



**Leon Creek WRC Primary Clarifiers Nos. 1 and 2
Rehabilitation Project
Solicitation Number: CO-00751
Job No.: 22-0144**

**ADDENDUM 1
April 25, 2024**

To Bidder of Record:

This addendum, applicable to the work referenced above, is an amendment to the bid proposal, plans, and specifications 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 issue date in the space provided in the submitted bid proposal.

RESPONSES TO QUESTIONS

- 1. Request that you add Warren Environmental 301-14 as an approved Manufacturer to Specification SECTION 09 80 10 COATING SYSTEM (CONCRETE).**

Response:

Alternative manufacturers will not be considered during the bidding phase.

- 2. Bid form states to remove and dispose of 1,272 CY of Sludge Removal, but on sheet D-1 note 10 it says there is 3' of sludge. If there is 3' of sludge in each clarifier, the quantity on the bid form would almost be double the current quantity.**

Response:

The depth of sludge in the center is approximately 3-ft high but it is negligible on the edge. The estimated quantity was verified and is correct.

- 3. Is bypass pumping included?**

Response:

Bypass pumping is not anticipated for this project. Each primary clarifier will be dewatered by SAWS and remaining sludge will be removed and disposed of by the Contractor.

- 4. What volume was calculated for amount of sludge expected at the bottom of the tank?**

Response:

The volume of sludge anticipated is noted on the bid form, 1,272-CY. Refer to Bid Item 17.

5. Is the Epoxy coating 1 foot under water level of the tank?

Response:

Coating requirements and limits are shown on Sheet M3 and M5. The cementitious and epoxy coating shall be applied to 1-ft below the water surface elevation as shown on Sheet M3, Detail 4.

6. Will SAWS shut down one (1) clarifier at a time?

Response:

Yes, SAWS will be responsible for isolating and taking each primary clarifier offline. The Contractor is not allowed to have more than one (1) clarifier offline at any one time.

7. Are there control points onsite for survey team?

Response:

Control points were not specifically set for this project.

8. Is clarifier #1 bridge a lead based paint?

Response:

Contractor shall assume that the clarifier bridge walkway paint is lead based. Refer to Changes to Specifications No. 2 of this addendum.

9. Is the intent for deductive alternate 21 to be a reduction cost from the base bid or a substitutive alternate, where the plan is to take the total cost of furnish/installing the carbon steel in replacement from the base bid stainless steel clarifier? Please advise.

Response:

The deductive alternative should be represented as the reduction in cost from the base bid and not as substitutive alternate. If the deductive alternative, painted carbon steel is selected, the Contract price will be determined by taking the total cost of the base bid minus deductive alternative price.

10. We would greatly appreciate it if you could consider naming EDGENG as an approved Manufacturer in the specification OR approve us Equal Status on this Project per the specification sections of Section 464325- FRP Weirs and Baffles in order for us to forward our proposal for the FRP scope of work, which has developed cost-effective and durable alternatives for Stainless Steel Products.

Response:

Alternative manufacturers will not be considered during the bidding phase.

11. **Sheet D1 key note E states to plug and seal all holes and cracks in the weir walls. Could we get more clarification on this note? Is the intent of this note to be work for the 3,500 SF structural repair bid item?**

Response:

Primary Clarifier No. 1 and 2 has a number of small holes along the inside perimeter of the launder wall. These holes are approximately 1 to 2-inch wide by ½ to 1-inch deep and are spaced approximately 3 to 4-ft on centers. Use a low shrinkage, fiber reinforced NSF/ANSI Standard 61 Repair Mortar, EUCOREPAIR V100 and liquid latex bonding agent EUCOWELD 2.0 by Euclid Chemical or approved equal.

Plan Sheet M3, Detail 4 was revised to provide additional clarification. No separate pay item is provided for this work. Refer to Changes to Plans No. 1 of this addendum.

12. **Request approval for Warren Environmental 301-14 for your project titled, “Leon Creek WRC Primary Clarifiers Nos 1 and 2 Rehabilitation”. Request that you add Warren Environmental 301-14 as an approved Manufacturer to Specification SECTION 09 80 10 COATING SYSTEM (CONCRETE).**

2.2 MANUFACTURERS

A. Products and Manufacturers: Provide one of the following:

1. ARC 791, by Chesterton. Min. 125 mils dry film thickness (DFT).
 - a. Primer: Arc 797, by Chesterton.
 2. Raven 410 HCR, by Raven Lining Systems. Min. 125 mils DFT.
 - a. Primer: none.
 3. Plasite 4550S, by Carboline. Min. 60 mils DFT.
 - a. Primer: Semstone 110, by Carboline.
 4. Duraplate 6100, by Sherwin Williams. Min. 125 mils DFT.
 - a. Primer: Macropoxy 5000, by Sherwin Williams.
 5. Engineer-approved equal.
- 5. 301-14 100% Solids Epoxy by Warren Environmental. Min 125 mils DFT.
Primer: none**

Response:

Alternative manufacturers will not be considered during the bidding phase.

CHANGES TO SPECIFICATIONS

1. **General Wage Decision for Building Construction Type** - Remove the wage decision in its entirety and replace it with the revised version attached (rev. 4/5/2024 for General Decision Number TX20240231).

This version should be referenced by the Bidders for this project.

2. **Section 02 83 19 Lead Paint Abatement**, Add Section 02 83 19 Lead Paint Abatement in its entirety.
3. **Section 46 43 21 Sludge Collection Primary Clarifier**, remove in its entirety and replace it with the revised version attached to this addendum.

Corrected the following:

- Paragraph 2.6, B, 2 and 3 – Stilling Well Configuration
- Paragraph 2.11, E, 6 Trough Outlet
- Paragraph 2.12, E, 2, Spray Nozzle clearance dimension.
- Paragraph 2.16, F, 2, Guardrail/Handrail requirements

CHANGES TO PLANS

1. **Plan Sheet M3 Primary Clarifier No. 1 and No. 2 Details (1 of 2)**, remove in its entirety and replace it with the revised version attached to this addendum.

Added details and notes regarding repairs to the cavities/holes along the inside perimeter of the primary Clarifier No.1 and No. 2 Launder Wall.

END OF ADDENDUM 1

This Addendum is thirty-two (32) pages in its entirety with attachments.

Attachments:

Building General Wage Decision Number TX20240231 (7 pages)
Section 02 83 19 Lead Paint Abatement (5 Pages)
Section 46 43 21 Sludge Collection Primary Clarifier (15 pages)
Sheet M3, Primary Clarifier No. 1 and No. 2 Details (1 of 2) (1 page)



Javier Garcia, P.E.
Garcia Infrastructure Consultants, LLC



4/24/2024

"General Decision Number: TX20240231 04/05/2024

Superseded General Decision Number: TX20230231

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: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	Executive Order 14026 generally applies to the contract. The contractor must pay all covered workers at least \$17.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2024.
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If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	Executive Order 13658 generally applies to the contract. The contractor must pay all covered workers at least \$12.90 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2024.
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The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification Number	Publication Date
0	01/05/2024
1	01/12/2024

2 04/05/2024

ASBE0087-014 06/04/2023

Rates Fringes

ASBESTOS WORKER/HEAT & FROST
INSULATOR (Duct, Pipe and
Mechanical System Insulation)....\$ 28.95 8.39

BOIL0074-003 07/01/2023

Rates Fringes

BOILERMAKER.....\$ 37.00 24.64

* ELEC0060-003 01/01/2024

Rates Fringes

ELECTRICIAN (Communication
Technician Only).....\$ 33.50 18%+5.45

* ELEC0060-004 01/01/2024

Rates Fringes

ELECTRICIAN (Excludes Low
Voltage Wiring).....\$ 33.50 18%+5.45

ELEV0081-001 01/01/2023

Rates Fringes

ELEVATOR MECHANIC.....\$ 46.83 37.335+a+b

FOOTNOTES:

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.

b. Holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; 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 06/01/2023

Rates Fringes

IRONWORKER, STRUCTURAL.....\$ 26.00 7.53

IRON0084-011 06/01/2023

Rates Fringes

IRONWORKER, ORNAMENTAL.....\$ 27.51 8.13

PLUM0142-009 07/01/2023

Rates Fringes

HVAC MECHANIC (Electrical
Temperature Control
Installation & Unit
Installation Only).....\$ 35.95 11.25
PIPEFITTER (Including HVAC
Pipe Installation).....\$ 35.95 11.25
Including HVAC Pipe Installation
PLUMBER.....\$ 35.95 11.25
Excludes HVAC Pipe Installation

* SFTX0669-002 04/01/2024

Rates Fringes

SPRINKLER FITTER (Fire
Sprinklers).....\$ 36.15 23.88

SHEE0067-004 07/03/2023

Rates Fringes

Sheet metal worker
Excludes HVAC Duct
Installation.....\$ 30.24 15.89
HVAC Duct Installation Only.\$ 30.24 15.89

* 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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** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 (\$17.20) or 13658 (\$12.90). Please see the Note at the top of the wage determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including

their agencies, are a party.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

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) (iii)).

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 National Office because National Office has 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"

SECTION 02 83 19
LEAD PAINT ABATEMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes: Onsite abatement of lead paint.
- B. Related sections:
 - 1. 01 33 00 – Submittal Procedures.
 - 2. 09 80 00 – Coating System (Ferrous Metals).

1.2 REFERENCES

- A. ASTM International (ASTM):
 - 1. D 3335 - Standard Test Method for Low Concentrations for Lead, Cadmium, and Cobalt in Paint by Atomic Absorption Spectroscopy.
- B. Occupational Safety and Health Administration (OSHA).
- C. Society for Protective Coatings (SSPC):
 - 1. SP10 – Near-White Blast Cleaning.
 - 2. Guide 6 - Guide for Containing Debris Generated During Paint Removal Operations.
- D. United States Code of Federal Regulations (CFR):
 - 1. 29 CFR 1910 – Occupational Safety and Health Standards.
 - 2. 29 CFR 1910.134 – Respiratory Protection.
 - 3. 29 CFR 1910.1025 – Lead
 - 4. 29 CFR 1926 – Safety and Health Regulations for Construction.
 - 5. 40 CFR 50 – National Primary and Secondary Ambient Air Quality Standards.
 - 6. 40 CFR 60 – Standards of Performance for New Stationary Sources; - Appendix A, Test Methods.
 - 7. 40 CFR 261 – Identification and Listing of Hazardous Waste.
 - 8. 40 CFR 262 – Standards Applicable to Generators of Hazardous Waste.
 - 9. 40 CFR 263 – Standards Applicable to Transporters of Hazardous Waste.
 - 10. 40 CFR 264 – Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities.
 - 11. 40 CFR 265 – Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities.
 - 12. 40 CFR 268 – Land Disposal Restrictions.
 - 13. 40 CFR 300 – National Oil and Hazardous Substances Pollution Contingency Plan.
 - 14. 40 CFR 302 – Designation, Reportable Quantities, and Notification.
- E. United States Environmental Protection Agency (EPA):
 - 1. Method 3050B - Acid Digestion of Sediments, Sludges, and Soils.

