

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

JANUARY 2017

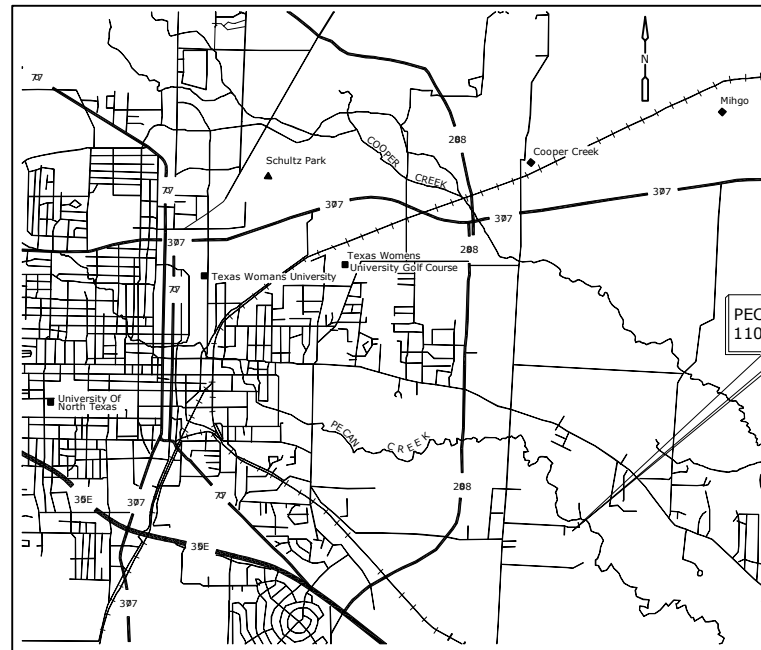
CITY COUNCIL
CHRIS WATTS - MAYOR

COUNCIL MEMBERS
KEVIN RODEN - DISTRICT 1
KEELY BRIGGS - DISTRICT 2
KATHLEEN WAZNY - DISTRICT 3
JOEY HAWKINS - DISTRICT 4
DALTON GREGORY
GREG JOHNSON

PUBLIC UTILITIES BOARD
LILIA CHAVEZ BYNUM
BRENDAN CARROLL
PHIL GALLIVAN
RANDY ROBINSON
SUSAN PARKER
BARBARA RUSSELL
CHARLES JACKSON

ASSISTANT CITY MANAGER OF UTILITIES
HOWARD MARTIN

GENERAL MANAGER OF WASTEWATER UTILITIES
P.S. ARORA



LOCATION MAP
NOT TO SCALE

SHEET LIST:

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

* RECORD DRAWINGS FOR REFERENCE USE ONLY

PREPARED BY:

Hazen

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



01-18-2017

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.
- G-4 ALL DIMENSIONS INDICATED (*) SHALL BE VERIFIED EITHER BY FIELD MEASUREMENTS FOR EXISTING STRUCTURES OR BY SHOP DRAWINGS FOR EQUIPMENT FURNISHED. STRUCTURAL DIMENSIONS NOT SHOWN BUT CONTROLLED BY OR RELATED TO EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR WITH THE MANUFACTURER PRIOR TO CONSTRUCTION.
- G-5 THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING INFORMATION IN THE FIELD AS REQUIRED FOR NEW WORK.
- 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 A1 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: 2 1/2"
 - WALLS LESS THAN 12" (#5 OR SMALLER): 2 1/2"
 - WALLS LESS THAN 12" (#6 OR LARGER): 2"
- 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 DEFORMATIONS.
 - B) THE DEPTH OF EMBEDMENT SHALL BE 12 BAR DIAMETERS, UNLESS NOTED OTHERWISE.
 - C) 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: ASTM A500, GRADE B OR A501 (42 KSI)
 - B) STRUCTURAL PIPE: ASTM A53, TYPE E OR S, GRADE B (35 KSI)
 - C) PLATES AND ANGLES: ASTM A36 UNO (36 KSI)
 - 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 OTHERWISE. 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

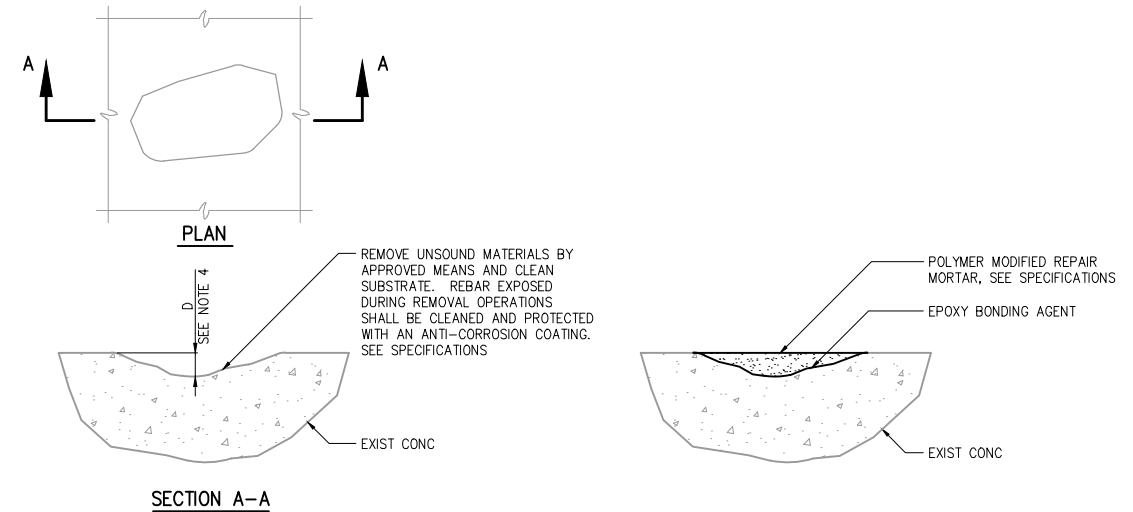
- D-1 FOR DEMOLITION REQUIREMENTS, REFER TO SPECIFICATION 02050 - DEMOLITION.
- D-2 CONCRETE DEMOLITION WITHIN STRUCTURES BEING MODIFIED SHALL BE SELECTIVE DEMOLITION BY CORE DRILLING OR SAWCUTTING AND CAREFUL REMOVAL OF CONCRETE SHOWN TO BE REMOVED. NO OVER CUTTING OF AREAS TO BE DEMOLISHED SHALL BE 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

