

2013 Leon Creek Water Recycling Center (WRC) Rehabilitation and Process Improvements

Solicitation No.: CO-00003

SAWS Job No.: 13-6505

Addendum No. 2

August 13, 2015

To Respondent of Record:

This addendum, applicable to the project referenced above, is an amendment to the bidding documents and as such will be a part of and included in the Contract Documents. Acknowledge receipt of this addendum by entering the addendum number and issuance date in the space provided in the bid proposal.

A. Clarification

The Coordination Study and Blower Pad area drawings have been provided for information only.

B. Clarification

Engineer/Owner acknowledge that other manufacturers may be acceptable; however, for this project, respondents shall base their proposals on the specific equipment as described, and as indicated in the Technical Specifications and the Plan Drawings of the Contract Documents. Respondents are advised to reference the Technical Specifications of the Contract Documents, including Section 01 33 00 Submittal Procedures for requirements for review and approval of equipment and materials different than as explicitly shown in the Plan Drawings and Technical Specifications of the Contract Documents. (Note that the Owner/Engineer will not pre-approve any product substitutions prior to Proposal Submittal).

C. Clarification

The Contractor needs to remove the existing grout before placing the new 2” grout as indicated on sheet M-10, Note 8.

D. Revisions to WR-1 BUILDING WAGE DECISIONS

1. REPLACE General Decision Number: TX150280 issued on 1/30/2015 in its entirety with the attached General Decision Number: TX150280 issued on 07/31/2015.

E. Revisions to 40 90 02 SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA)

1. Paragraph 1.05 E, the first item, change the following:

from

“1. Prime Controls. Jace McNiel (972)221-4849.”

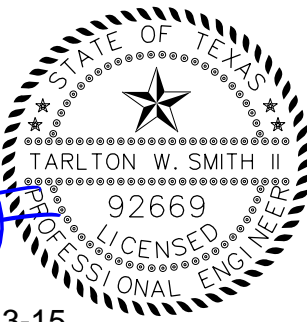
to

“1. Prime Controls. Jason Ford (281)253-2126.”

The remainder of the bid documents remains unchanged.

This addendum consists of sixty seven (67) pages.

ALL RESPONDENTS SHALL ACKNOWLEDGE RECEIPT OF ADDENDUM NO. 2 IN THE PRICE PROPOSAL FORM AND BY HIS/HER SIGNATURE AFFIXED HERETO AND TO FILE SAME AS AN ATTCHMENT TO HIS/HER PROPOSAL. PRICE PROPOSAL FORMS SUBMITTED WITHOUT THIS ACKNOWLEDGEMENT WILL BE CONSIDERED INFORMAL.



Tarlton W. Smith II, P.E.
Freese and Nichols, Inc. 08-13-15

FREESE AND NICHOLS, INC.
TEXAS REGISTERED
ENGINEERING FIRM
F-2144

ACKNOWLEDGEMENT BY RESPONDENT

THE UNDERSIGNED ACKNOWLEDGES RECEIPT OF THIS ADDENDUM NO. 2 AND THE PROPOSAL SUBMITTED HERewith ARE IN ACCORDANCE WITH THE INFORMATION AND STIPULATION SET FORTH.

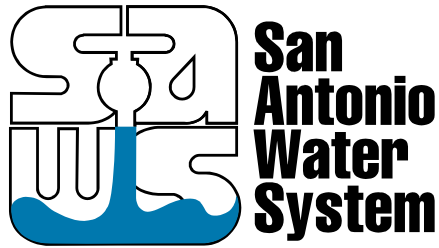
Signature of Respondent

Date

Appended hereto and part of Addendum No. 2 is:

1. CONTRACTOR QUESTIONS AND ANSWERS DOCUMENT
2. GENERAL DECISION NUMBER: TX150280 ISSUED ON 07/31/2015.
3. PRE-PROPOSAL MEETING SUMMARY AND CONSTRUCTION SEQUENCING PRESENTATION (08/11/2015)

END OF ADDENDUM NO. 2



2013 Leon Creek Water Recycling Center (WRC) Rehabilitation and Process Improvements

Solicitation No.: CO-00003

SAWS Job No.: 13-6505

Questions and Answers

August 13, 2015

- 1. Question:** On sheet D-7 demolition plan for final clarifier 1-4. I see nothing about demo the existing clarifier 2" grout top. Could you please clarify if the contractor needs to demo the existing grout top before installing the new grout?

 - **Answer:** Yes, the Contractor needs to remove the existing grout before placing the new 2" grout as indicated on sheet M-10, Note 8.

- 2. Question:** Could you please provide a max discharge quantity that the contractor would be able to pump in to proposed discharge locations?

 - **Answer:** During construction, the Contractor shall coordinate with the Owner about discharge locations, discharge quantity, discharge times, and discharge duration as stated in Special Constraint Note #1, Specification Section 01 35 00 Special Procedures. On previous construction projects at Leon Creek WRC, dewatering of structures has not been an issue for Contractors. It is the Contractor's option of dewatering to any of the three designated locations shown in the Plans of the Contract Documents with the responsibility of preventing overflow in those locations.

- 3. Question:** There is a spec section for a 12' x 15' overhead door, but none are shown on the drawings. Is there just one overhead door at the blower enclosure?

 - **Answer:** Reference Specification Section 13 50 00 Blower Enclosure. Also reference existing construction drawings provided by SAWS, Job No. 06-6502.

General Decision Number: TX150280 07/31/2015 TX280

Superseded General Decision Number: TX20140280

State: Texas

Construction Type: Building

County: Bexar County in Texas.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Executive Order (EO) 13658 establishes an hourly minimum wage of \$10.10 for 2015 that applies to all contracts subject to the Davis-Bacon Act for which the solicitation is issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.10 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/02/2015
1	01/30/2015
2	07/31/2015

ASBE0087-014 01/01/2014

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR (Duct, Pipe and Mechanical System Insulation)....	\$ 21.17	8.77

BOIL0074-003 01/01/2014

	Rates	Fringes
BOILERMAKER.....	\$ 23.14	21.55

ELEC0060-003 06/01/2014

	Rates	Fringes
ELECTRICIAN (Communication Technician Only).....	\$ 20.99	5%+5.49

* ELEC0060-004 06/01/2015

	Rates	Fringes
ELECTRICIAN (Excludes Low Voltage Wiring).....	\$ 27.82	11%+4.65

ELEV0133-002 01/01/2015

	Rates	Fringes
ELEVATOR MECHANIC.....	\$ 37.09	28.385

Footnote: A. 6% under 5 years based on regular hourly rate for all hours worked. 8% over 5 years based on regular hourly rate for all hours worked.

New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, and Veterans Day.

ENGI0450-002 04/01/2014

	Rates	Fringes
POWER EQUIPMENT OPERATOR Cranes.....	\$ 34.85	9.85

IRON0066-013 12/01/2013		
	Rates	Fringes
IRONWORKER, STRUCTURAL.....	\$ 19.80	5.95

IRON0084-011 06/15/2014		
	Rates	Fringes
IRONWORKER, ORNAMENTAL.....	\$ 22.02	6.35

PLUM0142-009 07/01/2014		
	Rates	Fringes
HVAC MECHANIC (HVAC Electrical Temperature Control Installation Only).....	\$ 30.40	10.10
HVAC MECHANIC (HVAC Unit Installation Only).....	\$ 30.40	10.10
PIPEFITTER (Including HVAC Pipe Installation).....	\$ 30.40	10.10
PLUMBER (Excludes HVAC Pipe Installation).....	\$ 30.40	10.10

SFTX0669-002 07/31/2014		
	Rates	Fringes
SPRINKLER FITTER (Fire Sprinklers).....	\$ 26.36	16.52

SHEE0067-004 04/01/2014		
	Rates	Fringes
Sheet metal worker Excludes HVAC Duct Installation.....	\$ 25.60	13.54
HVAC Duct Installation Only.	\$ 25.60	13.54

SUTX2014-006 07/21/2014		
	Rates	Fringes
BRICKLAYER.....	\$ 22.15	0.00
CARPENTER (Acoustical Ceiling Installation Only).....	\$ 17.83	0.00
CARPENTER (Form Work Only).....	\$ 13.63	0.00
CARPENTER, Excludes Acoustical Ceiling Installation, Drywall Hanging, Form Work, and Metal Stud Installation.....	\$ 16.86	4.17
CAULKER.....	\$ 15.00	0.00
CEMENT MASON/CONCRETE FINISHER...	\$ 22.27	5.30
DRYWALL FINISHER/TAPER.....	\$ 13.81	0.00
DRYWALL HANGER AND METAL STUD INSTALLER.....	\$ 15.18	0.00
ELECTRICIAN (Low Voltage Wiring Only).....	\$ 20.39	3.04
IRONWORKER, REINFORCING.....	\$ 12.27	0.00
LABORER: Common or General.....	\$ 10.75	0.00
LABORER: Mason Tender - Brick...	\$ 11.88	0.00
LABORER: Mason Tender - Cement/Concrete.....	\$ 12.00	0.00

LABORER: Pipelayer.....	\$ 11.00	0.00
LABORER: Roof Tearoff.....	\$ 11.28	0.00
LABORER: Landscape and Irrigation.....	\$ 8.00	0.00
OPERATOR: Backhoe/Excavator/Trackhoe.....	\$ 15.98	0.00
OPERATOR: Bobcat/Skid Steer/Skid Loader.....	\$ 14.00	0.00
OPERATOR: Bulldozer.....	\$ 14.00	0.00
OPERATOR: Drill.....	\$ 14.50	0.00
OPERATOR: Forklift.....	\$ 12.50	0.00
OPERATOR: Grader/Blade.....	\$ 23.00	5.07
OPERATOR: Loader.....	\$ 12.79	0.00
OPERATOR: Mechanic.....	\$ 18.75	5.12
OPERATOR: Paver (Asphalt, Aggregate, and Concrete).....	\$ 16.03	0.00
OPERATOR: Roller.....	\$ 12.00	0.00
PAINTER (Brush, Roller and Spray), Excludes Drywall Finishing/Taping.....	\$ 13.07	0.00
ROOFER.....	\$ 12.00	0.00
TILE FINISHER.....	\$ 11.32	0.00
TILE SETTER.....	\$ 14.94	0.00
TRUCK DRIVER: Dump Truck.....	\$ 12.39	1.18
TRUCK DRIVER: Flatbed Truck.....	\$ 19.65	8.57
TRUCK DRIVER: Semi-Trailer Truck.....	\$ 12.50	0.00
TRUCK DRIVER: Water Truck.....	\$ 12.00	4.11

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of

the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.

Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

Meeting Summary Notes

MEETING: SAN ANTONIO WATER SYSTEM
San Antonio Water System (SAWS) 2013 Leon Creek
Water Recycling Center (WRC) Rehabilitation and
Process Improvements Project
Job No. 13-6505
Solicitation No.: CO-00003
Mandatory Pre-Proposal Meeting

DATE: August 11, 2015

LOCATION: SAWS Leon Creek WRC O&M Building/Cafeteria
1104 Mauermann Rd., San Antonio, Texas, 78221

TIME: 10:00 AM, Site Visit following Meeting



NOTE: THE PRE-PROPOSAL MEETING NOTES ARE PROVIDED FOR REFERENCE ONLY AS FOLLOWS:

- The meeting was facilitated by Maria Franco (SAWS Contract Administrator) and Trooper Smith (Freese and Nichols).
- Also in attendance from SAWS were: Ila Drzymala, Marisa Palmer, Pete Chavol, Joe Daggs, Marty Jones, Daniel Rodriguez, Kevin Hilldore, and Reghina Volosen.
- Also in attendance from the design team were: Coby Gee (Freese and Nichols), John Manning (Freese and Nichols), and Tatiana Tafoya (CP&Y)
- This was a mandatory pre-proposal meeting. The site visit following the meeting was non-mandatory. Only those firms represented at the meeting by signing in on the sign-in sheet provided may submit as a prime contractor for this project.

TOPIC

WHO

1. CONTRACT REQUIREMENTS

Maria Franco

- **Insurance** – Found in Section 5.7 of the General Conditions. There are no modifications to the requirements, including the requirement to carry Builder’s Risk insurance.
 - Insurance must be compliant prior to executing the contract.
 - Selected contractor must be compliant with all other contracts in order for SAWS to award the contract.
 - Insurance must be updated for all current projects
- **Evaluation Criteria** - Is outlined within the Supplementary Instructions to Respondents and is as follows:

Background/Experience and Past Performance	30%
Project Approach/Team Experience	10%
Price	50%
Small, Minority, Women, Business Participation	10%
- **SMWB**
 - The aspirational SMWB goal for this project is **17%**.
 - However, since this is a RFCSP, each Respondent’s Good Faith Effort Plan (GFEP) will be scored based on the criteria outlined on pages, SIR-5 and SIR-6 of the Supplementary Instructions to Respondents.
 - Failure to do so may result in reduced points or a non-responsive proposal.
 - Questions re: SMWB may be addressed by Marisol Robles. Her contact information is located on the GFEP.

Meeting Summary Notes

- **Evaluation Process**
 - This project is being procured through an alternative delivery method, specifically, Request for Competitive Sealed Proposal (RFCSP).
 - SAWS will select the contractor that can provide the best value to SAWS.
 - SAWS will have 45 days to review the proposals.
 - Once selected, SAWS may negotiate with the contractor, and if negotiations aren't successful, SAWS may formally end negotiations and go to the next qualified contractor.
- **Proposal Packet Preparation**
 - In order to submit a proposal for this project, it is a requirement that Respondents have previous experience as outlined in Section B, on page SIR-1 of the Supplementary Instructions to Respondent.
 - Respondents should ensure that the proposals submitted address each item requested by SAWS on pages SIR-1 through SIR-6.
 - Failure to do so may result in reduced points or a non-responsive proposal.
 - Responses should be project specific, whenever possible. "Boilerplate" responses are not recommended.
 - References provided to SAWS must include valid contact information previously verified by the Respondent.
 - Points for price will be calculated using the Total Price Proposal Amount. The formula for price evaluation is outlined on page SIR-5. It has changed and points are allocated much differently.
 - Proposers should utilize the Proposal Checklist to ensure all required items are submitted.
 - SAWS will need 1 Original and 7 copies. The price proposal shall be submitted in separate envelope.
 - All subcontractors must be included in the submittal.
- **Additional Reminders**
 - This is a mandatory pre-proposal meeting. Only those firms that are represented here today by signing in on the sign-in sheet may submit as a prime contractor for this project.
 - If you have not done so already, please register through SAWS Vendor Registration Program on the SAWS website at www.saws.org to ensure access to the latest information including the posting of Addendums.
- **Key Dates**
 - Questions regarding the SMWB Program or the Good Faith Effort Plan may be sent directly to the SAWS Program Manager, Marisol Robles, up until the submission deadline.
 - Her email address is Marisol.Robles@saws.org and her phone number is 210-233-3420.
 - All other questions should be sent in writing to the attention of Maria Franco by email or fax no later than **August 13, by 4:00 p.m.**
 - Maria's email address is mfranco@saws.org and her fax number is 210-233-4622.
 - Contractors should not contact the SAWS project engineer, the consultant for this project or any other SAWS staff up until Board award.
 - Addendum will be posted **August 18, 2015, by 4:00 p.m.**
 - The deadline for submitting proposals is **August 28, 2015 no later than 10:00 a.m.**

Meeting Summary Notes

- Late proposals will not be accepted and will be returned unopened.
- If mailing proposals, ensure that sufficient time is allowed for the package to reach SAWS.
- If proposals will be delivered in person to SAWS, Respondents should allow sufficient travel time, as well as time to check in at the guard station.

2. QUESTIONS REGARDING SUBMITTALS

ALL

3. CERTIFIED PAYROLL REQUIREMENTS

Maria Franco

4. PROJECT OVERVIEW AND SCOPE OF WORK

Trooper Smith

- a. Project Schedule – Final completion 635 calendar days after notice to proceed.
- b. Scope of Work – Construction of following items:
 - Automation of the chlorination/de-chlorination systems;
 - Automation of the aeration system;
 - Replacement of headers, pipe grid, and membrane diffusers;
 - Mixing chamber and influent channel aeration system;
 - Coordination with Siemens (Aeration Basin control system supplier) throughout project;
 - Coordination with Emerson Process Management throughout project;
 - Install blow-off valve assembly on the 60" main header line;
 - Final Clarifier 1-4 rehabilitation;
 - Final Clarifier 3-4 concrete repairs;
 - Final Clarifier 5-7 weir resetting;
 - Ammonia analyzers;
 - Blower area building enclosure
- c. Critical Project Items
 - i. The project constraints were reviewed and an example construction sequence was presented. The construction sequencing presentation will be provided as an addendum. It should be noted that the Contractor will be required to develop and submit their own construction sequencing plan for review and approval during the project.
- d. Allowances
 - i. Pre-startup/Commissioning Construction Items
 - ii. Permit
- e. Liquidated Damages - \$945.00 per day
- f. Supplemental Conditions
- g. Special Conditions

5. QUESTIONS

ALL

- All questions posed during the meeting shall be submitted to Maria Franco formally to facilitate a response from the design team.

6. Site Visit following meeting.

- The non-mandatory site visit was conducted by Trooper Smith following the pre-proposal meeting.

Oral statements or discussion during the pre-proposal meeting will not be binding, nor will it change or affect the terms or conditions within the Plans and Specifications of this Project. Changes, if any, will be addressed in writing only via an Addendum.



