



SECTION F

TECHNICAL SPECIFICATIONS

CSA 64 RECOATING TANKS 2A AND 2B PROJECT

FOR

**COUNTY SERVICE AREA 64
HESPERIA, CALIFORNIA**

PROJECT NO.: 30.30.0115



**SAN BERNARDINO COUNTY
SPECIAL DISTRICTS DIVISION
SPECIFICATIONS AND CONTRACT DOCUMENTS
FOR
REHABILITATION OF CSA 64
TANKS 2A AND 2B**

17470 Alder St., Hesperia, CA 92345

May 10, 2024

Prepared by:



Engineering Resources of Southern California, Inc.
1861 West Redlands Blvd, Bld. 7B
Redlands, CA 92373

Job No. 86006096

Submitted to:

Mr. Russel Vioria, Project Manager
Department of Public Works, Special Districts Division
222 W. Hospitality Lane, 2nd Floor
San Bernardino, CA 92415

SAN BERNARDINO COUNTY SPECIAL DISTRICTS

CSA 64 TANKS 2A & 2B

SECTION INDEX

SECTION

SECTION 01000	SUMMARY OF WORK.....	1-14
SECTION 02100	MOBILIZATION/DEMobilIZATION/CLEANUP	1-4
SECTION 09800	TANK COATING AND PAINTING	1-22
SECTION 13200	MISC. STRUCTURAL MODIFICATIONS.....	1-8

NOT FOR BID

SECTION 01000 - SUMMARY OF WORK

PART 1 - GENERAL

1.1 WORK UNDER THIS CONTRACT

- A. The contractor shall furnish all labor, equipment and materials as required by these specifications for the following reservoirs. (The dimensions are approximate only and shall be field verified by the Contractor prior to bidding.)

	<u>TANK</u>	<u>SIZE</u>	<u>DIMENSIONS</u>
1.	TANK 2A	0.67 MG	60 ft. Dia. x 32 ft. Ht.
2.	TANK 2B	1.0 MG	75 ft. Dia. x 32 ft. Ht.

- B. Work to be performed includes modification of miscellaneous structural items to bring the structure into compliance with current safety and health codes, standards and regulations, surface preparation and paints to modifications, handling of hazardous and non-hazardous materials/waste, disinfection of interior surfaces, and other work necessary to accomplish the approved end result of totally protected and usable structures, including attachments, accessories and appurtenances. The following items are required, except as otherwise noted, generally as follows:

1. (Tank 2A Only) All coal tar enamel present on the interior surface shall be removed by pneumatic-mechanical chipping method prior to abrasive blasting.
2. Remove all interior coatings by abrasive blast cleaning.
 - a. The topside of the existing rafters shall be blasted and coated in accordance with the specifications.
 - b. If new rafters are installed, topside and inaccessible surfaces of new rafters shall be coated prior to installation.
3. Apply a 100% solids NSF 61/600 epoxy coating system to all interior surfaces.
 - a. In addition to spraying the coating system the Contractor will be required to back roll the coating system on the steel surfaces where excessive pitting is present.
4. Electrically detect 100% solids epoxy coating system and repair as required.
5. Cure interior epoxy coating as specified herein.
6. Test, handle and dispose of hazardous and non-hazardous interior coating wastes in conformance to all regulations.
7. Apply a flexible sealant to inaccessible voids as designated by the Engineer and all roof lap seams.

8. Wash down and disinfect interior surfaces.
9. Contain the exterior of the reservoir and remove all exterior paint from roof, shell, piping and appurtenances by abrasive blast cleaning or other approved method.
10. Apply specified primer to all exterior surfaces blasted cleaned in Item 9. above, roof, shell, piping, and appurtenances.
11. Apply intermediate and finish coats of paint to all exterior surfaces primed in Item 10. above.
12. Test, handle and dispose of hazardous and non-hazardous wastes generated from exterior painting operations in conformance to all regulations.
13. Remove and dispose of the existing guardrailing and furnish and install new perimeter guardrailing, in accordance with the plans.
14. Furnish and install a new safety gate at the top of the ladder in accordance with the plans.
15. Remove and dispose of existing screening on all roof vents and replace with new fine and coarse mesh aluminum screening at the completion of the interior coating and exterior painting. Replace all the nuts and bolts securing the vent structure to the tank.
16. Furnish and install a 24" auxiliary roof vent at location designated on the plans.
17. (Tank 2A Only) Remove and dispose of existing primary roof hatch and plate over opening. Plate over the opening with $\frac{1}{4}$ plate and seal weld to the roof. The plate shall overlap a minimum of 2 inches onto the existing roof plate. Fabricate and install a new 36" x 36" roof hatch with aluminum cover at location designated on the plans. The hatch can be shifted to be aligned between the existing rafters. Hatch must be aligned with the interior ladder in a manner that allows a person safe access to the ladder. The new hatch shall open toward the center of the tank.
18. (Tank 2A Only) Remove and dispose of existing interior ladder and braces and fabricate and install new fiberglass ladder at the new roof hatch. The interior ladder must be aligned with the hatch in a manner that allows a person safe access to the ladder.
19. (Tank 2A Only) Furnish and install a Saf-T-Climb fall prevention device on the interior, including dismount section. Furnish locking sleeve and harness to the District.
20. (Tank 2A Only) Remove and dispose of existing exterior ladder and cage. Furnish and install a new exterior split ladder, platform, and vandal guard at location designated on the plans.
21. (Tank 2A Only) Furnish and install a new 36 diameter shell manhole at location

designated by the Engineer.

22. (Tank 2A Only) Remove existing liquid level indicator gauge board and equipment and install a completely new liquid level indicator system at location designated on the plans.
23. Furnish and install an air break in the exterior overflow pipe in accordance with the plans.

OPTIONAL BID ITEMS

24. Provide dehumidification system for interior work, including curing the coating, as determined necessary by the District.
 25. Fill or weld plates over excessively pitted or corroded areas, as determined necessary by the Engineer.
 26. Excessively corroded areas on the rafters that comprise of sharp edges from sandblasting shall be ground smooth and rounded, as determined necessary by the Engineer.
 27. Furnish all labor, materials, and equipment to abrasively blast clean severely corroded areas, as determined necessary by the Engineer.
 28. Remove and replace severely corroded rafters and/or tie-rods, as determined necessary by the Engineer.
 29. Weld rafters to gusset plates at shell connections with severely corroded nuts and bolts, as determined necessary by the Engineer.
 30. Replace severely corroded nuts and bolts and/or gusset plates, as determined necessary by the Engineer.
- C. Surfaces not to be painted include fencing, concrete surfaces, liquid level indicator accessories, glass, plastic, nameplates, communication equipment and other surfaces on which coatings or paints would not adhere or would interfere with operation of specific item.
- D. If severely corroded or damaged areas are discovered during the course of abrasive blast cleaning operations, the Contractor shall notify the Engineer or authorized representative. Welding and repair of severely corroded areas of tank and other mechanical repairs may be required during project.
1. The Contractor shall allow the District access to make tank repairs while the existing coatings or paints are being removed.
 2. A time extension will be issued should structural repairs preclude abrasive blast cleaning and/or coating or paint application. Preparation work shall continue while tank repairs are being made. The time extension will assume the Contractor will be able to re-mobilize and begin coating and painting within two weeks of notification. No additional time will be granted to permit the Contractor

to complete other projects prior to this project.

1.2 REFERENCE SPECIFICATIONS AND STANDARDS

- A. Without limiting the general aspects or other requirements of this specification, work and equipment shall conform to applicable requirements of municipal, state and federal codes, laws and ordinances governing the work, manufacturer's printed instructions, subject to Engineer's approval.
- B. The Engineer's decision shall be final as to interpretation and/or conflict between any of the referenced codes, laws, ordinances, specifications and standards contained herein.

1.3 DEFINITIONS

- A. The following pairs of words shall be considered identical in meaning and may be used interchangeably: District and Owner ; General Conditions and General ~~in~~ Drawings and Plans ; Standard Drawings and Standard Plans .
- B. The District referred to in these specifications is San Bernardino County Special Districts Water and Sanitation Division. Engineer shall be person or persons as designated by the District.
- C. The definition of the word Engineer contained herein is: The person authorized by the District to oversee the execution of the contract, acting either directly or through his properly authorized agents, each agent acting only within the scope of authority delegated to him.

1.4 HOURS OF WORK

- A. The Contractor's activities shall be confined to an eight-hour shift between the hours of 8:00 a.m. and 4:30 p.m. Monday through Friday, excluding District-designated holidays. No equipment will be permitted to operate before 8:00 a.m., excluding dehumidification equipment authorized by the District. Deviation from these hours will not be permitted without the prior consent of the District, except in emergencies involving immediate hazard to persons or property.
- B. In the event of either a requested or emergency deviation, inspection service fees for District personnel and any third-party inspector will be charged against the Contractor. The service fees will be calculated at full overtime rates including benefits, overhead, and travel time. The service fees will be deducted from any amounts due the Contractor. Charges will be made for any change to extraordinary work hours, including standby time due to late crew arrival or no-show by crew.
- C. Inspection hours made necessary as a result of the Contractor's crew working over forty hours per week must be scheduled and approved by District and paid for by Contractor at the prevailing rate for overtime. Inspections requested by or made necessary as a result of actions by the Contractor on Saturdays, Sundays or holidays must be scheduled and approved by District and paid for by Contractor at the prevailing rate for overtime or holiday work.

1.5 COMPLETION OF WORK

- A. All work shall be completed within the number of calendar days consistent with the Contract Period noted in the Contract Documents. If work is not completed within the number of calendar days specified, Contractor shall bear all additional expenses incurred after contract completion schedule.
- B. The Contractor shall begin mobilizing upon the County's issuance of the Notice to Proceed. Work on Tanks 2A and 2B cannot be performed simultaneously, therefore the Contractor shall allow for a three-week period between tank projects to allow the County to switch over the tanks. Tank 2A will be the first tank taken out of service for rehabilitation.

1.6 EXTRA WORK

- A. The District may, as the need arises, order changes in work through additions, deletions, or modifications, without invalidating the Contract. Such changes will be affected through written change orders delivered to the Contractor describing the change required in the work, together with any adjustment in contract price or time of completion as hereinafter provided. No such change shall constitute the basis of claims for damages or anticipated profits; however, the Engineer will make reasonable allowance for the value of any work, materials, or equipment furnished and subsequently rendered useless because of such change. Any adjustment in Contract price resulting from a change order will be considered in computing subsequent monthly payments due the Contractor. Any work performed in accordance with a change order shall be subject to all provisions of the original Contract, and the Contractor's sureties shall be bound thereby to the same degree as under the original Contract. The Contractor will not receive payment for extra work performed unless said extra work is ordered in writing.
- B. Any adjustment in contract price shall be based on unit price bid items or additive and deductive bid items submitted by the Contractor in his original bid on the work where such bid items are applicable, or time and material rates established at the Pre-Construction Conference.

1.7 QUALITY ASSURANCE

- A. General: Quality assurance procedures and practices shall be utilized to monitor all phases of surface preparation, application and inspection throughout the duration of the project. Procedures or practices not specifically defined herein may be utilized provided they meet recognized and acceptable professional standards and are approved by the Engineer.
- B. All materials furnished and all work accomplished under the Contract shall be subject to inspection by the Engineer. The Contractor shall be held strictly to the true intent of the Specifications in regard to quality of materials, workmanship, and diligent execution of the Contract.
- C. Work accomplished in the absence of prescribed inspection may be required to be removed and replaced under the proper inspection, and the entire cost of removal and replacement, including the cost of all materials which may be furnished by the District and used in the work thus removed, shall be borne by the Contractor, regardless of

whether the work removed is found to be defective or not. Work covered up without the authority of the Engineer or Inspector, shall, upon order of the Engineer, be uncovered to the extent required, and the Contractor shall similarly bear the entire cost of accomplishing all the work and furnishing all the materials necessary for the removal of the covering and its subsequent replacement, as directed and approved by the Engineer.