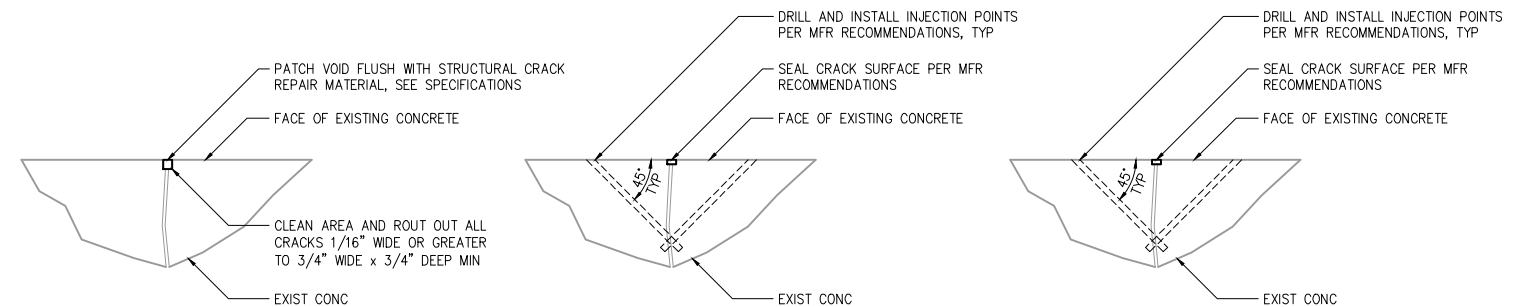
- X-1 ALL EXISTING INFORMATION SHOWN ON THESE DRAWINGS INCLUDING LOCATION, DIMENSIONS, ELEVATIONS, AND CONFIGURATIONS IS DERIVED FROM THE 1983 AND 2001 CONTRACT DRAWINGS AND IS NOT GUARANTEED TO BE COMPLETE OR CORRECT.
- X-2 THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING INFORMATION IN THE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

CONCRETE REPAIR

- 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 CONCRETE TO BE REHABILITATED AND/OR RESURFACED. A SUMMARY OF WORK SHALL BE APPROVED BY THE ENGINEER PRIOR TO COMMENCEMENT OF THE WORK.
- R-3 THE CONTRACT CONTRACT SHALL INCLUDE ALL WORK RELATING TO CONCRETE REPAIRS AS INDICATED HEREIN AND SPECIFIED IN SPECIFICATION SECTION 03732 - CONCRETE REPAIRS. QUANTITIES OF CONCRETE REPAIR WORK PERFORMED WILL BE PAID AS ENGINEER DIRECTED WORK PER SPECIFICATION SECTION 01271 - MEASUREMENT AND PAYMENT.
- R-4 CONCRETE REPAIRS TO BE INSPECTED BY THE ENGINEER AFTER COMPLETION AND PRIOR TO SUBSEQUENT WORK STARTING.



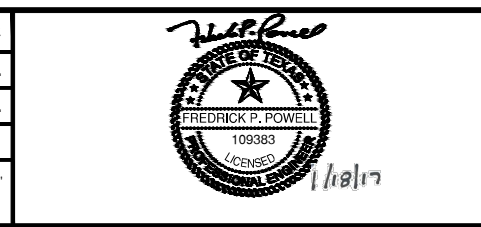
SPALL REPAIR
NTS



CRACK REPAIR
NTS

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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 IS NOT TO FULL SCALE			
REV	ISSUED FOR	DATE	BY



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 TBPE FIRM REG. NO. F-13618

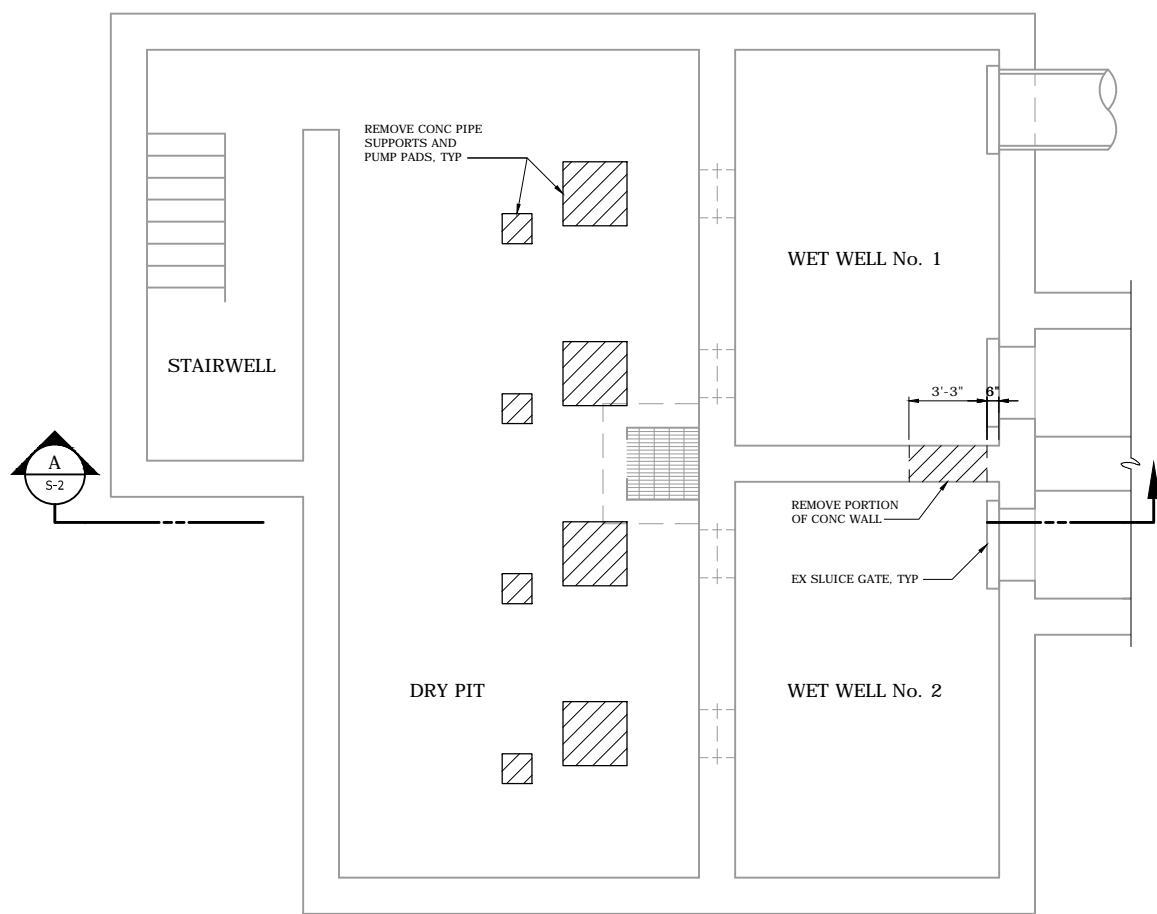
CITY OF DENTON, TEXAS
 PECAN CREEK WATER RECLAMATION PLANT
 RAW SEWAGE PUMP STATION NO. 2
 HYDRAULIC IMPROVEMENTS