1.3 DEFINITIONS

- A. Lead-Containing Paint: Paint containing a minimum of 1.0 mg/cm² lead or containing 0.5 percent lead by weight as determined by on-site testing of the coating with a portable X-ray fluorescence (XRF) detector, or through laboratory testing in accordance with ASTM D 3335.
- B. Hazardous Waste: Lead paint debris is classified as hazardous due to the characteristic of toxicity, if after testing by Toxicity Characteristic Leaching Procedures (TCLP), the leachate contains any of the elements in the concentrations listed below or greater (note: other elements can cause a material to be hazardous as defined in 40 CFR 261 and must be taken into consideration):
 - 1. Arsenic: 5 parts per million.
 - 2. Barium: 100 parts per million.
 - 3. Cadmium: 1 parts per million.
 - 4. Chromium: 5 parts per million.
 - 5. Lead: 5 parts per million.
 - 6. Mercury: 0.2 parts per million.
 - 7. Selenium: 1 parts per million.

8. Silver: 5 parts per million.
- C. Generator: Facility Owner or Operator or person who first creates or produces the hazardous waste.
- D. Large Quantity Generator: Generates over 2,200 pounds of hazardous waste per month or stores more than 13,200 pounds of waste at the site at any one time.
- E. Small Quantity Generator: Generates more than 220 pounds, but less than 2,200 pounds of hazardous waste per month and accumulates less than 13,200 pounds at any one time.
- F. Conditionally Exempt Small Quantity Generator: Generates less than 220 pounds of hazardous waste per month and accumulates no more than 2,200 pounds of hazardous waste at any time.
- G. Containment and Ventilation Systems: Includes the containment structure, ventilation system and dust collection.

1.4 SUBMITTALS

- A. General: Administrative, shop drawings, samples, quality control, and contract closeout submittals shall conform to the requirements of Section 01 33 00.
- B. In addition to the requirements of Section 01 33 00, provide written work plans for the methods to be employed for surface preparation, containment and ventilation, and collection of debris. When designing the system, recognize the load bearing capacity and integrity of the structure to be painted. Submit testing and evaluation programs that will be used to confirm that the work does not violate federal, state, and local regulations.
- C. A minimum of 30 days prior to beginning the Work, submit a Lead Abatement Work Plan containing, at a minimum, the following:
 1. Name and address of licensed abatement contractor to undertake the Work.
 2. Site-specific health and safety plan.
 3. Site-specific Lead Abatement Plan including abatement contractor's policies and procedures relating to lead abatement work.
 4. Employee Training Accreditations/Certifications and Physician Clearances.
 5. Lead Abatement License.
 6. Documentation of Respiratory Equipment Fit Tests.
 7. Manufacturer's information for materials and equipment to be utilized in the work, including Safety Data Sheets (SDS).
 8. Abatement contractors Certificates of Insurance.
- D. Programs for the Protection of the Ambient Air and Water: Submit written testing and evaluation plan that will be used to confirm that the Work does not violate Federal, State and Local regulations.
- E. Ambient Air Quality
 1. Submit a written program for air monitoring at the project site to confirm that fugitive dust emissions do not exceed specific criteria. Include the following:
 - a. Particulate Matter: Monitor emissions of particulate matter equal to or greater than 10 micrometers in aerodynamic size in accordance with 40 CFR 50. Include the type and number of samplers to be used, their proposed locations, provisions for background monitoring, and duration of testing.
 - b. Visible Emissions: Submit a written plan for the observations that will be made to verify that the visible emissions criteria of this specification is not exceeded.
 - c. Total Suspended Particulate Lead: Submit a program for the analysis of airborne lead emissions in accordance with 40 CFR 50. Include the type and number of samplers to be used, their proposed locations, provisions for background monitoring, and duration of testing.
- F. Sediment Analysis
 1. Provide a written plan for the sampling and analysis of pre-job and post-job soil samples for total lead content.
 - a. Include the number of tests proposed, test locations, sampling procedure, and methods to ensure that pre-job and post-job samples are removed from identical locations.
 - b. The analysis for lead shall be conducted in accordance with Method 3050B, or approved equal.

- G. Handling, Disposal and Analysis of Debris
1. Provide a worker protection plan in accordance with the requirements of 29 CFR 1926 and OSHA including pre- and post-project blood lead level tests and a respiratory protection program.
 2. Address the handling and site storage of lead-containing debris in accordance with 40 CFR 262 and 40 CFR 265. Confirm that an EPA identification number will be obtained, that proper manifesting of the waste will be addressed, and that site storage limitations, including the time of storage, container requirements, contingency plan, and personnel training, will be observed.
 3. Submit written procedures that will be followed for the sampling and testing of debris to determine if it is a hazardous waste in accordance with Appendix II of 40 CFR 261. The program shall include the name of the testing laboratory to be used.
 4. Submit written confirmation that proper transportation of debris will be accomplished in accordance with 40 CFR 263 and the name of the transporter.
 5. Submit written confirmation that debris will be treated and disposed of in accordance with 40 CFR 264 and 40 CFR 268.
 - a. Provide assurance that debris is handled properly from cradle to grave.
 - b. Include necessary notifications and certifications on shipments, the name of disposal facility, and schedule for submittal of completed manifests to the Owner.
- H. The following shall be submitted on a weekly basis while abatement work is in ongoing:
1. Respiratory Fit Test(s) updates, if applicable.
 2. Monitoring equipment calibration logs.
 3. Daily logs of work completed.
 4. Daily logs of employees conducting the abatement.
 5. Environmental monitoring results.
 6. Disposal manifests, if removed material is characterized as a hazardous waste and disposal occurs within the reporting period. Include the name, address and identification number of the licensed transporter/disposer.

1.5 QUALITY ASSURANCE

- A. Contractor qualifications:
1. The Contractor performing the lead paint removal work shall have performed a minimum of 3 previous lead paint removal projects similar in scope of this project.
 2. The Contractor performing the lead paint removal work in this Section shall be familiar with the regulatory requirements associated with the work and shall have corporate lead worker protection, confined space, and respirator programs.

1.6 SEQUENCING

- A. Complete removal of lead paint before applying special coatings.
- B. Notify the Owner/Engineer at least 7 days in advance of schedule changes as work progresses in writing.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 PROTECTION

- A. Containment System
1. Design a containment system for the work area to control environmental emissions and control the working environment within containment.
 2. Thoroughly examine the structure to be prepared to verify its ability to support a containment system, including all relevant external structural or environmental loads.
- B. Monitor and control ambient air particle matter, visible and lead emissions in accordance with the following criteria:
1. Particulate Matter

- a. Emissions in excess of 150 µg/m³ of particulate matter equal to or greater than 10 microns over a 24-hour period shall be cause for shut down of the project until corrections are made to comply with this level.
- b. Use high volume air samplers in accordance with 40 CFR 50 to monitor for this level.
2. Visible Emissions
 - a. Visible emissions shall be determined in accordance with 40 CFR 60.
 - b. As determined by SSPC Guide 61, visible emissions in excess of 20 percent opacity for any 3-minute period in 60 minutes, shall be cause for shut down of the project until corrections to the containment are made to comply with this level.
 - c. Visible emissions shall be determined in accordance with 40 CFR 60.
3. Lead Emissions
 - a. Monitor and control ambient airborne lead concentration to conform to the EPA limit of 1.5 µg/m³ average over a 90-day period.
 - b. Emissions of lead in excess of shall not exceed 15 µg/m³ over an 8-hour period shall be cause for shut down of the project until corrections are made to comply with this level.
 - c. Airborne lead monitoring shall be accomplished using high volume air samplers in accordance with 40 CFR 50.
- C. Regulated Areas
 1. Establish a regulated area surrounding activities where lead exposures exceed the OSHA Personal Exposure Level. This includes the paint removal area, dust collection equipment, abrasive recycling equipment, and locations where lead containing debris is handled or transferred to storage containers.
 2. Regulate the area by use of ropes, tape, walls, or other similar means including appropriate warning signs. Limit access to these areas to those persons properly trained and protected.
 3. Do not allow the release of lead into bodies of water or storm sewers. Stop work if spills or emissions are observed entering into bodies of water or are found in areas where storm water run-off could carry the debris into bodies of water or storm sewers.
- D. Worker Protection Criteria
 1. Conform to OSHA requirements for work protection in accordance with 29 CFR 1926 as outlined in OSHA.

3.2 ABATEMENT

- A. Abrasive blast the clarifier equipment to SSPC SP 10 as specified in Section 09 90 00.
 1. Properly dispose of blasting material which has been contaminated with debris from blasting operation.
 2. Confine blast abrasives to area being blasted.
 - a. Provide containment of blast debris to confine blast material.
 - b. Plug pipes, holes, or openings before blasting and keep plugged until blast operation is complete and residue is removed.
 3. Protect surrounding surfaces not to be blasted.
 4. Remove and protect hardware, accessories, plates, fixtures, and similar items; or provide ample in place protection.
 5. Use paint manufacturer-approved abrasive with maximum particle size passing through Number 16 US Standard Sieve and largest commercial grade of metal grit, SAE No. G 25 abrasive material.
 - a. Do not use abrasives containing silica sand.
 6. Limit acceptable abrasive blasting procedures using abrasives to systems that allow cleaning and reuse of abrasive material.
 - a. Do not permit open dry blasting.
 7. Clean the surface by vacuum to remove traces of blast waste from surfaces and from pockets and corners.
- B. Perform the following daily cleanup:
 1. Spray the affected surfaces with a fine mist of water to keep surface dust from becoming airborne. Place the swept debris in double plastic bags, properly seal the bags, and dispose in the designated trash storage area.
 2. Workers performing cleanup shall wear protective clothing and equipment.
 3. Inspect for areas of the containment system requiring repair. Holes and rips shall be patched with 6-mil plastic and duct tape immediately after cleaning.
- C. Waste Disposal

SAN ANTONIO WATER SYSTEM
LEON CREEK WRC PRIMARY CLARIFIER Nos. 1 AND 2 REHABILITATION

1. Prior to start of abatement operations, determine which waste materials may be hazardous. Keep hazardous waste segregated from solid waste so that proper disposal of waste material can be achieved.
 2. Do not leave waste on the property in an unsecured area. Do not dump waste in any unauthorized dumpsters. Do not burn or incinerate waste.
 3. Do not flush lead-contaminated wash water into storm drains or sanitary sewers without permission.
- D. Solid Waste Disposal
1. Dispose of solid waste which has been evaluated and determined to not be hazardous in authorized locations. Wrap large debris in 6-mil plastic, seal with tape, and move to the trash storage area.
 2. Transport the waste to the disposal facility in covered vehicles. Covered dumpster services are acceptable if the service company is informed of the presence of lead and that appropriate disposal methods are used.
 3. Dispose of hazardous waste at a hazardous waste disposal facility. Facility shall be authorized and all proper disposal requirements shall be met.