- D. Except as otherwise provided herein, the cost of inspection will be paid by the District.
- E. The Engineer will make, or have made, such tests as he deems necessary to assure the work is being accomplished in accordance with the requirements of the Contract. Unless otherwise specified in the Special Conditions, the cost of such testing will be borne by the District. In the event such tests reveal non-compliance with the requirements of the Contract, the Contractor shall bear the cost of such corrective measures deemed necessary by the Engineer, as well as the cost of subsequent retesting and re-inspection. It is understood and agreed the making of tests shall not constitute an acceptance of any portion of the work, nor relieve the Contractor from compliance with the terms of the Contract.
- F. Warranty Inspection: Warranty inspection shall be conducted between the eleventh and sixteenth months following completion of all work and filing of the Notice of Acceptance. The draining of the tanks will be accomplished when there will be minimum inconvenience to the District. All personnel present at the Pre-Construction Conference should be present at this inspection. All defective work shall be repaired in strict accordance with this specification and to the satisfaction of the Engineer.
 - 1. Notification: The District shall establish the date for the inspection and shall notify the Contractor at least 30 days in advance. The District will drain the tank and Contractor shall provide, at his own expense, suitable lighting, scaffolding and ventilation for the inspection. At the District's option, warranty inspection for interior surfaces may be accomplished by diving operations with tank in service.
 - 2. Interior Inspection: The entire interior coating systems shall be visually inspected as specified in 1.7 QUALITY ASSURANCE. All defective coating as well as damaged or rusting spots of the tank shall be satisfactorily repaired by and at the sole expense of the Contractor. All repaired areas shall then be electrically tested as specified in the above-mentioned section and repair/electrical testing procedure repeated until surface is acceptable to the Engineer.
 - 3. Exterior Inspection: The entire exterior paint systems shall be visually inspected as specified in 1.7 QUALITY ASSURANCE. All defective paint as well as damaged or rusting spots of the tank shall be satisfactorily repaired by and at the sole expense of the Contractor. All repaired areas shall then be again inspected as specified in the above-mentioned section and repair procedure repeated until surface is acceptable to the Engineer.
 - 4. Structural Inspection: The entire work shall be visually inspected as specified. All defective work shall be satisfactory repaired by and at the sole expense of the Contractor.
 - 5. Inspection Report: The Engineer shall prepare an inspection report covering the

first anniversary inspection, setting forth the number and type of, defects observed, failures observed, the percentage of the surface area where failure has occurred, and the names of the persons making the inspection.

6. Schedule: Upon completion of inspection and receipt of Inspection Report as noted herein, District shall notify Contractor of results of inspection and establish a date for Contractor to proceed with remedial work. Any delay on part of Contractor to meet schedule may cause District to proceed to have defects remedied by others as outlined under General Provisions.
7. Remedial Work: The Contractor shall make repairs at all points where defects are observed by removing the defective work and repairing or replacing it to bring the item into total conformance to the original specification. Any location where coating or paint has peeled, bubbled, or cracked and any location where rusting is evident shall be considered to be a failure of the system. The Contractor shall make repairs at all points where failures are observed by removing the deteriorated coating or paint, cleaning the surface, and reapplying the same system per original specification. If the area of failure exceeds 25 percent of a specific coated or painted surface, the entire applied system may be required to be removed and reapplied based on the District's sole judgment in accordance with the original specification.
 - a. Specific coated surfaces are defined as follows:
 - (1) Underside of roof and structural members
 - (2) Shell & Columns
 - (3) Floor
 - (4) Attachments, accessories and appurtenances
 - (5) Flexible Sealants
 - b. Specific painted surfaces are defined as follows:
 - (1) Roof
 - (2) Shell
 - (3) Attachments, accessories and appurtenances
 - (4) Flexible Sealants
8. Upon completion of warranty remedial repairs, Contractor shall wash down and disinfect tank as originally specified. Contractor shall provide new gaskets for the manholes as needed.
9. Costs: All noted costs for Contractor's inspection and all costs for repair shall be borne by the Contractor and in figuring his bid, the Contractor shall include an appropriate amount for testing and repair as no additional allowance will be paid by the District for said inspection and repair.

1.8 SAFETY AND HEALTH REQUIREMENT

A Contractor shall submit a notarized letter signed by a principal officer of the Corporation or Company certifying the Contractor fully complies with Federal and State Regulations pertaining to the work including, but not limited to, the following. Review of Contractor's safety plan by Engineer does not imply that District accepts responsibility for such plans or safety activities.

1.	Illness Injury Prevention Program	CSO/GISO	1508/3203
2.	Code of Safe Practice	CSO	1509 (B)
3.	Confined Space Plan	GISO	5156/5159
4.	Health and Illness Prevention	GISO	3395
5.	Fall Prevention Plan	CSO	1671.1
6.	Respiratory Protection	CSO/GISO	1531/5144
7.	Hazard Communication	GISO	5194
8.	Lead-Based Paint Compliance Plan	CSO	1532
9.	Rolling Scaffolds	CSO	1646
10.	Employee Safety Instruction	CSO	1510
11.	Emergency Medical Service	CSO	1512
12.	Dusts, Fumes, Mists, Vapors & Gases	CSO	1528

B. General: Contractor assumes the responsibility to accomplish all work in a safe and prudent manner, and to conform to all applicable safety requirements, regulations and guidelines of federal, state and local regulatory agencies, as well as applicable manufacturer's printed instructions and appropriate technical bulletins and manuals. Without in any way limiting that responsibility or assuming responsibility for safety, the District is particularly concerned that the following are strictly observed:

1. Life Saving Equipment: Contractor shall provide and require use of personal protective life saving equipment for all its personnel working in or about the project site.
2. Access Facilities: All ladders, scaffolding and rigging shall be designed for their intended uses and meet OSHA regulations. Ladders and scaffolding shall be supplied and erected as requested by Engineer to facilitate inspection and be moved by the Contractor to locations requested by the Engineer.
3. Ventilation: Contractor shall ensure there is proper ventilation, air eduction and exhausting of work space to reduce the concentration of air contaminants to a level which poses no hazard to personnel at or near the job site. Air circulation

and exhausting of solvent vapors shall be continued until coatings and paints have fully cured. If conventional blast cleaning is accomplished, total containment during blast cleaning and coating and paint application operations is mandatory. The exhaust blower or dehumidification equipment capacity shall be sufficient to maintain air changes within containment interior in accordance with OSHA, coating and paint manufacturer's recommendations and local Air Quality Management City regulations, subject to Engineer's review.

- a. Exhaust blower shall exhaust into an Engineer-reviewed structure that precludes the exhausting of paint chips or particulate matter onto the site or into the atmosphere.
 - b. Where ventilation is used to control hazardous exposure, all equipment shall be explosion proof, of industrial design and shall be approved by the Engineer. Household-type venting equipment will not be acceptable. Ventilation shall reduce the concentration of air contaminant to the degree a hazard does not exist by educting air, vapors, etc from the confined space.
 - c. Ventilation system shall be furnished and installed by the Contractor in accordance with these specifications. The Contractor shall make modifications to the ventilation system as required by Cal/OSHA to ensure a safe working environment and complete removal of all contaminated vapors.
4. Head and Face Protection and Respiratory Devices: Equipment shall include protective helmets that shall be worn by all persons while in the vicinity of the work. During abrasive blasting operations, nozzle men shall wear U.S. Bureau of Mines approved positive pressure air-supplied helmets and all other persons who are exposed to blasting dust shall wear respiratory protection. If coatings are hazardous, additional protection will be worn as determined necessary by the exposure assessment of the Certified Industrial Hygienist.
- a. When and where required, positive pressure air-fed hoods and/or masks shall be supplied by an air source currently certified to produce Class D Breathing Air. Contractor shall at all times during the work maintain onsite current documentation to substantiate the quality of the breathing air.
 - b. Barrier creams shall be used on any exposed areas of skin.
5. Grounding: Welding leads, all hoses and related equipment shall be grounded to prevent accumulation of charges of static electricity.
6. Illumination: Sparkproof artificial lighting shall be provided for all work in confined spaces. Light bulbs shall be guarded to prevent breakage. Lighting fixtures and flexible cords shall comply with the requirements of NFPA 70 National Electric Code for the atmosphere in which they will be used. Whenever required by the Engineer, the Contractor shall provide additional illumination and necessary supports to cover all areas to be inspected. The level of illumination for inspection purposes shall be determined by the Engineer.

7. Toxicity and Explosiveness: The exterior surfaces of were noted to contain lead and zinc. The maximum allowable concentration of vapor shall be kept below the maximum safe concentration for eight-hour exposure, plus Lower Explosive Limit (L.E.L.) must be strictly maintained. All regulations related to safety of personnel and handling of such materials shall be strictly followed. Cost of handling and disposing of such materials will be borne by the Contractor.
 - a. Contractor's responsibility for meeting all regulations relating to toxic and hazardous materials includes, but is not limited to, obtaining all permits and EPA numbers, processing paperwork, blood testing of personnel at start and finish of project, sampling and testing of wastes, paying fees, handling and packaging of wastes at site, and delivering materials to the selected Class I dumpsite using licensed hazardous materials transporters. All regulations relating to working with heavy metals or confined spaces shall be strictly enforced. Documentation of all hazardous or toxic waste disposal will be required and a copy supplied to the District.
8. Protective Clothing: During cutting, burning, welding operations and when handling and mixing coatings and paints, workmen shall wear gloves, eye shields and other protective clothing. If working with lead, zinc or other heavy metals, regulations regarding handling of exposed clothing shall be strictly enforced.
9. Fire: Contractor shall provide appropriate fire abatement devices on site and be readily available at the job site during all operations. Prohibit any flames, welding and smoking during mixing and application of materials.
10. Sound Levels: Whenever the occupational noise exposure exceeds the maximum allowable sound levels, the Contractor shall provide and require the use of OSHA approved ear protective devices.
 - a. Sound barriers approved by the District shall be provided at all times to minimize disturbance to persons living or working nearby, and to the general public. Measures to be used in effecting noise suppression shall include (but not limited to) equipping all internal combustion engines with critical residential silencers (mufflers), shielding noise-producing equipment from nearest areas of human occupancy by location in such positions as to direct the greatest noise emissions away from such areas, and conducting operations in the most effective manner to minimize noise generation consistent with the prosecution of the Contract in a timely and economic manner. Whenever levels are above local ordinances or result in noise complaints from residents, they shall be adjusted as directed by the Engineer.
11. Gas and Air Monitoring: Contractor shall furnish monitoring equipment to determine the presence of oxygen deficiency or dangerous air contamination. Continual monitoring will be required. Concentration levels will be as prescribed by OSHA.

C. Contractor shall provide Health Department approved sanitary facilities for all Contractor

personnel, as no existing facilities will be available to the Contractor. Facilities shall be maintained during the project to complete standards established by District and shall be removed prior to Contractor's departure from the site at completion of the project.

1.9 DEHUMIDIFICATION

- A. Scope: If dehumidification is required by the District's optional Bid Item, the interior of the structure shall be dehumidified continuously, 24 hours per day, 7 days per week, during the cleaning and coating operations including shifts during which no work is being accomplished and also during the final curing period, unless fewer hours or days are approved in writing by the Engineer.
1. The purpose of dehumidifying the interior of the tank during the cleaning and coating operations and during the final cure period is to nullify the adverse effects of cold and/or wet atmospheric conditions. Additionally, the dehumidification equipment will provide the necessary ventilation for the removal of solvent vapors during the coating and final cure phases.
 2. Dust collectors and/or separators using approved filters are required. The contractor shall, at all times, maintain the concentration of solvent vapors in all parts of the structure 10% below the lower explosive limit (LEL).
 3. Dehumidification may or may not be required and will be per the District's direction. If required, it will be per the rate listed in the bid. All bids will be tabulated with dehumidification included.
 4. Cost for mobilization/demobilization for dehumidification equipment shall be figured into the unit price of the bid item.
 5. Any weeks of dehumidification in addition to the number listed in the bid schedule will be at the unit price noted in the bid schedule.
- B. Dehumidification equipment systems must be reviewed by the Engineer.
1. The exhaust blower for removal of dust, etc. from the interior containment shall exhaust into an Engineer-reviewed structure that precludes the exhausting of lead or zinc-laden paint chips or particulate matter onto the site or into the atmosphere.
- C. Final Cure: Final cure of coating is specified in Section 09800 Subsection 3.9 FINAL CURING OF EPOXY COATINGS.
- D. General:
1. The structure shall be continuously dehumidified 24 hours per day, during blasting, coating, between coats of coating, and during the final cure period, unless fewer hours or days are approved in writing by the Engineer.
 2. The Contractor shall maintain the dehumidification system at all times, including final cure period, and shall remove the ventilation and dehumidification system upon completion of the final cure period.