**STRUCTURAL
GENERAL NOTES**

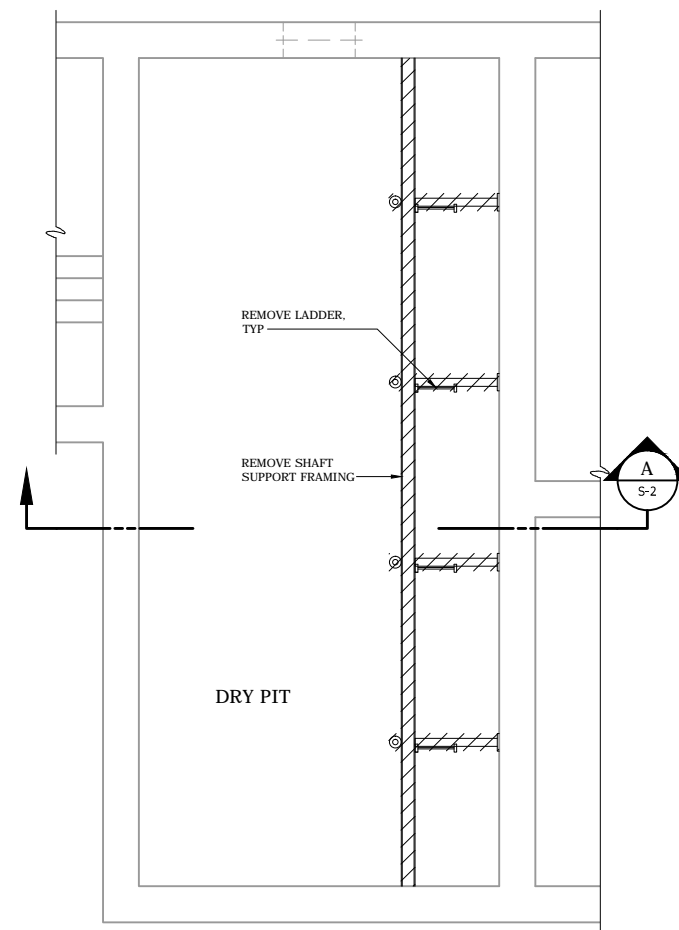
DATE:	JANUARY 2017
HAZEN NO.:	60702-000
CONTRACT NO.:	5718
DRAWING NUMBER:	S-1

NOTES:

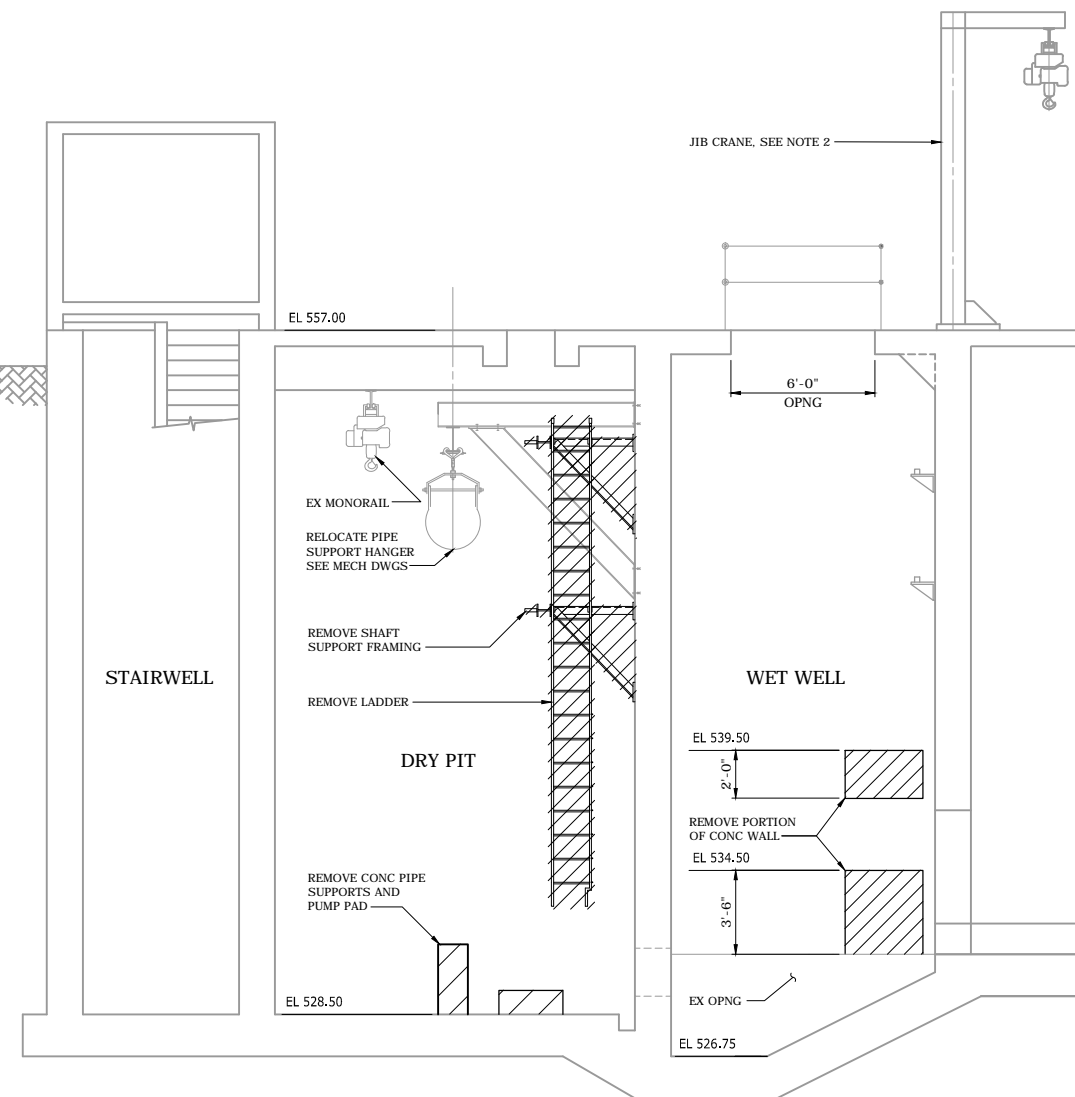
1. SEE DEMOLITION NOTES ON DRAWING S-1.
2. CONTRACTOR SHALL NOT USE EXISTING JIB CRANE.
3. CONTRACTOR IS RESPONSIBLE FOR THE STRUCTURAL INTEGRITY OF THE EXISTING RSPS2 PUMP STATION. HEAVY EQUIPMENT AND CRANES SHALL BE KEPT A MINIMUM OF 10 FEET AWAY FROM THE PUMP STATION'S EXTERIOR WALLS.



DEMOLITION BOTTOM PLAN
1/4" = 1'-0"



DEMOLITION INTERMEDIATE PLAN
1/4" = 1'-0"

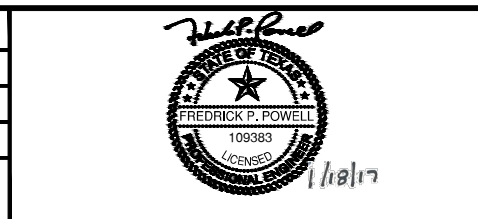


SECTION A
1/4" = 1'-0"