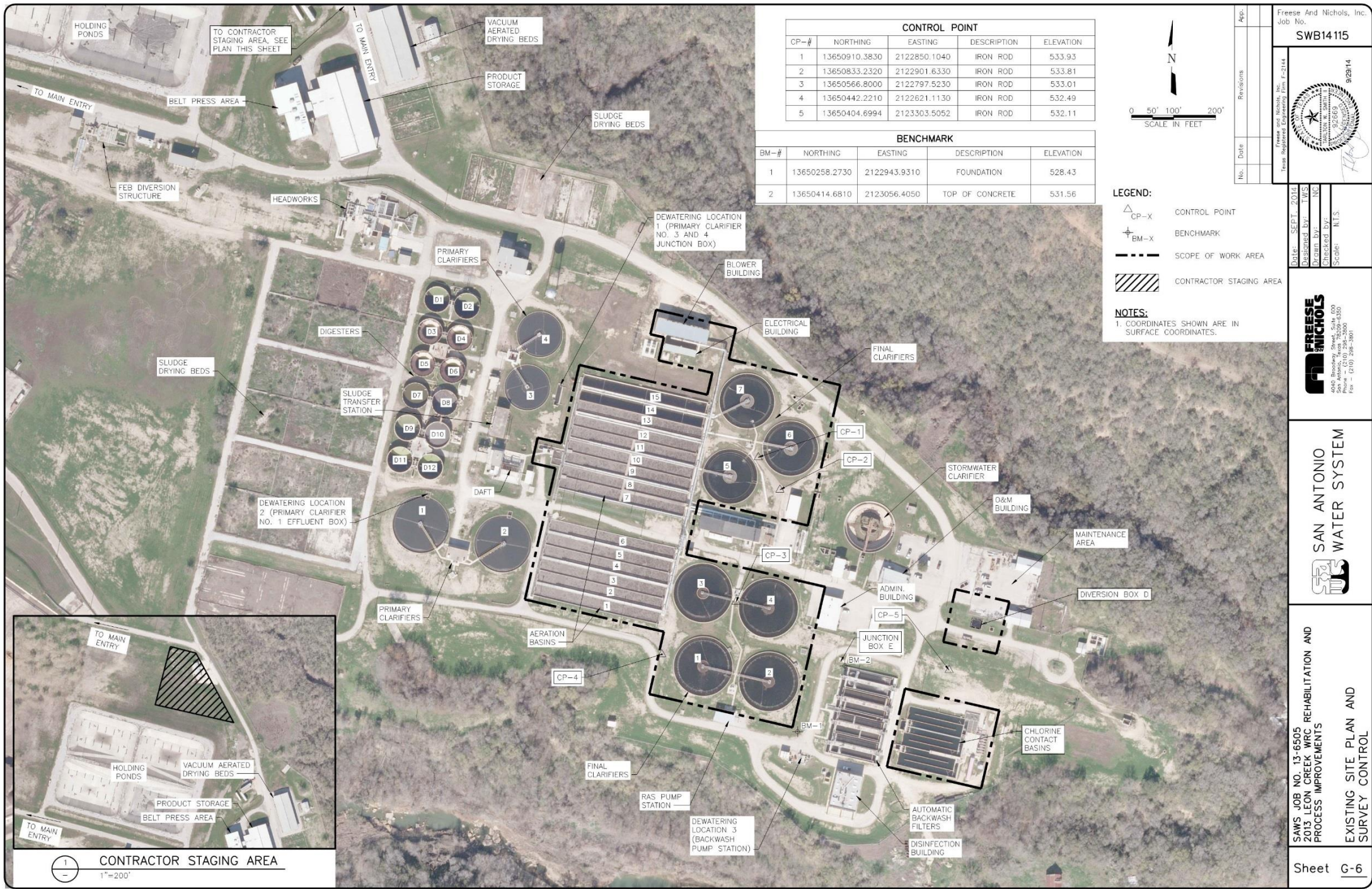
2013 LEON CREEK WRC
REHABILITATION AND PROCESS
IMPROVEMENTS PROJECT

SAWS JOB NO. 13-6506

SOLICITATION NO. CO-00003

Pre-Proposal Meeting Construction Sequencing

AUGUST 11, 2015



CONTROL POINT				
CP-#	NORTHING	EASTING	DESCRIPTION	ELEVATION
1	13650910.3830	2122850.1040	IRON ROD	533.93
2	13650833.2320	2122901.6330	IRON ROD	533.81
3	13650566.8000	2122797.5230	IRON ROD	533.01
4	13650442.2210	2122621.1130	IRON ROD	532.49
5	13650404.6994	2123303.5052	IRON ROD	532.11

BENCHMARK				
BM-#	NORTHING	EASTING	DESCRIPTION	ELEVATION
1	13650258.2730	2122943.9310	FOUNDATION	528.43
2	13650414.6810	2123056.4050	TOP OF CONCRETE	531.56

- LEGEND:**
- △ CP-X CONTROL POINT
 - ⊕ BM-X BENCHMARK
 - SCOPE OF WORK AREA
 - ▨ CONTRACTOR STAGING AREA

NOTES:
 1. COORDINATES SHOWN ARE IN SURFACE COORDINATES.

App.	
Revisions	
No.	Date

Freese And Nichols, Inc.
 Job No. SWB14115
 9/29/14

Date: SEPT. 2014
 Drawn by: TWS
 Checked by: TWS
 Scale: N.T.S.

Freese and Nichols
 4040 Broadway Street, Suite 600
 San Antonio, Texas 78209-6350
 Fax = (210) 248-3801

SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 13-6505
 2013 LEON CREEK WRC REHABILITATION AND PROCESS IMPROVEMENTS
 EXISTING SITE PLAN AND SURVEY CONTROL

Agenda

- I. List of Constraint Notes
- II. Concurrent Construction
- III. Construction Sequence and Durations

Special Constraint Notes

- #1 – Basin Dewatering
- #2 – Vehicular Access
- #3 – Maximum Aeration Basins Out of Service
- #4 – Blower Shutdowns
- #5 – Aeration Basin Interconnections
- #6 – Solids Removal
- #7 – Final Clarifiers Out of Service

Special Constraint Notes

- #8 – Chlorination/Dechlorination System Constraints
- #9 – Bringing Aeration Basins Back in Service
- #10 – Refilling Final Clarifiers
- #11 – Equipment Replacement
- #12 – Temporary Flow Management (Coarse Bubble Diffusers)
- #13 – Biomonitoring Period
- #14 – Blower Cooling Water

Concurrent Construction Phases

THE FOLLOWING PHASES MAY OCCUR DURING THE CONSTRUCTION
OF THE PROPOSED SEQUENCE

Concurrent Construction

The following construction activities can occur concurrently with other construction phases:

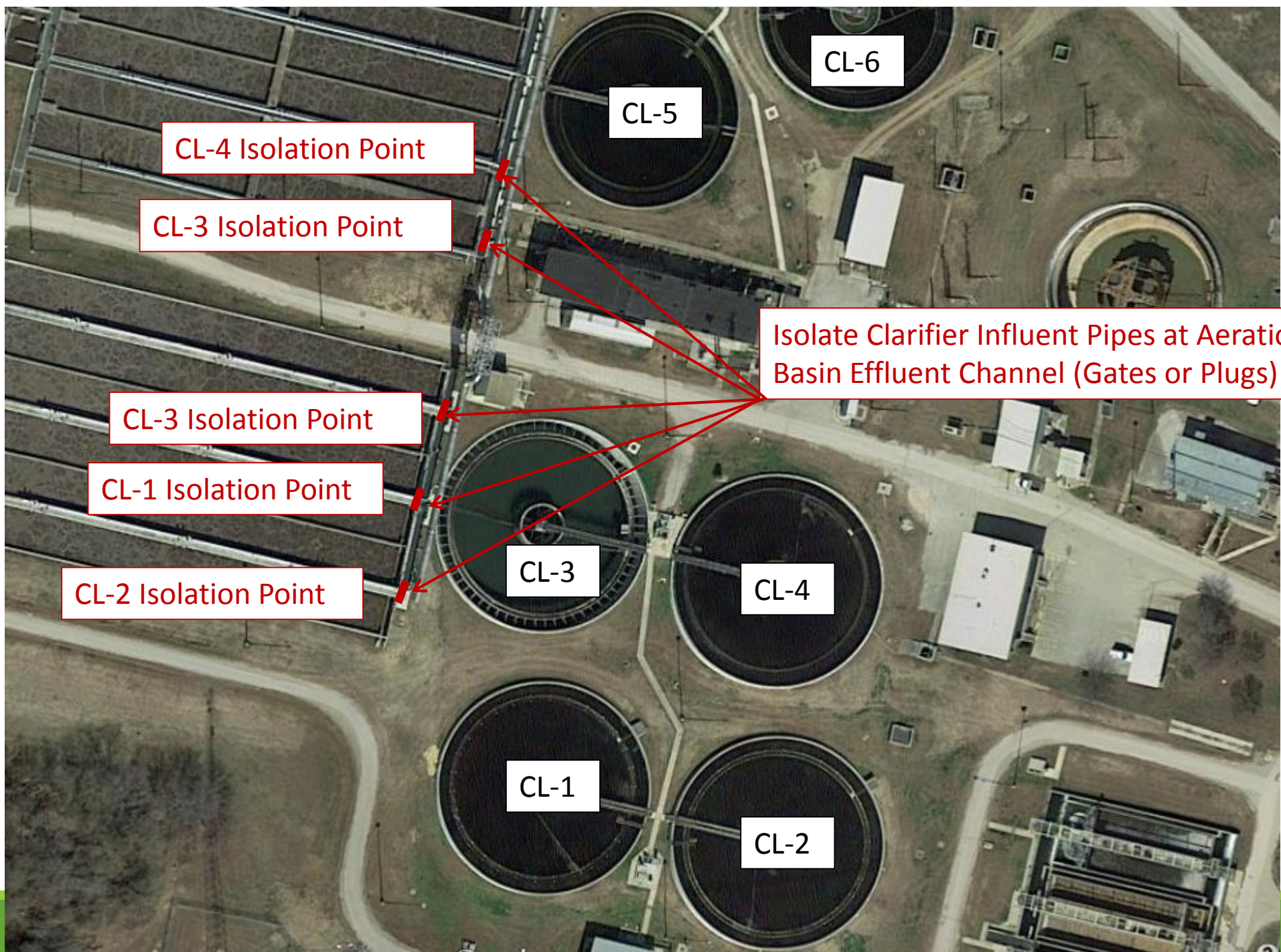
- Final Clarifiers (5-7) Baffle and Weir Replacement
- Final Clarifiers (1-4) Rehabilitation (Following Procurement)
- Chlorination/Dechlorination Improvements
- Blower Enclosure
- Main Header Blow-Off Valve (During Blower Shutdown)

Final Clarifiers 5-7 Weir Replacement

- 1) Plant Operation – Normal operation with one clarifier out of service
- 2) Isolation
 - a) Similar to clarifiers 1-4 isolation
 - b) Drain clarifier basin as needed
- 3) Demolition – Existing clarifier weirs, baffles, and fasteners
- 4) Installation/Repairs – Install new weirs and baffles, and balance
- 5) Pre-Operation
 - a) Refill basin
 - b) Construction survey verification
 - c) Test clarifier weirs for flow imbalances
 - d) Cleanup

Final Clarifiers 1-4 Rehabilitation

- 1) Plant Operation – Normal operation with one clarifier out of service at a time
- 2) Isolation
 - a) Plug or isolate each clarifier influent pipe at the aeration basin effluent channel connection.
 - b) Drain clarifier basin
 - c) Repeat for each clarifier to rehabilitate all equipment
- 3) Demolition – Existing clarifier equipment, motors, launders, supports, weirs, and baffles
- 4) Installation/Repairs
 - a) Apply coating to clarifier equipment
 - b) Repair existing concrete as needed
 - c) Install launders, supports, weirs, baffles, mechanism, and other equipment
- 5) Pre-Operation
 - a) Test and repair coatings
 - b) Refill basin
 - c) Test clarifier equipment and mechanisms
 - d) Cleanup



CL-4 Isolation Point

CL-3 Isolation Point

CL-3 Isolation Point

CL-1 Isolation Point

CL-2 Isolation Point

Isolate Clarifier Influent Pipes at Aeration Basin Effluent Channel (Gates or Plugs)

CL-5

CL-6

CL-3

CL-4

CL-1

CL-2

NOT FOR CONSTRUCTION
THIS DRAWING IS THE PROPERTY OF FREASE AND NICHOLS, INC. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREIN. ANY REUSE OR MODIFICATION OF THIS DRAWING WITHOUT THE WRITTEN PERMISSION OF FREASE AND NICHOLS, INC. IS STRICTLY PROHIBITED.

Date: LINE 2014
Designed by: JT
Drawn by: PEC
Checked by: HC
Scale: SCALE

CP&Y, INC.
CITY OF SAN ANTONIO
TRIP # 1110 1/14/14

CP&Y, INC.
10000 Research Blvd., Suite 200
Dallas, TX 75243
Phone: (214) 416-2200
Fax: (214) 416-2200

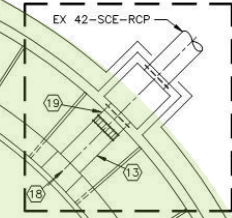
SAN ANTONIO
WATER SYSTEM

SAWS JOB NO. 13-6505
LEON CREEK WATER RECYCLING CENTER (WRC)
REHABILITATION AND PROCESS IMPROVEMENTS
FINAL CLARIFIER NOS 1-4
PLAN

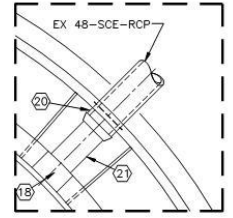
NOTES BY SYMBOL "○"

1. DRIVE UNIT
2. FLOCCULATION WELL
3. ENERGY DISSIPATING INLET WELL
4. SUCTION HEADER
5. TRUSS ARM
6. RAISED TRUSS WALKWAY
7. SCUM BEACH
8. SCUM DEFLECTOR
9. FRP EFFLUENT COLLECTION TROUGH
10. EFFLUENT LAUNDER STL SUPPORTS
11. FRP V-NOTCH WEIR
12. FRP BAFFLE
13. 42" FRP PIPE
14. ROUTE 1/2" NPW LINE ALONG WALKWAY
15. CONNECT WATER LINE TO EX 1/2" NPW LINE
16. EX CONC BASIN WALL
17. EDGE OF FOOTING
18. EFFLUENT OPENING
19. 42"Ø CEMENT LINED STL WALL PIPE, INV EL 529.5±, MATCH INVERT OF WALL PIPE, FIELD VERIFY
20. 48"Ø RCP WALL PIPE, INVERT EL 527.2±, MATCH INVERT OF WALL PIPE, FIELD VERIFY
21. 48" FRP PIPE

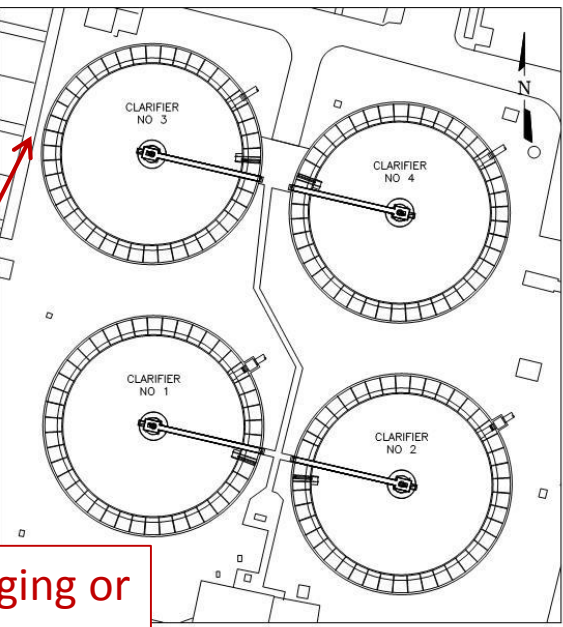
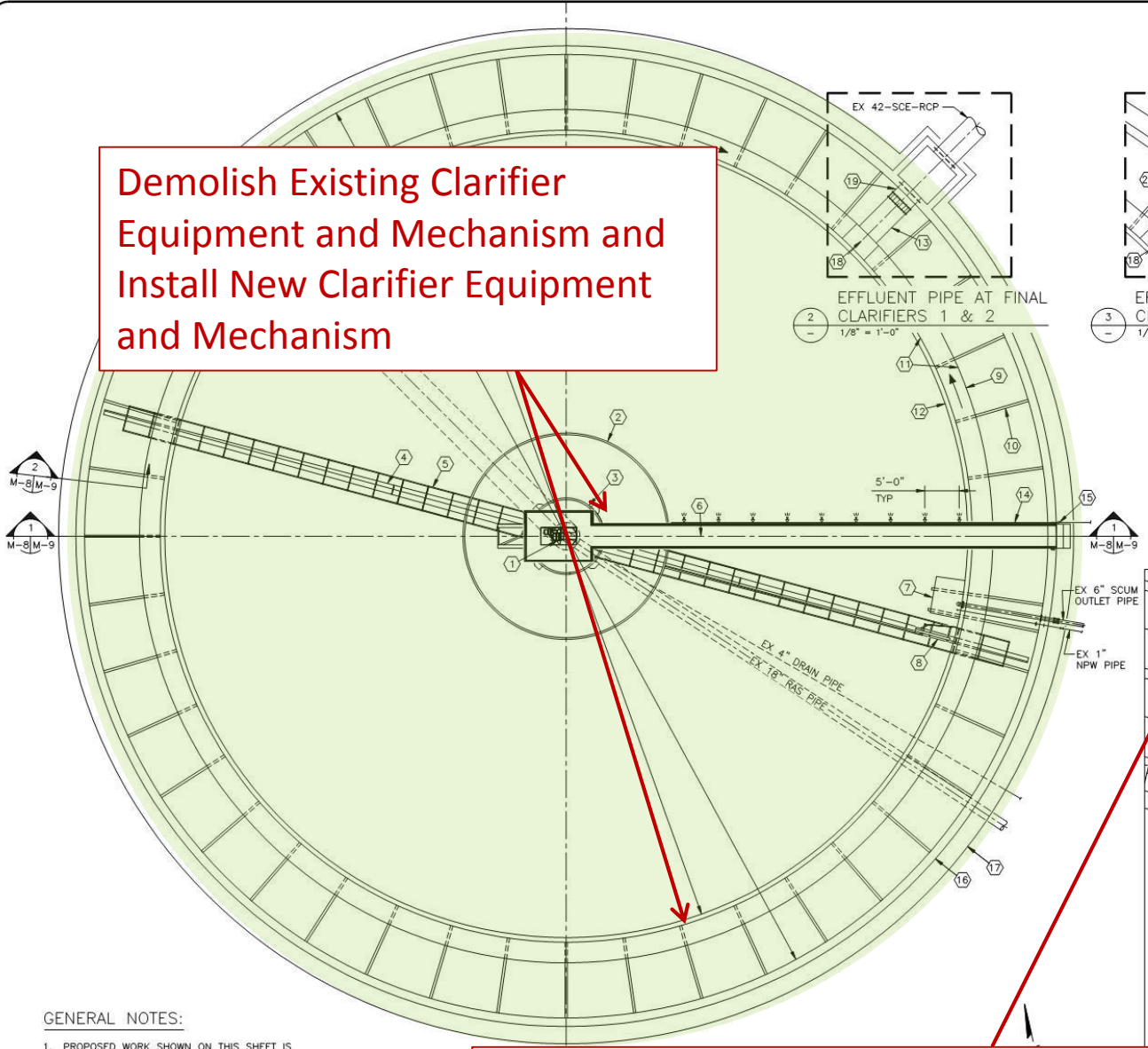
Demolish Existing Clarifier Equipment and Mechanism and Install New Clarifier Equipment and Mechanism



EFFLUENT PIPE AT FINAL CLARIFIERS 1 & 2
1/8" = 1'-0"



EFFLUENT PIPE AT FINAL CLARIFIERS 3 & 4
1/8" = 1'-0"



KEY MAP
NOT TO SCALE

GENERAL NOTES:

1. PROPOSED WORK SHOWN ON THIS SHEET IS TYPICAL FOR CLARIFIERS NOS 1 THROUGH 4.
2. DIRECTION OF WALKWAY & PIPING VARIES BETWEEN CLARIFIERS. MATCH EXISTING ORIENTATION OF WALKWAYS AND COORDINATE SCUM BEACH WITH LOCATION OF EXISTING SCUM LINE.