3. The Contractor shall make modifications to the dehumidification system as directed by the Engineer to ensure a safe working environment, complete removal of all solvent vapors, and maintenance of the proper relative humidity at the concrete and steel surfaces.
4. Ducting shall be airtight and reinforced with spirally-wound wire to prevent collapse. The Contractor shall furnish and install an appropriate airtight connecting device between the duct and designated opening. All bends in ductwork shall have a minimum radius of 2 x ID of the ducting (i.e. 18" ID = 36" minimum radius).
5. The Contractor shall design and submit for review a dehumidification and ventilation plan. If lead coating or paint is being removed, the ventilation plan shall provide for a minimum cross-draft velocity of 100 feet per minute in the vicinity of the work area. The cross-draft velocities may be obtained with use of a portable blower or fans. If lead coating or paint is being removed, air filtration is required with HEPA PM-10 filters.
6. The Contractor shall furnish, install and maintain three (3) 3,000 cubic foot per minute circulation fans inside the structure, or as modified by the Engineer.
7. The circulation fans may be moved as necessary, but shall be placed in dead air space areas and directed toward the designated opening at all times.
8. The Contractor shall seal all structure openings, to prevent the entry of moist air detrimental to the blasting, coating, or curing process. An approved air lock entry shall be provided for ingress to and egress from the structure.
9. The area adjacent to the surface that is to be blasted and coated shall not be exposed to a relative humidity over thirty-five percent (35%) at anytime during blasting, cleaning, and coating operations.

E Equipment:

1. The dehumidification equipment shall be a solid desiccant (not liquid, granular or loose lithium chloride) design having a single rotary desiccant bed capable of continuous operation, fully automatic, with drip-proof automatic electrical controller.
2. Dehumidification equipment operated on the structure must be capable of making two complete air changes every sixty minutes unless the 100 feet per minute cross-draft velocity requirement requires a larger volume.
3. The processed air from the dehumidification unit must maintain a relative humidity of eleven percent (11%) or less.
4. During the coating and cure phase, dehumidification units must have auxiliary heaters capable of maintaining an air temperature inside the tank of a minimum of 70 degrees F.

5. Air heaters are not acceptable as substitutes for dehumidification units.
6. Air chillers, heaters, or air conditioners may be used downstream of the dehumidifiers if they are approved for use by the manufacturer of the dehumidification equipment.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 COORDINATION AND MEETINGS

A. PRE-BID CONFERENCE

1. A mandatory Pre-Bid Conference for the project will be conducted by the Engineer at District office and site as noted in the Notice of Inviting Bids. The object of the Pre-Bid Conference is to acquaint bidders with existing facility and sites. The conditions and requirements of the plans and specifications shall govern over any information presented at the Pre-Bid Conference, unless amended in writing by the Engineer. All bidders must attend the Pre-Bid Conference to have their bid accepted by the District.

B. PRE-CONSTRUCTION CONFERENCE

1. A Pre-Construction Conference shall be scheduled prior to start of project. The District, Contractor and Engineer shall be present. The sequence of work will be discussed and will be mutually agreed upon to ensure that the work is accomplished and completed as stated in the Contract, and to allow for inspection and operations flexibility by District. A schedule of work to be accomplished and a list of labor, material and equipment rates for additional work will be established and maintained throughout the project. Contractor shall furnish resumes of all personnel assigned to project, and a complete set of approved submittal data for use by inspection personnel. Contractor shall have a designated representative for all projects.
2. The Contractor shall submit manufacturers' literature and Safety Data Sheets (SDS) on all materials to be used in coating and painting operations, including, but not limited to coatings, paints, thinners, solvents and cleaning fluids. No materials will be allowed which have been stored over 60 days, or manufacturer's recommended shelf life, whichever is less. Contractor shall maintain copies of SDS's at job site at all times. Copies of all invoices showing purchased dates and delivery for all material mentioned above will be required.

END OF SECTION

THIS PAGE LEFT INTENTIONALLY BLANK

NOT FOR BID

SECTION 02100: MOBILIZATION/DEMobilIZATION/CLEANUP

PART 1 - GENERAL

1.1 DESCRIPTION

This Section describes the work necessary to mobilize, demobilize, and clean up the Project site.

1.2 PROJECT CONDITIONS

- A. Contractor shall perform a pre-construction survey of the existing project site and staging area, including photographic and video documentation of existing conditions, for submission to the Engineer.
- B. Contractor shall be wholly responsible for security of their site and laydown area, and for their plant, materials, equipment and tools.
- C. Demobilization is intended to compensate the Contractor for operations including, but not limited to, those necessary: for the movement of personnel, equipment, supplies, and incidentals off the project site; for the removal of offices, temporary utilities, and other facilities from the project site, including transportation; and, for the cleanup restoration of the project site, storage yard, and staging areas.

1.3 SUBMITTALS

- A. Staging and Storage Area Layout Plan
- B. Pre-construction survey of the existing project site and staging area, including photographic and video documentation of existing conditions.

PART 2 - PRODUCTS

2.1 GENERAL

Provide all temporary and permanent materials, equipment, and labor required to accomplish the work as specified.

2.2 WATER

- A. The Contractor shall not draw any water from a fire hydrant for use on the work without first obtaining a permit from the Owner. Contract the District for permission to use water and rental of construction water meter. The Contractor will be responsible to pay for construction water.

2.3 NOISE CONTROL FACILITIES

- A. Submit to the Owner a noise abatement plan for approval at the pre-construction

meeting. The plan shall show the location of noise abatement equipment and rehabilitation equipment.

PART 3 - EXECUTION

3.1 CONSTRUCTION LAYOUT

- A. Set up construction facilities in a neat and orderly manner within designated area at location of choice. Accomplish all required work in accordance with applicable portions of these Specifications. Confine operations to work area shown.
- B. Some obstructions may not be shown. Bidders are advised to carefully inspect the existing facilities before preparing their bids. The removal and replacement of minor obstructions such as electrical conduits, water, waste piping, and similar items shall be anticipated and accomplished, even though not shown or specifically mentioned.
- C. Bring major obstructions encountered that are not shown on the Drawings, or could not have been foreseen by visual inspection of the site prior to bidding, immediately to the attention of the Owner. The Owner will make a determination for proceeding with the Work.
- D. The Contractor shall be responsible for verifying the condition of any existing pavement near and adjacent to the staging and storage area for use to support their construction equipment, stockpiles and materials storage. Damaged pavement, as a result of the Contractor's use of this area, shall be restored to a new paved condition to the satisfaction of the Engineer.

3.2 CONTAMINATION PRECAUTIONS

Avoid contamination of the Work site. Do not dump waste oil, rubbish, or other similar materials on the ground.

3.3 DISPOSAL OF MATERIAL

Dispose of all fluids, solids, etc., as further described in the Specifications.

3.4 CLEANUP OF CONSTRUCTION AREAS

- A. During execution of the Work, daily clean the site, adjacent properties, and public access roads and dispose of waste materials, debris, and rubbish to assure that grounds, and public and private properties are maintained free from accumulations of waste materials and rubbish. Provide containers for collection and disposal of waste materials, rubbish, and debris.
- B. Upon completion of rehabilitation, remove from the site the rehabilitation and related equipment, and all debris, unused materials, temporary construction buildings, and other miscellaneous items resulting from or used in the operations. Replace or repair any facility that has been damaged during the construction work. Restore the site as nearly as possible to its original condition.

3.5 NOISE CONTROL

- A. Demonstrate compliance with the noise control requirements. Monitor noise levels at least once daily, and at the request of the Owner, during a time when on-site equipment is in use and noise levels are expected to be the highest. Measure noise levels at the perimeter fence nearest to the tank being rehabilitated.
- B. If, at any time, the noise limits are exceeded, take immediate corrective action through equipment modifications, addition of noise abatement equipment or changes in operating procedures. Monitor noise levels to demonstrate compliance.

PART 4 - PAYMENT

4.1 GENERAL

- A. Payment for the Work in this Section shall be included as part of the lump sum or unit prices bid for which such Work is appurtenant thereto, and no additional payment will be made specifically for the Work in this Section.
- B. Any extension of Contract time that may be granted by the Owner will not of itself constitute a claim for additional payment for the work under this Section.

END OF SECTION

THIS PAGE LEFT INTENTIONALLY BLANK

NOT FOR BID

SECTION 09800 - TANK COATING AND PAINTING

PART 1 - GENERAL

1.1 PURPOSE

The purpose of this specification is to establish methods and procedures for coating, painting, dehumidification and handling of hazardous and non-hazardous materials/wastes.

1.2 CONTRACTOR

The contractor shall be a licensed Painting and Decorating Contractor in the State of California (C-33 Classification). He shall have a minimum of five (5) years practical experience and successful history in the application of specified products to surfaces of steel water storage tank. Upon request, he shall substantiate this requirement by furnishing a written list of references.

1.3 DEFINITIONS

- A. Coating refers to protective materials used or applied on interior surfaces.
- B. Paint refers to protective materials used or applied on exterior surfaces.
- C. Coat refers to paint applied in a single or multiple pass application to form an evenly distributed film when dry. Designations for coats are primer or first coat, intermediate or second coat, and finish coat, and any coats applied beyond the designated coats.

1.4 QUALITY ASSURANCE

- A. Surface Preparation: Surface preparation will be based upon comparison with: Pictorial Surface Preparation Standards for Painting Steel Surfaces, SSPC-Vis 1, ASTM Designation D2200 and as described below. Anchor profile for prepared surfaces shall be measured by using a non-destructive instrument such as a K-T Surface Profile Comparator, digital surface profile gauge or Testex Press-O-Film System. Temperature and dewpoint requirements noted in 1.4 B. herein shall apply to all surface preparation operations, except low and high temperature limits and operation of dehumidification equipment shall be determined at the Pre-Construction Conference.
- B. Application: No coating shall be applied under the following conditions:
 - 1. When the surrounding air temperature or the temperature of the surface to be coated or painted is below 55 degrees F for epoxy coatings, below 45 degrees F for epoxy low temperature cure coatings, or below 40 degrees F for urethane paint, or above 125 degrees F for all materials; or in accordance with the data sheets.
 - 2. To wet or damp surfaces or in rain, fog or mist;
 - 3. When the surface temperature is less than 5 degrees F above the dewpoint.
 - 4. When it is expected the air temperature will drop below 55 degrees F for epoxy

coating, below 45 degrees F for epoxy low temperature cure coatings, or 40 degrees F for urethane paints, or surface temperature is expected to be less than 5 degrees F above the dewpoint within two hours after application of coatings or paints.

- a. Dewpoint shall be measured by use of an instrument such as a sling psychrometer in conjunction with U.S. Department of Commerce Weather Bureau Psychrometric Tables or equivalent. Dehumidification equipment must run continuously during all phases of contract, except disinfection phase.
 - b. If above conditions are prevalent, coating and paint application shall be delayed or postponed until conditions are favorable. The day's application shall be completed in time to permit the film sufficient drying time prior to damage by atmospheric conditions.
- C. Overspray and Dust Control: The Contractor shall conduct all operations so as to confine abrasive blasting debris and coating and paint overspray to within the bounds of the site. The Contractor shall take all precautions necessary to prevent adverse off-site consequences of blast cleaning or application operations. Any complaints received by the District relating to any such potential off-site problems will be immediately delivered to the Contractor-assigned job site representative. The Contractor shall immediately halt blast cleaning or application work and shall take whatever corrective action is required to mitigate any such problems. All costs associated with protection of off-site properties and/or correction of damage to property as a result of blast cleaning or application operations shall be borne directly by the Contractor at no additional expense to the District.
1. District approval of Contractor's blast cleaning and overspray prevention procedures and Engineer's presence on project does not free Contractor from responsibility for compliance. Daily approval of procedures will be required prior to start of blast cleaning or spray operations.
- D. Inspection and Checking: The District will provide and utilize the services of an independent professional coating inspection agent who will be District's Coating Inspector. Contractor will furnish inspection devices and test equipment in good working condition and equipment shall be operated by, or in the presences of the inspector. Procedures or practices not specifically defined herein may be utilized provided they meet recognized and accepted professional standards and are acceptable to District's Coating Inspector. The District's Engineer's decisions shall be final as to interpretation and/or conflict between any of the reference specifications and standards contained herein.
1. The District's Coating Inspector will perform continuous inspection on all phases of the surface preparation, abrasive blast cleaning, and application of the coating systems. All surfaces will be inspected by District's Coating Inspector prior to each application of coating materials. Coating materials applied without the prior inspection of District's Coating Inspector shall be removed and reapplied at the expense of the Contractor.
 2. District's Coating Inspector will perform such tests as are required to ensure compliance with all phases of the surface preparation, abrasive blast cleaning, and application of the coating systems. Test equipment shall include but not be limited to the following: SSPC surface preparation standards; surface profile comparator;

test tape; micrometer; abrasive sieve test; ultraviolet lamp; mirror; certified thickness calibration plates and magnetic type dry film thickness gauge. Accuracy of inspection equipment will be verified by District's Coating Inspector in the presence of the Contractor to verify its accuracy prior to use.