END OF SECTION

SECTION 46 43 21
SLUDGE COLLECTION PRIMARY CLARIFIER

PART 1 - GENERAL

1.1 SCOPE

- A. Section includes the work necessary to design, furnish, and install circular type primary clarifier components and appurtenances as shown on the plans. The system includes but is not limited to the following: center pier and influent column, influent stilling well (feedwell), center drive assembly, center cage torque, rake arms with diagonal rake blades, scum skimming system, scum box, spray system, local control panel, conduits, and lighting.
- B. Weir Plates and Scum Baffle shall be designed, furnish, and installed as specified in Section 46 43 25.
- C. This project consists of retrofitting two (2) primary clarifiers in existing basins. Any structural, mechanical, and/or electrical modifications as result of the new clarifier equipment shall be made by the CONTRACTOR at no additional cost to the OWNER. This also includes any engineering expenses that may be required to retrofit the new clarifier in the existing basin.
- D. The clarifier bridge/walkway will be reused and are not being replaced. The bridge/walkway for Primary Clarifier Bridge No. 1 will be sandblasted and painted. The bridge/walkway for Primary Clarifier Bridge No. 2 was recently painted and will be reused as is. An additive alternative (Additive Alternative No. 1) is included to permanently remove and replace the existing bridge/access walkway with a new bridge/access walkway. Refer to Section 2.15 and 2.16.
- E. The clarifier concrete structure shall be repaired, and re-coated. The clarifier floor grout is not anticipated to be replaced; however, an allowance is provided for repairs if necessary.
- F. To assure uniform quality, ease of maintenance and minimal parts storage, it is the intent of these Specifications that a single manufacturer shall supply all equipment called for under this Section. The clarifier manufacturer shall certify that equipment was properly installed and functioning in accordance with the Manufacturer's recommendations.
- G. Provide single source coordination responsibility through the equipment manufacturer for the complete sludge collection system.
- H. Naming a manufacturer in PART 2- PRODUCTS does not relieve the manufacture from fully complying with all the requirements of the Contract Documents. The Contract Documents represent the minimum acceptable standards. Equipment must fully comply with all the requirements of the specifications and construction plans.

1.2 EQUIPMENT TAGS

- A. LC-0001-Primary Clarifier No. 1
- B. LC-0002-Primary Clarifier No. 2

1.3 RELATED WORK

- A. Related Sections include, but are not necessarily limited, to:
 - 1. Division 0 – Bidding and Contract Requirements
 - 2. Division 1 – General Requirements
 - a. Section 01 22 13 – Measurement and Payment
 - b. Section 01 29 76 – Payment Procedure
 - c. Section 01 33 00 – Submittal Procedure
 - d. Section 01 60 00 – Project Delivery and Storage Requirements
 - e. Section 01 66 00 – Manufacturer's Services
 - f. Section 01 75 60 – Equipment Testing and Facility Startup
 - g. Section 01 78 23 – Operation and Maintenance Data
 - h. Section 01 78 36 – Warranties
 - i. Section 01 80 05 – Commissioning
 - 3. Division 3 – Concrete
 - 4. Division 9 – Finishes

- a. Section 09 80 00 – Coating System (Ferrous Metals)
- 5. Division 26 – Electrical
- 6. Division 46 – Water and Wastewater Equipment
 - a. Section 46 43 25 Weir and Baffle Plates

1.4 REFERENCES

- A. The following is a list of standards that may be referenced in this Section.
1. American Gear Manufacturers Association (AGMA): 902-B89, Geometry Factors for Determining the Pitting Resistance and Bending Strength of Spur, Helical and Herringbone Gear Teeth.
 2. American Institute of Steel Construction (AISC): Specifications for the Design, Fabrication, and Execution of Structural Steel for Buildings.
 3. American National Standards Institute/American Bearing Manufacturers Association (ANSI/ABMA): Load Ratings and Fatigue Life for Ball Bearings and Roller Bearings.
 4. American National Standards Institute/American Gear Manufacturers Association (ANSI/AGMA):
 - a. 2000-A88, Gear Classification and Inspection Handbook Tolerances and Measuring Methods for Unassembled Spur and Helical Gears.
 - b. 2001-D04, Fundamental Rating Factors and Calculation Methods for Involute Spur and Helical Gear Teeth.
 - c. 2002-B88, Tooth Thickness Specification and Measurement.
 - d. 2003-B97, Rating the Pitting Resistance and Bending Strength of Generated Straight Bevel, Zerol Bevel, and Spiral Bevel Gear Teeth.
 - e. 2004-B 89, Gear Materials and Heat Treatment Manual.
 - f. 2009-A98, Bevel Gear Classification, Tolerances, and Measuring Methods.
 - g. 6001-D97, Design and Selection of Components for Enclosed Gear Drives.
 - h. 6010-F97, Standard for Spur, Helical, Herringbone and Bevel Enclosed Drives.
 - i. 6022-C93, Design Manual for Cylindrical Wormgearing.
 - j. 6034-B92, Practice for Enclosed Cylindrical Wormgear Speed Reducers and Gearmotors.
 - k. 9005-D94, Industrial Gear Lubrication.
 5. American Society of Mechanical Engineers (ASME): B29.1M, Precision Power Transmission Roller Chains, Attachments, and Sprockets.
 6. American Water Works Association (AWWA): C200, Steel Water Pipe - 6 Inches and Larger.
 7. American Welding Society (AWS):
 - a. B2.1, Standard for Welding Procedure and Performance Qualification.
 - b. D1.1, Structural Welding Code — Steel.
 - c. QC 01, Standard for AWS Certification of Welding Inspectors.
 8. ASTM International (ASTM):
 - a. A36/A36M, Standard Specification for Carbon Structural Steel.
 - b. A48, Standard Specification for Gray Iron Castings.
 - c. A123/A123M, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - d. A148/A148M, Standard Specification for Steel Castings, High Strength, for Structural Purposes.
 - e. A167, Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
 - f. A276, Standard Specification for Stainless Steel Bars and Shapes.
 - g. A283/A283M, Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates.
 - h. A285/A285M, Standard Specification for Pressure Vessel Plates, Carbon Steel, Low and Intermediate Tensile Strength.
 - i. A325, Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105-ksi Minimum Tensile Strength.
 - j. A384, Standard Practice for Safeguarding Against Warpage and Distortion During Hot-Dip Galvanizing of Steel Assemblies.
 - k. A385, Standard Specification for Providing High-Quality Zinc Coatings (Hot-Dip).
 - l. A536, Standard Specification for Ductile Iron Castings.
 - m. A666, Standard Specification for Annealed or Cold-Worked Austenitic Stainless-Steel Sheet, Strip, Plate, and Flat Bar.
 - n. D3034, Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.

9. National Electrical Manufacturers Association (NEMA): 250, Enclosures for Electrical Equipment (1,000 Volts Maximum).

1.5 DEFINITIONS

- A. Alarm Torque: 45 percent of Design Running Torque
- B. Cutout Torque: 75 percent of Design Running Torque
- C. Design Running Torque: Torque used to select size, strength, and type of materials and components for mechanism and drive system and at which or below will provide continuous 24 hour per day clarifier operation for period of not less than 20 years at design torque condition and rotational speed specified herein, without damage, permanent deformation, or overload, and equal to 50 percent on overload device scale.
- D. Ultimate Torque: 200 percent of Design Running Torque and below which no portion of new clarifier components installed will be damaged if operated for only short period of time (a few seconds) and equal to 100 percent on overload device scale.
- E. Slenderness Ratio: Ratio of unbraced length to least radius of gyration.
- F. Submerged Metal: Metal below gear head drive and plane 18 inches above weir elevation indicated.
- G. Certified Welding Inspector (CWI): As defined in AWS QC 01.

1.6 QUALIFICATIONS

- A. Equipment specified in this Section shall be furnished by a single supplier.
- B. Comply with AWS D1.1 procedures and practices
- C. Manufacturer experience
 - 1. Minimum of ten (10) years of clarifier mechanism installation with a diameter greater than or equal to 90 percent of the specified clarifier.
 - 2. Supplied similar equipment for the past 10 years.
 - 3. The mechanism shall be a standard production product of the manufacturer.
- D. Designer: Registered professional engineer registered in State of Texas.
- E. Welder/Welding Operator: In accordance with AWS D1.1.
- F. Welding Inspector: Certified in accordance with AWS QC 01, and having prior experience with welding codes specified.
- G. If equipment is offered that differs from the manufacturer listed as "A.1" in Paragraph 2.2, equipment will be acceptable only under the following conditions. Any layout revisions, piping, appurtenance equipment, electrical work, etc. required to accommodate equipment shall be made at no additional cost to the OWNER.

1.7 SUBMITTALS

- A. Action Submittals:
 - 1. Shop Drawings:
 - a. Equipment Assemblies: Make, model, weight, and horsepower of each.
 - b. Manufacturer's Catalog: Product information, descriptive literature, specifications, dimensional layout, identification of materials of construction, and specialized equipment assembly cuts.
 - c. Detailed Drawings:
 - 1) Structural, mechanical, and electrical showing equipment fabrications and interface with other items including dimensions, size, and locations of connections to other work, and weights of associated equipment.
 - 2) Structural and Mechanical: Details of scum skimmer, and scum trough.
 - 3) Walkway Bridge: Walkway bridge is being reused. Clarifier manufacturer shall be responsible for designing the proper connection of the existing bridge to clarifier wall and new center platform.
 - d. Design Details:
 - 1) Running, alarm, cutout, and ultimate torque ratings of drive unit assembly.
 - 2) Ultimate torque load capabilities of drive unit assembly, torque cage, and trusswork.

2. Certification of Structural Calculations: Letter of certification for structural design of new clarifier components installed, shall be signed, and sealed by professional engineer registered in the State of Texas. Copies of detailed structural design calculations shall not be submitted for review. If submitted, calculations will be returned without review.
 3. Structural Loads: Static and dynamic loads to be transferred to concrete wall from existing clarifier bridge walkway.
 4. Structural Loads: Static and dynamic loads to be transferred to concrete wall from scum box. Scum box shall be designed to support its dead load, flooded scum box trough, and empty clarifier.
 5. Details of torque sensing and load indication device.
 6. External utility requirements such as air, water, power, drain, etc., for each component.
 7. Functional description of internal and external instrumentation and controls to be supplied including list of parameters monitored, controlled, or alarmed.
 8. Power and control wiring diagrams, including terminals and numbers.
 9. Painting/Coating System(s): Include manufacturer's descriptive technical catalog literature and specifications.
 10. Diameter of ball race.
- B. Informational Submittals:
1. Designer's qualifications.
 2. Manufacturer's Certificate of Compliance: Commercial products, including painting/coating system(s).
 3. Special shipping, storage and protection, and handling instructions.
 4. Test procedures.
 5. Test results, reports, and certifications.
 6. Welder/welding operator qualifications.
 7. Welding inspector credentials.
 8. Welding Inspector's Report.
 9. Operation and Maintenance Data: As specified in Section 01 78 23, OPERATION AND MAINTENANCE DATA.
 10. Manufacturer's Certificate of Proper Installation.
 11. Service records for maintenance performed during construction.

1.8 OPERATION AND MAINTENANCE MANUALS

- A. Provide manufacturer's Operation and Maintenance Manual(s) (O&M) and Maintenance Summary Form(s) in accordance with OPERATION AND MAINTENANCE DATA in Section 01 78 23.

