROJECT EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY.

CONCRETE

1. CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
2. ALL REINFORCING SHALL BE IN ACCORDANCE WITH ASTM A615, GRADE 60, DEFORMED.
3. CONCRETE CLEAR COVER OVER REINFORCING SHALL BE AS LISTED BELOW, UNLESS OTHERWISE NOTED.
   A. CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
   B. ALL OTHERS: MATCH EXISTING
4. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4" INSIDE FORMS OR TOOLED TO 3/4" RADIUS ON SLABS UNLESS OTHERWISE NOTED.
5. IN CASES WHERE REINFORCING BARS CANNOT BE EXTENDED AS FAR AS REQUIRED DUE TO THE LIMITED EXTENT OF THE ADJACENT CONCRETE STRUCTURE, THE BARS SHALL EXTEND AS FAR AS POSSIBLE AND END IN STANDARD HOOKS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF ALL FORMING, TEMPORARY BRACING AND SHORING.
7. ALL REINFORCING SHALL BE CONTINUOUS. CONTINUOUS BARS SHALL LAP IN ACCORDANCE WITH THE FOLLOWING TABLE, UNLESS NOTED OTHERWISE. ALL REBAR EMBEDMENT LENGTHS SHALL BE 75% OF THE LAP SPLICE LENGTH OR AT LEAST 12", UNLESS NOTED OTHERWISE. "TOP BARS" ARE HORIZONTAL REINFORCEMENT PLACED SO THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BARS (INCLUDING WALLS). "OTHER BARS" ARE ALL BARS OTHER THAN TOP BARS.

REBAR LAP SPLICE LENGTHS (INCHES)

BAR SIZE	MIN CONCRETE CLEAR COVER	3,000 PSI		4,000 PSI	
		TOP BARS	OTHER BARS	TOP BARS	OTHER BARS
#3	1.0"	17	16	16	16
#4	1.0"	24	19	20	16
#5	1.0"	34	26	30	23
	1.5"	29	23	25	20
#6	1.0"	46	36	41	32
	1.5"	34	26	30	24
#7	1.5"	56	43	49	38
	2.0"	50	38	43	33
#8	1.5"	71	55	62	47
	2.0"	56	43	49	38
#9	1.5"	86	67	76	58
	2.0"	71	54	60	47
	2.5"	64	50	55	43
#10	1.5"	106	82	91	71
	2.0"	86	67	75	58
	2.5"	76	59	65	51
#11	1.5"	127	98	110	85
	2.0"	103	80	89	69
	2.5"	93	72	81	63

STRUCTURAL MODIFICATIONS

1. REFER TO OTHER DISCIPLINE DRAWINGS FOR RELOCATION AND DEMOLITION OF PIPING, CONDUITS, FIXTURES, INSTRUMENTS, ETC. ASSOCIATED WITH STRUCTURES SHOWN TO BE DEMOLISHED.
2. ALL DEMOLITION, REMOVAL AND CONSTRUCTION ACTIVITIES SHALL BE CONDUCTED WITH CONSIDERATION FOR EXISTING FACILITIES STRUCTURES, EQUIPMENT, ETC. ANY DAMAGE WHICH MAY OCCUR BEYOND DESCRIBED DEMOLITION AND CONSTRUCTION SHALL BE REMEDIED AT CONTRACTOR'S EXPENSE AND OWNER/ENGINEER NOTIFIED.
3. CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL DEMOLISHED CONCRETE AND OTHER MATERIALS FROM THE EXISTING STRUCTURES OFF SITE PRIOR TO THE NEW CONSTRUCTION.
4. UNLESS OTHERWISE NOTED ON PLANS, CUTTING EMBEDDED REBARS DUE TO PIPING, CONDUITS OR ANY OTHER PENETRATION THROUGH EXISTING CONCRETE STRUCTURE IS PROHIBITED. CONTRACTOR SHALL DETECT THE EXISTING REBAR LOCATIONS BY NONDESTRUCTIVE TESTING METHODS AND KEEP PENETRATION AWAY FROM THE EMBEDDED REBARS.
5. WHERE REMOVING EXISTING CONCRETE BUT RETAINING REBARS IS INDICATED ON DRAWINGS, SAWCUT EXISTING CONCRETE TO THE LIMITS SHOWN ON PLANS BUT NOT MORE THAN 3/4" DEEP TO AVOID DAMAGING OR NICKING THE REINFORCING.
6. WHERE DEMOLITION OF EXISTING CONCRETE WILL LEAVE EMBEDDED EXISTING REBARS EXPOSED, AN ADDITIONAL 1 1/2" CONCRETE AND REINFORCEMENT BEYOND LIMITS OF THE DEMOLITION SHALL BE REMOVED. THE 1 1/2" AREAS BEING REMOVED SHALL THEN BE PLACED BACK WITH CONCRETE STRUCTURAL REPAIR MATERIAL AS SPECIFIED TO PROVIDE CORROSION PROTECTION FOR THE EXPOSED EXISTING REBARS, UNLESS OTHERWISE NOTED ON PLAN.
7. ROUGHEN THE EXISTING CONCRETE SURFACES THAT WILL ENCOUNTER NEW CONCRETE. "ROUGHENED SURFACE" SHALL HAVE A UNIFORMLY ROUGHENED CONCRETE SURFACE TO A FULL AMPLITUDE (DISTANCE BETWEEN HIGH AND LOW POINTS OR SIDE TO SIDE) OF APPROXIMATELY 1/4" WITH SUITABLE TOOLS TO EXPOSE A FRESH FACE. APPLY BONDING AGENT TO THE EXISTING CONCRETE SURFACES PRIOR TO THE PLACEMENT OF NEW CONCRETE PER MANUFACTURER'S INSTRUCTIONS.
8. ALL EXPOSED EXISTING REBARS SHALL BE CLEANED BY ABRASIVE BLASTING AND COATED WITH AN EPOXY RESIN/PORTLAND CEMENT ADHESIVE BONDING AGENT TO PROVIDE CORROSION PROTECTION.
9. IF EXISTING REINFORCING SHOWS A LOSS OF MORE THAN 20% OF CROSS-SECTIONAL AREA, REMOVE DAMAGED REBAR AND SPLICE NEW SECTION OF REINFORCEMENT USING LENTON OR BARSPLICE COUPLER.
10. PROVIDE TEMPORARY SHORING UNDER BEAMS UNTIL NEW REINFORCEMENT AND CONCRETE HAVE BEEN PLACED AND CURED.
11. IF EXISTING REBAR NEEDS TO BE REPLACED, REMOVE SUFFICIENT CONCRETE TO ALLOW USE OF APPROPRIATE SPLICER.

STATE OF TEXAS
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3/11/22

PROJECT: BPUB Train A and Train C Concrete Structure Repair Project

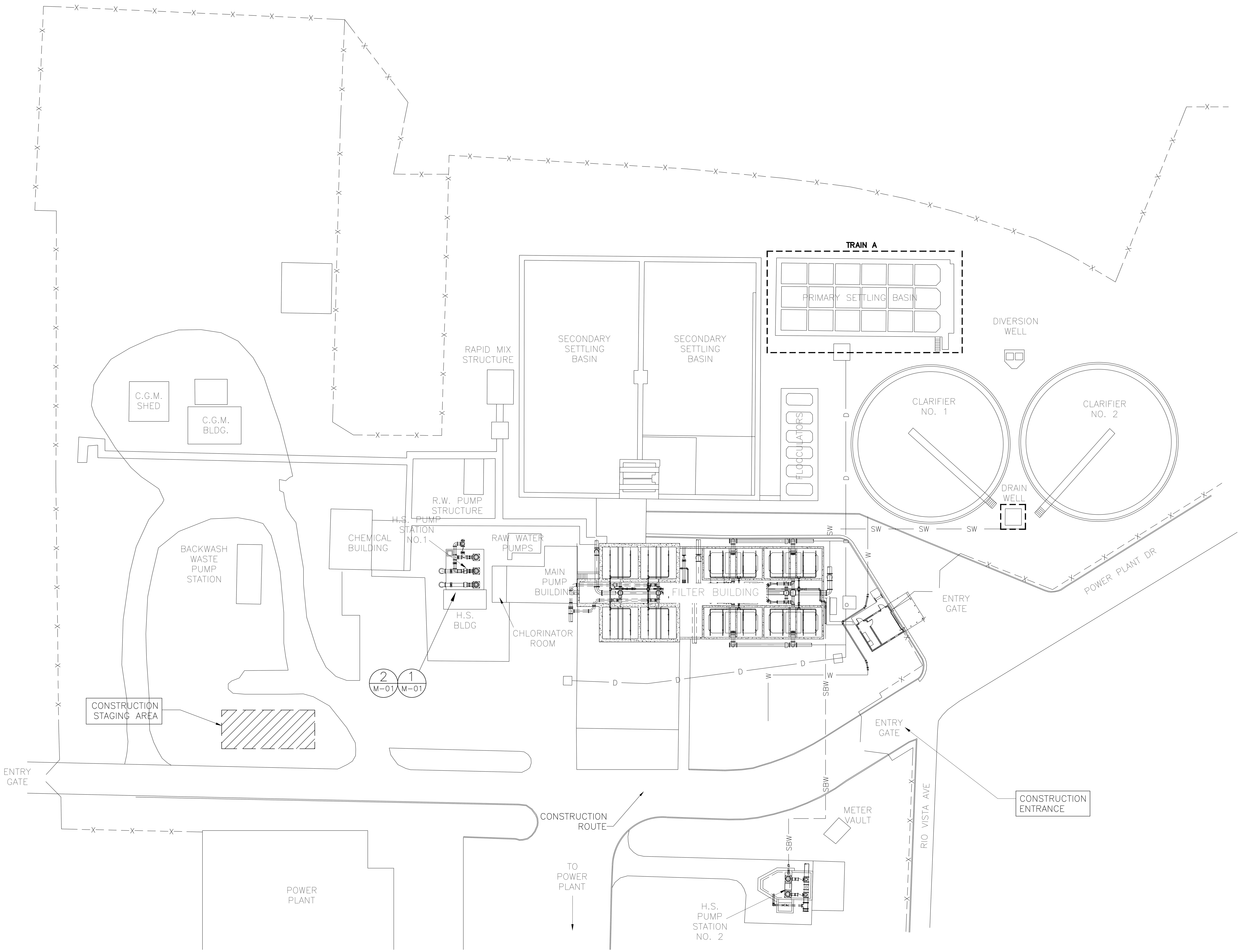
SHEET TITLE: GENERAL NOTES

JNB ENGINEERING
TBPE FIRM No. F-9898
956-454-6740

PROJECT #

DRAWN BY: AJM

DATE: 3-11-2022



NOTES:

1. DIGITAL CADD FILE OF SITE PLAN WAS PROVIDED BY BPUB. THE SITE PLAN IS PROVIDED HERE TO SHOW THE OVERALL FACILITY LAYOUT AND CONSTRUCTION ACCESS. ACTUAL SITE CONDITIONS MAY BE DIFFERENT FROM THOSE SHOWN ON THIS DRAWING. CONTRACTOR TO FIELD VERIFY INSTALLED CONDITIONS IMPACTING THE WORK PRIOR TO INITIATING THE WORK. CONTRACTOR SHALL REFER TO CONSTRUCTION DOCUMENTS FOR RESPONSIBILITIES RELATIVE TO VERIFICATION OF EXISTING FACILITIES AND COORDINATION WITH PLANT OPERATORS.

STATE OF TEXAS
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PROJECT:

BPUB Train A and Train C Concrete Structure Repair Project

SITE PLAN

JNB ENGINEERING
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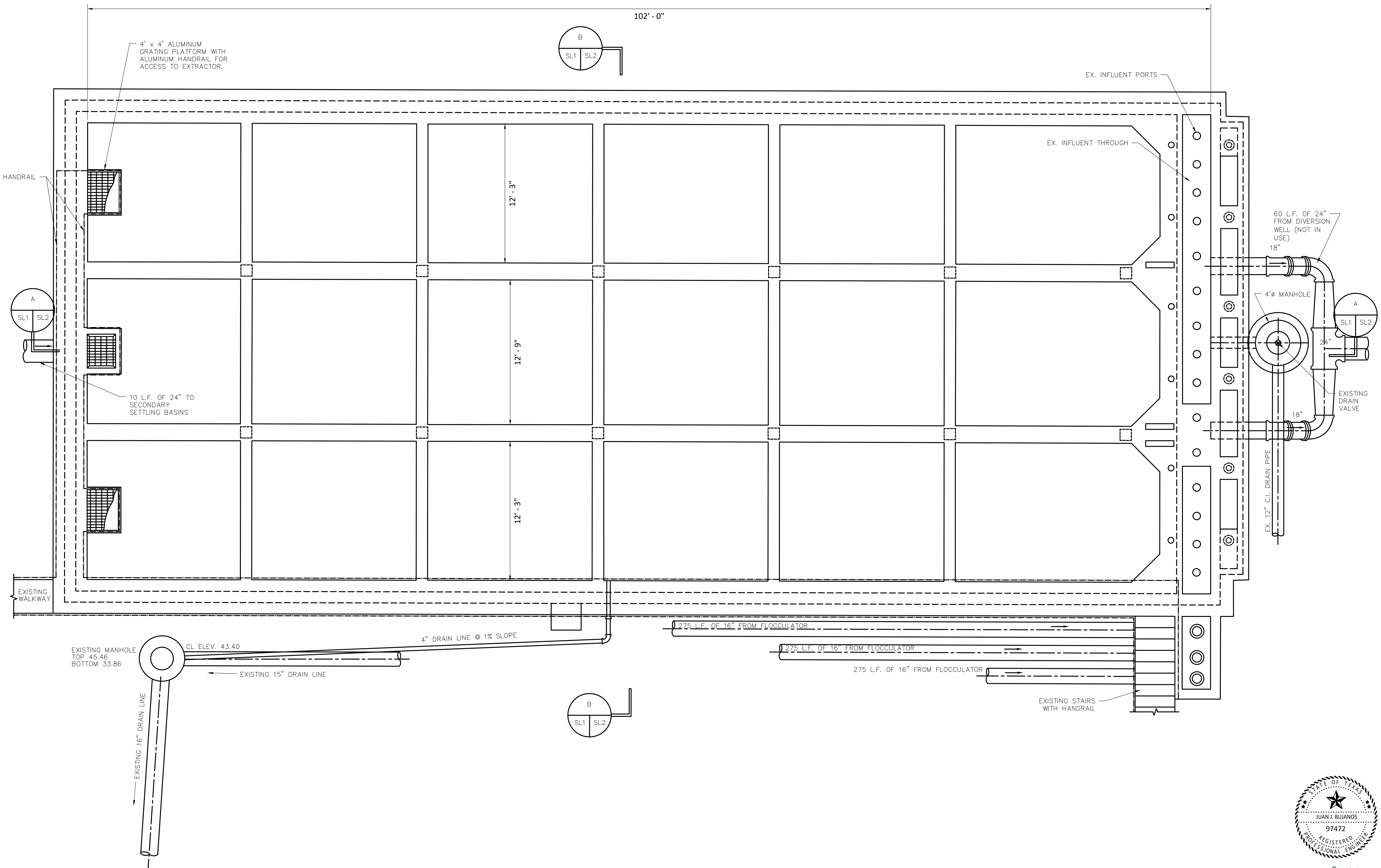
956-454-6740

PROJECT #

DRAWN BY: AJM

DATE:
3-11-2022



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PROJECT:

BPUB Train A and Train C Concrete Structure Repair Project

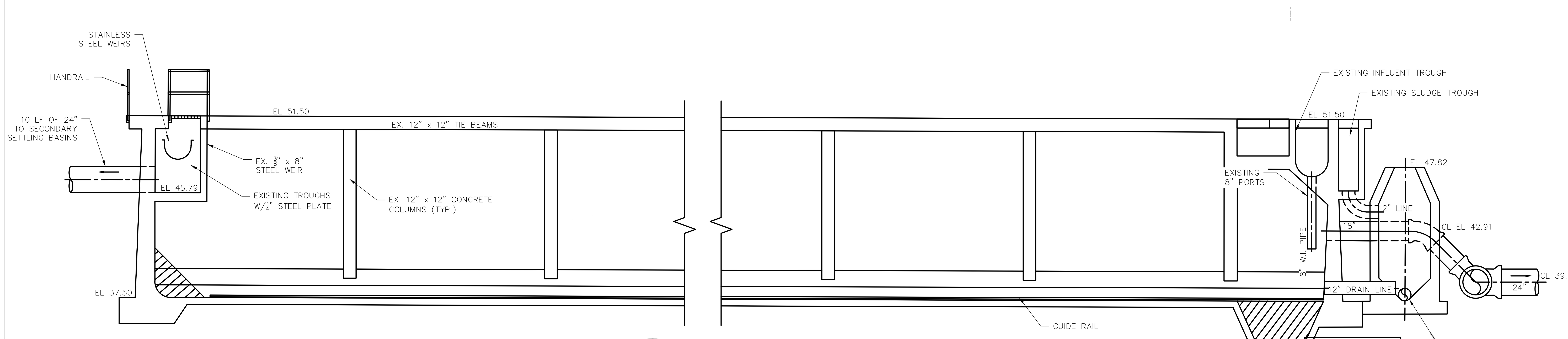
EXISTING SEDIMENTATION BASIN TRAIN A MECHANICAL PLAN

