

CITY OF DENTON, TEXAS PECAN CREEK WATER RECLAMATION PLANT

RAW SEWAGE PUMP STATION NO. 2 HYDRAULIC IMPROVEMENTS

JANUARY 2017

CITY COUNCIL CHRIS WATTS - MAYOR

COUNCIL MEMBERS

KEVIN RODEN - DISTRICT 1

KEELY BRIGGS - DISTRICT 2

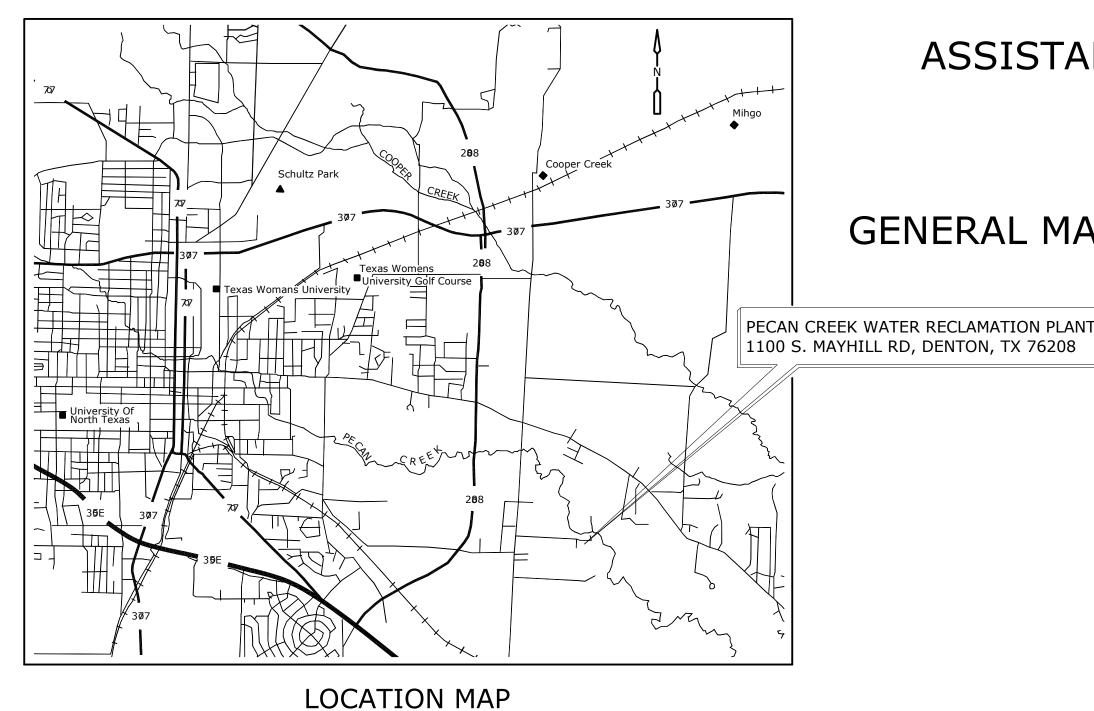
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JOEY HAWKINS - DISTRICT 4

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ASSISTANT CITY MANAGER OF UTILITIES
HOWARD MARTIN

GENERAL MANAGER OF WASTEWATER UTILITIES
P.S. ARORA

SHEET LIST:

- G-1 COVER SHEET
- 1 YARD PIPING
- S-1 STRUCTURAL NOTES
- S-2 RSPS2 DEMOLITION PLANS AND SECTIONS
- S-3 RSPS2 PLANS AND SECTIONS
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- S-5 RSPS2 DETAILS II
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- M-2 RSPS2 UPPER AND LOWER PLANS
- M-3 RSPS2 SECTIONSM-4 TYPICAL DETAILS

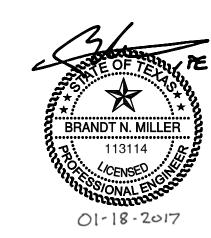
* RECORD DRAWINGS FOR REFERENCE USE ONLY

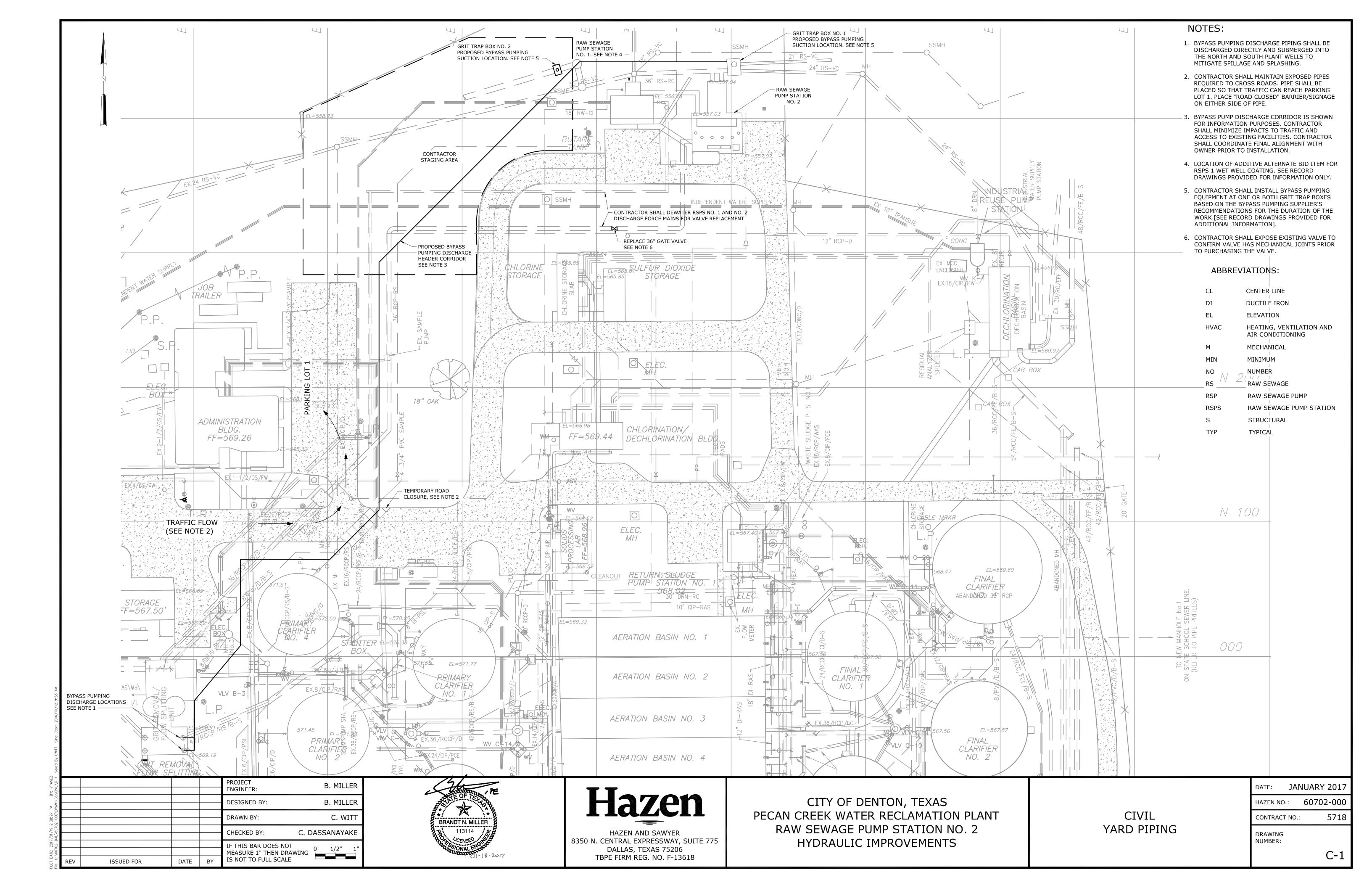
PREPARED BY:

NOT TO SCALE



HAZEN AND SAWYER 8350 N. CENTRAL EXPRESSWAY, SUITE 775 DALLAS, TEXAS 75206 TBPE FIRM RE. NO. F-13618





GENERAL STRUCTURAL NOTES

- G-1 THESE NOTES ARE GENERAL AND SUPPLEMENT THE SPECIFICATIONS. THESE NOTES APPLY TO THE ENTIRE PROJECT UNLESS MODIFIED OR NOTED OTHERWISE IN THE CONTRACT DOCUMENTS.
- G-2 STANDARD DETAILS SHALL BE USED WHEN REFERRED TO OR WHEN NO MORE RESTRICTIVE OR DIFFERENT DETAILS ARE SHOWN ON THE DRAWINGS.
- G-3 DESIGN IS IN ACCORDANCE WITH AND CONSTRUCTION SHALL COMPLY WITH THE PROVISIONS OF THE STATE OF TEXAS BUILDING CODE.

EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR WITH THE MANUFACTURER PRIOR TO CONSTRUCTION.

- G-4 ALL DIMENSIONS INDICATED (*) SHALL BE VERIFIED EITHER BY FIELD MEASUREMENTS FOR EXISTING STRUCTURES OR BY
- G-5 THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING INFORMATION IN THE FIELD AS REQUIRED FOR NEW WORK.

SHOP DRAWINGS FOR EQUIPMENT FURNISHED. STRUCTURAL DIMENSIONS NOT SHOWN BUT CONTROLLED BY OR RELATED TO

- G-6 IF A CONFLICT IS FOUND BETWEEN DIFFERENT PORTIONS OF THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY. CONTINUED CONSTRUCTION OF THE AREA IN CONFLICT SHALL BE AT THE CONTRACTOR'S OWN RISK UNTIL THE CONFLICT IS RESOLVED.
- G-7 EQUIPMENT ANCHOR BOLT SIZES, TYPES, EMBEDMENT AND PATTERNS SHALL BE VERIFIED WITH THE MANUFACTURER. ALL BOLT PATTERNS SHALL BE TEMPLATED TO INSURE ACCURACY OF PLACEMENT.
- G-8 STRUCTURAL DRAWINGS SHALL BE USED IN COORDINATION WITH THE DRAWINGS OF ALL OTHER DISCIPLINES AND MANUFACTURER'S SHOP DRAWINGS.