1.9 WARRANTY

- A. Equipment warranty requirements shall comply with Section 01 78 36, WARRANTIES.
- B. Submit warranty from the equipment manufacturer clearly stipulating that manufacturer's warranty period shall be for two (2) years commencing at final acceptance by the OWNER.

1.10 PRODUCT DELIVERY, STORAGE & HANDLING

- A. Product delivery, storage, and handling shall comply with Section 01 60 00, PRODUCT DELIVERY REQUIREMENTS.

1.11 MANUFACTURER'S CERTIFICATES

- A. Provide manufacturer's certificate(s) in accordance with Paragraph 3.03 MANUFACTURER'S CERTIFICATE OF COMPLIANCE in Section 01 75 60.

1.12 SPARE PARTS

- A. Furnish, tag, and box for shipment and storage of the following spare parts and special tools for each clarifier provided.
1. Two (2) sets of neoprene skimmer mechanism wipers.
 2. Two (2) sets of all bearings for skimmer system.
 3. Special tools (if required) to maintain or dismantle scum collection assemblies, drive unit except for low-speed main bearing, but including that required for removal/insertion of main bearing race balls.
 4. Lubricants as required for 1-Year of continuous operation.

PART 2 - PRODUCT

2.1 GENERAL

- A. Where an approved manufacturer's standard equipment name and/or model number is listed, the equipment system shall conform to the performance, functions, features, and materials of construction specified below.

2.2 MANUFACTURERS

- A. The following clarifier manufacturers are approved for this project:
 1. Ovivo/EIMCO
 2. WesTech
 3. Walker Process
 4. ClearStream Environmental

2.3 SERVICE CONDITIONS

- A. Material Handled: Screened primary sludge.
- B. Influent Liquid Temperature Range: 40 degrees F minimum to 86 degrees F maximum.
- C. Influent pH Range: 6.5 minimum to 8.0 maximum.
- D. Influent Flow
 1. Max Month = 8,880-gpm/primary clarifier
 2. Peak Flow = 18,540-gpm/primary clarifier
- E. Site Conditions:
 1. Mechanism design shall be in accordance with conditions and requirements stated in Section 01 66 00, MANUFACTURER'S SERVICES. In addition, design shall accommodate the following site conditions:
 2. Exposure: Ultraviolet radiation of sun.
 3. Ambient Temperature Range: Minimum 0-degree F to 100 degrees F, maximum.
 4. Ambient Humidity Range: Minimum 10 percent to 98 percent relative humidity, including rain, and ice.

2.4 MANUFACTURED UNITS

- A. Furnish units meeting performance and design requirements as specified below.
- B. General Description:
 1. Suitable for installation in an existing 125-foot diameter by 13-feet 0-inches side water depth (SWD) clarifier having floor slope, as shown on Drawings.
 2. Center pier-supported, center drive type.
 3. Furnished clarifier equipment, including drive motor, gearing, center influent well, center bridge platform with handrail and kickplate, skimmer mechanism and scum trough, truss arms and rake, and all other necessary parts, including anchor bolts.
 4. Direction of mechanism rotation shall be clockwise as shown on Drawings.
- C. Performance Requirements
 1. Collect and convey screened primary sludge to center solids hopper.
 2. Collect, convey, and discharge floating scum from surface of clarifier to defined area at outside perimeter of unit.
 3. Head Loss: 3-inch W.L. maximum in influent piping and ports (from point where flow enters manufacturers' supplied equipment) at the defined influent flows.
- D. Design Requirements:
 1. Gears, Bearings, Chains and Sprockets: Above clarifier water surface.
 2. Mechanism Construction: Welded, except at locations requiring periodic field adjustment and as approved.
 3. Stresses: Maximum 90 percent of material yield strength at Ultimate Torque load in members.
 4. Maximum Slenderness Ratio: 200 for compression member and 240 for tension member.
 5. Design Running Torque: 56,000 foot-pounds minimum. Drive unit shall be sized such that worm gear, spur gear, and pinion meet Design Running Torque in accordance with AGMA 2001-D04 and 6034-B92, with service factor of 1.25 applied to worm and primary gear sets.

6. Mechanism: Withstand, without failure or permanent deformation of any part, torque load of minimum twice Design Running Torque, and shall withstand loads generated while sweeping in clarifier floor bottom grout.

2.5 CENTER PIER AND INFLUENT COLUMN

- A. 304 Stainless Steel (ASTM A240), 48-inch minimum inside diameter, wall thickness not less than 1/4 inch extending continuously from clarifier base slab.
- B. Ports:
 1. Minimum four (4) ports in top of column to release liquid flow and entrapped scum. Size and location determined by manufacturer.
 2. Size ports to limit velocity to 1.5 feet per second at peak flow by providing a total inlet port area a minimum of 135 percent of the center column cross-sectional area.
- C. Minimum 1-1/4-inch-thick flange at base of pier for anchoring to clarifier foundation by not less than 8 anchor bolts; size as determined by manufacturer. A similar flange shall be provided at the top of the column for supporting and securing the center drive assembly. Coordinate influent column with influent pipe as shown on Drawings.
- D. CONTRACTOR is required to field verify, prior to manufacturing the clarifier, the existing center pier bolt pattern and match it as required to connect new center column. The bolt pattern shown on the Drawings is based on Record Drawing information.
- E. Provide a drive mechanism mounting plate set plumb with the centerline of the center pier.
- F. Provide easily accessible and removable plate near the bottom of the center pier for draining center pier.
 1. Opening shall be large enough to insert a submersible pump to dewater the clarifier influent pipe.
 2. Removable plate shall provide a clear square opening not less than 18-inch by 18-inches.
 3. The opening shall be reinforced as needed to handle the imposed loads on the center pier.

2.6 INFLUENT STILLING WELL

- A. 304 Stainless Steel: ASTM A240.
 1. Thickness: 3/16" (Minimum)
- B. Stilling Well Configuration:
 1. Minimum diameter of 24-ft.
 2. Height below static liquid level in clarifier is 5-ft 6-in.
 3. Overall height: 6-feet.
 4. Feedwell shall extend 6-inches above water surface minimum.
 5. The feedwell shall diffuse the liquid into the tank without disturbance or formation of velocity currents.
 6. Provide baffle openings in well at a liquid level to allow release of scum in a tangential direction.
 7. Minimum four (4) openings.
 8. Ports shall be free to allow scum to escape with an adjustable, angled baffle plate to deflect floating material exiting the port.
 9. Incorporate 304 stainless steel stiffeners at the top and bottom to maintain shape and rigidity.

2.7 CENTER DRIVE UNIT ASSEMBLY (STRIP LINE DRIVE OPTION A)

- A. Ultimate Torque Rating: Not less than 2.5 times mechanism Design Running Torque specified.
- B. Motor, Primary and Secondary Speed Reducers: Mount separately and independently at center gear head drive platform. Mounting configurations that piggyback or otherwise vertically stack these components are not acceptable.
- C. Electric Drive Motor: Provide totally enclosed motor of ample power for starting and continuously operating the mechanism without overloading.
 1. The motor shall conform to NEMA standards and be named plated for operation on 230/460V, 3-PH, 60-Hz.
 2. Motor speed shall be 1200 or 1800 rpm.
 3. Motor shall be a minimum of 1/2-Hp.
 4. Refer to Division 16 - Electrical.

- D. Primary Speed Reducer:
1. Horizontally mounted cylindrical-worm or helical-worm gear motor type with gears supported by antifriction bearings. Connect to secondary speed reducer via a chain direct coupled drive system with drive sprocket directly mounted on its output shaft.
 2. ANSI/AGMA 6034-B92 and AGMA Service Classification II.
 3. Service Factor: Minimum 1.25 based upon Design Running Torque
 4. Overhung Load Rating: Exceed chain pull by minimum 1.75 based upon Design Running Torque
 5. Oil Fill, Drain and Level Indicator Devices, and Lubricant: ANSI/AGMA 9005-D94.
- E. Chain Drive:
1. Roller Chain: Standard, ASME B29.1M.
 2. Connect drive sprocket on primary speed reducer to driven sprocket on secondary speed reducer input shaft.
 3. Steel Sprockets: Minimum of 12 teeth.
 4. Chain:
 - a. Minimum tensile strength greater than 4 times chain pull based on momentary peak torque.
 - b. Power rating exceeding the transmitted power (based on continuous running torque) by 1.50 minimum.
- F. Secondary Speed Reducer:
1. Cylindrical-Worm and Worm-Gear Type:
 - a. Shafts supported by antifriction bearings and output shaft directly driving pinion gear of low-speed main bearing assembly.
 - b. Planetary gear type units are not considered equal in design and are not acceptable.
 2. Load Capacity and Torque Rating: ANSI/AGMA 6034-B92.
 3. Design: ANSI/AGMA 6022-C93.
 4. Service Classification: AGMA II.
 5. Service Factor: Minimum 1.25 based upon Design Running Torque.
 6. Output Shaft: One-piece output extending through worm-gear and low speed main gear drive pinion without intermediate couplings.
 7. Worm: Steel, heat treated, ANSI/AGMA 2004-B 89, ground and polished.
 8. Worm-Gear: Centrifugally cast, high silicon bronze copper alloy, or ductile iron.
 9. Bearings: ABMA L-10, life of 200,000 hours minimum.
 10. Oil fill, drain and level indicator devices, and lubricant conforming to ANSI/AGMA 9005-D94.
 11. Enclosure: ASTM A48, Class 40 minimum housing, and registered fit mounted to gear head drive platform.
- G. Low Speed Final Reduction Unit:
1. Enclosed turntable, balls in main bearing annular radial thrust raceway type, balls in compression and renewable strip liners
 - a. Ring Gear: Internal or external toothed, spur pinion gear driven, attached to secondary speed reducer output shaft.
 2. Low Speed Gearset:
 - a. Designed and Rated: ANSI/AGMA 2001-D04.
 - b. Power Rating:
 - 1) Lower of pitting resistance and bending strength ratings for pinion and gears.
 - 2) Based upon continuous 24 hours per day service at Design Running Torque for 180,000 hours minimum.
 - c. Spur Pinion Gear:
 - 1) Steel: Heat treated; integral with or keyed to its shaft.
 - 2) Wall Thickness (Above Keyway): Minimum depth of one tooth.
 - d. Ring Gear:
 - 1) Minimum 60-inch diameter.
 - 2) Solid one-piece or split construction of ductile (nodular) iron (ASTM A536), cast steel (ASTM A148), or heat-treated alloy steel.
 - 3) Split Gear Construction:
 - 4) Machined, minimum two alignment dowels, joined with Type 316 stainless steel bolts.
 - 5) Allowable Stresses (Calculated): Reduced to 85 percent joint efficiency for split gear construction.
 - 6) Bolted to center torque cage that supports and rotates collection mechanism.