JNB ENGINEERING
TBPE FIRM No. F-9898
956-454-6740

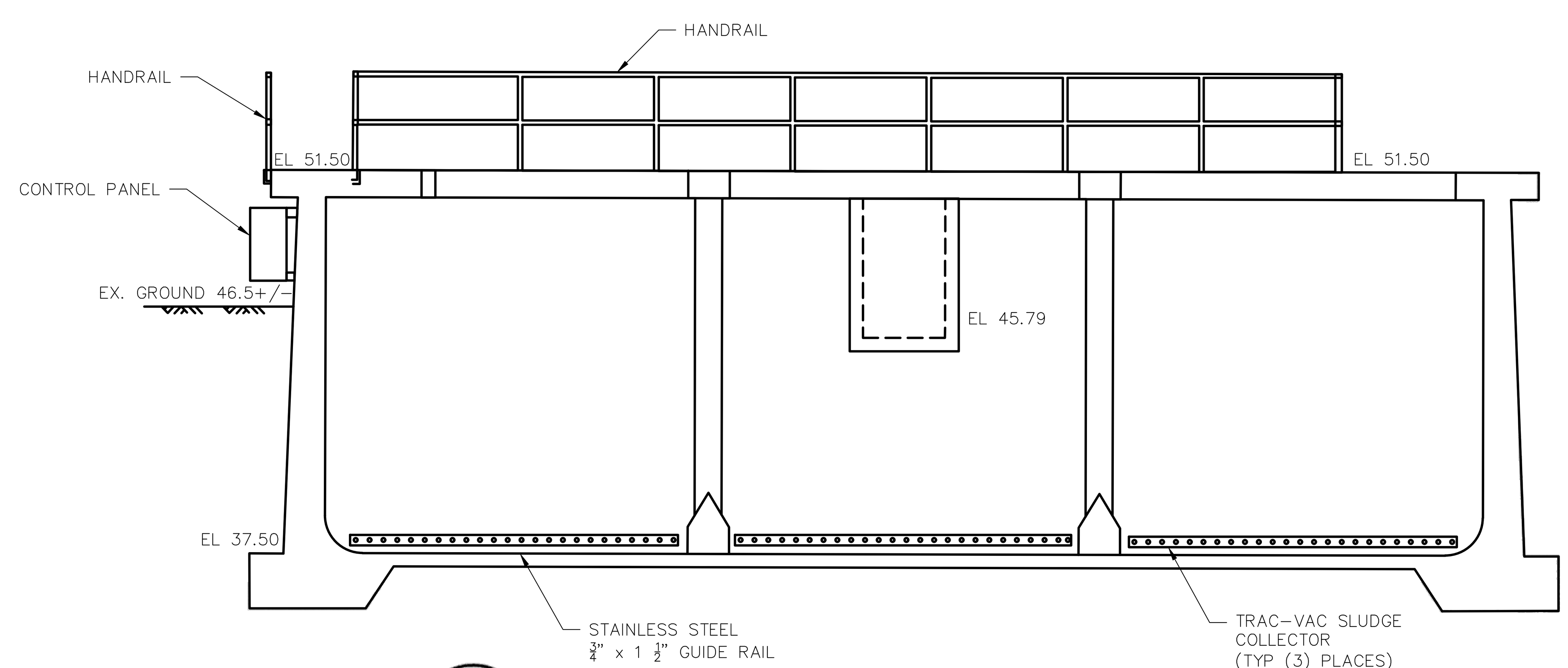
PROJECT #

DRAWN BY: AJM

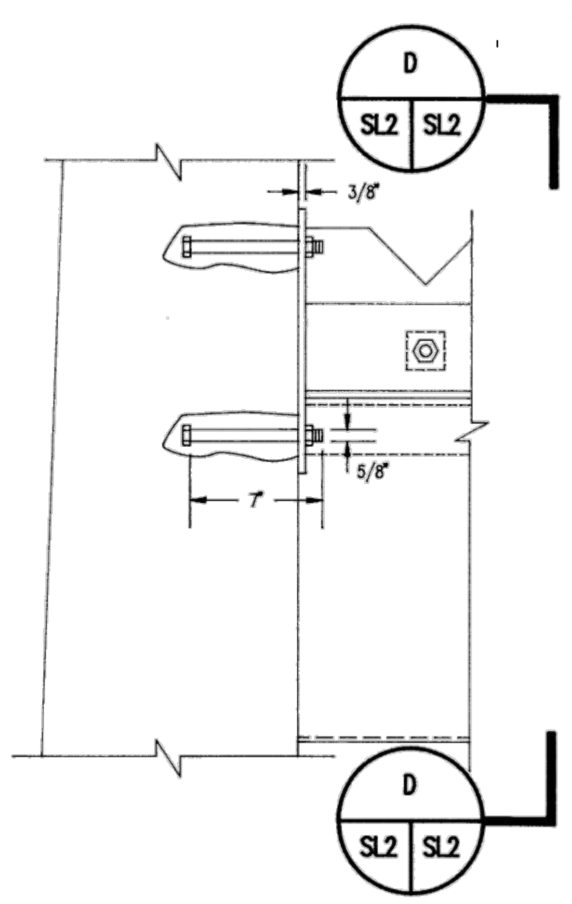
DATE:
3-11-2022



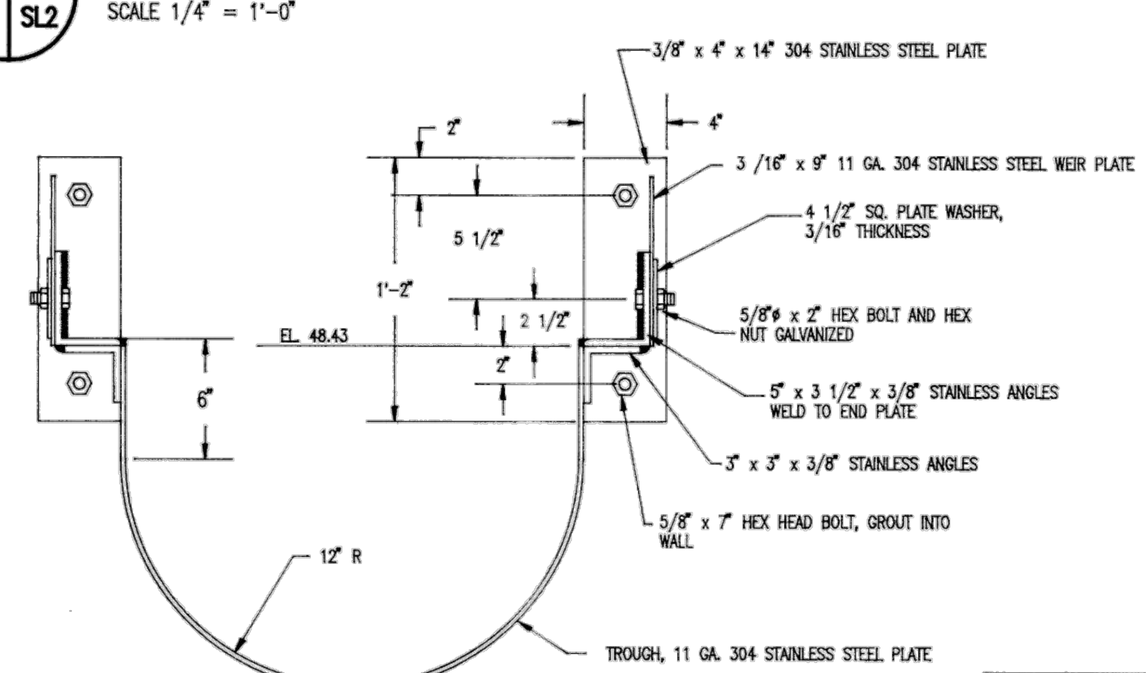
SECTION A (SL1 | SL2)
SCALE 1/4" = 1'-0"



SECTION B (SL1 | SL2)
SCALE 1/4" = 1'-0"

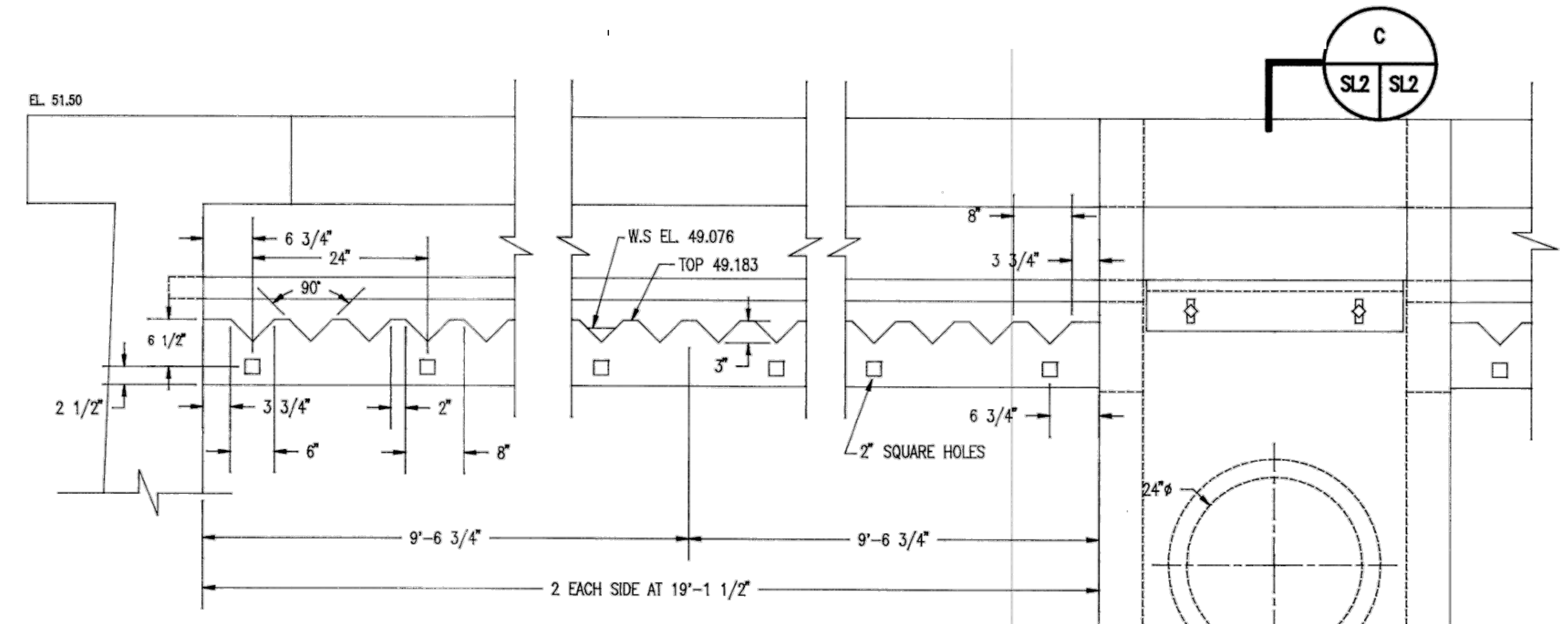


EXISTING PLATE DETAIL
SCALE: 1 1/2" = 1'-0"

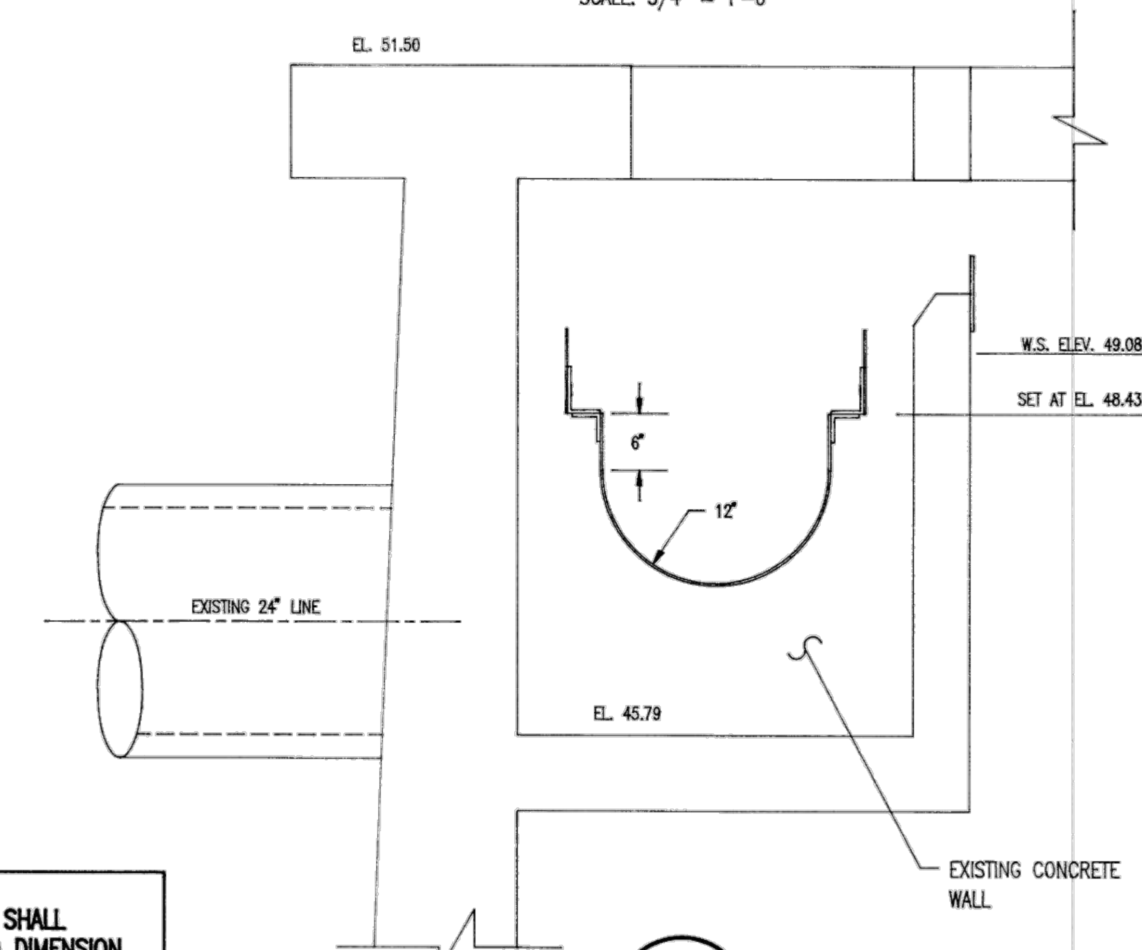


SECTION D (SL2 | SL2)
SCALE: 1 1/2" = 1'-0"

NOTE: PROPOSED WEIRS AND TROUGH SHALL BE IDENTICAL IN ELEVATION AND DIMENSION TO OLD WEIRS



EX. WEIR PLATE DETAIL
SCALE: 3/4" = 1'-0"



SECTION C (SL2 | SL2)
SCALE: 3/4" = 1'-0"

NOTE:
4" SLUDGE PIPING AND VALVES SHOWN AS SCHEMATIC. ORIENT AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

VALVE SCHEDULE

NO.	SIZE	CONN.	DESCRIPTION
PCV1-401A	4"	F x F	PNEUMATIC CONTROL
PCV1-402A	4"	F x F	PNEUMATIC CONTROL
PCV1-403A	4"	F x F	PNEUMATIC CONTROL

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PROJECT:
BPUB Train A and Train C Concrete Structure Repair Project

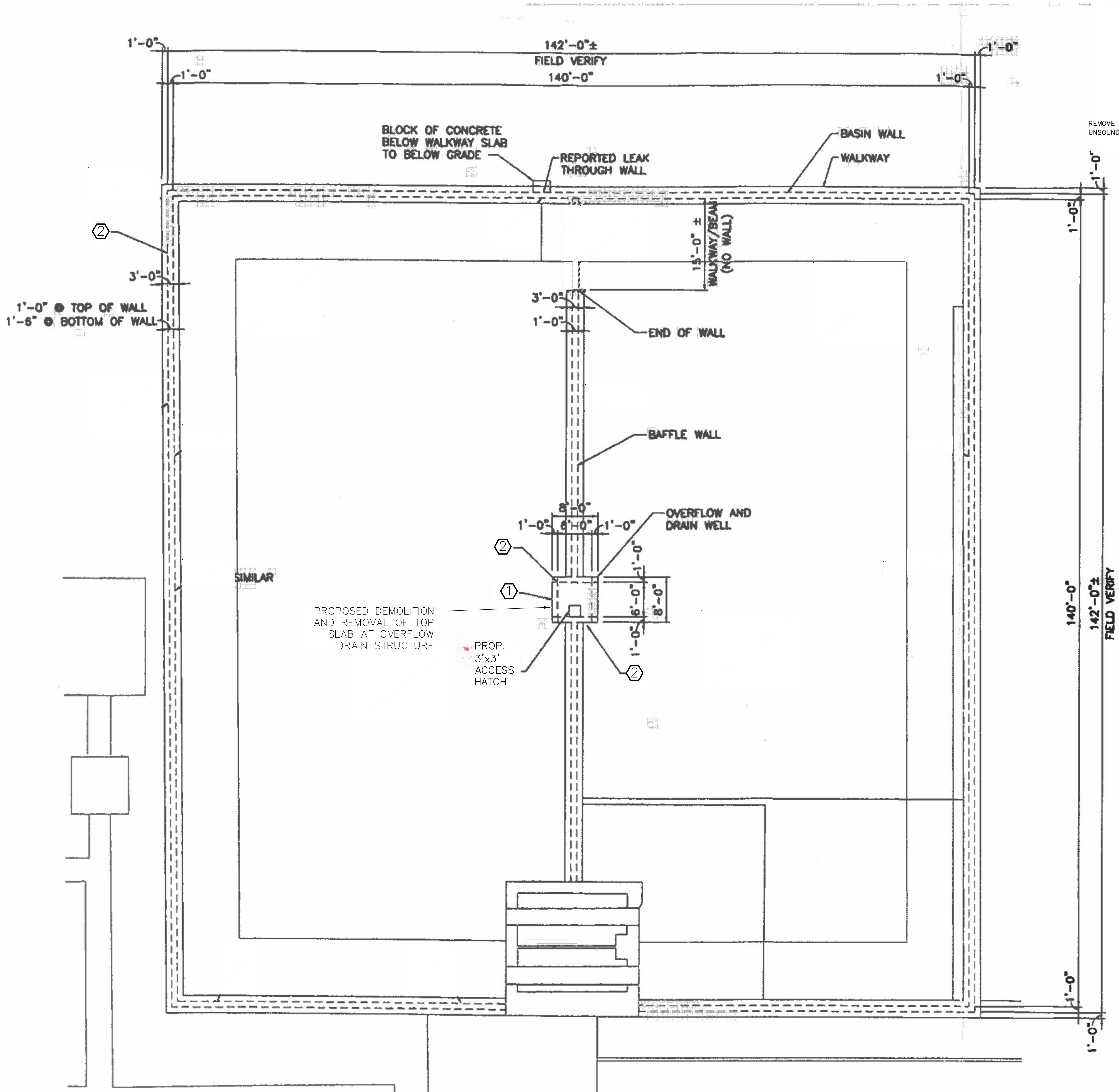
EXISTING SEDIMENTATION BASIN TRAIN A MECHANICAL SECTIONS

JNB ENGINEERING
TBPE FIRM No. F-9898
956-454-6740

PROJECT #

DRAWN BY: AJM

DATE:
3-11-2022

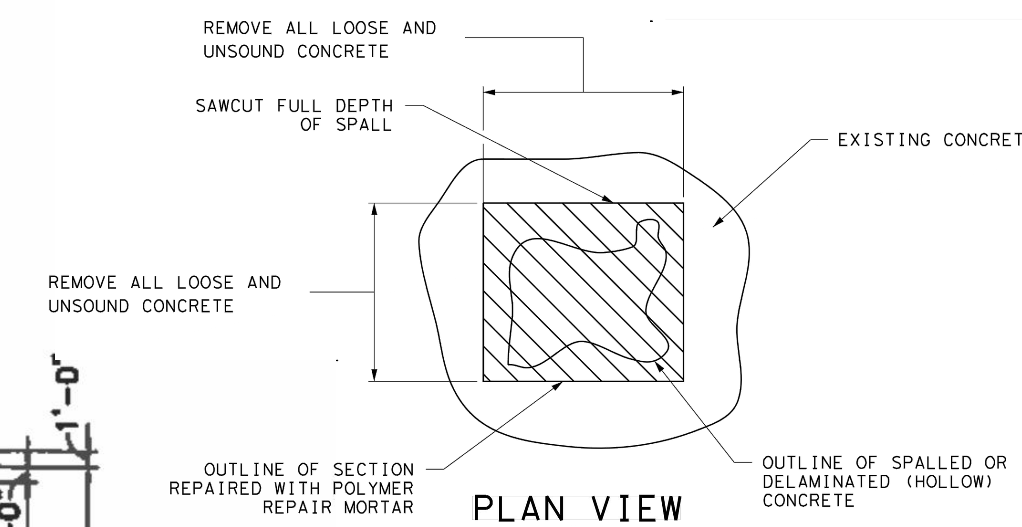


PLAN NOTES:
1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS, INCLUDING DIMENSIONS.
2. EXISTING GUARDRAILS ARE NOT SHOWN.
3. EXISTING PIPING, MECHANICAL, ELECTRICAL, AND EQUIPMENT ARE NOT SHOWN.

