

**STATEMENT OF WORK
FOR
CONSTRUCTION**

**Contract #: TBD
Requisition #: TBD**

Title:

Aging Structures Stabilization

Revision Number: 00

Date: January 2020

TABLE OF CONTENTS

DIVISION 1 – GENERAL REQUIREMENTS

Section 01010	Summary of Work
Section 01019	Items Furnished for Construction (CHPRC-Furnished Equipment)
Section 01036	Request for Clarification (RCI) and Changes
Section 01040	Coordination
Section 01050	Field Engineering
Section 01065	Permits
Section 01110	Occupational Safety / Industrial Hygiene
Section 01130	Environmental, Radiological, and Nuclear Safety
Section 01150	Training and Qualifications
Section 01200	Project Meetings
Section 01300	Submittals
Section 01315	Project Schedules, Project Controls, and Project Performance Milestones
Section 01400	Quality Assurance and Control
Section 01500	Construction Facilities and Temporary Controls
Section 01610	Material and Equipment Delivery, Storage, and Handling
Section 01630	Product Options and Substitutions
Section 01670	Construction Acceptance Testing
Section 01720	Project Record Documents

SECTION 01010
SUMMARY OF WORK

PART 1 – GENERAL

1.1 INTRODUCTION / BACKGROUND

This contract is issued for the performance of work planning, construction, and maintenance services in support of CH2MHILL Plateau Remediation Company (CHPRC) work scope for the period of the award date through contract completion. CHPRC is a prime contractor to the Department of Energy (DOE) and all work on this Statement of Work (SOW) will be performed in support of the CHPRC contract with DOE.

1.2 DESCRIPTION OF WORK - GENERAL

Contractor employee(s) shall be responsible for independently planning, organizing, and performing a wide variety of specialized administrative/technical duties in support of the successful completion of goals and deliverables in accordance with all provisions of the contract.

- 1.2.1 Work is on the Hanford Site, approximately 26 road miles northwest of Richland, Washington, in the 200 West Area in the immediate vicinity of the Plutonium Finishing Plant (PFP).

This SOW identifies the Contractor's scope as it relates to the completion of the Aging Structures Stabilization.

The Contractor shall provide a team of technically qualified person(s) under the general supervision of CHPRC.

Unless otherwise approved, the Contractor shall work in accordance with CHPRC contract requirements, technical documents, operating policies and procedures, and shall be responsible for execution of the work in accordance with the quality standards and requirements specified for assigned project and facility as detailed in this SOW.

- 1.2.2 Work consists of labor, equipment, and material support for the placement of engineered grout for the purpose of stabilizing three aging structures located near PFP. These structures are identified as 216-Z-2, 216-Z-9, and 241-Z-361. See Attachment 1 for additional detail on the three structures.

Structure description is as follows:

216-Z-2 (Crib) is an approximately 14 foot by 14 foot square and 21 foot deep wooden timber box. A single riser is located in the roof to access the void to be filled. The structure will require approximately 140 cubic yards of grout to stabilize.

SECTION 01010 SUMMARY OF WORK

216-Z-9 (Trench) is a 20 foot deep excavation with sloping walls where the floor is approximately 60 feet long by 30 feet wide with a 120 foot long by 90 foot wide concrete cover located at grade level. The cover is supported by six concrete columns. There are multiple risers of varying diameters in the roof to access the void to be filled. The structure will require approximately 4,000 cubic yards of grout to stabilize.

241-Z-361 (Tank) is a reinforced concrete structure 26 foot long by 13 foot wide and 18 foot deep. The structure has an interior steel liner with multiple risers of varying diameters in the roof to access the void to be filled. The structure will require approximately 400 cubic yards of grout to stabilize.

1.3 DESCRIPTION OF WORK - SPECIFIC

1.3.1 The work scope for this contract includes four (4) tasks. **Task 1** shall provide labor resources required for composite crew to support work package development, constructability reviews, final Enhanced Work Planning (EWP), Hazard Review Board (HRB) preparation and participation and training. **Task 2** shall provide labor resources, equipment, materials, and subcontracting required to field investigate all three structures, fabricate the CHPRC designed portion of the conveyance system, design and fabricate the remaining Contractor provided portion of the conveyance system, and successfully mock-up and operate the entire system off-site. **Task 3** shall provide labor resources, equipment, materials, and subcontracting required for mobilization, field preparation, installation of the conveyance system and placement of engineered grout to stabilize all three structures, and demobilize. **Task 4** consists of a stand-by rate to include all labor resources, equipment, and subcontracting costs in the event that owner caused delay prevents the Contractor from performing the work described in Task 3.

The Contractor shall provide and manage labor and equipment required to complete work. Labor includes participation of Contractor's employees in training and medical examinations required by Contract.

1.3.1.1 **Task 1 – Work Description: Work package development, Constructability Reviews, EWP, and HRB Preparation and Participation and Training.**

Provide work products and services that are compliant with CHPRC standards and requirements as necessary for the successful completion of this work activity including the following:

- Provide composite crew that represents a sampling of what will be utilized for the work described within Task 2 and 3.

SECTION 01010 SUMMARY OF WORK

- Planning shall include the applicable details learned from both the field investigation and the off-site mock-up of the conveyance system completed under Task 2 to ensure both the work package and crew are prepared for stabilization activities.
- Task 1 work support is estimated to last four (4) weeks: two (2) weeks of prep time for planning, work package development, and constructability review; two (2) weeks for EWP/HRB meetings and comment resolution.
- Contractor shall plan for crew availability to begin on-site planning, work package development, and constructability reviews upon award.
- Based on the outcome of planning and constructability reviews, Contractor may be requested by CHPRC to perform additional scope under this task.
- All proposed personnel shall possess the required training as identified in SOW Section 01150.
- The Contractor Field Superintendent (FS) and Safety/Industrial Hygiene (S/IH) Officer that will support Task 1, shall also support Task 2 and 3, possess the required training, and meet the experience requirements identified in SOW Section 01150.

1.3.1.2 Task 2 – Work Description: Investigation, Fabrication, and Mock-up

Provide work products and services that are compliant with CHPRC standards and requirements as necessary for the successful completion of this work activity including the following:

- Work will include field investigation of all three structures to confirm design configuration prior to fabrication of conveyance components. Investigation shall also document the internal conditions for each structure to confirm assumptions made on historical records.
- The CHPRC designed portion of the conveyance system fundamentally makes use of existing above ground risers located at each structure to connect and inject grout along with having access for camera/lighting to monitor internal conditions and grout progress. Risers are also utilized for ventilating and monitoring structures during grouting.
- Upon completion of investigation, Contractor shall fabricate the CHPRC design portion of the conveyance system per the technical documents. Contractor shall also design, fabricate and procure the necessary material and equipment for the remaining portion of the fully functioning conveyance system.

SECTION 01010
SUMMARY OF WORK

- The conveyance system shall be mocked-up off-site, to full scale, and operated and tested to confirm installation means and methods, functionality, and performance in order to receive CHPRC approval for use on-site.
- Investigation and mock-up is intended to reduce overall project risk.
- Due to reliance on existing risers, and to confirm internal structure conditions prior to grouting, internal investigation will be performed for each structure. Each riser planned to be utilized for grout injection, camera monitoring and/or ventilation will be verified along with a 360-degree detailed inspection of the structure internal void where video and photo evidence shall be obtained.
- Cameras, lights, and monitoring equipment utilized both in Task 1 and 2 will all be Buyer Furnished Equipment (BFE). This equipment primarily consists of a GE Ca-Zoom monitoring and controlling system with PTZ-70 and PTZ-140 camera heads. The lights are Ahlberg Drop Light 2000's.
- Due to structure size and riser diameters, the following combinations of equipment are anticipated to be used for investigation and grout monitoring. Final equipment combinations and arrangements will depend on the findings from structure internal investigations:
 - 216-Z-2, PTZ-70 camera only, no supplemental light will be required.
 - 216-Z-9, PTZ-70 and PTZ-140 camera (depending on riser) along with a single Ahlberg Drop Light 2000 for supplemental lighting.
 - 241-Z-361, PTZ-70 camera only, no supplemental light required.
- Negative Air Machines (NAM's) to be utilized for ventilation system are BFE. 216-Z-9 and 241-Z-361 will utilize NAM's to actively ventilate the structure during grouting.
- During investigation and utilizing *CHPRC Stabilization Overview* (Attachment 2) Contractor shall determine final location for grout pumping equipment in the 217Z maintenance parking lot and the routing for the conveyance lines to distribute grout for all three structures. At that point, the final pumping lengths can be determined so the Contractor can complete the balance of the design for the conveyance system. Preliminary estimate by CHPRC indicates the longest pumping length to be approximately 1,500 feet for stabilizing 216-Z-2 and 241-Z-361. However, final lengths will be determined by Contractor routing and equipment.
- Due to the structural conditions of 216-Z-2, 216-Z-9, and 241-Z-361 exclusion zones currently exist and all Contractor personnel and equipment will be strictly prohibited from accessing the tops or immediate area around the structures. Contractor personnel will have to utilize a BFE aerial lift for personnel to complete the investigation, set-up,

01010-4

SECTION 01010 SUMMARY OF WORK

connection of conveyance equipment and monitoring, and possibly operation of cameras and lights during grouting activities.