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REV	ISSUED FOR	DATE	BY

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 IS NOT TO FULL SCALE	

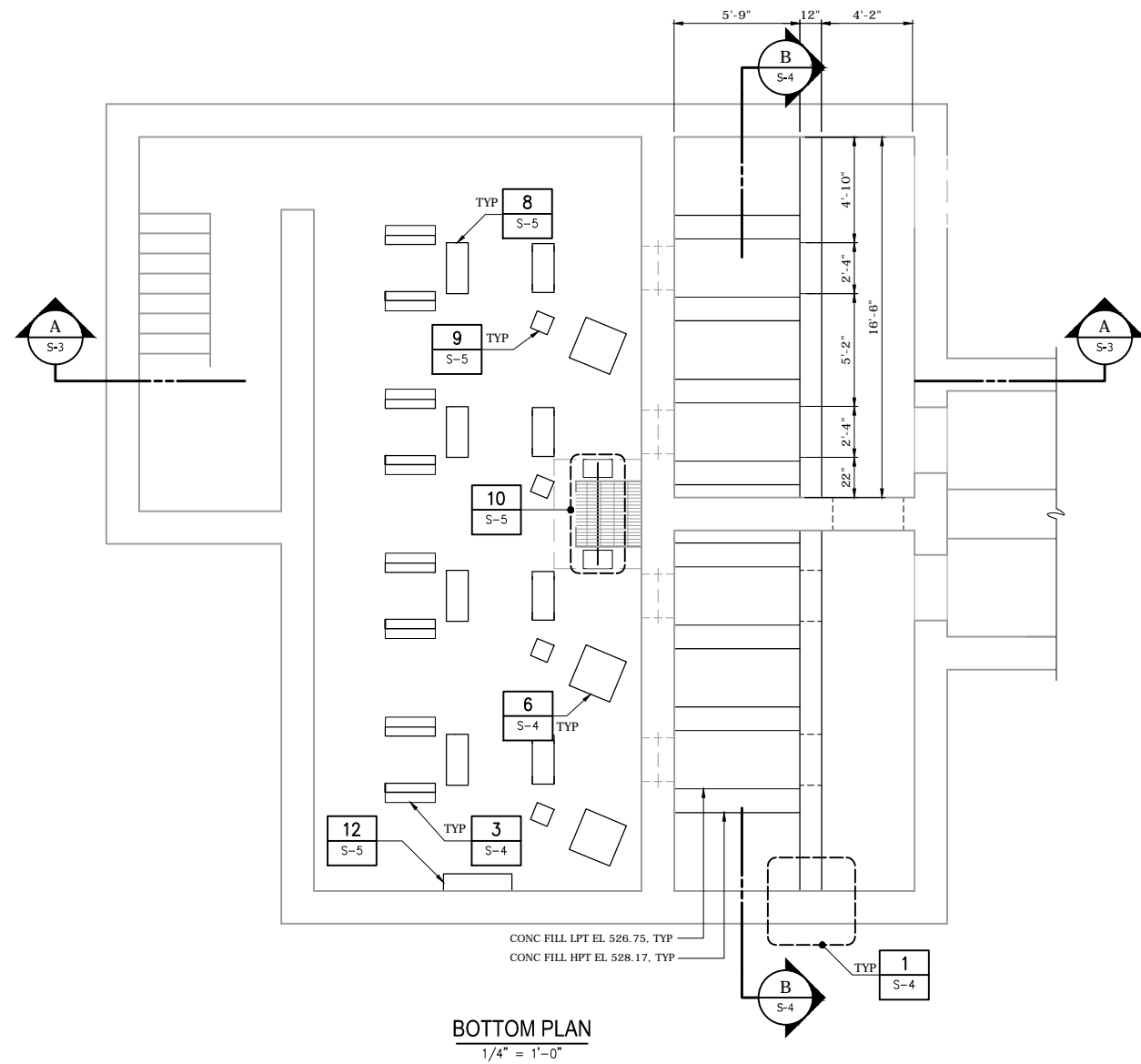


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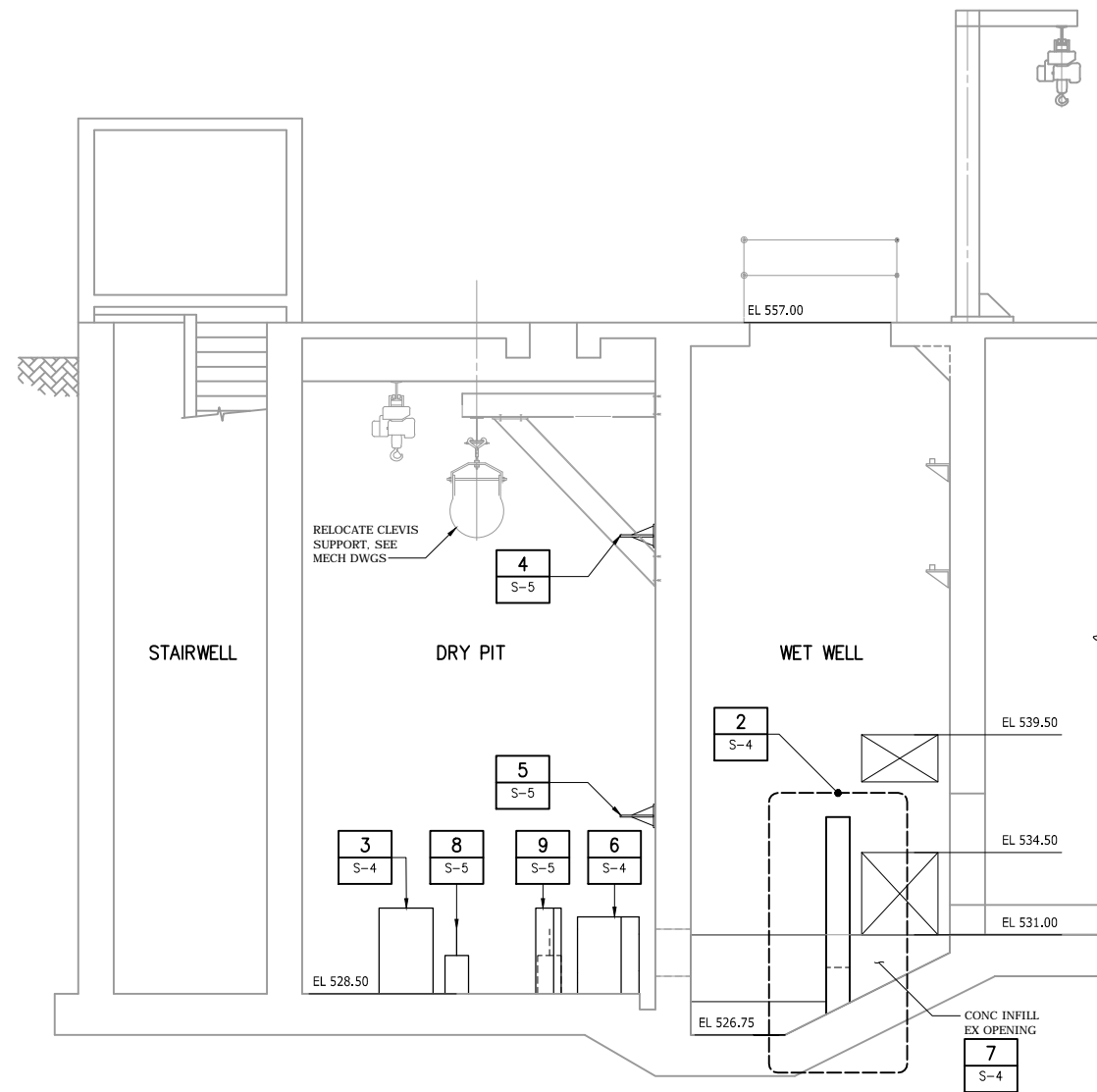
CITY OF DENTON, TEXAS
 PECAN CREEK WATER RECLAMATION PLANT
 RAW SEWAGE PUMP STATION NO. 2
 HYDRAULIC IMPROVEMENTS

STRUCTURAL
 RSPS2 DEMOLITION
 PLANS AND SECTIONS

DATE:	JANUARY 2017
HAZEN NO.:	60702-000
CONTRACT NO.:	5718
DRAWING NUMBER:	S-2



BOTTOM PLAN
1/4" = 1'-0"

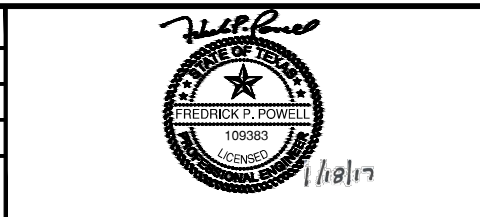


SECTION A
1/4" = 1'-0"