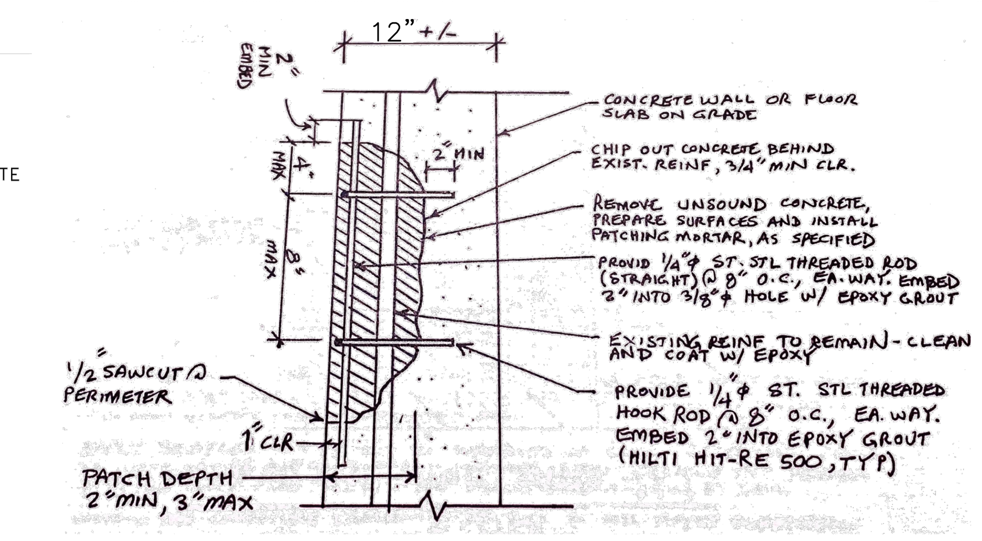
NORTH

1 SEDIMENTATION BASIN (TRAIN–C) PLAN

3/32"=1'-0"



PLAN VIEW



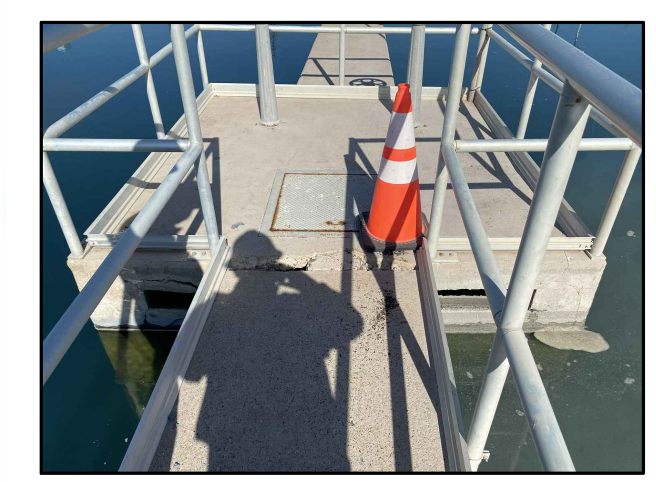
DETAIL NOTE:
1. SAW CUT PERIMETER OF SPALLED AREA. REMOVE CONCRETE WITHIN CUT PERIMETER AS REQUIRED TO PROVIDE A ½" MINIMUM REPAIR DEPTH. REMOVE ALL UNSOUND CONCRETE. CLEAN REBAR OF CORROSION AND CONTAMINATES USING MECHANICAL MEANS.
2. IF ANY REBAR HAS MORE THAN HALF ITS CROSS–SECTION EXPOSED, THEN REMOVE CONCRETE FROM AROUND THE BAR TO A MINIMUM DEPTH OF ¾".
3. CRACKS IN SOUND CONCRETE, THAT EXTEND OUT FROM THE SPALLED AREA TO BE REPAIRED. SHALL BE PRESSURE INJECTED WITH HIGH STRENGTH. LOW VISCOSITY PREPARATION AS RECOMMENDED BY SIKA.
4. REPAIR MORTAR SHALL BE SIKATOP 122 PLUS OR SIKATOP 123 PLUS, PREPARE, INSTALL IN MULTIPLE LIFTS, FINISH, AND CURE AS RECOMMENDED BY MANUFACTURER.
5. FINISHED SURFACE TEXTURE SHALL MATCH EXISTING FINISH TEXTURE.

2 TYPICAL CONCRETE SPALL & CRACK REPAIR

NOT TO SCALE

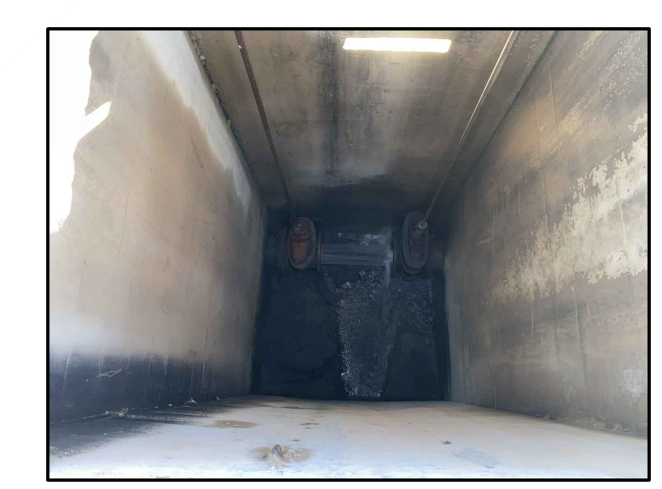
NOTES BY SYMBOL "⬡"
1. AT THE TOP OF THE OVERFLOW AND DRAIN WELL STRUCTURE, THERE ARE NUMEROUS CONCRETE CRACKS AND SPALLS AND EXPOSED REBAR AT THE OVERFLOW INLETS ON ALL SIDES. SEE PHOTO NOs 1–6. COMPLETE REMOVAL OF DAMAGED TOP OF SLAB IS REQUIRED AND REPLACE WITH NEW REINFORCED CONCRETE TOP.

2. THERE ARE SEVERAL AREAS WITH EXPOSED REBAR AS WELL AS AREAS WITH REBAR CORROSION ON SURFACE OF CONCRETE INDICATING INSUFFICIENT CONCRETE COVER. THERE ARE ALSO AREAS WITH EXPOSED AGGREGATE. SEE PHOTO NOs. 1–6. REPAIR PER TYPICAL CONCRETE SPALL AND CRACK REPAIR DETAIL.

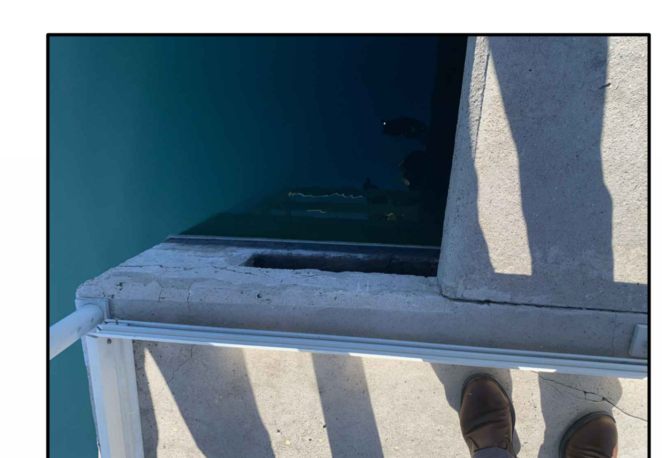

PICTURE # 1

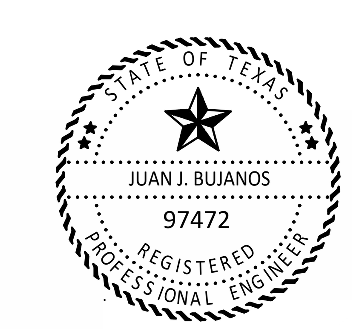

PICTURE # 2


PICTURE # 3


PICTURE # 4


PICTURE # 5


PICTURE # 6



3/11/22

PROJECT:
BPUB Train A and Train C Concrete Structure Repair Project

STRUCTURAL SEDIMENTATION BASIN (TRAIN - C) PLAN

JNB ENGINEERING
TBPE FIRM No. F-9898
956-454-6740

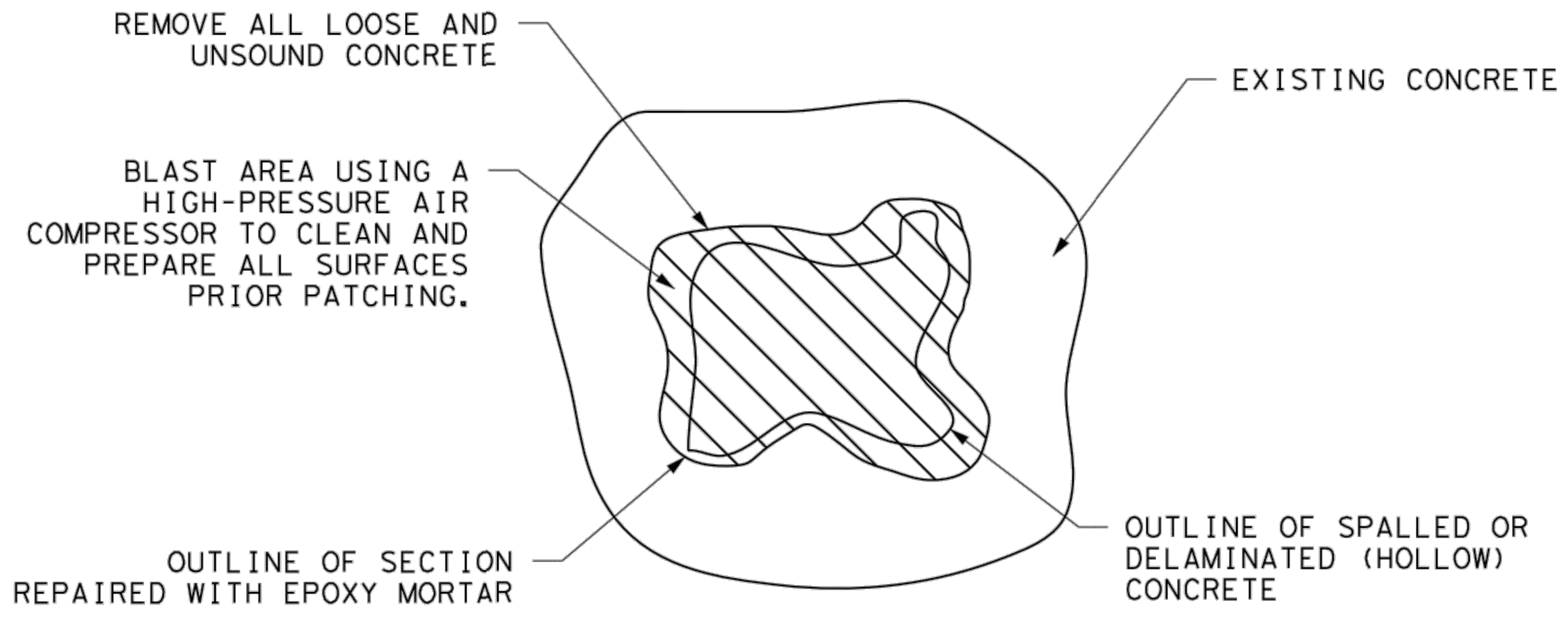
PROJECT #

DRAWN BY: AJM

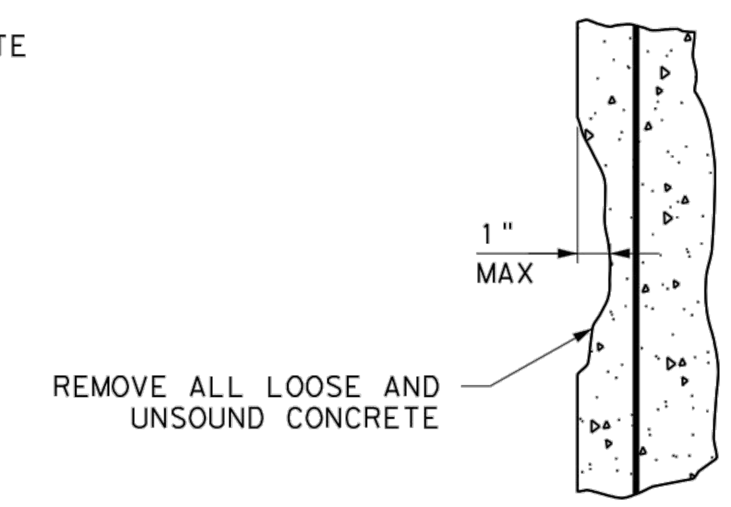
DATE:
3-11-2022

GENERAL NOTES

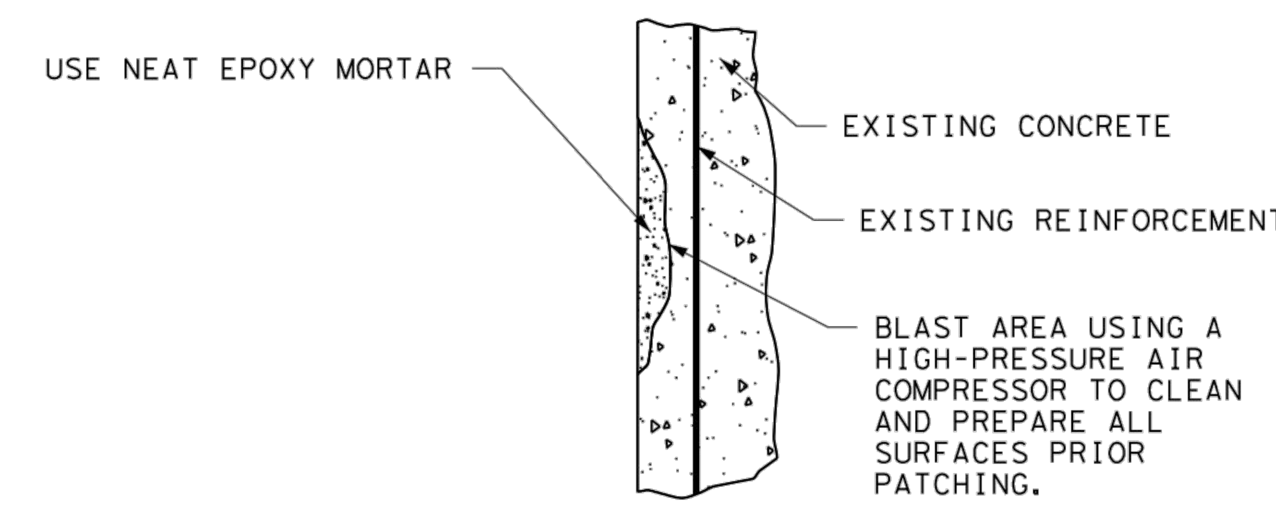
1. CONTRACTOR WILL FIELD VERIFY ALL LOCATIONS IDENTIFIED WITHIN THESE PLANS PRIOR TO COMMENCING WORK.
2. QUANTITIES FOR SHALLOW AND INTERMEDIATE SPALL REPAIRS ARE BASED ON THE 2021 JNB ENGINEERING ASSESSMENT REPORT. THE CONTRACTOR WILL REPORT ANY OTHER SPALLING LOCATIONS TO THE ENGINEER BEFORE BEGINNING REPAIRS.
3. PERFORM WORK IN ACCORDANCE TO DETAILS AND SPECS "CONCRETE STRUCTURE REPAIR".
4. SUBMIT DETAILED REPAIR PROCEDURES, INCLUDING PROPOSED PRODUCT MANUFACTURER MATERIAL SPECIFICATIONS, FOR APPROVAL PRIOR TO COMMENCING WORK.