- e. Teeth: Full-depth, ANSI/AGMA 2001-C95; stub-pitch and undercut gear teeth not acceptable.
- 3. Main Bearing:
 - a. Ball Raceway Diameter: Minimum 66-inches, low unit ball load and stability without guide shoes or steady bearings.
 - b. Raceways and Balls: ABMA L-10 life of minimum 180,000 hours when operating continuously at Design Running Torque.
 - c. Load Carrying Balls:
 - 1) Steel: Chrome steel, hardened to 60-65 Rockwell C.
 - 2) Diameter: Minimum 1-1/4 inch. If all balls are load-carrying, 1-inch diameter balls are acceptable.
 - 3) Compression Yield Strength: Minimum 375,000 psi.
 - d. Spacer Balls: 1/16-inch lesser diameter than and of same material as, load carrying balls.
 - e. Raceways: Four 1/2-inch thick by 7/32-inch wide, vacuum degassed high carbon steel renewable liner strips force fit (pin or cap screw attachments not acceptable) into base and ring gear, and specially hardened to 43-46 Rockwell C.
- H. Turntable Base and Housing:
 - 1. Bolt to center column, support entire rotating collector mechanism, transmit mechanical design strengths, support main bearing assembly, and one end of access walkway, and form center platform for convenient access to drive unit components.
 - 2. Platform: 30-inch minimum clearance walking and working surface outside drive unit components mounted at platform.
 - 3. Cast Iron: Gray, ASTM A48, Class 40 minimum.
- I. Load Limiting Device
 - 1. Mounted on output shaft of secondary speed reducer.
 - 2. Activates at 100 percent of Design Running Torque.
 - 3. Limit Switch Assembly:
 - a. NEMA 250 Type 4X, to detect device activation and shutdown drive motor and initiate alarm.
 - b. Two SPDT contacts (two NO, two NC) each rated 10 amps continuous at 120 volts, 60-Hz.
 - 4. Enclosure: OSHA approved, weatherproof, 1/8-inch minimum thickness, fabricated galvanized steel guard, incorporating appropriate service openings.
- J. Mechanism Overload Device:
 - 1. Mechanical: Actuate integral contacts to indicate impending overload and shutoff drive motor at predetermined load.
 - 2. Impending Overload Contact (Alarm Torque): Actuate at 45 percent of Design Running Torque.
 - 3. Motor Shutdown Contact (Cutout Torque): Actuate at 75 percent of Design Running Torque.
 - 4. Contacts: Single-pole, double-throw rated 5 amps, 120V ac.
 - 5. Enclosure: NEMA 250, Type 4X, Aluminum epoxy coated
 - 6. Indicating Pointer: Indicate relative load on graduated scale up to Ultimate Torque.
 - 7. Provide shear pin device or backup motor cutout switch to protect drive unit in case of control system failure. Shear pin shall be rated at 100 percent of Design Running Torque.

2.8 CENTER DRIVE UNIT ASSEMBLY (PRECISION BEARING OPTION B)

- A. Design Parameters:
 - 1. The drive unit shall be designed for the torque values previously listed. It shall turn the mechanism at the design collector tip speed. The drive main bearing shall be designed for the total rotating mechanism loads with a minimum L 10 life of 100 years or 876,000 hours. The drive unit shall be capable of producing and withstanding the previously listed momentary peak torque while starting. The drive main gear shall be designed to a minimum AGMA 6 rating when rated in accordance with the latest AGMA standard. Gear teeth shall be designed for proper load distribution and sharing. The main bearing shall be capable of withstanding the listed overturning moment without the aid of any underwater guides or bearings to ensure correct tooth contact for AGMA rating of the main gear.

2. All spur gearing shall be designed to the latest AGMA spur gear standard for strength and surface durability, based on a life of 175,000 hours. The design running torque rating of the drive gearing shall be based on the smaller of the strength and durability values determined from the above AGMA standard. To ensure safety and ease of maintenance, all components of the drive shall be direct coupled.
 3. Any and all welding on the drive unit shall be done using E70XX weld rod.
- B. Physical Characteristics:
1. The drive unit shall consist of a solid internal main spur gear, bearing turntable, pinion, secondary speed reducer, support base, and drive unit bearing. The drive shall be mounted on the center column and support the entire rotating load of the mechanism. The main internal gear shall be forged of alloy hardened steel. The pinion shall be heat treated alloy steel. All speed reducers shall be fully enclosed and running in grease. Support base for the drive shall be of welded steel to assure rigidity. Lubricant and dust shields shall be provided. The drive bearing shall include a forged steel precision gear/bearing set, with fully contoured raceways hardened to a minimum 58 60 Rc and protected by a neoprene seal. The drive shall be designed so that the balls and nylon spacers can be replaced without removing the access walkway. The main gear to pinion gear mesh shall be grease lubricated. Lubrication fittings shall be readily accessible. Continuous condensate drains shall be provided in the main gear housing.
- C. Overload Protection:
1. An overload device shall be provided in a stainless steel, weatherproof enclosure. The device shall be actuated by torque generated from the main drive, which shall operate two independently adjustable switches (the alarm switch at 100 percent of design running torque and the motor cutout switch at 120 percent of design running torque). These two switches shall be factory adjusted to accurately calibrate the alarm torque value and the overload position. A visual torque indicator shall be provided and oriented so that it may be read from the walkway. It shall be calibrated from 0 to 160 percent of design running torque.
- D. Turntable:
1. The turntable base shall have an annular bearing raceway upon which the rotating assembly rests. It shall have a maximum allowable deflection in accordance with the bearing specifications. The allowable modulus of elasticity shall be a minimum of 29 x 10⁶ psi. The center cage shall be fastened to and supported from the gear casing. Ball bearings shall be of high carbon chrome alloy 52100 steel running in fully contoured races, as part of a precision gear/bearing set. The balls shall be grease lubricated and protected by elastomer seals.
- E. Speed Reducing Unit:
1. The speed reducing unit shall consist of cycloidal, helical, and/or planetary speed reducers directly connected to a motor, and shall be keyed to the pinion.
 2. The main ring gear of cycloidal drives shall be made of high carbon chromium bearing steel and be fixed to the drive casing. An eccentric bearing on the high-speed shaft shall roll cycloidal discs of the same material around the internal circumference of this main ring gear. The lobes of the cycloid disc shall engage successively with pins in the fixed ring gear. The movement of the cycloid discs shall be transmitted then by pins to the low-speed shaft. Speed reducer efficiency shall be a minimum of 92.5% per reduction stage.
 3. The speed reducer shall have a minimum service factor of 1.33 based on the output torque rating of the drive. The speed reducer shall be capable of withstanding a 500% shock load.
 4. The reducers shall be fitted with radial and thrust bearings of proper size for all mechanism loads and be grease lubricated. As a safety feature, the speed reducer shall be back driveable to release any stored energy as the result of an over torque condition.
- F. Motor:
1. The motor shall be a squirrel cage, induction type, TEFC, ball bearing heavy-duty unit of ample power for starting and operating the mechanism without overload, with a minimum service factor of 1.15.
 2. Power supply to the equipment shall be 240/480-volt, 60 hertz, 3-phase.

2.9 CENTER TORQUE CAGE

- A. 304 Stainless Steel (ASTM A240), box truss design, minimum 5-foot square and components minimum ¼-inch thick.

- B. Supports and rotates influent stilling well, skimming devices, truss, rake arm, and fastens to main ring gear with machine screws or bolted connections.
- C. Drive cage shall transmit and/or carry all torques (including stall torque) without over stressing members. Do not transmit any torque to the access bridge.
- D. Design drive cage to encompass center column.
- E. Design adjustable connection between drive unit and drive cage to provide for proper alignment and allowance for structural tolerance.
- F. Designed with sufficient strength and rigidity such that calculated stresses do not exceed the ASC allowable stress at twice the drive 100 percent rating.
- G. Connections to Rake Arms: Adjustable, bolted, and seal welded after alignment.

2.10 RAKE ARMS

- A. 304 Stainless Steel (ASTM A240), angular and tubular elements (Minimum 1/4-inch thick).
- B. Full radius, all-welded 304 stainless steel triangular or diagonally box truss design that supports and rotates sludge scraper blades, and skimming devices supported from the center torque cage. Use of tie rod supports is not acceptable.
- C. Quantity: Two (2) per clarifier.
- D. Sludge scraper arms with diagonal rake blades on both arms fitted with stainless steel squeegees angled to scrape sludge towards center of clarifier.
- E. Sufficient strength and rigidity such that at Ultimate Torque load, and while sweeping in floor grout, no member will be stressed to level beyond maximums allowed by current AISC Specifications.
- F. Truss Width: Same as center torque cage or as needed to adequately support rake.
- G. Squeegees:
 - 1. Materials: 27-gauge, spring brass or 20-gauge, type 304 stainless steel.
 - 2. Attached to stainless steel sludge scraper blades.
 - 3. Bolts, Nuts, and Washers: Type 316 stainless steel.
 - 4. Vertical Alignment: Between 1/2-inch minimum and 1 1/2-inch maximum clearance above grouted clarifier bottom.
- H. Counterweight Assembly:
 - 1. On rake arms to balance weights of scum skimmer components or other appurtenances, as necessary.
 - 2. Design: By mechanism manufacturer.
 - 3. Fabricated welded 304 stainless steel box filled with proper quantity of 304 stainless steel punching and topped with 2 inches minimum of grout or multiple 304 stainless steel plates of various thickness and quantities supported by baseplate and forming stack bolted together by at least two Type 316 stainless steel bolts.

2.11 SCUM SKIMMING SYSTEM

- A. Mechanically collect and discharge surface scum from annular space between center influent stilling well and outer perimeter scum baffle.
- B. Skimming Arm and Skimmer Blade Assemblies: Support from sludge collector truss.
 - 1. Quantity: Two (2) per Clarifier
 - 2. Supports: Maximum 10-foot centers.
 - 3. Bolted Connections: Permit plate removal.
- C. Skimming Arm:
 - 1. Extend tangentially from, but not necessarily attached to, center influent stilling well continuously outward to skimmer blade assembly at perimeter of clarifier.
 - 2. 304 Stainless Steel (ASTM A240), plate and shapes, minimum thickness 1/4 inch
 - 3. Extend plate from 3 inches above to 3 inches below static liquid level (weir invert elevation) in clarifier.

4. Skimming arm shall be designed and configured to prevent any potential hazard in the operation of the system. It shall be designed to minimize any risk of the skimming arm getting caught on the scum box.
- D. Skimmer Blade Assembly:
1. Trap scum at perimeter scum baffle and discharge it into scum trough.
 2. Hinged, adjustable unit designed such that when passing over scum trough bottom, blade edge is always in contact with trough even if trough is not horizontal or plumb.
 3. Lockout Device: Permits unit to be raised and maintained out of liquid.
 4. Lift Mechanism: Operable from exterior walkway or bridge deck.
 5. Blade: Extend full width of scum trough.
 - a. Bottom and Edges: Replaceable neoprene seal strips to ensure continued entrapment and discharge of scum into scum trough.
 - b. Inner and Outer Edges: Suitable, separate wearing surfaces.
 6. Adjustable, spring-loaded device, minimum applied force of 5 pounds, or flexible neoprene wiper to constantly force seal with perimeter scum baffle.
- E. Scum Trough Assembly:
1. One per clarifier, including horizontal submerged shelf and inclined beach.
 2. 304 Stainless Steel (ASTM A240), plate and shapes, minimum thickness 1/4 inch.
 3. Radial Width: Minimum 6-ft.
 4. Circumferential Length (Including Inlet and Outlet Beaches): Match existing scum box dimensions (4-ft Minimum).
 5. Inlet Inclined Beach Length: Minimum 65 percent of total circumferential length of trough.
 6. Trough Opening: 12-inch wide, radially sloped bottom, with 8-inch outlet.
 7. Support from basin weir wall and connect to scum baffle with adequate supports.
 8. Scum Trough Assembly shall be anchored to the existing clarifier wall. The wall shall be x-rayed prior to fabricating all support plates and frames. Adjust bolt hole pattern as necessary to minimize damage to existing clarifier wall reinforcing steel. The scum trough support system shall be designed based on the scum trough being full of wastewater combined with an empty clarifier.
 9. Support of skimming blade as it passes over scum trough opening shall be provided by support bars over opening or roller and track assembly.
 10. Track: Vertically and horizontally adjustable, arranged to properly engage roller assembly on skimmer blade assembly at outside perimeter edge.
 11. Support Bars: Maximum of three per scum trough, sized to provide adequate support for skimmer blade.