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 PLOT BY: L. JOHNSON
 PLOT DATE: 2017/01/11 8:55:53 AM

REV	ISSUED FOR	DATE	BY

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 IS NOT TO FULL SCALE 	



Hazen
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 DALLAS, TEXAS 75206
 TBPE FIRM REG. NO. F-13618

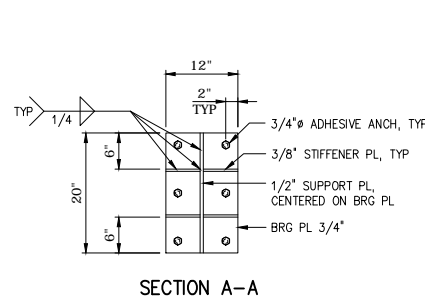
CITY OF DENTON, TEXAS
 PECAN CREEK WATER RECLAMATION PLANT
 RAW SEWAGE PUMP STATION NO. 2
 HYDRAULIC IMPROVEMENTS

STRUCTURAL
 RSPS2
 PLANS AND SECTIONS

DATE:	JANUARY 2017
HAZEN NO.:	60702-000
CONTRACT NO.:	5718
DRAWING NUMBER:	S-3

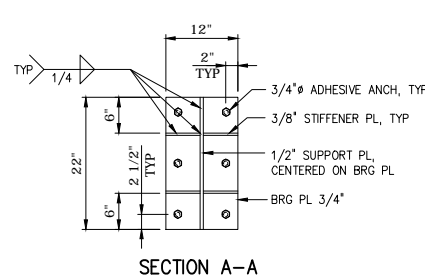
NOTES:

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



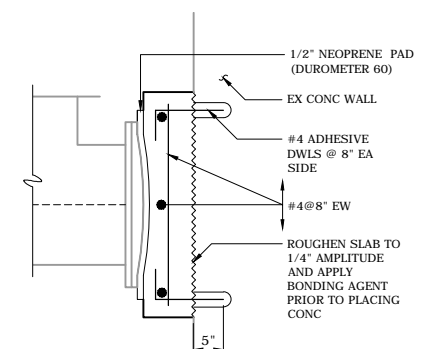
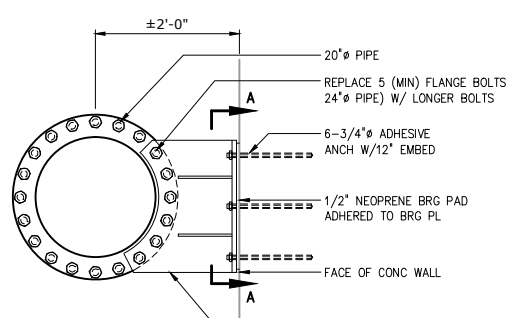
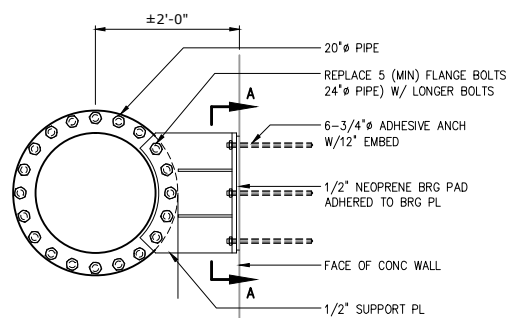
SECTION A-A

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

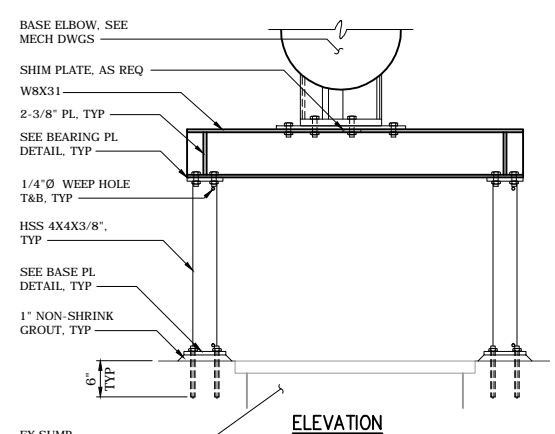


SECTION A-A

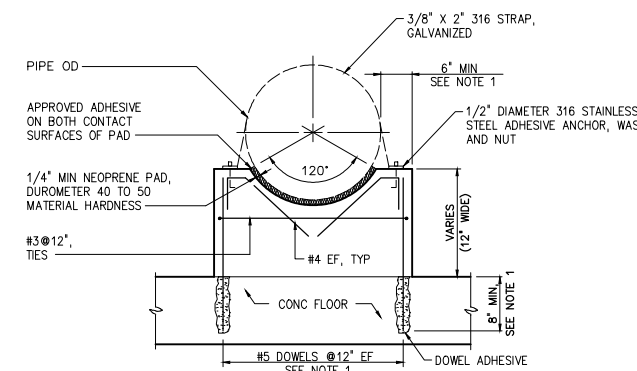
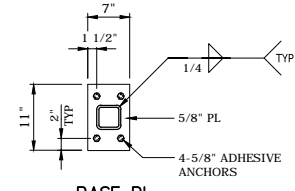
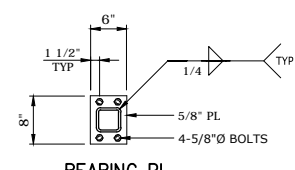
DETAIL	5
3/4" = 1'-0"	S-3



DETAIL	12
3/4" = 1'-0"	M-2



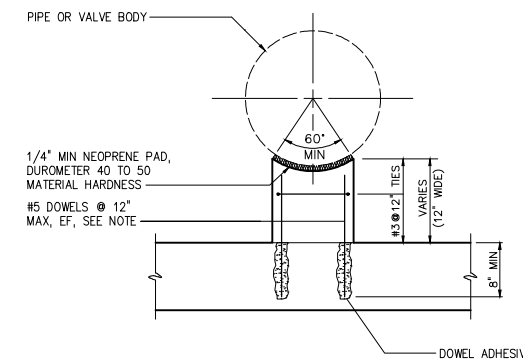
DETAIL	10
3/4" = 1'-0"	S-5



CRADLE PIPE/VALVE SUPPORT

DETAIL	8
NTS	S-3

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



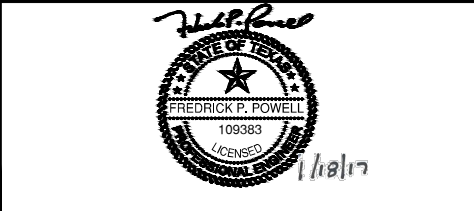
PIER PIPE SUPPORT

DETAIL	9
NTS	S-3

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

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 FILE: S:\2017\60702-000\60702-000\DWG\STRUCT\S-3.dwg Saved By: LJOHNSON Scale Date: 2017/01/19 9:48 AM

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 IS NOT TO FULL SCALE			
REV	ISSUED FOR	DATE	BY