PLAN VIEW



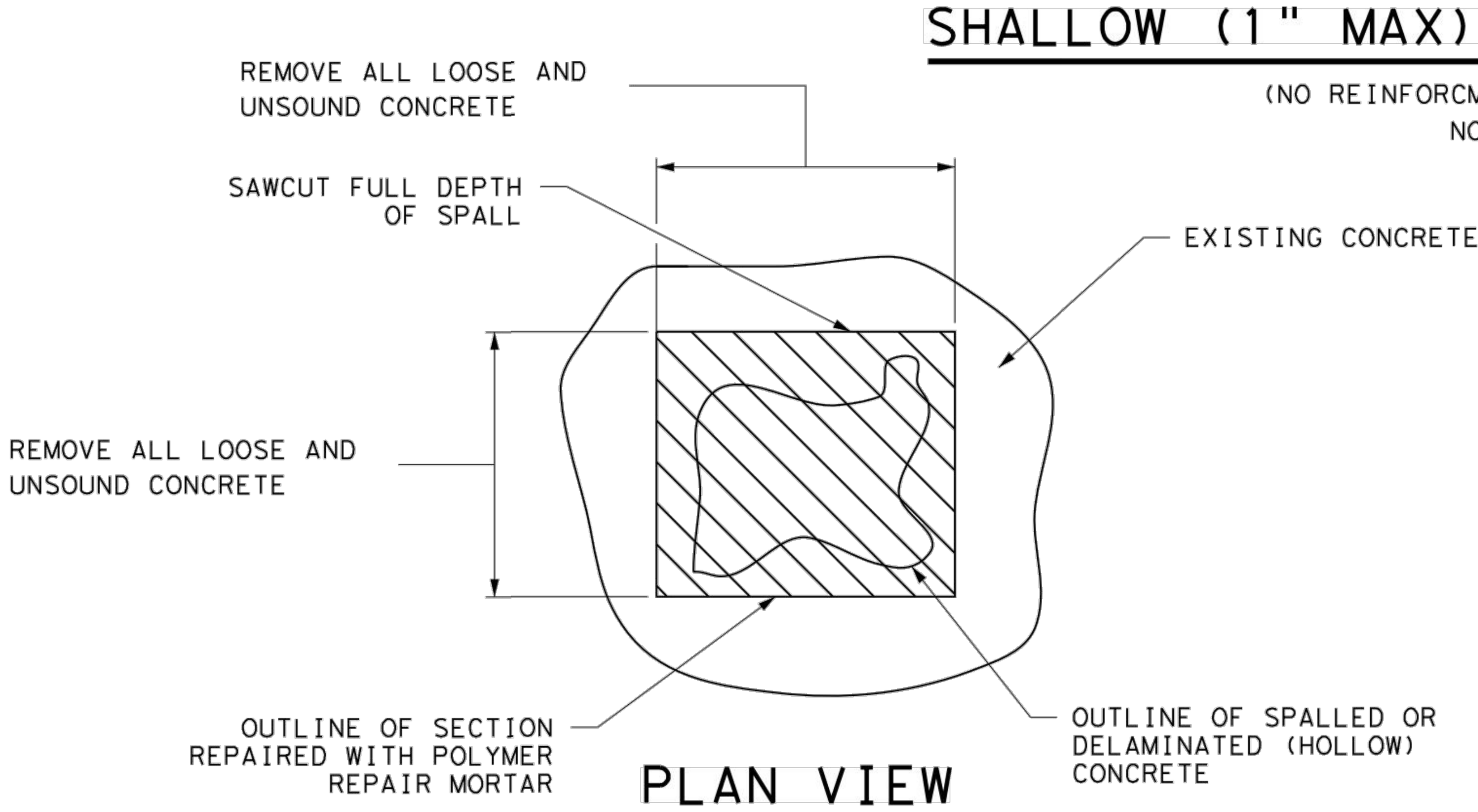
EXISTING SPALL SECTION



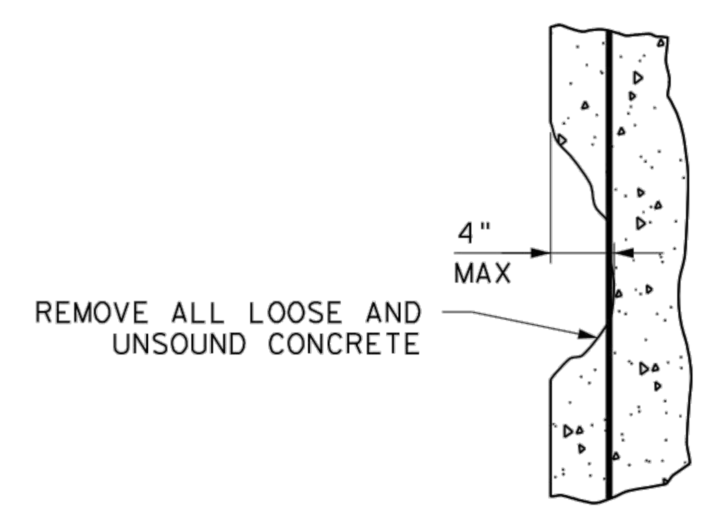
REPAIR SECTION

SHALLOW (1" MAX) SPALL REPAIR DETAIL

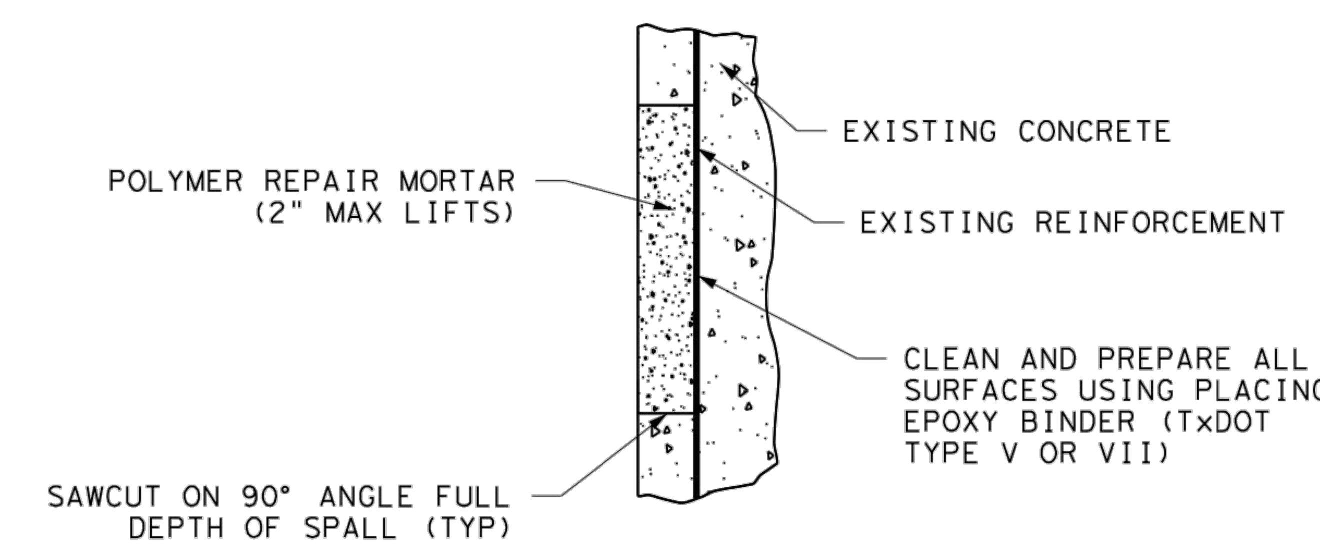
(NO REINFORCMENT STEEL EXPOSED)
NO SCALE



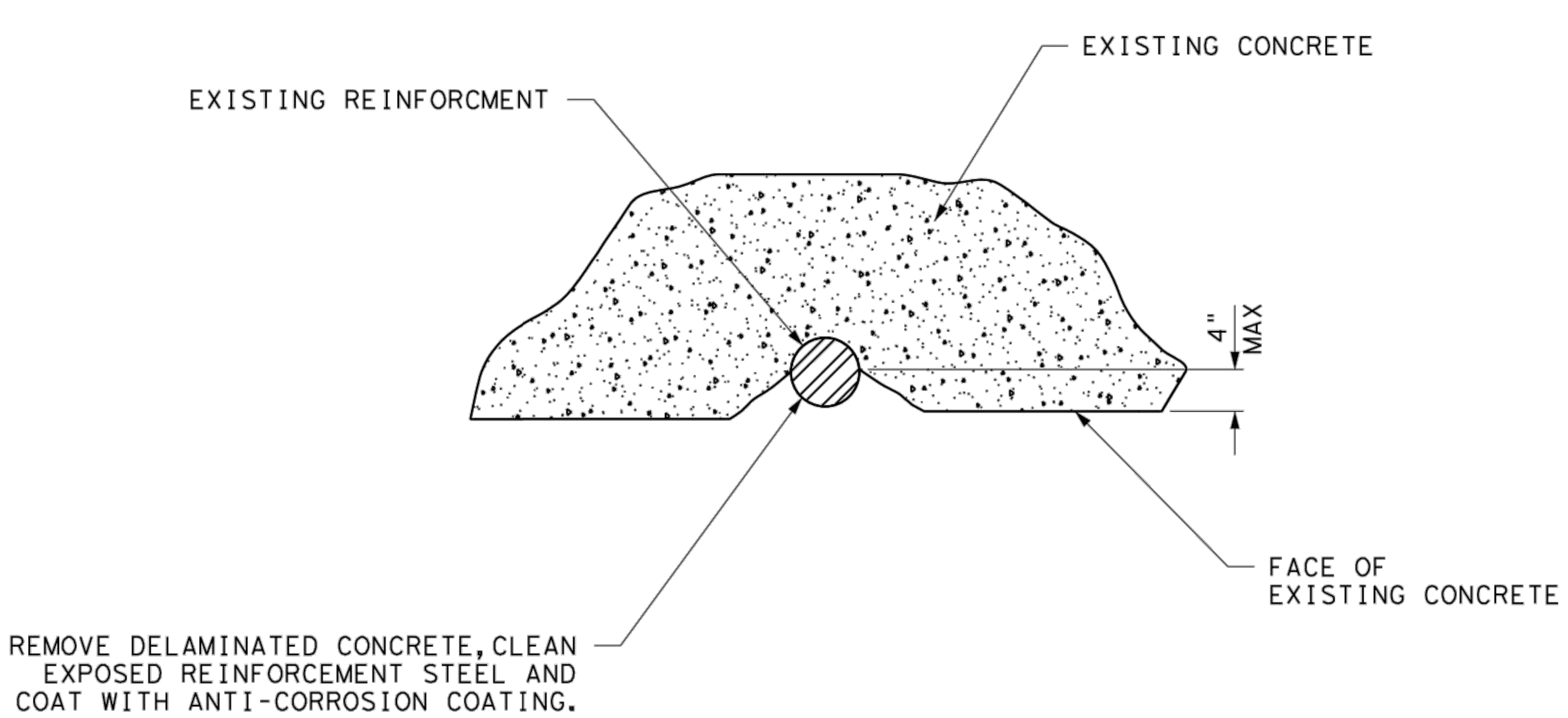
PLAN VIEW



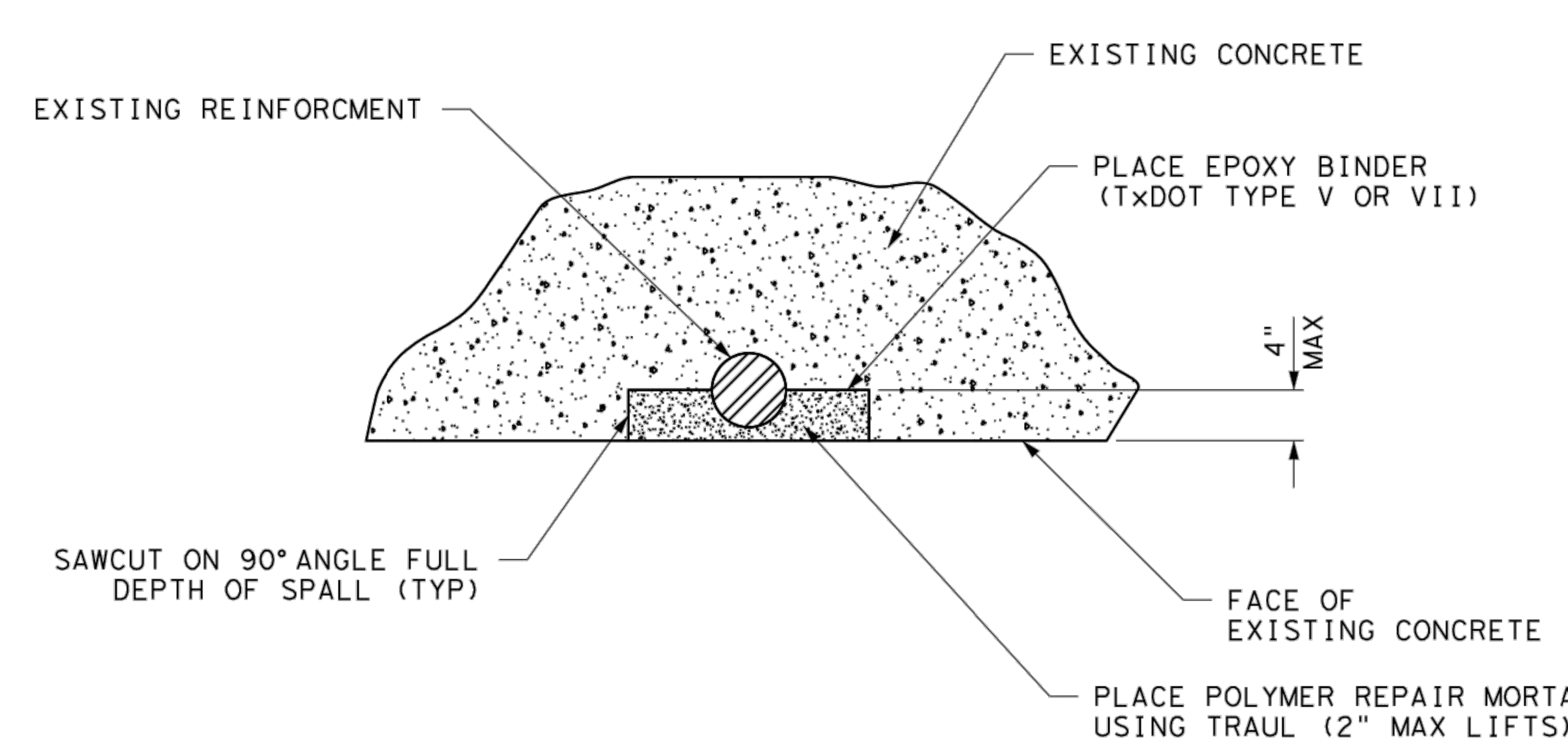
EXISTING SPALL



REPAIR



SECTION A-A



SECTION B-B

INTERMEDIATE (4" MAX) SPALL REPAIR DETAIL

(REINFORCMENT STEEL MAY BE EXPOSED)

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PROJECT: BPUB Train A and Train C Concrete Structure Repair Project