2.12 SCUM SPRAY SYSTEM

- A. A scum spray system shall be provided by the manufacturer of the sludge collector equipment to provide a means of spraying scum or foam to break it up and assist in skimming. The spray header shall extend across the scum box, along one side of the walkway bridge, and around the perimeter of the center walkway as shown on the Drawings. The spray water shall be provided from the plant non-potable water system.
- B. A secondary manually operated spray system shall be provided by the manufacturer of the sludge collector equipment to spray the water surface of the primary clarifier outside the stilling well. Provide system for Primary Clarifier Nos. 1 and 2.
- C. Design Requirements:
1. Application Rate: 0.5-gpm per linear foot of basin radius.
 2. Supply header: minimum 2-in pipe size.
- D. Operation and Control:
1. The spray system shall allow for manual operation.
- E. Equipment:
1. The spray system shall consist of a spray manifold mounted from the access bridge.
 2. The spray header shall be 316 Stainless Steel Pipe and shall be a minimum of 2-inch pipe size. Stainless supports w/ isolation kit shall be provided for mounting to the access bridge. Supports shall be placed per manufacturer's recommended spacing at no greater than 5-ft.
 3. The spray nozzles shall be positioned approximately 18-in from the water surface and shall have a wide flat pattern that impacts the water surface at approximately 15-degrees from horizontal. Spray nozzles shall be stainless steel with swiveling/adjustable heads.

4. All associated isolation valves as shown on the Drawings shall be 316 Stainless Steel.

2.13 SCUM BAFFLES

- A. Molded fiberglass plate in accordance with Section 46 43 25, WEIR AND BAFFLE PLATES.
- B. Minimum ¼-inch thickness.
- C. Configuration shall be as shown on the Drawings.
- D. Anchoring: Type 316 stainless steel adhesive anchors as specified in Section 05 50 13, MISCELLANEOUS METAL FABRICATIONS.

2.14 WEIR PLATES

- A. Molded fiberglass plate in accordance with Section 46 43 25 WEIR AND BAFFLE PLATES
- B. Minimum ¼-inch thickness.
- C. Configuration shall be as shown on the Drawings.
- D. Anchoring: Type 316 stainless steel adhesive anchors as specified in Section 05 50 13, MISCELLANEOUS METAL FABRICATIONS.

2.15 ACCESS WALKWAY (BASE BID)

- A. Existing Access Walkway will be reused. Coordinate with Contractor to ensure that existing walkway is properly supported at the clarifier wall and new clarifier equipment. Refer to Drawings that stipulate specific rehabilitation of the access walkway associated with Primary Clarifier No. 1 and 2.

2.16 ACCESS WALKWAY (ADDITIVE ALTERNATIVE NO. 1)

- A. Provide access walkway from side of clarifier to center drive unit and access platform around center drive unit.
- B. Support System:
 - 1. Painted Steel (A36) in compliance with ASTM A123/123M truss type bridge construction rigidly supported on center pier and at access end on clarifier wall with thermal expansion compensating anchorage.
 - 2. Angle truss system is necessary to carry loads and produce required clear walkway width. Extend full radius. Clarifier manufacturer is responsible for the design of the walkway.
- C. Bridge Design:
 - 1. Maximum Vertical Deflection: 1/360 of span under uniform 50 pound per square foot of walkway surface live load, plus dead load. Camber for 1/3 live load plus dead load.
 - 2. Maximum Horizontal Deflection: 1/360 of span under uniform horizontal loading of 50 pounds per linear foot.
 - 3. Horizontal and vertical design live loads need not be applied simultaneously.
 - 4. Walkway Surface Elements: Do not utilize to reduce calculated bridge deflections.
 - 5. Provide step(s) as necessary at outboard end of bridge to allow access from walking surface adjacent to clarifier at elevation as shown on Drawings. Stair tread(s) shall be 12 inches with 1-inch nosing to provide effective 11-inch tread, equally spaced to provide equal risers at maximum 7 inches from access landing to bridge surface. The drawings show re-use of existing concrete apron and steps to be re-used.
- D. Surface:
 - 1. Material: Aluminum Grating.
 - 2. Thickness: Minimum, 1-3/4-inch.
 - 3. Width: Extend minimum to guardrail/handrail supports.
- E. Width:
 - 1. 36-inches minimum clear between guardrails/handrails.
- F. Guardrails/Handrails:
 - 1. Extend along both sides of bridge and around center platform.
 - 2. Truss type bridge members shall be used as guardrail/handrail.
- G. Kickplates:

1. Anodized Aluminum: 4-inch high by 3/16-inch minimum thickness.
2. Fasteners: Type 316 stainless steel.
3. Locate around center platform perimeter and full length of both sides of access walkway.

2.17 DISSIMILAR METALS

- A. Isolate dissimilar metals or connectors to prevent direct contact and electrical conductivity.
- B. Use 1/8-inch-thick continuous neoprene gasket to insulate aluminum grating, checker plate, and handrail post bases from access walkway support bridge and other components.
- C. Use insulating washer and Teflon sleeves at bolted connections.

2.18 ACCESSORIES

- A. Lifting Lugs: Provide on equipment assemblies and components weighing over 100 pounds.
- B. Anchor Bolts:
 1. Equipment: Provide coated Type 316 stainless steel bolts mechanical wedge style, sized by equipment manufacturer and at least 1/2 inch in diameter or as shown.
 2. Equipment Identification Plates: 16-gauge, Type 316 stainless steel, securely mounted on each separate equipment component and control panel in readily visible location. Plate shall bear 3/8-inch-high die-stamped block type black enamel filled equipment identification number and letters.

2.19 FABRICATION

- A. Paint Steel (A36) components in compliance with ASTM A123/123M.
- B. All A36 steel shall be minimum 1/4 -inch thick.
- C. Shop fabricate and assemble mechanism components in largest sections practicable and permitted by transportation carrier regulations.
- D. Welded Construction: Comply with AWS D1. 1 for procedures, appearance, and quality of welds, and methods used in correcting welding.
- E. Shop/Factory Finishing:
 1. Shop prime ferrous metal in accordance with and as specified in SECTION 09 80 00, COATING SYSTEM (FERROUS METALS), for all submerged surfaces and for all non-submerged, non-galvanized surfaces.
 2. Exposed metal surfaces of motors, gear reducers, assemblies, shall be factory prepared and primed and field finish coated in accordance with manufacturer's recommendations.
 3. Surfaces inaccessible subsequent to erection, shall be prepared, primed, and finished with the applicable coating prior to erection.
 4. Seal welding shall be provided for submerged welded joints. Skip welds are not acceptable.

2.20 SOURCE QUALITY CONTROL

- A. Factory Inspections: Inspect all equipment for required construction, electrical connection, and intended function.
- B. Factory Adjustments: Calibrate torque controls.
- C. CWI shall be Present whenever Shop Welding is performed and shall:
 1. Monitor conformance with approved welding procedure specifications.
 2. Monitor conformance of welder/welding operator qualifications.
 3. Inspect weld joint fit-up and provide in-process inspection.
 4. Provide 100 percent visual inspection of welds in accordance with AWS D1.1, Paragraph 6.9.
 5. Maintain records and prepare report confirming results of inspection.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. In accordance with manufacturer's written instructions.

- B. No field welding, except seal welding will be allowed. Seal weld continuously at connections for tightness against leakage. Seal welding shall comply with applicable requirements of AWS D1.1.
- C. Anchor Bolts: Place using steel templates furnished by manufacturer.
- D. If deductive alternative is selected, shop prime and field finish all ferrous metals prior to installation.

3.2 FINISHING

- A. Paint ferrous metal in accordance with Section 09 80 00, COATING SYSTEMS (FERROUS METALS), for all submerged surfaces non-submerged, and non-galvanized surfaces. Shop primer shall be completely removed from submerged surfaces (as defined herein) by abrasive blasting prior to field priming and finish coating.
- B. Paint exposed metal surfaces of motors, gear reducers, and assemblies in accordance with 09 80 00, COATING SYSTEMS (FERROUS METALS).
- C. Shop prime and finish coat skimming arm.

3.3 CLARIFIER LEVELING

- A. Contractor is responsible for leveling clarifier to include both existing new clarifier mechanism. Leveling shall be to Clarifier Manufacturer's required tolerances between the clarifier floor and rake arm squeegees, and between the skimming arm and scum baffle plate. All adjustments to both existing and new clarifier mechanism components shall be accomplished in accordance with clarifier manufacturer requirements.

3.4 WEIR PLATE RE-INSTALLATION

- A. Install weir plates such that weir crest is level with a maximum variation of 1/16 inch throughout its entire length.
- B. Gasket:
 - 1. Install between weir plate and concrete wall, extending from bottom of weir plate to the top of the wall.
 - 2. Gasket shall be continuous along entire length of weir plate, except at scum trough where a joint is allowed.
 - 3. Joints: Butt type, using adhesive recommended by gasket manufacturer for submerged service.
- C. Sealant:
 - 1. Clean and prepare concrete and weir plate surfaces in accordance with sealant manufacturer's recommendations.
 - 2. Application:
 - a. In accordance with manufacturer's instructions.
 - b. Completely cover the interface between the weir plate and mounting surface over the full height of the weir plate.
 - c. Apply sufficiently to completely fill any gaps between the weir plate and the supporting wall surface.
 - d. Clean excess sealant that is forced from between the weir plate and supporting wall as the plate is tightened against the wall surface to provide a neat installation.
 - e. Clean all adjacent surfaces of smears of soiling.