3. Notify District's Coating Inspector 14 days in advance of shop and field-apply operations involving abrasive blast cleaning and coating applications.
 4. District's Coating Inspector will determine the degree of cleanliness and surface profile of the shop and field blast cleaned surfaces. Additional blast cleaning of non-conforming areas shall be accomplished until all areas conform to the cleanliness and profile specified.
 5. District's Coating Inspector will totally inspect each coat of primer, intermediate, and finish coating to determine the thickness and integrity. Each coat applied will be checked and deficiencies marked. After observing specified recoat time, apply additional coating materials over areas not having the specified minimum dry-film thickness and areas having any holidays or pinholes. After correction of deficiencies, District's coating Inspector will re-inspect those areas to determine the acceptability of the additional coating. Each coat applied must be 100% to the satisfaction of District's Coating Inspector prior to subsequent coats being applied.
- E. Inspection Facilities: The Contractor shall provide District's Coating Inspector with facilities for inspection including, but not limited to the following:
1. Furnish as determined necessary by District's Coating Inspector all safety equipment and devices during abrasive blast cleaning and coating operations. Provide helmet with continuous fresh air supply for observation during cleaning operations.
 2. Furnish illumination and the manpower to move the lights, whenever required by the District's Coating Inspector. Provide additional lights and supports sufficient to illuminate all areas to be inspected. District's Coating Inspector will determine the level of illumination required for inspection purposes.
- F. Temporary ladders and scaffolding shall be erected and moved to the locations requested by District's Coating Inspector.
- G. Thickness Testing: Thickness of coatings and paints shall be tested with a non-destructive film thickness gauge. An instrument such as a Tooke Gage should be used if a destructive tester is deemed necessary. Testing shall be accomplished in conformance to SSPC-PA 2, Measurement of Dry Paint Thickness with Magnetic Gages except as modified hereinafter.
1. Flat coated or painted surfaces shall be tested in conformance to SSPC-PA2.
 2. Structural members, piping and other irregular surfaces shall be tested with frequency and locations as directed by the Engineer.
- H. Holiday Testing: Coating integrity of ALL interior coated surfaces shall be tested with an approved inspection device. All pinholes shall be marked, repaired in accordance with the manufacturer's printed recommendations and retested. No pinholes or other irregularities

will be permitted in the final coating.

- I. Inspection Devices: Contractor will furnish, until final acceptance of coatings and paints, inspection devices in good working condition for detection of holidays and measurement of dry film thickness. They shall also furnish U.S. Department of Commerce, National Bureau of Standards certified thickness calibration plates to test accuracy of thickness gauges. Dry film thickness gauge holiday detectors shall be available at all times until final acceptance of application. Inspection devices shall be operated by, or in the presence of the Engineer with location and frequency basis determined by the Engineer.
- J. Acceptable Inspection Devices: Acceptable devices for ferrous metal surfaces include, but are not limited to, Tinker and Rasor Models AP and AP-W holiday detectors equipped with a wire brush electrode supplied by the manufacturer, and Inspector , or Positest , or Positector or Quanix units for dry film thickness gauging. Inspection devices shall be operated in accordance with these specifications and the manufacturer's instructions.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Materials specified are those which have been evaluated for the specific service. Products of International, Devco Coatings, and Tnemec Company, Inc. are listed to establish a standard of quality for the project. Standard products of manufacturers other than those specified, will be accepted when it is proved to the satisfaction of the Engineer they are equal in composition, durability, usefulness and convenience for the purpose intended. Substitutions will be considered provided the following minimum conditions are met:
 1. The proposed coating or paint system shall have a dry film thickness equal to or greater than that of the specified system.
 2. The proposed coating or paint system shall employ an equal or greater number of separate coats.
 3. The proposed coating or paint system shall employ coatings or paints of the same generic type.
 4. All requests for substitution shall carry full descriptive literature and directions for application, along with complete information on generic type, non-volatile content by volume and a list of 10 similar projects, all at least three years old, where the products have been applied to similar exposure.
 5. The District requires that the Contractor provide certified laboratory data sheets showing the results of complete spectrographic and durability tests accomplished on the proposed substitute. Tests shall be accomplished by an independent testing laboratory satisfactory to the Engineer and all costs incurred in the testing program shall be borne by the Contractor. In any case, the Engineer shall be sole and final judge of the acceptability of any proposed substitution. Requests for substitution must be approved in writing prior to date of bid.
- B. The Contractor shall submit prior to start of project manufacturer literature and Safety Data Sheets (SDS) on all materials to be used in coating and painting operations, including, but

not limited to coatings, paints, thinners, solvents and cleaning fluids. No materials will be allowed which have been stored over 60 days, or manufacturer's recommended shelf life, whichever is less. Contractor shall maintain copies of SDS's at job site at all times.

1. An electronic submittal will be accepted in only the following format.
 - a. The file shall be in pdf format.
 - b. Each project submittal shall be a separate document file.
 - c. Each document file shall be labeled in the following sequence:
 - (1) Owner Name/Project Name
 - (2) Submittal No.
 - (3) Description

- C. All materials shall be brought to the job site in the original sealed containers. They shall not be opened or used until District's representative has physically inspected contents and obtained necessary data from information printed on containers or label. Materials exceeding storage life recommended by the manufacturer shall be rejected. Copy of invoice showing purchase and delivery dates will be required.
- D. Flammability, toxicity, allergenic properties, and any other characteristic requiring field precautions shall be identified and specific safety practices shall be stipulated.
- E. All coating and paint materials shall be stored in enclosed structures to protect them from weather and excessive heat or cold. Flammable materials must be stored to conform with District, County, State and Federal safety codes for flammable materials. At all times coatings and paints shall be protected from freezing.
- F. Contractor shall use products of same manufacturer for all coats.

2.2 SPECIFIC INTERIOR COATING MATERIALS

- A. Coating materials for interior surfaces of tanks must appear on the Standard 61 and Standard 600 of the National Sanitation Foundation (NSF), or Standard 61 and Standard 600 of Underwriters' Laboratory. Products containing perchloroethylene (PCE), trichloroethylene (TCE), lead, chromium or zinc will not be permitted. In addition, products containing Methyl Ethyl Ketone (MEK) or Methyl Isobutyl Ketone (MIBK) will not be allowed in amounts that will cause volatile organic analysis to be above maximum contaminant levels or action levels.
 1. The Contractor shall provide, prior to coating any surfaces of the tank, written certifications from the coating manufacturers stating that the coating materials, thinners, solvents, and equipment cleaning fluids provided by the manufacturers do not contain PCE or TCE. The Contractor shall also certify, in writing, that no material containing PCE, TCE, lead, chromium, or zinc in any form will be used for the interior coatings or exterior paints of the tank. This shall include all solvents, thinners, and cleaning fluids at the job site, regardless of where the materials were obtained.
 2. The Engineer may require all solvents, thinners and cleaning fluids be tested for TCE and PCE prior to being used at the job site. The Contractor shall provide the Engineer with samples of each material at no cost to the District. Unacceptable

materials shall be removed from the job site.

- B. All coating materials shall comply with air pollution regulations, specifically the local air quality management district or air pollution control district rules, and rules for the District.
- C. All coating materials shall also conform to regulations and applicable requirements of local, State and Federal health regulatory agencies.
- D. Epoxy prime coatings shall be similar or equal to products such as ICI Devoe Bar-Rust 233H Low VOC Multi-Purpose Epoxy Coating or Tnemec Pota Pox Series L140F Low VOC. First or prime coat shall not be gray, but finish coat shall be white.
- E. 100% Solid Epoxy coatings shall be International Interline 975P 100% Solids Epoxy Coating or Tnemec Epoxoline Series 22 100% Solids Epoxy Coating. Tnemec Epoxoline Series FC22 100% Solids Epoxy Coating may be used for cold conditions or accelerated cure, as approved by the Engineer. Finish coat shall be white.
- F. Joint sealant on the roof and structural members above the water shall be a flexible polyurethane such as Sikaflex 1A or similar approved polysulfide product.
- G. Joint sealant below the water level shall be a flexible polyurethane elastomeric sealant similar or equal to Sikaflex 2C-NS as manufactured by Sika Corporation.

2.3 WASH DOWN MATERIALS

- A. Cleaner for pre-disinfection cleaning of interior surfaces shall be Gre-Sa-Way or approved equal.
- B. Disinfection shall be accomplished using liquid chlorine compound only. Granular chlorine shall not be used.
- C. Product to prevent flash rusting during wet abrasive blast cleaning shall be Hold Tight 102 or approved equal.

2.4 SPECIFIC EXTERIOR PAINT MATERIALS

- A. Paint materials for exterior surfaces of tank will consist of an epoxy primer, epoxy intermediate coat and urethane finish coat. Products containing lead, zinc or chromium compounds will not be permitted.
- B. All paint materials shall comply with air pollution regulations, specifically the local air quality management district or air pollution control district rules, and rules for the District.
- C. All paint materials shall also conform to regulations and applicable requirements of local, State and Federal health regulatory agencies.
- D. Prime coat shall be similar or equal to products such as ICI Devoe Bar-Rust 231H Low VOC s Multi-Purpose epoxy coating or Tnemec L69 Epoxoline II Low VOC s epoxy coating.
- E. Intermediate coat shall be similar or equal to products such as ICI Devoe Bar-Rust 231H Low VOC s Multi-Purpose epoxy coating or Tnemec L69 Epoxoline II Low VOC s epoxy

coating.

- F. Finish coat shall be similar or equal to products such as Devoe Bar-Ox Devthane 379H urethane coating or Tnemec Series 1095 Low VOC s urethane coating.
- G. Joint sealant shall be a flexible polyurethane elastomeric sealant similar or equal to Sikaflex 2C-NS as manufactured by Sika Corporation.

PART 3 - EXECUTION

3.1 GENERAL

- A. All surface preparation, coating and paint application shall conform to applicable standards of the District and the manufacturer's printed instructions, as approved by the Engineer. Material applied prior to approval of the surface, by the Engineer, shall be removed and reapplied to the satisfaction of the Engineer at the expense of the Contractor.
- B. All work shall be accomplished by skilled craftsmen qualified to accomplish the required work in a manner comparable with the best standards of practice. Resumes of personnel proposed to be used on the project shall be submitted for approval upon Notice of Award. Continuity of personnel shall be maintained and transfers of key personnel shall be coordinated with the Engineer.
- C. The Contractor shall provide a supervisor to be at the work site during cleaning and application operations. The supervisor shall have the authority to sign any change orders, coordinate work and make other decisions pertaining to the fulfillment of their contract.
- D. Dust, dirt, oil, grease or any foreign matter which will affect the adhesion or durability of the finish must be removed by washing with clean rags dipped in an approved commercial cleaning solution, rinsed with clean water and wiped dry with clean rags.
- E. No rubber tire vehicles or equipment shall be permitted on the interior floor after the floor has been blasted.
- F. The Contractor's equipment shall be designed for application of materials specified and shall be maintained in first class working condition. Compressors shall have suitable traps and filters to remove water and oils from the air. Blotter test shall be accomplished at each start-up period and as deemed necessary by the Engineer. Contractor's equipment shall be subject to approval of the Engineer. This approval does not relieve the Contractor's responsibility for the safe operation of the equipment or its performance.
 - 1. Cleanliness of compressed air supply shall be verified daily, and as deemed necessary by Engineer, by directing a stream of air, without abrasive, from the blast nozzle onto a white blotter or cloth for twenty seconds. If oil or water appears on the blotter or cloth, all traps and separators shall be blown down until two subsequent twenty-second tests show no further oil or water.
- G. Application of the first coat shall follow immediately after surface preparation and cleaning within an eight-hour period, for unseen weather conditions, as defined in 1.4 B. QUALITY ASSURANCE, shall be re-cleaned per the original specifications prior to application of the

first coat. Brush-off blast cleaning SSPC-SP7 (sweep blast) will not be accepted in lieu of SSPC-SP10 (Near-White Metal) blast.

1. If dehumidification equipment is required, cleaned areas may have first coat applied at last shift of the week, provided dehumidification equipment has run continuously during the complete week, and surfaces meet all requirements of the specification. Monitoring devices approved by the Engineer shall be used to ensure continuous operation.
- H. Because of presence of moisture and possible contaminants in atmosphere, care shall be taken to ensure previously coated or painted surfaces are protected or recleaned prior to application of subsequent coat(s). Methods of protection and recleaning shall be approved by the Engineer.
1. Project is subject to intermittent shutdown if, in the opinion of the Engineer, cleaning and application operations are creating a localized condition detrimental to ongoing facility activities, personnel or adjacent property.
 2. In the event of emergency shutdown by the Engineer, Contractor shall immediately correct deficiencies. All additional costs created by shutdown shall be borne by Contractor.
- I. The Contractor shall provide, at his own expense, all necessary power required for his operations under the contract.
- J. Contractor shall seal any tank vents, pumps, motors, and other open areas to prevent intrusion of coating or paint or other contaminants. The sealing system shall be designed to allow continuous operation of facilities or equipment, with no detrimental effects. If necessary, sealing system shall be removed daily at termination of work, or as directed by the Engineer.