CONCRETE REPAIR DETAILS

JNB ENGINEERING
TBPE FIRM No. F-9898
956-454-6740

PROJECT #

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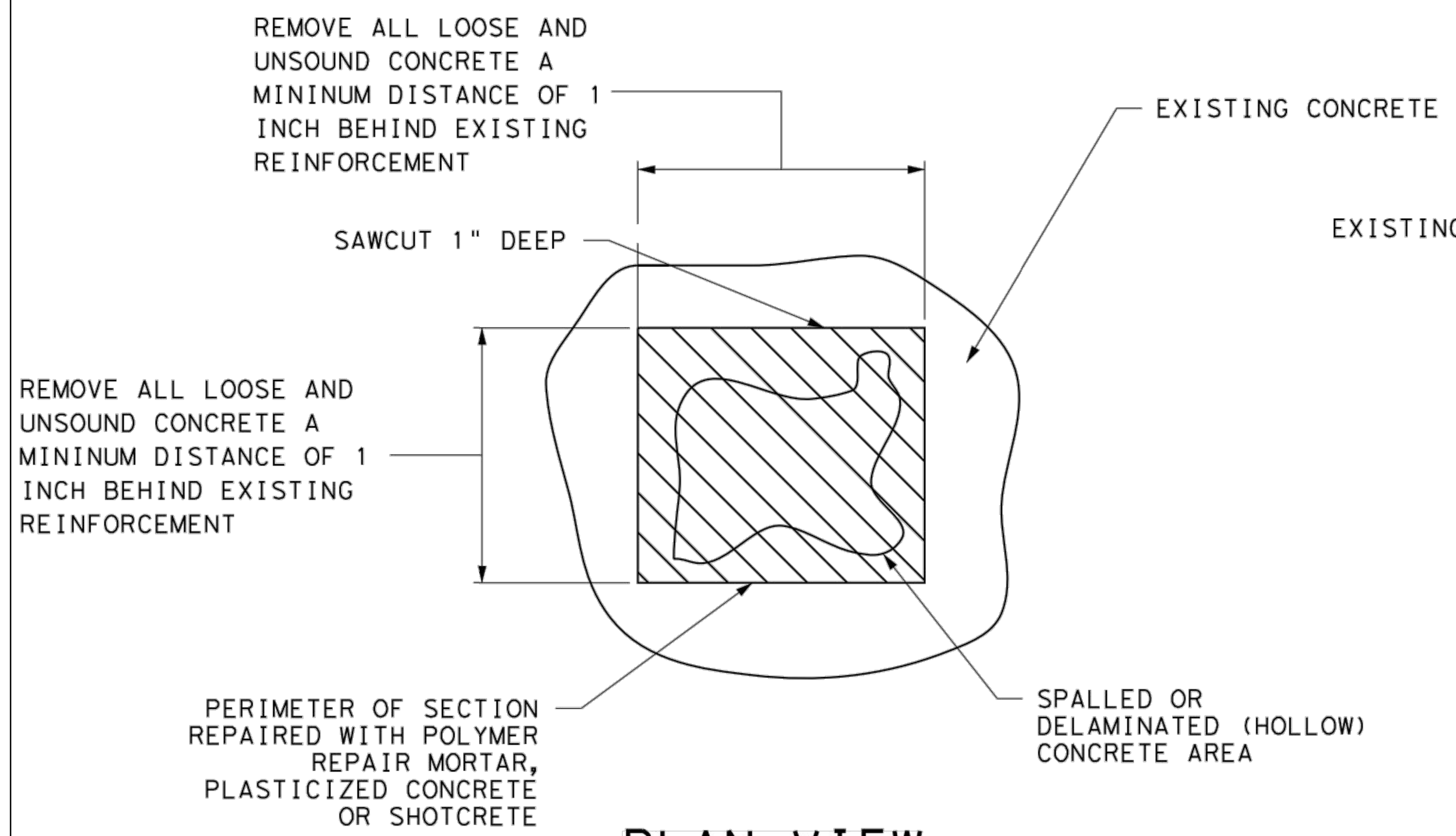
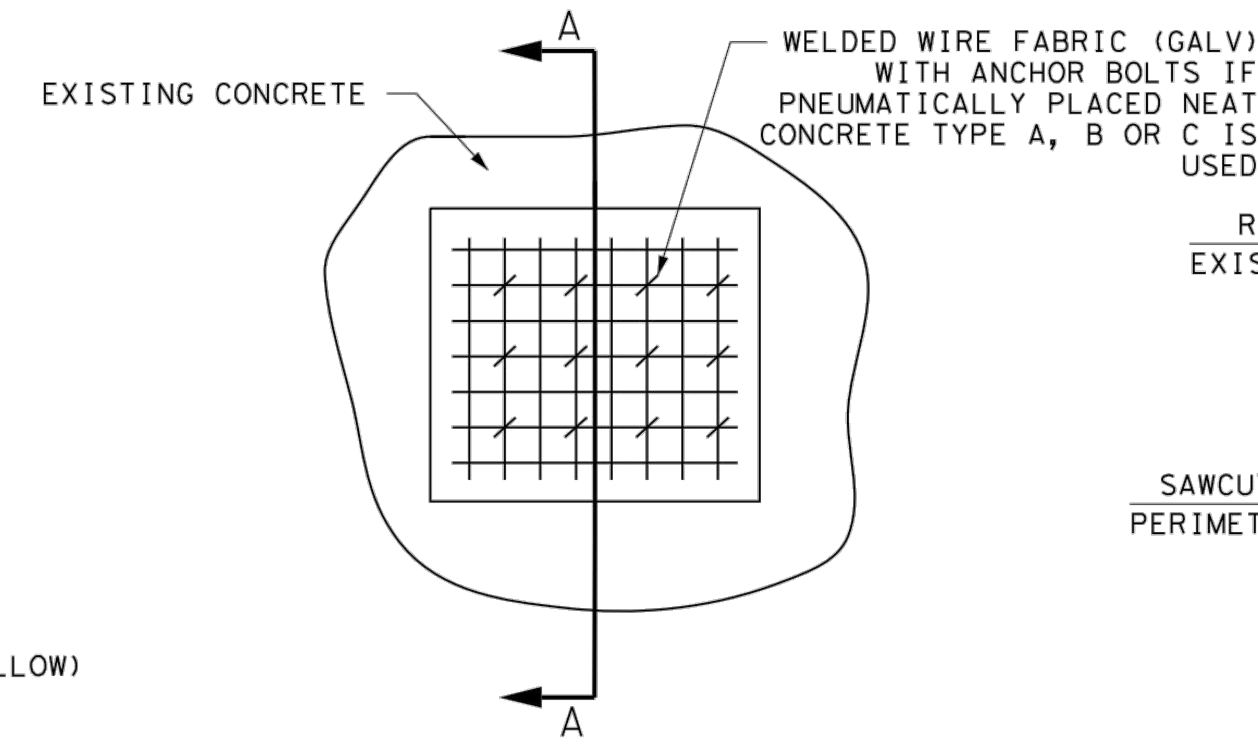
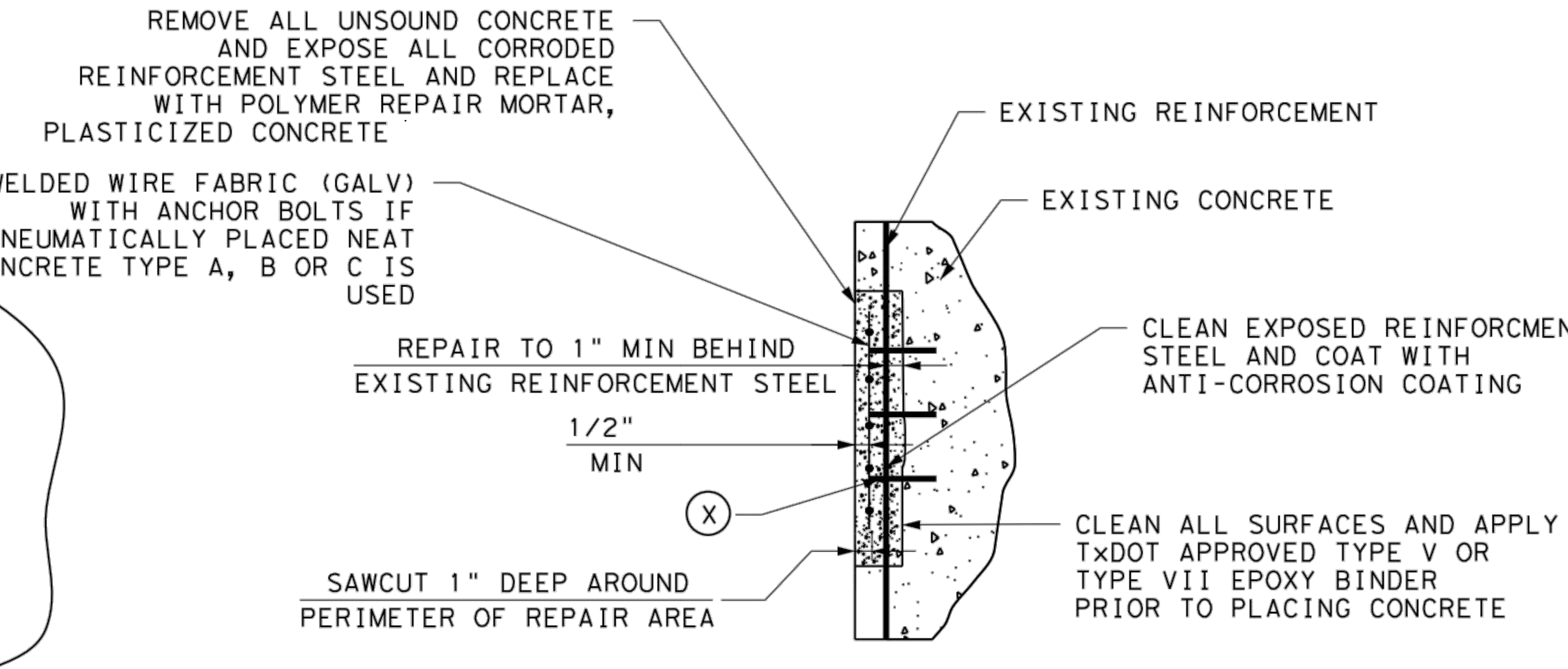


PLAN VIEW



CONCRETE REPAIR PLAN

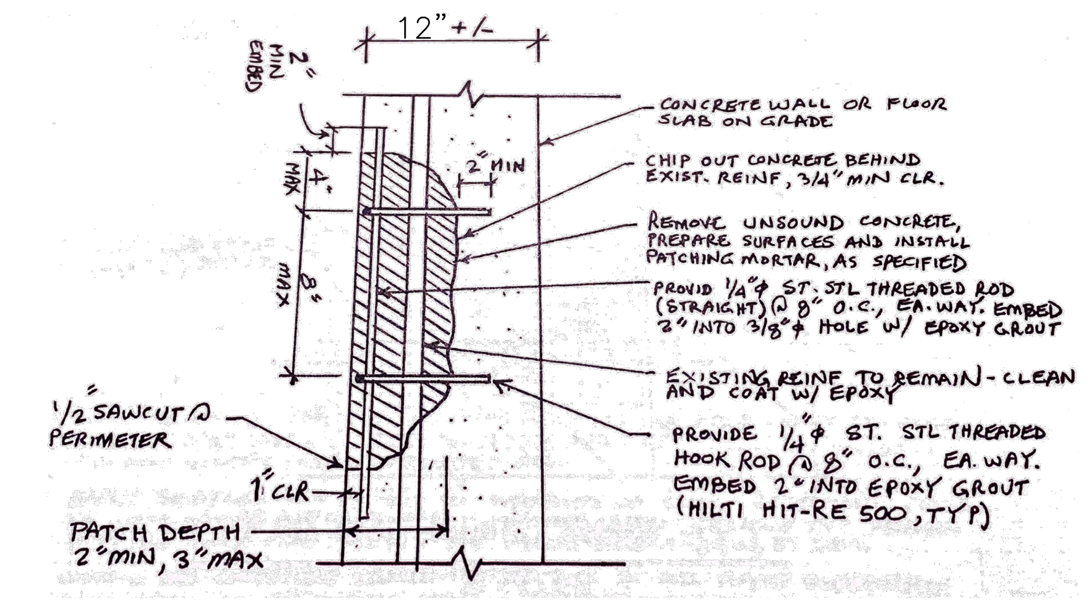


(X) INSTALL GROUTED L-SHAPE ANCHORS SPACED TO MATCH REINFORCMENT STEEL SPACING IN ANY AREA THAT IS AT LEAST ONE SURFACE DIMENSION GREATER THAN 3 FEET

SECTION A-A

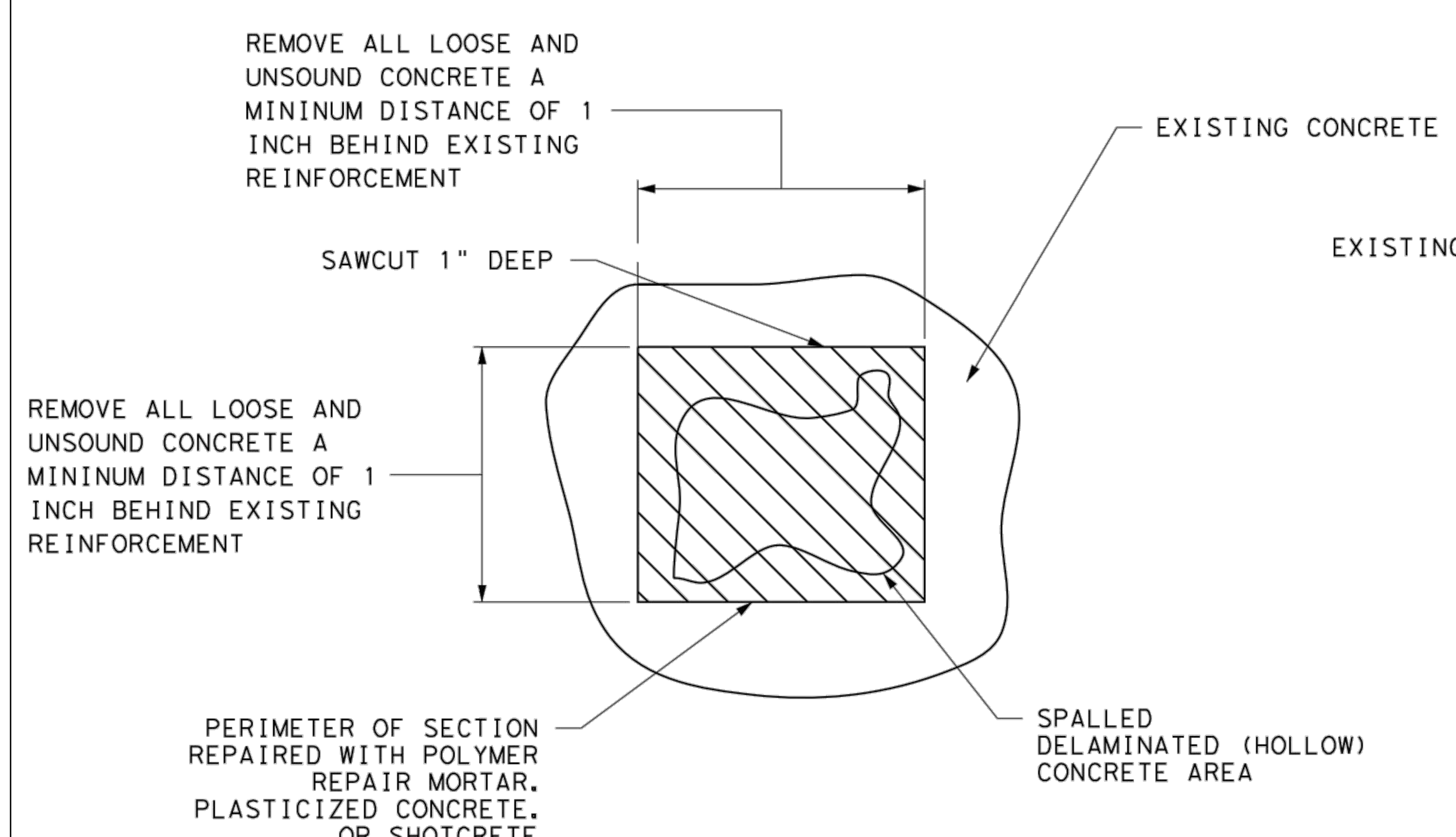
GENERAL NOTES

1. CONTRACTOR WILL FIELD VERIFY ALL LOCATIONS IDENTIFIED WITHIN THESE PLANS PRIOR TO COMMENCING WORK.
2. QUANTITIES FOR SHALLOW AND INTERMEDIATE SPALL REPAIRS ARE BASED ON THE 2021 JNB ENGINEERING ASSESSMENT REPORT. THE CONTRACTOR WILL REPORT ANY OTHER SPALLING LOCATIONS TO THE ENGINEER BEFORE BEGINNING REPAIRS.
3. PERFORM WORK IN ACCORDANCE TO DETAILS AND SPECS "CONCRETE STRUCTURE REPAIR".
4. SUBMIT DETAILED REPAIR PROCEDURES, INCLUDING PROPOSED PRODUCT MANUFACTURER MATERIAL SPECIFICATIONS, FOR APPROVAL PRIOR TO COMMENCING WORK.

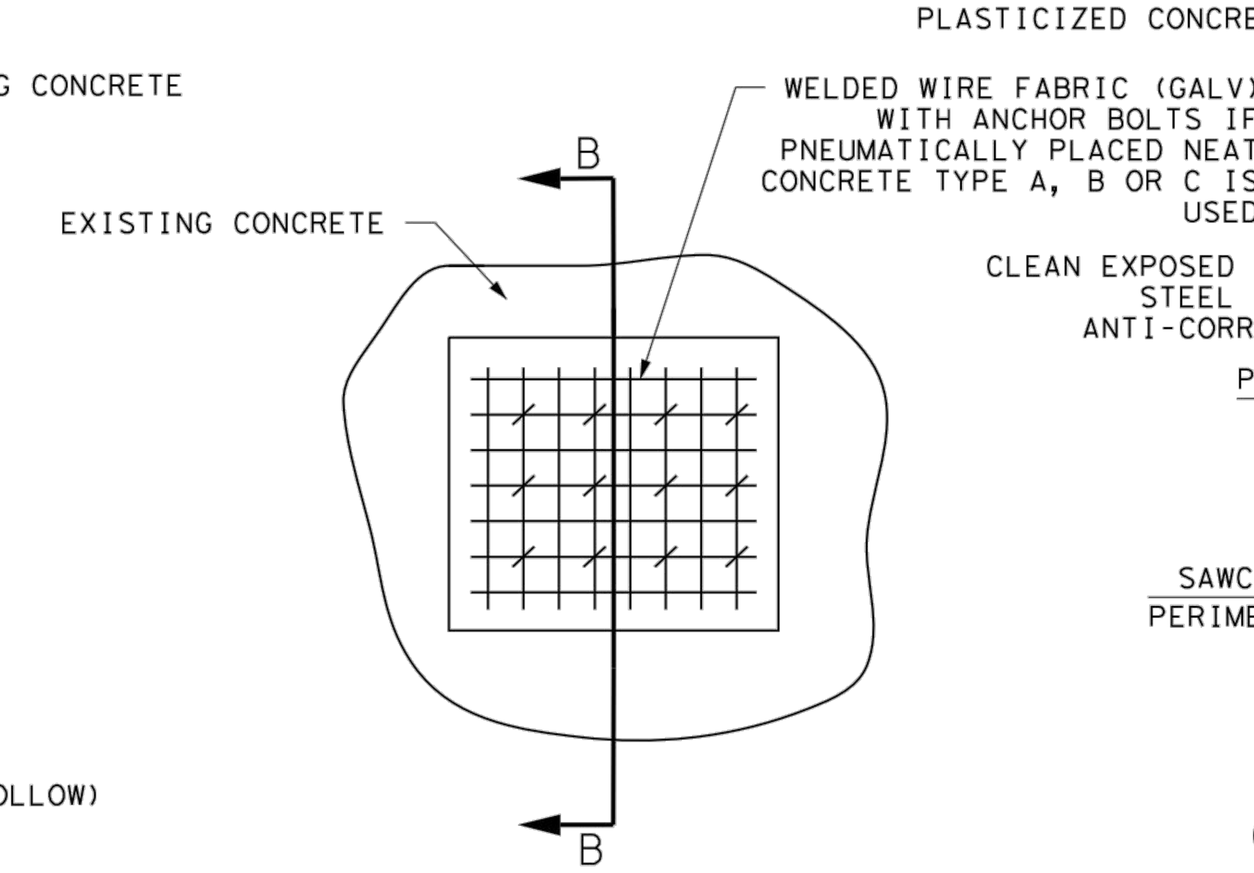


DEEP (4" OR GREATER) SPALL WITH EXPOSED ADEQUATE REINFORCEMENT STEEL

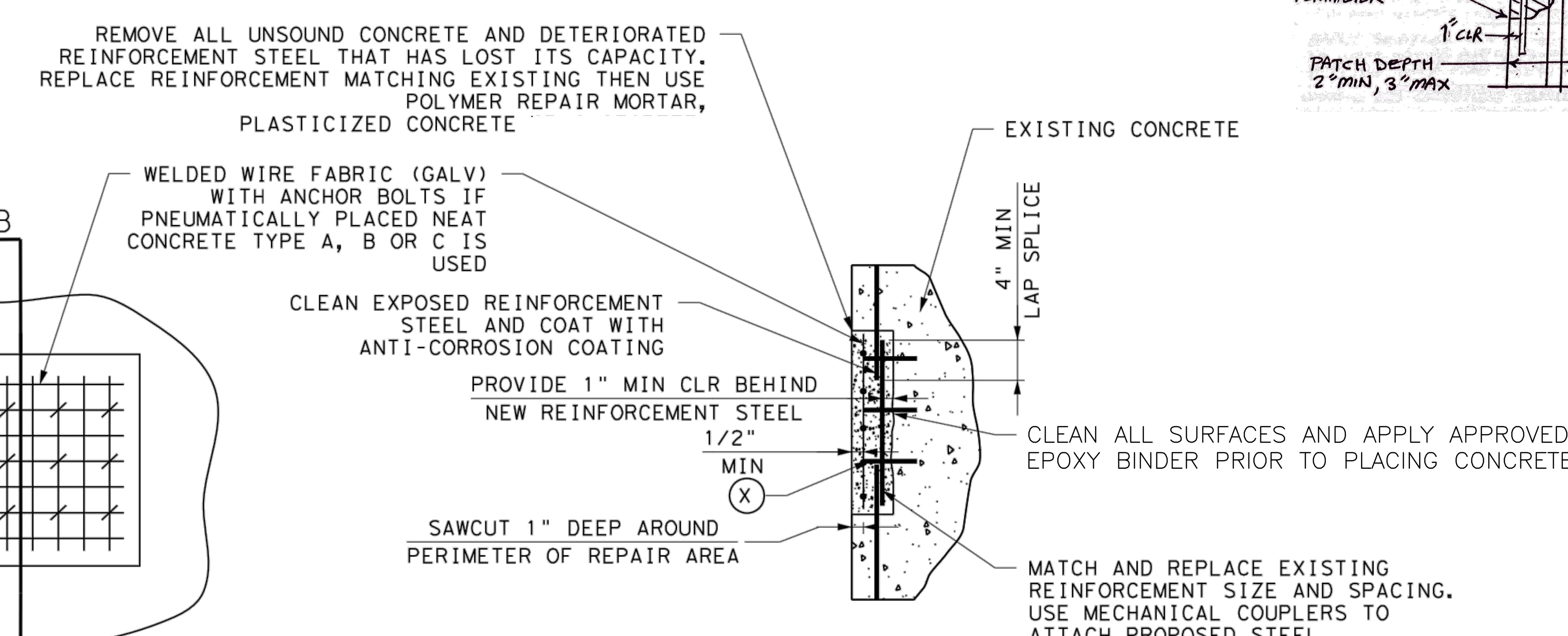
(USE FOR REINFORCEMENT THAT MINOR TO NO DETERIORATION)
NO SCALE



PLAN VIEW



CONCRETE REPAIR PLAN

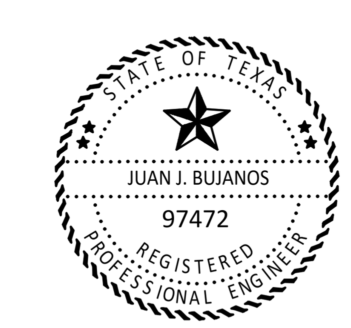


(X) INSTALL GROUTED L-SHAPE ANCHORS SPACED TO MATCH REINFORCMENT STEEL SPACING IN ANY AREA THAT IS AT LEAST ONE SURFACE DIMENSION GREATER THAN 3 FEET

