

TMUA PROJECT No. WPC 25-3,
FY '25 NORTHSLOPE CAPITAL EQUIPMENT REPLACEMENTS

ATTENDANCE AT PRE-BID CONFERENCE IS MANDATORY

PREPARED BY:
MASARU BROOK IWATA, P.E.
CITY OF TULSA WATER AND SEWER DEPARTMENT
5628 N. 105TH E. AVE., TULSA, OK 74117
918-591-4714 OFFICE, 918-699-3082 FAX
MIWATA@CITYOFTULSA.ORG



Account Number: 7503365 544003

Masaru Brook Iwata

Masaru Brook Iwata, P.E. OK#28906

21-APR-2025

Date

ERIC LEE, DIRECTOR
WATER AND SEWER DEPARTMENT

A blue ink signature of Eric Lee, written in a cursive style.

Eric Lee, Director, Water & Sewer Dept.

4-23-2025

Date

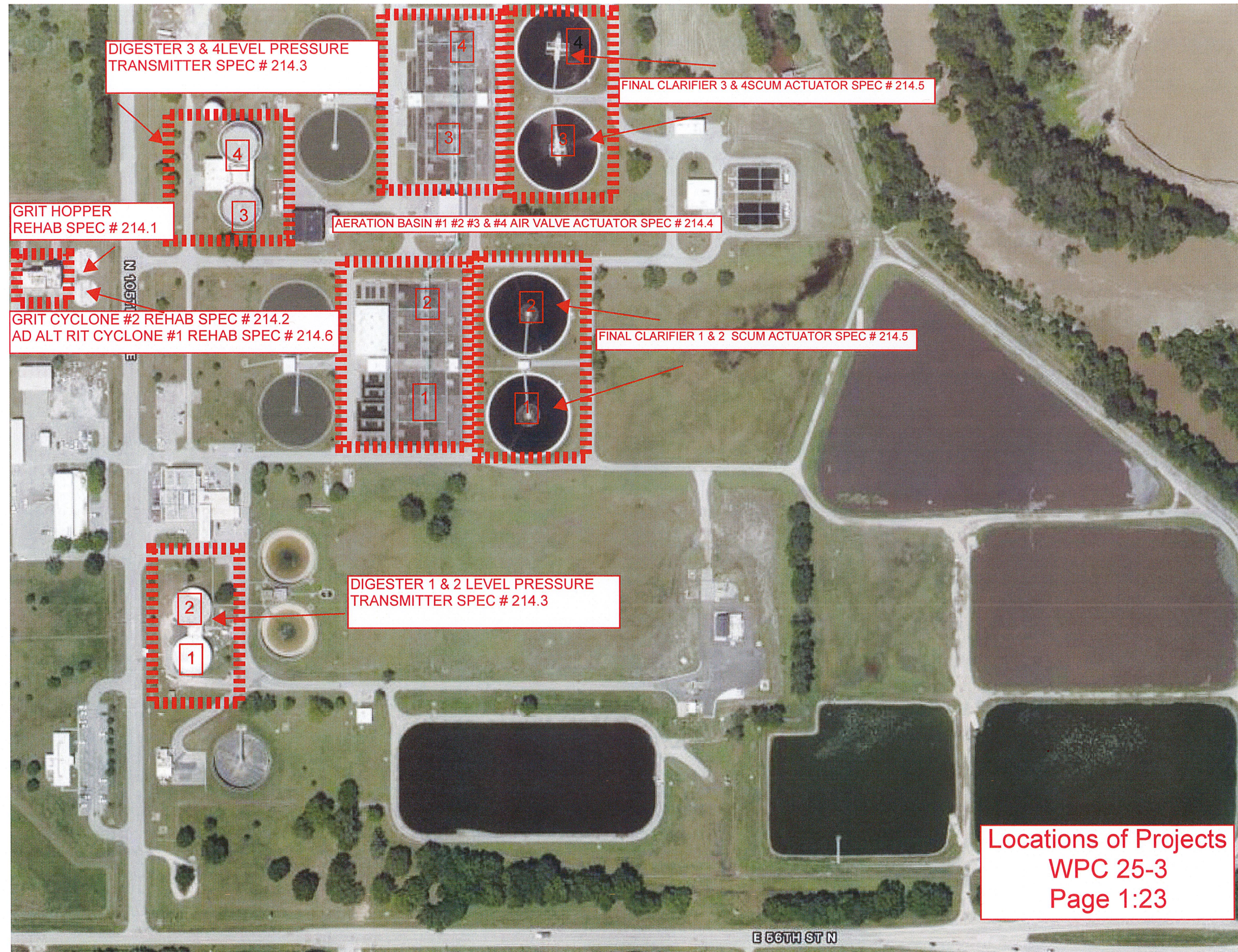
Cindy Cantero
Cindy Cantero, Water Pollution Control Manager

4/21/25
Date

Note: The Drawings attached hereto as part of these Specifications are for information purposes only. The Authority makes no representation or guarantee with respect to the accuracy of any information contained in the Drawings. It is the Contractors responsibility to verify information on the drawings to ensure the equipment installed or controlled by work performed under this Contract performs as specified herein.

Water and Sewer Department
175 E. 2nd Street
Tulsa, Oklahoma 74103
(918) 596-9870

DRAWINGS



Locations of Projects
WPC 25-3
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Equipment Schedule

Spec Sect	Equipment ID	Equipment Description	Equipment Status
214.1	N020-HDW1-HPR01	Grit hopper Actuator	Rehab & Replaced
214.1	N020-HDW1-HPR02	Grit hopper Actuator	Rehab & Replaced
214.2	N020-HDW1-CYC01	Grit Cyclone	Replaced
214.2	N020-HDW1-CYC02	Grit Cyclone	Replaced
214.2	N020-HDW1-CYC03	Grit Cyclone	Replaced
214.2	N020-HDW1-CYC04	Grit Cyclone	Replaced
214.3	N080-DIG1-LLC01	Digester Level Transmitter	Replaced
214.3	N080-DIG2-LLC01	Digester Level Transmitter	Replaced
214.3	N080-DIG3-LLC02	Digester Level Transmitter	Replaced
214.3	N080-DIG4-LLC01	Digester Level Transmitter	Replaced
214.4	N040-ARB1-ACT02	AB1 10" BFV ACTUALTOR	Replaced
214.4	N040-ARB1-ACT01	AB1 20" BFV ACTUALTOR	Replaced
214.4	N040-ARB2-ACT02	AB2 10" BFV ACTUALTOR	Replaced
214.4	N040-ARB2-ACT01	AB2 20" BFV ACTUALTOR	Replaced
214.4	N040-ARB3-ACT02	AB3 10" BFV ACTUALTOR	Replaced
214.4	N040-ARB3-ACT01	AB3 20" BFV ACTUALTOR	Replaced
214.4	N040-ARB4-ACT02	AB4 10" BFV ACTUALTOR	Replaced
214.4	N040-ARB4-ACT01	AB4 20" BFV ACTUALTOR	Replaced
214.5	N050-FCL1-MSP01	Final Clarifier #1 ACTUALTOR	Replaced
214.5	N050-FCL2-MSP01	Final Clarifier #2 ACTUALTOR	Replaced
214.5	N050-FCL3-MSP01	Final Clarifier #3 ACTUALTOR	Replaced
214.5	N050-FCL4-MSP01	Final Clarifier #4 ACTUALTOR	Replaced
214.6	N010-HDW1-CYC01	Grit Cyclone	Replaced
214.6	N010-HDW1-CYC02	Grit Cyclone	Replaced
214.6	N010-HDW1-CYC03	Grit Cyclone	Replaced
214.6	N010-HDW1-CYC04	Grit Cyclone	Replaced

GENERAL NOTES

1. THE CONTRACTOR SHALL CALL WWTP PERSONNEL AND CALL OKIE AT 1-800-522-6543 PRIOR TO ANY EXCAVATION TO DETERMINE LOCATION OF EXISTING UTILITIES.
2. THE CONTRACTOR SHALL, AT HIS EXPENSE, UNCOVER AND DETERMINE THE DEPTH OF PIPE LINES AND OTHER UTILITIES WHICH, IN HIS OPINION, COULD INTERFERE WITH THE CONSTRUCTION.
3. THE CITY OF TULSA ENGINEERING SERVICES DEPARTMENT STANDARD SPECIFICATIONS AND STANDARD DETAIL, OCTOBER 2013, ARE HEREBY ADOPTED AS PART OF THESE SPECIFICATIONS WHERE REFERENCE IS MADE. SAID SPECIFICATIONS WILL BE HEREINAFTER REFERRED TO AS THE "STANDARD SPECIFICATIONS".
4. CONTRACTOR SHALL MAINTAIN A CLEAN CONSTRUCTION SITE AT ALL TIMES. TRASH, SPENT PALLETS, CONTAINER REMNANTS, BINDINGS, ETC. SHALL BE PICKED UP WHEN NO LONGER IN USE AND DEPOSITED IN TRASH CONTAINERS.
5. ALL STAINLESS STEEL SHALL BE MINIMUM TYPE 316 SUITABLE FOR SANITARY APPLICATIONS, UNLESS OTHERWISE SPECIFICALLY NOTED OTHERWISE. ALL ANCHOR BOLTS, SUPPORTS, BRACKETS, FASTENERS AND UNISTRUT SHALL BE 316 SS UNLESS NOTED SPECIFICALLY OTHERWISE.
6. ALL DIMENSIONS SHOWN WITH ± SHALL BE CONFIRMED BY THE CONTRACTOR ACCORDING TO ACTUAL FIELD CONDITIONS OR EQUIPMENT REQUIREMENTS.
7. DISSIMILAR METALS SHALL BE SEPARATED BY GASKET TO PREVENT GALVANIC CORROSION.
8. ANY EXISTING ITEMS, EQUIPMENT, STRUCTURES OR SURFACES DISTURBED OR DAMAGED BY CONTRACTOR SHALL BE REPAIRED OR REPLACED TO ORIGINAL CONDITION OR BETTER AT NO ADDITIONAL COST TO THE OWNER.
9. CONTRACTOR SHALL VERIFY EXISTING UTILITIES IN THE VICINITY OF PROPOSED CONSTRUCTION PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF DISCREPANCIES FROM DRAWINGS.
10. CONTRACTOR SHALL CONFIRM ALL DIMENSIONS WITH EQUIPMENT SUPPLIERS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF DISCREPANCIES.
11. CONSTRUCTION STAKING SHALL BE PROVIDED BY THE CONTRACTOR, UNLESS SPECIFICALLY NOTED OTHERWISE.
12. THE IMPROVEMENTS SET FORTH IN THE PLANS SHALL NOT PROHIBIT ON-SITE TRAFFIC AND/OR RELATED TASKS REQUIRED IN THE TREATMENT AND DISCHARGE OF WASTEWATER.
13. TOPSOIL (MINIMUM 6") IN THE DISTURBED AREAS SHALL BE REMOVED, STOCKPILED AND REPLACED AFTER CONSTRUCTION OPERATIONS. ALL WASTE SOILS AND DEBRIS BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE HAULED OFFSITE AND DISPOSED OF PROPERLY.
14. ALL WORKMANSHIP SHALL BE NEAT, PLUMB, SQUARE AND CONSTRUCTED IN A PROFESSIONAL MANNER.
15. ALL ELECTRICAL CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH ALL N.E.C. AND CITY OF TULSA ELECTRICAL CODES. ELECTRICAL, MECHANICAL, AND PLUMBING INSPECTIONS ARE REQUIRED AT BOTH ROUGH AND FINAL STAGES OF THE PROJECT.
16. BYPASS PUMPING OR BYPASS PIPING, IF UTILIZED BY CONTRACTOR, SHALL BE SCHEDULED FOR DRY WEATHER PERIODS AND COMPLETELY OPERATED AND MAINTAINED BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR PREVENTING UNAUTHORIZED DISCHARGES. BYPASS PUMPING SHALL BE MANNED CONTINUOUSLY (24/7) BY THE CONTRACTOR WHEN OPERATING. AVERAGE DRY WEATHER FLOW ARE AVAILABLE FROM CITY BY REQUEST.
17. CONTRACTOR IS RESPONSIBLE FOR ANY DEWATERING REQUIRED TO CONSTRUCT FOUNDATIONS IN DRY CONDITIONS AND TO PROTECT EXCAVATION SIDE SLOPES.
18. ALL BURIED CONSTRUCTION, INCLUDING BUT NOT LIMITED TO PIPE AND CONDUIT, SHALL BE PHOTOGRAPHED PRIOR TO COVER. EQUIPMENT DATA TAGS SHALL ALSO BE PHOTOGRAPHED WITH EQUIPMENT. SUBMIT IN A DIGITAL JPEG FORMAT ON JUMP DRIVE AS PART OF CONTRACTORS CONSTRUCTION PHOTOGRAPHIC RECORD. CONTRACTOR SHALL SUBMIT GPS COORDINATES AND ELEVATIONS OF THE ⌀ OF ALL PIPING AT BENDS, FITTING, VALVES AND OTHER BURIED ITEMS.
19. WHERE RED TEXT AND LINEWORK IS USED IT CONVEYS NEW OR PROPOSED WORK. RECORD DRAWING USED AS BASE DRAWINGS MAY SHOW BOLD LINEWORK AND TEXT. THIS SHOULD BE VIEWED AS EXISTING.

GENERAL PIPING NOTES

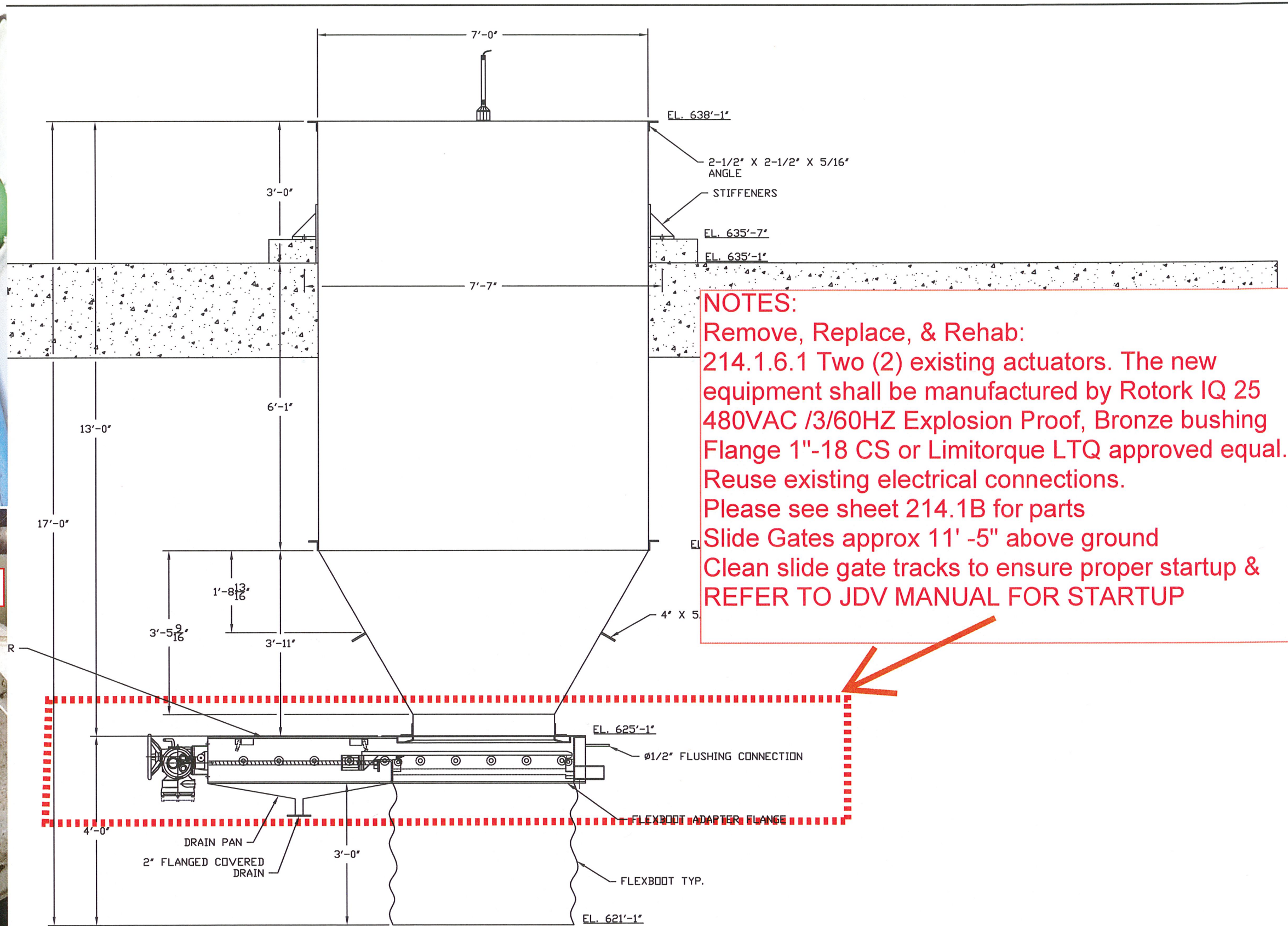
- P1. LAY PIPE TO UNIFORM GRADE BETWEEN INDICATED ELEVATION POINTS.
- P2. SIZE OF FITTINGS SHOWN ON THE PLANS SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE, UNLESS OTHERWISE INDICATED.
- P3. ALL BURIED D.I.P., C.I.P. AND PVC PIPE SHALL UTILIZE RESTRAINED D.I. MECHANICAL JOINT FITTINGS AT ALL CONNECTIONS UNLESS OTHERWISE DEPICTED ON THE PLANS SPECIFICALLY OTHERWISE.
- P4. ALL UNRESTRAINED, BURIED FITTINGS SUCH AS BENDS, TEES, WYES, ETC. SHALL BE BLOCKED FOR THRUST BLOCKS AS SHOWN ON STANDARD DETAILS. THIS REQUIREMENT INCLUDES BOTH GRAVITY AND PRESSURE PIPING.
- P5. A MINIMUM OF 10 FEET OF HORIZONTAL SEPARATION (FOR PARALLEL LINES) AND 2 FEET OF VERTICAL SEPARATION (FOR LINES CROSSING) SHALL BE MAINTAINED BETWEEN WATER AND SANITARY SEWER LINES IN ACCORDANCE WITH OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY.
- P6. CONTRACTOR SHALL REMOVE AND RECONSTRUCT INVERTS WHERE NEW CONNECTIONS ARE MADE TO EXISTING MANHOLES. WORK SHALL BE PAID FOR IN OTHER ITEMS OF WORK.
- P7. ALL FLANGE COUPLING ADAPTERS SHOWN ON THE CONSTRUCTION DRAWINGS SHALL BE RESTRAINED TYPE, MEGAFLANGE SERIES 2100, OR EQUAL.
- P8. CONTRACTOR IS REQUIRED TO VACUUM TEST ALL MANHOLES ACCORDING TO CITY OF TULSA, ENGINEERING SERVICES STANDARDS AND SPECIFICATIONS.
- P9. EXPOSED PIPING SHALL BE PAINTED PER COLOR CODE REQUIREMENTS AND INCLUDE SIGNAGE/LABELS.