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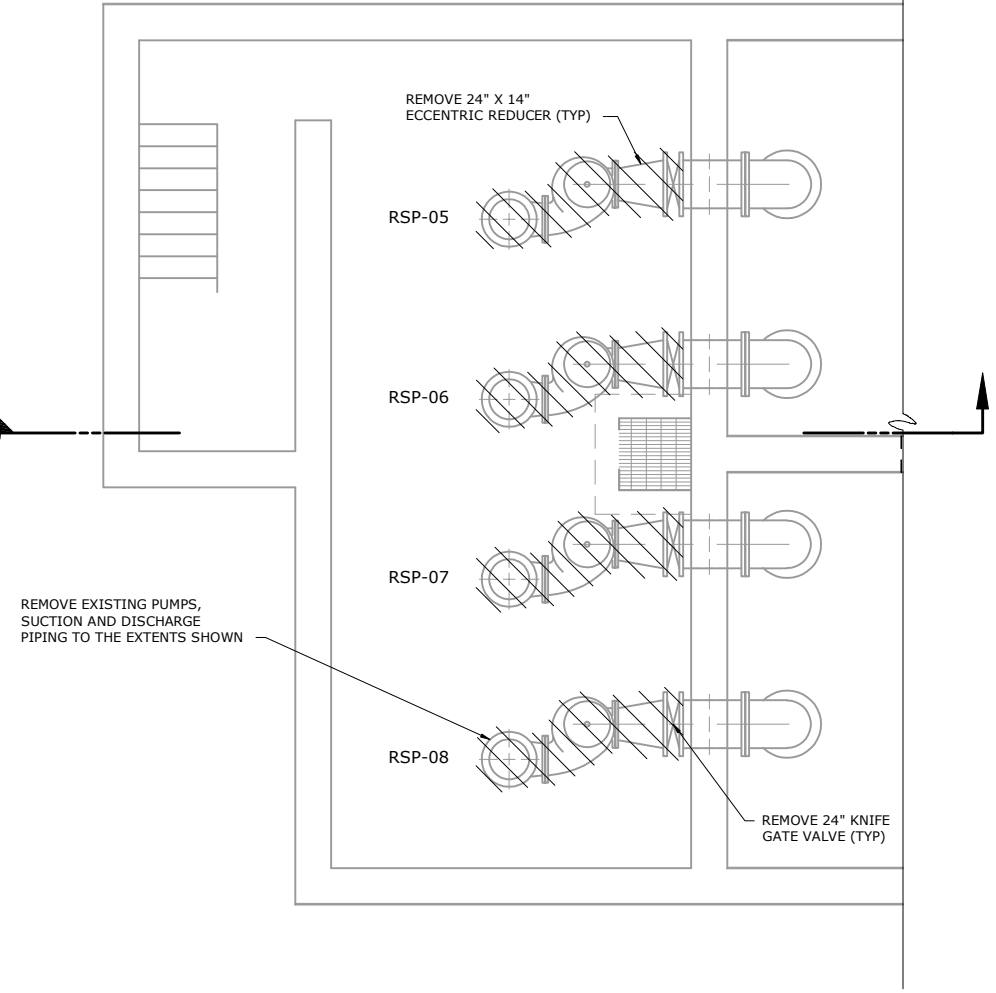
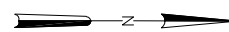
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STRUCTURAL
 RSPS2
 DETAILS II

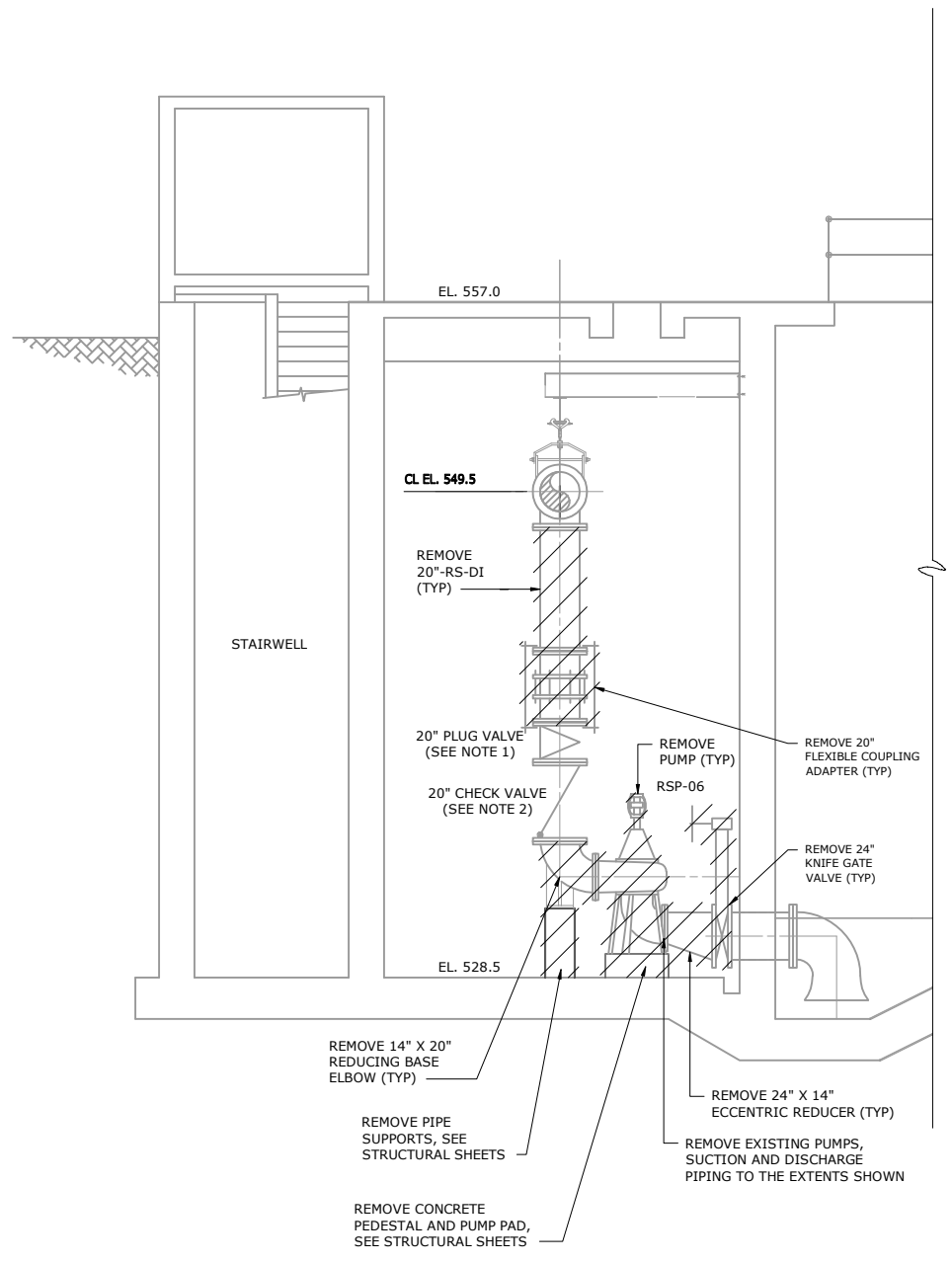
DATE:	JANUARY 2017
HAZEN NO.:	60702-000
CONTRACT NO.:	5718
DRAWING NUMBER:	S-5

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.
- 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"



SECTION A-A
1/4" = 1'-0"

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REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	B. MILLER
DESIGNED BY:	B. MILLER
DRAWN BY:	C. WITT
CHECKED BY:	C. DASSANAYAKE
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	