SECTION B-B

DEEP (4" OR GREATER) SPALL WITH EXPOSED AND DETERIORATED REINFORCEMENT STEEL

(USE FOR REINFORCEMENT WITH CROSS SECTIONAL AREAS DETERIORATED 25% OR GREATER)



3/11/22

PROJECT: BPUB Train A and Train C Concrete Structure Repair Project

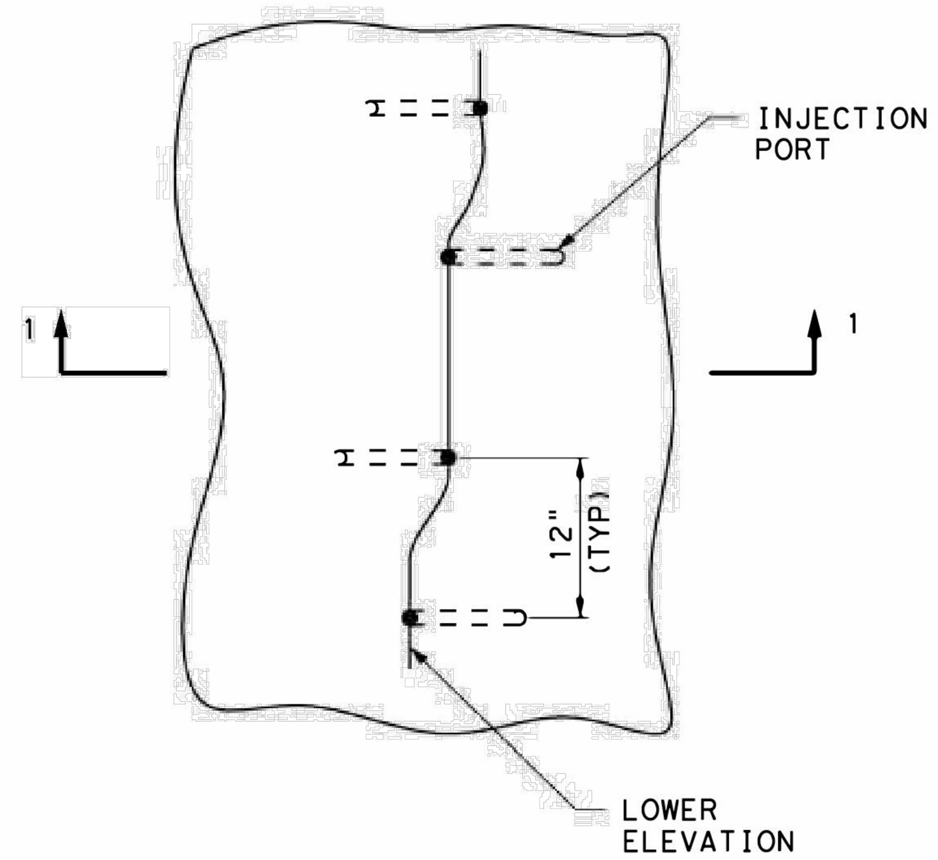
CONCRETE REPAIR DETAILS

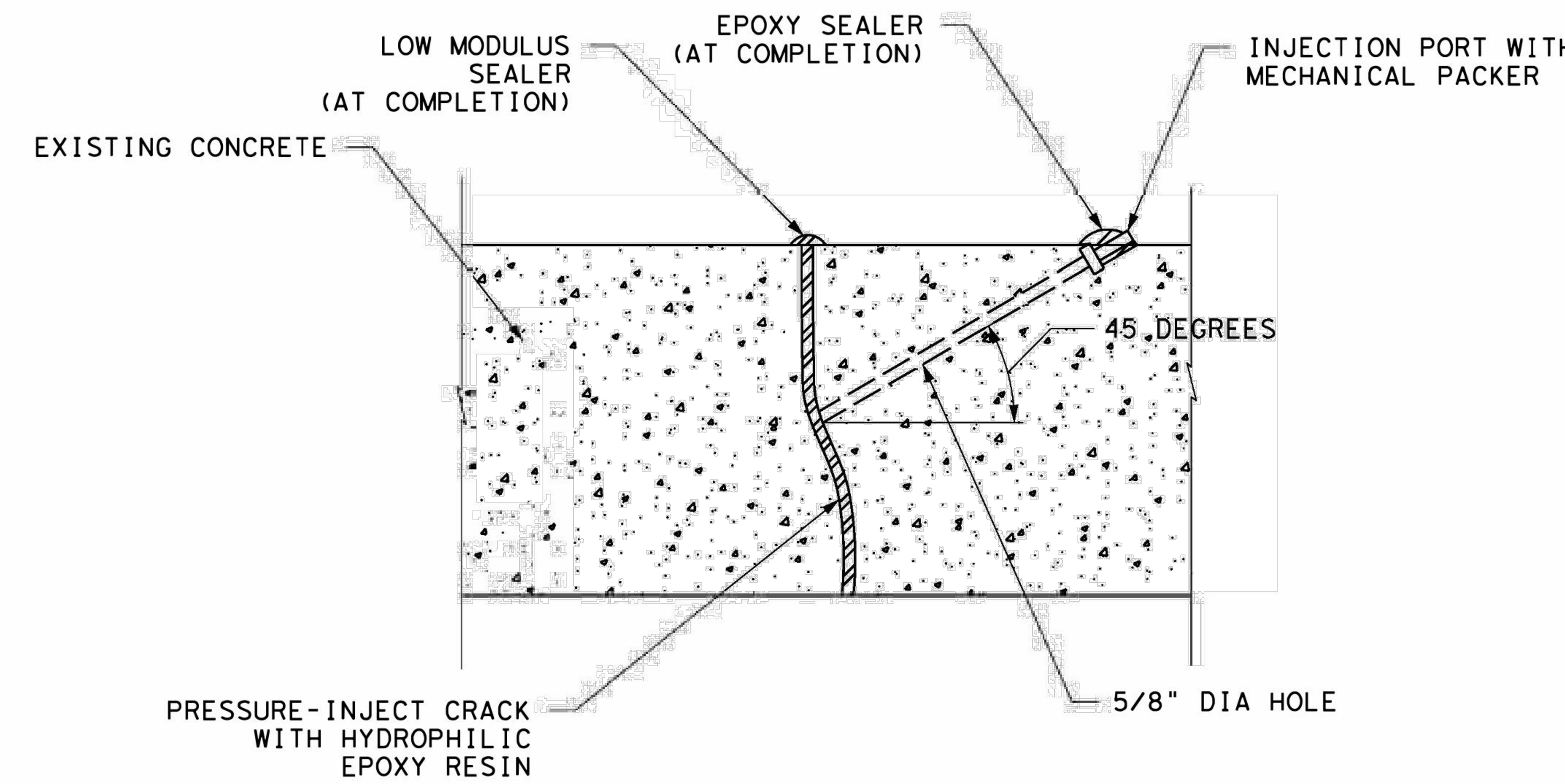
JNB ENGINEERING
TBPE FIRM No. F-9898
956-454-6740

PROJECT #

DRAWN BY: AJM

DATE: 3-11-2022





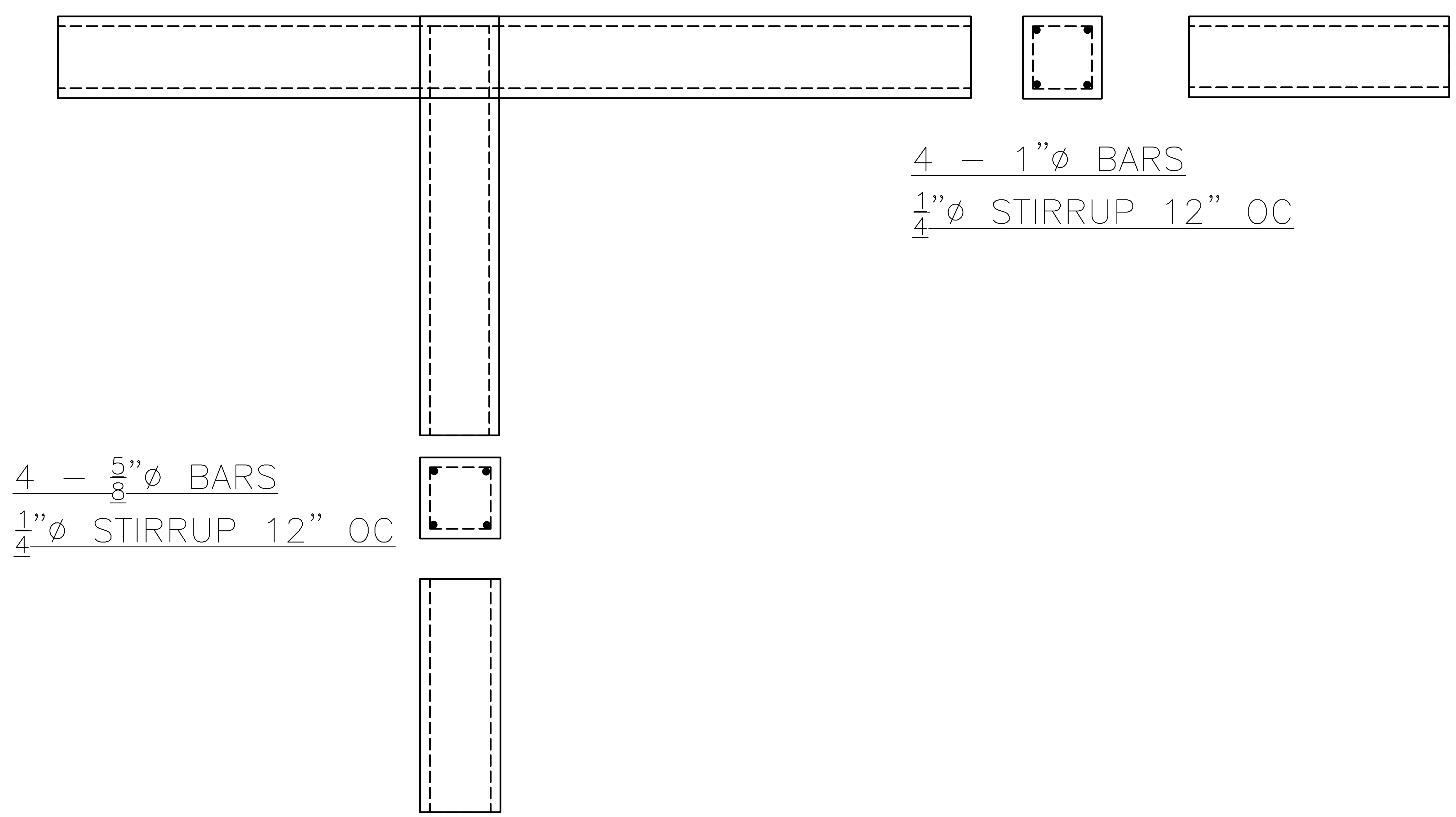
SECTION 1-1

LEAKING CRACK REPAIR DETAIL

(FOR LEAKING CRACK, VERTICAL SURFACES)
NO SCALE

GENERAL NOTES

1. CONTRACTOR WILL FIELD VERIFY ALL LOCATIONS IDENTIFIED WITHIN THESE PLANS PRIOR TO COMMENCING WORK.
2. QUANTITIES FOR SHALLOW AND INTERMEDIATE SPALL REPAIRS ARE BASI ON THE 2021 JNB ENGINEERING ASSESSMENT REPORT. THE CONTRACTOI WILL REPORT ANY OTHER SPALLING LOCATIONS TO THE ENGINEER BEFORE BEGINNING REPAIRS.
3. PERFORM WORK IN ACCORDANCE TO DETAILS AND SPECS "CONCRETE STRUCTURE REPAIR".
4. SUBMIT DETAILED REPAIR PROCEDURES, INCLUDING PROPOSED PRODUCT MANUFACTURER MATERIAL SPECIFICATION FOR APPROVAL PRIOR TO COMMENCING WORK.



COLUMN WITH TIE BEAM STEEL REINFORCEMENT REPLACEMENT DETAIL

STATE OF TEXAS
JUAN J. BUJANOS
97472
REGISTERED PROFESSIONAL ENGINEER

3/11/22

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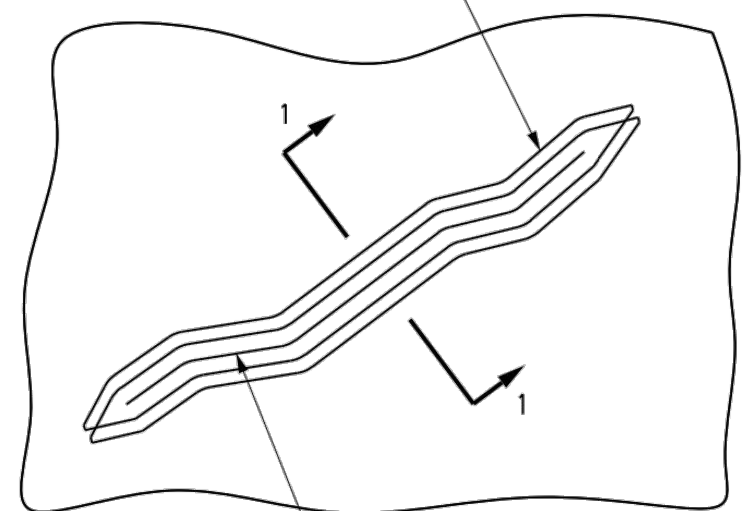

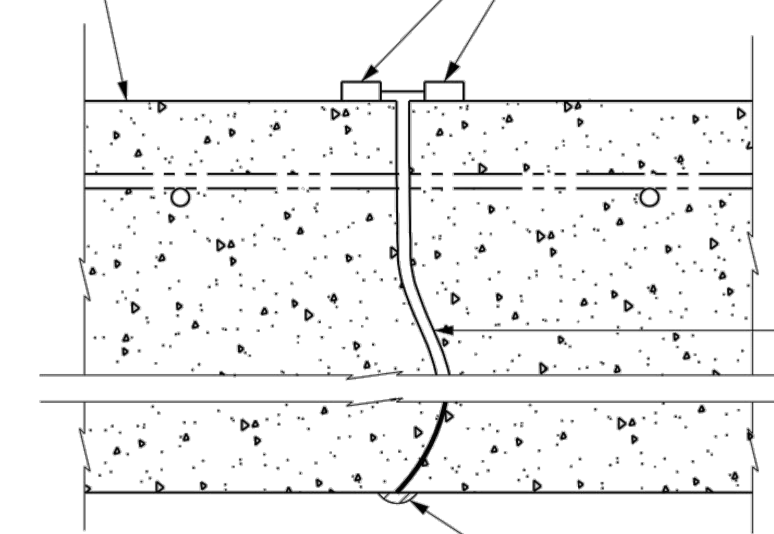

SECTION 1-1

HORIZONTAL SURFACE CRACK REPAIR DETAIL

(FOR CRACKS 1/32" WIDE AND GREATER)

NO SCALE

GENERAL NOTES

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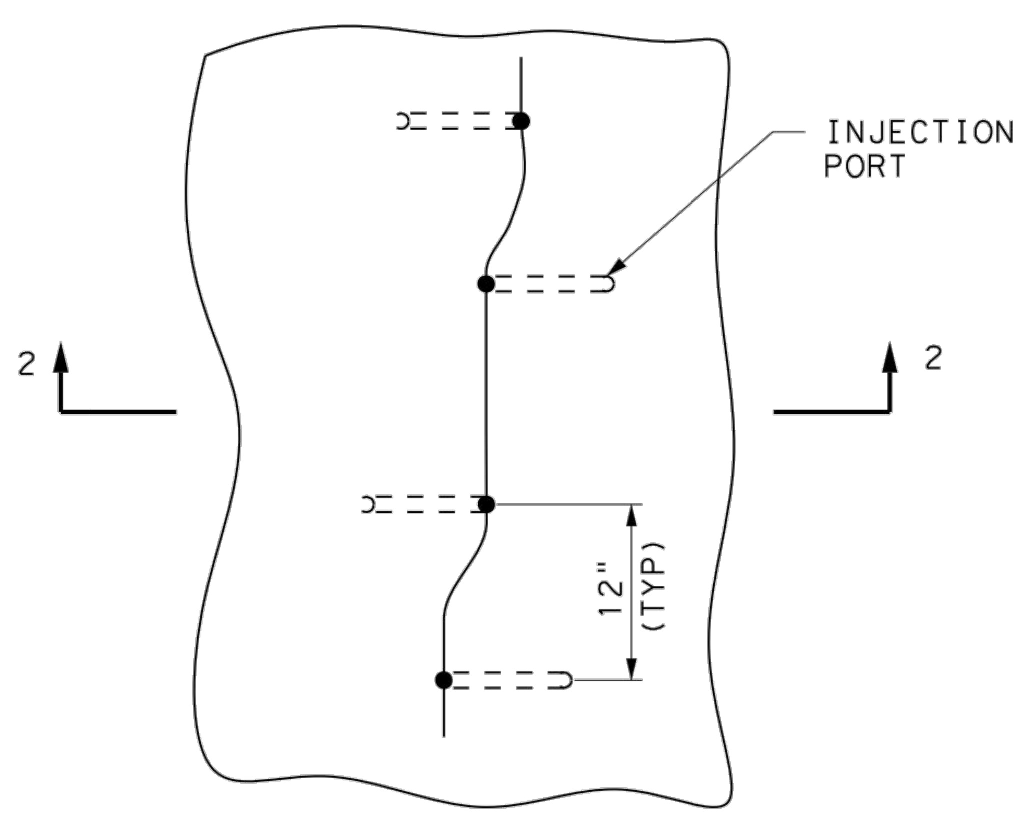
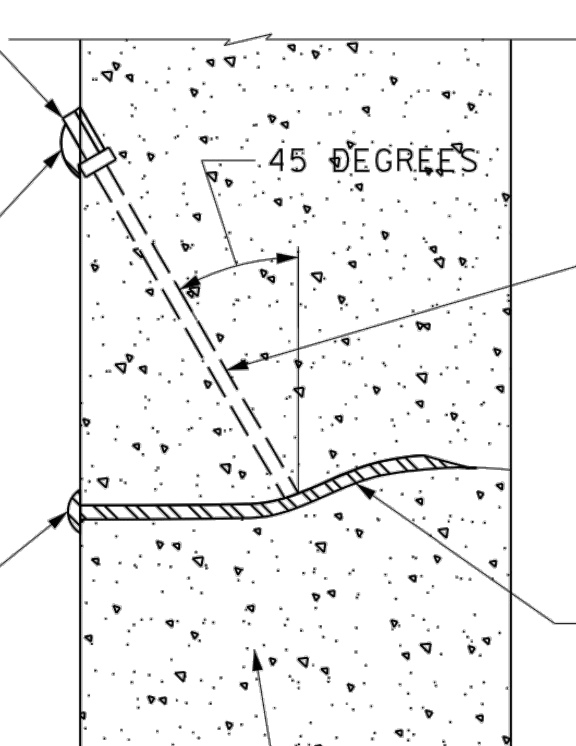
2. QUANTITIES FOR SHALLOW AND INTERMEDIATE SPALL REPAIRS ARE BASED ON THE 2021 JNB ENGINEERING ASSESSMENT REPORT. THE CONTRACTOR WILL REPORT ANY OTHER SPALLING LOCATIONS TO THE ENGINEER BEFORE BEGINNING REPAIRS.
3. PERFORM WORK IN ACCORDANCE TO DETAILS AND SPECS "CONCRETE STRUCTURE REPAIR".
4. SUBMIT DETAILED REPAIR PROCEDURES, INCLUDING PROPOSED PRODUCT MANUFACTURER MATERIAL SPECIFICATIONS, FOR APPROVAL PRIOR TO COMMENCING WORK.