SPECIAL WPC PROJECT NOTES & REQUIREMENTS:

- 1) ALL UNISTRUT, SUPPORTS AND RELATED COMPONENTS SUCH AS ANCHOR BOLTS, FASTENERS AND BOLTS SHALL BE 316 STAINLESS STEEL UNLESS SPECIFICALLY NOTED OTHERWISE.
- 2) ALL NEW DISCONNECTS, ELECTRICAL/CONTROL DISPLAY DEVICES AND SMALL PANELS SHALL BE MOUNTED ON THE PLANT STANDARD CUSTOM ALUMINUM PANEL SUPPORT DETAIL 8/47 UNLESS SPECIFICALLY NOTED OTHERWISE PER PLAN SHEET NOTES.
- 3) ALL NEW PIPING AND MODIFIED PIPING SHALL BE PAINTED USING, STANDARD COLOR CODING, DIRECTION ARROWS AND SIGNAGE AS PART OF THE NEW WORK. SEE ODEQ STANDARDS FOR STANDARD COLORS FOR PIPE SERVICE AS APPLICABLE. SUBMIT PIPE SERVICE COLORS WITH PAINT/COATING SUBMITTAL(S). COST SHALL BE INCLUDED IN OTHER AREAS OF WORK.
- 4) ALL AREAS OF DEMOLITION SHALL INCLUDE REPAIRS TO THE WALLS, CEILING, ROOF, FLOORING, CONCRETE PAD OR OTHER AREAS OF WORK TO INCLUDE TOUCH UP PAINTING TO MATCH AND CONCRETE REPAIR DETAIL 1/47. SEE SPECIFICATIONS AND SPECIFIC PLAN SHEETS FOR ADDITIONAL DETAILS.
- 5) ALL ELECTRICAL AND CONTROLS DEMOLITION FOR BIDDING PURPOSES, UNLESS SPECIFICALLY NOTED OTHERWISE, SHALL BE REMOVED COMPLETELY BACK TO CLOSEST POINT OF TERMINATION. CONTRACTOR SHALL SUBMIT WRITTEN SKETCHES, DETAILS AND A WORK PLAN TO FURTHER DEFINE EXTENT OF EACH AREA OF DEMOLITION AND NEW WORK.
- 6) SEE SPECIFICATIONS AND CITY OF TULSA STANDARDS AND DETAILS FOR ADDITIONAL REQUIREMENTS. ALL WTP PLANT FACILITY'S ROADS, PARKING AND PAVED AREAS ARE CONSIDERED CITY OF TULSA ROADS AND CITY OF TULSA STANDARDS APPLY.
- 7) CONTRACTOR SHALL PAY CLOSE ATTENTION AND PROVIDE DETAILS TO MINIMIZE CORROSION IN ALL AREAS OF WORK. EVERY EFFORT SHALL BE MADE TO MINIMIZE DISSIMILAR METALS, ALUMINUM COATED IN CONTACT WITH CONCRETE AND OTHER MATERIAL SELECTION FOR WASTEWATER APPLICATIONS.
- 8) ALL EXPOSED COPPER PIPING, TUBING OR LINES SHALL BE OPTIONED FOR CORROSION RESISTANT COATINGS BY THE MANUFACTURER IF AVAILABLE. IF A FACTORY COATING OPTION IS NOT AVAILABLE, APPLY A SPRAY COATING ONSITE WITH HERESITE COATING OR EQUAL AND PRIOR TO ASSEMBLY/INSTALLATION. REQUIREMENTS APPLY TO ALL HVAC MECHANICAL EQUIPMENT AND PLUMBING SYSTEMS WITHIN ALL PLANT FACILITY GROUNDS, EXTERIOR EQUIPMENT, SERVICES AND INSIDE OF BUILDINGS, MANHOLES, VAULTS, SHEDS OR OTHER AREAS, EXCEPT PERSONNEL OCCUPIED SPACES LIKE OPERATIONS BUILDING, OFFICE SPACE OR ADMINISTRATION BUILDINGS. BURIED COPPER WATERLINES ARE ALSO EXEMPT.



Missing Actuator slide gate #2




NOTES:
 Remove, Replace, & Rehab:
 214.1.6.1 Two (2) existing actuators. The new equipment shall be manufactured by Rotork IQ 25 480VAC /3/60HZ Explosion Proof, Bronze bushing Flange 1"-18 CS or Limitorque LTQ approved equal. Reuse existing electrical connections. Please see sheet 214.1B for parts
 Slide Gates approx 11' -5" above ground
 Clean slide gate tracks to ensure proper startup & REFER TO JDV MANUAL FOR STARTUP

1	MOVED SENSOR	01/25/12
REV	DESCRIPTION	DATE


JDV Equipment Corporation
 Incorporating Ralph B. Carter Company
 (973)366-6556 FAX:(973)366-3193
 WWW.JDVEQUIPMENT.COM
ALL DRAWINGS AND SPECIFICATIONS ARE AND REMAIN THE PROPERTY OF JDV EQUIPMENT CORP. AND MUST UPON REQUEST, BE RETURNED. ALL ARE CONFIDENTIAL AND ARE NOT TO BE DISCLOSED TO PERSONS OTHER THAN TO WHOM THEY ARE TO BE USED FOR ANY PURPOSE OTHER THAN ORIGINALLY INTENDED WITHOUT WRITTEN AUTHORIZATION.

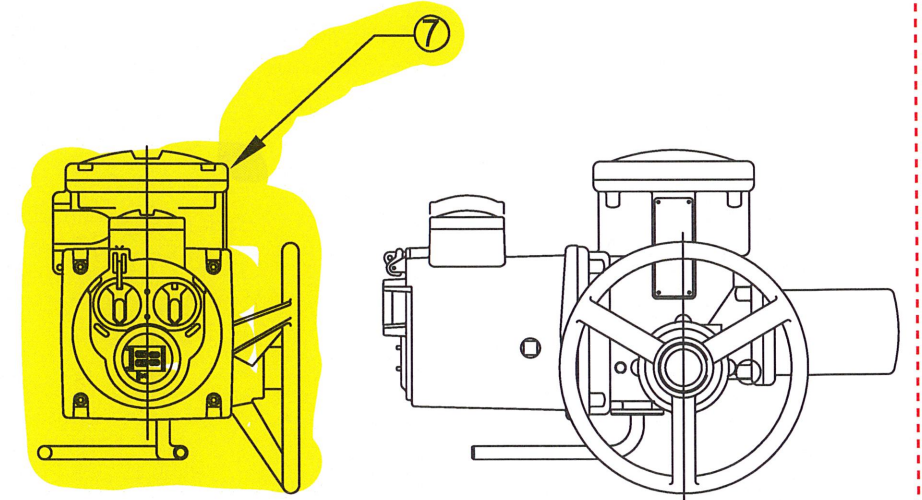
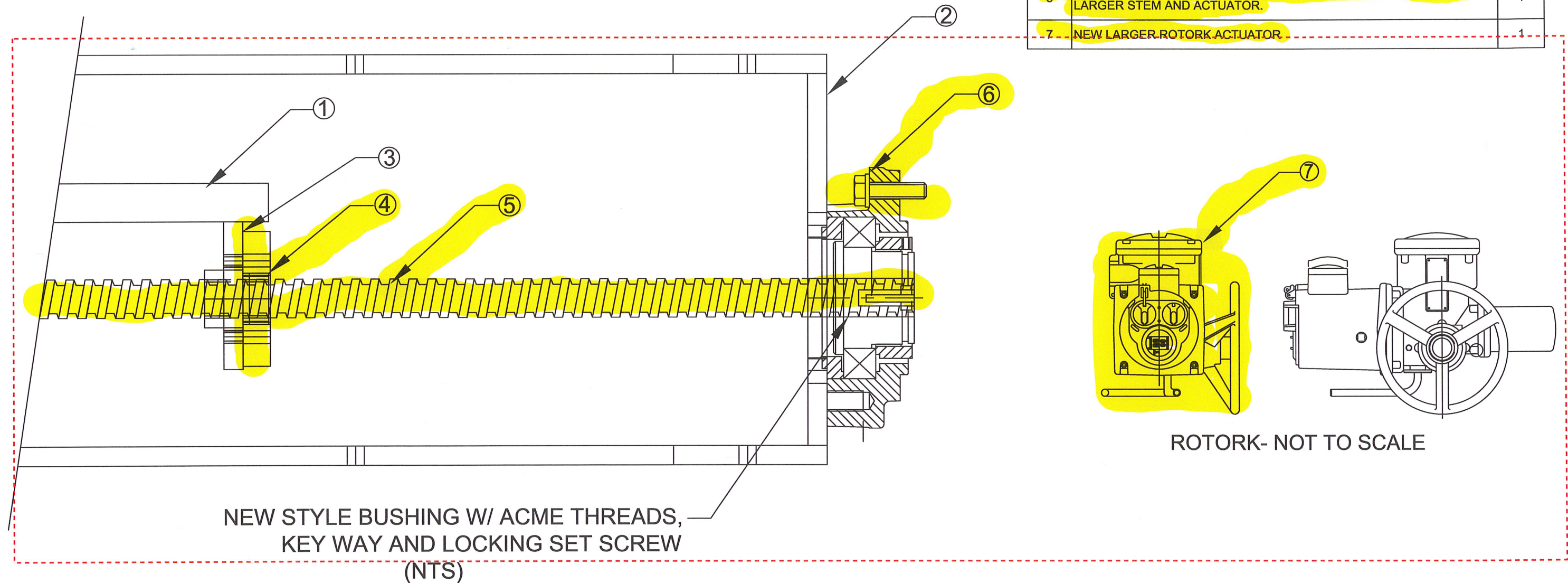
DRAWING TITLE:	JDV GRIT HOPPER SECTION A-A
CUSTOMER:	TULSA, OK

PROJECT NO:	110816
DATE:	01/25/12
DRAWING NUMBER	

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214.1A
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Note:
Spec 214.1.6.2 Remove & Replace:
Highlighted Items

SLIDE GATE UPGRADE- TOTAL FOR ONE GATE		
ITEM #	DESCRIPTION	QTY
1	EXISTING GATE BLADE- MODIFIED TO FIT LARGER MOUNT	1
2	GATE FRAME- MODIFIED TO ACCEPT LARGER ROTORK MOUNTING BUSHING	1
3	GATE BLADE MOUNT- NEW	1
4	NEW GATE BLADE MOUNT BUSHING FOR LARGER STEM	1
5	NEW ACME LARGER STEM	1
6	NEW LARGER SIZE ROTORK BUSHING MOUNT TO ACCOMMODATE LARGER STEM AND ACTUATOR.	1
7	NEW LARGER ROTORK ACTUATOR	1



1	NOTED UPGRADED COMP	10/12/15
REV	DESCRIPTION	DATE



JDV Equipment Corporation
Incorporating Ralph B. Carter Company

WWW.JDVEQUIPMENT.COM
973.366.6556

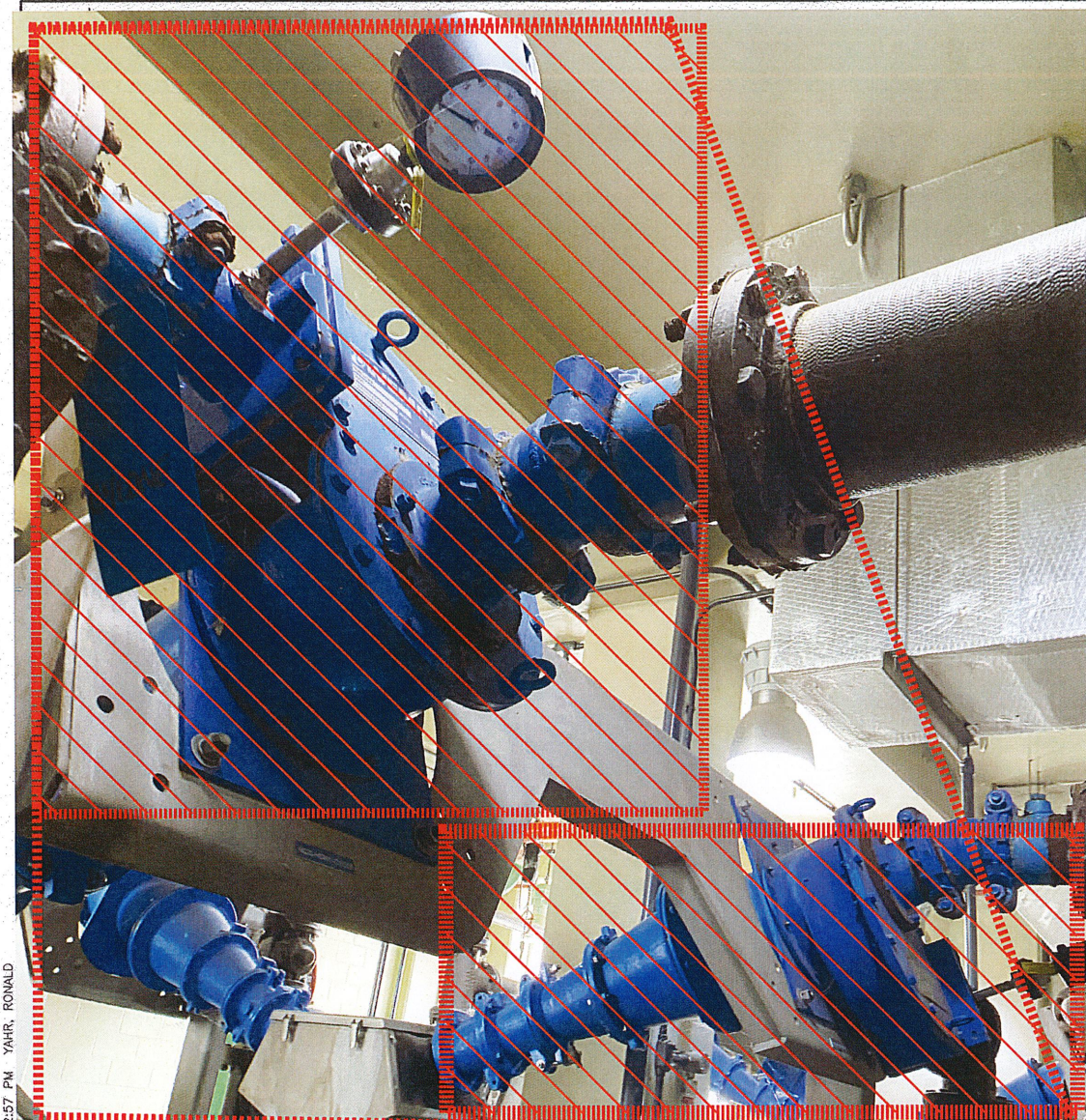
ALL DRAWINGS AND SPECIFICATIONS ARE AND REMAIN THE PROPERTY OF JDV EQUIPMENT CORP. AND MUST UPON REQUEST, BE RETURNED. ALL ARE CONFIDENTIAL AND ARE NOT TO BE DISCLOSED TO PERSONS OTHER THAN TO WHOM THEY ARE TO BE USED FOR ANY PURPOSE OTHER THAN ORIGINALLY INTENDED WITHOUT WRITTEN AUTHORIZATION.

DRAWING TITLE:	SLIDE GATE DETAIL ROTORK ACTUATOR
CUSTOMER:	TULSA, OK

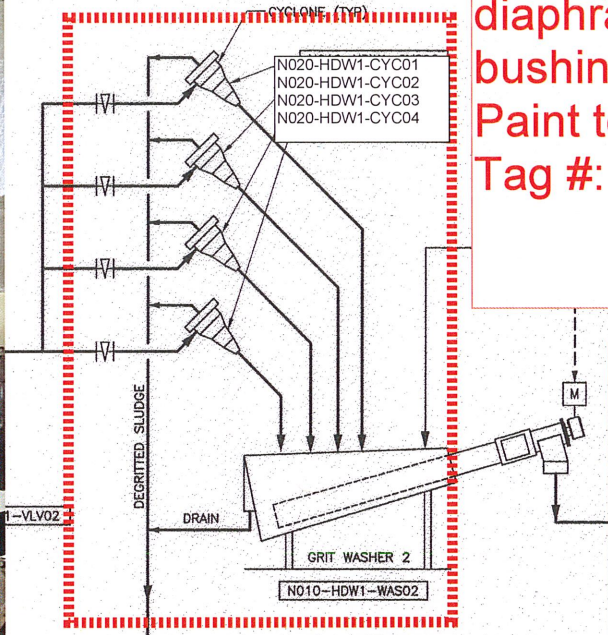
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DATE:	07/27
DRAWING NUMB	

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214.1B
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2:57 PM YARR, RONALD



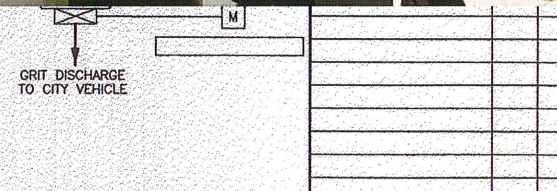
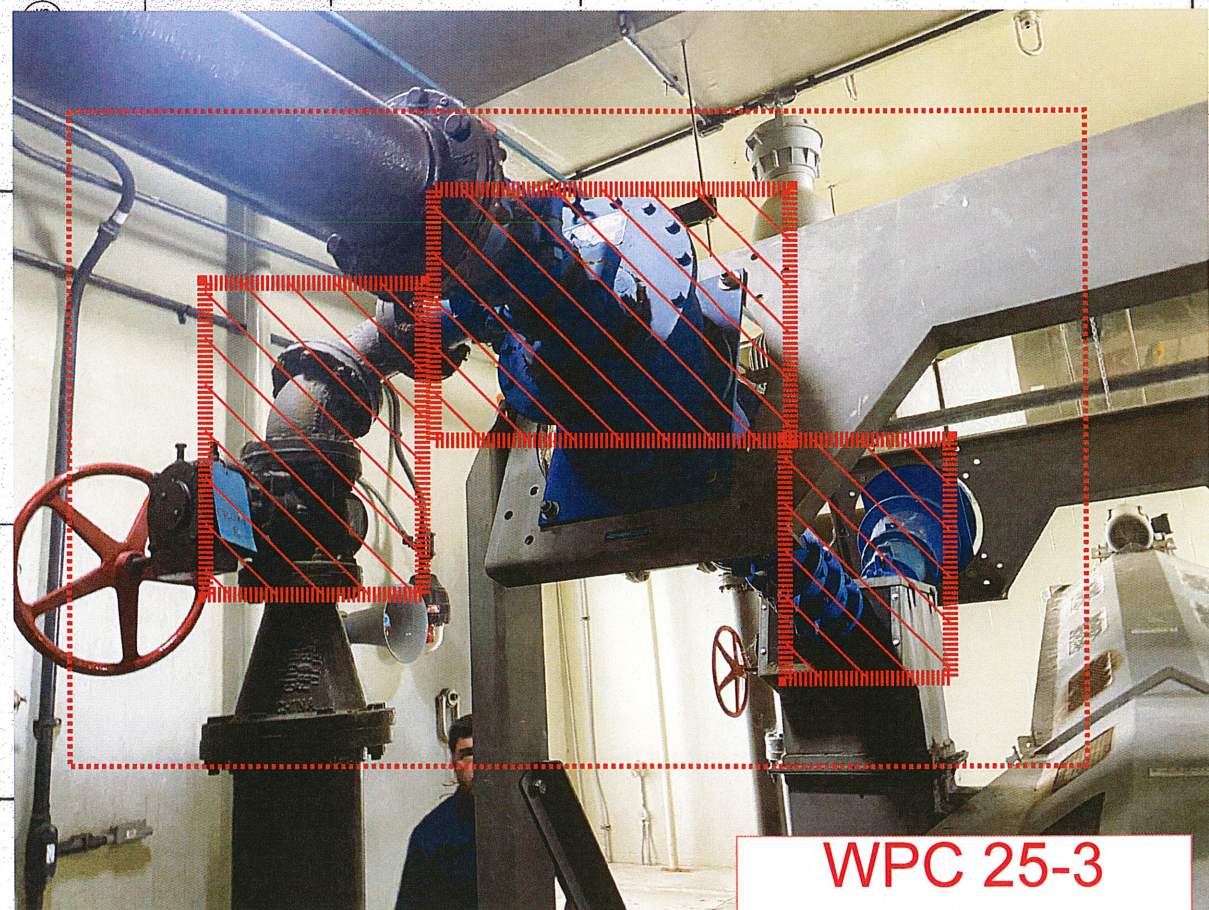
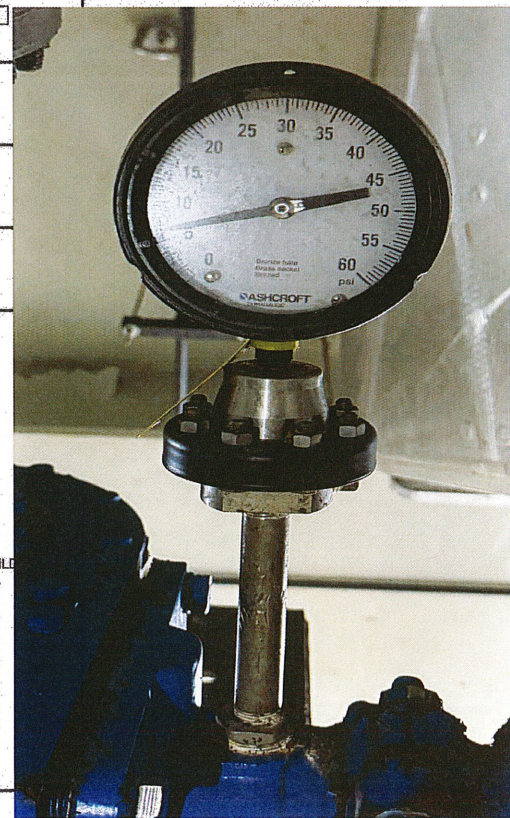
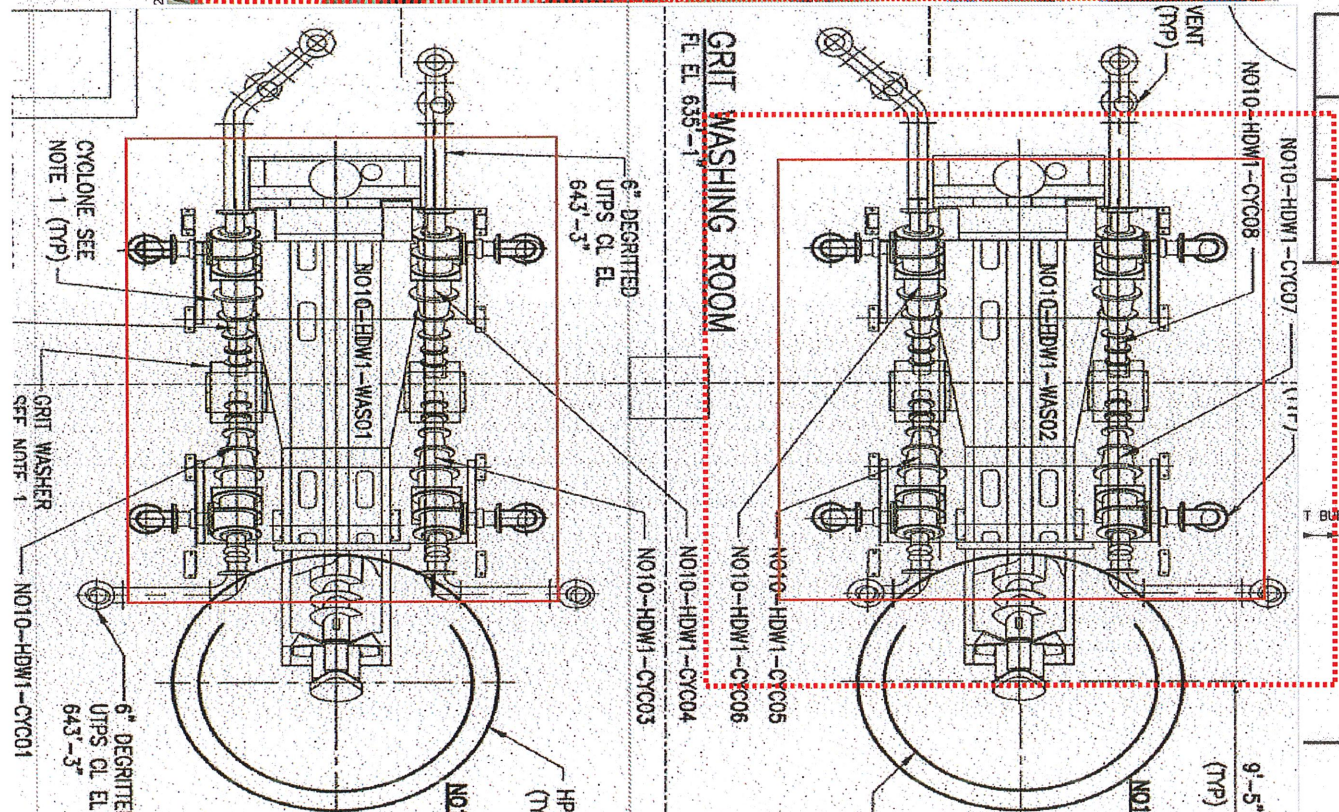
NOTES:

Remove: 214.2.6.1

Four (4) existing WEMCO cyclones & plug valves attached. The new equipment shall be manufactured by WEMCO WEMCLONE 1000C Single cyclone, inlet arrangement D, 22.5 degree WEMCLONE 4" inlet, 6" outlet, 4" vortex finder. Four (4) Valves to be dezurik 12.00-1D eccentric plug valves or approved equal. Four (4) 22 degree ductile iron elbow, Four (4) 90 degree ductile elbow Four (4) new 0-60 PSIG 6" dial pressure gauges, 316 glycerine diaphragm seal, 316L 9" Nipple TBE schedule 40, 1"x12" 316L bushing, new hardware to be 316SS

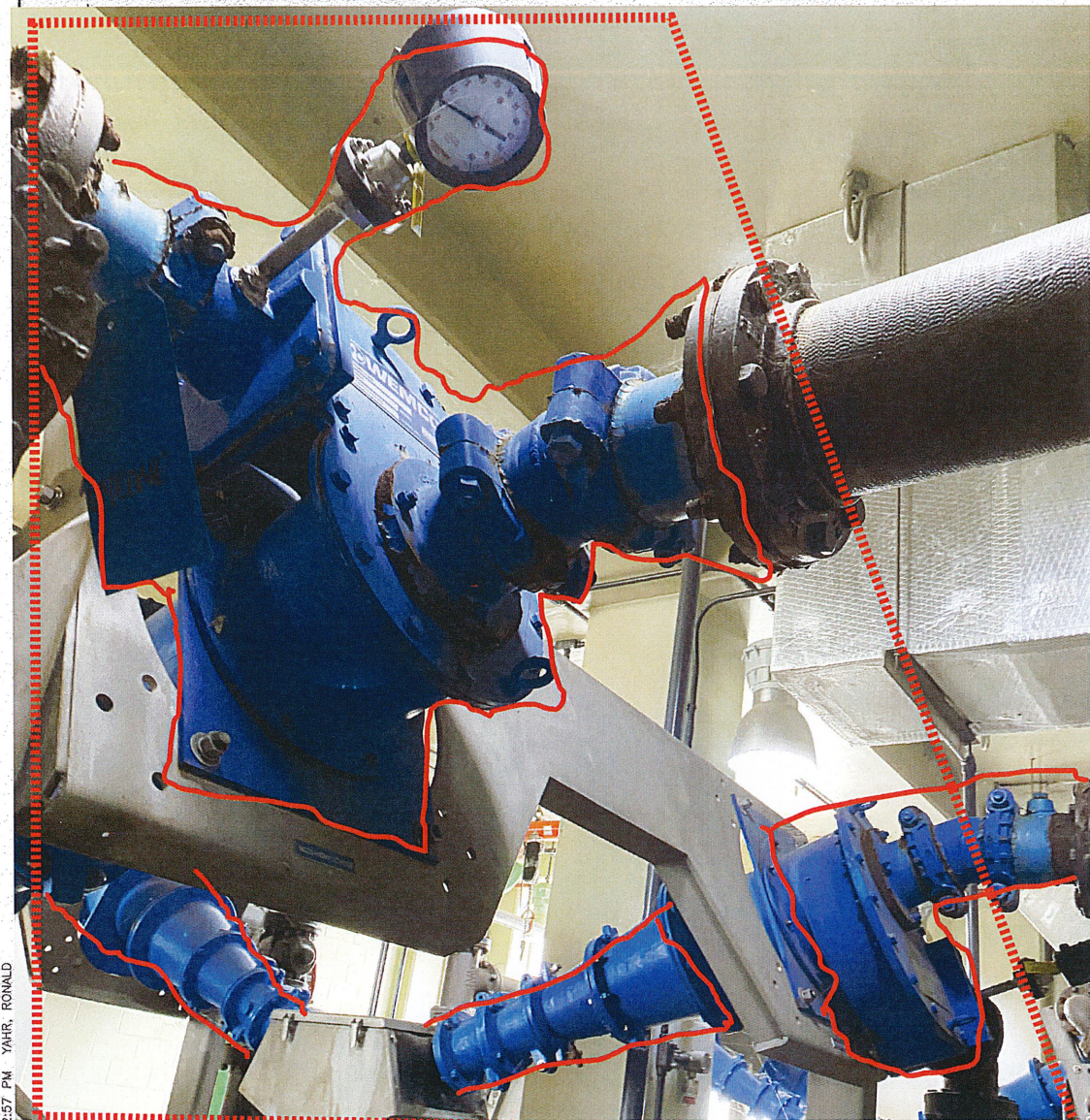
Paint to match existing piping

Tag #: per spec

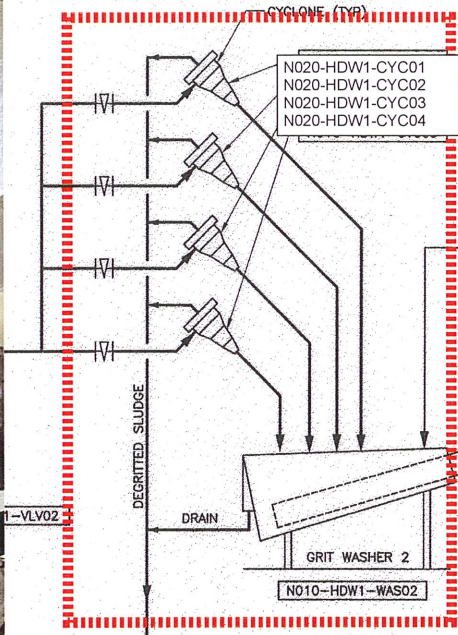


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214.2A
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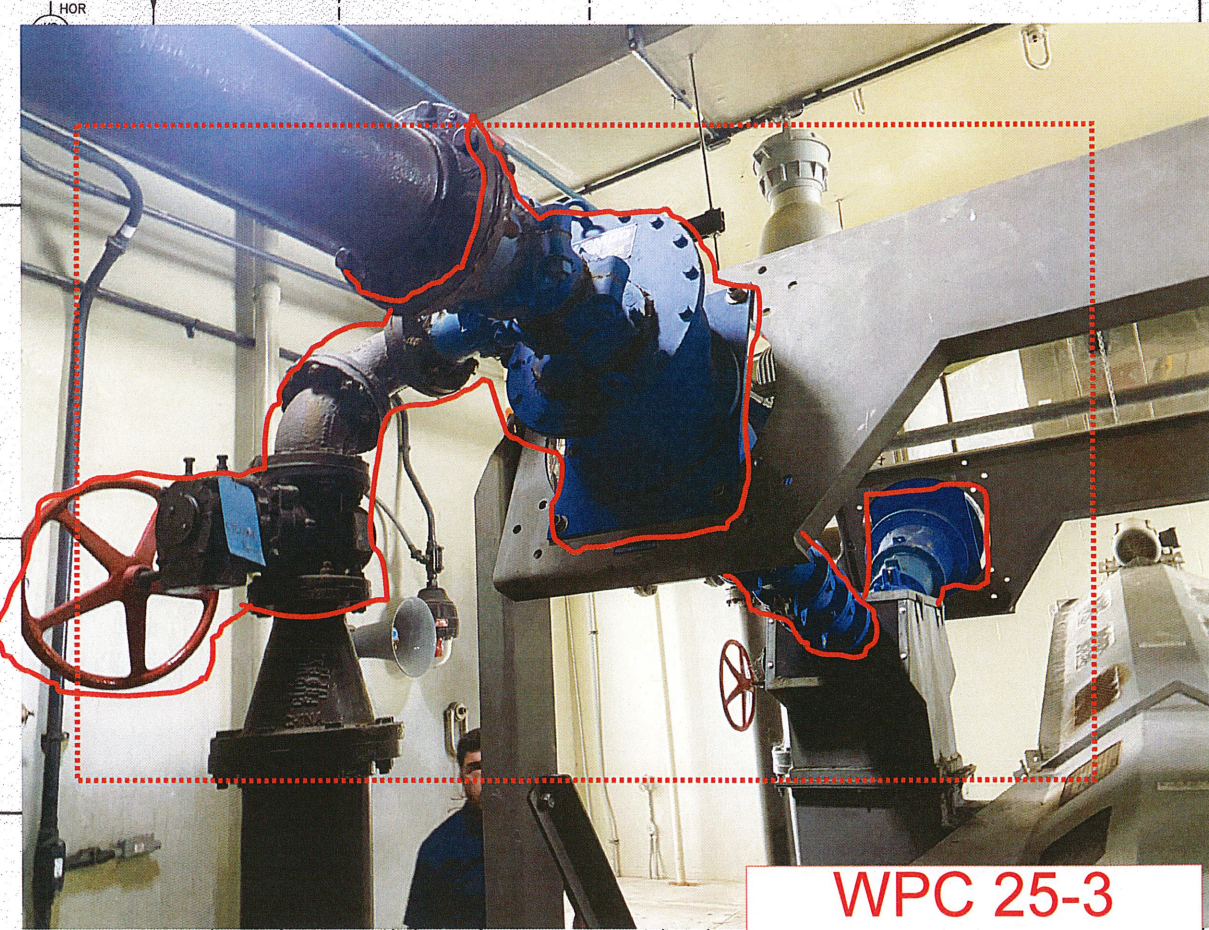
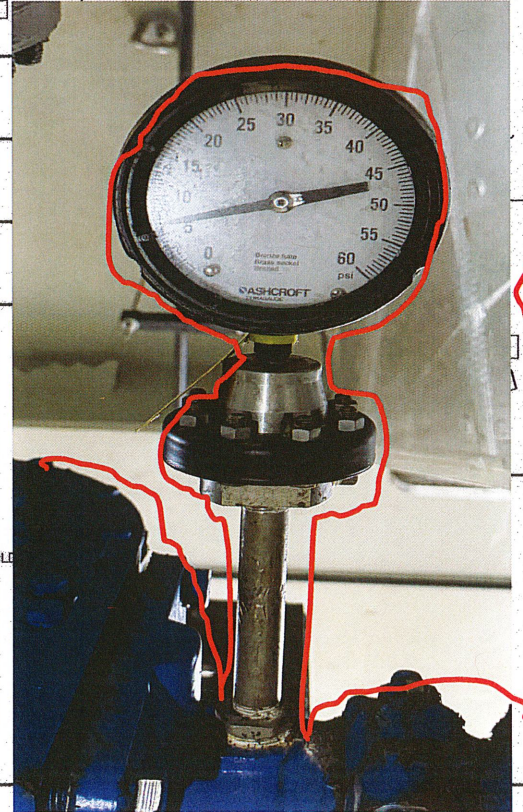
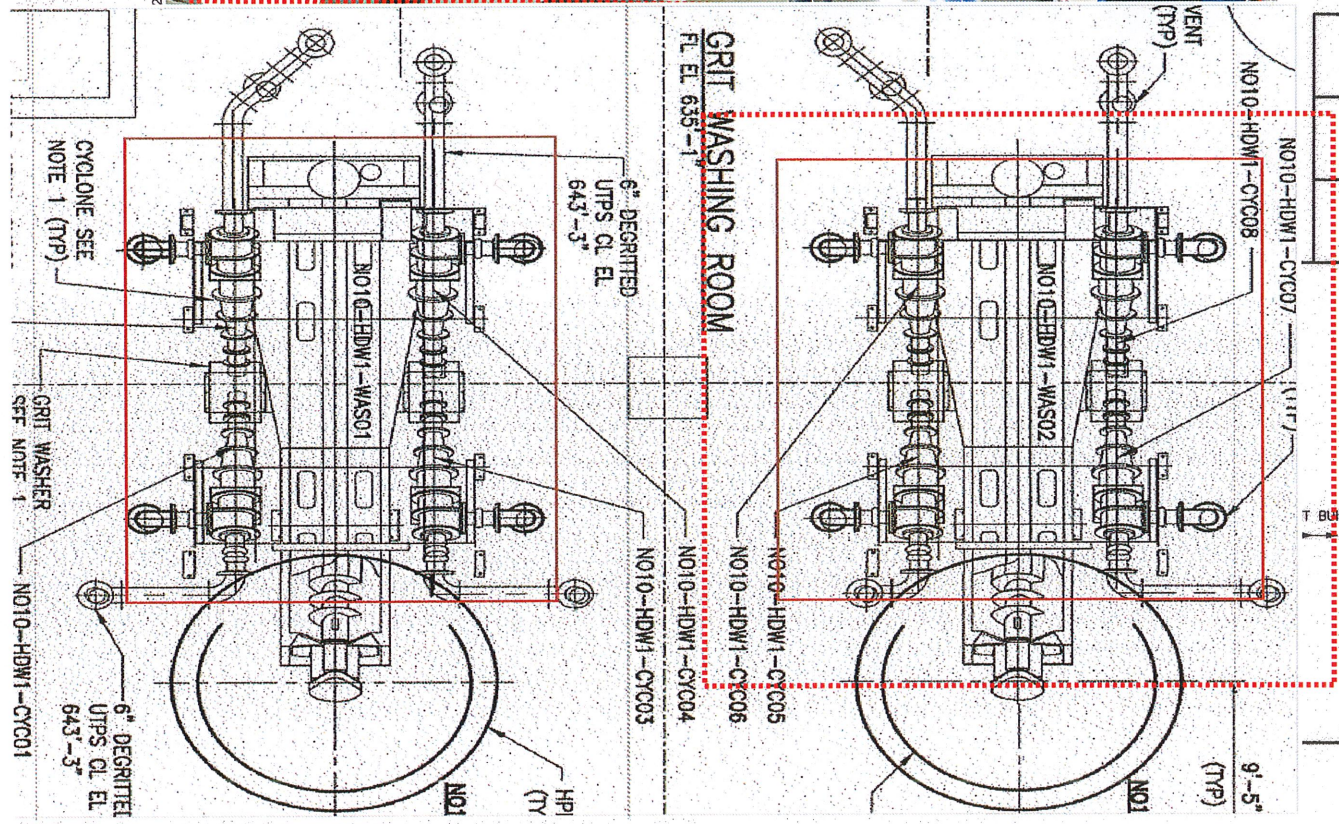


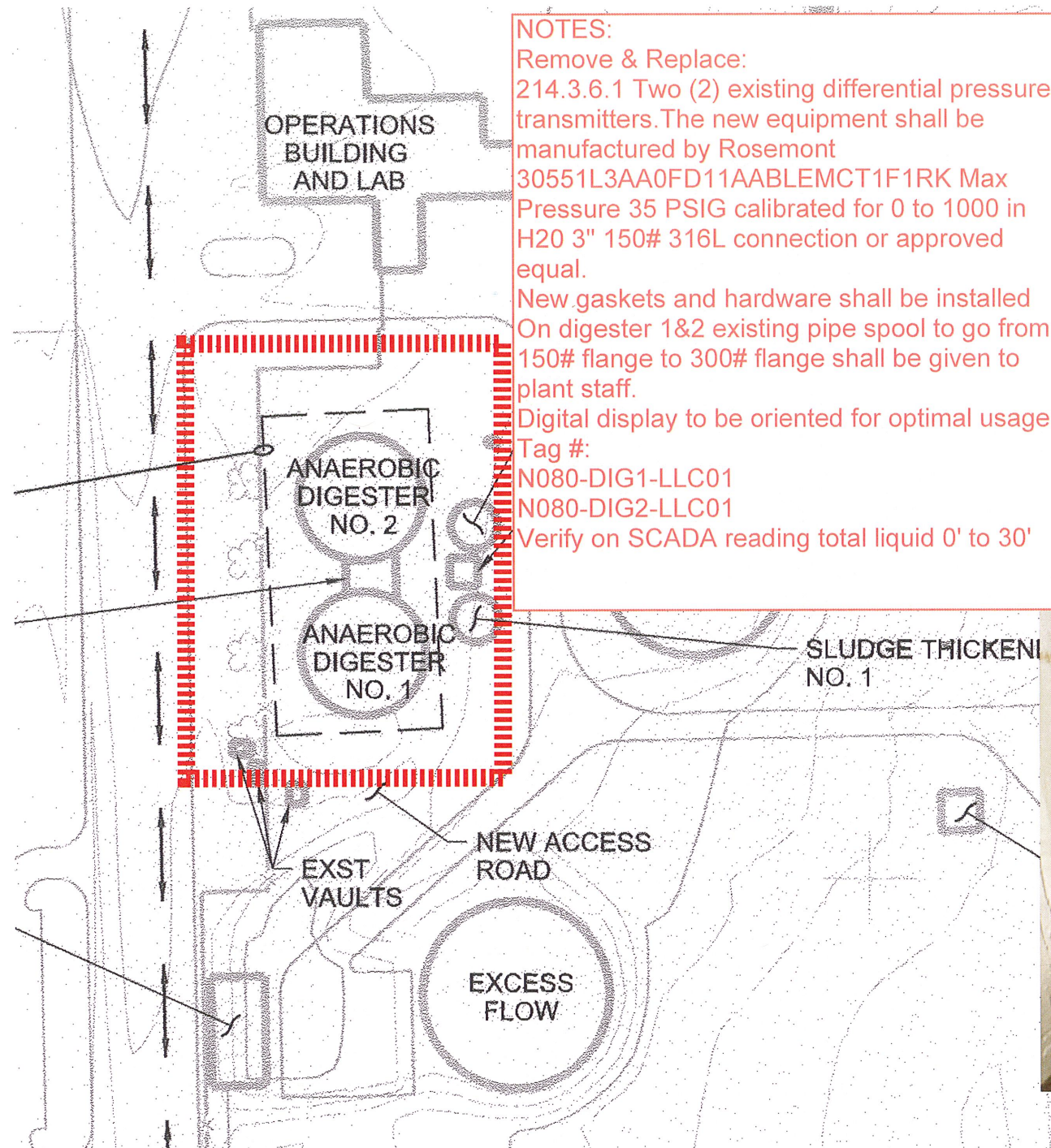


2:57 PM YARR, RONALD



NOTES:
 Replace: 214.2.6.1
 Four (4) existing WEMCO cyclones & plug valves attached. The new equipment shall be manufactured by WEMCO WEMCLONE 1000C Single cyclone, inlet arrangement D, 22.5 degree WEMCLONE 4" inlet, 6" outlet, 4" vortex finder. Four (4) Valves to be dezurik 12.00-1D eccentric plug valves or approved equal. Four (4) 22 degree ductile iron elbow, Four (4) 90 degree ductile elbow
 Four (4) new 0-60 PSIG 6" dial pressure gauges, 316 glycrine diaphragm seal, 316L 9" Nipple TBE schedule 40, 1"x12" 316L bushing, new hardware to be 316SS
 Paint to match existing piping
 Tag #: per spec





NOTES:

Remove & Replace:

214.3.6.1 Two (2) existing differential pressure transmitters. The new equipment shall be manufactured by Rosemont 30551L3AA0FD11AABLEMCT1F1RK Max Pressure 35 PSIG calibrated for 0 to 1000 in H₂O 3" 150# 316L connection or approved equal.