3.5 FIELD QUALITY CONTROL

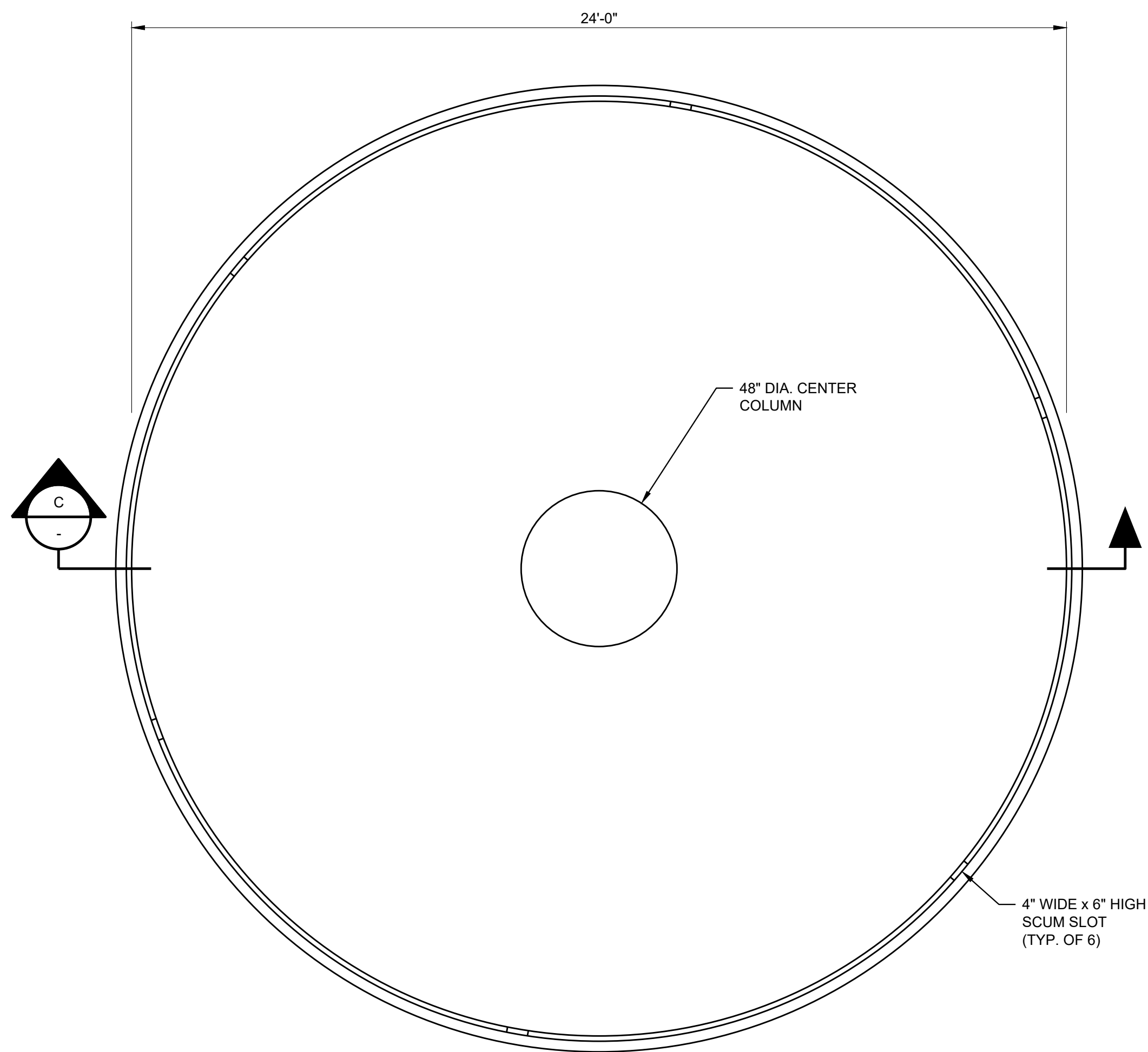
- A. Before placing clarifiers into service, check weir plate settings by filling clarifiers with water to design elevation 536.20 ft. Re-adjust as recommended by ENGINEER. Level weirs to within plus or minus 1/16 inch of design elevation.
- B. Functional Tests:
 - 1. Conduct on each mechanism.
 - 2. Test for continuous 3-hour period without malfunction.

3.6 MANUFACTURER'S SERVICES

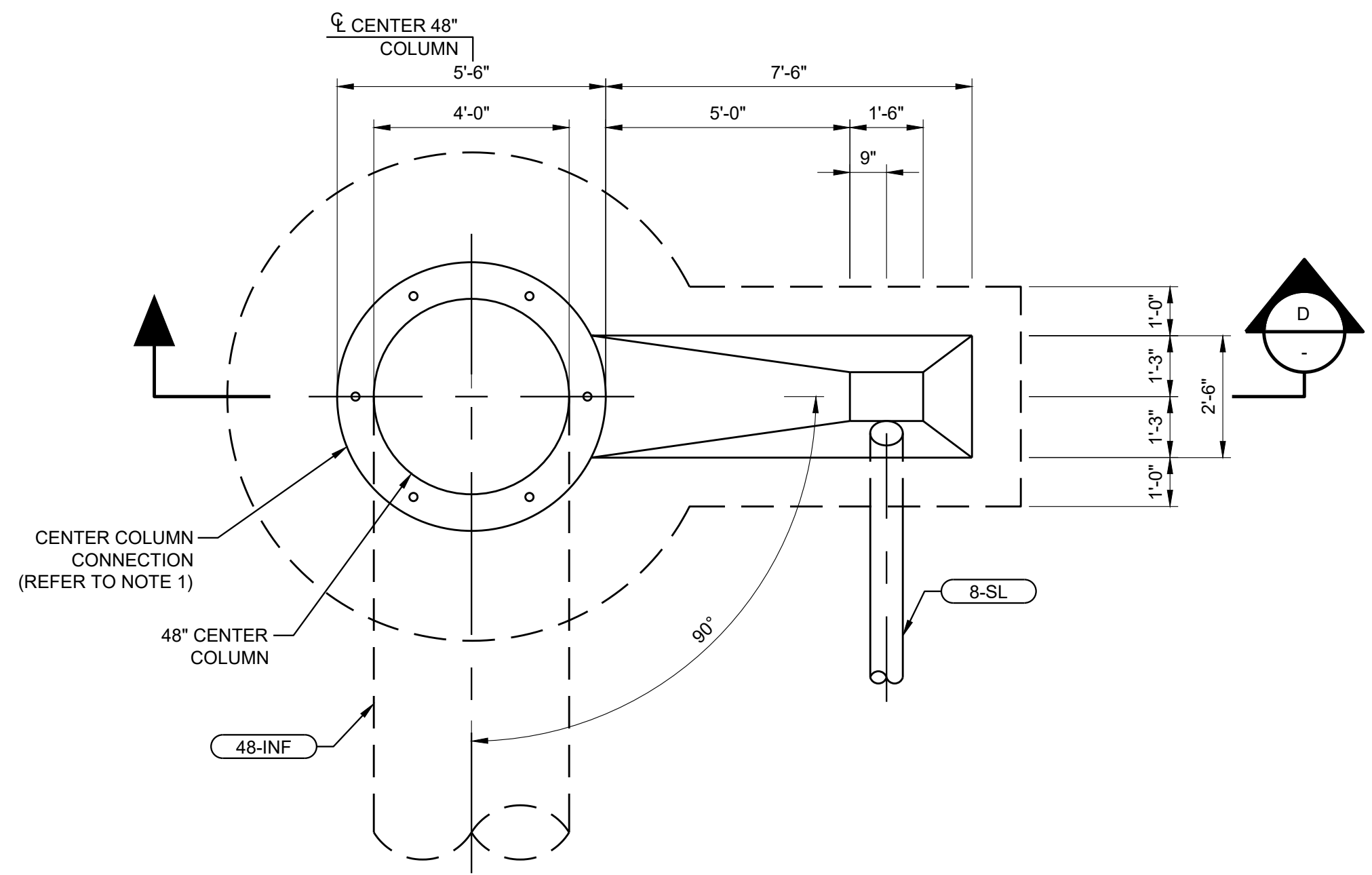
- A. Manufacturer's Services and Certificate of Compliance: Provide Manufacturer's Services and Manufacturer's Certificate of Compliance in conformance with the requirements of Section 01 66 00, MANUFACTURER'S SERVICES. Manufacturer's representation shall provide supervision of equipment installations, field inspection of equipment before startup and the executed copies Manufacturers Services and Certificate of Compliance.
- B. Provide manufacturer's services in accordance with Section 01 66 00, MANUFACTURERS' CERTIFICATES OF COMPLIANCE and as follows:
 - 1. Manufacturer's Assistance to the CONTRACTOR: Four (4) days and 1 trip per Clarifier.
 - 2. Manufacturer's Certificate of Proper Installation: Four (4) days and 1 trip per Clarifier.

END OF SECTION

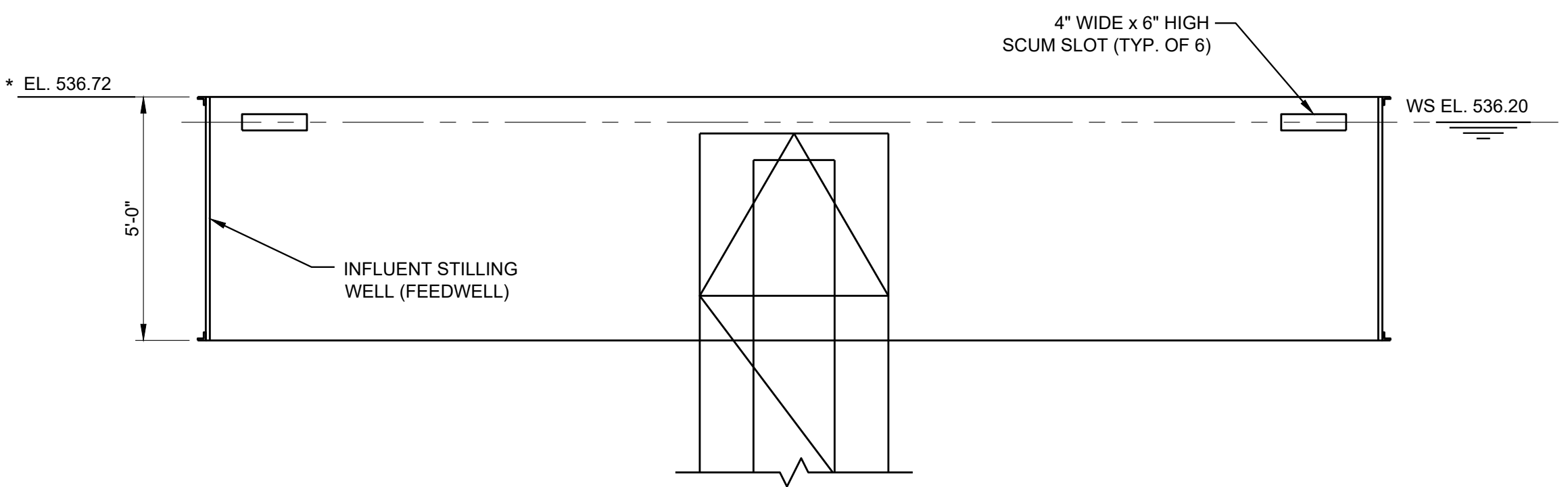
4/24/2024 L:\SHARE\ENGINEERING\SAWS\LEON CREEK WRC PC NO. 1 AND 2\14. PRODUCTION\DRAWINGS\SHEETS\1136-S-M3_ADDENDUM_1.DWG