SECTION 2-2

VERTICAL/OVER HEAD CRACK REPAIR DETAIL

(FOR CRACKS 1/32" WIDE AND GREATER)

NO SCALE

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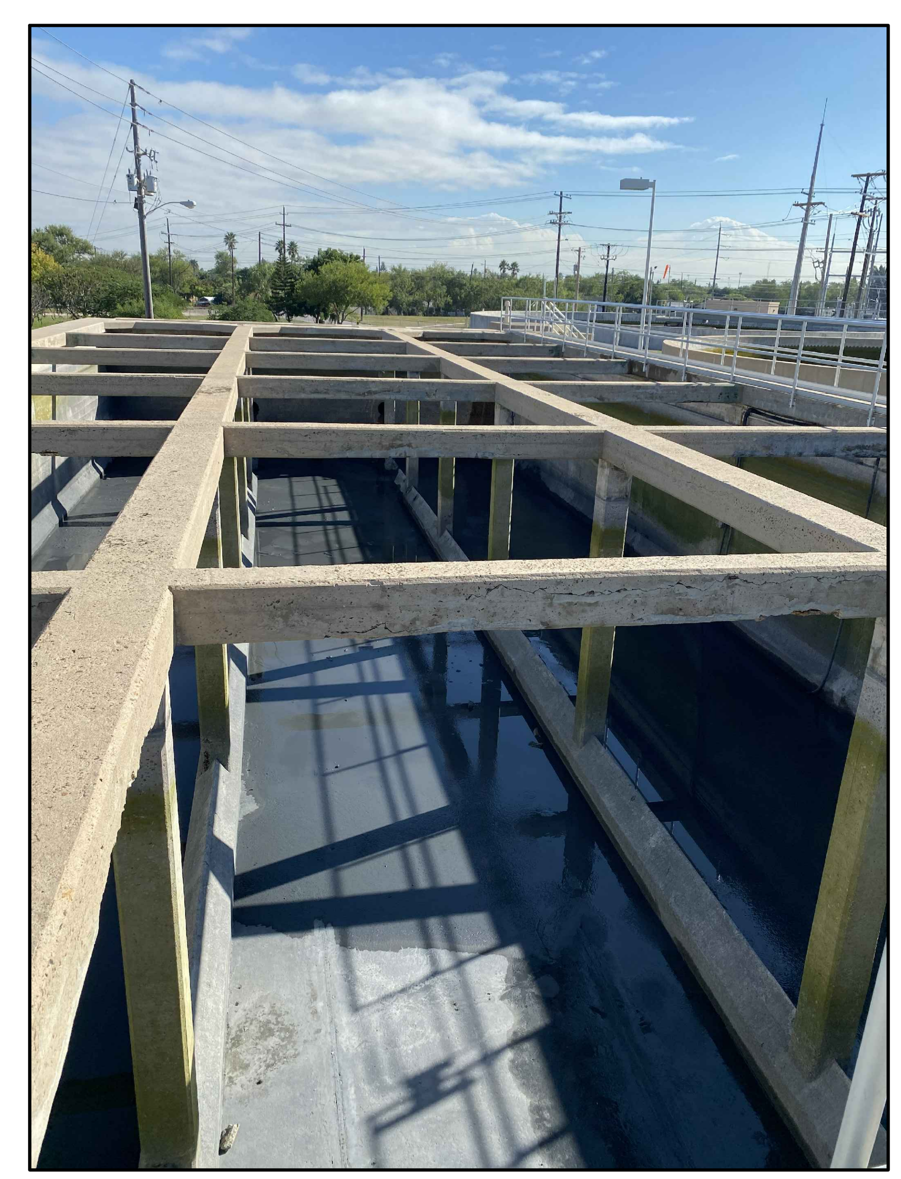

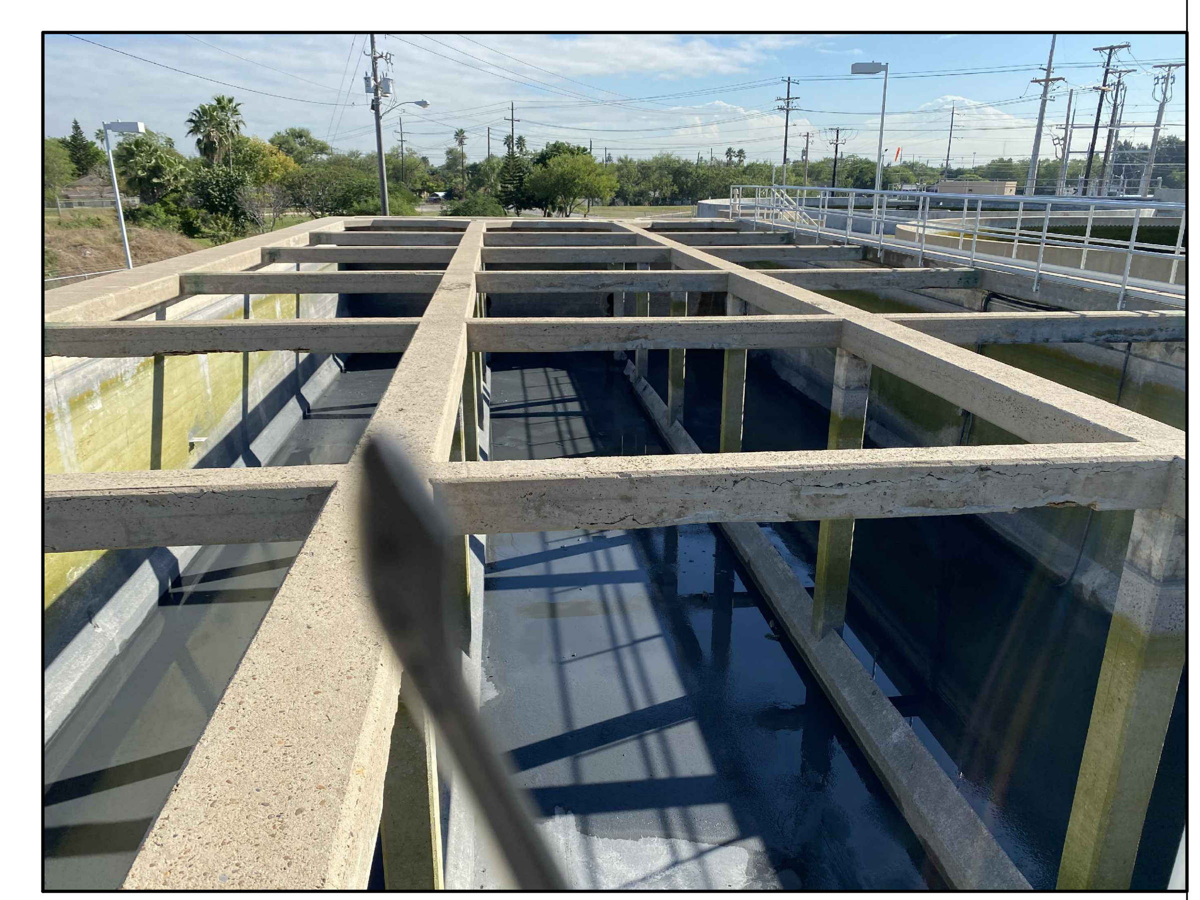

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STRUCTURAL PHOTOS

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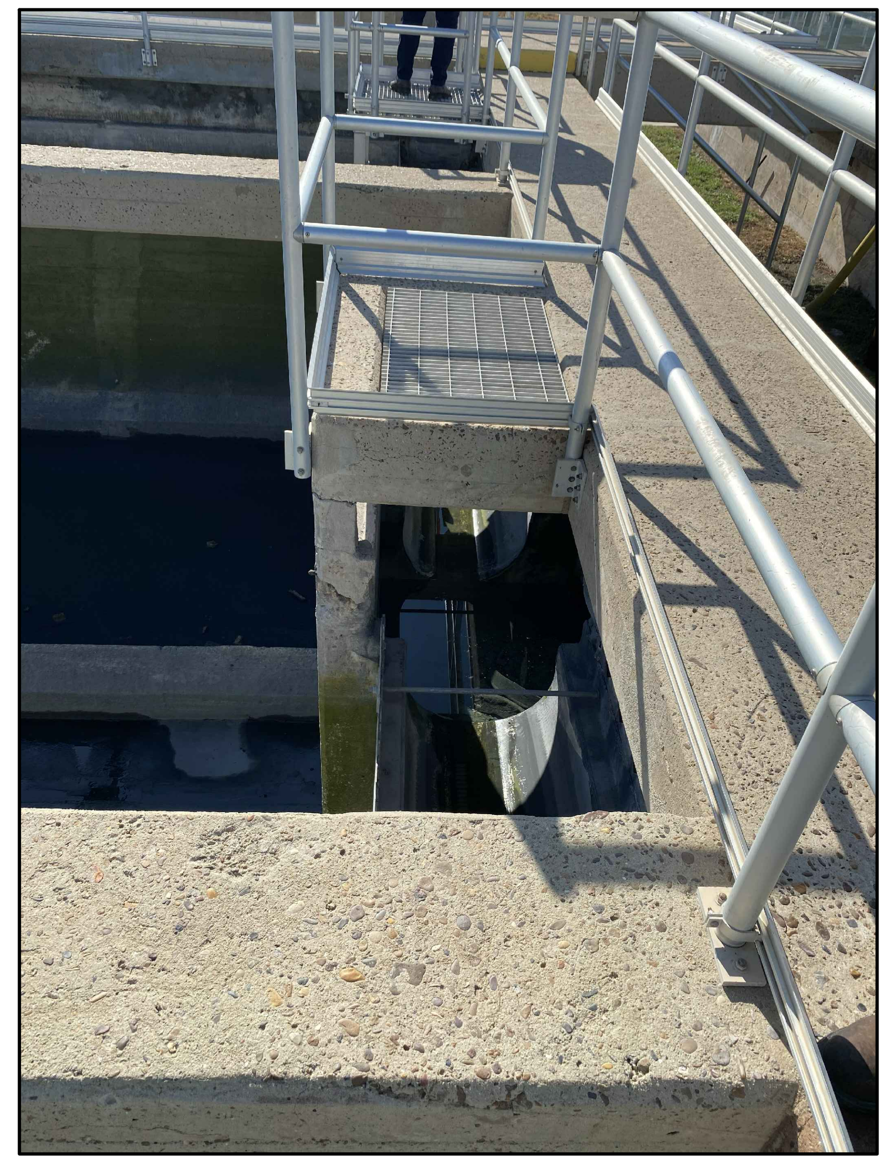