CONCRETE

- C-1 DESIGN OF CONCRETE ELEMENTS INCLUDING WALLS, FORMED SLABS, BEAMS, AND COLUMNS IS IN ACCORDANCE WITH ACI 318 (CODE REQUIREMENTS FOR STRUCTURAL CONCRETE) AND 350 (CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES).
- C-2 FOR CONCRETE MIX DESIGN SEE SPECIFICATION SECTION 03300.
- C-3 CONCRETE STRENGTH CLASSES (28-DAY COMPRESSIVE STRENGTH):
 - A) CLASS A1 CONCRETE (5,000 PSI): NORMAL WEIGHT CONCRETE SHALL BE USED IN ALL STRUCTURES, SIDEWALKS, PAVEMENTS, EXCEPT WHERE NOTED OTHERWISE IN CONTRACT DOCUMENTS. ALL CONCRETE SHALL BE CLASS AT CONCRETE UNLESS ANOTHER CLASS IS SPECIFICALLY CALLED FOR ON CONTRACT DOCUMENTS OR SPECIFIED HEREIN.
- C-4 ALL BAR REINFORCING SHALL CONFORM TO ASTM A615, GRADE 60. WHERE REINFORCEMENT IS TO BE WELDED IN ACCORDANCE WITH AWS D1.4, ASTM A706 GRADE 60 SHALL BE USED. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
- C-5 CONCRETE COVER FOR REINFORCING (UNLESS NOTED OTHERWISE ON THE DRAWINGS):
 - A) WALLS 12" OR MORE: WALLS LESS THAN 12" (#5 OR SMALLER): WALLS LESS THAN 12" (#6 OR LARGER):
- C-6 SPLICES SHALL BE CLASS "B" CONFORMING TO THE PROVISIONS OF ACI 318 UNLESS NOTED OTHERWISE.
- C-7 ALL EXPOSED CORNERS SHALL HAVE A 3/4" CHAMFER OR A 1/2" RADIUS TOOLED CORNER.
- C-8 EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND REVEALS NOT SHOWN ON THE STRUCTURAL DRAWINGS BUT REQUIRED BY OTHER CONTRACT DOCUMENTS, SHALL BE PROVIDED FOR PRIOR TO PLACING CONCRETE.
- C-9 REINFORCING BARS AND ACCESSORIES SHALL NOT BE IN CONTACT WITH ANY METAL PIPE, PIPE FLANGE, METAL CONDUIT, OR OTHER METAL PARTS EMBEDDED IN CONCRETE. A MINIMUM CLEARANCE OF 2" SHALL BE PROVIDED.
- C-10 DOWELS, ANCHOR BOLTS, PIPES, WATERSTOPS AND OTHER EMBEDDED ITEMS SHALL BE HELD SECURELY IN POSITION WHILE CONCRETE IS BEING PLACED.
- C-11 AT ALL TYPICAL CURBS, EQUIPMENT PADS, AND PIPE SUPPORT PIERS, REINFORCING DOWELS SHOWN MAY BE REPLACED WITH MATCHING DOWELS SET IN EPOXY IN DRILLED HOLES AS SPECIFIED. DOWELS LOCATED CLOSER THAN 3" FROM ANY EDGE OF CONCRETE SHALL NOT BE REPLACED WITH DRILLED DOWELS.
- C-12 DRILLED ADHESIVE DOWELS (WHERE DOWELS ARE SHOWN TO BE PLACED INTO HARDENED CONCRETE):
 - A) THE HOLE DIAMETER SHALL BE NO LARGER THAN 1/8" GREATER THAN THE DIAMETER OF THE REINFORCING BAR AT THE
 - B) THE DEPTH OF EMBEDMENT SHALL BE 12 BAR DIAMETERS, UNLESS NOTED OTHERWISE.
 - ADJUST THE DOWEL LOCATIONS AS NEEDED TO AVOID DRILLING THROUGH ANY REINFORCING BARS. IF THE LOCATION NEEDS TO BE MODIFIED, CONTACT THE ENGINEER. CONTRACTOR SHALL USE NON-DESTRUCTIVE MEANS TO FIELD LOCATE REINFORCEMENT PRIOR TO DRILLING HOLES FOR DOWELS.
- C-13 CLEAR DISTANCE FROM ANCHOR BOLTS TO ANY CONCRETE EDGE SHALL BE 4" MINIMUM UNLESS NOTED OTHERWISE.
- C-14 CONCRETE COMPRESSIVE STRENGTH TESTS SHALL BE AVAILABLE ON THE JOB SITE FOR REVIEW BY THE ENGINEER.

STRUCTURAL METALS

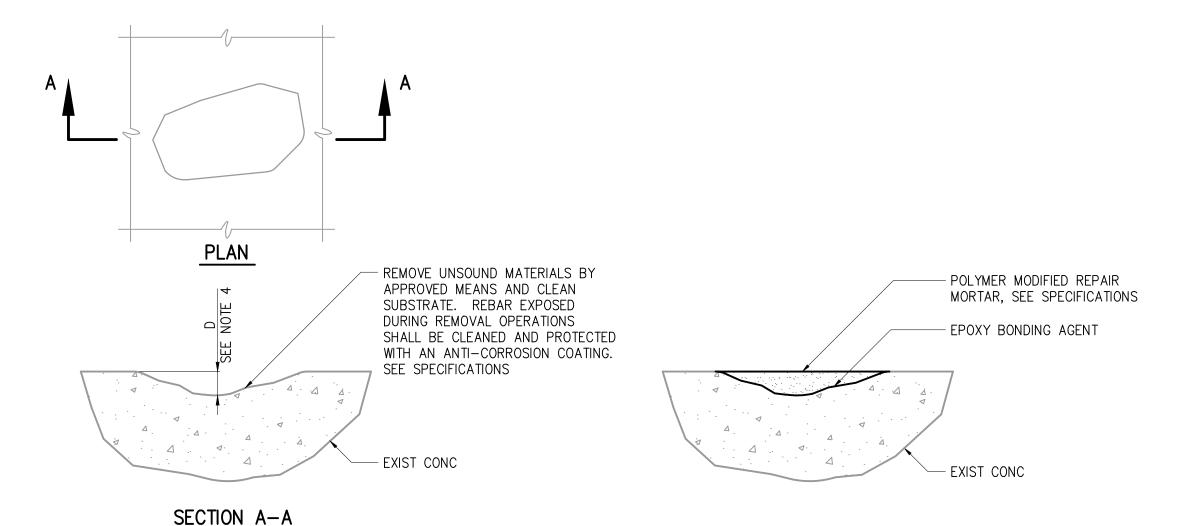
- M-1 DETAIL, FABRICATE, AND ERECT STRUCTURAL STEEL IN ACCORDANCE WITH AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN, LATEST EDITION.
- M-2 STEEL MATERIAL:
 - A) STRUCTURAL TUBING: B) STRUCTURAL PIPE:
- ASTM A500, GRADE B OR A501 (42 KSI) ASTM A53, TYPE E OR S, GRADE B (35 KSI) ASTM A36 UNO (36 KSI)
- C) PLATES AND ANGLES:
- D) STRUCTURAL W SHAPES: ASTM A992 (50 KSI)
- M-3 PROVIDE MINIMUM 3/4" DIAMETER ASTM A325 HIGH STRENGTH BOLTS WITH SNUG TIGHTENED TYPE N CONNECTIONS FOR STRUCTURAL STEEL UNLESS NOTED OTHÉRWISE. HOLES FOR BOLTS SHALL BE STANDARD SIZE UNLESS NOTED OTHERWISE.
- M-4 ALL STAINLESS STEEL FABRICATIONS SHALL BE TYPE 316.
- M-5 BOTTOM SURFACES OF BASE PLATES SHALL BE GROUTED TO ENSURE FULL BEARING CONTACT WITH CONCRETE SLAB.
- M-6 STRUCTURAL WELDED JOINTS SHALL CONFORM TO THE PROVISIONS OF AWS D1.1-10, AWS E70 ELECTRODE, STRUCTURAL WELDING CODE BY AMERICAN WELDING SOCIETY. PROOF OF WELDER CERTIFICATION SHALL BE AVAILABLE AT THE JOB SITE DURING TIMES OF INSPECTION.