- The 217Z maintenance parking lot has a usable space for the Contractors delivery and pumping operation of approximately 100 foot wide by 120 foot long. The Contractor shall anticipate having to relocate existing parking bumpers and possible grade the existing area to prepare for use. Additionally, the Contractor shall anticipate the need to supply and construct emergency vehicle means of access over all grout transport pipe/hose that cross roadways and access roads (the means of access shall support the weight of Hanford Fire Department emergency vehicles to allow them to cross the pipe/hose). See Attachment 1 for further detail on the 217Z area.
- The mock-up shall be to full scale and utilize the same equipment to be mobilized on-site for the actual grouting. Conveyance line lengths, routing and pumping system set-up shall be to scale. While the individual structures do not need to be mocked to scale, the risers and connections shall be simulated. Both water and grout shall be pumped through the system demonstrating functionality and performance with grout used for final acceptance demonstration. The estimated quantities of grout needed to stabilize each structure do not need to be utilized in the mock-up, only sufficient grout quantity so functionality is demonstrated.
- The Contractor's grout conveyance system shall demonstrate how grout flow is controlled and how the system is cleaned and flushed at the end of shift or in the event pumping has to be stopped. For the purpose of cleaning and flushing the system, it will be acceptable for the Contractor to discharge grout and rinsate to the ground both in the 217Z maintenance yard and at the structure locations. Once discharge grout and rinsate cures it will need to be cleaned up and disposed of per the Waste Planning Checklist (WPC).
- Flushing via water shall be the only method used to clean out the conveyance system, pigging or pneumatic cleaning will not be allowed. Flushing of water into 216-Z-9 and 241-Z-361 will be allowed as a means of cleaning out the conveyance system at end of shift or in the event the pumping needs to stop due to an unplanned event. **Note: due to the internal contamination and airborne radiation located within the structures, no back stroking of the grout pump for any reason will be allowed while connected to the structures. The Contractor shall demonstrate a positive control mechanism installed on the grout pump controls to prevent accidental switching of pump direction while connected to the structures prior to mobilization.**

1.3.1.3 Task 3 – Work Description: Stabilization

Provide work products and services that are compliant with CHPRC standards and requirements as necessary for the successful completion of this work activity including the following:

01010-5

SECTION 01010 SUMMARY OF WORK

- Work will include the supply, delivery, and placement of engineered grout to stabilize the 216-Z-2, 216-Z-9, and 241-Z-361 structures.
- Contractor shall place, at a minimum, an average of 250 cubic yards (CY) of engineered grout per shift. Exceptions for this minimum average are detailed below. Also, see section 1.4 WORK HOURS for Contractor options on work shifts and hours for grouting under this task.
- Contractor shall produce and transport all grout from an approved off-site location. **On-site batching shall not be used.**
- Structure grouting order and lift restrictions:
 - 216-Z-2 shall be grouted first and does not have any lift restrictions.
 - 241-Z-361 shall be grouted second with a minimum of three initial lift placements of only 40 CYs to stabilize the interface with the sludge level and minimize mixing. These initial grout lifts shall be allowed to cure a minimum of 12 hours prior to placement of the next lift.
 - 216-Z-9 shall be grouted last and not start until October 1, 2020 due to project fiscal constraints. To protect internal components located near the structure cover, the approximately top eight (8) feet shall be grouted one (1) foot at a time with the grout allowed to cure a minimum of 12 hours prior to the placement of the next lift.
- Since 216-Z-2 is estimated to require less than 250 CYs of grout to stabilize, Contractor shall place at a minimum the sufficient grout quantity to stabilize in a single shift.
- The Contractor will be required to conform to the truck routing as shown in the *CHPRC Stabilization Overview* (Attachment 2) and the Contractor's approved traffic control plan. **Note: all construction traffic, including delivery and mixer trucks, will be required to adhere to all posted speeds including a 15 Mile Per Hour speed limit within the construction zone.**
- Contractor will be required to utilize washout locations as designated in the Attachment 2 and Contractor's approved washout plan.
- Contractor should assume a minimum grout pumping productivity of five (5) hours per shift.
- Contractor shall be responsible to develop and implement traffic control on-site from mobilization through stabilization and demobilization. Contractor shall submit plan for approval prior to implementation. Contractor plan shall minimize backing of all vehicles and equipment, include designated parking, designate walking and observation areas to

SECTION 01010 SUMMARY OF WORK

minimize soft target and equipment/vehicle interface, control speeds, including signage and delineation, spotters, flaggers (if necessary), and other restrictions determined to support the Contractors means and methods.

- Engineered Grout Requirements:
- Contractor shall develop an engineered grout mix design in accordance with the performance requirements shown on Drawing H-2-838868.
- For mix development, Contractor shall perform trial batch testing in accordance with requirements prior to placement in structures. Contractor shall construct a temporary wood-framed grout test flume to prove flowability of grout mix. Test flume dimensions shall be approximately 24 inches wide by 24 inches minimum high by 80 feet long. Bottom of test flume shall be constructed of plywood and be as “level” (i.e., no slope) as reasonably achievable. Test flume shall be constructed at an off-site facility to be determined by Contractor and approved by CHPRC. Contractor shall batch grout and deliver to the test flume. Contractor shall perform at least one successful test flume flow test (or more to prove flowability). Contractor shall coordinate testing with CHPRC, and CHPRC shall witness and approve test flume tests.
- Contractor trial batch testing shall also demonstrate:
 - Flume Flow Test showing flowability of grout for 80 feet, minimum without segregation or clumping. Grout may be placed into flume directly from chute of mixer truck.
 - Slump Flow (ASTM C1611) with a 28-inch minimum spread.
 - Grout Temperature (ASTM C1064) and Ambient Temperature;
 - Showing grout workability and capability of placement for up to three (3) hours by performing Slump Flow (ASTM C1611) three (3) hours after batching with a 24-inch (min.) spread;
 - Grout Density (ASTM C642);
 - Compressive Strength (ASTM C39) using 4-inch diameter x 8-inch long test cylinders tested at day one, two, three, seven and 28.
- Engineered grout shall be placed in the structures via grout conveyance system only. Contractor shall be responsible to flush the conveyance after each shift. Only water shall be used to flush the conveyance system at end of shift. Pneumatic pigging will not be allowed.

01010-7

SECTION 01010 SUMMARY OF WORK

- Contractor shall provide Third Party Quality Assurance inspection and testing for the installation of engineered grout accordance with quantities and frequency dictated within SOW and on Drawing H-2-838868. See section 01400 for further clarification.
- Contractor shall operate cameras each shift to monitor the grout progress and structure internal condition while grouting both 216-Z-9 and 241-Z-361. Note: Due to 216-Z-2 only having one riser, which will serve as both the grout injection location and ventilation, camera monitoring of the structure interior during grouting of 216-Z-2 will not be required. Memory cards of camera footage shall be provided to CHPRC at the end of each shift. Contractor shall ensure that cameras are operating and recording properly prior to start of grout placement each shift.
- Contractor shall be responsible to supply, deliver, install, and maintain freeze protection (heat trace or other) for grout conveyance (as necessary) beginning 01-OCT through 31-MAR. Freeze protection can be accomplished in multiple ways, such as heat trace, insulation, and or system draining at end of shift.
- Structures will be considered full when the maximum amount of grout can be placed into the void utilizing the Contractor designed conveyance system, injecting through the existing risers while maintaining functionality of the ventilation.
- Contractor shall maintain the active ventilation NAM's and High Efficiency Particulate Air (HEPA) filters during grouting activities on 241-Z-361 and 216-Z-9.

1.3.1.4 **Task 4 – Stand-by**

Subject to the requirements of the Contract including Special Provisions Construction Contracts (SP-4) FAR 52.242-12, Contractor may be entitled to payment for suspensions, delays or interruptions (hereinafter referred to as standby time) in Contractor's work during grout placement. Contractor will be compensated on a per hour basis for standby time utilizing the fixed unit rate. The unit rate shall encompass the entire crew and include labor, equipment, materials, and any other direct or indirect costs. The standby rate is not applicable to weather related delays or other circumstances as result of force majeure.

1.3.2 Excluded Work: The following are not part of this Contract.

- Radiological Control Technical (RCT) Support.
- Preparing Facility Modification Packages (FMP's) or Design Change Notices (DCN's).
- Providing, cleaning, and issuing respiratory equipment.
- Providing and cleaning radiological clothing.