3.2 SURFACE PREPARATION, GENERAL

- A. The latest revision of the following surface preparation specifications of the Society for Protective Coatings shall form a part of this specification. (Note: An element of surface area is defined as any given square inch of surface.)
1. Solvent Cleaning (SSPC-SP1): Removal of oil, grease, soil and other contaminants by use of solvents, emulsions, cleaning compounds, steam cleaning or similar materials and methods, which involve a solvent or cleaning action.
 2. Hand Tool Cleaning (SSPC-SP2): Removal of loose rust, loose mill scale and other detrimental foreign matter present to degree specified by hand chipping, scraping, sanding and wire brushing.
 3. Power Tool Cleaning (SSPC-SP3): Removal of loose rust, loose mill scale and other detrimental foreign matter present to degree specified by power wire brushing, power impact tools or power sanders.
 4. Commercial Blast Cleaning (SSPC-SP6): Blast cleaning until at least two-thirds of each element of surface area is free of all visible residue.

5. Brush-off Blast Cleaning (SSPC-SP7): Blast cleaning to remove loose rust, loose mill scale, and other detrimental foreign matter present to the degree specified.
 6. Near-White Blast Cleaning (SSPC-SP10): Blast cleaning to near-white metal cleanliness, until at least ninety-five percent of each element of surface area is free of all visible residues.
 7. Power Tool Cleaning to Bare Metal (SSPC-SP11): Power tool cleaning to produce a bare metal surface and to retain or produce a surface profile of at least 1.0 mil.
 8. High and Ultra High Pressure Water Jetting (SSPC-SPWJ1 through 4): Water jet cleaning of metals to remove rust, mill scale, coating, paint and other detrimental foreign matter to present to varying degrees of cleanliness from light cleaning to clean to bare substrate.
- B. Any burrs, weld spatter, sharp edges, corners, or rough welds which would cause difficulty in achieving a defect-free paint system shall be chipped or ground smooth in conformance to NACE Standard SP0178-latest edition. It is not the intent to have the welds or ~~sur~~ ground flush. The object of the grinding is to eliminate sharp edges, corners, and overlaps to provide a surface for the application of a uniform thickness of coating or paint without voids or other defects.
 - C. Abrasive blasting nozzles shall be equipped with deadman emergency shut-off nozzles. Blast nozzle pressure shall be a minimum of 95 P.S.I. and shall be verified by using an approved nozzle pressure gage at each start-up period or as directed by the Engineer. Number of nozzles used during all blast cleaning operations must be sufficient to ensure timely completion of project, subject to designation and approval by Engineer.
 - D. All blast hose connections shall be tethered and secured to prevent separation during blast cleaning operations, and shall be taped with duct tape prior to pressurizing. All taped connections shall be visually inspected for leaks within five minutes after start of blast cleaning operations and at the end of blast cleaning operations. Leaking connections shall be immediately repaired to prevent further damage.
 - E. Field blast cleaning for all surfaces shall be by dry method unless otherwise directed. Contractor is responsible for maintaining dust emissions within the legal level and that level which would not create a nuisance.
 - F. Particle size of abrasives used in blast cleaning shall be that which will produce a 2.0 mil surface profile and a 3.0 mil profile for all surfaces ultimately receiving 100% solids coating, in accordance with recommendations of the manufacturer of the specified coating or paint system to be applied, subject to approval of Engineer.
 - G. Abrasive used in blast cleaning operations shall be new, washed, graded and free of contaminants which would interfere with adhesion of coatings and paints and shall not be reused unless specifically approved by the Engineer. Abrasives shall be certified for unconfined dry blasting pursuant to the California Administrative Code, Section 92520 of Subchapter 6, Title 17 or subsequent revision, and shall appear on the current listing of approved abrasives. Invoices or load sheets confirming above shall be required.

- H. Recycled ferrous metallic abrasives must meet or exceed the cleanliness standards set forth in SSPC-AB2. The operating mix of abrasive media shall be such that a sharp angular not peened profile is produced. Any recycled abrasive shall be such that a sharp angular not peened profile is produced. Any recycled abrasive shall be designed for the use (i.e. steel grit) and be free of grease, oil, or other debris or contaminants that could be detrimental to the service life of the applied coatings. If steel shot media is used it shall be limited to no more than 1/3 of the operating mix. Recycled abrasive shall be tested for contamination through the use of a vial test in accordance with the procedures outlined in SSPC s Publication 91-12 and ISO 8502-3.
- I. During blast cleaning operations, caution shall be exercised to ensure existing coatings and paints are not exposed to abrasion from blast cleaning.
- J. Blast cleaning from rolling scaffolds shall only be accomplished within confines of interior perimeter of scaffold. Reaching beyond limits of perimeter will be allowed only if blast nozzle is maintained in a position which will produce a profile acceptable to the Engineer.
- K. Accessible interior surfaces of the outlet nozzle and that portion of the inlet nozzle permanently attached to the tank shall be cleaned of all old coating and rust by blast cleaning or other approved methods. Precautions shall be taken so as to prevent any damage to the existing gate or butterfly valves at the inlet and outlet nozzles. All exposed surfaces of the valves shall be masked prior to blast cleaning the nozzles. The removable portions of the inlet nozzle shall be removed and blast cleaned as specified herein.
- L. During blast cleaning operations, inlet, outlet, overflow, and drain openings in bottom shall be covered with plywood bulkheads, or other approved barriers, to prevent entry of spent abrasive, removed coating or other foreign materials.
- M. The Contractor shall keep the area of his work in a clean condition and shall not permit blasting materials to accumulate as to constitute a nuisance or hazard to the prosecution of the work or the operation of the existing facilities. Spent abrasives and other debris shall be removed at the Contractor's expense as directed by the Engineer. As existing exterior paints have been determined by laboratory analysis to be toxic or hazardous, coating/paint and coating/paint abrasive residue mixture shall be tested to assure conformance with hazardous material tolerances have been met. It shall be the responsibility of the Contractor to provide adequate containers on the job site to retain spent media and removed coating and paint until tests have been completed or approval for disposal from a landfill has been obtained. Disposal of hazardous or toxic waste at other than government regulated landfills will not be permitted unless approved personally by the Engineer in Contractor's plan of action for project. Documentation of all hazardous or toxic waste disposal will be required and a copy supplied to District.
- N. Blast cleaned and coated and painted surfaces shall be cleaned prior to application of specified coatings or paints via a combination of blowing with clean dry air, brushing/brooming and/or vacuuming as directed by the Engineer. Air hose for blowing shall be at least 1/2" in diameter and shall be equipped with a shut-off device.
- O. High and Ultra High Pressure Water Jetting (SSPC-SPWJ1 through 4) shall not be used on interior surfaces and shall only be used on exterior surfaces when and as directed by Engineer. Pressures shall be those determined by Engineer to effectively accomplish removal of loose, peeling/flaking coatings or paint or other detrimental surface

contaminants.

3.3 HAZARDOUS MATERIALS, GENERAL

- A. Exterior surfaces on Tank 2A have been determined to contain high levels of lead and exterior and interior surfaces on Tank 2B contain high levels of zinc. Contractor shall comply with Title 8, California Code of Regulations (CCR) Section 1532.1. The Contractor shall submit a written compliance program. The compliance program shall address data specified in subsections (e)(2)(B) and (e)(2)(C) of Section 1532.1. Copies of all air monitoring or job site inspection reports shall be furnished within 10 days of monitoring or inspection.
- B. Contractor shall comply with requirements of 40 CFR 261, (CCR) Title 22 Division 4.5, and HSC Division 20 Ch. 6.5 for handling and disposing of hazardous wastes resulting from surface contamination and removed coating and paint particles.
- C. All work must be accomplished in compliance to the following.
 - 1. On first day of any zinc or lead-based coating or paint removal, work environment must be tested by or under the supervision of a Certified Industrial Hygienist (CIH) to determine levels of protection required to protect workers and the environment from lead and other heavy metal contamination. All costs related to testing by the CIH shall be borne by the Contractor. Field testing may be accomplished by either an Industrial Hygienist or a CIH.
 - 2. Testing will include air sampling and testing of filters removed from the workers' respirators or personal air monitors to determine the level of lead exposure. Upon completion of testing, the CIH shall file a written report on the results of the testing. Level of exposure will then determine the type respiratory protection, clothing, housekeeping, hygiene facilities, medical surveillance, medical removal protection, employee information and training, signs, record keeping, and observation of monitoring required for the project.
 - 3. No exterior painting work shall re-commence until the report from the CIH is filed and worker and environmental protection required is in place. Costs for the time delay shall be included in the Contractor's original bid.
 - 4. Based on the initial analysis, samples of exterior and interior spent abrasives should be sent to a certified laboratory for testing at the contractor's expense. TTLC and TCLP analysis should be completed for CCR Title 22, heavy metals. Results of the analytical testing should be provided to the Owner prior to disposal.
- D. Contractor is responsible for maintaining dust emissions within the legal level and that level which would not create a nuisance. Dust emissions, abrasive deflection and removed paint particles shall be contained where abrasive blasting is being accomplished, unless vacuum blasting or other means of cleaning are approved by Engineer. No water, abrasive deflection or paint particles shall be allowed to land on the ground around the tank.
- E. All zinc and lead paint removal work shall be governed by, but not necessarily limited to Code of Federal Regulations (29 CFR 1910 and 1926, applicable sections)

1. Health and Safety Code, Division 20, Chapters 6.5 (California Hazardous Waste Control Act)
 2. Title 22 California Administrative Code, Division 4.5 (Minimum Standard for Management of Hazardous and Extremely Hazardous Materials)
 3. Title 8, California Administrative Code
 4. Code of Federal Regulations (29 CFR 1926, applicable sections)
- F. Transportation and Disposal of Debris: The Contractor shall arrange to have the debris transported from the site in accordance with the requirements of Title 40 CFR 263, and disposed of properly in accordance with Title 40 CFR 264 and 40 CFR 268 Protection of Environment. Signed manifests shall be returned to the Engineer to verify that all steps of the handling and disposal process have been completed properly. The Owner is considered the generator on this project; the Contractor will be named co-generator.
1. Written confirmation that the debris will be treated and disposed of in accordance with requirements of Title 40 CFR Part 264 and Title 40 CFR Part 268, CCR Title 22 Division 4.5, and HSC Division 20 Ch. 6.5 shall be received by the Engineer prior to start of the work. The waste will be disposed of as approved by Engineer and District. The programs shall provide assurance that the debris is handled properly from cradle to grave, and include the necessary notifications and certifications on shipments, provide the name of the disposal facility, and include a schedule for the submittal of the completed manifests to the Engineer.
- G. The District shall remove four representative samples of soil from job site prior to start of work. Samples shall be tested for determination of lead, zinc and chromium compounds to ensure soil does not contain excessive levels of noted heavy metals. If soils contain excessive levels of noted or other heavy metals, site remediation shall be the responsibility of the District. Copies of laboratory analyses reports shall be forwarded to Contractor immediately upon receipt from laboratory, prior to start of any work. Any required remediation schedule will be determined by the District.
- 3.4 SURFACE PREPARATION, INSPECTION BLAST
- A. Severely corroded surfaces designated by the Engineer shall be blast cleaned to SSPC-SP10 (Blast Cleaning to Near-White Metal) to determine the condition of the substrate to determine if repair is required.
1. The hourly crew rate will be based on a minimum 3-man crew with the following minimum equipment:
 - a. A minimum 7 or 8 nozzle with a 2" diameter hose
 - b. A minimum 425 compressor
 - c. A minimum 7 bag blast pot
 - d. Particle size of abrasive shall be a minimum 30 grit

3.5 SURFACE PREPARATION, INTERIOR

- A. All coal tar enamel present on the interior surface shall be removed by pneumatic-

mechanical chipping method. (Tank 2A only)