DEMOLITION

- D-1 FOR DEMOLITION REQUIREMENTS. REFER TO SPECIFICATION 02050 DEMOLITION.
- D-2 CONCRETE DEMOLITION WITHIN STRUCTURES BEING MODIFIED SHALL BE SELECTIVE DEMOLITION BY CORE DRILLING OR SAWCUTTING AND CAREFUL REMOVAL OF CONCRETE SHOWN TO BE REMOVED. NO OVER CUTTING OF AREAS TO BE DEMOLISHED SHALL BE PERMITTED. CONTRACTOR SHALL CORE DRILL CORNERS OF OPENING PRIOR TO SAWCUTTING. EXPLOSIVES AND VIBRATORY HAMMERS SHALL NOT BE USED FOR DEMOLITION WORK.
- D-3 UNLESS ANCHORING DEVICES AND/OR REINFORCEMENT IS NOTED TO REMAIN FOLLOWING DEMOLITION, REMOVE AND/OR BURN BACK ANCHORS AND REINFORCEMENT STEEL 1/2" MIN BELOW SURFACE AND VOIDS CREATED SHALL BE FILLED WITH EPOXY RESIN BINDER. SUCH AS "SIKADUR 52" BY SIKA CORPORATION, "DURALCRETE LV" BY EUCLID CHEMICAL COMPANY, OR EQUAL
- D-4 EMBEDDED CONDUIT ENCOUNTERED DURING DEMOLITION WORK LIMITS SHALL BE PERMANENTLY REROUTED AS NECESSARY. CONTRACTOR SHALL SUBMIT PROPOSED MEANS OF REROUTING ANY INTERFERING CONDUIT.
- D-5 WHERE DRAWINGS INDICATE A CONCRETE EQUIPMENT PAD TO BE DEMOLISHED, THE FLOOR SLAB SURFACE SHALL BE REPAIRED AS APPROVED BY ENGINEER. FOLLOWING SELECT DEMOLITION AND REMOVAL OF THE EQUIPMENT PAD REMOVAL THE REPAIR SHALL BE: A. SAWCUT THE FLOOR AROUND THE EQUIPMENT PAD PERIMETER TO A DEPTH OF 1/4".
 - B. SCARIFY AND REMOVE SLAB CONCRETE WITHIN THE PERIMETER TO A NOMINAL 1/4" DEPTH CLEAN AND REMOVE ALL CONCRETE LAITANCE.
 - C. RESURFACE THE AREA BY APPLYING A POLYMER MODIFIED OR SILICA FUME ENHANCED CEMENTITIOUS REPAIR MORTAR, APPROVED BY THE ENGINEER, FOLLOWING THE MANUFACTURER'S SURFACE PREPARATION AND APPLICATION RECOMMENDATIONS. LEVEL AND FINISH THE SURFACE TO MATCH THE FLOOR SLAB SURROUNDING AREA.
- D-6 PRIOR TO DEMOLITION OF SMALL OPENINGS (LESS THAN 6 INCHES IN SIZE) FOR PENETRATIONS, ETC., CONTRACTOR SHALL USE NON-DESTRUCTIVE MEANS TO FIELD LOCATE REINFORCEMENT. OPENINGS SHALL BE LOCATED TO AVOID CUTTING THROUGH EXISTING REINFORCEMENT, IF POSSIBLE. EXISTING REINFORCEMENT SHALL NOT BE CUT WITHOUT APPROVAL OF ENGINEER.
- D-7 CONCRETE SURFACES LEFT EXPOSED FOLLOWING DEMOLITION SHALL BE SEALED WITH EPOXY RESIN COATING SUCH AS "SIKAGARD" BY SIKA CORPORATION. "DURACOTE 240" BY TAMMS INDUSTRIES. OR APPROVED EQUAL.
- D-8 A DETAILED CONSTRUCTION AND DEMOLITION PLAN SHALL BE SUBMITTED TO THE ENGINEER AND APPROVED BY THE ENGINEER AND OWNER PRIOR TO BEGINNING CONSTRUCTION. ANY SHUTDOWNS SHALL BE SUBMITTED TO, COORDINATED WITH, AND APPROVED BY THE OWNER. ONCE APPROVED, CONTRACTOR SHALL PROVIDE A MINIMUM OF THREE (3) WEEKS NOTICE TO OWNER PRIOR TO SHUTDOWN.

EXISTING INFORMATION

- X-1 ALL EXISTING INFORMATION SHOWN ON THESE DRAWINGS INCLUDING LOCATION, DIMENSIONS, ELEVATIONS, AND CONFIGURATIONS IS DERIVED FROM THE 1983 AND 2001 CONTRACT DRAWINGS AND IS NOT GUARANTEED TO BE COMPLETE OR CORRECT.
- X-2 THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING INFORMATION IN THE FIELD AS REQUIRED FOR DEMOLITION AND MODIFICATIONS.



CONCRETE REPAIR

PRIOR TO COMMENCEMENT OF THE WORK.

R-1 CONCRETE REPAIR WORK SHALL BE PERFORMED PER SPECIFICATION SECTION 03732 AND THE DETAILS ON THIS DRAWING.

R-2 THE CONTRACTOR, IN CONJUNCTION WITH THE ENGINEER, SHALL DETERMINE THE EXTENT OF CRACKED OR DETERIORATED

R-3 THE CONTRACT CONTRACT SHALL INCLUDE ALL WORK RELATING TO CONCRETE REPAIRS AS INDICATED HEREIN AND

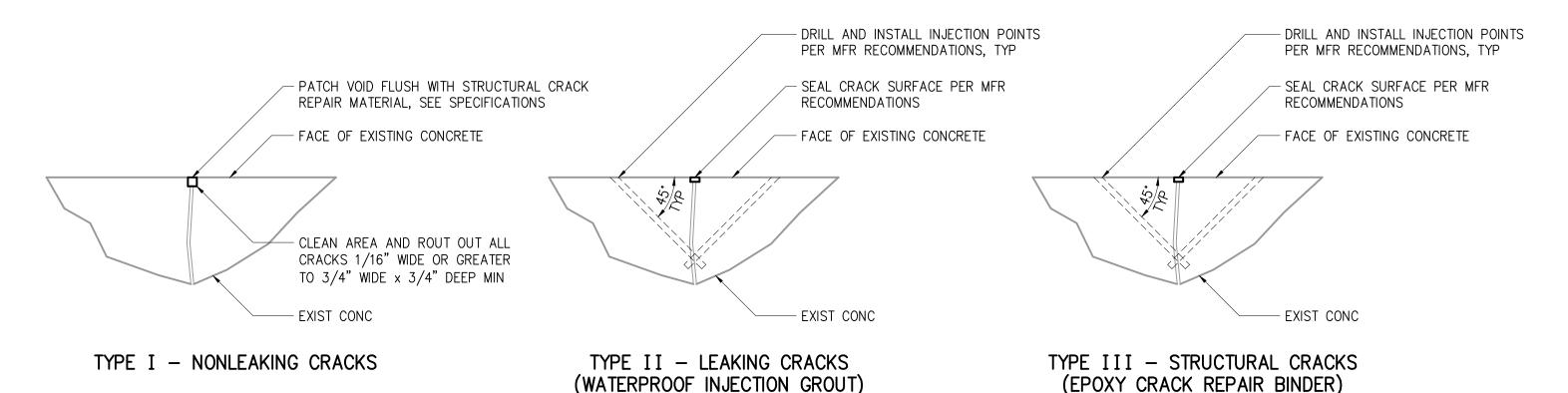
R-4 CONCRETE REPAIRS TO BE INSPECTED BY THE ENGINEER AFTER COMPLETION AND PRIOR TO SUBSEQUENT WORK

WILL BE PAID AS ENGINEER DIRECTED WORK PER SPECIFICATION SECTION 01271 - MEASUREMENT AND PAYMENT.

CONCRETE TO BE REHABILITATED AND/OR RESURFACED. A SUMMARY OF WORK SHALL BE APPROVED BY THE ENGINEER

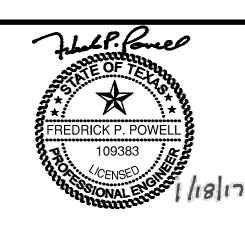
SPECIFIED IN SPECIFICATION SECTION 03732 - CONCRETE REPAIRS. QUANTITIES OF CONCRETE REPAIR WORK PERFORMED

SPALL REPAIR



CRACK REPAIR

				PROJECT ENGINEER:	B. MILLER
				DESIGNED BY:	F. POWELL
				DRAWN BY:	F. POWELL
				CHECKED BY:	C. PHILLIPS
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING	0 1/2" 1"
REV	ISSUED FOR	DATE	BY	IS NOT TO FULL SCALE	





DALLAS, TEXAS 75206

TBPE FIRM REG. NO. F-13618

CITY OF DENTON, TEXAS PECAN CREEK WATER RECLAMATION PLANT RAW SEWAGE PUMP STATION NO. 2 HYDRAULIC IMPROVEMENTS

STRUCTURAL GENERAL NOTES

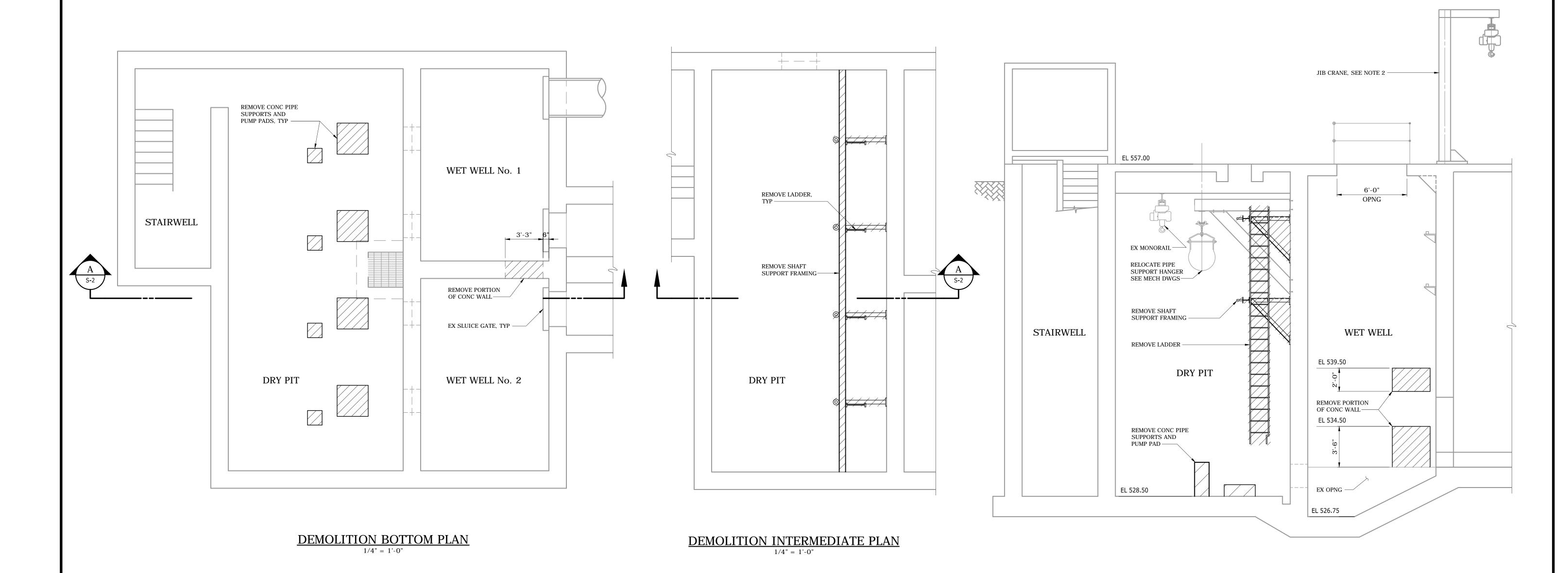
DATE:	JAN	NUARY 2017
HAZEN NO.	.:	60702-000
CONTRACT	' NO.:	5718
DRAWING		