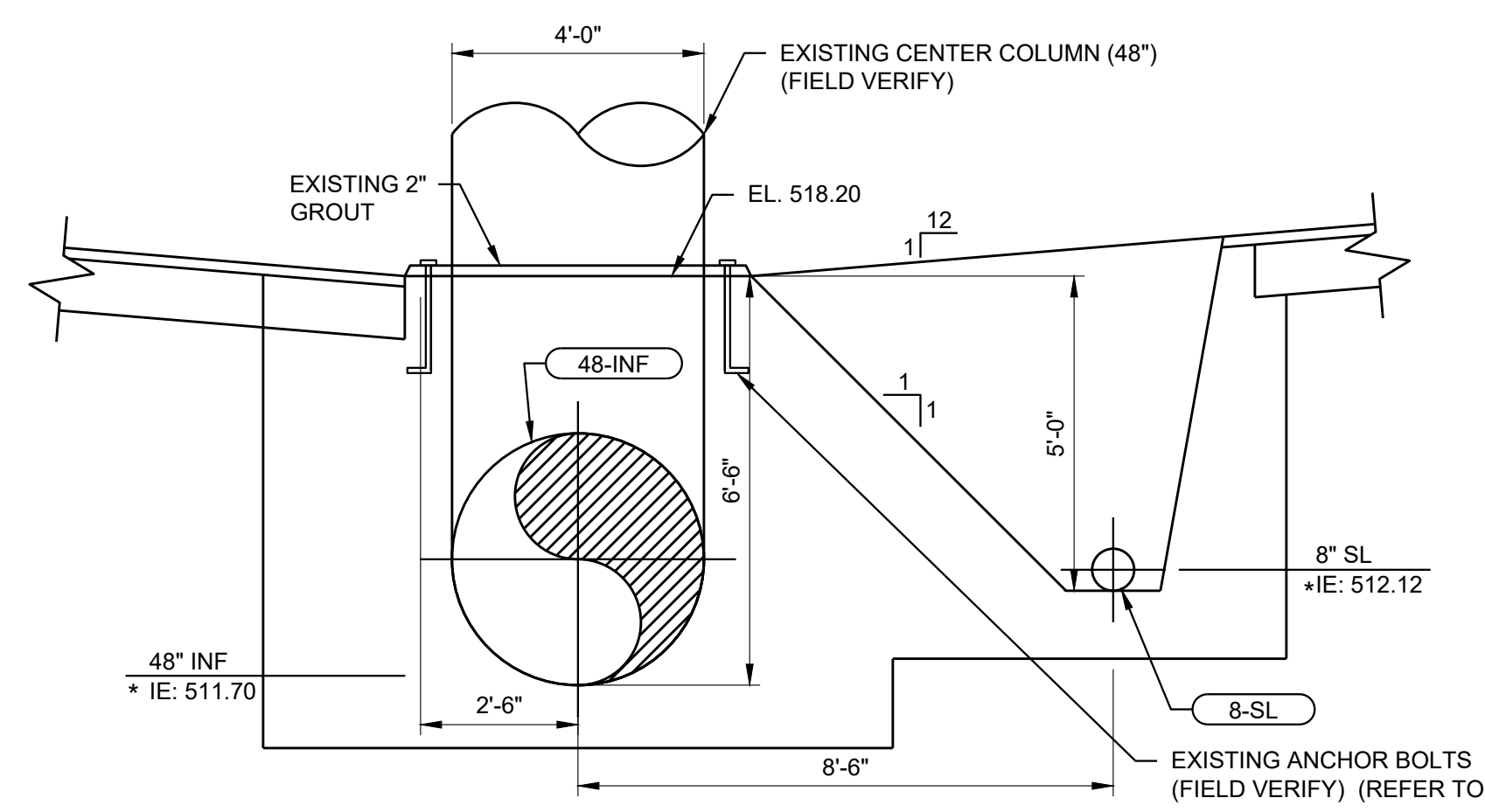
2 FEEDWELL
SCALE: 3/8" = 1'-0"



3 CENTER PIER PLAN
SCALE: 3/8" = 1'-0"



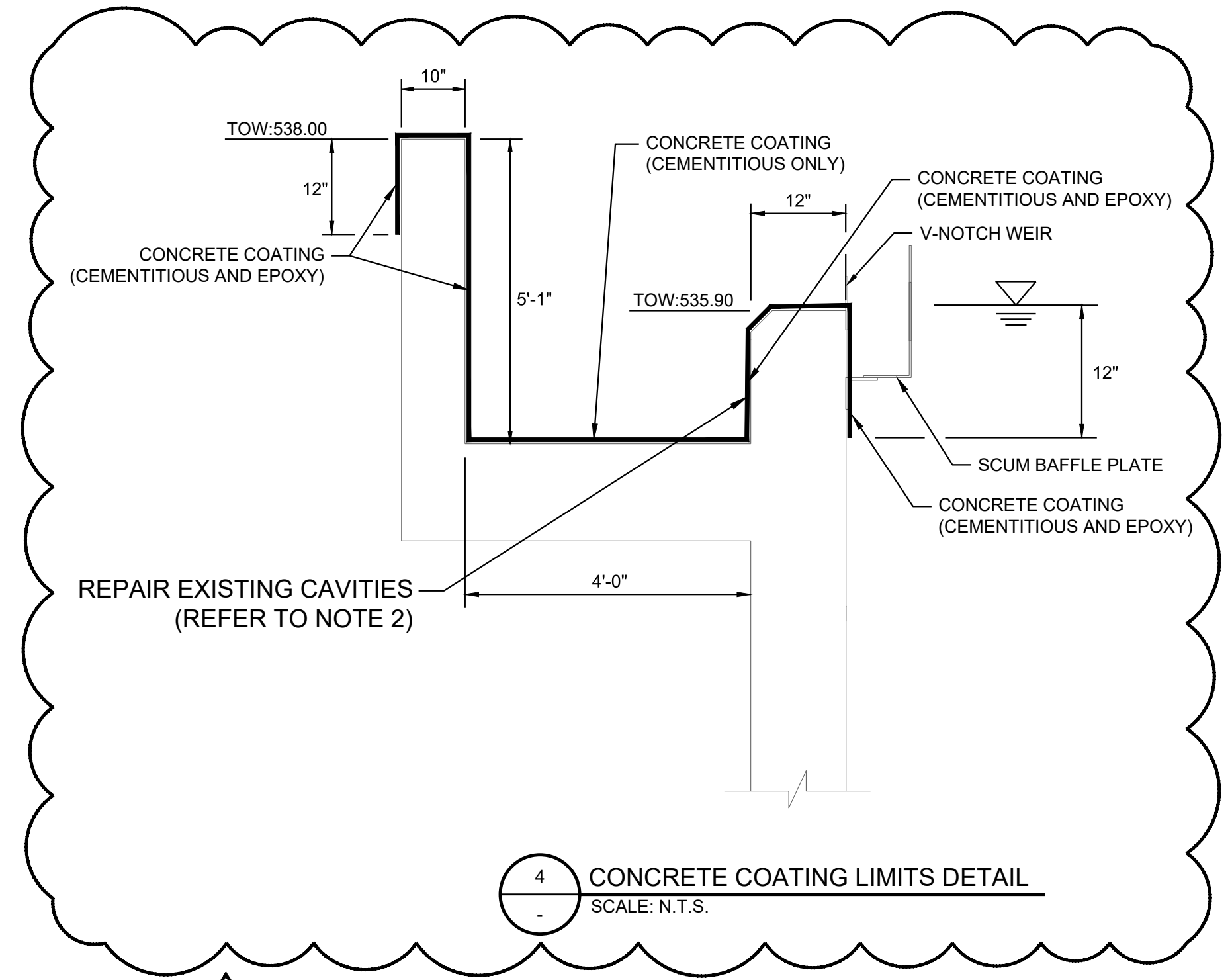
C SECTION
SCALE: 3/8" = 1'-0"



D SECTION
SCALE: 3/8" = 1'-0"

- NOTES:**
1. FIELD VERIFY EXISTING BOLT PATTERN AND MATCH AS REQUIRED TO CONNECT NEW CENTER COLUMN. RECORD DRAWING INDICATE NUMBER, SIZE, AND LOCATION OF BOLTS WERE DETERMINED BY ORIGINAL CLARIFIER MANUFACTURER.
 2. PRIMARY CLARIFIER NO. 1 AND 2 HAS A NUMBER OF SMALL CAVITIES/HOLES ALONG THE INSIDE PERIMETER OF THE LAUNDER WALL. THESE HOLES ARE APPROXIMATELY 1 TO 2 - INCHES WIDE BY 1/2 TO 2 - INCHES DEEP AND ARE SPACED APPROXIMATELY 3 TO 4-FT ON CENTERS. USE A LOW SHRINKAGE, FIBER REINFORCED NSF/ANSI STANDARD 61 REPAIR MORTAR, EUCOREPAIR V100 AND LIQUID LATEX BONDING AGENT, EUCOWELD 2.0 BY EUCLID CHEMICAL OR APPROVED EQUAL TO REPAIR.

1

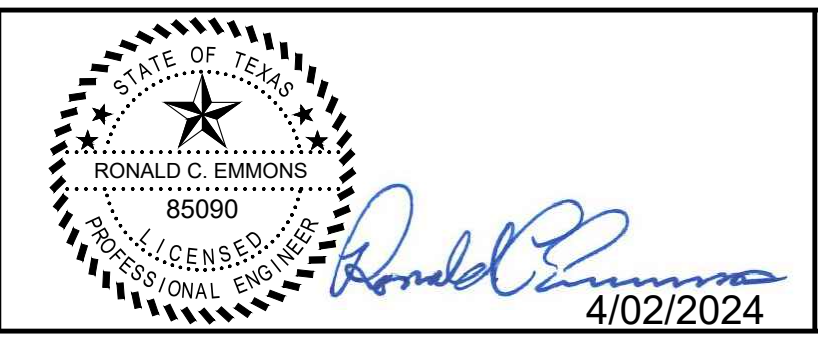


4 CONCRETE COATING LIMITS DETAIL
SCALE: N.T.S.

1

* FIELD VERIFY ALL ELEVATIONS. ELEVATIONS ARE BASED ON SAWS RECORD DRAWING INFORMATION.

PROJECT:	1136		
DESIGN:	R.E.		
DRAWN:	H3		
APVD:	J.G.		
FILE:			
	1	4/23/24	ADDENDUM NO. 1
	NO.	DATE	REVISION



GIC
Garcia Infrastructure Consultants, LLC
Texas Firm No. F-17794
12042 Blanco Rd., Ste. 175
San Antonio, Texas 78216
Ph. (210) 437-0323

SAWS
SAN ANTONIO WATER SYSTEM
2800 U.S. HWY 281 NORTH
San Antonio, Texas 78212

LEON CREEK WATER RECYCLING CENTER
PRIMARY CLARIFIER NOS. 1 AND 2 REHABILITATION
SAWS Job No. 22-0144
PRIMARY CLARIFIER NO. 1 AND NO. 2
DETAILS (1 OF 2)
San Antonio, Texas

M3
SHT 11 OF 17