New gaskets and hardware shall be installed On digester 1&2 existing pipe spool to go from 150# flange to 300# flange shall be given to plant staff.

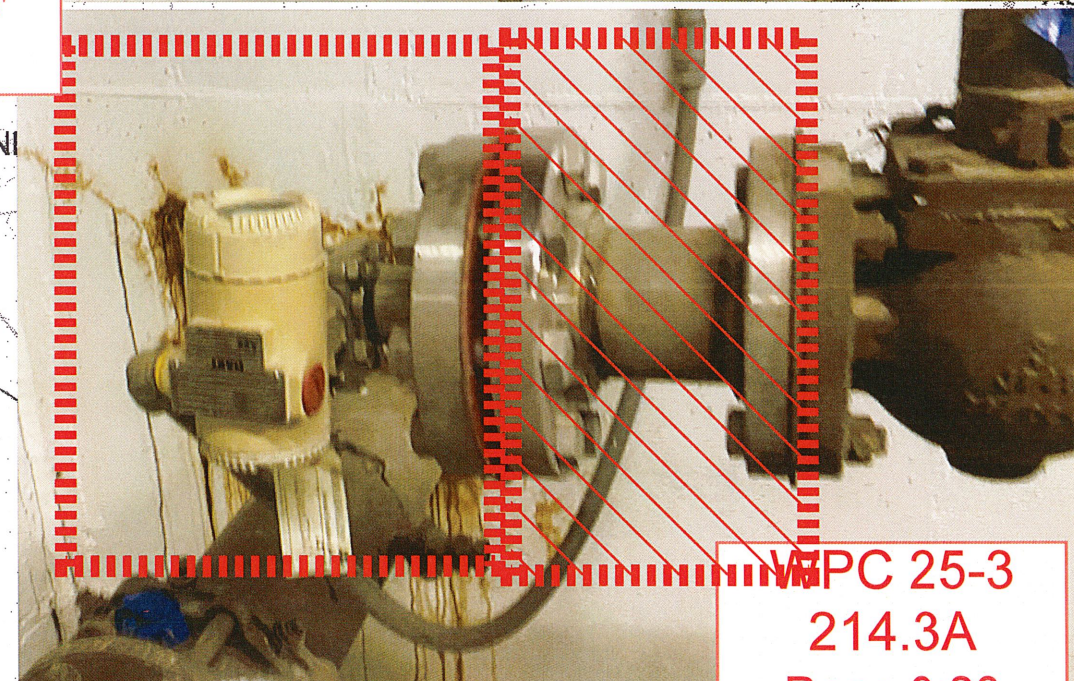
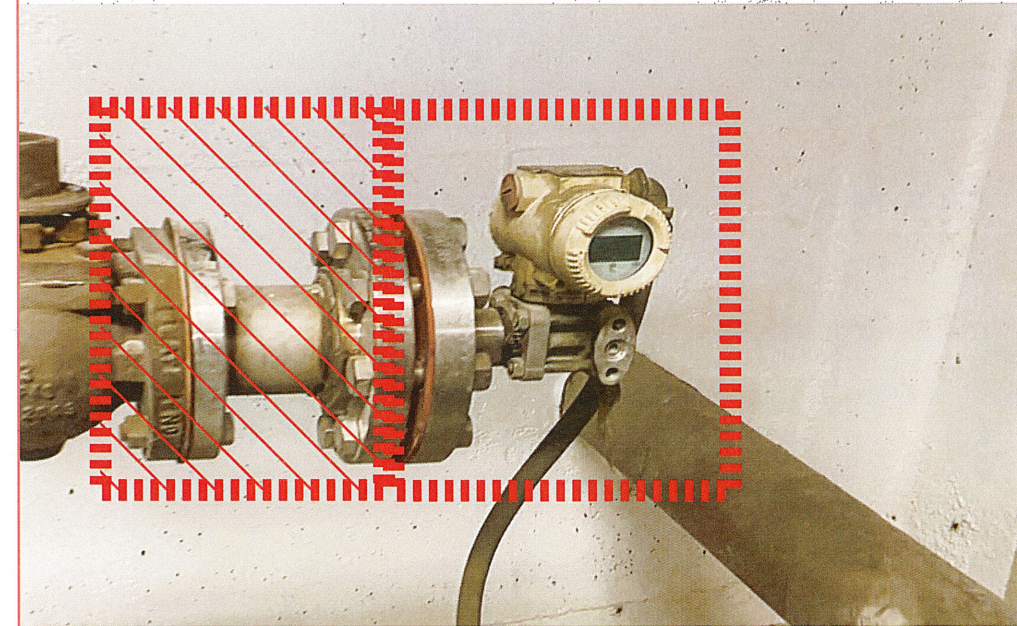
Digital display to be oriented for optimal usage

Tag #:

N080-DIG1-LLC01

N080-DIG2-LLC01

Verify on SCADA reading total liquid 0' to 30'

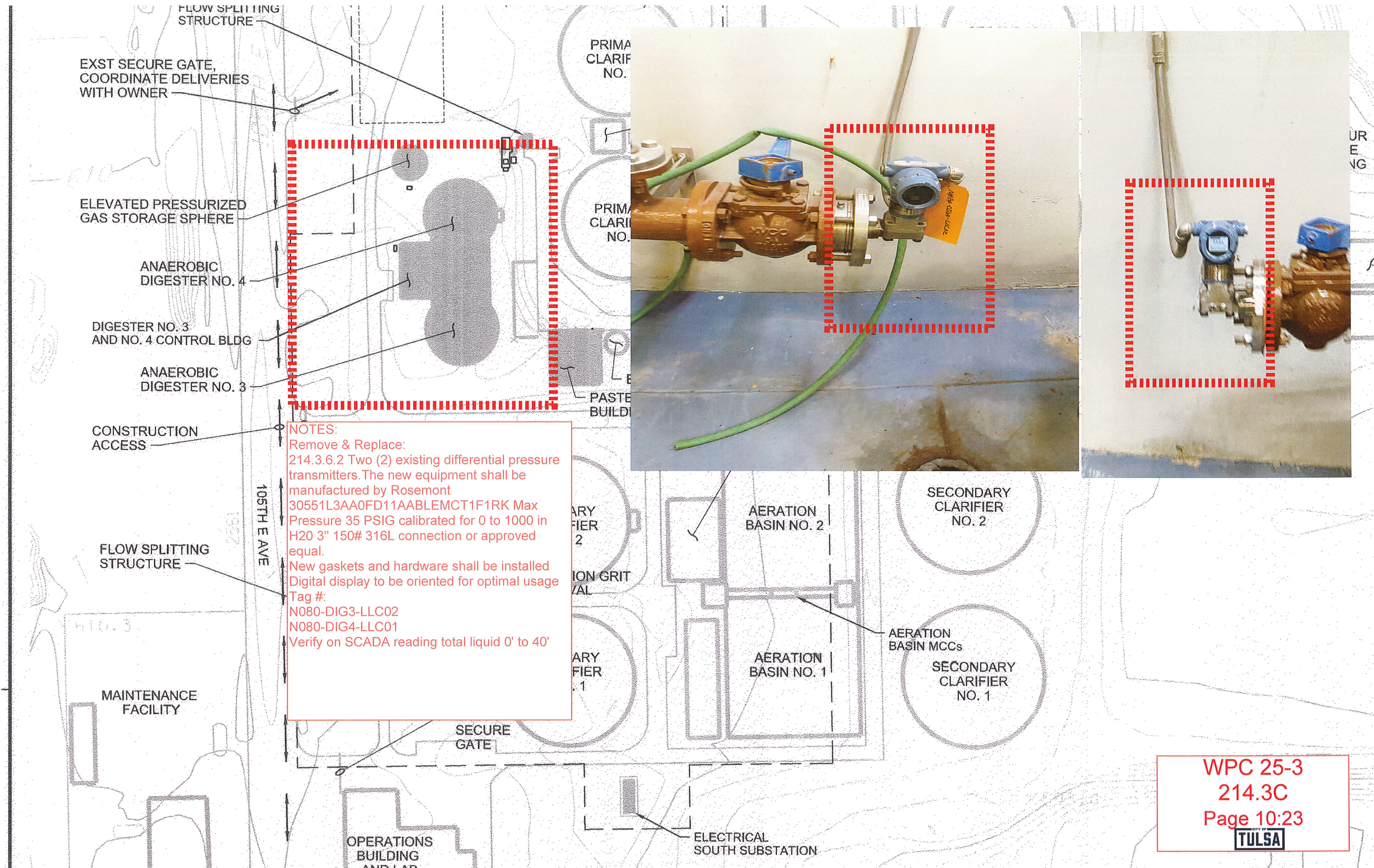


WPC 25-3

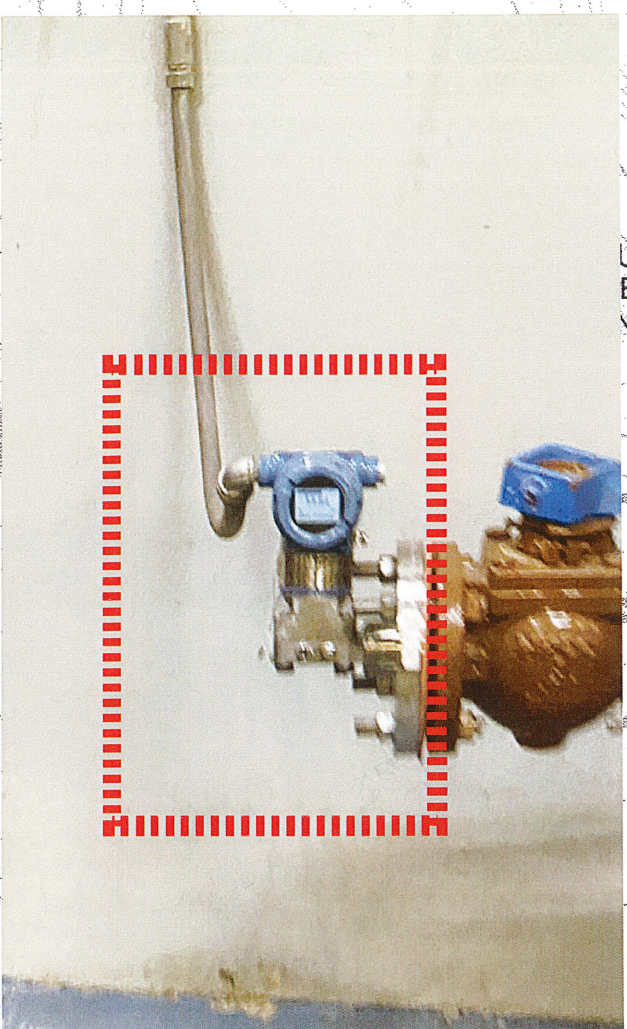
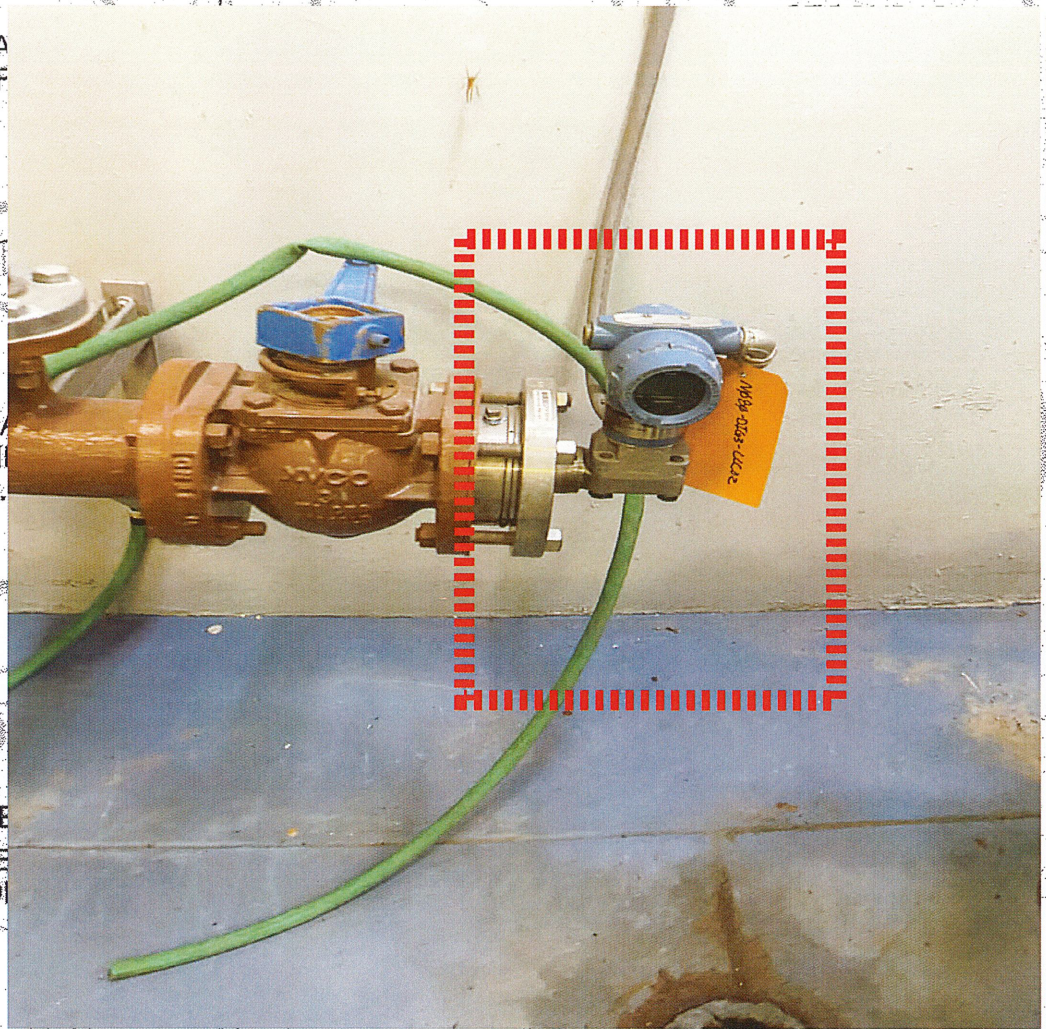
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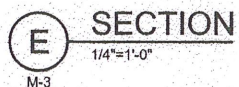
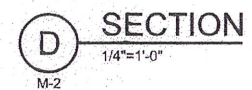
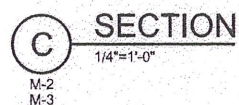
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TULSA