Each Clarifier Shall be Isolated by Plugging or Isolating the Influent Pipe at the Aeration Basin Effluent Channel

Chlorination/Dechlorination Improvements

- 1) Plant Operation – Normal operation. Plant staff shall continue to take chlorine grab samples to determine dosing for chlorination and dechlorination systems
- 2) Isolation – Chlorine contact basins may be isolated and lowered, one basin at a time, to allow the installation of piping and supports in each basin. Diversion Box “D” is critical to plant operation and therefore may not be drained for the installation of piping and supports. Contractor may install a bulkhead if needed for installation.
- 3) Demolition – None
- 4) Installation/Repairs
 - a) Chlorination System
 - 1) Construct and install residual analyzer enclosure system and sample pump.
 - 2) Isolate and dewater basin as needed and install sample piping and supports.
 - 3) Refill basin.
 - 4) Install necessary electrical conduit and wiring.
 - 5) Provide programming for system control.

Chlorination/Dechlorination Improvements - Continued

a) Dechlorination System

1. Construct and install residual analyzer enclosure system and sample pump.
2. Isolate and dewater Diversion Box "D" as required and install sample piping and supports.
3. Refill basin.
4. Install necessary electrical conduit and wiring.
5. Provide programming for system control.

5) Pre-Operation

1. Testing/calibration of residual analyzer and dosing system.
2. Cleanup

Blower Enclosure

- 1) Plant Operation – Normal Operation
- 2) Isolation – Electrical shutdown or isolation will be required to connect conduit and conductor blower building power to the electrical building.
- 3) Demolition – Remove existing bird netting
- 4) Installation
 - a) Supports, panels, roll-up door, HVAC equipment, accoustical panels, etc.
- 5) Pre-Operation
 - a) Testing
 - b) Cleanup

Main Header Blow-Off Valve Assembly

- 1) Plant Operation – Normal Operation
- 2) Isolation – Shall Be Performed During Blower Shutdown
 - 1) Electrical isolation will be required to connect 480V power connection in the electrical bldg.
- 3) Demolition - None
- 4) Installation/Repairs
 - a) Shutdown air blower system
 - b) Weld 20-inch flanged outlet – 4 hours – END WORK
 - c) Turn blowers back on
 - d) Shutdown air blower system – NEXT DAY
 - e) Cut 8-inch hole through main header
 - f) Install reducer and blow-off valve assembly
- 5) Pre-Operation
 - a) Valve Testing
 - b) Cleanup

Phased Construction

Submittal Requirements

The CONTRACTOR shall submit a plan to be approved by the ENGINEER and OWNER for the sequence of construction. The plan shall include the specific items indicated in this specification. The CONTRACTOR may request modifications to the sequencing of items in this specification which shall first be subject to approval by the ENGINEER and OWNER.

PHASE I – Aeration Basins 14-15 and Influent Channel Air Headers

- 1) Plant Operation – Normal Operation with Basins 14 and 15 out of service.
- 2) Isolation
 - a) Raise slide gates on Basins 14-15 located on the west side of the basin which is fed from the influent channel to isolate.
 - b) Close the (2) isolation valves on the aeration basin air headers (14-in).
 - c) Dewater basins to primary clarifier effluent structure.
 - d) Isolate each 480V panel for terminating conduit and conductors in distribution panels.
- 3) Demolition
 - a) Basins 14 and 15
 - I. 14-in air header for each basin from isolation valve to existing drop legs. Install blind flange on basin 14's existing 14-in isolation valve and add pipe support beneath.
 - II. Drop legs to basin, salvage existing butterfly valves and D.O. probes
 - III. Fine bubble diffusers and associated piping
 - IV. Remove solids at bottom of basins

PHASE I – Aeration Basins 14-15 and Influent Channel Air Headers

4) Installation/Repairs

a) Basins 14 and 15

- I. 20-inch welded flanged outlet on 60-in main air header
 - 1) Shutdown air blower system
 - 2) Weld flanged outlet – 4 hours – END WORK
 - 3) Turn air blowers back on
 - 4) Shutdown air blower system – NEXT DAY
 - 5) Cut 20-in hole through 60-in air header
 - 6) Install closed isolation valve
- II. Repair existing concrete as needed
- III. Install basin air headers and supports
- IV. Install drop legs and appurtenances
- V. Install fine bubble diffusers and associated piping
- VI. Install D.O. probes and supports
- VII. Basins 14-15 shall not be brought back in service until the completion of Phases II and III (100% bypass option) – only Phase II for 50% bypass option
- VIII. Carefully refill basin halfway using plant NPW water
- IX. Complete filling of basin with mixed liquor

PHASE I – Aeration Basins 14-15 and Influent Channel Air Headers

b) Influent channel air header – 8 inch

- I. Install 8-inch air header piping along Basin 14 walkway and connect to 14-inch isolation valve using 8-inch x 14-inch reducer
- II. Install remaining 8-inch air header and supports along influent channel air header

c) Influent channel air header – 6 inch

- I. 20-inch welded flanged outlet on 60-inch main air header
 - 1) Shutdown air blower system
 - 2) Weld flanged outlet – 4 hours – END WORK
 - 3) Turn air blowers back on
 - 4) Shutdown air blower system – NEXT DAY
 - 5) Cut 20-inch hole through 60-inch air header
 - 6) Install 20" x 6" reducer and closed 6" isolation valve – 4 hours – END WORK
- II. Install 6-inch influent channel air header and supports from isolation valve connection to termination of air header near basin 6.

5) Pre-Operation

- a) Testing and operation checks of new diffusers, piping, and valves
- b) Cleanup

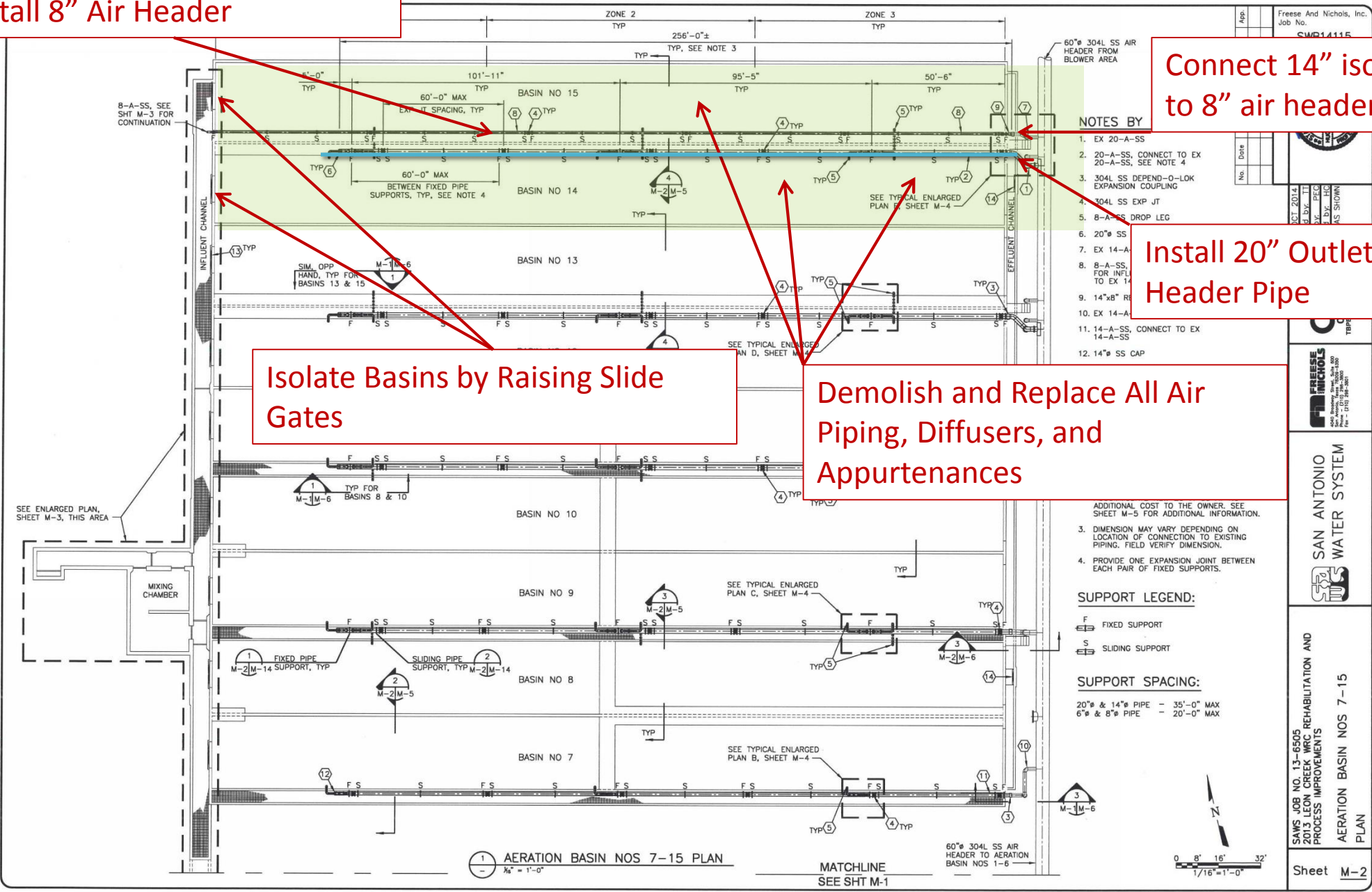
Install 8" Air Header

Connect 14" isolation valve to 8" air header

Install 20" Outlet and Basin Header Pipe

Isolate Basins by Raising Slide Gates

Demolish and Replace All Air Piping, Diffusers, and Appurtenances



NOTES BY

1. EX 20-A-SS
2. 20-A-SS, CONNECT TO EX 20-A-SS, SEE NOTE 4
3. 304L SS DEPEND-O-LOK EXPANSION COUPLING
4. 304L SS EXP JT
5. 8-A-SS DROP LEG
6. 20" SS
7. EX 14-A
8. 8-A-SS, FOR INFL TO EX 14
9. 14"x8" R
10. EX 14-A
11. 14-A-SS, CONNECT TO EX 14-A-SS
12. 14" SS CAP

ADDITIONAL COST TO THE OWNER. SEE SHEET M-5 FOR ADDITIONAL INFORMATION.

3. DIMENSION MAY VARY DEPENDING ON LOCATION OF CONNECTION TO EXISTING PIPING. FIELD VERIFY DIMENSION.
4. PROVIDE ONE EXPANSION JOINT BETWEEN EACH PAIR OF FIXED SUPPORTS.

SUPPORT LEGEND:

- F FIXED SUPPORT
- S SLIDING SUPPORT

SUPPORT SPACING:

- 20" & 14" PIPE - 35'-0" MAX
- 6" & 8" PIPE - 20'-0" MAX

Freese And Nichols, Inc.
Job No. SWP14115

DATE: 01/20/14
BY: J.T.
CHECKED: J.V.
DESIGNED: J.V.
AS SHOWN

FREES & NICHOLS
Civil, Mechanical, Electrical, Sanitary, and Structural Engineers and Architects
10101 San Antonio Road, Suite 200
San Antonio, Texas 78230
Phone: (214) 349-2000
Fax: (214) 349-2001

SAN ANTONIO WATER SYSTEM

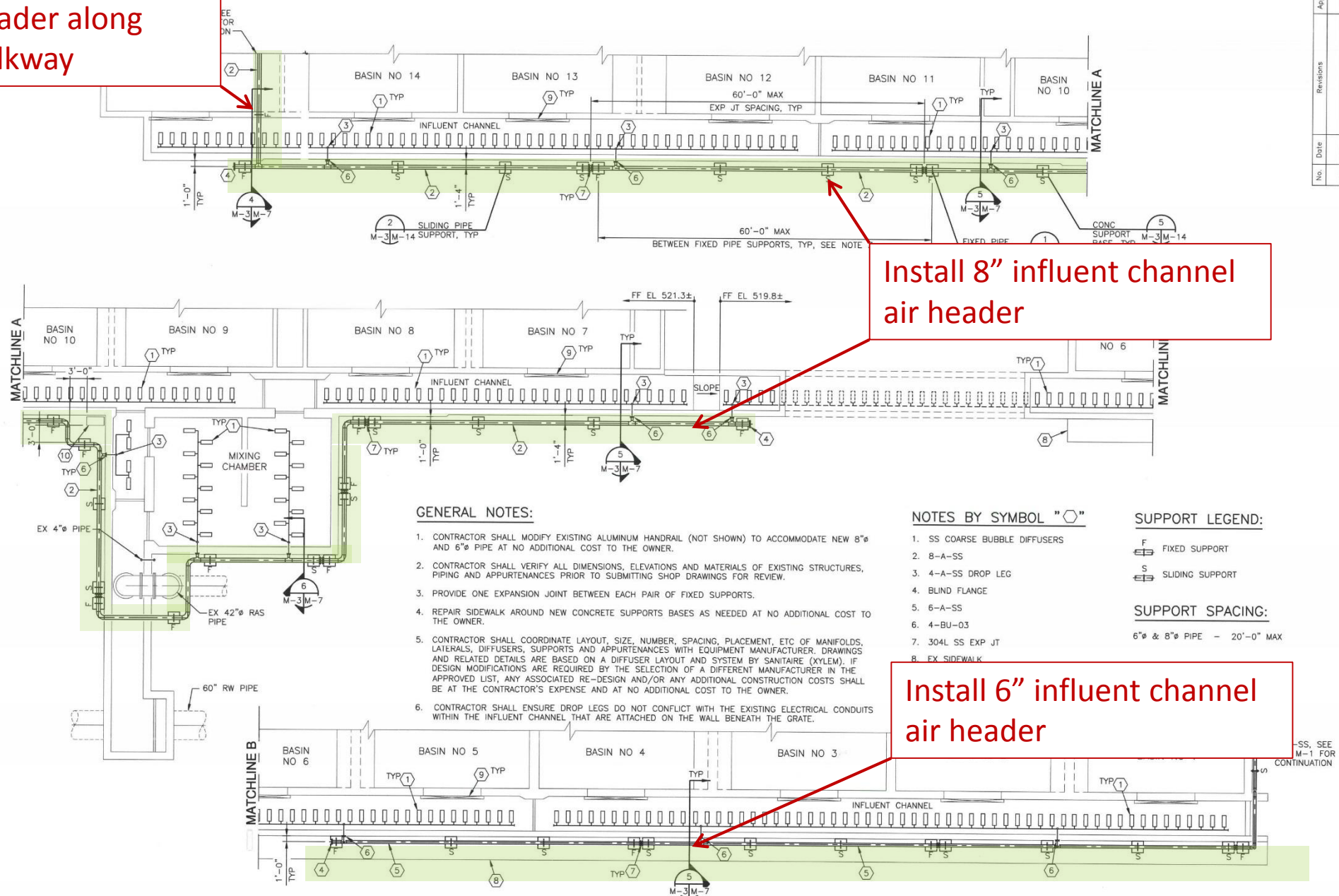
SAWS JOB NO. 13-6505
2013 LEON CREEK WRC REHABILITATION AND PROCESS IMPROVEMENTS
AERATION BASIN NOS 7-15
PLAN

Sheet **M-2**

Install 8" header along Basin 15 walkway

Install 8" influent channel air header

Install 6" influent channel air header



GENERAL NOTES:

1. CONTRACTOR SHALL MODIFY EXISTING ALUMINUM HANDRAIL (NOT SHOWN) TO ACCOMMODATE NEW 8" AND 6" PIPE AT NO ADDITIONAL COST TO THE OWNER.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND MATERIALS OF EXISTING STRUCTURES, PIPING AND APPURTENANCES PRIOR TO SUBMITTING SHOP DRAWINGS FOR REVIEW.
3. PROVIDE ONE EXPANSION JOINT BETWEEN EACH PAIR OF FIXED SUPPORTS.
4. REPAIR SIDEWALK AROUND NEW CONCRETE SUPPORTS BASES AS NEEDED AT NO ADDITIONAL COST TO THE OWNER.
5. CONTRACTOR SHALL COORDINATE LAYOUT, SIZE, NUMBER, SPACING, PLACEMENT, ETC OF MANIFOLDS, LATERALS, DIFFUSERS, SUPPORTS AND APPURTENANCES WITH EQUIPMENT MANUFACTURER. DRAWINGS AND RELATED DETAILS ARE BASED ON A DIFFUSER LAYOUT AND SYSTEM BY SAINTAIRE (XYLEM). IF DESIGN MODIFICATIONS ARE REQUIRED BY THE SELECTION OF A DIFFERENT MANUFACTURER IN THE APPROVED LIST, ANY ASSOCIATED RE-DESIGN AND/OR ANY ADDITIONAL CONSTRUCTION COSTS SHALL BE AT THE CONTRACTOR'S EXPENSE AND AT NO ADDITIONAL COST TO THE OWNER.
6. CONTRACTOR SHALL ENSURE DROP LEGS DO NOT CONFLICT WITH THE EXISTING ELECTRICAL CONDUITS WITHIN THE INFLUENT CHANNEL THAT ARE ATTACHED ON THE WALL BENEATH THE GRATE.