SECTION 01010
SUMMARY OF WORK

1.4 DRAWINGS, SPECIFICATIONS, ATTACHMENTS, AND EXHIBITS

1.4.1 **Drawings:**

- H-2-838868 Sht.1 R0, Z-Complex Stabilization Project Site Plan
- H-2-838869 Sht.1 R0, Z-Complex Stabilization Project Ventilation System
- H-2-838870 Sht.1 R0, Z-Complex Stabilization Project Tank 361
- H-2-838871 Sht.1 R0, Z-Complex Stabilization Project Z-2
- H-2-838872 Sht.1 R0, Z-Complex Stabilization Project Z-9
- HNF-60652 – Subcontractor Welding Specification Requirements and Practices

1.4.2 **Attachments:**

- Attachment 1 – Photos and Figures for 216-Z-2, 216-Z-9, 241-Z-361, and 217Z
- Attachment 2 – CHPRC Stabilization Overview
- Attachment 3 – PFP Rad Area Postings
- Attachment 4 – Detailed list of BFE Cameras, Monitoring, Controlling and Lifting Equip.
- Attachment 5 – PTS Expectation Letters
 - CHPRC-1601003, Expectations During Abnormal and Upset Conditions
 - PTS-PD-19-01, Compensatory Actions for Conduct of Operations Events
 - PTS-PD-19-02, Compensatory Actions for Lockout/Tagout Events
 - PTS-PTS-19-06, Vehicle Safety and Security
 - PTS-PD-19-08, Medical Emergency Procedures

1.4.3 Work Processes

1.4.3.1 Major CHPRC work procedures and processes applicable to this Scope are shown below. Refer to General Provision 2.0, “Order of Precedence.”

**SECTION 01010
 SUMMARY OF WORK**

<u>No.</u>	<u>Title</u>
PRC-PRO-SH-40078, App F	<i>Contractor Safety Processes – Appendix F, Safety Program Specification for Contractors</i> http://chprc.hanford.gov/files.cfm/PRC-PRO-SH-40078.pdf
PRC-PRO-SH-40410	<i>Hazard Communication Program</i>
PRC-PRO-SH-40516	<i>Chemical Management Program</i>

1.4.4 Exhibits

The exhibits applicable to the Scope are included below and available at <http://chprc.hanford.gov/page.cfm/CHPRCSafetyReferenceDocuments>:

Exhibit No.	Title
A. Form A-6004-822	<i>CHPRC Construction Daily Field Report (DFR)</i>
B. Form A-6004-757	<i>CHPRC Contractor Document Submittal</i>
C. Form A-6004-833	<i>CHPRC Request for Clarification/Information (RCI)</i>
D. Form A-6004-967	<i>CHPRC Work Release for Construction/Service Organizations</i>
E. Form A-6004-750	<i>CHPRC Chemical Inventory Worksheet</i>
F. N/A	Not Used
G. Form A-6004-820	<i>CHPRC Change Form</i>
H. N/A	Not Used
I. N/A	Not Used
J. N/A	Not Used
K. N/A	Not Used
L. N/A	Not Used
M. Form A-6004-929	<i>CHPRC Construction Completion Document</i>
N. Form A-6004-590	<i>Waste Planning Checklist</i>
O. Form A-6006-604	<i>Transfer of Care, Custody, and Control</i>
P. N/A	Not Used
Q. Form A-6004-952	<i>CHPRC Formal Pre-Job Briefing Checklist</i>
R. TPD-0016	<i>Hoisting and Rigging Manual Program Description</i>
S. A-6006-539	<i>Construction Lost Time / Work Delay Notification</i>

SECTION 01010
SUMMARY OF WORK

T. N/A	Not Used
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PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

SECTION 01019
ITEMS FURNISHED FOR CONSTRUCTION
(CHPRC-Furnished Equipment)

PART 1 – GENERAL

1.1 REFERENCES

1.1.1 N/A.

1.2 ITEMS FURNISHED FOR CONSTRUCTION (BFE)

1.2.1 CHPRC will furnish the following primary items for incorporation into work. See Attachment 4 for detailed breakdown of camera/lighting monitoring equipment to be provided.

- Office trailer located within 200W area for Contractor management team and work crew
- Radiological Personal Protective Equipment required for working in radiological areas.
- Respiratory equipment will be provided for activities requiring respirators.
- (Qty. 2) RPS 500CFM Negative Air Machine(s) and required filters
- (Qty. 3) Everest Ca-Zoom 6.2 Controllers, remotes and monitors
- (Qty. 1) PTZ 140 Camera Head – clean, non-rad
- (Qty. 2) PTZ 140 Camera Heads – rad material
- (Qty. 3) PTZ 70 Camera Heads – rad material
- (Qty. 1) Lot of miscellaneous communication and power cabling for Ca-Zoom 6.2
- (Qty. 1) Flash card reader and assortment of card for use with Ca-Zoom 6.2
- (Qty. 4) Ahlberg Drop Light 2000
- Regulated Equipment for use in HCA/CA:
 - 135 foot straight or knuckle aerial boom lift
 - Rough terrain forklift
 - Front end loader
 - Light plants and generators

SECTION 01019
ITEMS FURNISHED FOR CONSTRUCTION
(CHPRC-Furnished Equipment)

- All other regulated equipment required. Contractor regulated equipment needs based on means and methods and to be identified in proposal for evaluation.
- 1.2.2 Contractor shall arrange transfer of BFE and notify CHPRC seven (7) calendar days before need. Transfer will be documented on form A-6006-604 CHPRC Transfer of Care, Custody and Control.
- 1.2.3 Contractor shall protect and handle Buyer furnished items in accordance with General Provisions and Special Provisions SP-12 – Government Property.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

SECTION 01036
REQUEST FOR CLARIFICATION (RCI) AND CHANGES

PART 1 – GENERAL

1.1 REFERENCES

Not Used

1.2 SUBMITTALS

1.2.1 See Section 01300 for submittal procedures.

1.2.2 Approval Required: None

1.2.3 Approval Not Required: Before starting work, submit name of person responsible for receiving changes to design media in accordance with 1.4.2.

1.3 REQUEST FOR CLARIFICATION/INFORMATION (RCI)

1.3.1 This Section covers preparation of Contractor-originated RCI (A-6004-833). RCI forms will be supplied during Preconstruction Conference (see Section 01200).

1.3.2 RCIs are used by the Contractor to receive clarification from CHPRC at any time during construction. The RCI form is **not** used to document a contract modification, engineering change, or nonconformance. CHPRC's response to an RCI does **not** constitute authorization to perform a change to the Contract.

1.3.3 The Contractor may proceed in accordance with the response only on the basis that the Contractor agrees that it is not a contract change. If the Contractor believes the response constitutes a change, the Contractor shall immediately process a Change form (A-6004-820) and await receipt of additional written instruction from the Contract Specialist.

1.3.3.1 Limit each request to a single issue. Date each request and assign a unique reference number.

1.3.3.2 Provide pertinent information including Contract number, subject, Drawing numbers, Specification number and paragraph references, date by which response is requested, cost and schedule impacts, site location, descriptive text, and originator's name and signature.

1.3.3.3 Correspondence and inquiries from lower tier subcontractors addressed to CHPRC will be returned to originator or referred to Contractor.

1.3.4 RCIs shall be prepared in accordance with the form's instructions.

SECTION 01036
REQUEST FOR CLARIFICATION (RCI) AND CHANGES

1.4 CHANGES

1.4.1 Authorized changes to design media will be provided to the Contractor via an approved redline field change drawing, a DCN, or a contract modification.

1.4.2 Contractor shall designate a single-point-of-contact responsible for receiving changes to drawings, specifications, and other design media. The designee shall be responsible for maintaining documents and ensuring the most current revision is being used for the performance of work. Documents shall be stored in a manner that minimizes the risk of loss or damage.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

SECTION 01040 COORDINATION

PART 1 – GENERAL

1.1 COMMUNICATIONS

1.1.1 Written communications between CHPRC and Contractor shall be sent to the representatives identified in Contract Part IV, Article 1.1 – Contract Correspondence. The Contractor may interface with various CHPRC (and other) organizations through the CHPRC Contract Specialist (or designee), as required.