NUMBER:

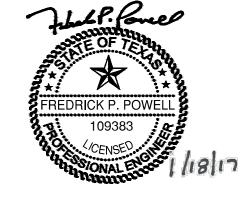
S-1

NOTES:

- 1. SEE DEMOLITION NOTES ON DRAWING S-1.
- 2. CONTRACTOR SHALL NOT USE EXISTING JIB CRANE.
- 3. CONTRACTOR IS RESPONSIBLE FOR THE STRUCTURAL INTEGRITY OF THE EXISTING RSPS2 PUMP STATION. HEAVY EQUIPMENT AND CRANES SHALL BE KEPT A MINIMUM OF 10 FEET AWAY FROM THE PUMP STATION'S EXTERIOR WALLS.



(SIRU) SIRU				PROJECT ENGINEER:	B. MILLER
LEKAMINGS				DESIGNED BY:	F. POWELL
0,000-20				DRAWN BY:	F. POWELL
AL \60\				CHECKED BY:	C. PHILLIPS
0.000				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING	0 1/2" 1"
REV	ISSUED FOR	DATE	BY	IS NOT TO FULL SCALE	



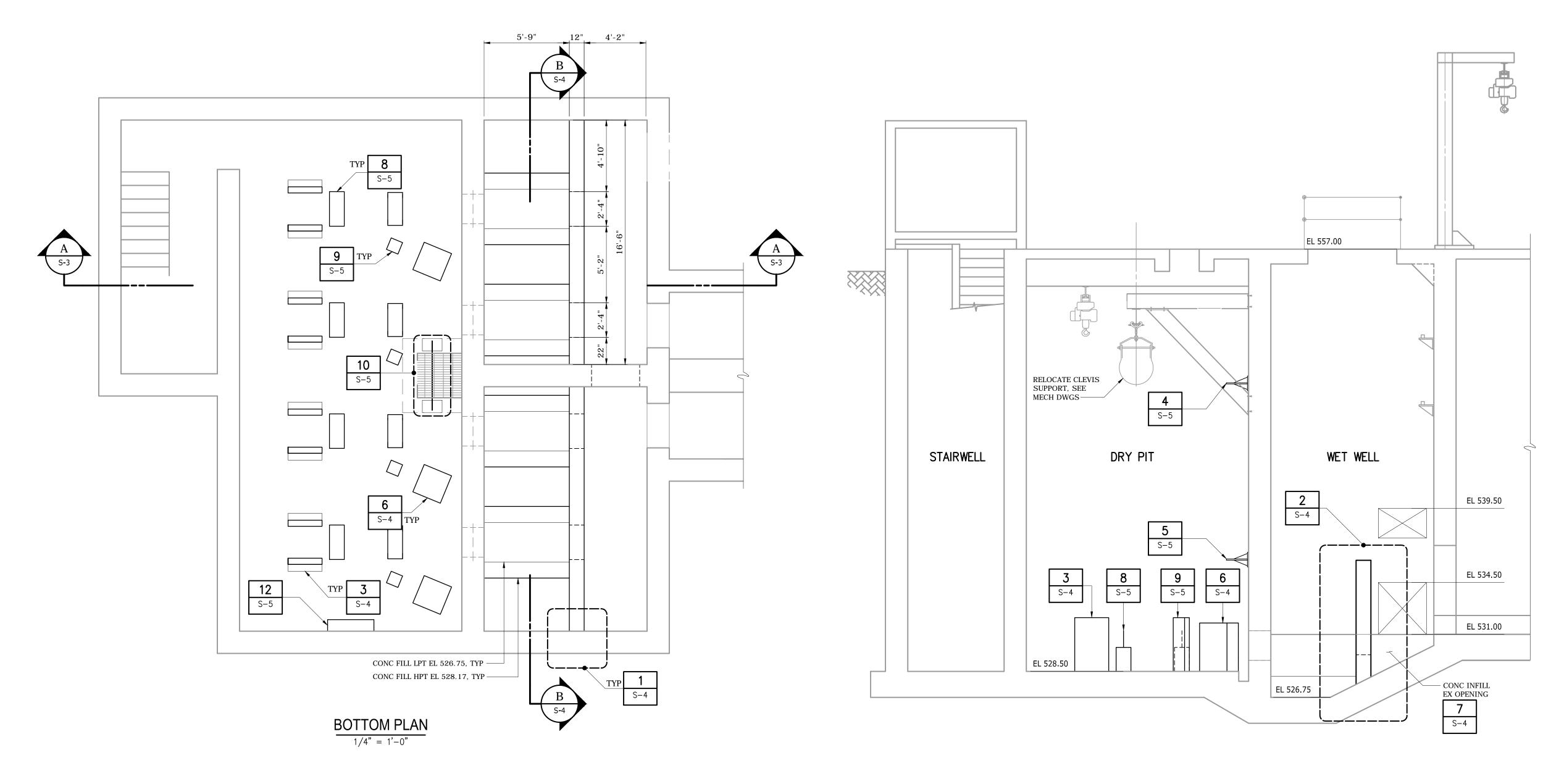


CITY OF DENTON, TEXAS PECAN CREEK WATER RECLAMATION PLANT RAW SEWAGE PUMP STATION NO. 2 HYDRAULIC IMPROVEMENTS

STRUCTURAL RSPS2 DEMOLITION PLANS AND SECTIONS

DATE: JA	NUARY 2017
HAZEN NO.:	60702-000
CONTRACT NO	5718
DRAWING NUMBER:	

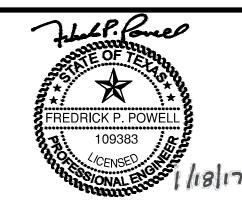
S-2



SECTION A

1/4" = 1'-0" S-3

				PROJECT B. MILLER B. MILLER
				DESIGNED BY: F. POWELL
				DRAWN BY: F. POWELL
				CHECKED BY: C. PHILLIPS
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING 1/2" 1"
REV	ISSUED FOR	DATE	BY	IS NOT TO FULL SCALE



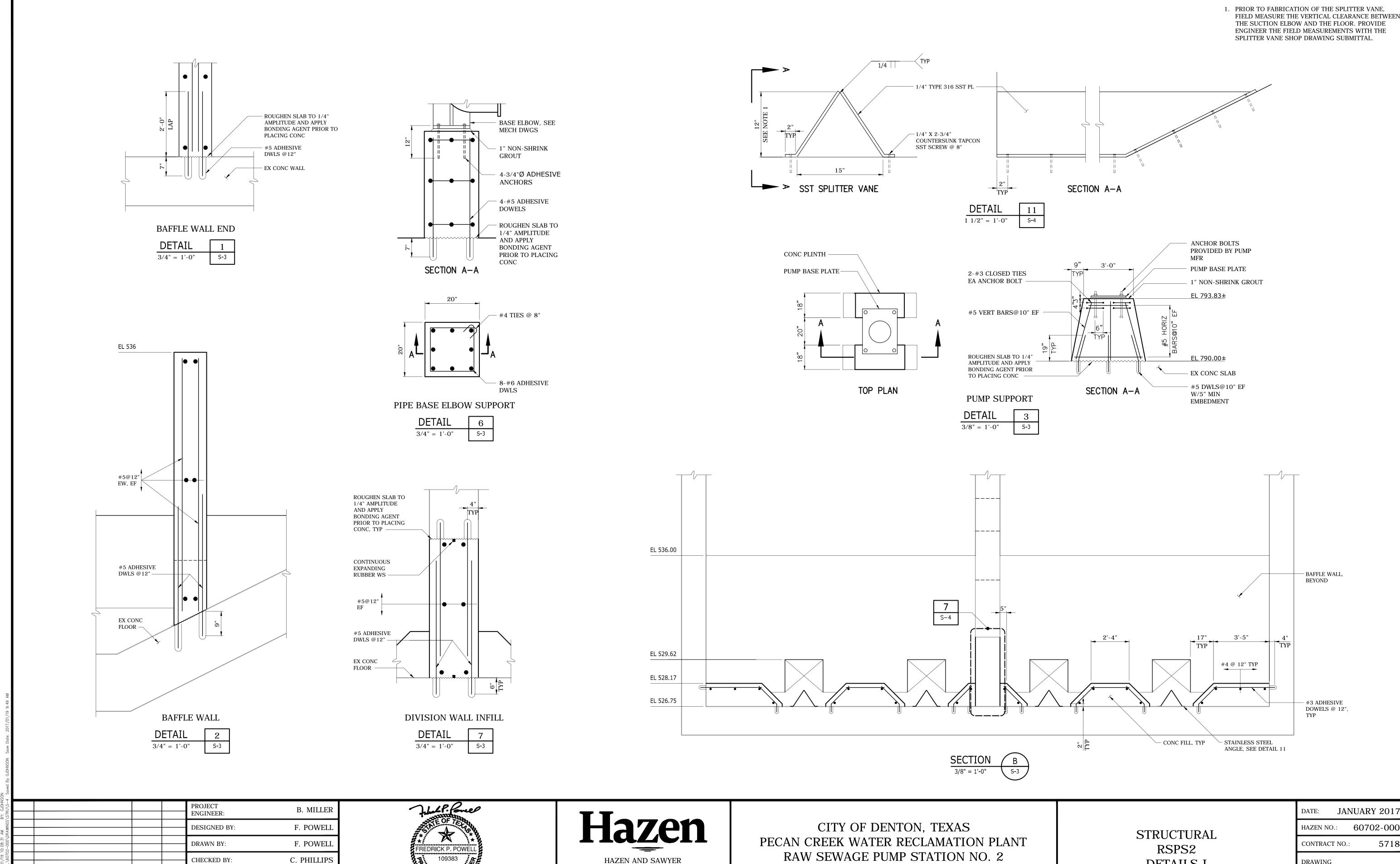


CITY OF DENTON, TEXAS
PECAN CREEK WATER RECLAMATION PLANT
RAW SEWAGE PUMP STATION NO. 2
HYDRAULIC IMPROVEMENTS

STRUCTURAL RSPS2 PLANS AND SECTIONS

DATE:	JAN	U ARY 2017
HAZEN NO	.: (60702-000
CONTRACT	NO.:	5718
DRAWING NUMBER:		