- B. All interior surfaces shall be blast cleaned, in conformance to Society for Protective Coatings Specification SSPC-SP10 (Blast Cleaning to Near-White Metal). Field blast cleaning for all interior surfaces shall be by dry method.
1. Particle size of abrasives used in blast cleaning surfaces to receive 100% epoxy shall be that which will produce a minimum of a 3.0 mil surface profile.
 2. The complete interior and exterior of all roof penetrations including, but not limited to, center vent structure, roof vents, roof hatches, auxiliary ports, etc., shall be abrasive blast cleaned to (SSPC-SP10) including one (1) foot past the structure onto the adjacent exterior roof surfaces simultaneously with interior surfaces of these penetrations. The perimeter of the blast cleaned surfaces shall be cut to straight lines and the edge of the existing paint system sufficiently feathered to create a smooth transition between the two paint systems.
 3. Contractor shall be responsible for removal and replacement of center vent cover as needed to coat and paint all surfaces. The scope of work in the structural portion of the technical specifications requires a new vent structure and screening to be installed. Therefore, removal of the vent cover shall be coordinated between the coating contractor and the structural contractor.
 4. Topside and inaccessible surfaces of new rafters shall be abrasive blasted prior to installation and coated in accordance with Section 3.8 APPLICATION, INTERIOR EPOXY COATING SYSTEM.
- C. The topside of the existing rafters and the roof plates above the rafters shall be abrasive blast cleaned in conformance to Society for Protective Coatings Specification SSPC-SP10 (Blast Cleaning to Near-White Metal).
1. Abrasive blast cleaning of the topside of the rafters and roof plates may require, but not be limited to, directing the blast nozzle at the roof to ricochet the abrasive off the roof, by wedging the roof, and/or utilizing angle or banana nozzles or other approved method that accomplishes the specified clean.
 2. Abrasive blasting in conformance to SSPC-SP10 (Blast Cleaning to Near-White Metal) will not be required in areas where the roof cannot be lifted above the rafters including, but not be limited to, near the shell or areas where the roof plates are welded to the top angle or other structural members, as determined by the Engineer. These areas shall be abrasive blasted by the blast nozzle being directed at the void between the roof and topside of the rafter from both sides to remove all loose rust, mil scale and coating to accomplish the specified cleanliness of Brush-off Blast Cleaning (SSPC-SP7).
 3. Wedging between the rafters and the roof plates a minimum of 1 ½" shall be accomplished by the Contractor for access by the District Inspector to inspect the topside of the rafters and roof plates.

3.6 SURFACE PREPARATION, EXTERIOR

- A. All exterior surfaces, appurtenances, and piping shall be blast cleaned in conformance to Society for Protective Coatings Specification SSPC-SP10 (Blast Cleaning to Near-White Metal).
 - 1. Surface preparation around the roof hatches and penetrations shall be in accordance with Section 3.5 B. 2. Above.
 - 2. As exterior paints have been determined by laboratory analyses to contain high levels of lead and zinc under Title 22, all cleaning operations shall be conducted to ensure removed paint particles are contained and not allowed to fall onto the site.

3.7 APPLICATION, GENERAL

- A. Coating and paint application shall conform to the requirements of the Society for Protective Coatings Paint Application Specification SSPC-PA1, latest revision, for Shop, Field and Maintenance Painting, the District, the manufacturer of the coating and paint materials printed literature and as specified herein and approved by the Engineer.
- B. Thinning shall only be permitted as recommended by the manufacturer and approved by the Engineer and shall not exceed limits set by applicable regulatory agencies.
 - 1. If Contractor applies any materials which have been modified or thinned to such a degree as to cause them to exceed established VOC levels, Contractor shall be responsible for any fines, costs, remedies, or legal action and costs that may result.
- C. Each application of coating and paint shall be applied evenly, free of brush marks, sags, runs and no evidence of poor workmanship. Care should be exercised to avoid lapping on glass or hardware. Coatings and paints shall be sharply cut to lines. Finished surfaces shall be free from defects or blemishes.
- D. Protective coverings or drop cloths shall be used to protect floors, fixtures, equipment, prepared surface and applied paints. Personnel walking on exterior roof of tank shall take precautions to prevent damage or contamination of painted surfaces. If required by Engineer, personnel shall wear soft-soled shoes, or shoe coverings approved by Engineer. Care shall be exercised to prevent coating or paint from being spattered onto surfaces which are not to be coated or painted. Surfaces from which such material cannot be removed satisfactorily shall be refinished as required to produce a finish satisfactory to the Engineer.
- E. All materials shall be applied as specified herein.
- F. All welds and irregular surfaces shall receive a separate brush coat of the specified product prior to application of the intermediate coat and a separate stripe coat prior to the application of the finish coat. Application of stripe coat shall not be accomplished simultaneously with spray coat. Coating and paint shall be brushed in multiple directions to ensure penetration and coverage, as approved by the Engineer. These areas include, but are not limited to, welds, nuts, bolts, etc. Care shall be exercised to ensure dry film thickness of coatings and paints does not exceed the maximum thickness allowed by the manufacturer of the specific product being applied.

- G. At conclusion of each day's blast cleaning and coating and paint operations, a 6" wide strip of blast cleaned substrate shall remain uncoated to facilitate locating point of origin for successive day's blast cleaning operations.
- H. Epoxy coated surfaces or other multi-component materials exposed to excessive sunlight or an excessive time element beyond manufacturer's recommended recoat cycle, shall be scarified by Brush-off Blast Cleaning (SSPC-SP7) or methods approved by Engineer, prior to application of additional coating. Scarified coating shall have sufficient depth to assure a mechanical bond of subsequent coat, as recommended by the manufacturer.
- I. All attachments, accessories, and appurtenances shall be prepared and finished in the same manner as specified for adjoining tank sections, except as specifically designated by the Engineer.
- J. Each successive application of coating or paint shall be of sufficient contrast in color to facilitate inspection for uniform coverage of each coat. Owner shall designate finish colors.

3.8 APPLICATION, INTERIOR EPOXY COATING SYSTEM

A. Interior Surfaces

1. After completion of surface preparation as specified, all surfaces shall receive one 3.0 mil prime coat specified under 2.2 D., SPECIFIC INTERIOR COATING MATERIALS. Total dry film thickness shall not be less than 3.0 mils.
2. After completion of prime coat, either one 22.0 mil coat or two 11 mil coats of coating specified under 2.2 E., SPECIFIC INTERIOR COATING MATERIALS shall be applied. Total dry film thickness of the system shall be not less than 25.0 mils at any point in the coated surface
 - a. Prior to beginning the 100% solids coating application a 2 ft. x 2 ft. test patch on plastic outside the vessel shall be performed. The test patch shall be sprayed to the same thickness as will be applied to the vessel.
 - b. Ratio tests shall be performed at the beginning of each application process and performed every 4 hours thereafter until the application is completed for the day. The ratio test shall be a minimum of 12 ounces for the part requiring the least quantity.
 - c. Topside of new rafters and inaccessible surfaces of gusset plates shall be coated prior to installation.
 - d. All roof penetrations prepared in accordance with 3.5. B.2. shall be coated concurrently on interior and exterior surfaces when interior roof surfaces are being coated, including all three coats and all stripe coats.
 - e. The rafter wedges shall be moved between each coat and each stripe coat. The topside of the rafters shall be brushed and/or rolled at each coat and each stripe coat.

- f. Maximum dry film thickness allowed, if not specified in the manufacturer's approved literature, will be as determined, in writing, by the coating manufacturer's headquarters technical representative.
- g. If approved by the manufacturer, the stripe coat may be the same product as the prime coat noted on the product data sheet.

B. Roof Junction Void, Roof Lap Joints and Other Designated Void Areas

- 1. After completion of finish coat application of epoxy coating and holiday detection and touch-up, as specified, all void areas including, but not limited to, column bases, bolt holes, and roof lap joints shall be primed, if required, and filled with joint sealant as specified under 2.2 F., for roof and structural members above the water level and 2.2 G. for surfaces below the water level. Prior to filling joints, area shall be blown down or wiped as necessary to clean area. Voids shall be filled flush at a 1:1 angle (45 degrees) out from outer edge of the plate.
 - a. Prior to applying the caulking at the base of the column(s), the top of the column base plate and the adjacent bottom plate a distance of 1:1 ratio (45 degree angle) from the top outer edge of the plate shall be masked to obtain a clean line. Remove masking after completion of the caulking.

3.9 QUALITY ASSURANCE, INTERIOR, EPOXY COATING SYSTEM

- A. All coating components shall be mixed in exact proportions specified by the manufacturer. Care shall be exercised to ensure all material is removed from containers during mixing and metering operations.
- B. All coatings shall be thoroughly mixed, utilizing an approved slow-speed power mixer until all components are thoroughly combined and are of a smooth consistency. Coatings shall not be applied beyond pot-life limits or recoat cycles specified by manufacturer.
- C. Thinners shall be added to coating materials only as required in accordance with manufacturer's printed literature and in the presence of the Engineer. Quantities of thinner shall not exceed limits set by applicable regulatory agencies.
- D. Application shall be by airless spray method, except as otherwise specified. Drying time between coats shall be strictly observed as stated in manufacturer's printed instructions, except there shall be a minimum of 12 hours between coats.
- E. Maximum time to recoat shall be strictly observed as stated in the manufacturer's printed instructions. Contractor shall be responsible for all cost associated with application of coating within the recoat window. If the maximum recoat window is violated, the Contractor will be required to brush-off blast the surfaces as required by the manufacturer and the Engineer. The Contractor will be required to provide a fine abrasive that will not unnecessarily damage the coating to be scarified. If recoat violation is caused by the Contractor's schedule, all costs for brush-off blasting will be borne by the Contractor.
- F. When two or more coats are specified, where possible, each coat shall contain sufficient approved color additive to act as an indicator of coverage or the coats must be of contrasting color.

- G. Care shall be exercised during spray operations to hold the spray nozzle perpendicular and sufficiently close to surfaces being coated, to avoid excessive evaporation of volatile constituents and loss of material into the air or the bridging of cracks and crevices. Reaching beyond limits of scaffold perimeter will not be permitted. All overspray identified by Engineer shall be removed by hand or pole sanding prior to application of subsequent coat.
- H. Joint sealant may be applied by caulking gun, trowel or other approved method. Sealant shall be pressed firmly into voids to insure 100% filling/sealing and applied at 1:1 ratio (45-degree angle) from the outer edge of the plate.
- I. Upon completion of coating operations and prior to caulking, after curing interval in accordance with manufacturer's recommendations, holiday detection shall be accomplished, with a wirebrush electrode, using the specified instrument at 1,500 volts for the roof and shell surfaces and at 2,500 volts for all surfaces with 100% epoxy coating. Repair and retesting shall be accomplished as specified under 1.4 QUALITY ASSURANCE. Engineer is not precluded from verifying adequacy of holiday testing by accomplishing holiday detection of selected areas, using his own holiday detector.
 - 1. Upon completion of coating application to bottom surfaces, lower shell surfaces of completed epoxy coating which may have been subjected to damage from abrasive blast cleaning of bottom surfaces shall be holiday detected again and repaired as noted above.
- J. All mixing, thinning, application and holiday detection of coatings shall be accomplished in the presence of the Engineer.
- K. A time element equivalent to 7 days curing time at 70 degrees F and 50% relative humidity shall be allowed before placing the epoxy coating into service, as determined in 3.11 FINAL CURING OF EPOXY COATINGS.

3.10 FINAL CURING OF EPOXY COATINGS

- A. Upon completion and acceptance of applied coating system, Contractor shall furnish an approved exhaust fan or blower of sufficient capacity to ensure removal of solvent vapors during curing process. The fan or blower, after approval by Engineer, shall be installed as approved by the Engineer and shall remain in continuous operation until coating is completely cured as determined by the manufacturer of the coating system. Operation and maintenance of blower during curing operations shall be the responsibility of the District if Contractor has completed all ongoing work and workers are not working at the site. In the event of blower malfunction, City will immediately notify Contractor, who will be responsible for immediate repair of blower or furnishing of another operating blower until completion of curing operations.
 - 1. If dehumidification is being used, the equipment shall remain in-place and run continuously during all curing operations.
- B. After completion of curing cycle as noted above, the Contractor shall test the applied coating with a solvent rub test performed in accordance to ASTM D5402 to verify, to the Engineer, adequate curing has been attained.

1. If final cure has not been attained, based on above tests, ventilation shall be continued until applied coating passes the acetone wipe-test or hardness test .
- C. After final cure is approved by Engineer, Contractor shall remove fan or blower.