1.1.2 Applicable interfaces, including existing facilities, systems, features, and environmental conditions that the Contractor may interact with, include the following:

- CHPRC Buyers Technical Representative
- CHPRC Construction Manager
- CHPRC Responsible Manager
- CHPRC Engineering
- CHPRC Radiological Control Technician
- CHPRC Health Physicist
- CHPRC Radiological Control First Line Manager
- CHPRC Project/Facility Radiological Protection Manager
- CHPRC Work Management
- CHPRC Waste Management
- CHPRC Quality Assurance
- CHPRC Environmental Compliance Officer
- CHPRC Occupational Safety & Industrial Hygiene
- CHPRC Fire Protection
- CHPRC Shift Operations Manager

1.1.3 Daily construction activity shall be coordinated with CHPRC.

01040-1

SECTION 01040 COORDINATION

1.2 PREPARATION ACTIVITIES

Contractor shall be responsible for the following functions, requirements, and design criteria preparatory activities:

1.2.1 Ensure equipment, materials, and personnel are ready for the execution of the work scope.

1.2.2 Personnel are trained and qualified for the execution of the work scope.

1.2.3 Site conditions and known hazards include the following:

- Bio-Hazards and Vermin.
- Ergonomic Hazards.
- Noise Sources.
- Falling Objects.
- Portable Hand Tools.
- Lifting.
- Thermal Stress (heat / cold stress).
- Chemicals / chemical products.
- Uneven Walking Surfaces.
- Slips / Trips / Falls.
- Radiological Hazard.

1.3 SECURITY, BADGES, AND DOSIMETERS

1.3.1 CHPRC will arrange for issuance of Hanford security badges and dosimeters required for on-site work subject to the requirements identified in Special Provisions, SP-5 – On-Site Services.

1.3.2 As soon as practical after award, the Contractor shall submit a badge request for personnel required under the contract so that they may be scheduled for training and medical evaluation to be eligible for work onsite. A badge is required in order to obtain an Hanford Identification (HID) number, which is needed before scheduling all training and medical evaluations. An advanced minimum of two working days is

SECTION 01040 COORDINATION

- required to issue a Hanford badge. Contractor shall wear a Hanford issued security badge identifying himself/herself at all times while on-site.
- 1.3.3 Contractor employees will be required to submit to vehicle searches and not personally carry or transport prohibited articles.
- 1.4 **WORK HOURS AND SITE ACCESS RESTRICTIONS**
- 1.4.1 The following work shift option(s) to balance Contractor productivity, especially during grouting, with other PFP activities and impacts to the Hanford commuter are available for successful execution of the work:
- All work scope detailed under Task 1 and 2 shall be performed on a four – ten straight day schedule (standard work shift consisting of 10 hours between the hours of 6:00 AM to 4:30 PM, Monday through Thursday). Access to the work site shall be through any of the Hanford barricades.
 - For the grouting of both 216-Z-2 and 241-Z-361 under Task 3, as determined by the Contractor’s means and methods, and ability to meet grout production requirements described in Section 01010 - 1.3.1.3, shall be performed on a four-ten straight day schedule (standard work shift consisting of ten (10) hours between the hours of 6:00 AM to 4:30 PM, Monday through Thursday).
 - An optional expanded work week shall be allowed for the grouting of 216-Z-2 and 241-Z-361. This work week shall include Friday and Saturday between the hours of 6:00 AM to 4:30 PM.
 - Access to the work site for personnel and Contractor vehicles shall be through any of the Hanford barricades.
 - Monday through Thursday, access for mixer trucks delivering grout shall be restricted to the Rattlesnake barricade. Friday and Saturday, access for the mixer trucks can include the Wye Barricade.
 - For the grouting of 216-Z-9 under Task 3, as determined by the Contractor’s means and methods, and ability to meet grout production requirements described in Section 01010 - 1.3.1.3 shall be performed on an expanded five-ten straight day schedule (standard work shift consisting of ten (10) hours between the hours of 6:00 AM to 4:30 PM; Monday through Friday).
 - An optional graveyard schedule shall be allowed for the grouting of 216-Z-9. This work week shall consist of a five-eight straight schedule Monday through Friday (a graveyard shift consisting of eight (8) hours between an 11:30 PM start with end of shift at 8:00 AM).

01040-3

SECTION 01040 COORDINATION

- If the straight day shift is selected, Monday through Thursday, access for mixer trucks delivering grout shall be restricted to the Rattlesnake barricade. Friday access for the mixer trucks can include the Wye Barricade.
- Access to the work site for personal and Contractor vehicles, and mixer trucks associated with delivering grout during the graveyard shall be through the Wye Barricade.
- The last mixer truck delivery on the graveyard shall be emptied and leaving site no later than 5:30 AM.
- Only the straight day or graveyard shift shall be selected for all the grouting associated with 216-Z-9.
- Contractor shall detail in their proposal the combination of work schedule options they plan to utilize for evaluation.
- If a schedule alternative is required, the Buyer's Technical Representative (BTR) will communicate to Contractor contact.

1.4.2 The Contractor will have access to the job site based on the terms of the Contract.

1.4.3 Site Closure days and Holidays are listed as follows and the Contractor shall schedule these days as non-working:

- May 25, 2020
- July 2, 2020
- September 7, 2020
- November 25 & 26, 2020

1.5 WORK MANAGEMENT REQUIREMENTS

1.5.1 When the contractor is performing work on the Hanford site or in a CHPRC facility work shall be controlled in accordance with PRC-PRO-WKM-12115 "Work Management" <http://chprc.hanford.gov/files.cfm/PRC-PRO-WKM-12115.pdf>. No work shall be performed that is out of scope to the contract. If work is determined to be out of scope or questionable, work shall be stopped, the issue/concern defined and evaluated, and a revision to the contract shall be prepared, as necessary, prior to resuming work. Additional supporting documentation, including but not limited to,

SECTION 01040 COORDINATION

design changes, permits, work package changes and associated approvals may be required before resuming work. (See Section 01036 for contract changes).

1.5.2 Work control requirements:

Work shall be performed in accordance with existing CHPRC provided procedures, policies, and guidance documents. No work shall be performed that is out of scope of the contract. If work is determined as out of scope or questionable, work shall be stopped and the issue/concern shall be defined and evaluated. Contract revision will be prepared, as necessary.

Contractor will be required to support the development of the work package(s) necessary for execution of Work described in this SOW. Contractor shall support site planning by provided all aspects of their means and methods used to complete the work as it relates to hazard and hazard control. Contractor shall participate in job hazard analysis and technical input to the work package. Due to the nature of the work and its close proximity to PFP, the Contractor shall anticipate all work packages will require an HRB review and approval. Contractor shall make allowance in their proposal for their team to support the development and successful completion of the HRB work packages for of the described work scope. Depending on Contractor means, methods and sequence multiple work packages may be utilized.

The Contractor shall always use the written work instructions provided by CHPRC, which are written to guidelines described in PRC-PRO-WKM-12115, "Work Management." The work instructions are written specifically to define work scope, identify hazards, and implement mitigating hazard controls described in this SOW and the corresponding Job Safety Analysis (JSA)/Job Hazard Analysis (JHA). The work instructions will be placed in a work package and include the necessary permits and associated project documentation needed to safely complete the work scope at each work location.

Hazard Identification and Control Requirements will include a JHA that addresses each phase of the work and the hazards associated with the environments at each work site location in accordance with this SOW.

1.5.3 Work release requirements: Release of work packages and approval to work will be approved by the Release Authority (RA) on a daily basis. Work planned for the following day must be communicated to the Project (typically, the Field Work Supervisor (FWS) and/or Construction Manager) by 1:00 PM.

The Contractor shall support the CHPRC FWS in development of the Work Release for Construction/Service Organizations form (WRC-SOF) (A-6004-967) permits and any resource support required from the Owner, including inspections or hold points, special precautions about the planned work, and potential impacts such as

**SECTION 01040
COORDINATION**

contamination and service interruption. The form must describe contractor activities and deliveries at the jobsite. Contractor shall support development of the Plan-of-the-Day/ Plan-of-the-Week as required per PRC-PRO-WKM-12115 (Work Management).

This WRCSOF will be used to obtain daily work release approval from the appropriate RA. Only work scope identified in an individual contract release may be released. Daily work will be limited by appropriate RA Work Authorization to tasks described on an approved WRCSOF form.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

SECTION 01050
FIELD ENGINEERING

PART 1 – GENERAL

Not Used

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

01050-1

SECTION 01065
PERMITS

PART 1 – GENERAL

1.1 REFERENCES

1.1.1 The following documents and others referenced herein form part of Contract to extent designated in this section. Referenced documents are those current as of the date of this section unless otherwise indicated.

1.1.1.1 Department of Energy (DOE)

DOE-0336	Hanford Site Lockout/Tag-out
DOE-0343	Stop Work
DOE-0344	Hanford Site Excavating, Trenching and Shoring
DOE-0346	Hanford Site Fall Protection Program (HSFPP)
DOE-0359	Hanford Site Electrical Safety Program (HSESP)
DOE-0360	Hanford Site Confined Space Procedure (HSCSP)
DOE-RL-92-36	Hanford Site Hoisting and Rigging Manual

1.1.1.2 National Fire Protection Association (NFPA)

1	Fire Code
70-2017	National Electrical Code (NEC)
70E-2018	Standard for Electrical Safety in the Workplace

1.2 SUBMITTALS

Not Used

1.3 SUMMARY

1.3.1 Work elements requiring Hanford Site permits are identified in this section. Permits will be provided by CHPRC at no cost, unless otherwise stated.