S-3



HAZEN AND SAWYER

8350 N. CENTRAL EXPRESSWAY, SUITE 775

DALLAS, TEXAS 75206

TBPE FIRM REG. NO. F-13618

HYDRAULIC IMPROVEMENTS

ISSUED FOR

CHECKED BY:

IF THIS BAR DOES NOT
MEASURE 1" THEN DRAWING
IS NOT TO FULL SCALE

0 1/2" 1"

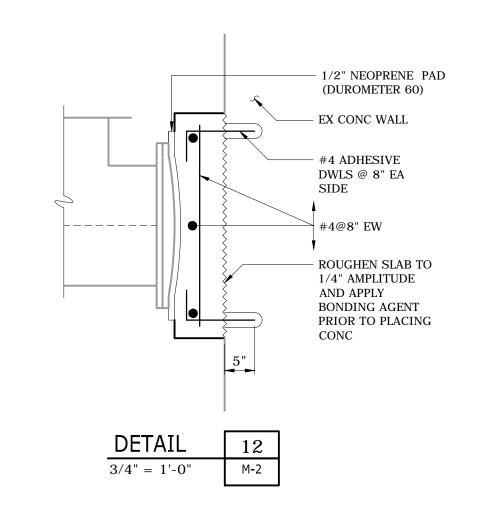
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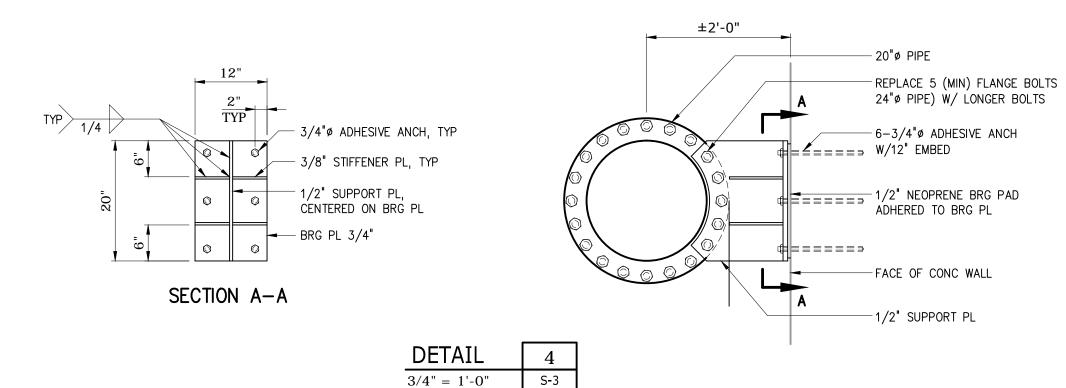
DETAILS I

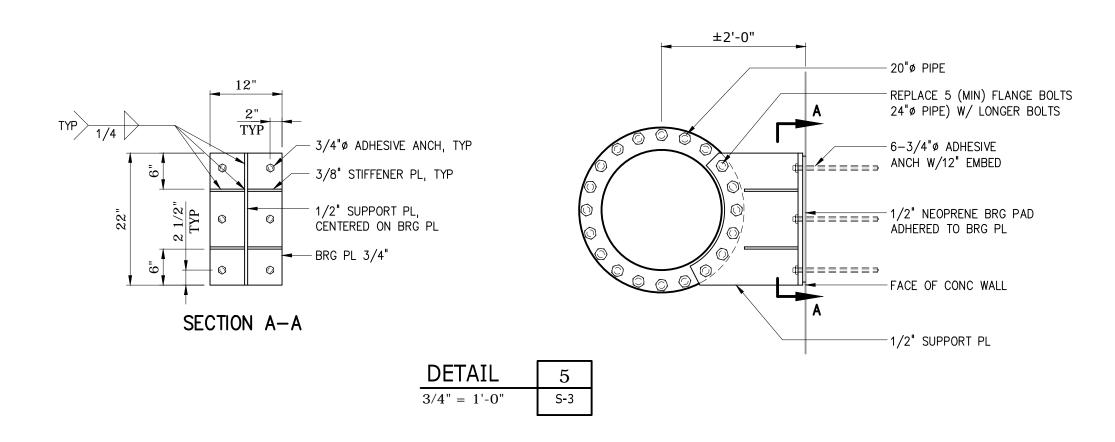
NOTES:

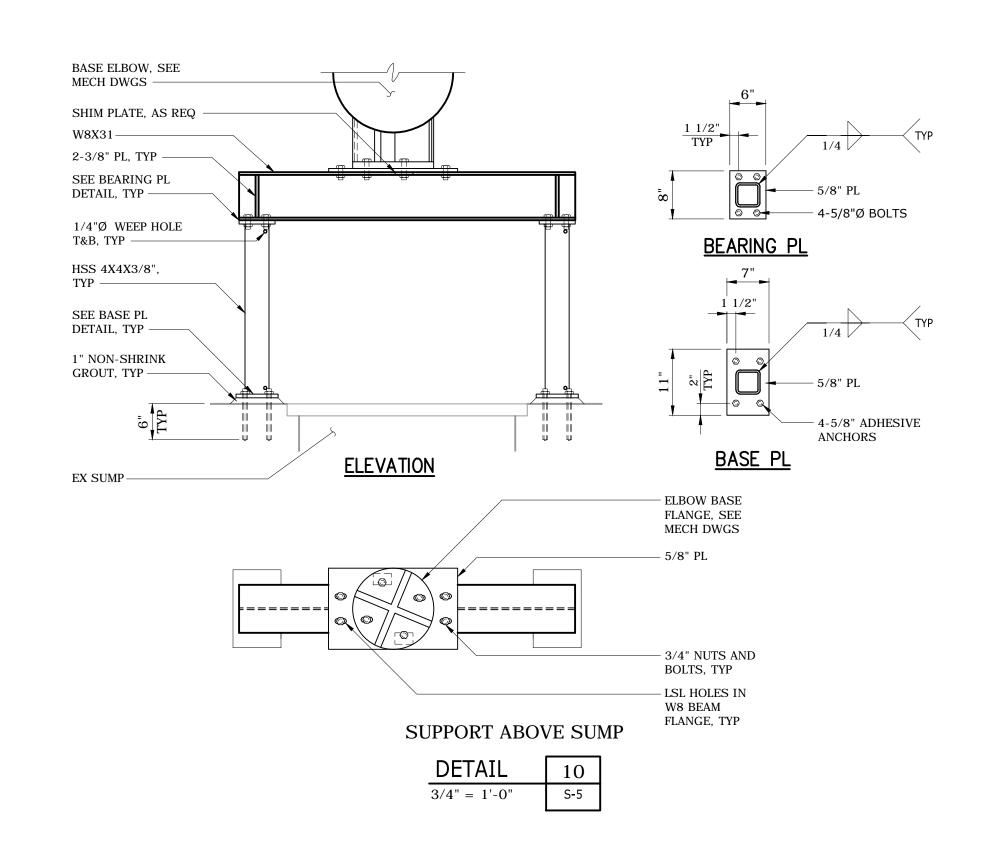
NOTES:

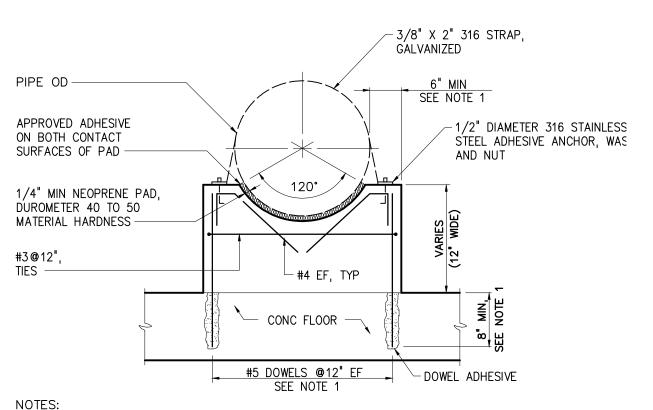
1. PIPE SUPPORT, FASTENERS, AND ANCHOR RODS SHALL BE HOT DIPPED GALVANIZED, SEE SPECIFICATION SECTION 05035







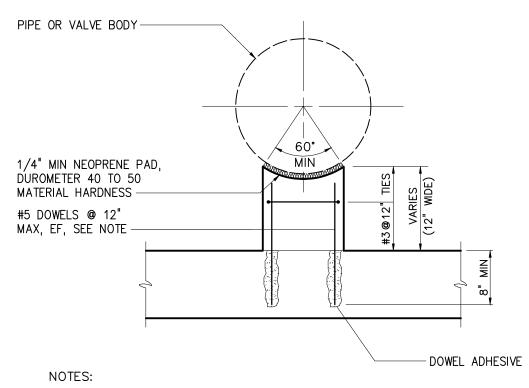




1. COORDINATE SUPPORT WIDTH WITH PIPE STRAP ANCHORAGE REQUIREMENTS. PROVIDE 6" MINIMUM, FROM CENTER OF PIPE STRAP ANCHOR ROD TO EDGE OF CONCRETE.