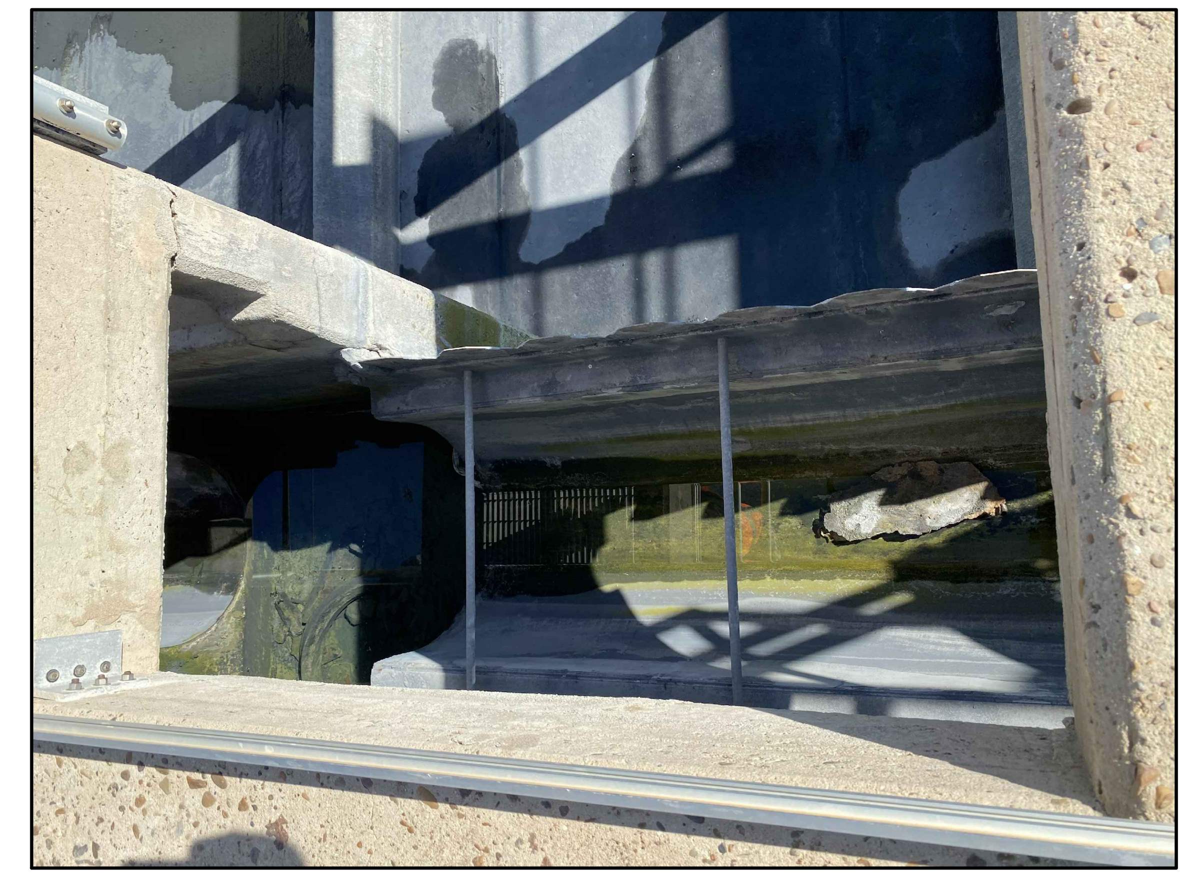

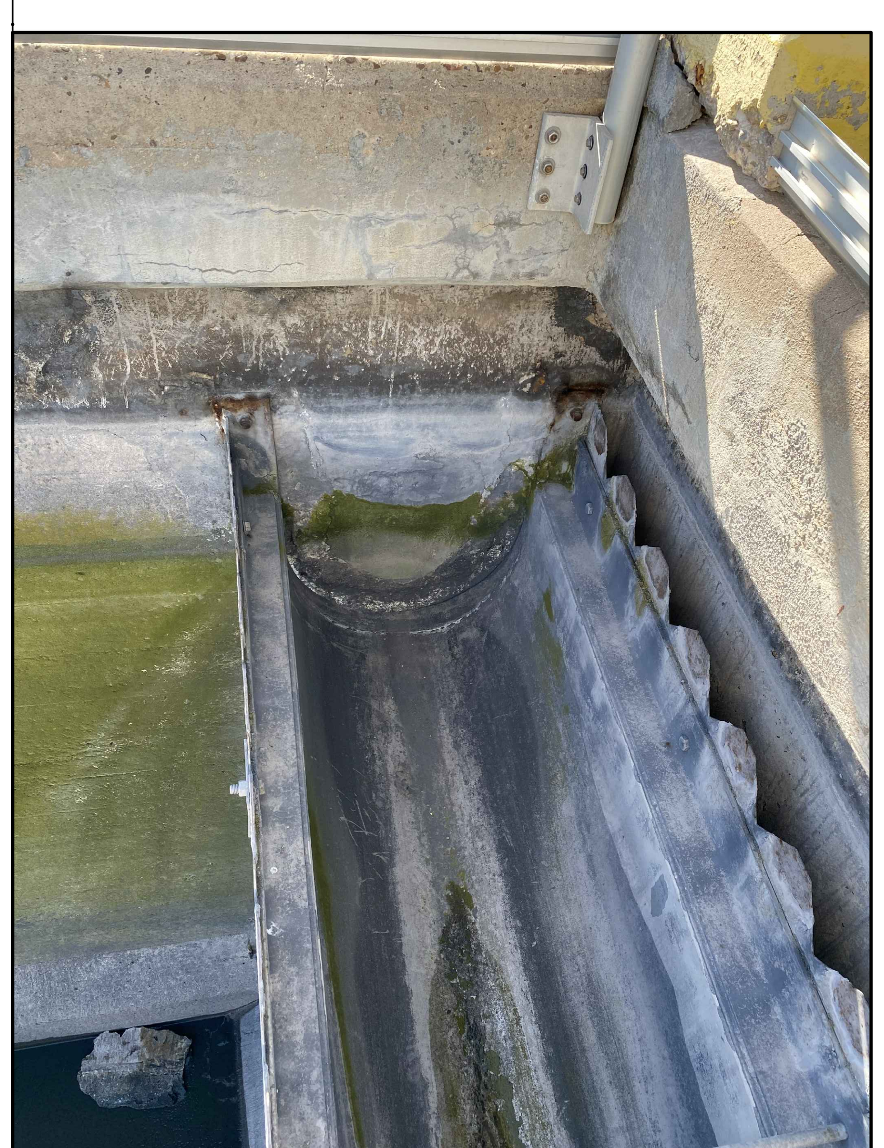

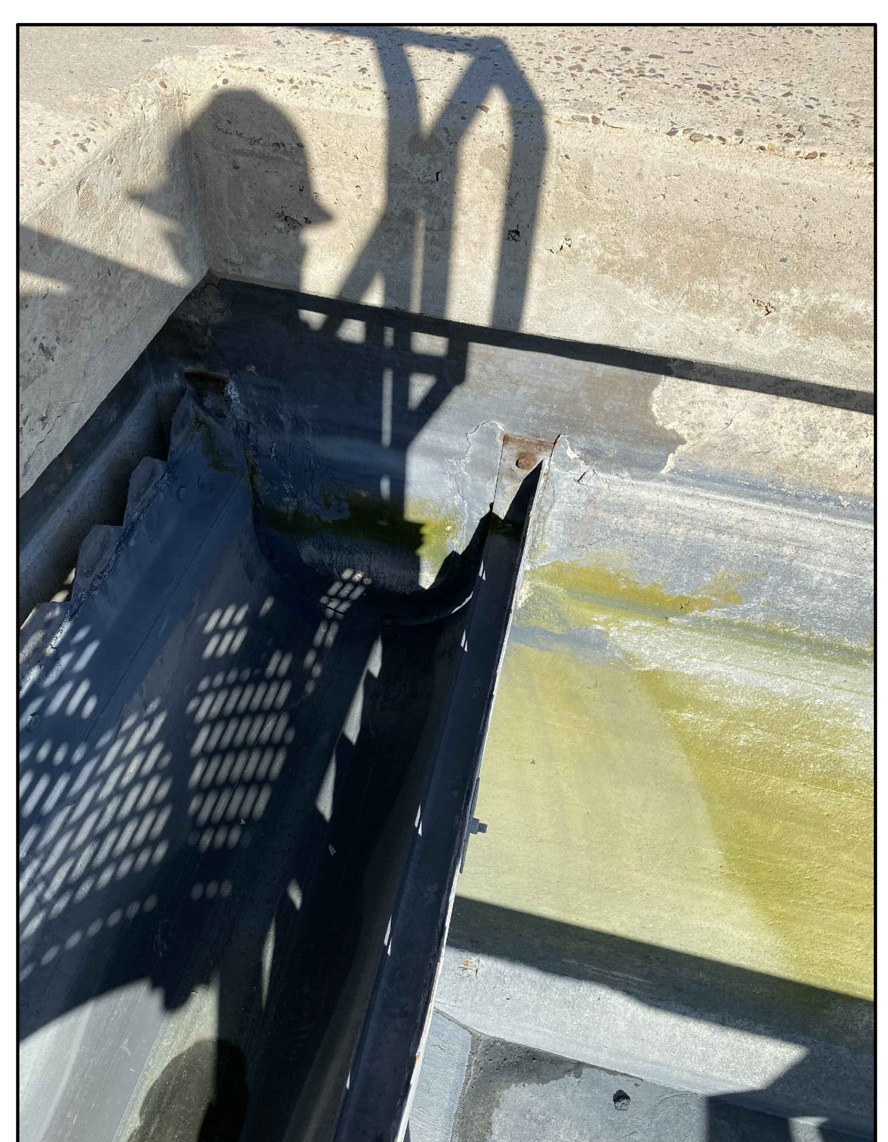

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PROJECT:

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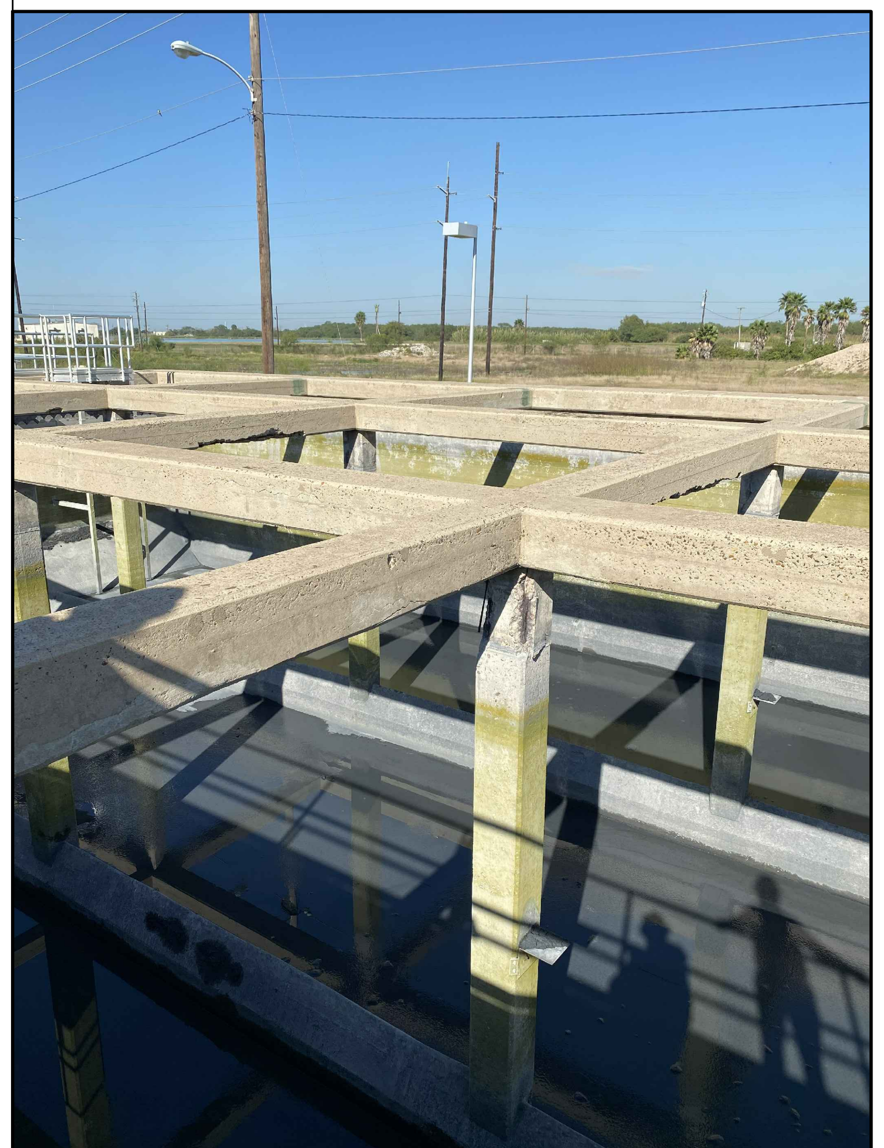
STRUCTURAL PHOTOS

J N B
ENGINEERING
TBPE FIRM No. F-9898
956-454-6740

PROJECT #

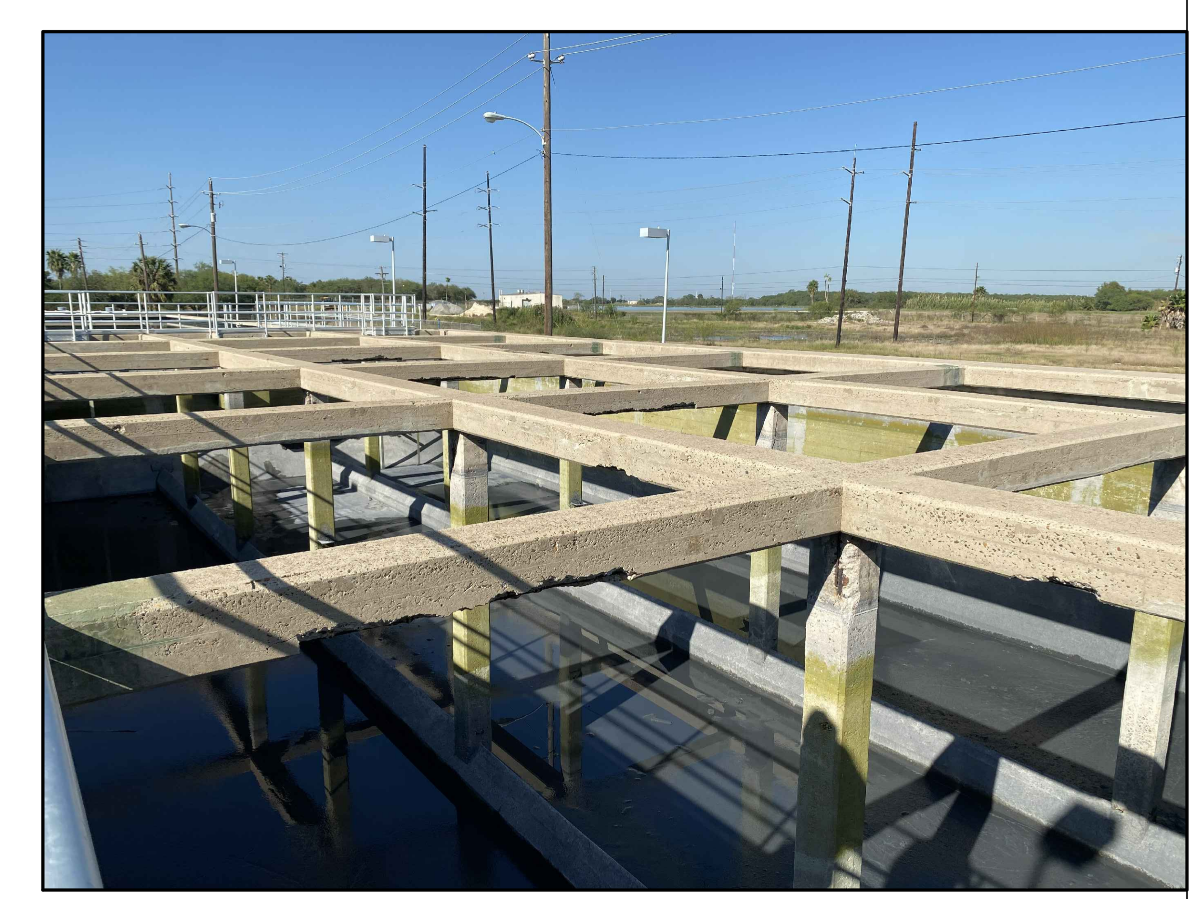
DRAWN BY: AJM

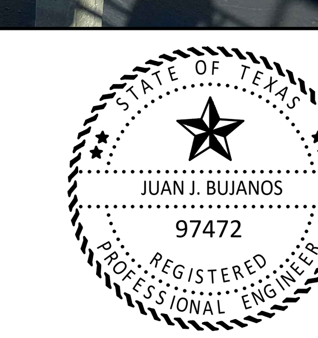
DATE:
6-21-2022









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PROJECT:

BPUB Train A and Train C Concrete Structure Repair Project

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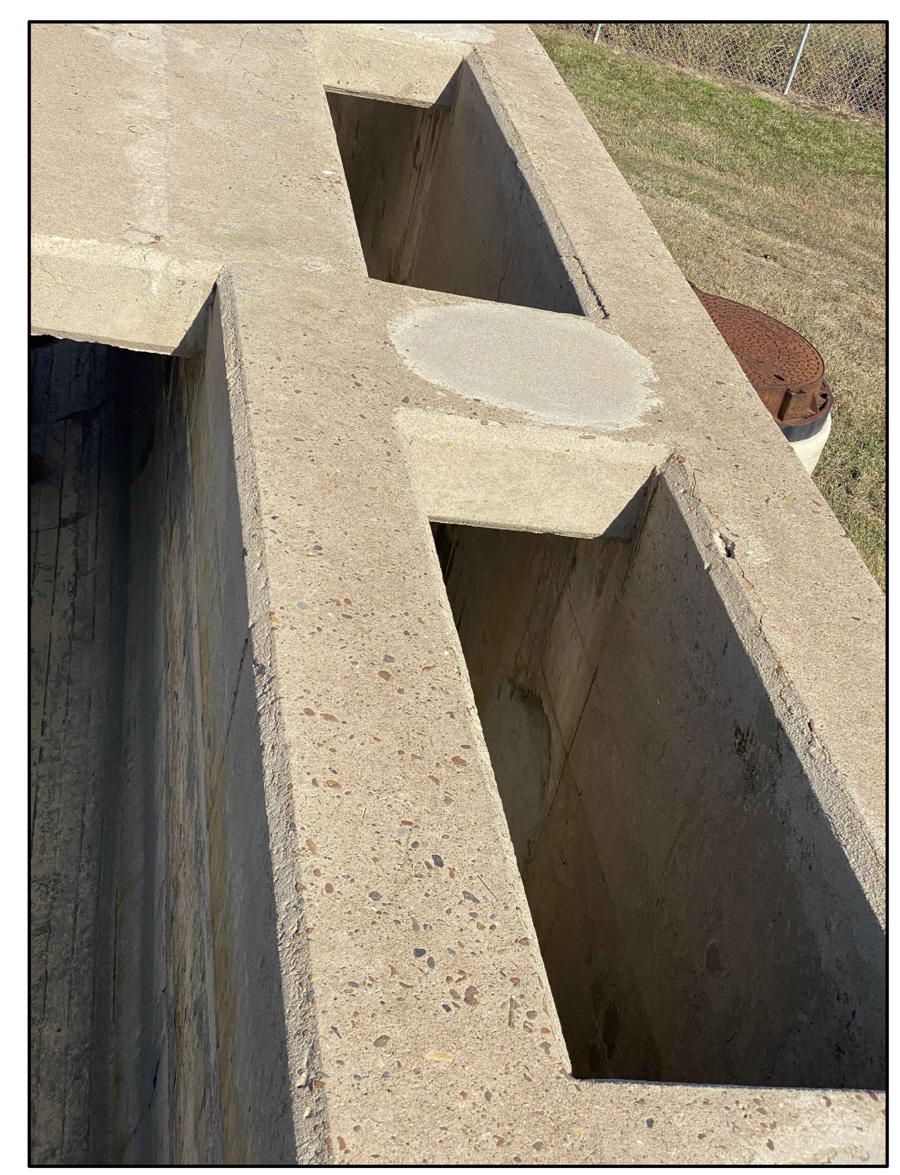

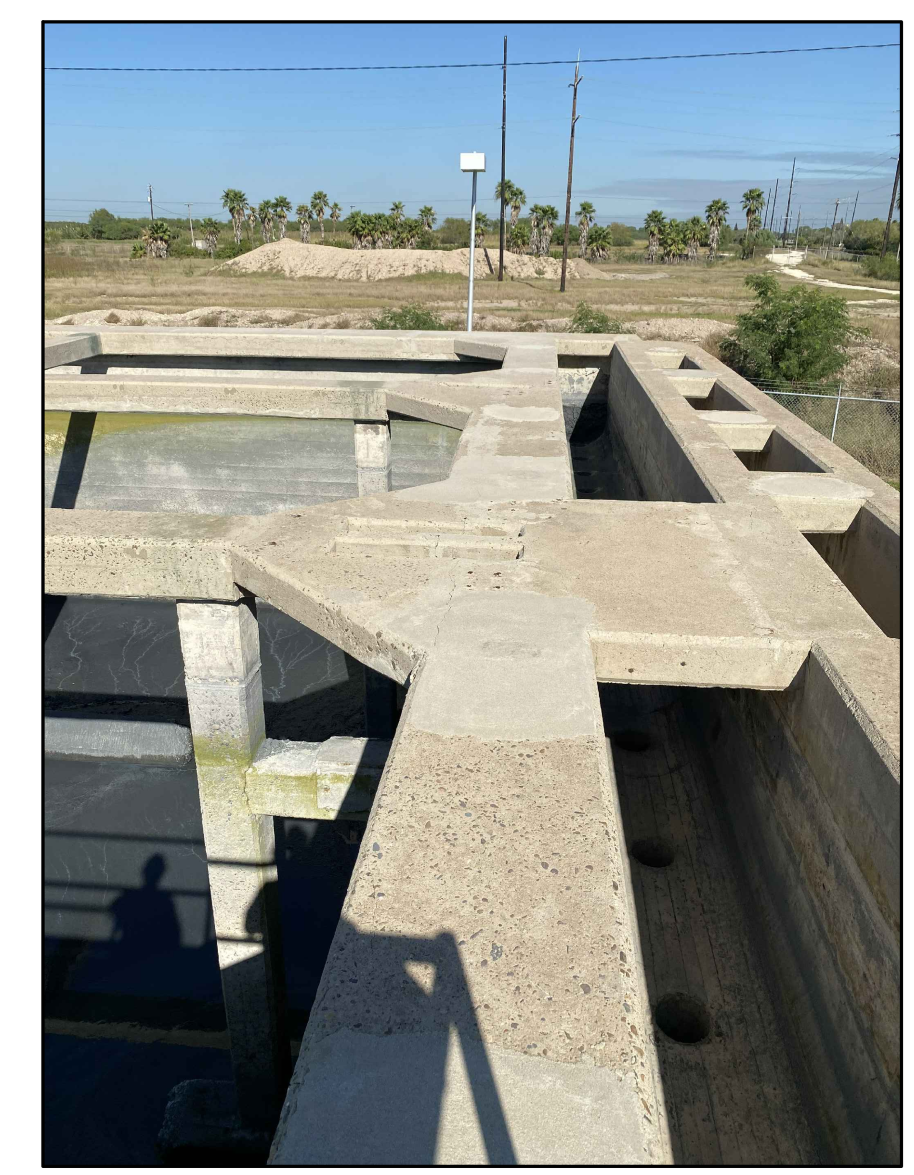

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