1.3.2 Notify CHPRC seven (7) calendar days in advance of work requiring permit (unless otherwise stated) and furnish requested information. Post permit in a conspicuous location and ensure employees' awareness of permit contents. Meet the requirements set forth in permit.

01065-1

SECTION 01065
PERMITS

- 1.3.3 Permits identified in this section and other sections of the Contract may require use or approval of forms and requests that are not titled as permits but generically referred to as permits. Contractor shall comply with requirements identified on those forms and requests.
- 1.3.4 It is not anticipated to encounter protected plants, animals, or nests during project activities in previously disturbed areas. However, workers are to be instructed to watch for protected plants, animals, or nests. If protected plants, animals, or nests are encountered, stop work within the immediate vicinity of the find and notify CHPRC.
- 1.3.5 Contractor shall watch for cultural materials such as bones or historic artifacts during field work on the Hanford Site. If cultural materials are encountered, stop work within the immediate vicinity of the find and notify CHPRC.
- 1.3.6 Ground-disturbing activities have the potential to spread and increase noxious plants. Vehicles shall stay on existing roadways, graveled areas, and bare areas unless approved by CHPRC otherwise.
- 1.4 PERMITS
- 1.4.1 Energized Electrical Work Permit (A-6005-704): Required for live work on existing electrical systems.
- 1.4.2 Hanford Site Excavation Permit in accordance with DOE-0344. Required for excavation involving hand digging greater than 12 inches in depth, or machine digging.
- 1.4.3 Fall Protection Work Permit (FPWP) (A-6004-286): Required when fall exposure is six (6) feet or greater and the use of conventional fall protection in accordance with DOE-0346 is infeasible or creates a greater hazard. Permit to be accessible during performance of work. Contractor work from an aerial lift will require a (FPWP).
- 1.4.4 Fire Marshal Permit: Notify CHPRC in accordance with Special Provisions, SP-4 Construction Contracts. Required when fire alarm systems, fire sprinkler systems, or fire hydrants will be taken out of service; for new construction and demolition; when using combustible chemicals, compressed gas, explosives, and flammable/combustible liquids; when performing cutting/welding or outdoor burning; and for any activity falling under the scope of NFPA 1.
- 1.4.5 Hanford Site Oversize/Overweight Permit (A-6003-609): Required for each vehicle and/or non-reducible load that exceeds the dimensions or weights shown in SP-4.
- 1.4.6 Hot Work Permit (A-6000-895.1): Required prior to performing any work that may produce a spark, arc, or flame on the Hanford Site.

SECTION 01065
PERMITS

1.4.7 Radiological Work Permit (A-6004-602): Required prior to performing any work within a radiological posted area.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

01065-3

SECTION 01110
OCCUPATIONAL SAFETY / INDUSTRIAL HYGIENE

PART 1 – GENERAL

1.1 REFERENCES

1.1.1 The following documents and others referenced therein form part of Contract to extent designated in this section. Referenced documents are those current as of the date of this section unless otherwise indicated.

1.1.1.1 Code of Federal Regulations (CFR)

Title 29	Labor
Part 1910	Safety and Health Regulations for General Industry
Part 1926	Safety and Health Regulations for Construction

1.1.1.2 Department of Energy, Richland Operations (DOE-RL)

92-36	Hanford Hoisting and Rigging Manual
0336	Hanford Site Lockout/Tagout
0344	Hanford Site Excavating, Trenching, and Shoring
0346	Hanford Site Fall Protection Program (HSFPP)
0352	Hanford Site Respiratory Protection Program
0359	Hanford Site Electrical Safety Program (HSESP)

1.1.1.3 National Fire Protection Association (NFPA)

70-2017	National Electrical Code (NEC)
70E-2018	Standard for Electrical Safety in the Workplace

1.2 SUBMITTALS

1.2.1 See Section 01300 for submittal process.

1.2.2 Approval Required

1.2.2.1 Safety and Health Program: PRC-PRO-SH-40078, *Contractor Safety Processes* Appendix F is the preapproved safety and health procedure; however, Contractor may

SECTION 01110
OCCUPATIONAL SAFETY / INDUSTRIAL HYGIENE

- submit, with proposal, an alternate safety program. The alternative program shall comply with federal, state, and local codes and PRC-PRO-SH-40078, Appendix F.
- 1.2.2.2 Designated Safety and Industrial Hygiene Representative: Before starting work, submit name of individual identified as the “Safety/IH Officer,” if the Contractor has more than one employee working on-site in performance of this contract, in accordance with Contract/Release Special Provision – On Site Services SP-5 <https://chprc.hanford.gov/page.cfm/ContractProvisions>. Contractor shall notify the Contract Specialist if the name of the Designated Safety Representative changes.
- 1.2.2.3 JSA / JHA: Prior to onsite work, submit JSA/JHA identifying safety hazards as required by this Section.
- 1.2.2.4 Critical Lift Plan (DOE-RL-92-36): Required to minimize the possibility of equipment failure or human error to a hoisting or forklift operation involving a load that, if mishandled, poses unacceptable circumstances.
- 1.2.2.5 Hoisting and Rigging equipment inspections. In the event that hoisting and rigging equipment is utilized, provide copies of current hoisting and rigging equipment inspections (DOE-RL-92-36).
- 1.3 SAFETY/INDUSTRIAL HYGIENE
- 1.3.1 Contractor shall comply with the on-site provisions identified in SP-5 of the Contract.
- 1.3.2 The Contractor shall perform work safely, in a manner that ensures adequate protection for employees, the public, and the environment, and shall be accountable for the safe performance of work. The Contractor shall comply with, and assist CHPRC in complying with all applicable laws, regulations and directives. The Contractor shall perform and document daily safety inspections and provide a daily inspection report to CHPRC FWS. In addition, Contractor shall submit inspection reports to CHPRC Occupational Safety & Industrial Hygiene (OS&IH) Manager weekly.
- 1.3.3 The Contractor and its lower-tier subcontractors shall take all reasonable precautions in the performance of the work to protect the safety and health of employees and of members of the public. Where there is a difference in regulations or requirements, the most stringent shall apply.
- 1.3.4 The Contractor S/IH Officer shall perform routine industrial hygiene monitoring, i.e.: air monitoring, noise monitoring, heat stress monitoring, etc.
- 1.3.5 While working within a facility or remote area, PFP being such a facility, the Contractor shall be required to participate in monthly emergency drills. Contractor may request exemptions but due to the nature of each drill, they may not always be

SECTION 01110
OCCUPATIONAL SAFETY / INDUSTRIAL HYGIENE

granted. **NOTE: The Contractor shall anticipate participating in a monthly drill, with a duration of 2 hours each.**

- 1.3.6 Contractor shall utilize gloves that are rated as American National Standards Institute Level 3, cut/puncture-resistant for all activities that present the potential for a cut or puncture to the hand. Leather gloves are not rated as cut/puncture-resistant, and are not permitted. Contractors shall still use gloves (e.g., leather, canvas, cotton, etc. as appropriate for the work activity) to prevent and/or protect the hand from abrasions and contusions. Cut-resistant gloves come in different performance strengths; the Contractor needs to exercise the right amount of care to ensure they have selected the proper type of gloves for the hazard to be encountered. CHPRC does not specify or recommend any brand-name gloves; but does require these gloves to be rated as cut/puncture resistant.
- 1.3.7 Electrical Safety Requirements
- 1.3.7.1 Work practices and electrical safety training and qualification shall be in accordance with DOE-0359. Electrical equipment and industrial control panels delivered or brought on to the site in performance of the contract shall be labeled by an organization currently recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL). Equipment installed as part of the contract shall comply with the NEC and, where applicable, International Electrical and Electronics Engineering Society, National Electrical Safety Code (IEEE C2 NESC).
- 1.4 HAZARD IDENTIFICATION
- 1.4.1 Submit a JSA/JHA for general office duties performed in office facilities or ground-level observations/walkthroughs in radiological controlled areas requiring a General (Not Specific) Radiological Work Permit only. Observation activities only are allowed under this JSA/JHA; no hands-on work activities may be performed. Only ground-level observations are permitted; no ladder/scaffolding access is allowed.
- 1.4.1.1 Prior to performing any other activities, Contractor shall submit a JSA/JHA for the construction activities to be performed.
- 1.4.1.2 JSAs/JHAs are prepared by the Contractor to address specific work activities and hazards associated with the specific work and to identify the controls necessary to eliminate or control the hazards. The JSA/JHA shall be written in such a manner as to be understood and usable by Contractor personnel in order to aid them in the identification, control, and response of potential hazards; it is not just a compliance document. To achieve the level of coordination desired, approval of the JSA/JHA are required to ensure proper safety planning and communication prior to the start of work. The JSA/JHA shall be prepared in a format provided by CHPRC, and the Contractor shall submit a JSA/JHA for approval prior to work on each release.