CRADLE PIPE/VALVE SUPPORT



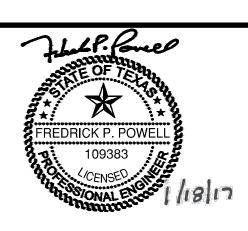


1. PIER SHALL BE MINIMUM 12" THICK EACH WAY HORIZONTALLY, AND SHALL BE SQUARE UNDER LARGE VALVE BODIES SUCH AS CHECK VALVES

PIER PIPE SUPPORT

DETAIL	9
NTS	S-3

				PROJECT ENGINEER:	B. MILLER
				DESIGNED BY:	F. POWELL
				DRAWN BY:	F. POWELL
				CHECKED BY:	C. PHILLIPS
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWIN	NG 0 1/2" 1"
REV	ISSUED FOR	DATE	BY	IS NOT TO FULL SCALE	





TBPE FIRM REG. NO. F-13618

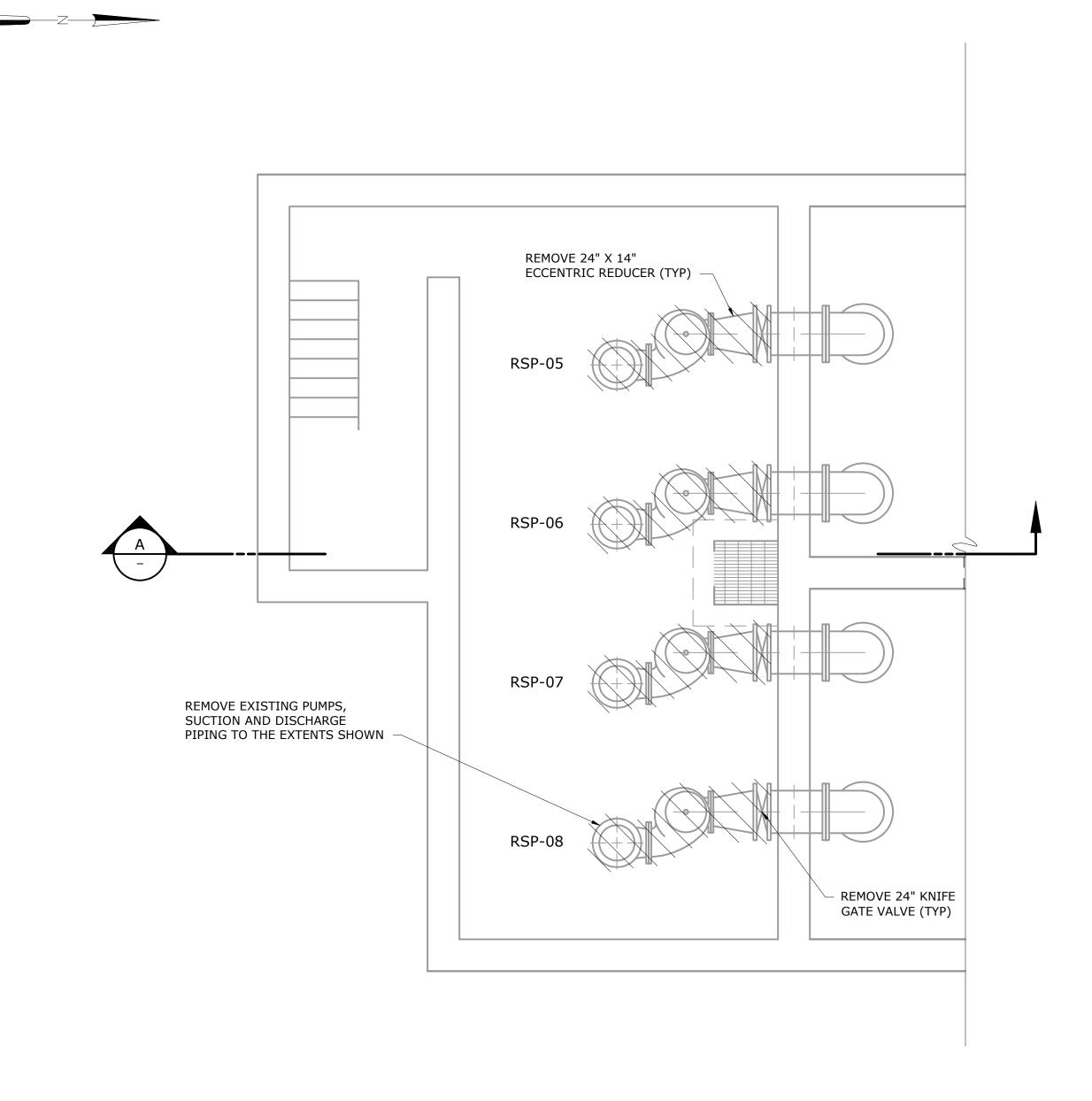
CITY OF DENTON, TEXAS
PECAN CREEK WATER RECLAMATION PLANT
RAW SEWAGE PUMP STATION NO. 2
HYDRAULIC IMPROVEMENTS

STRUCTURAL RSPS2 DETAILS II

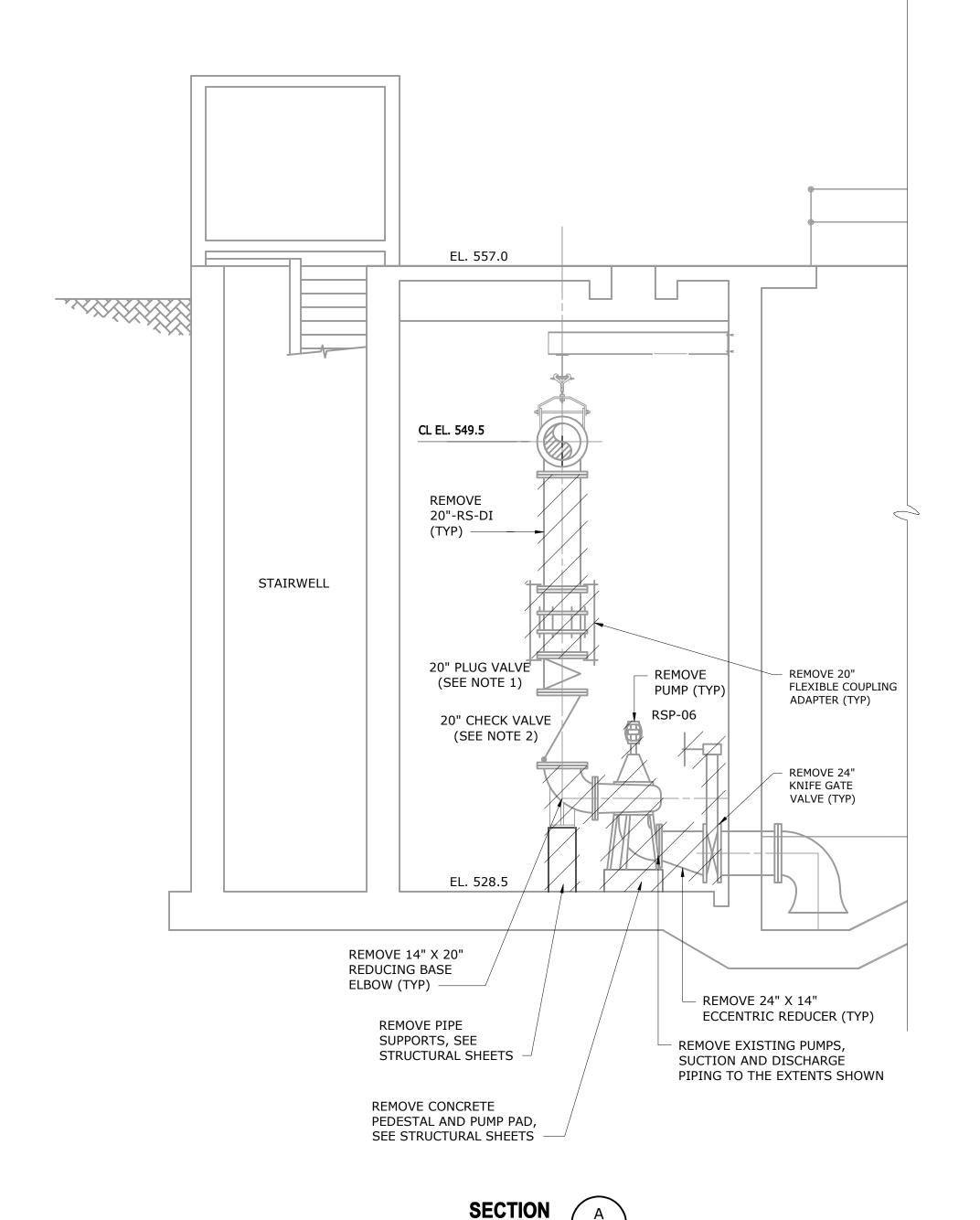
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HAZEN NO	.:	60702-	000
CONTRACT	NO.:	5	718
DRAWING NUMBER:			
		S	5-5

NOTES:

- EXISTING DISCHARGE PLUG VALVES FROM PUMPS RSP-06, 07 AND 08 SHALL BE REUSED. SEE SHEET M-3. CONTRACTOR SHALL FURNISH AND INSTALL NEW PLUG VALVE FOR PUMP RSP-05.
- 2. EXISTING DISCHARGE CHECK VALVES FROM PUMPS RSP-05, 07 AND 08 SHALL BE REUSED. SEE SHEET M-2. CONTRACTOR SHALL FURNISH AND INSTALL NEW CHECK VALVE FOR PUMP RSP-06.