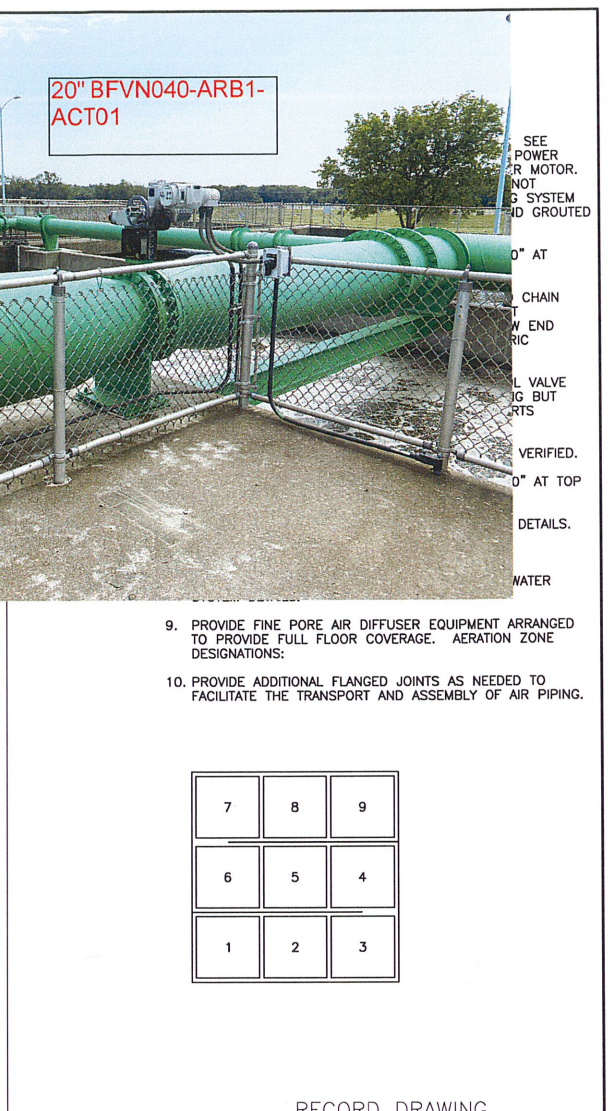
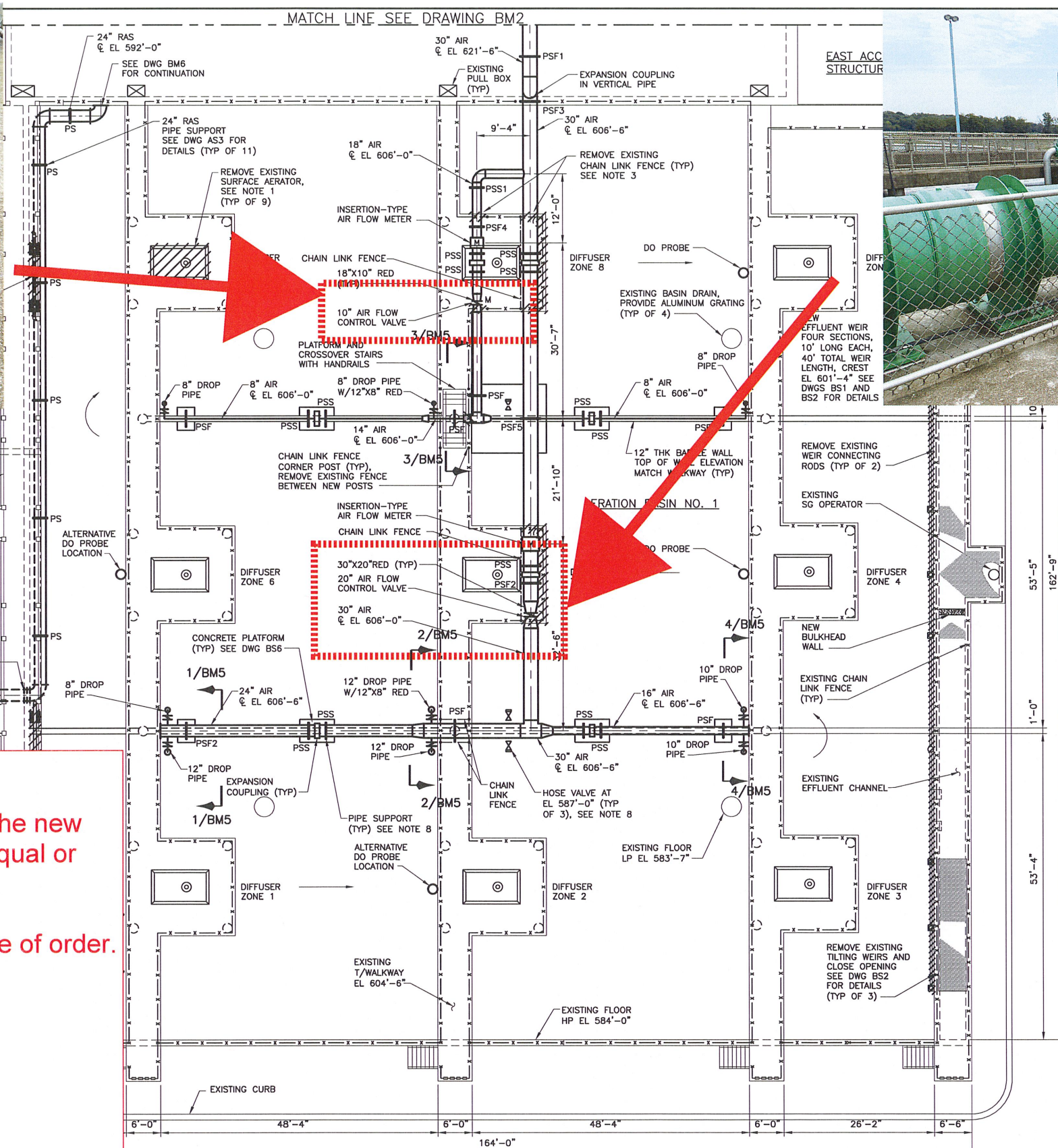
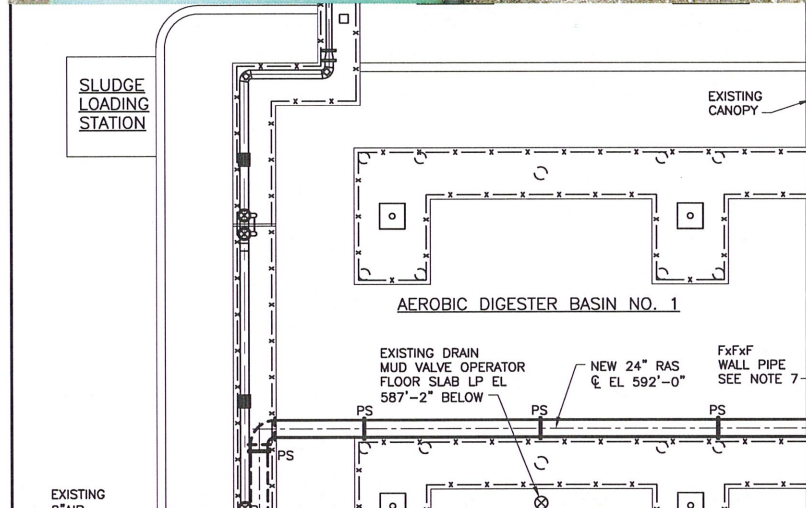


NOTES:
Remove & Replace:
214.3.6.2 Two (2) existing differential pressure transmitters. The new equipment shall be manufactured by Rosemont 30551L3AA0FD11AABLEMCT1F1RK Max Pressure 35 PSIG calibrated for 0 to 1000 in H2O 3" 150# 316L connection or approved equal.
New gaskets and hardware shall be installed
Digital display to be oriented for optimal usage
Tag #:
N080-DIG3-LLC02
N080-DIG4-LLC01
Verify on SCADA reading total liquid 0' to 40'





PLOT TIME: 1:13:28 PM



NOTES:

Remove & Replace:
214.4.6.1 Two (2) existing AUMA actuators. The new equipment shall be manufactured by Rotork equal or Limatorque equal.

NEMA 4x Enclosure, bore to be verified at time of order.
Hand wheel and able to modulate position.
Tag# on valves: Per Spec

Existing butterfly valves will remain installed.

Current installed Equipment Schedule:

20" BFV AUMA Model SAR10	N040-ARB1-ACT01
10" BFV AUMA Model SAR07	N040-ARB1-ACT02

9. PROVIDE FINE PORE AIR DIFFUSER EQUIPMENT ARRANGED TO PROVIDE FULL FLOOR COVERAGE. AERATION ZONE DESIGNATIONS:
10. PROVIDE ADDITIONAL FLANGED JOINTS AS NEEDED TO FACILITATE THE TRANSPORT AND ASSEMBLY OF AIR PIPING.

7	8	9
6	5	4
1	2	3

RECORD DRAWING

THIS RECORD IS NOT WARRANTED BUT IS BELIEVED TO REPRESENT CONDITIONS UPON COMPLETION OF CONSTRUCTION WITHIN REASONABLE TOLERANCES, BASED UPON THE INFORMATION FURNISHED TO THE ENGINEER PERTAINING TO CHANGES MADE DURING CONSTRUCTION.

AERATION BASINS AND BIOSELECTORS
PIPING AND EQUIPMENT

FLOW TRAIN 1 PLAN

NORTHSIDE WWTP
NITRIFICATION IMPROVEMENTS

PROJECT NO. ES 2003-12

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT
ENGINEERING SERVICES DIVISION

PLANS AND ESTIMATES PREPARED BY:

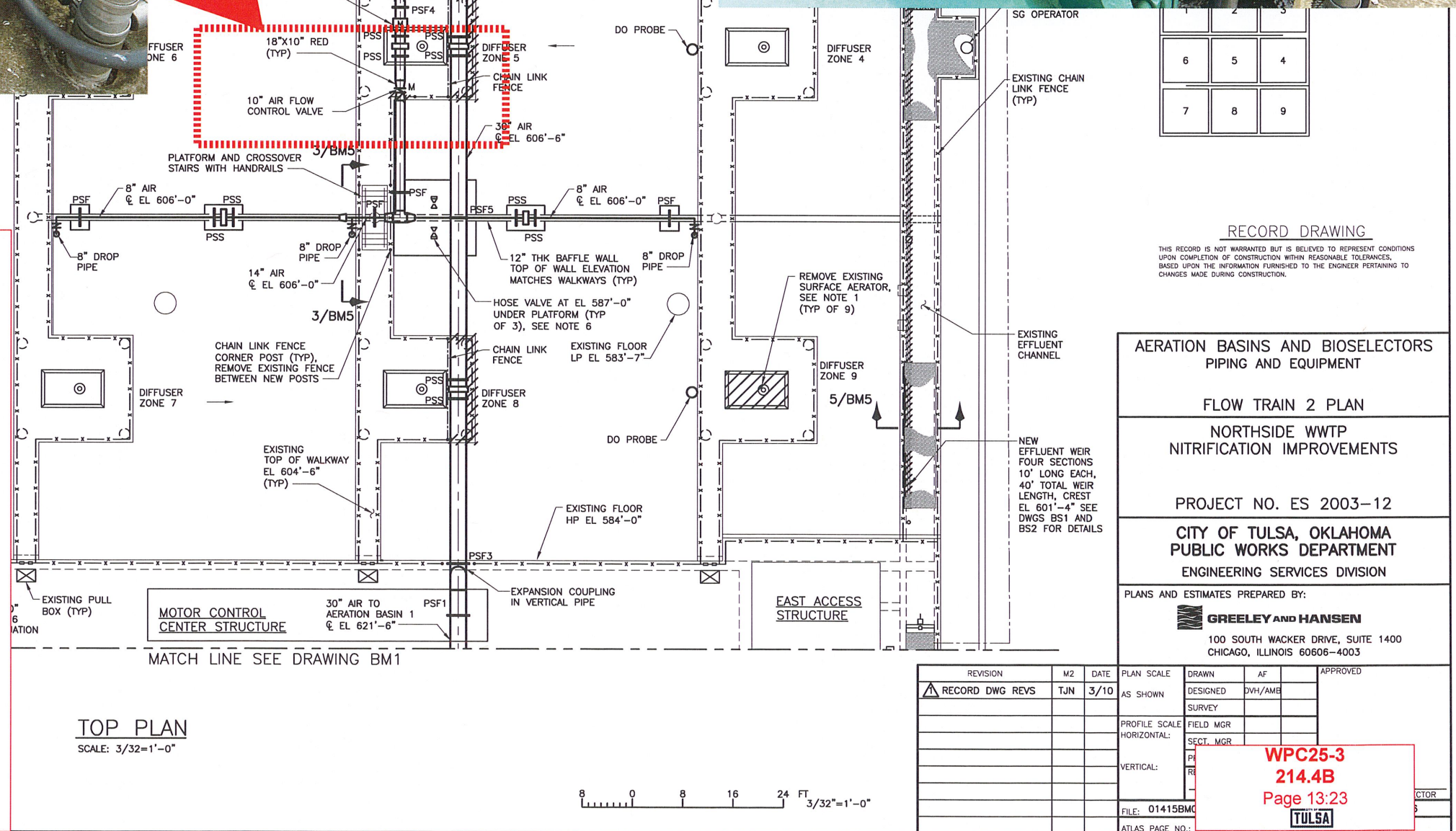
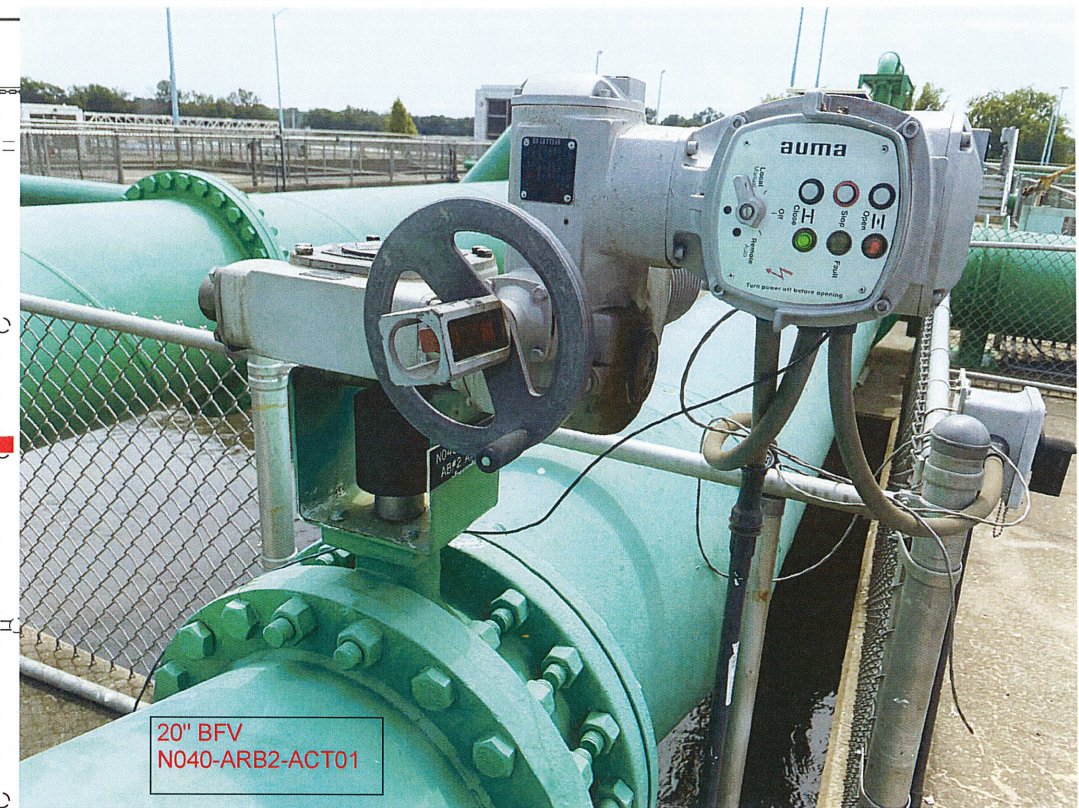
100 SOUTH WACKER DRIVE, SUITE 1400
CHICAGO, ILLINOIS 60606-4003

REVISION	BY	DATE	PLAN SCALE	DRAWN	AF	APPROVED
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				SURVEY		
			PROFILE SCALE	FIELD MGR		
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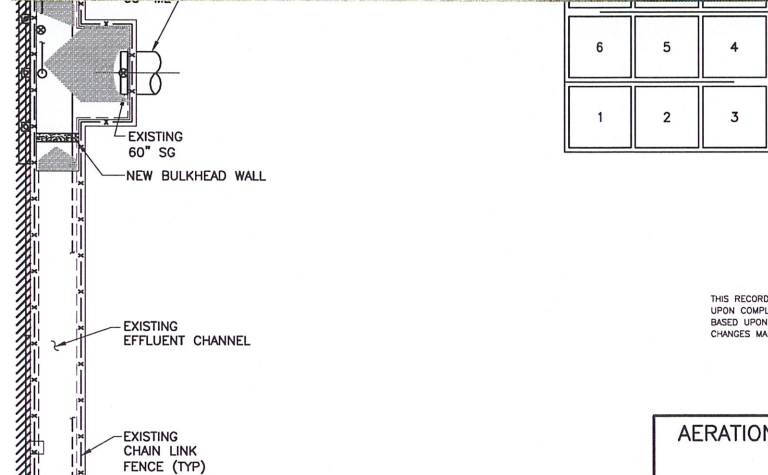
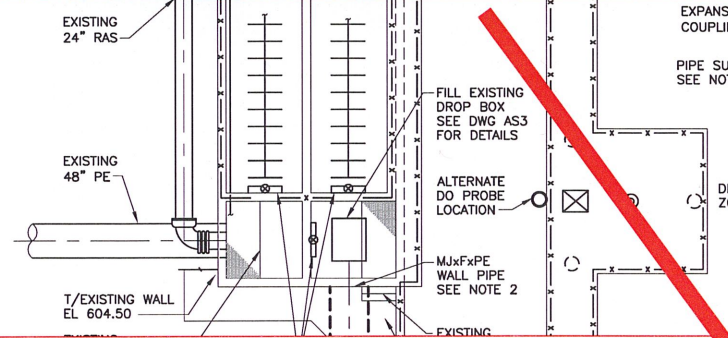
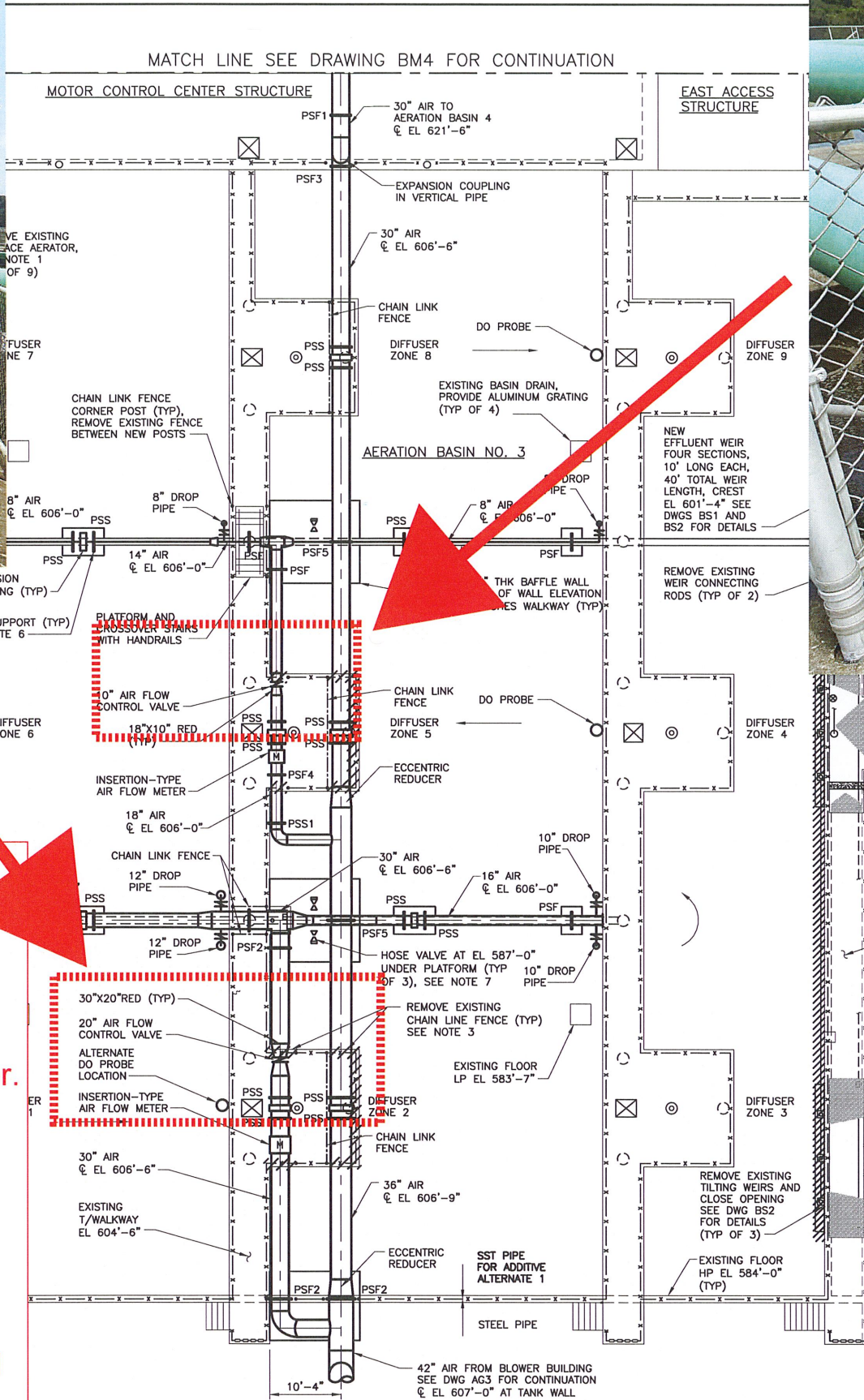
WPC25-3
214.4A
Page 12:23

SHEET 34 OF 69

FILE: 0145BM01 1:1 03/08/10 11:50 GH-A



10" BFV AUMA Model SAR07 N040-ARB2-ACT02



NOTES:

Remove & Replace:
214.4.6.1 Two (2) existing AUMA actuators. The new equipment shall be manufactured by Rotork equal or Limatorque equal.

NEMA 4x Enclosure, bore to be verified at time of order.
Hand wheel and able to modulate position.
Tag# on valves: Per Spec

Existing butterfly valves will remain installed.

Current installed Equipment Schedule:

20" BFV AUMA Model SAR10	N040-ARB3-ACT01
10" BFV AUMA Model SAR07	N040-ARB3-ACT02

RECORD DRAWING

THIS RECORD IS NOT WARRANTED BUT IS BELIEVED TO REPRESENT CONDITIONS UPON COMPLETION OF CONSTRUCTION WITHIN REASONABLE TOLERANCES, BASED UPON THE INFORMATION FURNISHED TO THE ENGINEER PERTAINING TO CHANGES MADE DURING CONSTRUCTION.