NOTES BY SYMBOL "○"

1. SS COARSE BUBBLE DIFFUSERS
2. 8-A-SS
3. 4-A-SS DROP LEG
4. BLIND FLANGE
5. 6-A-SS
6. 4-BU-03
7. 304L SS EXP JT
8. EX SIDEWALK

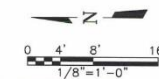
SUPPORT LEGEND:

- F FIXED SUPPORT
- S SLIDING SUPPORT

SUPPORT SPACING:

6" & 8" PIPE - 20'-0" MAX

1 AERATION BASINS INFLUENT CHANNEL & MIXING CHAMBER, PLAN
1/8" = 1'-0"



App.	
Revisions	
No.	Date

Freese And Nichols, Inc.
Job No. SWB14115

Asphalt

Date: OCT 2014
Designed by: IT
Drawn by: PEC
Checked by: HIC
Scale: AS SHOWN

CP&Y
CP&Y, INC.
TYPE FIRM NO. F-1741

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Houston, Texas 77027
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SAN ANTONIO
WATER SYSTEM

SAWS JOB NO. 13-6505
2013 LEON CREEK WRC REHABILITATION AND
PROCESS IMPROVEMENTS
AERATION BASINS INFLUENT CHANNEL
& MIXING CHAMBER - PLAN

App.	Freese And Nichols, Inc.
Job No.	SWB14115
Revisions	<p>1. 10/1/14</p> <p>2. 10/1/14</p>
Date	
No.	

Freese And Nichols, Inc.
 Job No. SWB14115

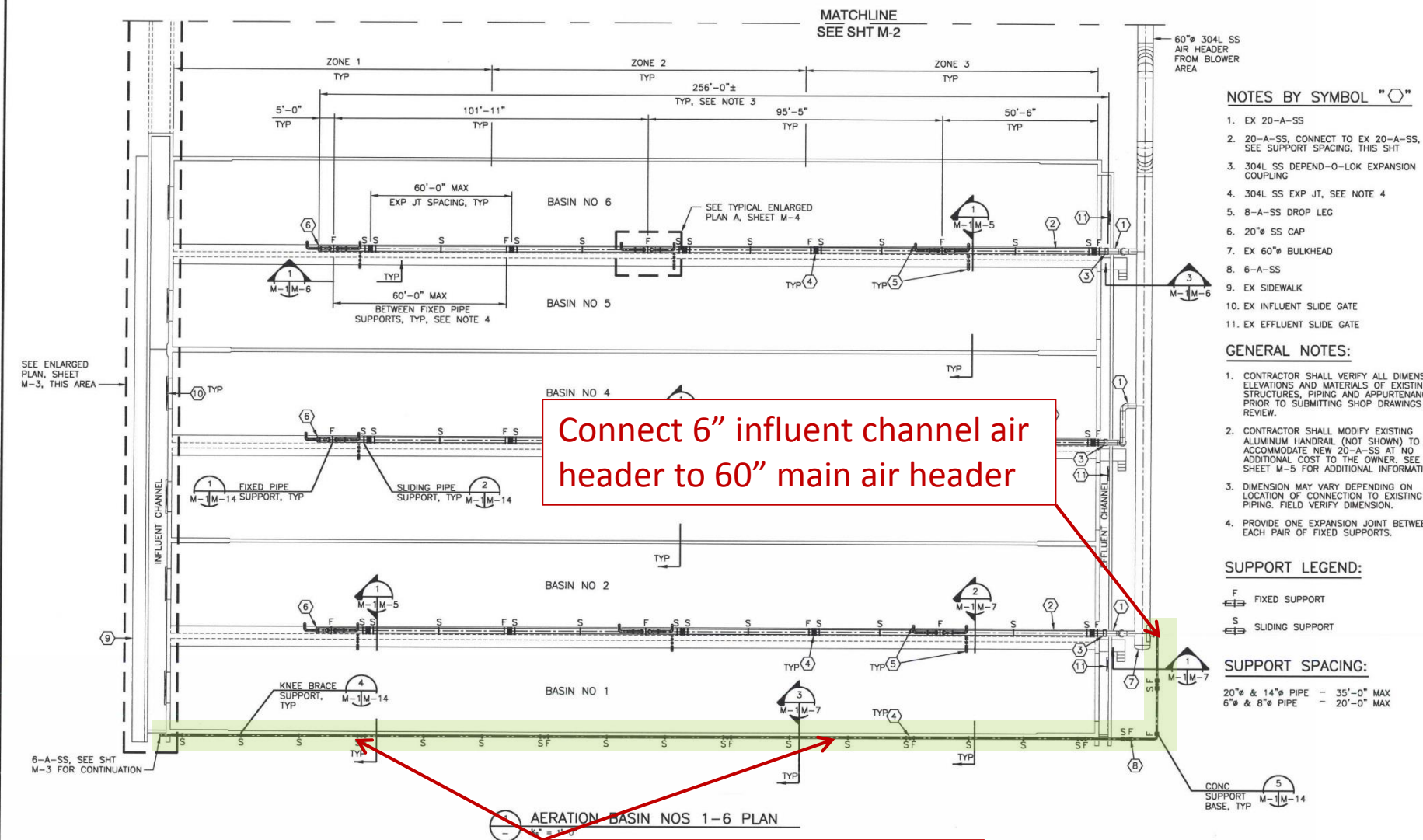
Date: OCT 2014
 Designed by: JTC
 Drawn by: PEC
 Checked by: LHC
 Scale: AS SHOWN

CP&I
 CONSTRUCTION PROJECTS & INSTALLATION
 TBPE FIRM NO. E47141

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 WATER SYSTEM

SAWS JOB NO. 13-6505
 2013 LEON CREEK WRC REHABILITATION AND
 PROCESS IMPROVEMENTS
 AERATION BASIN NOS 1-6
 PLAN

Sheet M-1



NOTES BY SYMBOL "○"

- EX 20-A-SS
- 20-A-SS, CONNECT TO EX 20-A-SS. SEE SUPPORT SPACING, THIS SHT
- 304L SS DEPEND-O-LOK EXPANSION COUPLING
- 304L SS EXP JT, SEE NOTE 4
- 8-A-SS DROP LEG
- 20" 304L SS CAP
- EX 60" 304L SS BULKHEAD
- 8-A-SS
- EX SIDEWALK
- EX INFLUENT SLIDE GATE
- EX EFFLUENT SLIDE GATE

GENERAL NOTES:

- CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND MATERIALS OF EXISTING STRUCTURES, PIPING AND APPURTENANCES PRIOR TO SUBMITTING SHOP DRAWINGS FOR REVIEW.
- CONTRACTOR SHALL MODIFY EXISTING ALUMINUM HANDRAIL (NOT SHOWN) TO ACCOMMODATE NEW 20-A-SS AT NO ADDITIONAL COST TO THE OWNER. SEE SHEET M-5 FOR ADDITIONAL INFORMATION.
- DIMENSION MAY VARY DEPENDING ON LOCATION OF CONNECTION TO EXISTING PIPING. FIELD VERIFY DIMENSION.
- PROVIDE ONE EXPANSION JOINT BETWEEN EACH PAIR OF FIXED SUPPORTS.

SUPPORT LEGEND:

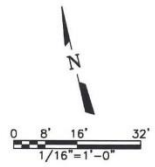
- F FIXED SUPPORT
- S SLIDING SUPPORT

SUPPORT SPACING:

- 20" & 14" PIPE - 35'-0" MAX
- 6" & 8" PIPE - 20'-0" MAX

Connect 6" influent channel air header to 60" main air header

Install 6" air header and supports



RAS Channel and Mixing Chamber Coarse Bubble Diffusers

The phasing of the coarse bubble diffuser work (Phase II and III) is contingent upon the temporary flow management plan submitted by the CONTRACTOR. The bypass plan included in Phases II and III represents a 50% bypass in order to replace half of the influent channel diffusers in each phase. A 100% bypass is also acceptable to replace all of the influent channel diffusers in one phase.

The CONTRACTOR may submit a different bypass plan for the replacement of the coarse bubble diffusers in conjunction with a temporary flow management plan, subject to approval by OWNER and ENGINEER.

50% Bypass Option

PHASE II – Influent Channel (Basins 9-15) and RAS Channel Coarse Bubble Diffusers

- 1) Plant Operation – Normal Operation with Basins 14 and 15 remaining out of service
- 2) Isolation
 - a) Temporary flow management: Pumped flow to basins 9-13 and gravity feed to basins 1-8 through the mixing chamber
 - b) Install stop logs/isolate flow between basins 8 and 9 at the existing location in the influent channel
 - c) Install (2) stop logs/isolate the aerated section of the RAS channel from the mixing chamber and influent channel
 - d) Dewater influent channel from basin 9 to 15 and aerated section of RAS channel
- 3) Demolition
 - a) Drop legs, supports, and appurtenances
 - b) Coarse bubble diffusers, piping, supports, and appurtenances
 - c) Plug existing connections to aeration basins air headers if still in service
 - d) Remove existing grit and rags at bottom of basin

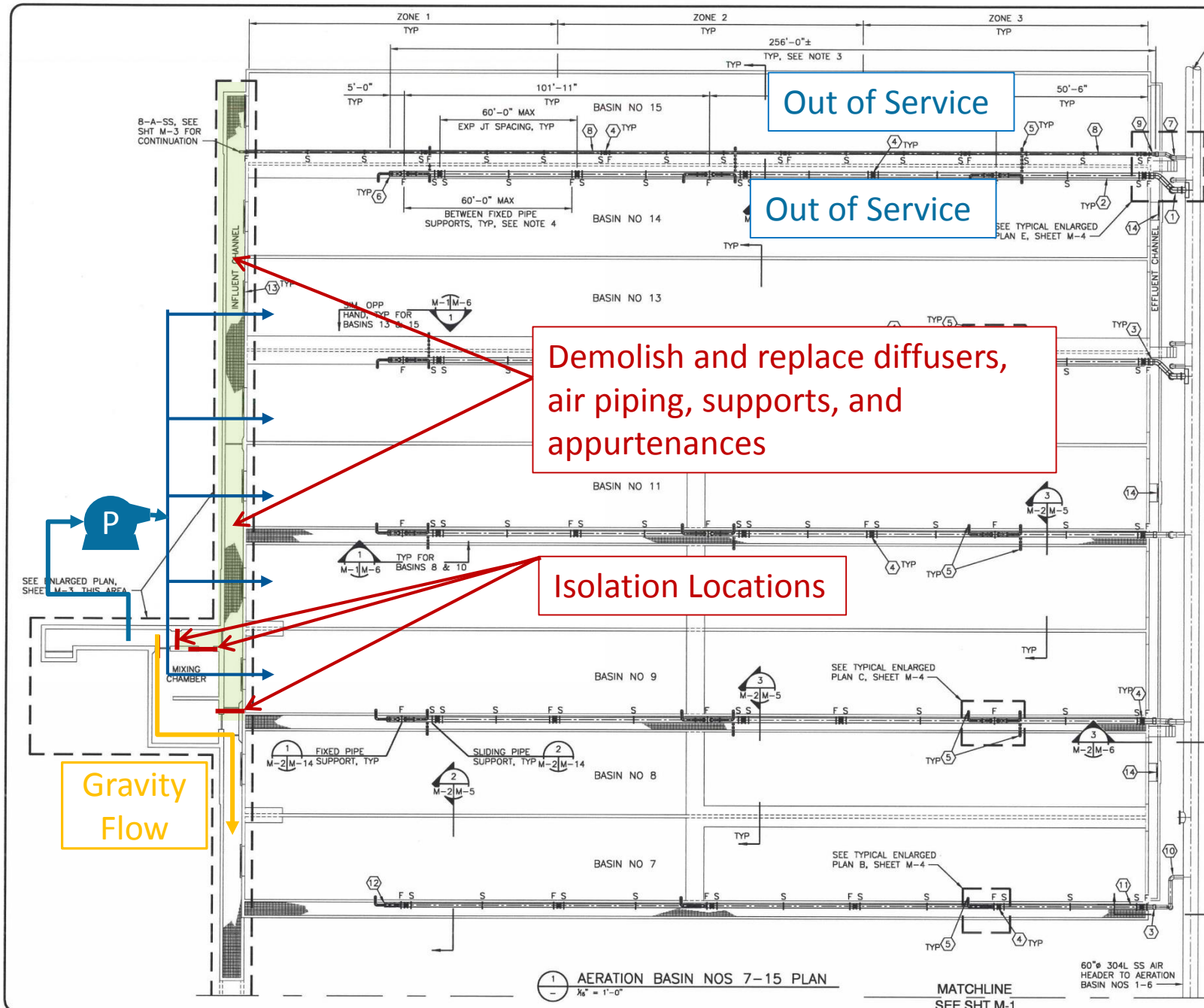
PHASE II – Influent Channel (Basins 9-15) and RAS Channel Coarse Bubble Diffusers

4) Installation/Repairs

- a) Repair existing concrete as needed
- b) Drop legs, supports, and appurtenances
- c) Coarse bubble diffusers, piping, supports, and appurtenances

5) Pre-Operation

- a) Testing of diffusers, piping, and valves
- b) Refill influent channel halfway using NPW system
- c) Remove isolation and temporary piping to allow gravity flow
- d) Bring basin 14 and 15 back in service and perform completion testing
- e) Cleanup



NOTES BY SYMBOL "○"

1. EX 20-A-SS
2. 20-A-SS, CONNECT TO EX 20-A-SS, SEE NOTE 4
3. 304L SS DEPEND-O-LOK EXPANSION COUPLING
4. 304L SS EXP JT
5. 8-A-SS DROP LEG
6. 20" SS CAP
7. EX 14-A-SS
8. 8-A-SS, DEDICATED AIR HEADER FOR INFLUENT CHANNEL, CONNECT TO EX 14-A-SS
9. 14"x8" REDUCER
10. EX 14-A-SS
11. 14-A-SS, CONNECT TO EX 14-A-SS
12. 14" SS CAP
13. EX INFLUENT SLIDE GATE
14. EX EFFLUENT SLIDE GATE

GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND MATERIALS OF EXISTING STRUCTURES, PIPING AND APPURTENANCES PRIOR TO SUBMITTING SHOP DRAWINGS FOR REVIEW.
2. CONTRACTOR SHALL MODIFY EXISTING ALUMINUM HANDRAIL (NOT SHOWN) TO ACCOMMODATE NEW 20-A-SS AT NO ADDITIONAL COST TO THE OWNER. SEE SHEET M-5 FOR ADDITIONAL INFORMATION.
3. DIMENSION MAY VARY DEPENDING ON LOCATION OF CONNECTION TO EXISTING PIPING. FIELD VERIFY DIMENSION.
4. PROVIDE ONE EXPANSION JOINT BETWEEN EACH PAIR OF FIXED SUPPORTS.

SUPPORT LEGEND:

- F FIXED SUPPORT
- S SLIDING SUPPORT

SUPPORT SPACING:

- 20" & 14" PIPE - 35'-0" MAX
- 6" & 8" PIPE - 20'-0" MAX

App.	Freese And Nichols, Inc.
Job No.	SWB14115
Revisions	<i>Step 14</i>
No.	Date

Date: OCT 2014
 Drawn by: PFC
 Checked by: HCC
 Scale: AS SHOWN

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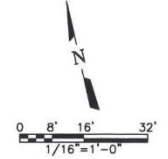
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SAN ANTONIO
 WATER SYSTEM

SAMS JOB NO. 13-6505
 2013 LEON CREEK WRC REHABILITATION AND
 PROCESS IMPROVEMENTS
 AERATION BASIN NOS 7-15
 PLAN

1 AERATION BASIN NOS 7-15 PLAN
 1/8" = 1'-0"

MATCHLINE
 SEE SHT M-1



PHASE III – Influent Channel (Basins 1-8) and Mixing Chamber Coarse Bubble Diffusers

- 1) Plant Operation – Normal Operation with basins 1 and 2 out of service (*Phase IV rehabilitation work may be completed simultaneously*)
- 2) Isolation
 - a) Temporary flow management: Pumped flow to basins 3-8 and gravity feed to basins 9-15 through the mixing chamber
 - b) Install stop logs/isolate flow between basins 8 and 9 at the existing location in the influent channel
 - c) Install (2) stop logs/isolate the mixing chamber from the RAS channel and influent channel
 - d) Dewater influent channel from basin 1 to 8 and mixing chamber
- 3) Demolition
 - a) Drop legs, supports, and appurtenances
 - b) Coarse bubble diffusers, piping, supports, and appurtenances
 - c) Plug existing connections to aeration basin air headers if still in service
 - d) Remove existing grit and rags at bottom of basin