SECTION 01110
OCCUPATIONAL SAFETY / INDUSTRIAL HYGIENE

1.5 MEDICAL EXAMINATIONS

1.5.1 Medical examinations and Employee Job Task Analysis (EJTA) evaluation forms may be required for Contractor personnel prior to starting work on the Hanford Site. See SP-5.

1.5.2 The Contractor shall immediately notify the BTR and the Contract Specialist of any injuries or incidents; to include damage to Contractor-owned property or equipment.

1.5.3 Contractor shall take appropriate action, up to and including stopping work, and immediately notify the CHPRC if an unplanned risk or hazard is discovered that is not covered by directions provided by CHPRC. This action includes notifying the CHPRC if the work exposes their workers to hazards that require medical monitoring.

1.5.4 EJTA's drafted by the Contractor (form available on the CHPRC web site), or alternative EJTA-related documents (as directed by the Contract Specialist) – such as the “EJTA INFO FORM-Subcontractors on the CHPRC” (available from the Contract Specialist) - shall be submitted to the Contract Specialist for approval or further development by the CHPRC Health and Safety professional. Approved EJTA's will be forwarded by CHPRC to the current Hanford Site Occupational Medical Provider for required medical examination(s) identification and scheduling.

1.5.5 NOTES:

1.5.5.1 All personnel performing work involving exposures to hazards above the allowable limits are required to have an approved EJTA - with appropriate medical screening - prior to starting hazardous work.

1.5.5.2 Personnel performing work that does not expose them to any chemical/physical hazard (as identified in PRC-PRO-SH-40078) must still have an approved EJTA on file, even though no subsequent medical monitoring may be required.

1.5.5.3 Contractor shall use the current Hanford Site Occupational Medical Provider for first aid treatment, and return to work evaluations and the Hanford Fire Department for ambulance service for urgent medical situations requiring care and transport.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

3.1 CHPRC will provide Hanford medical facilities for emergency or life-threatening injury situations (those requiring immediate medical attention). All injuries,

SECTION 01110
OCCUPATIONAL SAFETY / INDUSTRIAL HYGIENE

- accidents, fires, and near misses shall be reported to CHPRC, including fires that are extinguished without causing damage.
- 3.2 The DOE issues notifications via radio system, public announcement, or in person for inclement weather, excessive wind, and lightning that may result in site shut downs, delayed start and early release. In the event of a site shut down, delayed start or early release, the contractor shall not be additionally compensated in terms of cost or schedule.
- 3.3 To ensure worker safety, work or portions of work may be temporarily and incrementally shut down due to high winds, lightning, or other inclement weather as determined by CHPRC procedure, PRC-PRO-SH-28034 Adverse Weather <http://chprc.hanford.gov/files.cfm/PRC-PRO-SH-28034.pdf>. In the event of adverse weather delays as defined in PRC-PRO-SH-28034 the contractor shall not be additionally compensated in terms of cost.
- 3.4 Snow and ice removal is provided on Site roads.

END OF SECTION

01110-5

SECTION 01130
ENVIRONMENTAL, RADIOLOGICAL, AND NUCLEAR SAFETY

PART 1 – GENERAL

1.1 REFERENCES

1.1.1 The following documents and others referenced therein form part of Contract to extent designated in this section. Referenced documents are those current as of the date of this section unless otherwise stated.

1.1.1.1 Code of Federal Regulations (CFR)

Title 10	Energy
Part 830	Nuclear Safety Management
Part 830.122	Quality Assurance Criteria
Part 835	Occupational Radiation Protection
Title 29	Labor
Part 1910	Safety and Health Regulations for General Industry
Section 1200	Hazard Communication
Part 1926	Safety and Health Regulations for Construction

1.1.1.2 National Fire Protection Association (NFPA)

30	Flammable and Combustible Liquids Code
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1.1.1.3 Revised Code of Washington (RCW)

Title 46	Motor Vehicles
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1.2 SUBMITTALS

1.2.1 See Section 01300 for submittal process.

1.2.2 Approval Required

1.2.2.1 Waste management information: Five work days before starting work, submit a Waste Management Plan, in accordance with the Contract/Release Special Provisions – Construction Contracts SP-4 and Special Provision – On Site Services SP-5 for managing waste generated during work.

SECTION 01130
ENVIRONMENTAL, RADIOLOGICAL, AND NUCLEAR SAFETY

- 1.2.2.2 Safety Data Sheets (SDS): Before starting work, submit SDS for hazardous chemicals (1.9.2).
- 1.2.2.3 Chemical sources: Before starting work, submit detailed information relative to any anticipated process involving the application of volatile chemicals (use of a volatile cleaning agent, application of polyurethane coating, etc.) (1.9.3).
- 1.2.2.4 Chemical inventory: Before starting work, submit inventory of chemicals that will be brought to the worksite in accordance with SP-4, SP-5, and this Section. Manage storage and inventory of chemical as prescribed on approved Chemical Inventory Work Sheet.
- 1.2.2.5 Chemical Management: Before starting work, submit a chemical management plan for chemicals to be used in the grout mixing. Include storage requirements and separation requirements. Provide site layout for all chemical storage.
- 1.2.2.6 Air emissions: Before starting work, submit inventory of air emission sources to be used on Site and a Dust Control Plan (1.10).

1.2.3 Approval Not Required: None

1.3 WASTE MINIMIZATION

1.3.1 Minimize waste in accordance with the following waste management hierarchy.

- a. Source reduction
- b. Reuse
- c. Recycling
- d. Compliant disposal

1.3.2 Source Reduction

- 1.3.2.1 Material substitution: Minimize number of chemicals used to perform same or similar tasks. Where practical, replace hazardous materials with non-hazardous or less hazardous substitutes. Before substitution, obtain approval in accordance with Section 01630.
- 1.3.2.2 Inventory reduction: Minimize product inventory to reduce accumulation of partially used and unused materials requiring disposal. Remove partially used lots and unused materials from worksite at Contract completion.
- 1.3.2.3 Packaging: Minimize packaging brought on worksite. Whenever feasible, return empty containers to vendor.

01130-2

**SECTION 01130
ENVIRONMENTAL, RADIOLOGICAL, AND NUCLEAR SAFETY**

- 1.3.2.4 Waste segregation: Separate wastes to avoid creating additional wastes and mixtures that cannot be recycled, or that may be more difficult to manage.
- 1.3.2.5 Process modification: Streamline processes for operation that is more efficient and less waste generation.
- 1.3.2.6 Reuse/Recycling: Ensure that materials are reused, if possible, rather than discarded as waste.
- 1.4 DISPOSAL OF INERT/DEMOLITION AND NONHAZARDOUS WASTE
 - 1.4.1 Handle and dispose of waste in accordance with the approved work package and Waste Planning Check List.
 - 1.4.2 Non-hazardous: Dispose of non-hazardous debris using bins provided by Contractor.
 - 1.4.3 Other waste generated on the Hanford Site such as demolition rubble, construction debris, trash, and solid waste not included in other waste categories specifically mentioned in the contract shall be dispositioned by Contractor.
- 1.5 HAZARDOUS WASTE
 - 1.5.1 Hazardous materials shall be managed in accordance with SP-5. Promptly report all spills of hazardous waste.
 - 1.5.2 Flammable/combustible liquid storage shall be in accordance with NFPA 30.
- 1.6 DISPOSAL OF DANGEROUS AND MIXED WASTE
 - 1.6.1 Handle and dispose of waste in accordance with the approved work package and Waste Planning Check List.
 - 1.6.1.1 Notify CHPRC at least five (5) days before generation of waste and immediately after spill and other unforeseen waste generation. Notification shall identify waste stream and provide an estimated quantity of waste to be generated.
- 1.7 RADIOLOGICAL CONTROL
 - 1.7.1 Work is Radiological; the Contractor shall be subject to 10 CFR 835, the CHPRC Radiological Control Manual, CHPRC-00073, and this Section.
 - 1.7.2 Contractor shall not utilize vacuum trucks or HEPA-filtered vacuums, or set up enclosures with exhausters or similar emission units at any radioactively contaminated location on the Hanford Site without the express written approval of CHPRC.