3.11 APPLICATION EXTERIOR PAINT AND QUALITY ASSURANCE FOR PAINT SYSTEMS

- A. After completion of surface preparation as specified, all exterior surfaces and piping shall receive the primer specified under 2.4 D., SPECIFIC EXTERIOR PAINT MATERIALS. Dry film thickness shall not be less than 5.0mils.
 1. Manufacturer shall provide recoat window guidelines for product based on temperature variations with minimum and maximum recoat windows.
 2. If the prime coat is applied by rolling, two coats of prime coat shall be applied.
- B. After proper drying interval, primed areas shall be carefully inspected to determine if paint edges have lifted or if other defects exist. If necessary, repairs shall be accomplished, using procedures as specified herein to affect a smooth transition between primer and subsequent coats.
- C. Upon completion of sealing operations, the primer shall be clean, dry and show no evidence of oxidation, after which all surfaces shall receive the intermediate coat specified under 2.4 E., SPECIFIC EXTERIOR PAINT MATERIALS, to a dry film thickness of 3.0 mils.
 1. Manufacturer shall provide recoat window guidelines for product based on temperature variations with minimum and maximum recoat windows.
- D. After specified drying interval, all exterior surfaces shall receive the finish coat specified under 2.4 F., SPECIFIC EXTERIOR PAINT MATERIALS, to a dry film thickness of 3.0 mils.
 1. If the finish coat is applied by rolling, two coats of finish coat shall be applied.
- E. Total dry film thickness of the completed three-coat system shall not be less than 11.0 mils at any point in the surface where bare metal was originally exposed, or less than 8.0 mils above the previous thickness where the new two-coat system was applied over existing paint.
 1. Prior to start of intermediate coat application, Contractor and Engineer shall conduct spot dry film thickness tests to determine the minimum dry film thickness of the existing paint system. A mutual agreement shall be reached as to the specific dry film thickness of the existing paint system, which shall then be used in determining if sufficient additional paint has been applied over the existing paint.
 - a. Maximum dry film thickness allowed, if not specified in manufacturer's approved literature, will be as determined, in writing, by the paint manufacturer's headquarters technical representative.
- F. Paint shall not be applied when wind speed exceeds fifteen miles per hour.

- G. Upon completion of exterior painting operations, inspection shall be accomplished as specified under 1.4 QUALITY ASSURANCE. All applicable sections of 3.9 QUALITY ASSURANCE, INTERIOR, EPOXY COATING SYSTEM shall apply to exterior painting operations.
- H. All mixing, thinning, application and holiday detection of coatings and paints shall be accomplished in the presence of the Engineer.
- I. Color Scheme: The District shall select colors for the project. The Contractor shall submit a current chart of the manufacturer's available colors to the District's representative ten days prior to start of painting operations.
- J. The Contractor shall supply the District with five extra gallons of both the epoxy and urethane paints used for the exterior surfaces.

3.12 DISINFECTION

- A. Disinfecting of interior surfaces of the tank shall be accomplished in the presence of the Engineer and District's Operations, in conformance to AWWA Standard C652 Section 4.3 Chlorination Method 2 as modified herein:
 - 1. Disinfection shall be accomplished after completion and acceptance by District of all interior recoating and curing of coating as required in 3.10 FINAL CURING OF EPOXY COATINGS.
 - 2. Prior to disinfecting, the complete interior shall be cleaned with an approved cleaner or detergent applied via high pressure method. If deemed necessary by Engineer because of contaminants remaining on surfaces, immersed areas shall be scrubbed with a brush or similar implement which will apply force and pressure to the surface to completely remove residual solvents and other surface contaminants.
 - 3. Contractor shall coordinate with the District to purge all tank piping to remove stagnate water and any debris trapped in the line prior to disinfecting the interior of the tank.
 - 4. Cleaned surfaces shall then be rinsed with clean water. Residual water and contamination removed during washing process shall be thoroughly flushed from tank. Contractor shall obtain approval of District prior to draining any residual water to waste. This operation shall be accomplished after completion of interior coating work as directed by the Engineer.
 - 5. After completion of cleaning cycles as noted above, all interior surfaces shall be jet washed with a chlorine or chloramine solution having a content of 200 PPM. Chlorine or chloramine solution used to disinfect the interior of the tank shall remain in the bottom of the tank when the tank is filled.
 - a. Contractor shall furnish and install new gaskets and nuts and bolts for the manholes and seal-up the tank.
 - 6. Once the tank has been completely filled, the tank will be isolated from the water system and the District will take a Bac-T test. Should the Bac-T test fail, the Contractor will be responsible for reimbursing the District for the rejected and drained water and will be required to re-chlorinate the tank as described above until

the Bac-T tests are negative.

3.13 TESTING FOR VOLATILE ORGANIC COMPOUNDS (VOC'S)

- A. To monitor the presence of VOC's leached into the water from the coating process, the following procedure shall be utilized:
1. After satisfactory curing, the tank shall be filled by District in accordance with standard filling procedure. Water shall then be retained for a period of five days.
 2. On the sixth day following completion of the filling of the tank, the District will perform a sniff test to determine if unacceptable chemical odor is present.
 3. On the sixth day following completion of filling of tank and passing the sniff test, samples of water shall be removed by District, in accordance with latest SWRCB Division of Drinking Water memoranda. Samples shall then be forwarded, by District, to an approved test laboratory for testing to determine presence of VOC's.
 4. After testing of samples, results must show levels of the following organics to be in accordance with levels established by the SWRCB Division of Drinking Water for various VOC's. Results will be verified by SWRCB Division of Drinking Water.
 5. If levels of leached organics exceed those acceptable to the SWRCB Division of Drinking Water, the reservoir shall be drained, flushed, refilled and retested at the Contractor's expense. Failure of the reservoir to attain levels of acceptable to the SWRCB Division of Drinking Water shall be the responsibility of the Contractor and remedial measures to attain such levels shall be at his sole expense.
 6. If leached organics produce any taste and odor objectionable to consumers of the water from the tank, the tank shall be drained, re-cleaned, flushed, refilled and retested at the Contractor's expense. Failure of the tank to be taste and odor-free shall be the responsibility of the Contractor and remedial measures to attain such a condition shall be at his sole expense.

3.14 CLEANUP

- A. Upon completion of the work, all staging, scaffolding and containers shall be removed from the site or destroyed in a manner approved by the Engineer. Coating, paint and thinner containers, and excess coatings, paints and thinners, shall be disposed of in conformance to current regulations. Coating or paint spots upon adjacent surfaces shall be removed and the entire job site cleaned. All damage to surfaces resulting from the work of this section shall be cleaned, repaired or refinished to the complete satisfaction of the Engineer at no cost to the District.
- B. Upon completion and acceptance of all coating and painting operations, site soil shall be retested by District, in same locations tested prior to start of work, for presence of lead or other heavy metals. Testing shall be accomplished by the same laboratory as the original testing under requirements of Title 22. If soils contain excessive levels of lead or other heavy metals above those levels determined by testing at start of work and beyond acceptable levels of current regulations, Contractor shall be responsible for removal and disposal of contaminated soil, and returning the site to its original condition. Copies of

laboratory analyses reports shall be forwarded to Contractor immediately upon receipt from laboratory, prior to start of any work. Any required remediation schedule will be determined by the District

3.15 OMISSIONS

Care has been taken to delineate herein those surfaces to be coated or painted. However, if coating and painting requirements have been inadvertently omitted from this section or any other section of the specifications, it is intended that all metal surfaces, unless specifically exempted herein, shall receive a first-class protective system equal to that given the same type surface pursuant to these specifications.

PART 4 - PAYMENT

4.1 GENERAL

- A. Payment for the Work in this Section shall be included as part of the lump sum or unit prices bid for which such Work is appurtenant thereto, and no additional payment will be made specifically for the Work in this Section.
- B. Any extension of Contract time that may be granted by the Owner will not of itself constitute a claim for additional payment for the work under this Section.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

NOT FOR BID

SECTION 13200 - MISCELLANEOUS TANK STRUCTURAL MODIFICATIONS

PART 1 - GENERAL

1.1 PURPOSE

This specification establishes methods and procedures for miscellaneous structural, and safety modifications.

1.2 APPLICABLE STANDARDS AND SPECIFICATIONS

- A. Welding and design shall be accomplished in conformance to the latest revision of AWWA D100 Standard for Welded Steel Tanks for Water Storage. Where tolerances and details are not defined by the AWWA Standard, the applicable sections of the American Petroleum Institute (API) Standard 650 shall apply. Welders shall be certified to the procedure and process called for in the work, and certification papers shall be on file with the Contractor at the jobsite, or in possession of welders at all times.
- B. Contractor is to submit shop drawings or sketches in detail of each item to be added, replaced or modified, as noted in 1.4. Contractor is responsible for verifying all measurements in the field before fabrication or installation of any items as typical drawings may not accurately represent actual field conditions.

1.3 CONTRACTOR

All bidders shall be licensed in accordance with the provisions of Chapter 9, Division 3, of the Business and Professions Code of the State of California and possess a California Class 'A and/or C-33' Contractor's License meeting one of the following - **CASE #1: Prime Contractor is C-33 licensed & Subcontractor is Class A licensed, CASE #2: Prime Contractor is Class A licensed & Subcontractor is C-33 licensed, CASE #3: Prime Contractor is Class A and C-33 licensed** at the time of the scheduled bid opening.

1.4 SUBMITTALS

- A. Six copies of detailed shop drawings or sketches of field work and required calculations shall be submitted to the Engineer for review for all structural work. Drawings or sketches shall contain sufficient details to clearly define work to be accomplished. Fabrication or installation shall not be commenced prior to review and approval of shop drawings or sketches.
- B. An electronic submittal will be accepted in only the following format.
 - 1. The file shall be in pdf format.
 - 2. Each project submittal shall be a separate file.
 - 3. Each file shall be labeled in the following sequence:
 - a. Owner Name/Project Name
 - b. Submittal No.
 - c. Description

1.5 QUALITY ASSURANCE

Welding procedures and welding operators shall have been qualified in accordance with AWWA D100 Standard. All butt joints shall be complete penetration and fusion of joints. All completed welds shall be free of slag and all finish steel surfaces free from weld spatters. Examination of the welded joints shall be made as the work progresses in accordance with API 653 Section 10 (Revised), herein included as part of this specification.

PART 2 - MATERIALS OF CONSTRUCTION

2.1 GENERAL

- A. All materials specified are those which have been evaluated for the specific use. Any proposed substitutions must be submitted to the Engineer prior to the bid opening.
- B. All steel plate components shall be fabricated from new ASTM A-36 material and all new carbon steel pipe shall be ASTM A-53 material. Contractor shall provide certified mill test reports for all steel plate and pipe. Steel plate for repair of existing sample ports shall match the existing shell plate as noted in Section 3.3 I.
- C. Materials of construction not specified as noted herein, shall be as noted in applicable sections of Standard Specifications for Public Works Construction, latest edition.

2.2 PRODUCTS

- A. Self Closing Gate: Self Closing Gate shall be a FabEnCo, Inc. Model No. XL71-PC, Houston Texas (713) 686-6620, or approved equal
- B. Vent Screening:
 - 1. Screening: Shall be aluminum wire 20 mesh and 2 mesh from TWP or approved equal
 - 2. Banding and Straps: Shall be ½" aluminum banding with aluminum wing seals from metrosupplycollc.com or approved equal
 - 3. Tensioning Tool: Push bar tension for securing banding shall be from metrosupplycollc.com or approved equal.
- C. Safety Climb System:
 - 1. Safety Climb shall be a Saf-T-Climb rigid rail fall prevention system by Miller Safety Products or approved equal.
 - 2. Safety Sleeve shall be a Saf-T-Climb shuttle assembly model 602-100-003 by Miller Safety Products.
 - 3. Safety Harness shall be a Saf-T-Climb harness model 733-201-002(3) or approved equal.

- D. Nuts and Bolts: All bolts and nuts used on the interior of the tank shall be ASTM A307 steel galvanized after fabrication or A325 galvanized for structural members.
- E. Vandal Guard Hinges: Shall be McMaster-Carr (#1805A15) heavy duty surface mount hinges with bearings, Jansen Supply Company (VSA1500) Weld-on tear drop hinge ½ pin x 6 LG or approved equal.
- F. Passive Check Valve: Neoprene slip on Smart Tideflex Tf-2, Onyx Valve Series DBS or approved equal

PART 3 - EXECUTION

3.1 GENERAL

- A. All work shall be executed in accordance with the requirements of the American Water Works Association Standard D100, latest revision, the District, and these specifications. Where the foregoing standards, recommendations, and specifications are conflicting, said conflicts shall be brought to the attention of the Engineer.
- B. All work shall be executed by skilled craftsmen qualified to accomplish the required work in a manner comparable with the best standards of practice. Resumes of personnel to be used on the project shall be submitted upon Notice of Award. Continuity of personnel shall be maintained and transfers of key personnel shall be coordinated with the Engineer.
- C. The Contractor shall provide a supervisor to be at the work site during all operations. The supervisor shall have the authority to sign any change orders, coordinate work and make other decisions pertaining to the execution of their contract.
- D. The Contractor shall cooperate with the District who may be conducting other operations on or near the reservoir.
- E. Provide safeguards, including warning signs, barricades, temporary fences, warning lights, and other similar items that are required for protection of all personnel during demolition and removal operations.
- F. All installation and repair work shall be accomplished in such a way as to minimize reservoir down-time. All repair operations shall be completed so as not to impair completion schedule for project, which includes subsequent recoating and repainting of reservoir by others.
- G. The Contractor shall coordinate with the District at least seven (7) days before starting work at the site.
- H. All equipment, piping, and surfaces of the reservoir shall be protected from all damage and dust or other deleterious material infiltration during the operations of the Contractor. Any items damaged by the operations of the Contractor shall be replaced in kind or acceptably repaired to the satisfaction of the Engineer by the Contractor at no cost to the District.
- I. All work shall be made accessible to the Engineer at all times. The District may use own forces, engage full-time independent inspection services, or perform inspections intermittently. The Contractor is to supervise the job properly between inspections.