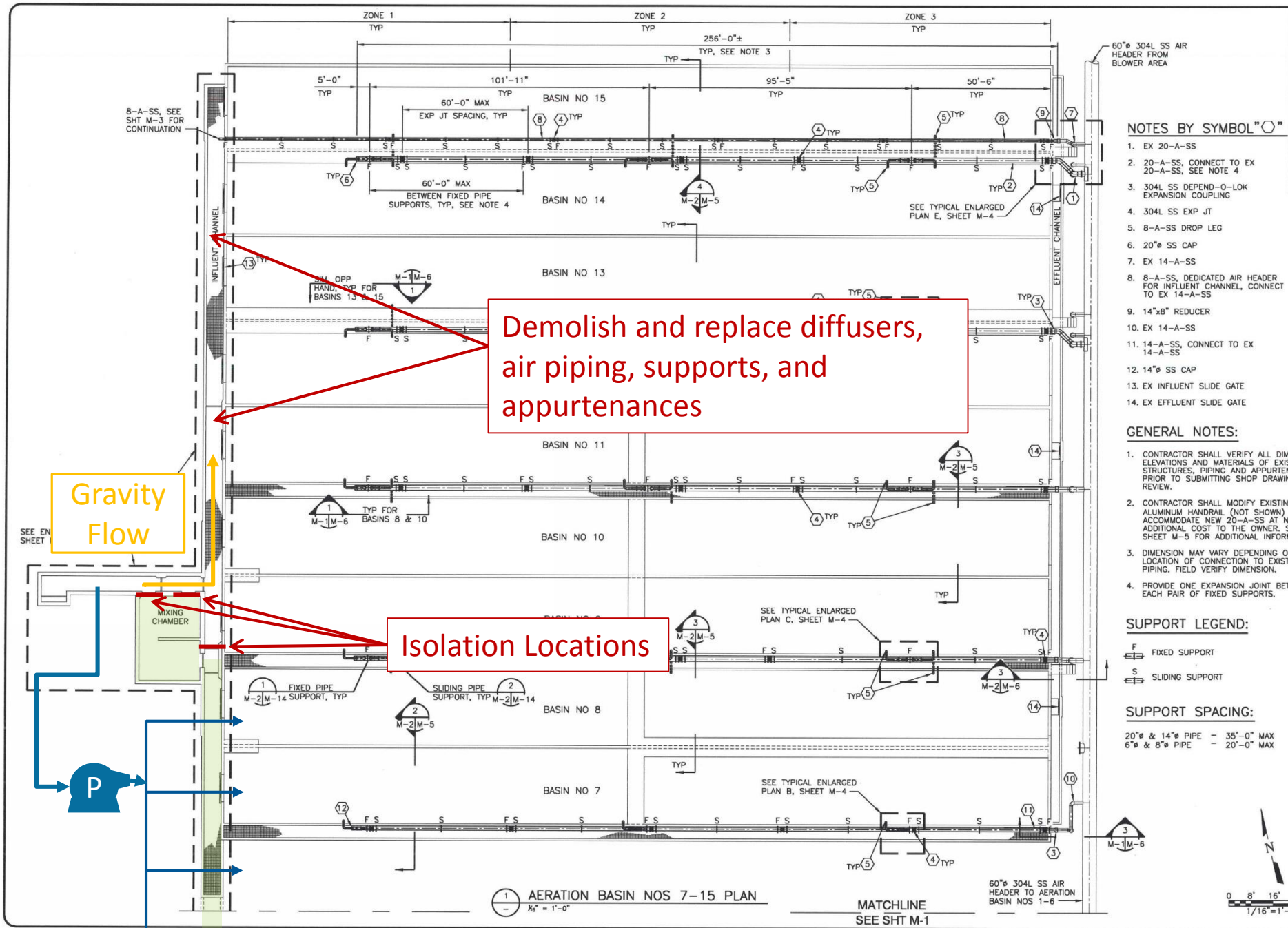
PHASE III – Influent Channel (Basins 1-8) and Mixing Chamber Coarse Bubble Diffusers

4) Installation/Repairs

- a) Repair existing concrete as needed
- b) Drop legs, supports, and appurtenances
- c) Coarse bubble diffusers, piping, supports, and appurtenances

5) Pre-Operation

- a) Testing of diffusers, piping, and valves
- b) Refill influent channel and mixing chamber halfway using NPW system
- c) Remove isolation and temporary piping to allow gravity flow
- d) Cleanup



Demolish and replace diffusers, air piping, supports, and appurtenances

Gravity Flow

Isolation Locations

NOTES BY SYMBOL "O"

- EX 20-A-SS
- 20-A-SS, CONNECT TO EX 20-A-SS, SEE NOTE 4
- 304L SS DEPEND-O-LOK EXPANSION COUPLING
- 304L SS EXP JT
- 8-A-SS DROP LEG
- 20" SS CAP
- EX 14-A-SS
- 8-A-SS, DEDICATED AIR HEADER FOR INFLUENT CHANNEL, CONNECT TO EX 14-A-SS
- 14"x8" REDUCER
- EX 14-A-SS
- 14-A-SS, CONNECT TO EX 14-A-SS
- 14" SS CAP
- EX INFLUENT SLIDE GATE
- EX EFFLUENT SLIDE GATE

GENERAL NOTES:

- CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND MATERIALS OF EXISTING STRUCTURES, PIPING AND APPURTENANCES PRIOR TO SUBMITTING SHOP DRAWINGS FOR REVIEW.
- CONTRACTOR SHALL MODIFY EXISTING ALUMINUM HANDRAIL (NOT SHOWN) TO ACCOMMODATE NEW 20-A-SS AT NO ADDITIONAL COST TO THE OWNER. SEE SHEET M-5 FOR ADDITIONAL INFORMATION.
- DIMENSION MAY VARY DEPENDING ON LOCATION OF CONNECTION TO EXISTING PIPING. FIELD VERIFY DIMENSION.
- PROVIDE ONE EXPANSION JOINT BETWEEN EACH PAIR OF FIXED SUPPORTS.

SUPPORT LEGEND:

- F FIXED SUPPORT
- S SLIDING SUPPORT

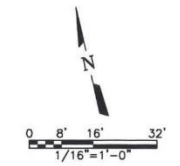
SUPPORT SPACING:


- 20" & 14" PIPE - 35'-0" MAX
- 6" & 8" PIPE - 20'-0" MAX

1 AERATION BASIN NOS 7-15 PLAN
1/8" = 1'-0"

MATCHLINE
SEE SHT M-1

60" 304L SS AIR HEADER TO AERATION BASIN NOS 1-6

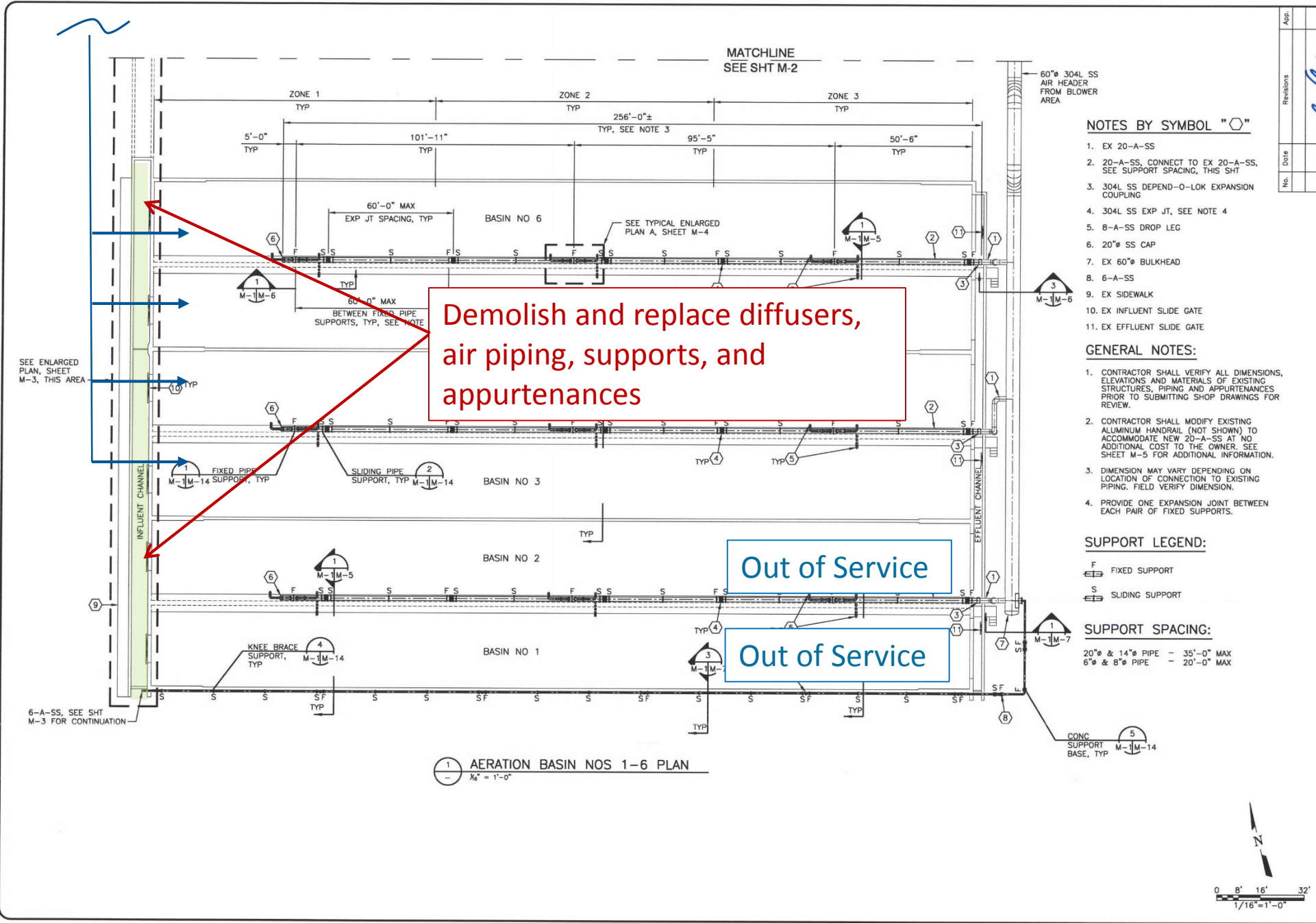


App.	Freese And Nichols, Inc.
Job No.	SWB14115
Revisions	
No.	Date

Date: OCT 2014
 Designed by: TJC
 Drawn by: PEC
 Checked by: JIC
 Score: AS SHOWN



SAWS JOB NO. 13-6505
 2013 LEON CREEK WRC REHABILITATION AND
 PROCESS IMPROVEMENTS
 AERATION BASIN NOS 1-6
 PLAN



MATCHLINE
SEE SHT M-2

NOTES BY SYMBOL "○"

- EX 20-A-SS
- 20-A-SS, CONNECT TO EX 20-A-SS, SEE SUPPORT SPACING, THIS SHT
- 304L SS DEPEND-O-LOK EXPANSION COUPLING
- 304L SS EXP JT, SEE NOTE 4
- 8-A-SS DROP LEG
- 20" SS CAP
- EX 60" BULKHEAD
- 6-A-SS
- EX SIDEWALK
- EX INFLUENT SLIDE GATE
- EX EFFLUENT SLIDE GATE

GENERAL NOTES:

- CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND MATERIALS OF EXISTING STRUCTURES, PIPING AND APPURTENANCES PRIOR TO SUBMITTING SHOP DRAWINGS FOR REVIEW.
- CONTRACTOR SHALL MODIFY EXISTING ALUMINUM HANDRAIL (NOT SHOWN) TO ACCOMMODATE NEW 20-A-SS AT NO ADDITIONAL COST TO THE OWNER. SEE SHEET M-5 FOR ADDITIONAL INFORMATION.
- DIMENSION MAY VARY DEPENDING ON LOCATION OF CONNECTION TO EXISTING PIPING. FIELD VERIFY DIMENSION.
- PROVIDE ONE EXPANSION JOINT BETWEEN EACH PAIR OF FIXED SUPPORTS.

SUPPORT LEGEND:

- F FIXED SUPPORT
- S SLIDING SUPPORT

SUPPORT SPACING:

- 20" & 14" PIPE - 35'-0" MAX
- 6" & 8" PIPE - 20'-0" MAX

Demolish and replace diffusers,
air piping, supports, and
appurtenances

Out of Service

Out of Service

1 AERATION BASIN NOS 1-6 PLAN
 1/8" = 1'-0"

100% Bypass Option

PHASE II/III – Influent Channel, RAS Channel, and Mixing Chamber Diffusers

- 1) Plant Operation – Normal Operation with basins 14 and 15 remaining out of service
- 2) Isolation
 - a) Temporary flow management: Pumped flow to basins 1-13
 - b) Install stop logs/isolate flow at upstream of diffusers in RAS channel
 - c) Dewater influent channel, RAS channel, and mixing chamber
- 3) Demolition
 - a) Drop legs, supports, and appurtenances
 - b) Coarse bubble diffusers, piping, supports, and appurtenances
 - c) Plug existing connections to aeration basin air headers if still in service
 - d) Remove existing grit and rags at bottom of basin

PHASE II/III – Influent Channel, RAS Channel, and Mixing Chamber Diffusers

4) Installation/Repairs

- a) Repair existing concrete as needed
- b) Drop legs, supports, and appurtenances
- c) Coarse bubble diffusers, piping, supports, and appurtenances

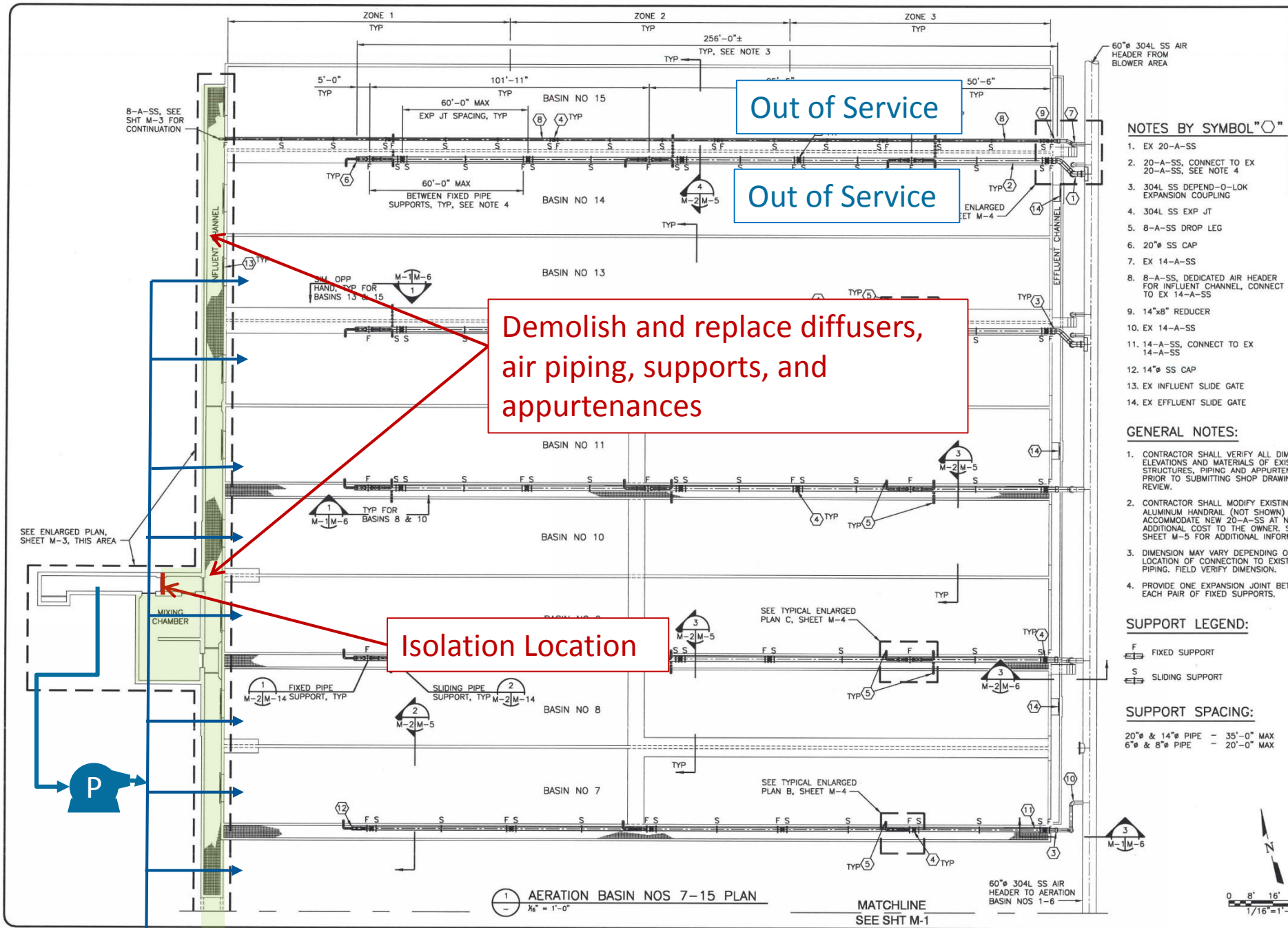
5) Pre-Operation

- a) Testing of diffusers, piping, and valves
- b) Refill influent channel, RAS channel, and mixing chamber halfway using NPW system
- c) Remove isolation and temporary piping to allow gravity flow
- d) Cleanup

Date: OCT 2014
Designed by: TT
Drawn by: PEC
Checked by: HCC
Scale: AS SHOWN

CP&Y
CP&Y, INC.
TBE FIRM NO. 14741

FRESE AND NICHOLS
SAN ANTONIO
WATER SYSTEM



Out of Service

Out of Service

Demolish and replace diffusers,
air piping, supports, and
appurtenances

Isolation Location

NOTES BY SYMBOL "O"

- EX 20-A-SS
- 20-A-SS, CONNECT TO EX 20-A-SS, SEE NOTE 4
- 304L SS DEPEND-O-LOK EXPANSION COUPLING
- 304L SS EXP JT
- 8-A-SS DROP LEG
- 20" SS CAP
- EX 14-A-SS
- 8-A-SS, DEDICATED AIR HEADER FOR INFLUENT CHANNEL, CONNECT TO EX 14-A-SS
- 14"x8" REDUCER
- EX 14-A-SS
- 14-A-SS, CONNECT TO EX 14-A-SS
- 14" SS CAP
- EX INFLUENT SLIDE GATE
- EX EFFLUENT SLIDE GATE

GENERAL NOTES:

- CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND MATERIALS OF EXISTING STRUCTURES, PIPING AND APPURTENANCES PRIOR TO SUBMITTING SHOP DRAWINGS FOR REVIEW.
- CONTRACTOR SHALL MODIFY EXISTING ALUMINUM HANDRAIL (NOT SHOWN) TO ACCOMMODATE NEW 20-A-SS AT NO ADDITIONAL COST TO THE OWNER, SEE SHEET M-5 FOR ADDITIONAL INFORMATION.
- DIMENSION MAY VARY DEPENDING ON LOCATION OF CONNECTION TO EXISTING PIPING, FIELD VERIFY DIMENSION.
- PROVIDE ONE EXPANSION JOINT BETWEEN EACH PAIR OF FIXED SUPPORTS.