AERATION BASINS AND BIOSELECTORS PIPING AND EQUIPMENT			
FLOW TRAIN 3 PLAN			
NORTHSIDE WWTP NITRIFICATION IMPROVEMENTS			
PROJECT NO. ES 2003-12			
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT ENGINEERING SERVICES DIVISION			
PLANS AND ESTIMATES PREPARED BY: GREELEY AND HANSEN 100 SOUTH WACKER DRIVE, SUITE 1400 CHICAGO, ILLINOIS 60606-4003			
REVISION	BY	DATE	PLAN SCALE
RECORD DWG REVS	TJN	3/10	AS SHOWN
			DRAWN
			DESIGNED
			SURVEY
			FIELD MGR
			SECT. MGR
			PROJ MGR
			RECOMMENDED
			DEPUTY D
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ATLAS PAGE NO.:			

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214.4C
Page 14:23

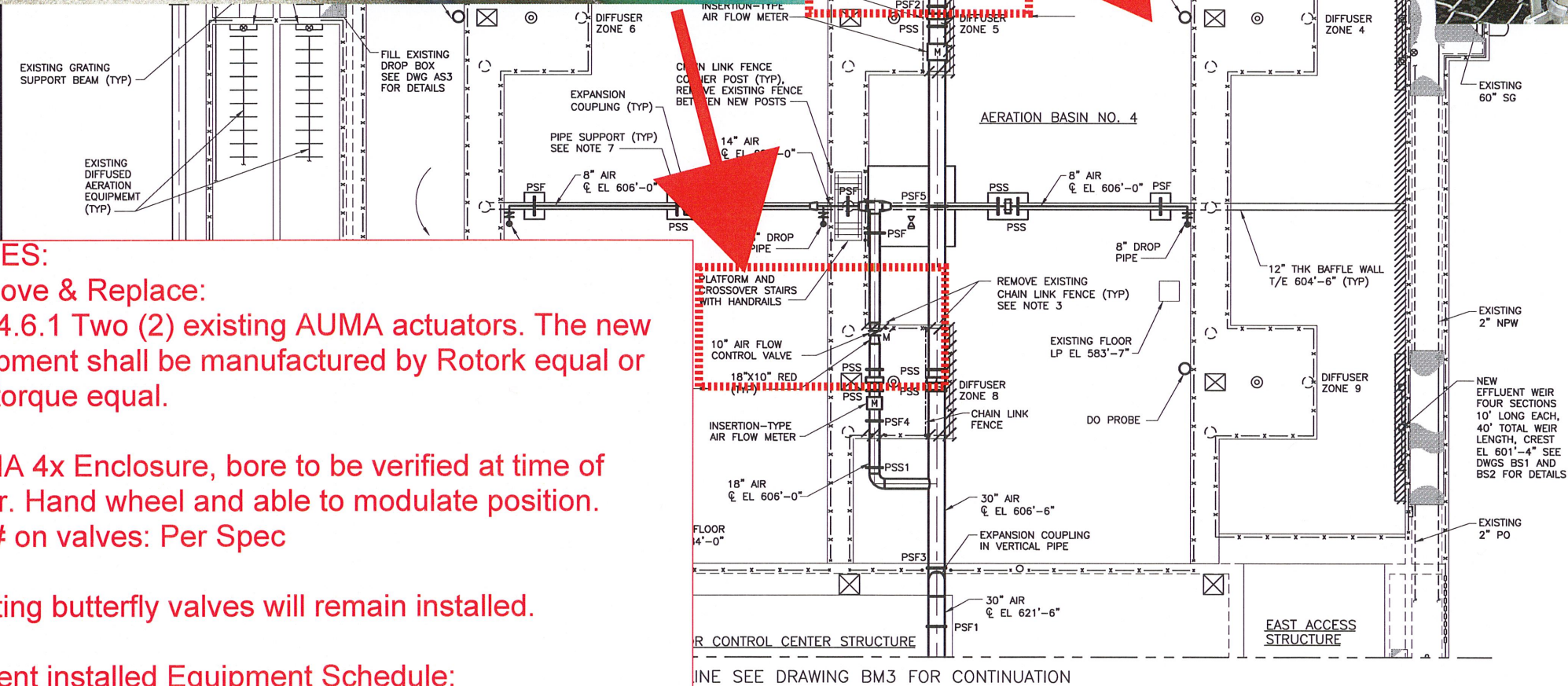




10" BFV
N040-ARB4-ACT02



20" BFV
N040-ARB4-ACT01



NOTES:
Remove & Replace:
214.4.6.1 Two (2) existing AUMA actuators. The new equipment shall be manufactured by Rotork equal or Limatorque equal.

NEMA 4x Enclosure, bore to be verified at time of order. Hand wheel and able to modulate position.
Tag# on valves: Per Spec

Existing butterfly valves will remain installed.

Current installed Equipment Schedule:

- | | |
|--------------------------|-----------------|
| 20" BFV AUMA Model SAR10 | N040-ARB4-ACT01 |
| 10" BFV AUMA Model SAR07 | N040-ARB4-ACT02 |

- REUSED. ABANDON AERATOR MIXER LUBRICATING SYSTEM PIPING IN PLACE. CUT AT WALKWAY SURFACE AND GROUTED WITH NON SHRINK.
- EXISTING WALL THICKNESS VARIES BETWEEN 1'-0" AT TOP AND 2'-0" AT BOTTOM. EXTEND WALL CASTING BEYOND FACE OF EXISTING WALL AS REQUIRED.
 - REMOVE EXISTING 3'-6" HIGH PIPE RAILING AND CHAIN LINK FENCE AS NEEDED AT LOCATIONS WHERE IT INTERFERES WITH NEW AIR PIPING. INSTALL NEW END POSTS, TOP AND BOTTOM RAILS, AND FENCE FABRIC MATCHING EXISTING TO REPAIR.
 - SEE DWG BM1 FOR TYPICAL TANK AND NEW PIPING DIMENSIONS. DIMENSIONS TO BE FIELD VERIFIED.
 - SEE DWGS BM1 AND BM2 FOR LOCATIONS OF TYPICAL SECTION CUTS FOR AIR PIPING, CHAIN LINK FENCE, AND WEIR PLATE. SECTIONS SHOWN ON DWG BM5.
 - SEE DWG BS6 FOR STRUCTURAL PIPE SUPPORT DETAILS. PSF = FIXED SUPPORT PSS = SLIDING SUPPORT
 - SEE DWG BM5 FOR AERATION BASIN FLUSHING WATER SYSTEM DETAILS.
 - PROVIDE FINE PORE AIR DIFFUSER EQUIPMENT ARRANGED TO PROVIDE FULL FLOOR COVERAGE. AERATION ZONE DESIGNATIONS:
 - PROVIDE ADDITIONAL FLANGED JOINTS AS NEEDED TO FACILITATE THE TRANSPORT AND ASSEMBLY OF AIR PIPING.

RECORD DRAWING

THIS RECORD IS NOT WARRANTED BUT IS BELIEVED TO REPRESENT CONDITIONS UPON COMPLETION OF CONSTRUCTION WITHIN REASONABLE TOLERANCES. BASED UPON THE INFORMATION FURNISHED TO THE ENGINEER PERTAINING TO CHANGES MADE DURING CONSTRUCTION.

AERATION BASINS AND BIOSELECTORS
PIPING AND EQUIPMENT

FLOW TRAIN 4 PLAN AND SECTION

NORTHSIDE WWTP
NITRIFICATION IMPROVEMENTS

PROJECT NO. ES 2003-12

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT
ENGINEERING SERVICES DIVISION

PLANS AND ESTIMATES PREPARED BY:

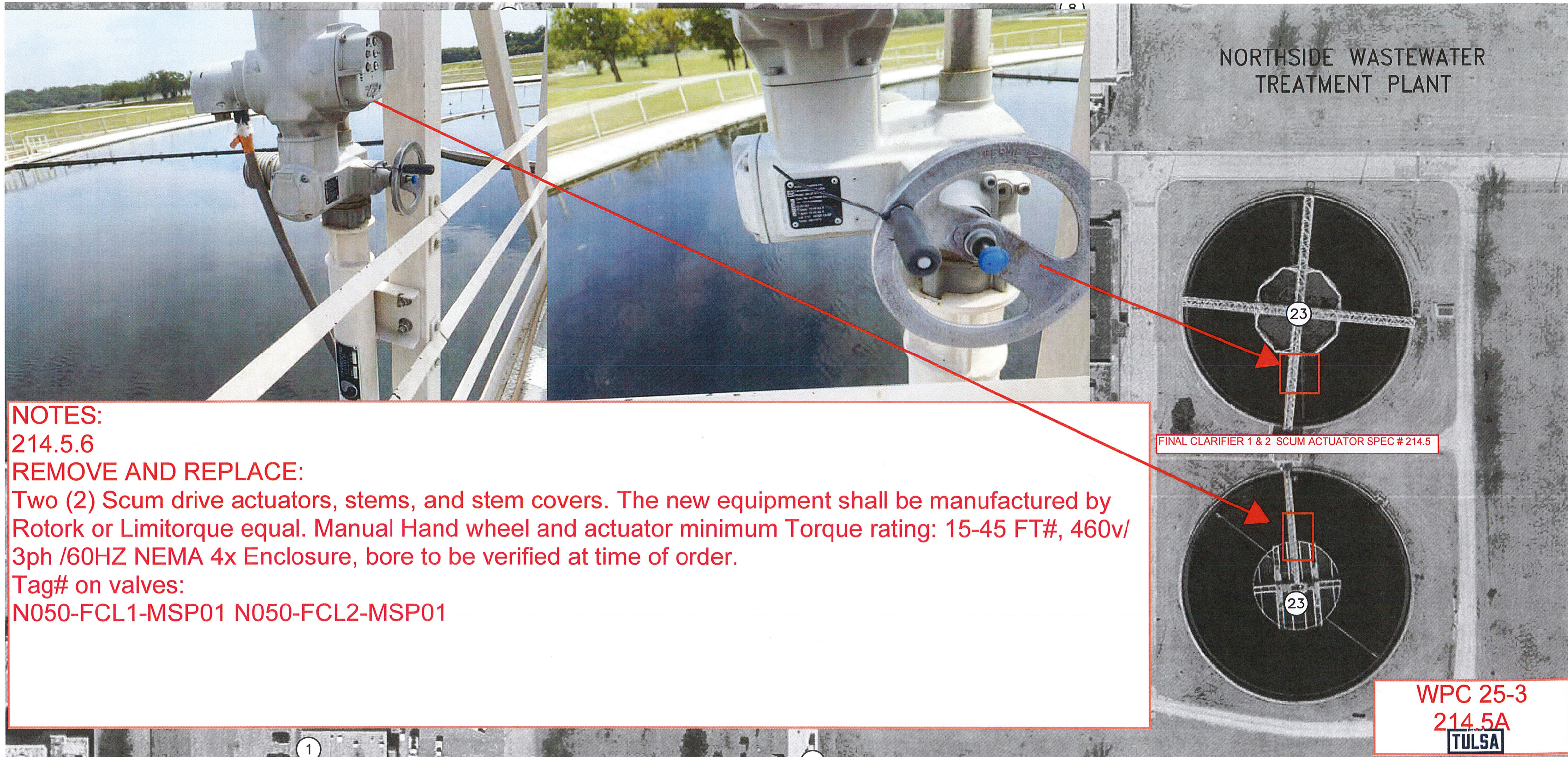
GREELEY AND HANSEN

100 SOUTH WACKER DRIVE, SUITE 1400
CHICAGO, ILLINOIS 60606-4003

REVISION	BY	DATE	PLAN SCALE	DRAWN	AF	APPROVED
RECORD DWG REVS	TJN	3/10	AS SHOWN	DESIGNED	DVH/AME	
				SURVEY		
			PROFILE SCALE	FIELD MGR		
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				DEPUTY DIRECTOR		
			FILE: 0145BM04	DRAWING: BM4		
			ATLAS PAGE NO.:			

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214.4D
Page 15:23

TULSA



NOTES:
214.5.6
REMOVE AND REPLACE:
Two (2) Scum drive actuators, stems, and stem covers. The new equipment shall be manufactured by Rotork or Limatorque equal. Manual Hand wheel and actuator minimum Torque rating: 15-45 FT#, 460v/ 3ph /60HZ NEMA 4x Enclosure, bore to be verified at time of order.
Tag# on valves:
N050-FCL1-MSP01 N050-FCL2-MSP01

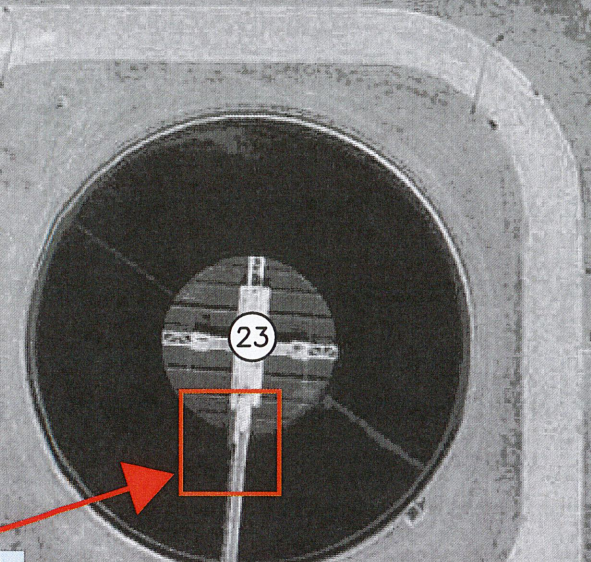
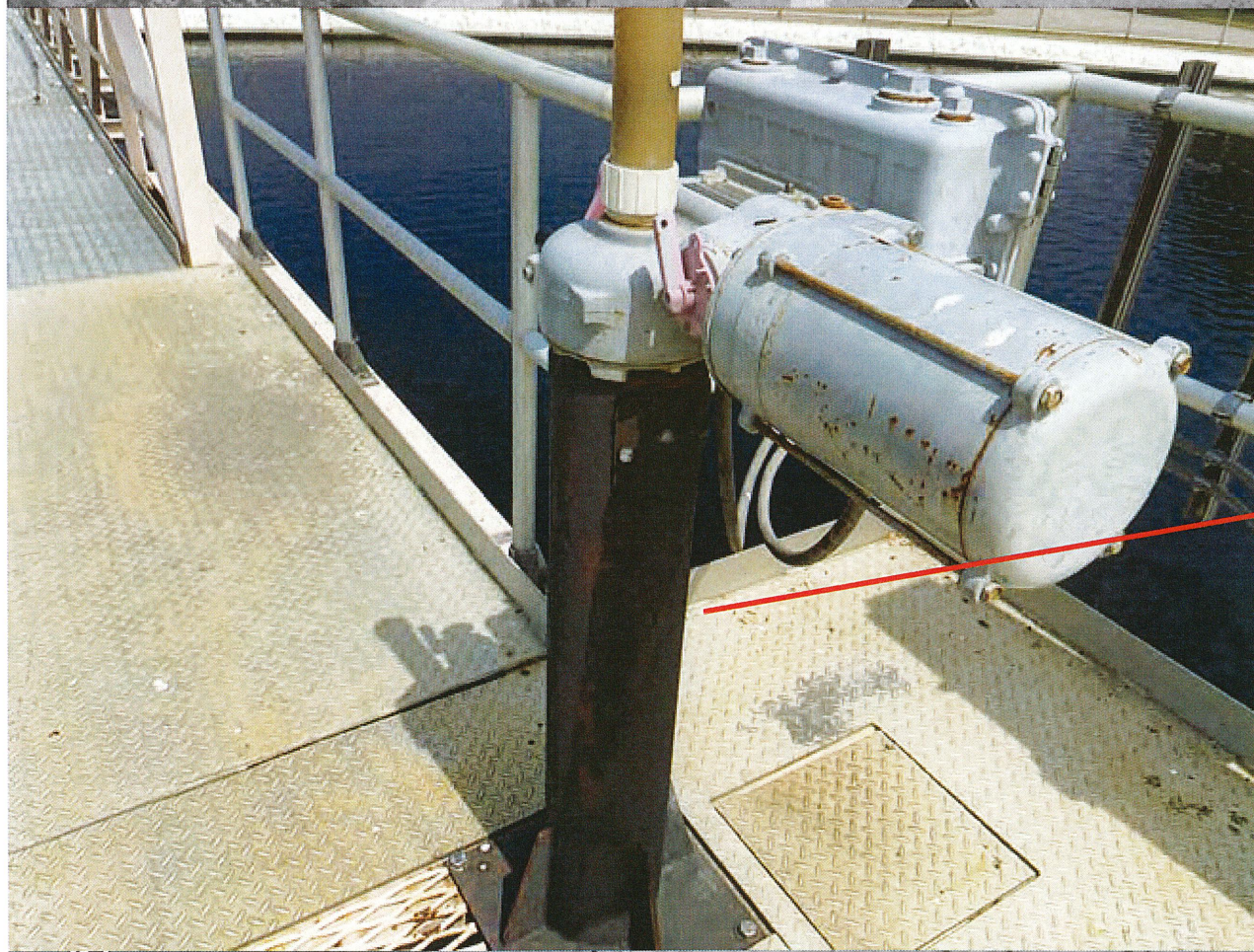
NOTES:

214.4.5.6

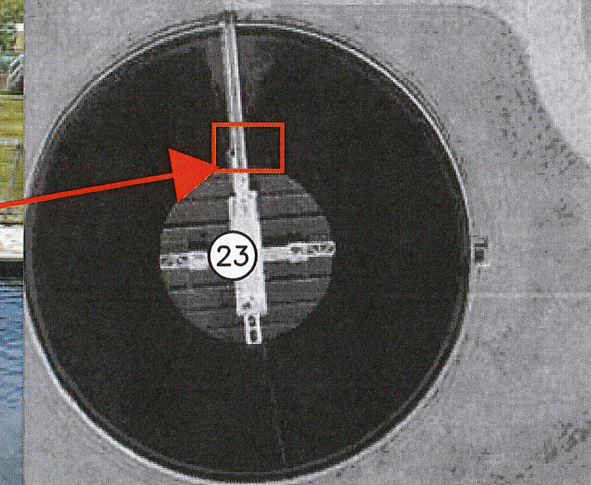
REMOVE AND REPLACE:

Two (2) Scum drive actuators, stems, and stem covers. The new equipment shall be manufactured by Rotork or Limatorque equal. Manual Hand wheel and actuator minimum Torque rating: 15-45 FT#, 460v/ 3ph /60HZ NEMA 4x Enclosure, bore to be verified at time of order.