- J. Wherever a cutting torch or other equipment that might cause a fire is used, provide and maintain fire extinguishers nearby ready for immediate use. Instruct all possible users in use of fire extinguisher.
- K. The Engineer shall inspect the cleaning of pitted areas prior to welding and following post-weld repair applications.
- L. Any burrs, weld spatter, sharp edges, corners, or rough welds which would cause difficulty in achieving a defect-free paint system shall be chipped or ground smooth in conformance to NACE Standard RP0178-latest edition. It is not the intent to have the welds or ~~scas~~ ground flush. The object of the grinding is to eliminate sharp edges, corners, and overlaps to provide a surface for the application of a uniform thickness of coating or paint without voids or other defects.
- M. Should vents, holes, rigging attachments, or any other modification, cutting or welding be required to meet safety standards, they may be accomplished at the expense of the Contractor upon submitting of details in writing to, and with subsequent approval by the Engineer.
- N. Where it is necessary to abrasively blast clean or chemically strip coated or painted areas prior to, and after, any welding operations, work will be coordinated with the Engineer.
- O. Any remedial cleaning, coating and painting application shall be accomplished in accordance with the requirements listed in Section 3.2 below and Technical Section 09800.
- P. The Contractor's equipment shall be designed for installation of materials specified and shall be maintained in first class working condition. Contractor's equipment shall be subject to approval of the Engineer.
- Q. The Contractor shall provide, at his own expense, all necessary power and scaffolding required for his operations under the contract.
 - 1. The interior of the reservoir will be recoated upon completion and acceptance of the structural modifications. Contractor may privately arrange for the coating and painting contractor to furnish scaffolding for accomplishment of all structural work prior to use of scaffolding for his work.

3.2 HEAVY METAL COMPLIANCE AND TESTING

Contractor shall comply with requirements of Department of Health Services and Cal/OSHA Title 8 for worker protection during removal of paint and handling of hazardous wastes resulting from surface contamination and any removed paint particles. Prior to removal, modification or installation of any materials or fittings, Contractor will remove existing interior coating and exterior paint where cutting, burning and welding will be accomplished. If any additional exterior paint is to be removed, submittal of a written plan of action for the project shall be accomplished by Contractor prior to start of project.

3.3 MODIFICATIONS AND REPAIRS

- A. Welding: Welding shall be accomplished as specified herein and in conformance to referenced standards and industry practice.

- B. Drawing and Sketches: Available original site, piping and accessory drawings and miscellaneous typical sketch drawings are included as specific references. Contractor is to submit shop drawings or sketches in detail of each item to be added, replaced or modified as noted in 1.4.
- C. Guardrailing (BOTH): Remove and dispose of the existing guardrailing and fabricate and install new perimeter guardrailing with kickplates, as shown on the plans. Railing shall be fabricated to follow the radius of the reservoir. Pipe sections shall be used, provided they meet current Cal/OSHA requirements. Guardrailing layout shall be field verified prior to fabrication. The guardrailing shall be equipped with two pipe holders adjacent the roof hatch for securing the saf-t-climb dismount section when not in use.
- D. Safety Gate (BOTH): A self-closing hinged gate in accordance with Section 2.2 A. shall be provided at ladder opening at location noted on the plans. Gate shall not be installed until exterior painting is complete.
- E. Vent Screening (BOTH): Remove and dispose of the existing screening on all roof vents. Bolts and nuts for the vent shall be either galvanized or stainless steel. Install insulation sleeves and gaskets where dissimilar metals touch. Screening for vent shall be aluminum 20 mesh screening on inside with 2 mesh backup on outside, in accordance with Section 2.2 B. Replace all the nuts and bolts securing the vent structure to the tank.
- F. Safety/Exhaust Fan Roof Vent (BOTH): Furnish and install 24" diameter vent with an exhaust fan flange at a location designated by the Engineer. This is not a center vent. The purpose of this vent is to provide for attachment of Contractor's ventilation fan during interior cleaning and coating operations. Vent shall conform to details shown on the plans. Bolts and nuts for the vent shall be stainless steel or galvanized material. Screening for vent shall consist of aluminum screening 20 mesh on inside and 2 mesh backup on outside. Screening shall not be installed until after completion of the interior coating and exterior painting
- G. Primary Roof Hatch (TANK 2A Only): Remove and dispose of existing roof hatch. Plate over the existing opening with $\frac{1}{4}$ " plate to cover the opening and seal weld to the existing roof plates. Furnish and install an approved 36" x 36" hatch with hinged aluminum cover at location show on the plans. The hatch must penetrate the roof a minimum of 2" on the low side and place a seal weld at the roof to curb transition on the interior and exterior of the tank. Hatch must be aligned with the interior ladder in a manner that allows a person safe access to the ladder.
1. Hatch shall open toward the center of the reservoir.
- H. Interior Ladder (TANK 2A Only): Remove and dispose of the existing interior ladder and braces. Existing braces shall be cut flush with the shell and shall be ground smooth to provide an integrated surface with the shell. Fabricate and install new fiberglass ladder, in accordance with the plans. New carbon steel brackets meeting Cal/OSHA requirements shall be installed, in accordance with the plans. Galvanized bolts used to secure the ladder shall be isolated from the carbon steel braces. Ladder must be aligned with the hatch in a manner that allows a person safe access to the ladder.
- I. Saf-T-Climb Device, Interior (TANK 2A Only): Furnish and install an approved new galvanized Saf-T-Climb fall prevention device on the interior ladder, including dismount section, in accordance with Section 2.2 C., *Products* and the plans. A dismount section shall be included on the ladder. Hardware shall be installed in accordance to manufacturer's

instructions as noted in Figure No. 9 and Figure No. 11, including palnuts. Provide locking sleeve and harness in accordance with Section 2.2 C to the District.

- J. Exterior Ladder (TANK 2A Only): Remove and dispose of the existing ladder and cage. The existing ladder brackets shall be ground smooth with the shell to create an integrated surface with the shell. Fabricate and install a new exterior split ladder, platform, and vandal guard at location noted on the plans and in accordance with current Cal/OSHA requirements. A new vandal guard shall be installed as detailed on the plans. A minimum of three hinges shall be utilized to hang the vandal guard and shall be in accordance with Section 2.2 E., *Products*. The vandal guard when fully open shall provide a minimum of 8' head clearance from the ladder to the back of the vandal guard.
1. The electrical conduit shall be relocated to the new ladder brackets, modify the conduit as needed to secure to the new ladder brackets and transfer the antenna and equipment to the new guardrailing.
- K. New 36" Manhole (TANK 2A Only): Furnish and install a new 36" diameter bolted and hinged manhole and reinforcing plate per API 650, Section 5.7, Figures 5.7 and 5.8 and Tables 5.3 through 5.8. The determination for structural reinforcement of the existing tank shall be determined by a licensed California structural engineer, experienced in tank design, for the Contractor, including submittal of calculations. Identify Shell Material: Prior to installation of manhole, remove section of existing shell and submit for laboratory analyses to ensure all shell reinforcement matches existing shell material. Laboratory identification of material shall be submitted to Engineer for review. Provide NSF 61 approved full face gaskets for sealing the manhole. Gaskets shall be Cranite or approved equal.
- L. Liquid Level Indicator (TANK 2A Only): Remove the existing liquid level indicator assembly, including piping, cables, float, hardware and gauge board and plate over openings. Furnish and install new liquid level indicator assembly and half travel gauge board at location designated on the plans.
- M. Overflow Pipe (TANK 2A Only): Modify the existing exterior overflow pipe to install an air break, including installation of a check valve per Section 2.2 F., *Products* and funnel in accordance with the plans.
- N. Overflow Pipe (TANK 2B Only): The existing interior portion of the overflow pipe shall be modified to exit the shell at a higher level to allow for the installation of a funnel on the exterior portion of the overflow pipe. The new exterior portion of the overflow pipe shall be equipped with a check valve per Section 2.2 F., *Products* and funnel in accordance with the plans. Furnish and install an insert plate in the shell from the removal of the overflow pipe.
1. The determination for the structural reinforcement of the reservoir shell shall be determined by a licensed California structural engineer, experienced in tank design, for the Contractor, including submittal of calculations. All design costs, material costs, fabrication, inspection of all welds and completion of installation to the satisfaction of the District shall be the responsibility of the Contractor and shall be included in the Contractor's lump sum bid item.
 2. The replacement plate in the shell shall be welded with butt joints with complete penetration and complete fusion. The welds shall be in accordance with API Std. 650 5.1.5.1 through 5.1.5.3. The thickness of the replacement plate shall not be less than the thickness of the existing shell plate.

- O. Pit/Perforation Treatment (BOTH): Excessively pitted, corroded, or perforated areas shall be either filled with weld metal and ground smooth, or covered with a metal plate of the same plate thickness, as determined necessary by the Engineer. Plate shall extend six inches beyond pit or perforation with a 100% fillet weld around perimeter of plate. This work will be accomplished on an hourly rate time and material basis.
- P. Grinding: Excessively corroded areas on the rafter flanges, braces, and structural members that comprise of sharp edges from sandblasting shall be ground smooth and rounded, as determined necessary by the Engineer. This work will be accomplished on an hourly rate time and material basis.
- Q. Inspection Blasting: Excessively corroded areas of the structural members shall be abrasive blast cleaned to remove severe corrosion, as determined necessary by the Engineer. Engineer shall inspect the blast cleaned areas using Contractor's scaffold following the blasting to determine whether optional bid items will be needed.
- R. Replace Rafters and/or Tie-Rods (Tank 2A): Remove existing severely corroded rafters and/or tie-rods, as determined necessary by the Engineer, and replace with new rafters and tie-rods in like kind. The interior rafters are Channel 7x2 approximately 30 feet in length. The top of the rafters shall be shop coated in accordance with Section 09800 prior to installation. The Contractor shall field verify the tie-rod and rafter size and length prior to fabricating. Work shall be accomplished on the basis of each item.
- S. Weld Structural Connections: Existing structural members with severely corroded nuts and bolts shall be seal welded to the existing shell gusset plate or support plate, as determined necessary by the Engineer, do not weld both ends of the rafter. Remove the existing nuts and bolts and weld a 100% 1/4" fillet weld around perimeter of structural member(s). This work will be accomplished on an hourly rate time and material basis.
- T. Nuts and Bolts: Replace severely corroded nuts and bolts and/or gusset plates, as determined necessary by the Engineer.

3.5 TESTING

- A. The Contractor shall furnish all material, labor and equipment necessary to test the modifications as specified herein. Testing shall be completed prior to acceptance of work as complete and meeting the requirements of the specification.
- B. Spot examination of the welded joints shall be made as the work progresses by magnetic particle, dye penetrant method, or by spot radiographic examination as applicable.
- C. All defects uncovered by testing process shall be corrected and retested until such defects are eliminated.
- D. Contractor shall provide a watertight installation. After flushing of the chlorinated water and upon filling of the reservoir, any leaks which occur on the reservoir or appurtenant piping shall be repaired by the Contractor at his expense and to the satisfaction of the Engineer.

3.6 CLEANUP

Upon completion of the work, all staging, erection brackets, scaffolding and debris shall be removed from the reservoir and site and disposed in a manner approved by the Engineer. The entire job site shall be left in a clean condition.

PART 4 - PAYMENT

4.1 GENERAL

- A. Payment for the Work in this Section shall be included as part of the lump sum or unit prices bid for which such Work is appurtenant thereto, and no additional payment will be made specifically for the Work in this Section.
- B. Any extension of Contract time that may be granted by the Owner will not of itself constitute a claim for additional payment for the work under this Section.

END OF SECTION