SECTION 01130
ENVIRONMENTAL, RADIOLOGICAL, AND NUCLEAR SAFETY

- 1.7.3 Contractor's equipment utilized to perform radiological work shall be subject to an initial radiological baseline survey prior to use onsite. This survey is expected to take approximately one hour (per piece of equipment) to complete. The survey will be conducted by CHPRC provided Radiological Control Technicians (RCT) and/or Health Physics Technicians (HPT). Contact CHPRC to schedule the required survey upon arrival of the equipment onsite.
- 1.7.4 Contractor's equipment utilized to perform radiological work may be subject to intermittent radiological surveys approximately two to three times per work day. Radiological surveys are expected to take between 10 – 15 minutes each. Contractor shall make equipment available for intermittent radiological surveys at the request of CHPRC provided RCT/HPT.
- 1.7.5 Removal of the following requires a contamination clearance survey for each removal. Contractor will not be charged for survey. CHPRC will arrange for survey upon request by Contractor. Allow eight hours for processing request and four hours for survey.
- a. Material from radiological areas and radiological buffer areas shown on the Drawings.
 - b. Foreign materials and discolored soil discovered during excavation.
 - c. Mobile Equipment.
- 1.7.6 During any work disturbing the existing ground surface, a CHPRC provided RCT/HPT will be present to conduct intermittent radiological surveys of the excavated or disturbed material, if deemed necessary by CHPRC. The radiological surveys will be conducted on the spoils removed during any soil excavation as well as on the equipment being utilized for this excavation. These radiological surveys are not expected to significantly disrupt the Contractor's ability to perform the required work. Contractor shall provide 2 work days prior notice to CHPRC of need for RCT/HPT coverage of any excavation or work activity that will significantly disturb the existing ground surface.
- 1.7.7 If at any point, radioactive materials above specified action levels are encountered, work shall be stopped immediately. A Radiological Work Permit will be prepared by CHPRC to cover working with radiological contaminated soils and materials.
- 1.7.8 If radiological contamination is encountered during excavation or other work activities, Contractor shall place equipment in a safe condition and remove all personnel from area as directed by the RCT/HPT. Radiological controls shall be evaluated by the radiological control organization to the encountered conditions and

SECTION 01130
ENVIRONMENTAL, RADIOLOGICAL, AND NUCLEAR SAFETY

modified as may be required. Contractor shall seek direction from the CHPRC prior to resuming work activities.

- 1.7.9 A survey is required to be conducted by CHPRC provided RCT/HPT of all equipment utilized in excavation. Surveys shall be conducted prior to equipment being removed from the project site. The survey time will vary based on the type of radiological area the equipment was utilized in along with the level of survey criteria. Contractor shall provide notice two work days prior to CHPRC of need for RCT/HPT coverage to conduct required surveys.
- 1.7.10 Contractor may additionally request a contamination survey for each removal of equipment or material from a radiological buffer area. Contractor will not be charged for survey.
- 1.7.11 If surveys reveal equipment or material is not radiologically contaminated, dispose of material as planned.
- 1.7.12 If surveys reveal equipment or material is radiologically contaminated, dispose in accordance with direction from CHPRC. CHPRC will determine if the return of the equipment back to the Contractor is possible. If not possible, the Contractor will be compensated for items taken.
- 1.8 NUCLEAR AND CRITICALITY SAFETY
- 1.8.1 If work is deemed nuclear-related, the Contractor shall be subject to 10 CFR 830.122, and the enforcement actions under 10 CFR 820.
- 1.9 LIQUID EFFLUENTS
- 1.9.1 In accordance with SP-4, SP-5, and PRC-PRO-SH-40078 - Contractor Safety Processes, when the Contractor brings chemicals on-site, the activity is subject to CHPRC's Chemical Management System Program. The Contractor shall fill out and keep current a Chemical Inventory Worksheet (Form A-6004-750).
- 1.9.2 SDS for hazardous chemicals (as defined by 29 CFR 1910.1200) that will be used during the work activity shall be kept current. Contractor shall provide the list to the assigned BTR when list has been updated.
- 1.9.3 Contractor shall submit detailed information relative to any anticipated process involving the application of volatile chemicals (e.g., use of a volatile cleaning agent, application of polyurethane coating, etc.).

SECTION 01130
ENVIRONMENTAL, RADIOLOGICAL, AND NUCLEAR SAFETY

1.10 AIR EMISSIONS

1.10.1 The following emissions are regulated and shall comply with applicable federal, state, and local laws, regulations and requirements:

- a. Fugitive emissions and dust.
- b. Abrasive blasting.
- c. Ozone-depleting substances.
- d. Non-routine (unplanned) emissions.
- e. Radioactive airborne emissions (from disturbing contaminated soil).

1.10.2 Contractor shall take reasonable precautions to minimize fugitive dust during performance of this work.

1.10.3 Contractor shall not conduct open burning without the express written approval of BTR or Construction Manager (CM).

1.10.4 Air emission sources also include non-road internal combustion engines for power generator or air compressor, loader, backhoe, welder, chain saw, etc. Licensed motor vehicles, pursuant to RCW 46.16 are exempt from the inventory. However, mounted internal combustion engines not used to propel the vehicle (e.g.; mounted generator) shall be inventoried.

1.10.5 The Contractor shall comply with PRC-PRO-SH-40078 - *Contractor Safety Processes*, Appendix F, Section 2.15, for controlling exposures to airborne hexavalent chromium. These requirements are specifically applicable to welding, grinding, torch-cutting, metal buffing and metal polishing, and spray painting activities.

1.11 CONTINGENCIES

1.11.1 Isolate and secure spill area in a manner that protects human health and the environment. Take direct action if nature of spilled or unforeseen waste material is known and if material can be immediately and safely absorbed, neutralized, or otherwise controlled.

1.11.2 Report all spills upon occurrence or discovery to the CHPRC FWS, CM or BTR.

1.11.3 Notify CHPRC upon occurrence or discovery of hazardous substances and non-hazardous material spills and of unforeseen dangerous waste generation. Notification shall identify waste stream if known and include identification and quantity of waste. Clean up areas contaminated by spilled material and manage spill residues in accordance with this Section.

SECTION 01130
ENVIRONMENTAL, RADIOLOGICAL, AND NUCLEAR SAFETY

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

01130-7

**SECTION 01150
TRAINING AND QUALIFICATIONS**

PART 1 – GENERAL

1.1 REFERENCES

1.1.1 The following documents and others referenced therein form part of Contract to extent designated in this section. Referenced documents are those current as of the date of this section unless otherwise stated.

1.1.1.1 Department of Energy, Richland Operations (DOE-RL)

92-36 Hoisting and Rigging Manual

0346 Hanford Site Fall Protection Program (HSFPP)

0359 Hanford Site Electrical Safety Program (HSESP)

1.1.1.2 Washington Administrative Code (WAC)

Title 296 Department of Labor and Industries

1.2 SUBMITTALS

1.2.1 See Section 01300 for submittal procedures.

1.2.2 Approval Required

1.2.2.1 Before starting work, submit documentation of successful completion of training requirements and certification that all training is current.

1.2.3 Approval Not Required

1.2.3.1 Hoisting and rigging: five (5) days after starting work, complete on-the-job-evaluation (OJE) required for hoisting and rigging operations as stated in 1.3.1.10.

1.3 REQUIREMENTS

1.3.1 General

1.3.1.1 Contractor shall provide appropriately trained and qualified staff to perform the type of work associate with their trade at the Hanford Site. Employee training is tailored to the work task performed by each employee. Contractor shall submit a training matrix for the Contractors and their Subcontractors personnel to identify worker assignment and applicable training required and current status of completed training for each employee.

01150-1

SECTION 01150 TRAINING AND QUALIFICATIONS

- 1.3.1.2 The Contractor shall provide a base staff at a minimum consisting of an on-site Field Superintendent (FS) and Safety/IH Representative (S/IH) to administer all field work.

The Contractors FS shall be a non-working (non-hands on) supervisor.

A CHPRC FWS along with the Contractor S/IH and FS shall be present during all craft work; the FWS, FS and S/IH shall be present on site daily for the pre-job meeting and for coordination while craft are performing work.

- 1.3.1.3 Contractor On-site Field Superintendent:

- Contractors on-site FS shall be dedicated 100% to the project. The Superintendent will be based on-site and will be a non-working Superintendent (not permitted to operate equipment, machinery or perform hands on craft duties)
- Minimum 10 years general construction experience. Minimum 5 years supervisory level experience, which shall include labor management associated with bargaining units.
- Prior working experience as a FS whose experience includes successful and satisfactory completion of a construction project within the past five (5) years within Hanford site (preferred) or other DOE site that involved work under high hazard and radiological conditions in a nuclear facility environment.
- Familiar with supervising work within radiological posted areas involving handling radiologically contaminated materials and chemical and hazardous material handling experience.
- This standard is met with the submittal of a resume with proposal for Contractor's FS along with CHPRC confirmed experience. Experience shall demonstrate that proposed individual has previous Hanford site (preferred) or DOE site construction services contract experience that included high hazard work and that the individuals' work was performed to the satisfaction of the customer.
- OSHA 10 hour training required.