N050-FCL3-MSP01 N050-FCL4-MSP01



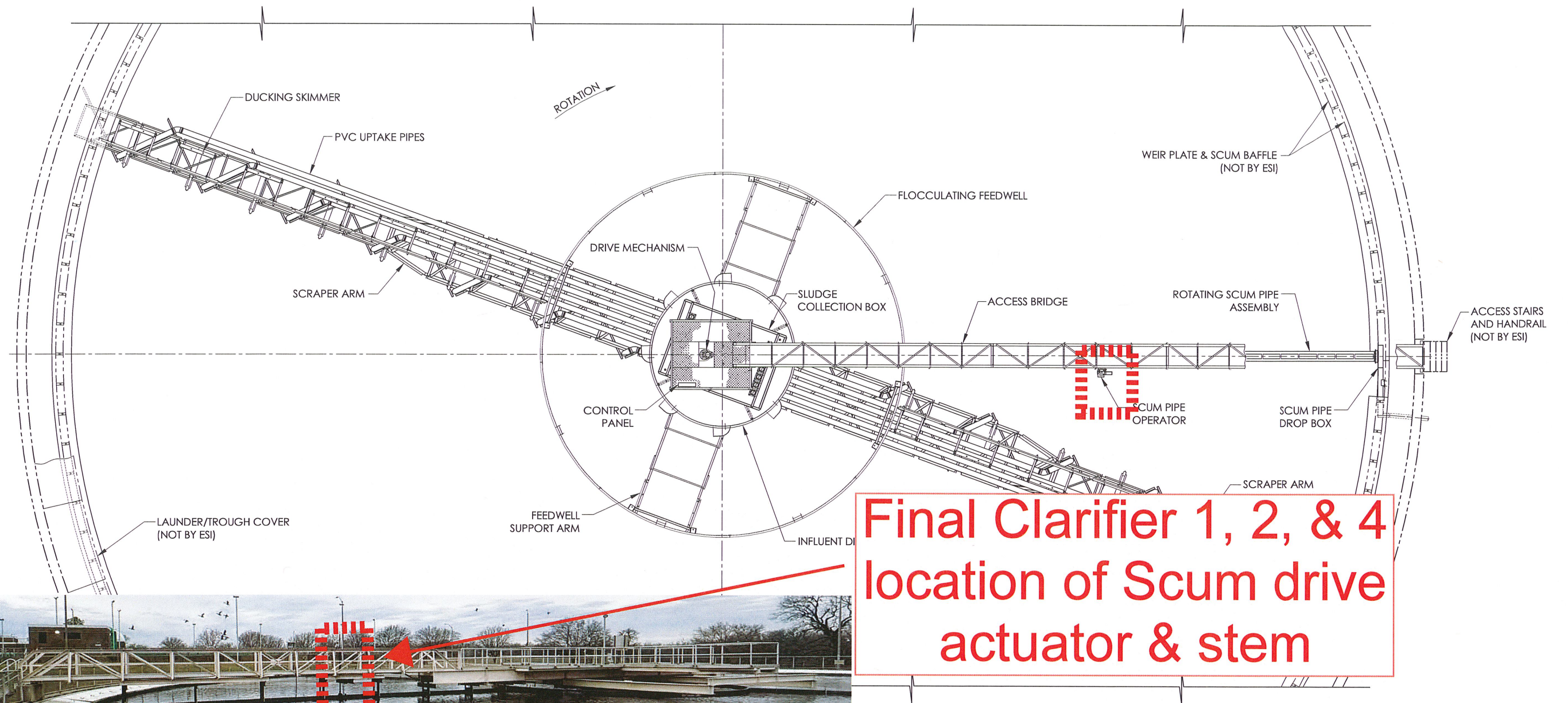
FINAL CLARIFIER 3 & 4 SCUM ACTUATOR SPEC # 214.5



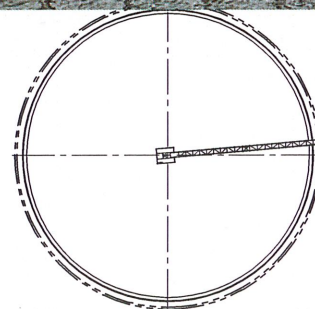
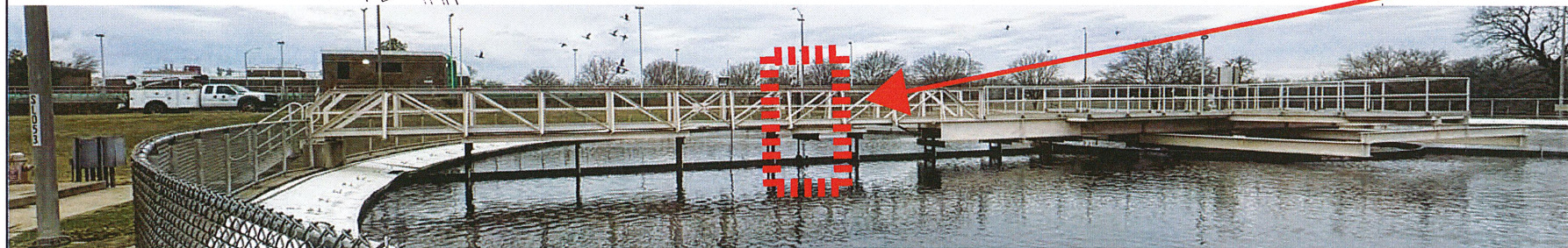
THSIDE WASTEWATER
REATMENT PLANT

WPC 25-3
214.5B

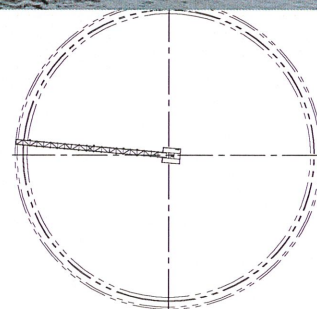




**Final Clarifier 1, 2, & 4
location of Scum drive
actuator & stem**



FINAL CLARIFIER No. 1



FINAL CLARIFIER No. 2

KEY PLAN

NOTES:
1. SEE DWG. 205-B-100368 FOR ELEVATION VIEW.

TULSA METROPOLITAN UTILITY AUTHORITY
TULSA, OK - NORTHSIDE WWTP



ENVIRODYNE SYSTEMS INC.
Camp Hill, Pennsylvania 17011

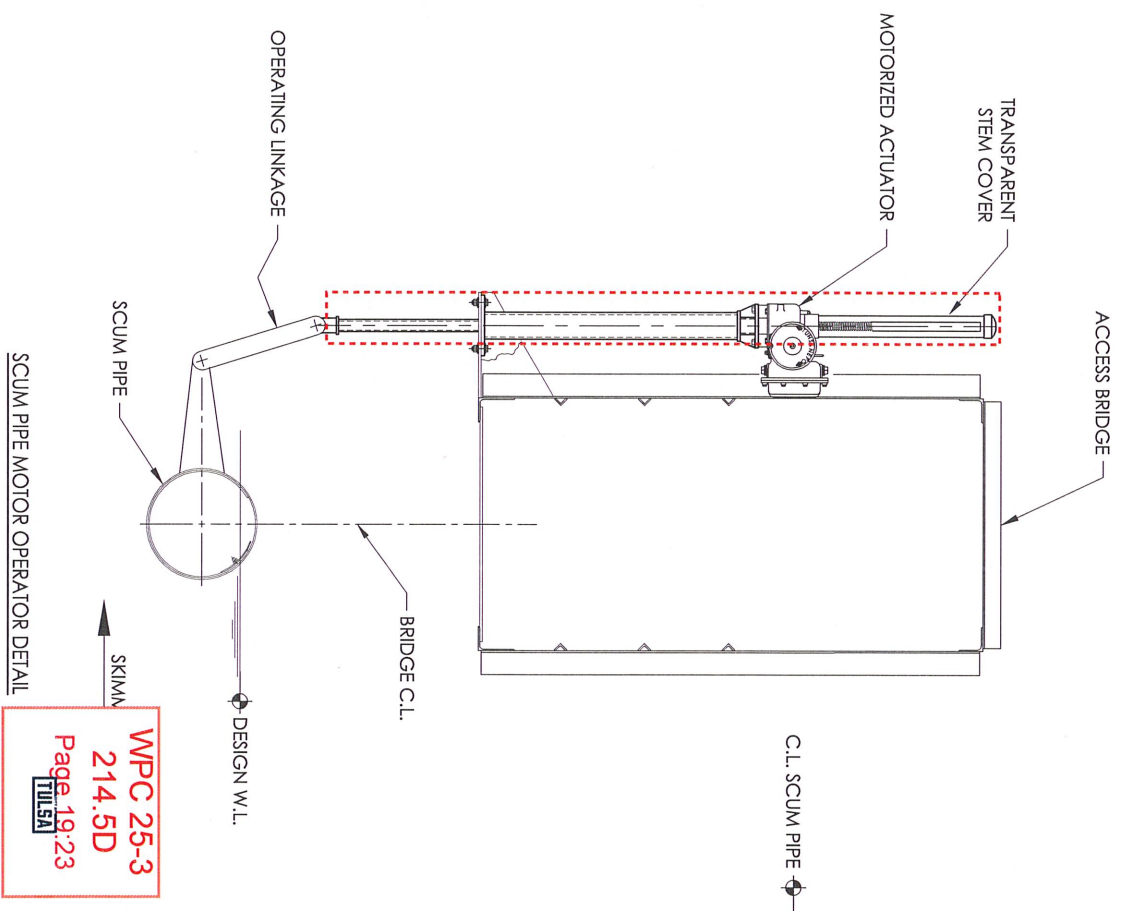
GENERAL ARRANGEMENT
185'-0" DIA. FINAL CLARIFIER

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CONFIDENTIAL. IT IS TO BE USED FOR THE PURPOSE FOR WHICH HAS BEEN
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TO THIS OFFICE UPON REQUEST. E.S.I. NOTE RESPONSIBLE FOR CONCRETE
DESIGN. CONCRETE SHOWN FOR IDENTIFYING PURPOSE ONLY.

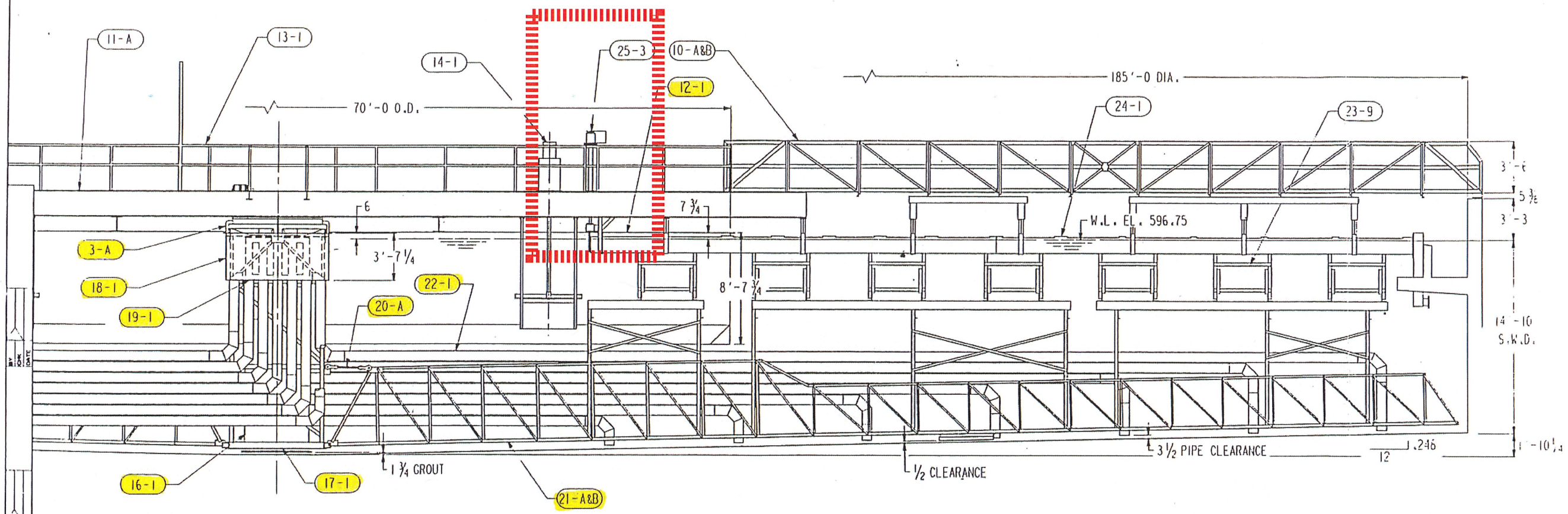
WPC 25-3
214.5C
Page 18:23

TULSA

REV.	DESCRIPTION	DATE
NTS	JMJ	07/29/2016



Final Clarifier 3 Scum
Drive Assembly
N050-FCL3-CDU01



SECTIONAL ELEVATION

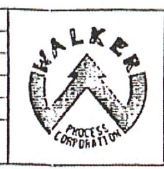
ENGINEER: CH2M HILL, INC.
SPEC. SECTION: D14400-1N 11340 PCL 1-11
NO. OF UNITS: TWO (2)
APPLICATION: FINAL CLARIFIERS
DESIGN FLOW: BASIN - AVG. = 10,500 CPM
PEAK = 39,778 CPM
RAS - MIN. = 3533 CPM
AVG. = 5139 CPM
PEAK = 7639 CPM

BY	CHKD	DATE	BY	CHKD	DATE
RAJR					
DATE	5-26-86				
DATE	1-27-86				
DATE	3-26-86				
REVISIONS	REWORKS				

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DATE	BY
1-27-86	CF
1-27-86	WLD
FILE REFERENCE	



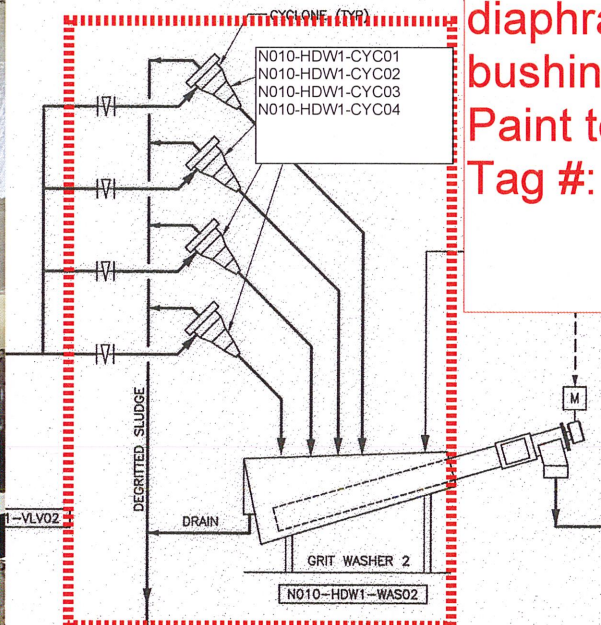
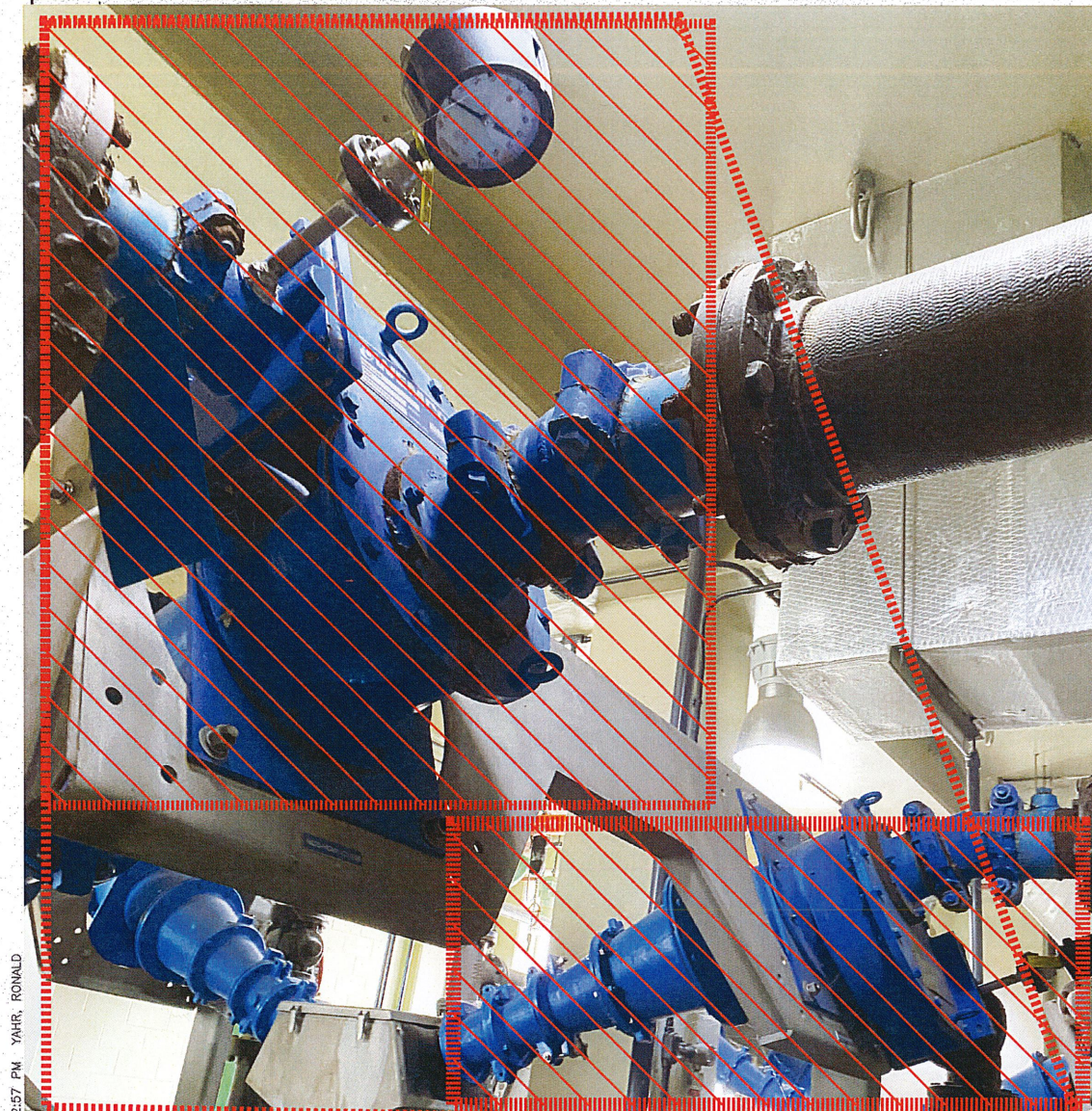
W&H
CIRCL