PLAN 1/4" = 1'-0"



				PROJECT ENGINEER:	B. MILLER
				DESIGNED BY:	B. MILLER
				DRAWN BY:	C. WITT
				CHECKED BY:	C. DASSANAYAKE
				IF THIS BAR DOES NO MEASURE 1" THEN DR	11 1/2 1
RFV	ISSUED FOR	DATE	BY	IS NOT TO FULL SCAL	



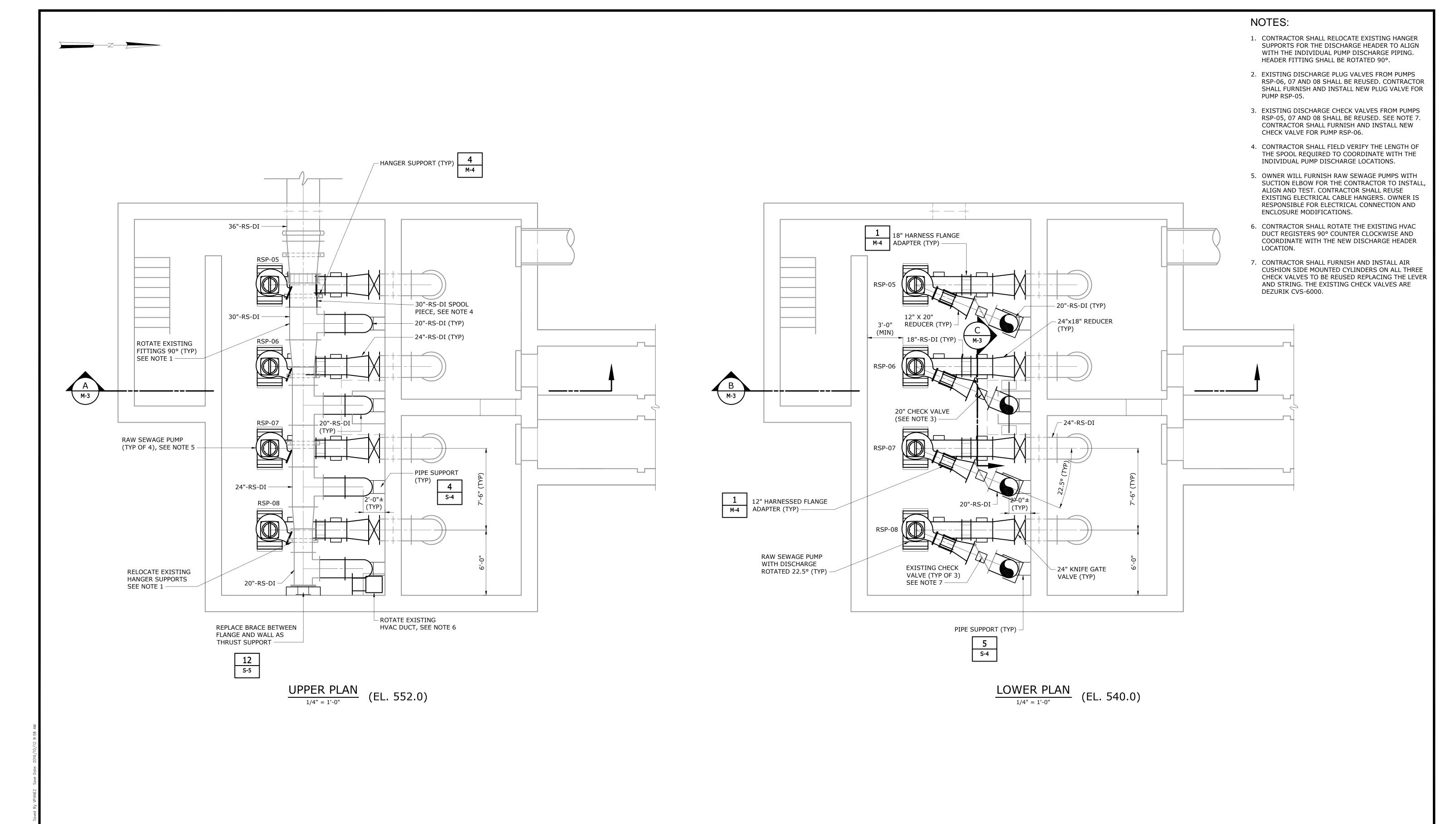
HAZEN AND SAWYER
8350 N. CENTRAL EXPRESSWAY, SUITE 775
DALLAS, TEXAS 75206

TBPE FIRM REG. NO. F-13618

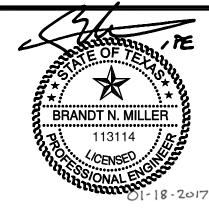
CITY OF DENTON, TEXAS
PECAN CREEK WATER RECLAMATION PLANT
RAW SEWAGE PUMP STATION NO. 2
HYDRAULIC IMPROVEMENTS

MECHANICAL RSPS2 EXISTING PLAN AND DEMOLITION

DATE: JA	NUARY 2017
HAZEN NO.:	60702-000
CONTRACT NO	.: 5718
DRAWING NUMBER:	



N						
PM BY: VPANEZ DRAWINGS\MECH\M-2					PROJECT ENGINEER:	B. MILLER
PM E					DESIGNED BY:	B. MILLER
/19 2:32:46 .60702-000\D					DRAWN BY:	C. WITT
/01/19 ; AL\6070					CHECKED BY:	C. DASSANAYAKE
DATE: 2017/01/19 O:\60702-DAL\607					IF THIS BAR DOES NO MEASURE 1" THEN DR	U 1/2 I I
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Hazen HAZEN AND SAWYER 8350 N. CENTRAL EXPRESSWAY, SUITE 775

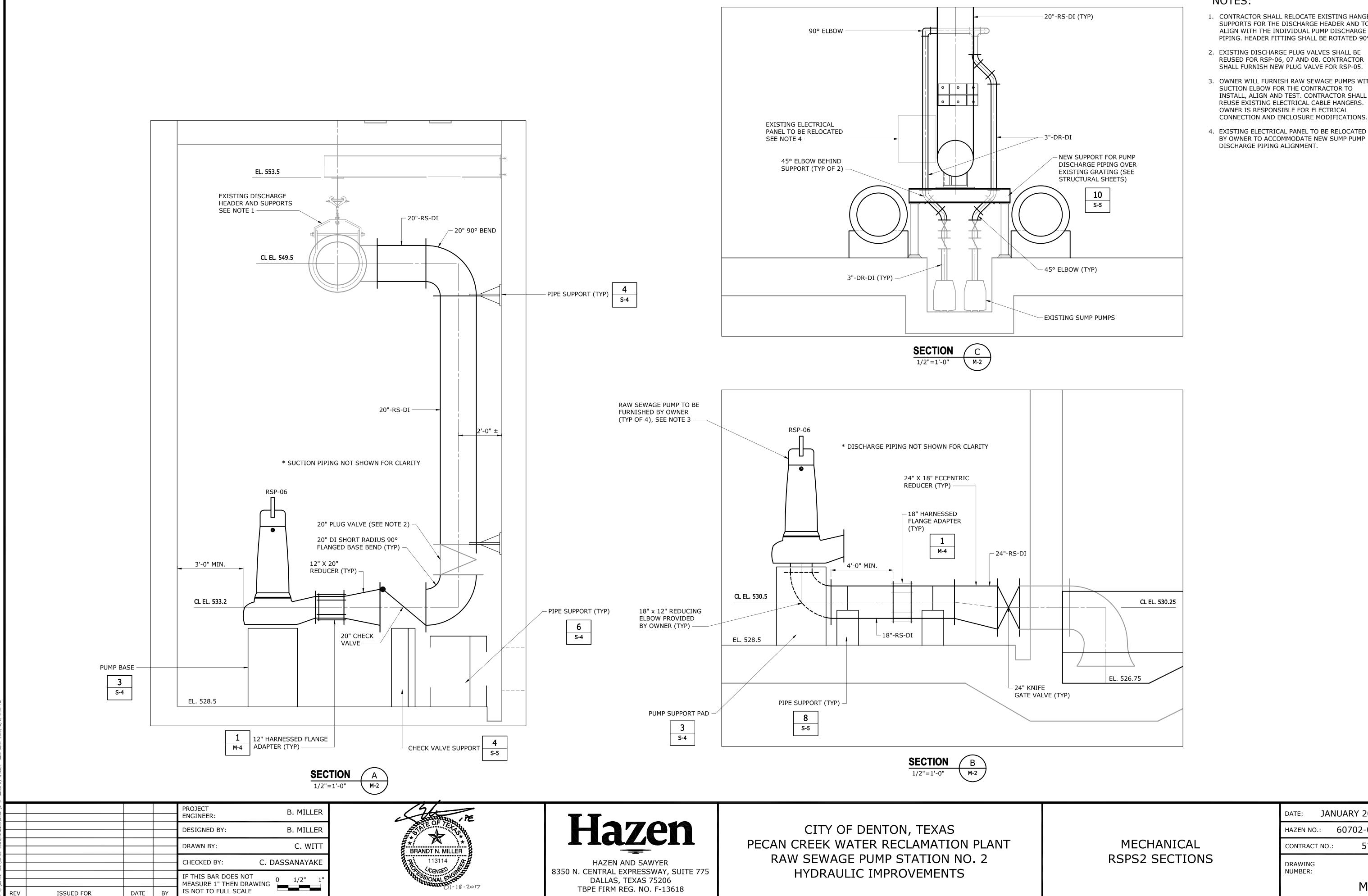
DALLAS, TEXAS 75206

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CITY OF DENTON, TEXAS PECAN CREEK WATER RECLAMATION PLANT RAW SEWAGE PUMP STATION NO. 2 HYDRAULIC IMPROVEMENTS