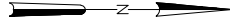


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 8350 N. CENTRAL EXPRESSWAY, SUITE 775
 DALLAS, TEXAS 75206
 TBPE FIRM REG. NO. F-13618

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

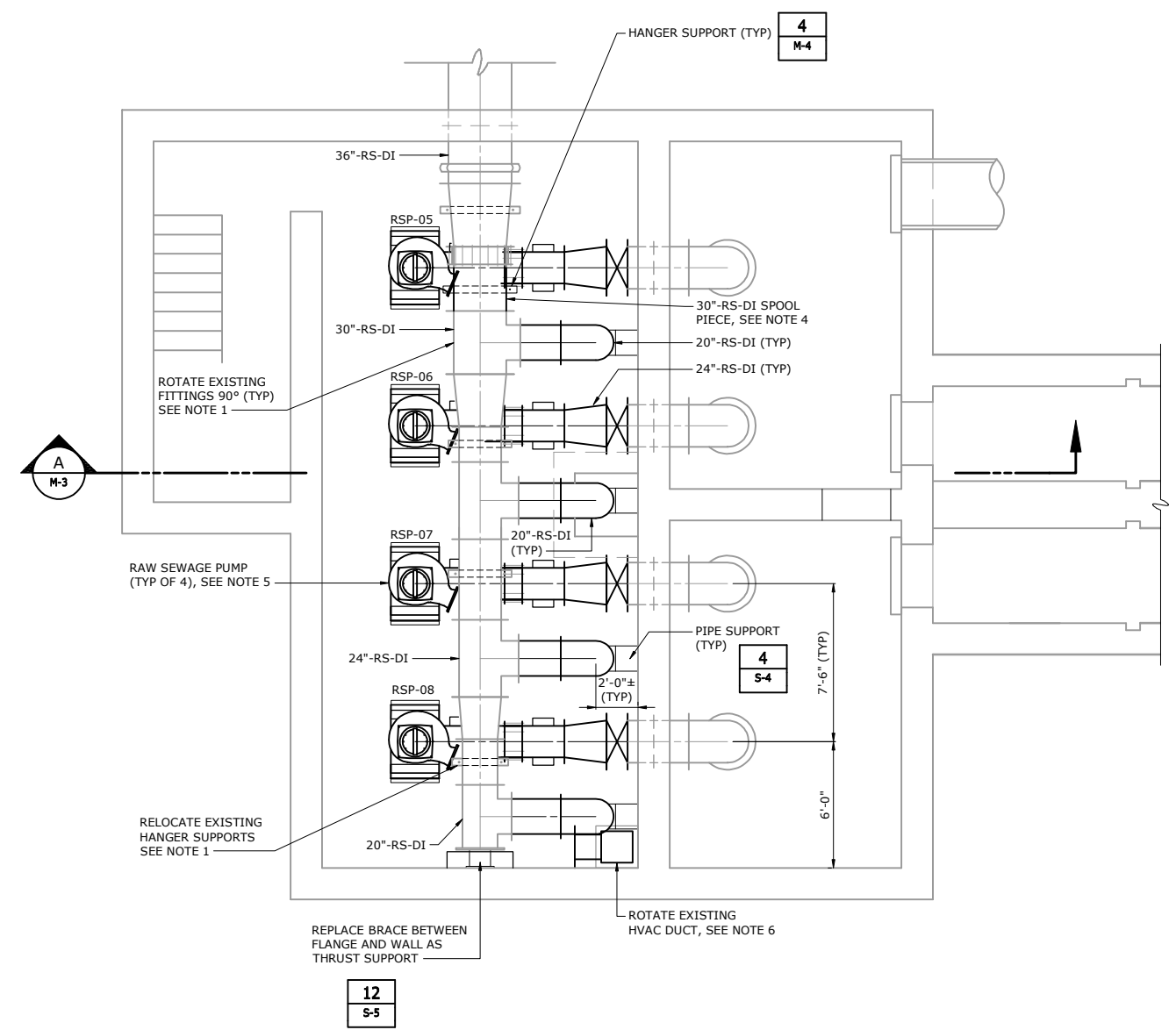
MECHANICAL
 RSPS2 EXISTING PLAN
 AND DEMOLITION

DATE:	JANUARY 2017
HAZEN NO.:	60702-000
CONTRACT NO.:	5718
DRAWING NUMBER:	M-1

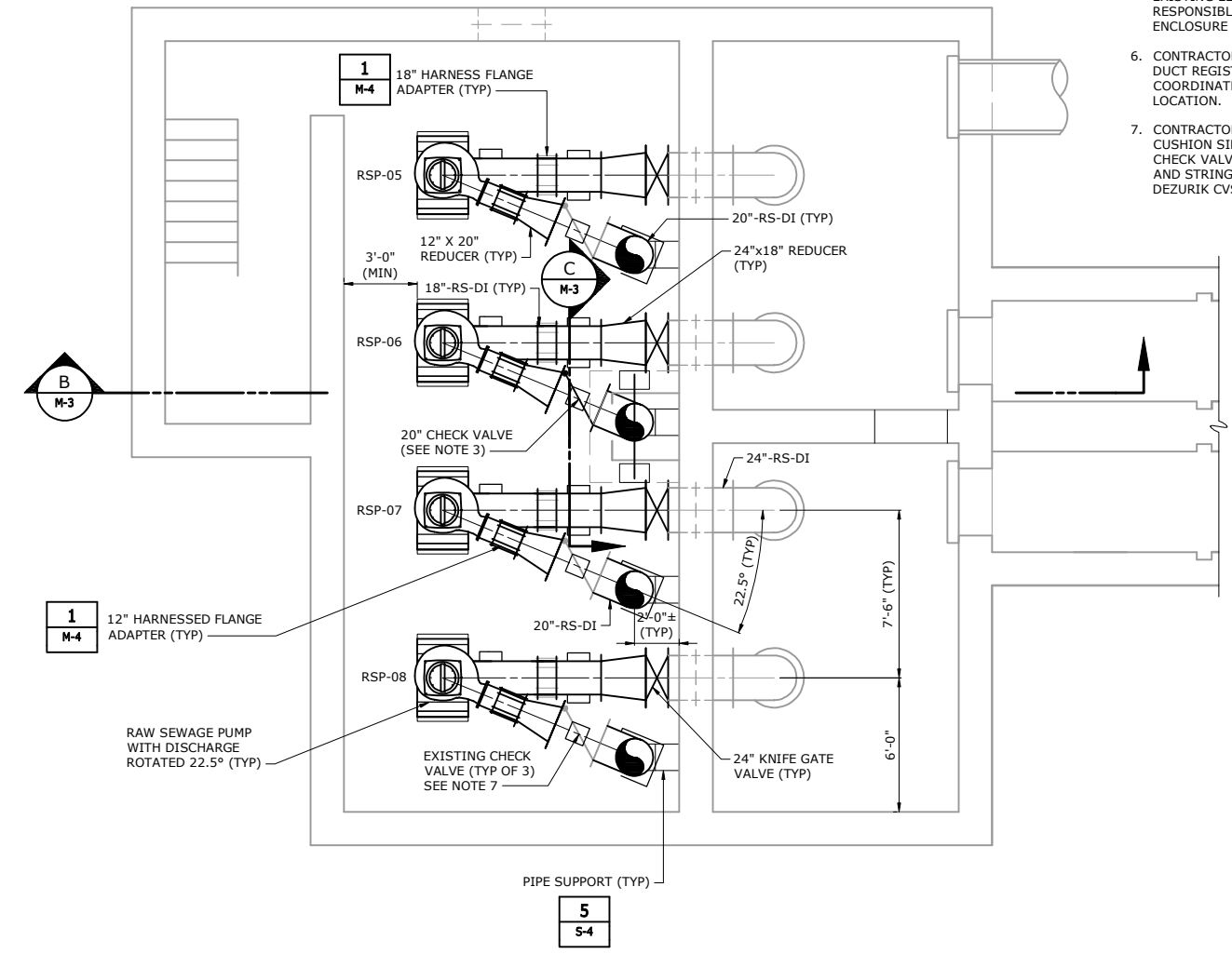


NOTES:

1. CONTRACTOR SHALL RELOCATE EXISTING HANGER SUPPORTS FOR THE DISCHARGE HEADER TO ALIGN WITH THE INDIVIDUAL PUMP DISCHARGE PIPING. HEADER FITTING SHALL BE ROTATED 90°.
2. EXISTING DISCHARGE PLUG VALVES FROM PUMPS RSP-06, 07 AND 08 SHALL BE REUSED. CONTRACTOR SHALL FURNISH AND INSTALL NEW PLUG VALVE FOR PUMP RSP-05.
3. EXISTING DISCHARGE CHECK VALVES FROM PUMPS RSP-05, 07 AND 08 SHALL BE REUSED. SEE NOTE 7. CONTRACTOR SHALL FURNISH AND INSTALL NEW CHECK VALVE FOR PUMP RSP-06.
4. CONTRACTOR SHALL FIELD VERIFY THE LENGTH OF THE SPOOL REQUIRED TO COORDINATE WITH THE INDIVIDUAL PUMP DISCHARGE LOCATIONS.
5. 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 CONNECTION AND ENCLOSURE MODIFICATIONS.
6. CONTRACTOR SHALL ROTATE THE EXISTING HVAC DUCT REGISTERS 90° COUNTER CLOCKWISE AND COORDINATE WITH THE NEW DISCHARGE HEADER LOCATION.
7. CONTRACTOR SHALL FURNISH AND INSTALL AIR CUSHION SIDE MOUNTED CYLINDERS ON ALL THREE CHECK VALVES TO BE REUSED REPLACING THE LEVER AND STRING. THE EXISTING CHECK VALVES ARE DEZURIK CVS-6000.



UPPER PLAN (EL. 552.0)
1/4" = 1'-0"



LOWER PLAN (EL. 540.0)
1/4" = 1'-0"

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PROJECT ENGINEER:	B. MILLER		
DESIGNED BY:	B. MILLER		
DRAWN BY:	C. WITT		
CHECKED BY:	C. DASSANAYAKE		
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE			
REV	ISSUED FOR	DATE	BY

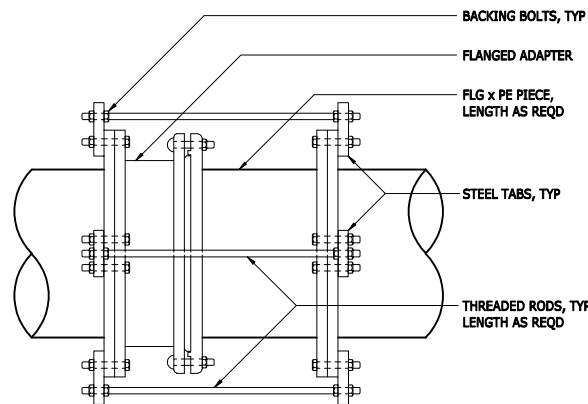


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CITY OF DENTON, TEXAS
 PECAN CREEK WATER RECLAMATION PLANT
 RAW SEWAGE PUMP STATION NO. 2
 HYDRAULIC IMPROVEMENTS

MECHANICAL
 RSPS2 UPPER AND LOWER PLANS

DATE:	JANUARY 2017
HAZEN NO.:	60702-000
CONTRACT NO.:	5718
DRAWING NUMBER:	M-2



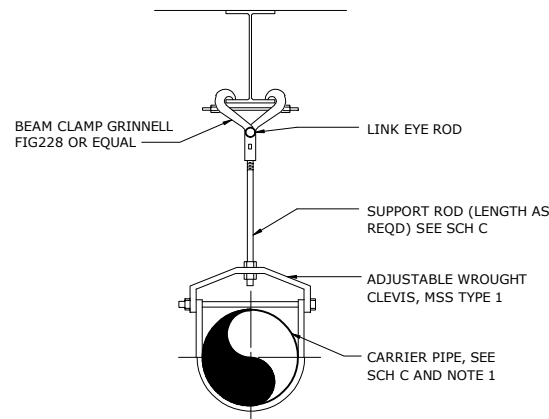
NOTE:
ALL FLANGED ADAPTERS SHALL BE HARNESSED AND BACK BOLTED TO PREVENT MOVEMENT IN EITHER DIRECTION. SEE THREADED ROD SCHEDULE FOR ROD DIAMETER, MATERIAL AND STEEL TAB THICKNESS.

HARNESSED FLANGED ADAPTER (NTS)

DETAIL	1
NTS	XX

THREADED ROD SCHEDULE										
DESIGN PRESSURE (DIMENSIONS IN INCHES)										
PIPE SIZE	50 PSI		100 PSI		150 PSI		200 PSI		250 PSI	
	BOLTS NO-DIA	TAB THK	BOLTS NO-DIA	TAB THK	BOLTS NO-DIA	TAB THK	BOLTS NO-DIA	TAB THK	BOLTS NO-DIA	TAB THK
12	2-3/4	1 1/4	2-3/4	1 1/4	4-3/4	1 1/4	4-3/4	1 1/4	6-3/4	1 1/4
14	2-3/4	1 1/2	4-3/4	1 1/2	4-3/4	1 1/2	4-3/4	1 1/2		
16	2-3/4	1 1/2	4-3/4	1 1/2	6-3/4	1 1/2				
18	2-3/4	1 3/4	4-3/4	1 3/4	6-3/4	1 3/4				
20	4-3/4	1 3/4								

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



PIPE SUPPORT BRACKET (NTS)

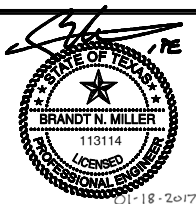
SCHEDULE C			
SUPPORT RODS AND BRACKET SPACING (FOR STANDARD WEIGHT PIPE)			
PIPE SIZE (INCHES)	BACK PLATE (INCHES)	MINIMUM ROD Ø (INCHES)	MAX SPAN IN FEET (SEE NOTE 3)
		PROCESS PIPING	DIP (SEE NOTE 2)
8-12	SEE NOTE 4	3/4	9
14-16	"	7/8	9
18	"	1	10
20-24	"	1 1/4	10
30	"	1 1/2	10

- 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

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PROJECT ENGINEER:	B. MILLER
DESIGNED BY:	B. MILLER
DRAWN BY:	C. WITT
CHECKED BY:	C. DASSANAYAKE
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REV	ISSUED FOR
	DATE
	BY



Hazen

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

MECHANICAL
TYPICAL DETAILS

DATE:	JANUARY 2017
HAZEN NO.:	60702-000
CONTRACT NO.:	5718
DRAWING NUMBER:	M-4