SUPPORT LEGEND:

- F FIXED SUPPORT
- S SLIDING SUPPORT

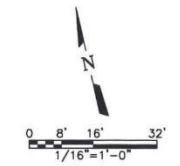
SUPPORT SPACING:


- 20" & 14" PIPE - 35'-0" MAX
- 6" & 8" PIPE - 20'-0" MAX

1 AERATION BASIN NOS 7-15 PLAN
1/8" = 1'-0"

MATCHLINE
SEE SHT M-1

60" 304L SS AIR
HEADER TO AERATION
BASIN NOS 1-6




App.	Freese And Nichols, Inc.
Job No.	SWB14115
Revisions	
No.	Date

Date: OCT 2014
 Designed by: TL
 Drawn by: PEC
 Checked by: JIC
 Score: AS SHOWN

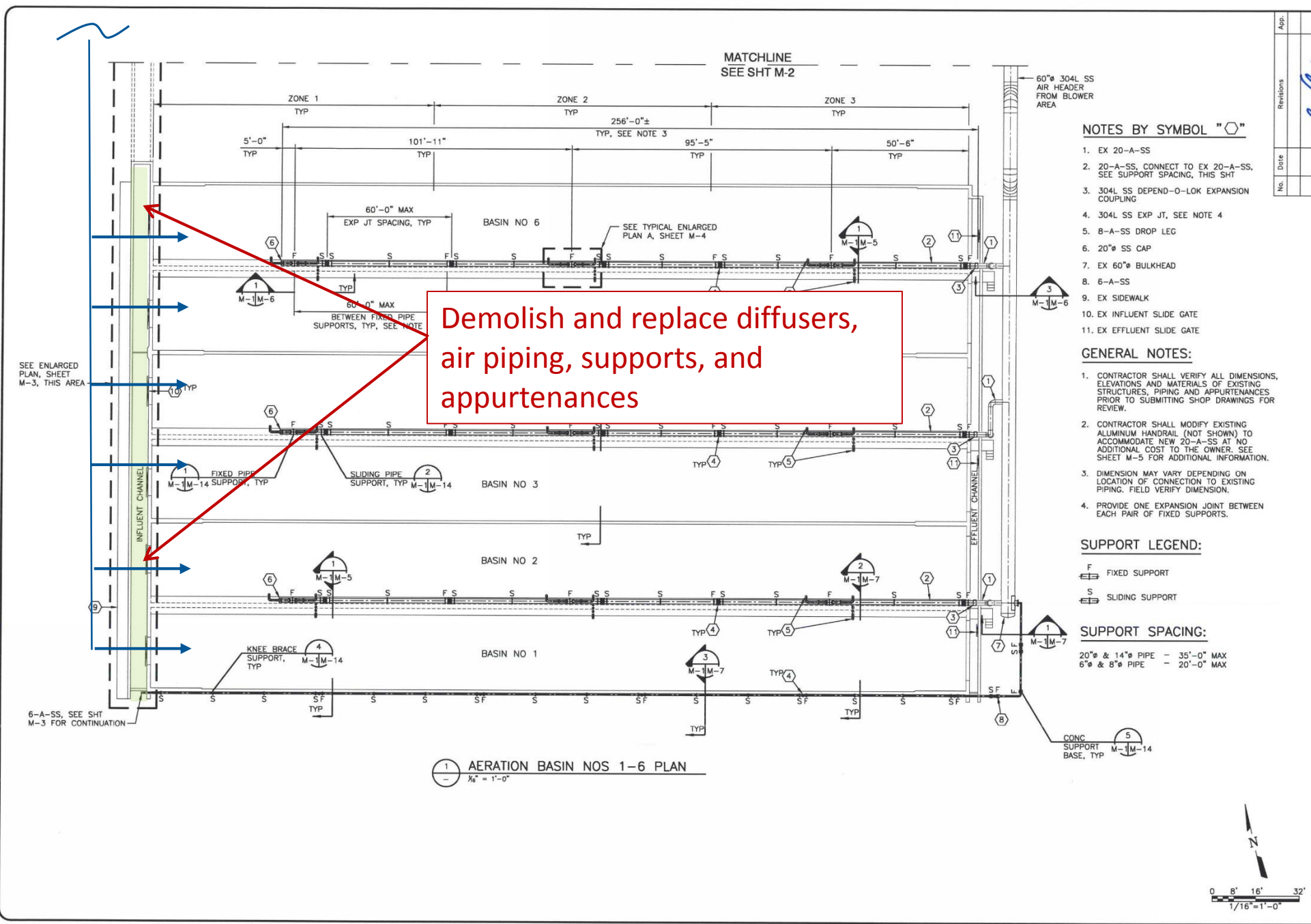

 CP&Y, Inc.
 TBPE FIRM NO. F-1741


 FREESE AND NICHOLS
 5005 Broadway Street, Suite 600
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 Phone: (214) 726-2000
 Fax: (214) 726-2801


 SAN ANTONIO
 WATER SYSTEM

SAWS JOB NO. 13-6505
 2013 LEON CREEK WRC REHABILITATION AND
 PROCESS IMPROVEMENTS
 AERATION BASIN NOS 1-6
 PLAN

Sheet M-1



NOTES BY SYMBOL "○"

- EX 20-A-SS
- 20-A-SS, CONNECT TO EX 20-A-SS, SEE SUPPORT SPACING, THIS SHT
- 304L SS DEPEND-O-LOK EXPANSION COUPLING
- 304L SS EXP JT, SEE NOTE 4
- 8-A-SS DROP LEG
- 20" SS CAP
- EX 60° BULKHEAD
- 6-A-SS
- EX SIDEWALK
- EX INFLUENT SLIDE GATE
- EX EFFLUENT SLIDE GATE

GENERAL NOTES:

- CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND MATERIALS OF EXISTING STRUCTURES, PIPING AND APPURTENANCES PRIOR TO SUBMITTING SHOP DRAWINGS FOR REVIEW.
- CONTRACTOR SHALL MODIFY EXISTING ALUMINUM HANDRAIL (NOT SHOWN) TO ACCOMMODATE NEW 20-A-SS AT NO ADDITIONAL COST TO THE OWNER, SEE SHEET M-5 FOR ADDITIONAL INFORMATION.
- DIMENSION MAY VARY DEPENDING ON LOCATION OF CONNECTION TO EXISTING PIPING. FIELD VERIFY DIMENSION.
- PROVIDE ONE EXPANSION JOINT BETWEEN EACH PAIR OF FIXED SUPPORTS.

SUPPORT LEGEND:

- F FIXED SUPPORT
- S SLIDING SUPPORT

SUPPORT SPACING:

- 20" & 14" PIPE - 35'-0" MAX
- 6" & 8" PIPE - 20'-0" MAX

Demolish and replace diffusers, air piping, supports, and appurtenances

1 AERATION BASIN NOS 1-6 PLAN
 1/8" = 1'-0"

PHASE IV – Basins 1-2

- 1) Plant Operation – Normal Operation with basins 1 and 2 out of service.
Rehabilitation work may start during Phase III if approved by Owner.
- 2) Isolation
 - a) Keep slide gates up on basins 1 and 2 located on the west side of the basins
 - b) Close the (1) isolation valve on the aeration basin combined header (20-in)
 - c) Dewater basins to primary clarifier effluent structure
- 3) Demolition
 - a) 20-in air header from isolation valve to existing drop legs
 - b) Drop legs to basins, salvage existing butterfly valves and D.O. probes
 - c) Fine bubble diffusers and associated piping and appurtenances
 - d) Remove existing grit and rags at bottom of basin

PHASE IV – Basins 1-2

4) Installation/Repairs

- a) Repair existing concrete as needed
- b) Install basin air headers and supports
- c) Install drop legs and appurtenances
- d) Install fine bubble diffusers and associated piping
- e) Install D.O. probes and supports
- f) Refill basins per Special Constraint Note #10

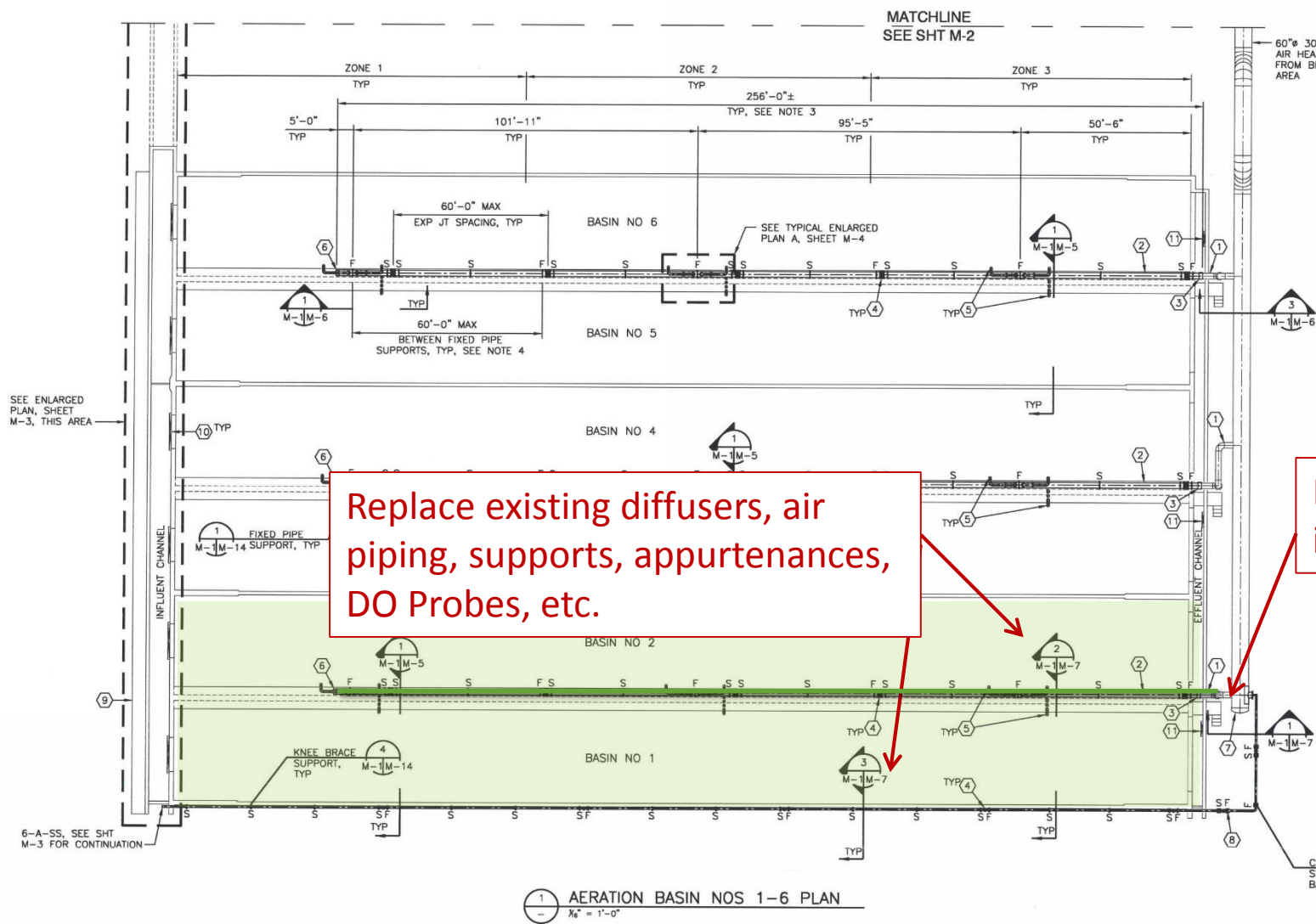
5) Pre-Operation

- a) Testing and operational checks of new diffusers, piping, and valves
- b) Cleanup

Date: OCT 2014
 Designed by: TT
 Drawn by: PEC
 Checked by: HJC
 Scale: AS SHOWN

CP&I
 CONSULTING PROFESSIONALS
 TYPE PERM NO. 17141

FRESE AND NICHOLS
 ENGINEERS AND ARCHITECTS
 1000 W. 10TH STREET
 SUITE 200
 DENVER, CO 80202



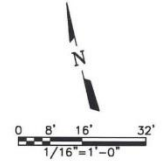
- NOTES BY SYMBOL "○"**
- EX 20-A-SS
 - 20-A-SS, CONNECT TO EX 20-A-SS, SEE SUPPORT SPACING, THIS SHT
 - 304L SS DEPEND-O-LOK EXPANSION COUPLING
 - 304L SS EXP JT, SEE NOTE 4
 - 8-A-SS DROP LEG
 - 20" SS CAP
 - EX 60" BULKHEAD
 - 6-A-SS
 - EX SIDEWALK
 - EX INFLUENT SLIDE GATE
 - EX EFFLUENT SLIDE GATE
- GENERAL NOTES:**
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND MATERIALS OF EXISTING STRUCTURES, PIPING AND APPURTENANCES PRIOR TO SUBMITTING SHOP DRAWINGS FOR REVIEW.

Replace existing diffusers, air piping, supports, appurtenances, DO Probes, etc.

Replace 20-inch air header at isolation valve

- SUPPORT LEGEND:**
- F FIXED SUPPORT
 - S SLIDING SUPPORT
- SUPPORT SPACING:**
- 20" & 14" PIPE - 35'-0" MAX
 - 6" & 8" PIPE - 20'-0" MAX

1 AERATION BASIN NOS 1-6 PLAN
 1/8" = 1'-0"



PHASE V – Basins 12-13

- 1) Plant Operation – Normal Operation with basins 12 and 13 out of service.
- 2) Isolation
 - a) Raise slide gates up on basins 12 and 13 located on the west side of the basins
 - b) Close the (2) isolation valves on the aeration basin headers (14-in)
 - c) Dewater basins to primary clarifier effluent structure
- 3) Demolition
 - a) 14-in air header from isolation valve to existing drop legs
 - b) Drop legs to basins, salvage existing butterfly valves and D.O. probes
 - c) Fine bubble diffusers and associated piping and appurtenances
 - d) Remove existing grit and rags at bottom of basin

PHASE V – Basins 12-13

4) Installation/Repairs

a) 20" welded flanged outlet on 60" main air header

- I. Shutdown air blower system
- II. Weld flanged outlet – 4 hours – END WORK
- III. Turn air blowers back on
- IV. Shutdown air blower system - NEXT DAY
- V. Cut 20" hole through 60" air header
- VI. Install closed isolation valve – 4 hours – END WORK

b) Repair existing concrete as needed

c) Install basin air headers and supports

d) Install drop legs and appurtenances

e) Install fine bubble diffusers and associated piping

f) Install D.O. probes and supports

g) Refill basins per Special Constraint Note #10

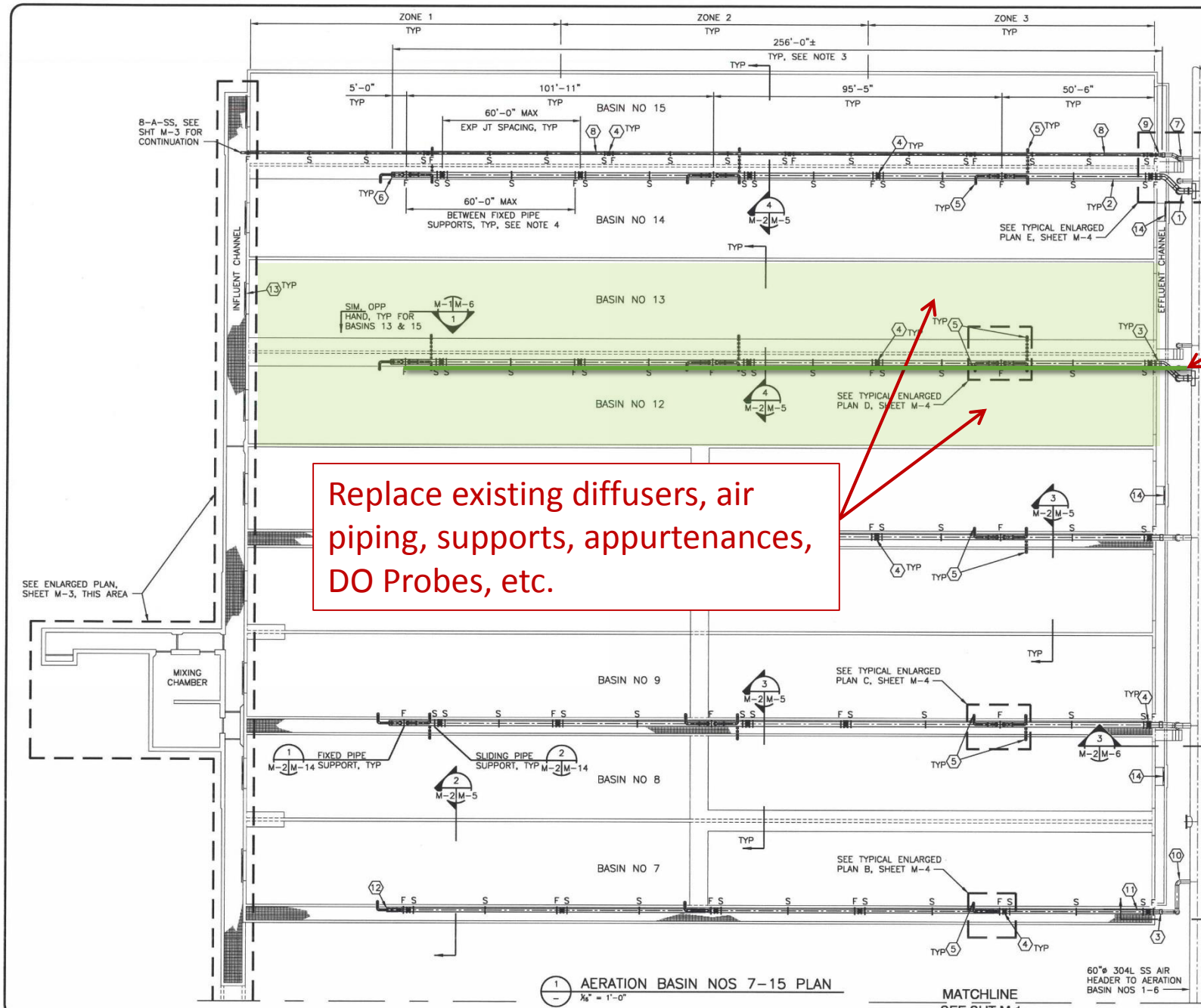
5) Pre-Operation

a) Testing and operational checks of new diffusers, piping, and valves

b) Cleanup

Install 20" air header and supports and demolish existing 14" headers

Replace existing diffusers, air piping, supports, appurtenances, DO Probes, etc.