MECHANICAL RSPS2 UPPER AND LOWER PLANS

	DATE:]	JANUARY 2017			
	HAZEN NO.:	60702-000			
	CONTRACT N	o.: 5718			
l	DRAWING NUMBER:				



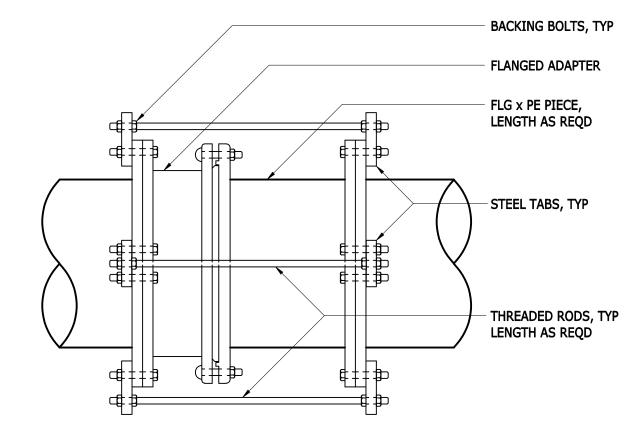
TBPE FIRM REG. NO. F-13618

ISSUED FOR

NOTES:

- 1. CONTRACTOR SHALL RELOCATE EXISTING HANGER SUPPORTS FOR THE DISCHARGE HEADER AND TO ALIGN WITH THE INDIVIDUAL PUMP DISCHARGE PIPING. HEADER FITTING SHALL BE ROTATED 90°.
- 2. EXISTING DISCHARGE PLUG VALVES SHALL BE REUSED FOR RSP-06, 07 AND 08. CONTRACTOR
- 3. OWNER WILL FURNISH RAW SEWAGE PUMPS WITH SUCTION ELBOW FOR THE CONTRACTOR TO INSTALL, ALIGN AND TEST. CONTRACTOR SHALL REUSE EXISTING ELECTRICAL CABLE HANGERS. OWNER IS RESPONSIBLE FOR ELECTRICAL
- 4. EXISTING ELECTRICAL PANEL TO BE RELOCATED BY OWNER TO ACCOMMODATE NEW SUMP PUMP

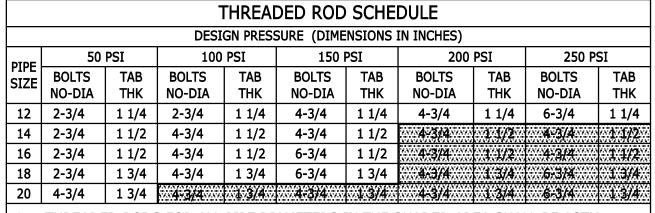
JANUARY 2017 60702-000 HAZEN NO.: 5718 CONTRACT NO.:



TO PREVENT MOVEMENT IN EITHER DIRECTION. SEE THREADED ROD SCHEDULE FOR ROD DIAMETER, MATERIAL AND STEEL TAB THICKNESS.

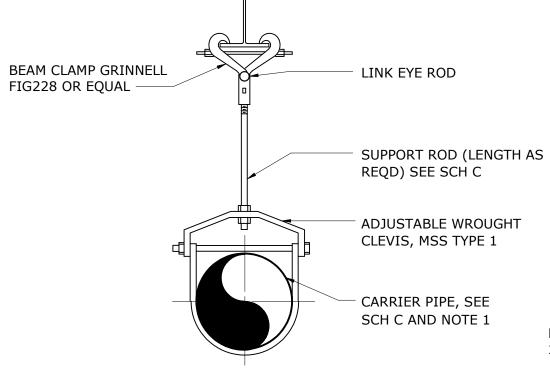
ALL FLANGED ADAPTERS SHALL BE HARNESSED AND BACK BOLTED

HARNESSED FLANGED ADAPTER (NTS)



- 1. THREADED RODS FOR ALL PIPE DIAMETERS IN THE SHADED AREA SHALL BE ASTM A193 (GRADE B7)
- 2. ALL OTHER THREADED RODS SHALL BE ASTM A36. ALL TABS SHALL BE ASTM A572 GR50. ASTM A193 (GRADE B7) RODS SHALL BE LABELED AND BUNDLED SEPARATELY.
- 3. THIS SCHEDULE SHALL APPLY FOR HARNESSED FLANGED ADAPTERS, HARNESSED FLEXIBLE COUPLINGS
- 4. AND ALL MECHANICAL JOINT COUPLINGS, SLEEVES ETC. THAT ARE REQUIRED TO BE HARNESSED. RODS THREADED AT ENDS (INCLUDING NUTS) SHALL BE EQUALLY SPACED AROUND PIPE BETWEEN
- 5. 5. ALL MECHANICAL JOINT FITTINGS (TEE, VALVES, BEND, PLUG, ETC.) OR AS OTHERWISE SHOWN ON THE CONTRACT DRAWINGS. THREADED RODS SHALL BE AS SHOWN IN THE THREADED ROD SCHEDULE. SEE NOTE 6. RODS, NUTS, ETC., IN CONTACT WITH SOIL SHALL BE PAINTED WITH TWO COATS COAL TAR

6. 6. (MIN 26 DRY MIL THICKNESS) TNEMEC 46-465 HI-BUILD OR EQUAL.



PIPE SUPPORT BRACKET (NTS)

	SCHEDULE C					
	SUPPORT RODS AND BRACKET SPACING (FOR STANDARD WEIGHT PIPE)					
PIPE SIZE	BACK PLATE	MINIMUM ROD Ø (INCHES)	MAX SPAN IN FEET (SEE NOTE 3)			
(INCHES)	(INCHES)	PROCESS PIPING	DIP (SEE NOTE 2)			
8-12	SEE NOTE 4	3/4	9			
14-16	11	7/8	9			
18	11	1	10			
20-24	11	1 1/4	10			
30	II.	1 1/2	10			

NOTES:

- 1. PIPE HANGERS, SUPPORTS AND BRACKETS ARE SHOWN HERE IN VARIOUS COMBINATIONS AS GENERAL DETAILS. THE CONTRACTOR SHALL DESIGN THE SUPPORT SYSTEM BASED ON ACTUAL WEIGHTS AND CONDITIONS AS SPECIFIED OR AS SHOWN ON THE CONTRACT DRAWINGS. THE PIPE SUPPORTS SHOWN AND REFERENCED UNDER SCHEDULE C IS DESIGNED AND DETAILED FOR GRAVITY LOADING ONLY, RESULTING LATERAL LOADS FROM CONSTRUCTION CONDITIONS, DESIGN SEISMIC EVENT OR OTHER RELATED CONDITIONS SHALL BE APPLIED TO THE PIPE AND OTHER NON STRUCTURAL COMPONENTS IN ACCORDANCE WITH THE GOVERNING BUILDING CODE. SUPPLEMENTAL LATERAL STIFFNESS, RESISTANCE AND MEMBERS (WHEN NECESSARY) SHALL BE PROVIDED ALONG PIPE OR AT GRAVITY SUPPORTS AND CONNECTIONS WHEN WE REQUIRED BY CALCULATIONS. THE CONTRACTOR SHALL INCLUDE DESIGN CALCULATIONS AND DETAILS WITH ALL PIPE HANGER AND SUPPORT SUBMISSIONS FOR REVIEW BY THE ENGINEER. THE MAIN STRUCTURE AND MAIN STRUCTURAL COMPONENTS THAT WILL SUPPORT THE PIPE HANGERS AND OTHER APPURTENANT COMPONENTS OF THE FACILITY HAVE BEEN DESIGNED TO RESIST ALL RESULTING SECONDARY LATERAL LOADING FROM NONSTRUCTURAL MEMBERS FOR GRAVITY AND LATERAL LOADS.
- 2. MINIMUM OF ONE HANGER PER PIPE SECTION, CLOSE TO JOINT, ON THE BARREL, ALSO AT CHANGE IN DIRECTION AND AT BRANCH CONNECTIONS.
- 3. ROOS AND SPACING ARE BASED ON STANDARD WEIGHT MATERIALS ACCORDING TO MSS SP-69. NR FOR REFERENCE ONLY. THE CONTRACTOR SHALL SPACE THEIR HANGERS BASED ON ACTUAL CONDITIONS
- 4. BACK PLATES SHALL BE DESIGNED BY THE CONTRACTOR ACCORDING TO WALL TYPES AND THE WEIGHTS INVOLVED. BACK PLATES TO BE SUPPLIED BY BRACKET MANUFACTURER.

DETAIL	2
NTS	XX

DETAIL	1
NTS	XX

				PROJECT ENGINEER:	B. MILLER
				DESIGNED BY:	B. MILLER
				DRAWN BY:	C. WITT
				CHECKED BY:	C. DASSANAYAKE
				IF THIS BAR DOES N MEASURE 1" THEN D	U 1/2 1
REV	ISSUED FOR	DATE	BY	IS NOT TO FULL SCA	





HAZEN AND SAWYER
8350 N. CENTRAL EXPRESSWAY, SUITE 775
DALLAS, TEXAS 75206
TBPE FIRM REG. NO. F-13618

CITY OF DENTON, TEXAS
PECAN CREEK WATER RECLAMATION PLANT
RAW SEWAGE PUMP STATION NO. 2
HYDRAULIC IMPROVEMENTS

MECHANICAL
TYPICAL DETAILS

DATE:	JARY	2017	
HAZEN NO.	: (50702	2-000
CONTRACT	NO.:		5718
DRAWING NUMBER:			