WPC 25-3
214.5F
Page 21:23



CONTRACT NO. 401 IDRC

CAU r -10502



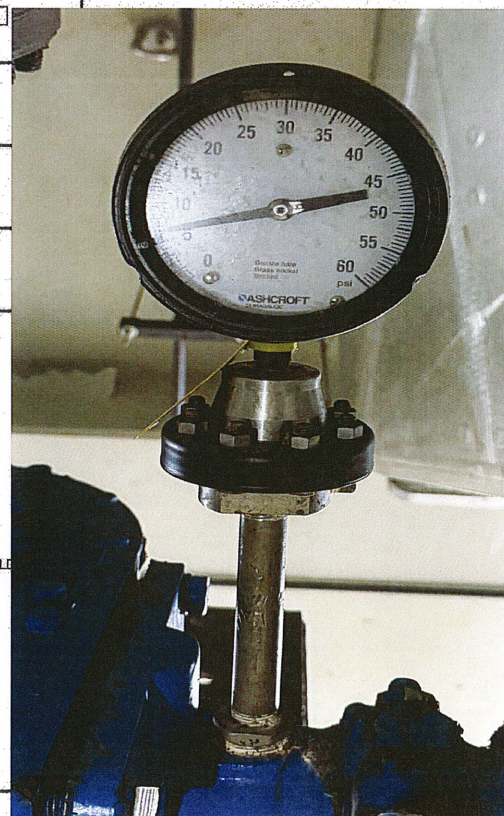
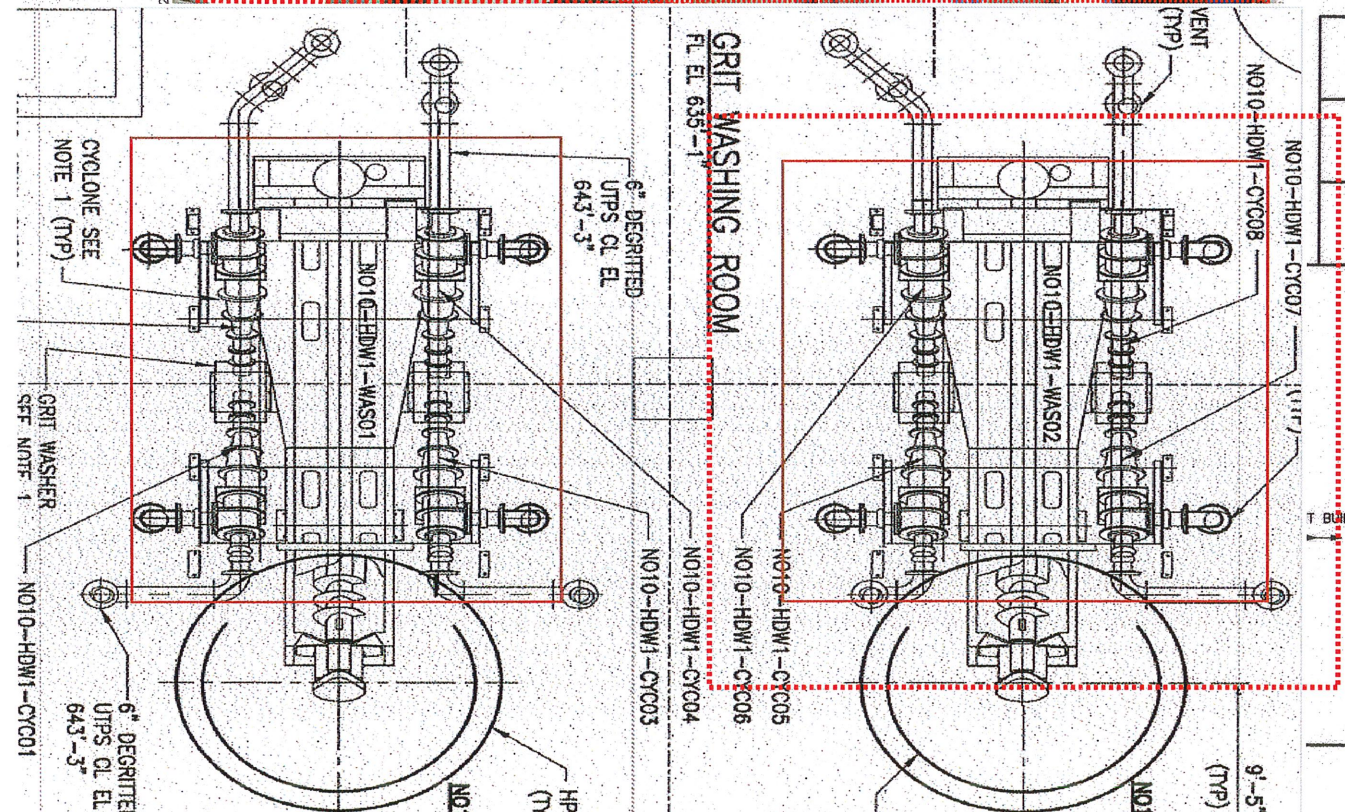
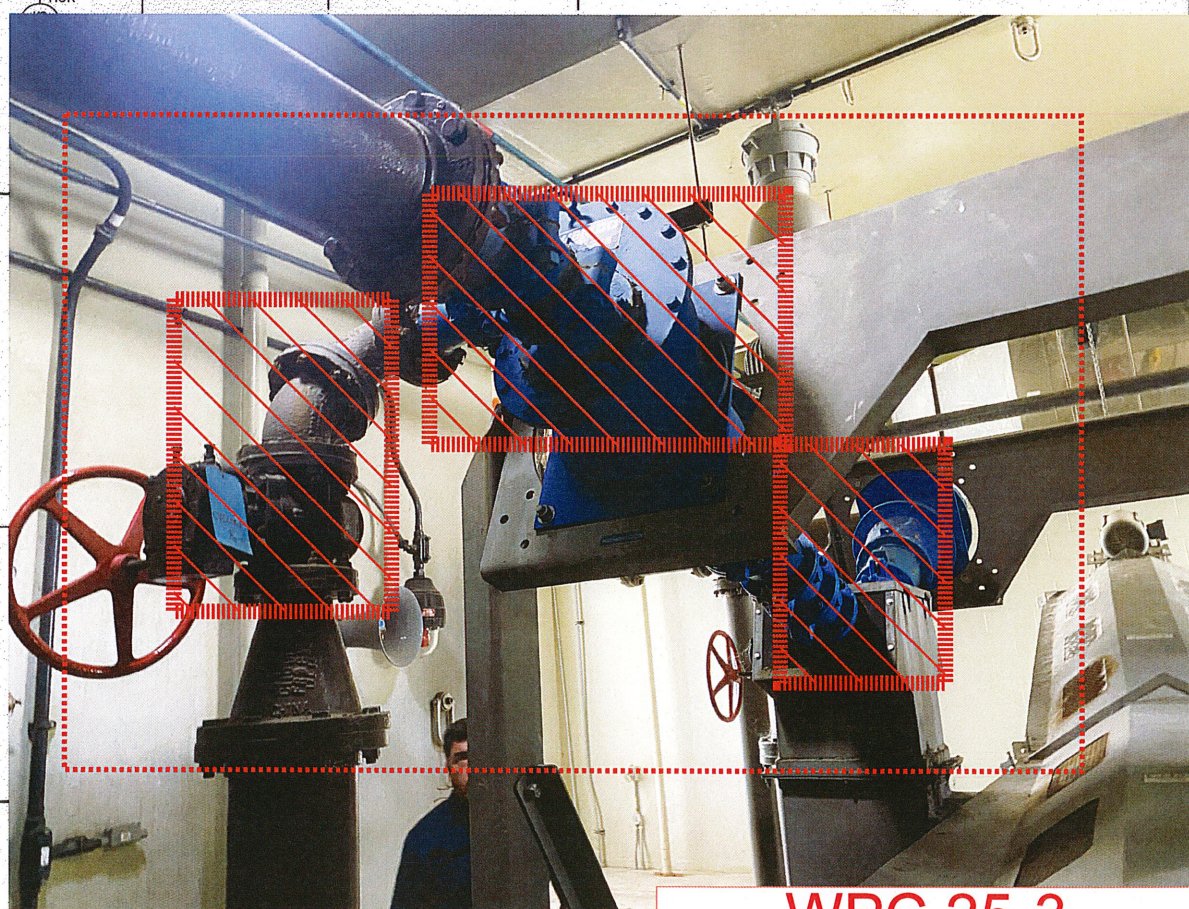
NOTES:

Remove: 214.6.6.1

Four (4) existing WEMCO cyclones & plug valves attached. The new equipment shall be manufactured by WEMCO WEMCLONE 1000C Single cyclone, inlet arrangement D, 22.5 degree WEMCLONE 4" inlet, 6" outlet, 4" vortex finder. Four (4) Valves to be dezurik 12.00-1D eccentric plug valves or approved equal. Four (4) 22 degree ductile iron elbow, Four (4) 90 degree ductile elbow Four (4) new 0-60 PSIG 6" Dial pressure gauges, 316 glycrine diaphragm seal, 316L 9" Nipple TBE schedule 40, 1"x12" 316L bushing, new hardware to be 316SS

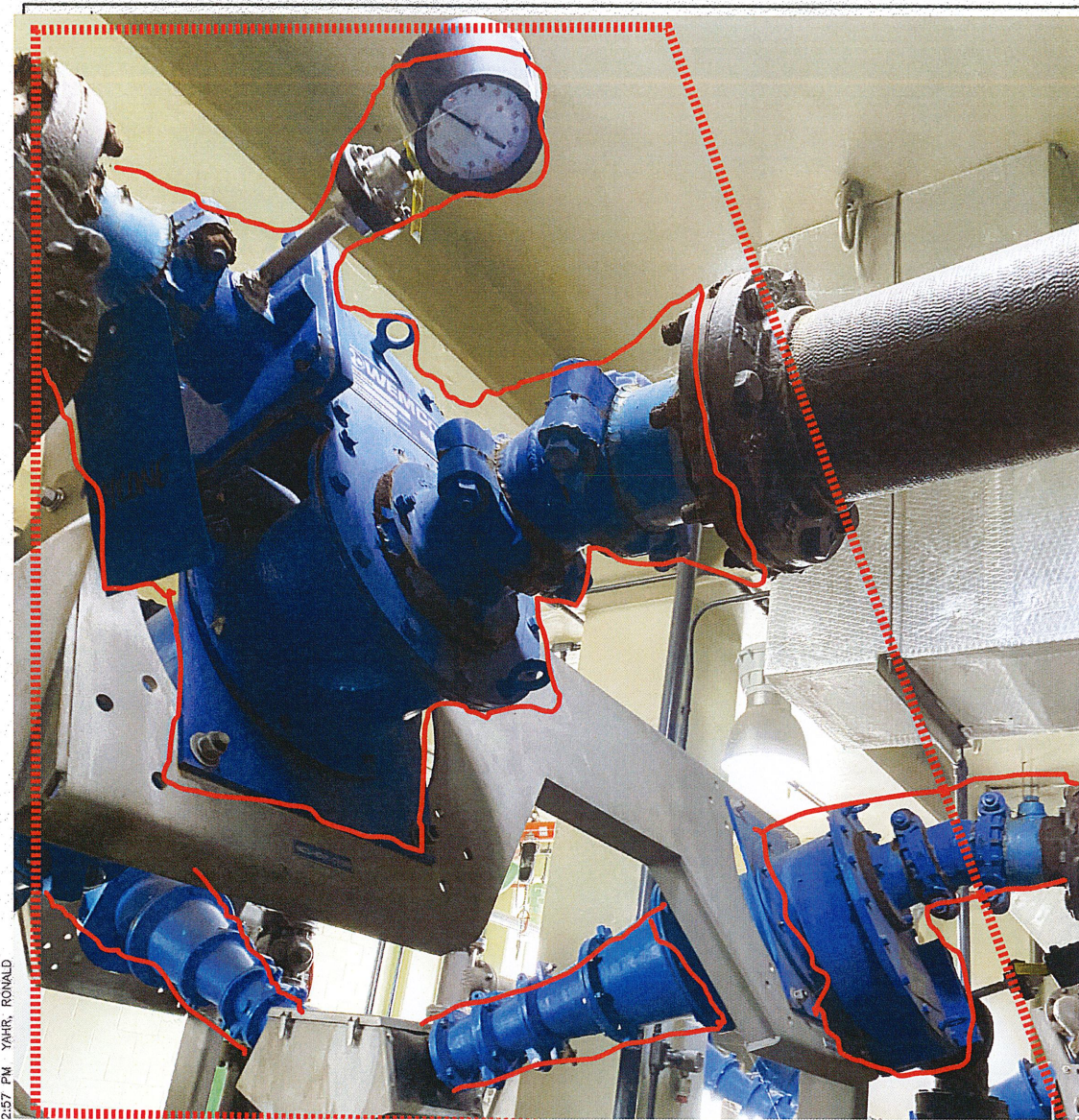
Paint to match existing pipe

Tag #: per spec

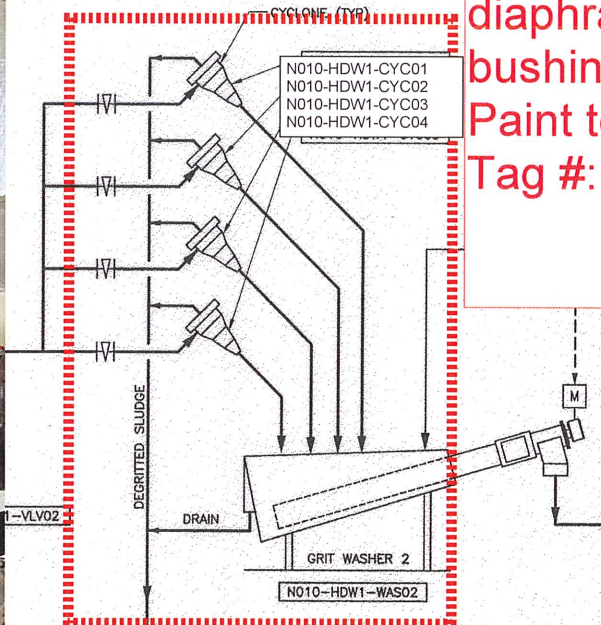


WPC 25-3
214.6A ADD ALT 1
Page 22:23

TULSA



2:57 PM YARR, RONALD



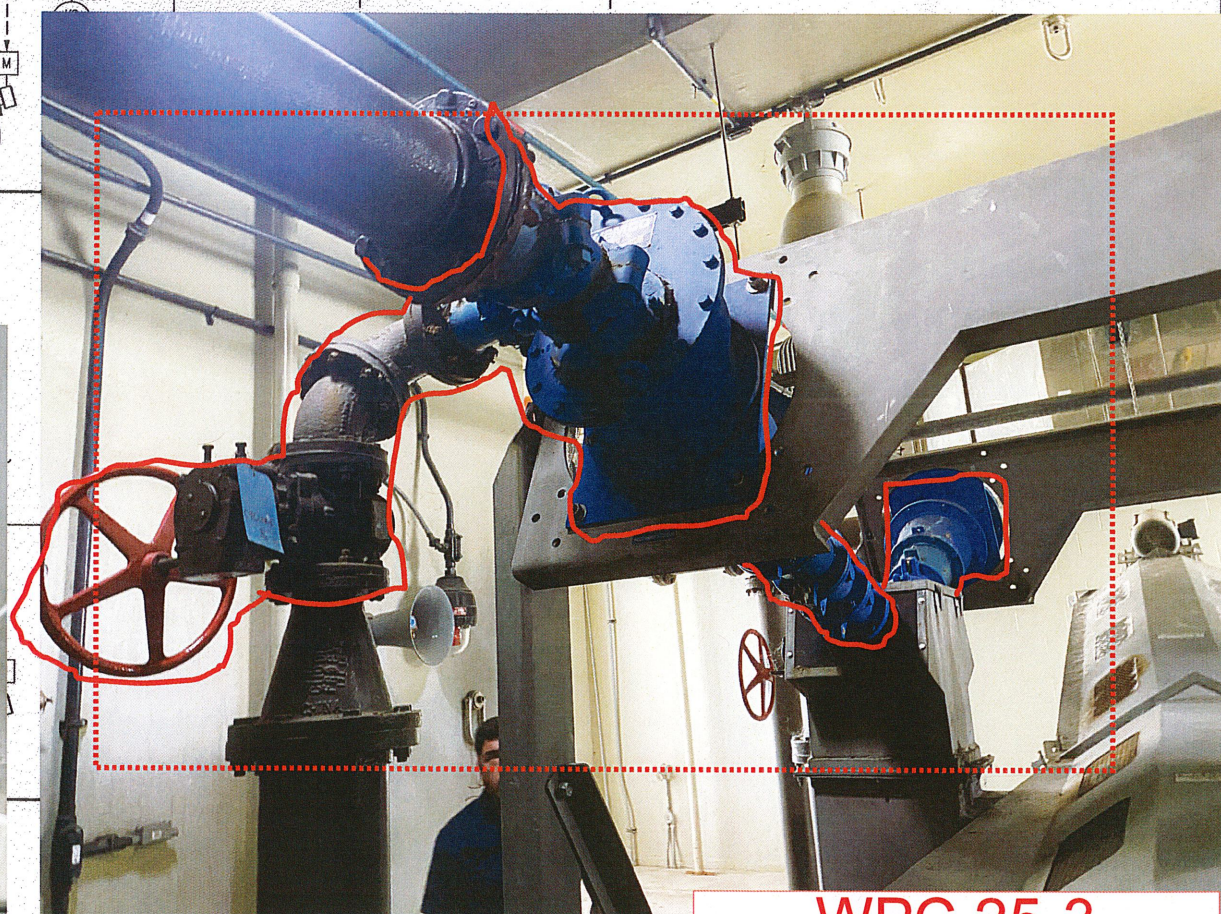
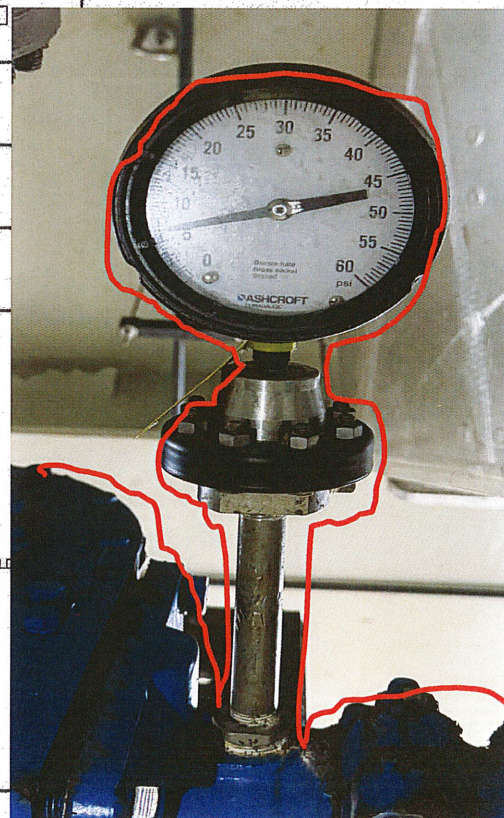
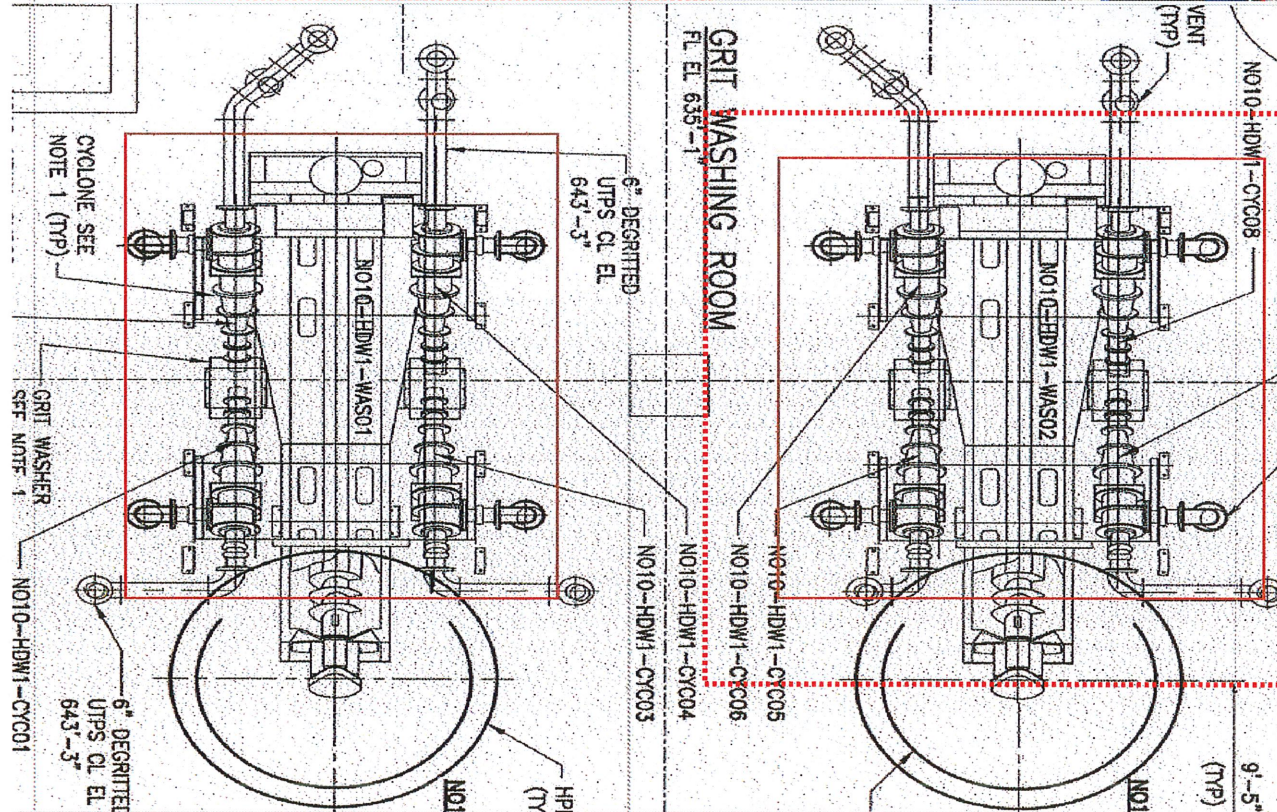
NOTES:

Replace: 214.6.6.1

Four (4) existing WEMCO cyclones & plug valves attached. The new equipment shall be manufactured by WEMCO WEMCLONE 1000C Single cyclone, inlet arrangement D, 22.5 degree WEMCLONE 4" inlet, 6" outlet, 4" vortex finder. Four (4) Valves to be dezurik 12.00-1D eccentric plug valves or approved equal. Four (4) 22 degree ductile iron elbow, Four (4) 90 degree ductile elbow Four (4) new 0-60 PSIG 6" dial pressure gauges, 316 glycerine diaphragm seal, 316L 9" Nipple TBE schedule 40, 1"x12" 316L bushing, new hardware to be 316SS

Paint to match existing

Tag #: per spec



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214.6B ADD ALT 1
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