- 1. EXPANSION COUPLING
- 4. 304L SS EXP JT
- 5. 8-A-SS DROP LEG
- 6. 20" SS CAP
- 7. EX 14-A-SS
- 8. 8-A-SS DEDICATED AIR HEADER FOR INFLUENT CHANNEL, CONNECT TO EX 14-A-SS
- 9. 14"x8" REDUCER
- 10. EX 14-A-SS
- 11. 14-A-SS, CONNECT TO EX 14-A-SS
- 12. 14" SS CAP
- 13. EX INFLUENT SLIDE GATE
- 14. EX EFFLUENT SLIDE GATE

GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND MATERIALS OF EXISTING STRUCTURES, PIPING AND APPURTENANCES PRIOR TO SUBMITTING SHOP DRAWINGS FOR REVIEW.
2. CONTRACTOR SHALL MODIFY EXISTING ALUMINUM HANDRAIL (NOT SHOWN) TO ACCOMMODATE NEW 20"-A-SS AT NO ADDITIONAL COST TO THE OWNER. SEE SHEET M-5 FOR ADDITIONAL INFORMATION.
3. DIMENSION MAY VARY DEPENDING ON LOCATION OF CONNECTION TO EXISTING PIPING. FIELD VERIFY DIMENSION.
4. PROVIDE ONE EXPANSION JOINT BETWEEN EACH PAIR OF FIXED SUPPORTS.

SUPPORT LEGEND:

- F FIXED SUPPORT
- S SLIDING SUPPORT

SUPPORT SPACING:

- 20" & 14" PIPE - 35'-0" MAX
- 6" & 8" PIPE - 20'-0" MAX

Date: OCT 2014
 Drawn by: JTC
 Checked by: HCC
 Scale: AS SHOWN

CP&I
 CIVIL & PROCESS
 11000 N. LOOP WEST, SUITE 1000
 HOUSTON, TEXAS 77040
 PH: 281.240.2000
 FAX: 281.240.2000

FN FREESE AND NICHOLS
 SAN ANTONIO
 WATER SYSTEM

SAN ANTONIO
 WATER SYSTEM
 AERATION BASIN NOS 7-15
 PLAN

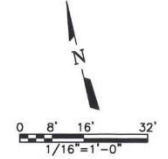
SAWS JOB NO. 13-6505
 2013 LEON CREEK WRC REHABILITATION AND
 PROCESS IMPROVEMENTS
 AERATION BASIN NOS 7-15
 PLAN

Sheet M-2

1 AERATION BASIN NOS 7-15 PLAN
 1/8" = 1'-0"

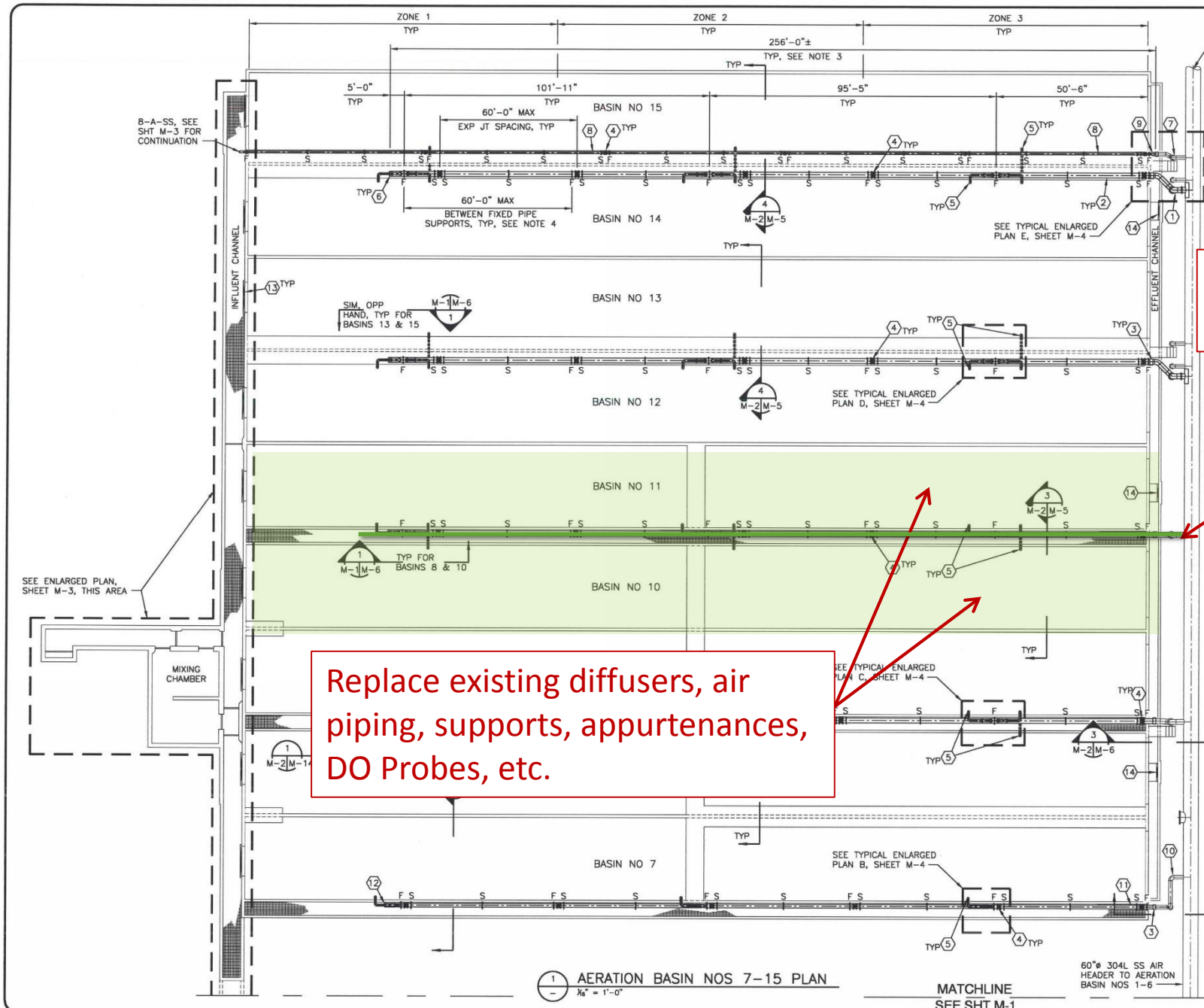
MATCHLINE
 SEE SHT M-1

60" 304L SS AIR
 HEADER TO AERATION
 BASIN NOS 1-6



PHASE VI – Basins 10-11

- 1) Plant Operation – Normal Operation with basins 10 and 11 out of service.
- 2) Isolation
 - a) Similar to Phase IV “Isolation” for basins 10-11
- 3) Demolition
 - a) Similar to Phase IV “Demolition” for basins 10-11
- 4) Installation/Repairs
 - a) Similar to Phase IV “Installation/Repairs” for basins 10-11
- 5) Pre-Operation
 - a) Similar to Phase IV “Pre-Operation” for basins 10-11



Freese And Nichols, Inc.
Job No. SWB14115

Revisions: [Handwritten: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100]

DATE: 11/20/14
BY: JHC
CHECKED BY: JHC
DESIGNED BY: JHC
DRAWN BY: JHC

Install 20" air header and supports

Replace existing diffusers, air piping, supports, appurtenances, DO Probes, etc.

NOTES BY SYMBOL "○"

- EX 20-A-SS
- 20-A-SS, CONNECT TO EX 20-A-SS, SEE NOTE 4
- 304L SS DEPEND-O-LOK EXPANSION COUPLING
- 304L SS EXP JT
- 8-A-SS PROP LCP

- EX 14-A-SS
- 14-A-SS, CONNECT TO EX 14-A-SS
- 14" SS CAP
- EX INFLUENT SLIDE GATE
- EX EFFLUENT SLIDE GATE

GENERAL NOTES:

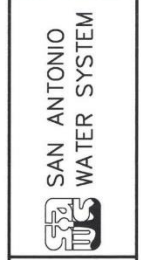
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND MATERIALS OF EXISTING STRUCTURES, PIPING AND APPURTENANCES PRIOR TO SUBMITTING SHOP DRAWINGS FOR REVIEW.
- CONTRACTOR SHALL MODIFY EXISTING ALUMINUM HANDRAIL (NOT SHOWN) TO ACCOMMODATE NEW 20-A-SS AT NO ADDITIONAL COST TO THE OWNER. SEE SHEET M-5 FOR ADDITIONAL INFORMATION.
- DIMENSION MAY VARY DEPENDING ON LOCATION OF CONNECTION TO EXISTING PIPING. FIELD VERIFY DIMENSION.
- PROVIDE ONE EXPANSION JOINT BETWEEN EACH PAIR OF FIXED SUPPORTS.

SUPPORT LEGEND:

- F FIXED SUPPORT
- S SLIDING SUPPORT

SUPPORT SPACING:

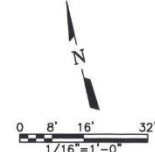
- 20" & 14" PIPE - 35'-0" MAX
- 6" & 8" PIPE - 20'-0" MAX



SAMS JOB NO. 13-6505
2013 LEON CREEK WRC REHABILITATION AND PROCESS IMPROVEMENTS
AERATION BASIN NOS 7-15
PLAN

1 AERATION BASIN NOS 7-15 PLAN
1/8" = 1'-0"

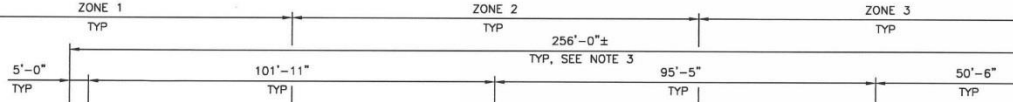
MATCHLINE
SEE SHT M-1



PHASE VIII – Basin 3-4

- 1) Plant Operation – Normal Operation with basins 3-4 out of service.
- 2) Isolation
 - a) Similar to Phase IV “Isolation” for basins 3-4
- 3) Demolition
 - a) Similar to Phase IV “Demolition” for basins 3-4
- 4) Installation/Repairs
 - a) Similar to Phase IV “Installation/Repairs” for basins 3-4
- 5) Pre-Operation
 - a) Similar to Phase IV “Pre-Operation” for basins 3-4

MATCHLINE
 SEE SHT M-2

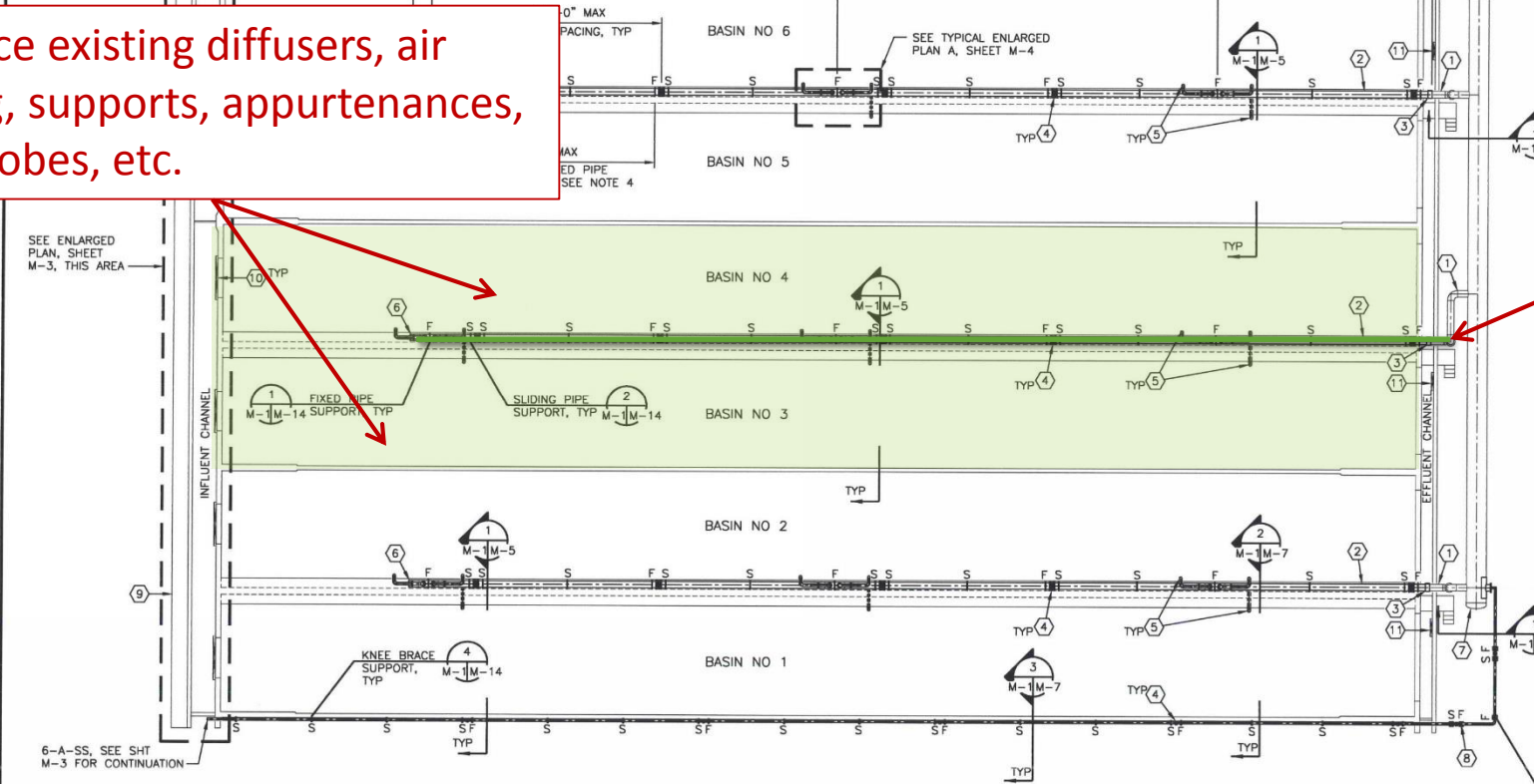


NOTES BY SYMBOL "○"

- EX 20-A-SS
- 20-A-SS, CONNECT TO EX 20-A-SS, SEE SUPPORT SPACING, THIS SHT
- 304L SS DEPEND-O-LOK EXPANSION COUPLING

Replace existing diffusers, air piping, supports, appurtenances, DO Probes, etc.

Replace 20" air header and supports



GENERAL NOTES:

- CONTRACTOR SHALL VERIFY ALL DIMENSIONS, FIXATIONS AND MATERIALS OF EXISTING STRUCTURES, PIPING AND APPURTENANCES PRIOR TO SUBMITTING SHOP DRAWINGS FOR REVIEW.
- CONTRACTOR SHALL MODIFY EXISTING ALUMINUM HANDRAIL (NOT SHOWN) TO ACCOMMODATE NEW 20-A-SS AT NO ADDITIONAL COST TO THE OWNER, SEE SHEET M-5 FOR ADDITIONAL INFORMATION.
- DIMENSION MAY VARY DEPENDING ON LOCATION OF CONNECTION TO EXISTING PIPING. FIELD VERIFY DIMENSION.
- PROVIDE ONE EXPANSION JOINT BETWEEN EACH PAIR OF FIXED SUPPORTS.

SUPPORT LEGEND:

- F FIXED SUPPORT
- S SLIDING SUPPORT

SUPPORT SPACING:

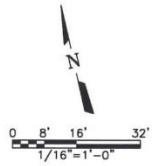
- 20" & 14" PIPE - 35'-0" MAX
- 6" & 8" PIPE - 20'-0" MAX

1 AERATION BASIN NOS 1-6 PLAN
 1/8" = 1'-0"



SAN ANTONIO
 WATER SYSTEM

SAWS JOB NO. 13-6505
 2013 LEON CREEK WRC REHABILITATION AND
 PROCESS IMPROVEMENTS
 AERATION BASIN NOS 1-6
 PLAN

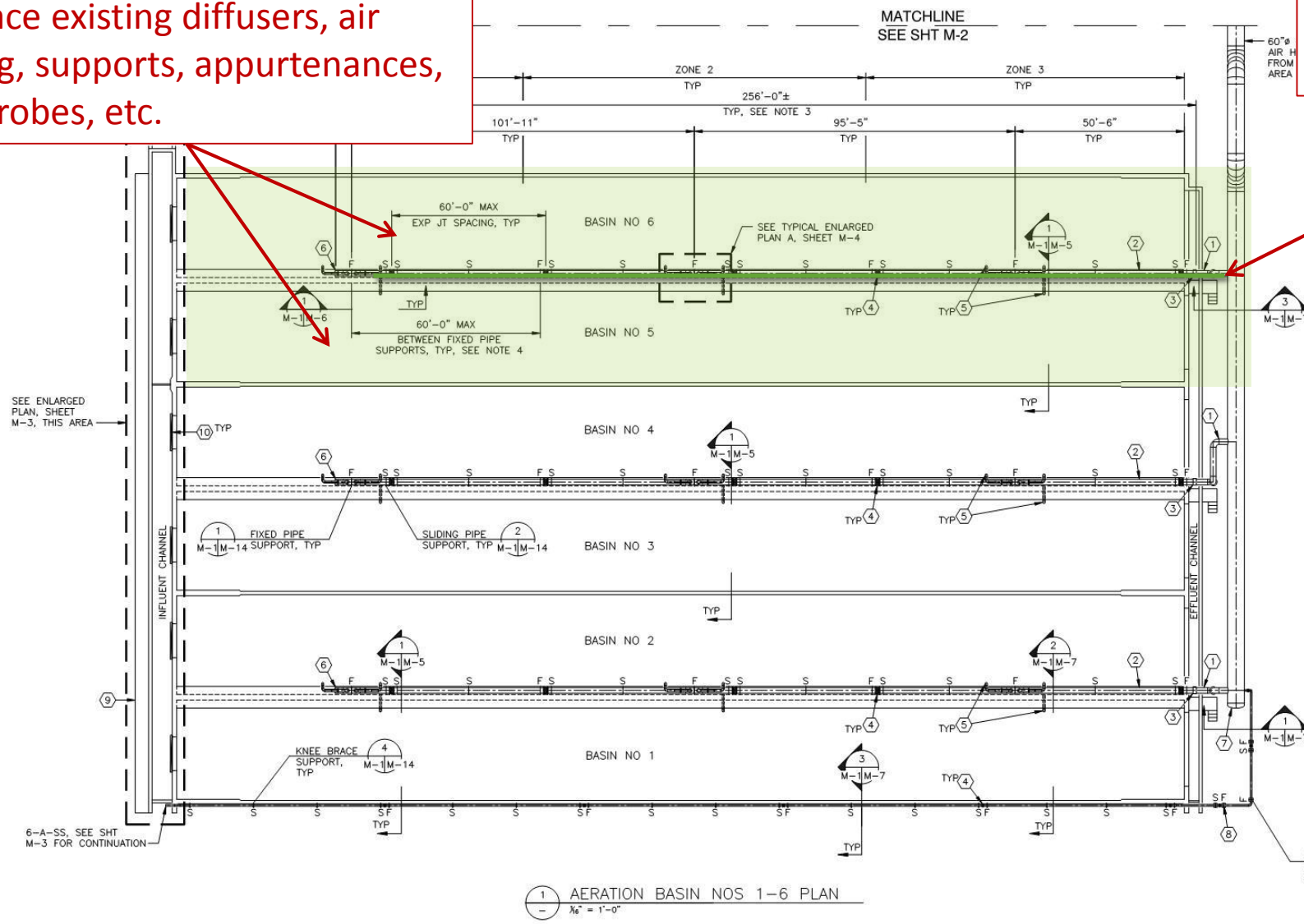


PHASE VII – Basins 5-6

- 1) Plant Operation – Normal Operation with basins 5 and 6 out of service.
- 2) Isolation
 - a) Similar to Phase IV “Isolation” for basins 5-6
- 3) Demolition
 - a) Similar to Phase IV “Demolition” for basins 5-6
- 4) Installation/Repairs
 - a) Similar to Phase IV “Installation/Repairs” for basins 5-6
- 5) Pre-Operation
 - a) Similar to Phase IV “Pre-Operation” for basins 5-6

Replace existing diffusers, air piping, supports, appurtenances, DO Probes, etc.

Replace 20" air header and supports



NOTES BY SYMBOL "○"

1. EX 20-A-SS
2. 20-A-SS, CONNECT TO EX 20-A-SS, SEE SUPPORT SPACINGS, THIS SHT
3. 304L SS DEPEND-O-LOK EXPANSION COUPLING
4. 304L SS EXP JT, SEE NOTE 4
5. 8-A-SS DROP LEG
6. 20" SS CAP
7. EX 60" BULKHEAD
8. 6-A-SS
9. EX SIDEWALK
10. EX INFLUENT SLIDE GATE
11. EX EFFLUENT SLIDE GATE

GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND MATERIALS OF EXISTING STRUCTURES, PIPING AND APPURTENANCES PRIOR TO SUBMITTING SHOP DRAWINGS FOR REVIEW.
2. CONTRACTOR SHALL MODIFY EXISTING ALUMINUM HANDRAIL (NOT SHOWN) TO ACCOMMODATE NEW 20-A-SS AT NO ADDITIONAL COST TO THE OWNER. SEE SHEET M-5 FOR ADDITIONAL INFORMATION.
3. DIMENSION MAY VARY DEPENDING ON LOCATION OF CONNECTION TO EXISTING PIPING. FIELD VERIFY DIMENSION.
4. PROVIDE ONE EXPANSION JOINT BETWEEN EACH PAIR OF FIXED SUPPORTS.

SUPPORT LEGEND:

- F FIXED SUPPORT
- S SLIDING SUPPORT

SUPPORT SPACING:

- 20" & 14" PIPE - 35'-0" MAX
- 6" & 8" PIPE - 20'-0" MAX

No.	Date

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Date: AUG. 2014
 Designed by: JTC
 Drawn by: PCC
 Checked by: JHC
 Score: SDALE

CP&Y
 CP & Y, Inc.
 TBPE FIRM NO. 1-1741

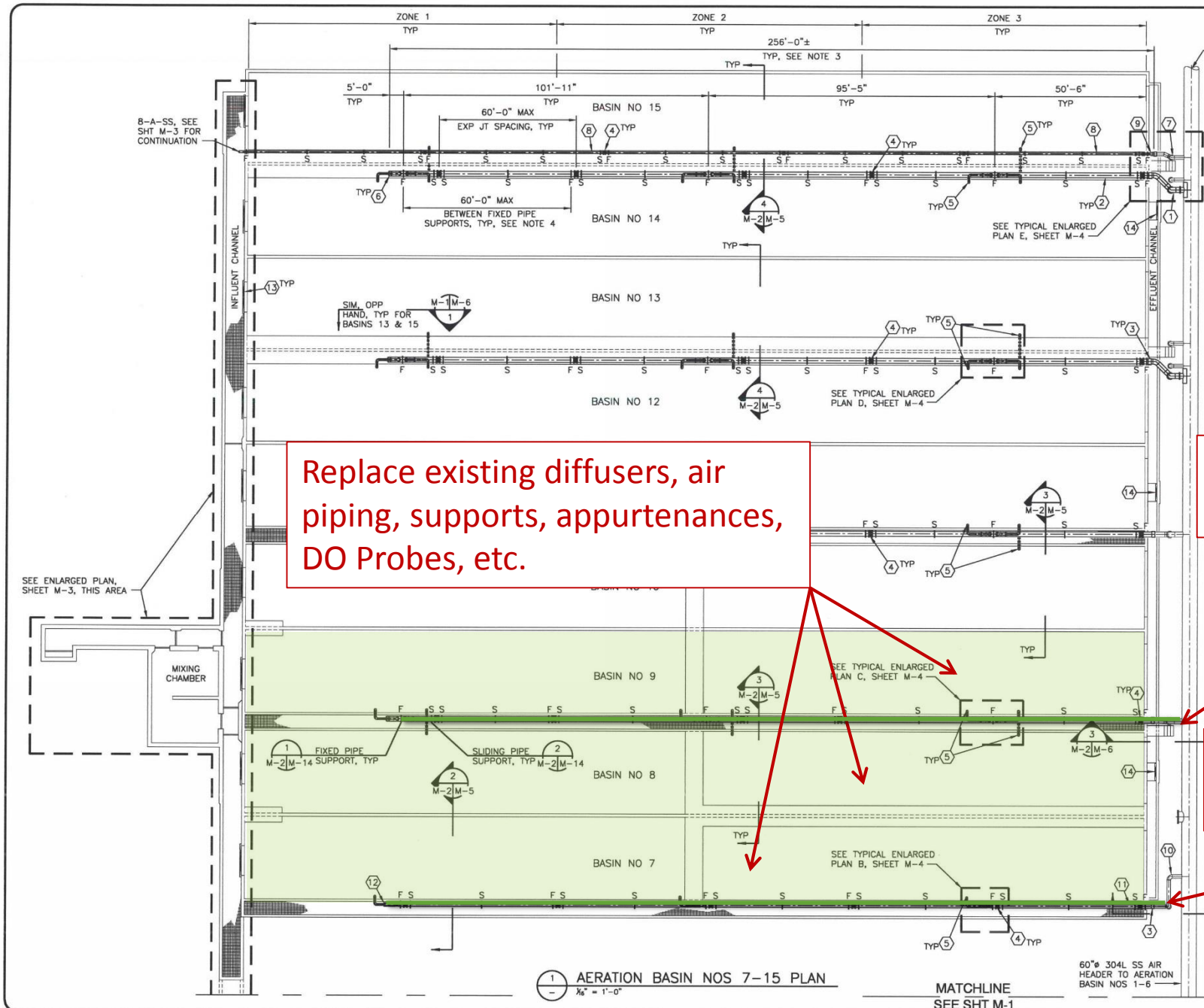
CP&Y
 CP & Y, Inc.
 2444 Broadway Street, Suite 200
 San Antonio, TX 78205
 Phone: (210) 244-3000
 Fax: (210) 244-3000

SAN ANTONIO
 WATER SYSTEM

SAWS JOB NO. 13-6505
 2013 LEON CREEK WRC REHABILITATION AND
 PROCESS IMPROVEMENTS
 AERATION BASIN NOS 1-6
 PLAN

PHASE IX – Basins 7, 8, and 9

- 1) Plant Operation – Normal Operation with basins 7-9 out of service.
- 2) Isolation
 - a) Similar to Phase IV “Isolation” for basins 7-9
- 3) Demolition
 - a) Similar to Phase IV “Demolition” for basins 7-9
- 4) Installation/Repairs
 - a) Similar to Phase IV “Installation/Repairs” for basins 7-9
- 5) Pre-Operation
 - a) Similar to Phase IV “Pre-Operation” for basins 7-9



Replace existing diffusers, air piping, supports, appurtenances, DO Probes, etc.

Install 20" air header and supports

Install 14" air header and supports

NOTES BY SYMBOL "○"

- EX 20-A-SS
- 20-A-SS, CONNECT TO EX 20-A-SS, SEE NOTE 4
- 304L SS DEPEND-O-LOK EXPANSION COUPLING
- 304L SS EXP JT
- 8-A-SS DROP LEG
- 20" SS CAP
- EX 14-A-SS
- 8-A-SS, DEDICATED AIR HEADER FOR INFLUENT CHANNEL, CONNECT TO EX 14-A-SS
- 14"x8" REDUCER
- EX 14-A-SS
- 14-A-SS, CONNECT TO EX 14-A-SS
- 14" SS CAP
- EX INFLUENT SLIDE GATE

- CONTRACTOR SHALL MODIFY EXISTING ALUMINUM HANDRAIL (NOT SHOWN) TO ACCOMMODATE NEW 20-A-SS AT NO ADDITIONAL COST TO THE OWNER. SEE SHEET M-5 FOR ADDITIONAL INFORMATION.
- DIMENSION MAY VARY DEPENDING ON LOCATION OF CONNECTION TO EXISTING PIPING. FIELD VERIFY DIMENSION.
- PROVIDE ONE EXPANSION JOINT BETWEEN EACH PAIR OF FIXED SUPPORTS.

SUPPORT LEGEND:

F FIXED SUPPORT

Freese And Nichols, Inc.
Job No. SWB14115

Revisions

No.	Date	Description

Date: OCT 2014
Designed by: TT
Drawn by: PEC
Checked by: HCC
Scale: AS SHOWN

CP&Y INC.
CP&Y INC.
TBE FIRM NO. 1741

SAN ANTONIO WATER SYS

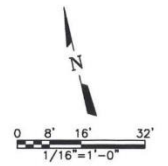
SAWS JOB NO. 13-6505
2013 LEON CREEK WRC
PROCESS IMPROVEMENTS
AERATION BASIN N

Sheet M-2

1 AERATION BASIN NOS 7-15 PLAN
1/8" = 1'-0"

MATCHLINE
SEE SHT M-1

60" 304L SS AIR
HEADER TO AERATION
BASIN NOS 1-6



PHASE X – Aeration System Programming and Start-Up

1) Aeration Basin Control

- a) Power and control wiring for the new system can be accomplished while each basin is being reworked.
- b) Operational control of the basins shall not change until the last 2 basins are taken down for modifications. At that point, control of the aeration basin process air flow can begin testing for automation.
- c) I/O checkout can begin
- d) Analyzers shall be calibrated
- e) Communication with Emerson Process DCS system can be mapped and tested
- f) Software I/O points between systems shall be tested

PHASE XI – Chemical Feed Modifications

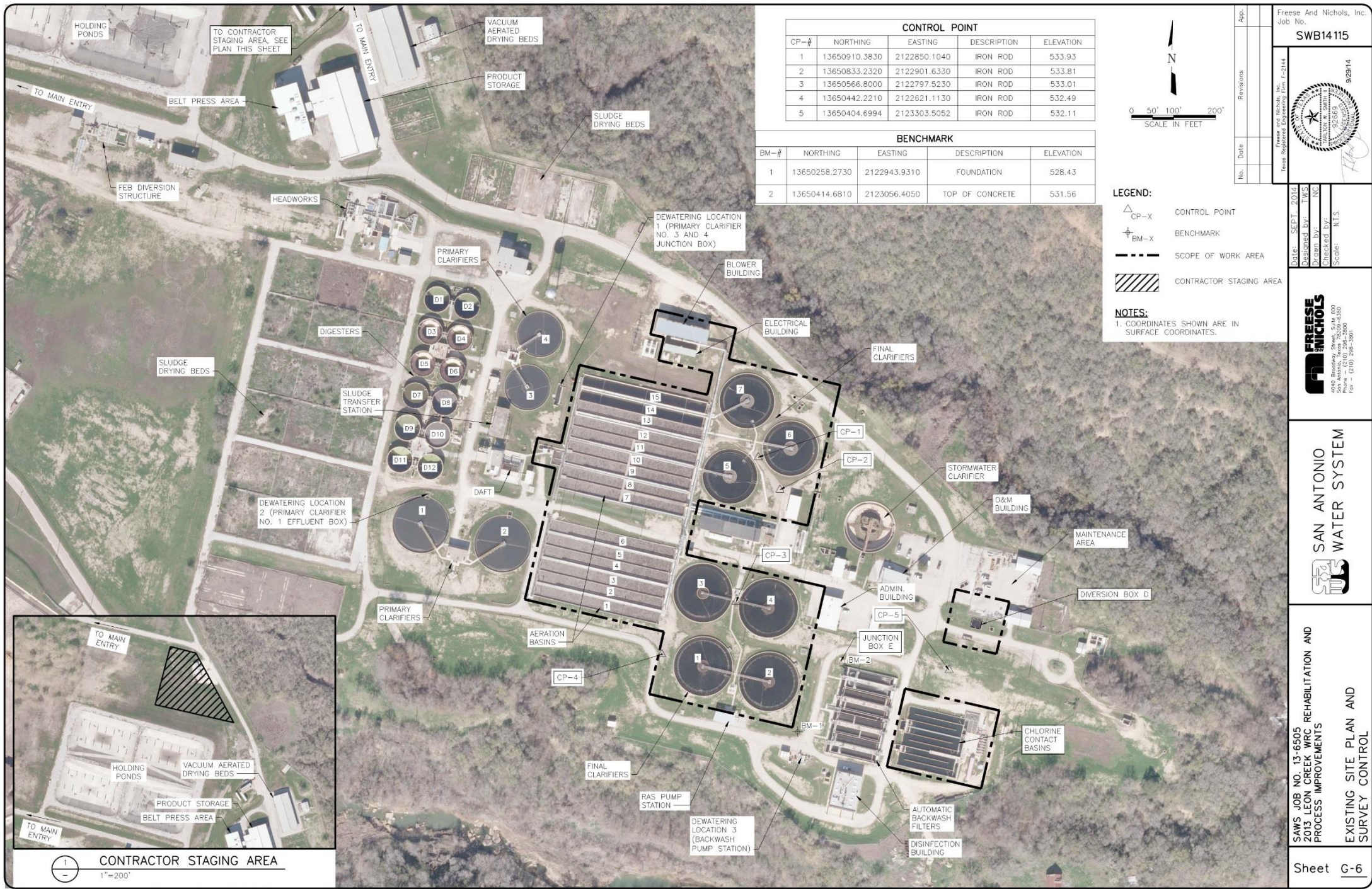
Programming and Start-Up

1) Chlorine Feed

- a) Operational control of the chlorine contact basins shall not change until all the analyzers are put in place and reading through Emerson's Process DCS system
- b) I/O checkout can begin
- c) Analyzers shall be calibrated
- d) Communication with Emerson Process DCS system
- e) Software I/O points between systems shall be tested

2) De-Chlorination Feed

- a) Operational control of the contact basins shall not change until all the analyzers are put in place and reading through Emerson's Process DCS system
- b) I/O checkout can begin
- c) Analyzers shall be calibrated
- d) Communication with Emerson Process DCS system can be mapped and tested
- e) Software I/O points between systems shall be tested



CONTROL POINT				
CP-#	NORTHING	EASTING	DESCRIPTION	ELEVATION
1	13650910.3830	2122850.1040	IRON ROD	533.93
2	13650833.2320	2122901.6330	IRON ROD	533.81
3	13650566.8000	2122797.5230	IRON ROD	533.01
4	13650442.2210	2122621.1130	IRON ROD	532.49
5	13650404.6994	2123303.5052	IRON ROD	532.11

BENCHMARK				
BM-#	NORTHING	EASTING	DESCRIPTION	ELEVATION
1	13650258.2730	2122943.9310	FOUNDATION	528.43
2	13650414.6810	2123056.4050	TOP OF CONCRETE	531.56

LEGEND:
 △ CP-X CONTROL POINT
 ⊕ BM-X BENCHMARK
 --- SCOPE OF WORK AREA
 ▨ CONTRACTOR STAGING AREA

NOTES:
 1. COORDINATES SHOWN ARE IN SURFACE COORDINATES.

App. _____
 Revisions _____
 No. _____ Date _____

Freese And Nichols, Inc.
 Job No. SWB14115
 9/29/14

Date: SEPT. 2014
 Drawn by: TWS
 Checked by: TWS
 Scale: N.T.S.

Freese and Nichols
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SAN ANTONIO WATER SYSTEM

SAWS JOB NO. 13-6505
 2013 LEON CREEK WRC REHABILITATION AND PROCESS IMPROVEMENTS
 EXISTING SITE PLAN AND SURVEY CONTROL