- 1.3.1.4 Contractor On-site Safety Representative:

- Minimum 8 years safety, health, and industrial hygiene experience in the construction industry, or equivalent of which three (3) years include working within Hanford site (preferred) or other DOE site that involved work under high hazard and radiological conditions in a nuclear facility environment.
- Familiar with managing the safety, health and industrial hygiene aspects of the work within radiological posted areas involving handling radiologically contaminated materials and chemical and hazardous material handling experience.

SECTION 01150 TRAINING AND QUALIFICATIONS

- Experience shall include Construction Health and Safety Technician Certification, or Occupational Health and Safety Technologist Certification by the Council on Certification of Health, Environmental and Safety Technologists, or be an Associate Safety Professional or a Certified Safety Professional from the American Board of Certified Safety Professionals or hold a Bachelor of Science in Occupational Health and Safety.
 - Experience shall demonstrate performance of routine industrial hygiene monitoring as part of their work history.
 - OSHA 10 hour training required.
 - This standard is met with the submittal of a resume with proposal for Contractor's S/IH Officer, along with CHPRC confirmed work experience. Experience shall demonstrate that proposed individual has previous Hanford site (preferred) or DOE site construction services contract experience that included high hazard work and that the individual's work was performed to the satisfaction of the customer.
- 1.3.1.5 Task- and facility-specific training is required in this SOW, the Contract Provisions, and other documents referenced herein. The training listed may not be all-inclusive of training required.
- 1.3.1.6 Electrical work scope shall be performed by qualified electrical workers and qualified instrument specialists in accordance with DOE-0359.
- 1.3.1.7 Completion of CHPRC Electrician Qualification Verification Checklist Course 60038A or 60038B shall be required. Submit completed checklist prior to onboarding any electricians to perform work.
- 1.3.1.8 Required training shall be completed prior to related work being performed.
- 1.3.1.9 CHPRC will provide task- or facility-specific training required for the Hanford Site, which includes the class, instructor, and required training material.
- 1.3.1.10 CHPRC will provide for OJE when they are required by Contract.
- 1.3.1.11 For previous training to be acceptable for Hanford Site qualification, documented evidence shall include type and class of equipment. For qualifications not related to equipment operation, personnel shall have documented evidence of training and experience related to an activity covered under this Contract.
- 1.3.1.12 Contractor shall maintain copies of personnel training records at the jobsite.
- 1.3.2 Site-Required Training.

01150-3

SECTION 01150
TRAINING AND QUALIFICATIONS

- 1.3.2.1 CHPRC General Employee Training (CGET): Mandatory for all Contractor and sub-tier Contractor personnel performing work on the Hanford Site. Previous CGET training may be acceptable. Contact CHPRC.
- 1.3.3 Qualification Training.
 - 1.3.3.1 Hoisting and Rigging
 - 1.3.3.2 Hanford Site Hoisting and Rigging Manual (DOE-RL-92-36) provides qualification for rigging operations. The Contractor may submit employee record of equivalency (i.e., experience and union affiliation), but is required to pass a written or oral examination; operators of cranes, forklifts, and aerial lift personnel performing rigging activities shall also satisfactorily complete an OJE.
 - 1.3.4 Other Training
 - 1.3.4.1 Task specific or unique training or qualifications required for this task includes (but is not limited to) the following courses:
 - 000001 Hanford General Employee Training - CBT
 - 000006 CGET – CBT
 - 021851 10 CFR Orientation (new to Hanford personnel only)
 - 290200 CPRM FEHIC – CBT
 - 204109 PFP Health and Safety Plan
 - 600630 Conduct of Work
 - 026100 OSHA 10 Hour Health and Safety (for FS and Safety only)
 - 020001 Radiological Worker II
 - 031220 40-Hour Hazardous Waste Site Worker
 - 031310 8-Hour Hazardous Waste Site Manager/Supervisor (FS Only)
 - 031420 3-Day Supervised Field Experience
 - 040784 Basic Crane and Rigging (For Rigging crew only)
 - 042866 Advanced Rigging (For Rigging crew only)
 - 170664 Critical and Special Lifts (for DL only)
 - 600058 CHPRC Competent Person – Fall Protection
 - 020440 Fall Protection PFAS Users
 - 020147 Fall Hazard Recognition and Prevention
 - 600078 CHPRC Vehicle Spotter Awareness Training
 - 043832 Aerial Lift Safety
 - 04468B Class 3 Self-Propelled Platform Aerial Lift
 - 170500 Basic Medic First Aid / CPR / AED (for FS, Safety, and Electrical workers only)
 - 620194 Hearing Conservation (CBT)
 - 044480 Electrical Safety for Non-Electrical Workers

**SECTION 01150
TRAINING AND QUALIFICATIONS**

044482	DOE-0359 Hanford Site Electrical Safety in the Workplace (Electrical workers only)
043870	NFPA 70E, Standard for Electrical Safety in the Workplace (Electrical workers only)
003056	Lockout/Tagout Authorized Worker Practical
020066	Respiratory Knowledge-Based Initial
020044	Quantitative Mask Fit
020527	MSA Ultra Elite Air Purifying Respirator (APR)
020550	MSA TL PAPR Hood Only
620193	Temperature Extremes (Heat Stress)
170720	Suspect Counterfeit Items Refresher

Note: 241-Z-361 is located in a Beryllium controlled area and the following training will be required for workers that need to access that area:

004140	Beryllium Worker Training
004107	Beryllium Training for Planners/PICS/Supervisors/Managers
004111	Risk Communication for ES&IH Professionals and Line Supervisors

- 1.3.4.2 The Contractor is expected to provide appropriately trained and qualified staff to perform the type of work associated with their skill of craft at the Hanford site.
- 1.3.4.3 The Contractor is expected to demonstrate having craft trained or a plan to train and available at time of bid per these requirements. There will be limited time for initial training at award.
- 1.3.4.4 Substance testing requirements for personnel who will be working in substance Testing Designated Positions.
- 1.3.4.5 EJTA, Medical Clearance and Training Verification – for Contractor personnel presently on staff and trained to the requirements of this Task Order, the contractor may submit a letter confirming that each person by name and HID are trained to the requirements of this Task Order.
- 1.3.4.6 Personnel proposed for this contract are required to have all required training in place upon Award, including EJTA, Medical Clearance, and Training Verification.

PART 2 - PRODUCTS

Not Used

01150-5

**SECTION 01150
TRAINING AND QUALIFICATIONS**

PART 3 - EXECUTION

Not Used

END OF SECTION

01150-6

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Aging Structures Stabilization

January, 2020

SECTION 01200 PROJECT MEETINGS

PART 1 – GENERAL

1.1 SUMMARY

1.1.1 General purposes of conferences and meetings addressed in this Section are coordination, control, and direction of the Work. In addition to meetings addressed by this Section, Contractor may be required by other Sections and other Contract documents to conduct special-purpose meetings and various safety meetings and briefings.

1.1.2 CHPRC will issue meeting notices and prepare an agenda and minutes for each conference and meeting addressed in this Section. When applicable, minutes will identify action items, assigned actionees, and due dates.

1.2 PRECONSTRUCTION CONFERENCE

1.2.1 Before start of the Work, CHPRC will conduct a conference at a time and Hanford Site location agreed to by Contractor and CHPRC.

1.2.2 Invited attendees will include CHPRC, Contractor, subcontractors and others having an interest in the Work

1.2.3 Purpose of the preconstruction conference is the coordination of Work startup and familiarization of project participants with the Work and worksite. The conference will include the following agenda.

- a. Material and equipment lists
- b. Points of contact and key personnel representing the Contractor and CHPRC
- c. Quality requirements
- d. Report requirements
- e. Safety
- f. Schedule requirements, schedule constraints, and work limitations
- g. Submittals

1.3 CONSTRUCTION PROGRESS MEETINGS

1.3.1 The Contractor will be required to attend with CHPRC a weekly progress meeting at a time and Hanford Site location determined during the Preconstruction Conference.

1.3.2 Invited attendees will include CHPRC, Contractor, and subcontractors.

1.3.3 The purpose of the weekly progress meetings is the exchange of Work-related information and will include the following agenda items:

01200-1

**SECTION 01200
PROJECT MEETINGS**

- h. Safety
 - i. Quality Assurance
 - j. Progress
 - k. Submittal Status
 - l. Schedule, Cost and Construction Status
 - m. Requests For Information – Status
 - n. Design and Scope Changes
 - o. Material and Equipment Status
 - p. Problem Areas
- 1.3.4 The Contractor shall complete Construction Daily Activities Field Reports (A-6004-822, Rev 3) and Lost Time/Work Delay Notification (A-6006-539 Rev.1) if applicable. The Contractor shall provide CHPRC with a Construction Daily Activities Field Report identifying detailed work activities performed for the day: craft by name/hours worked and company, Supervision, by name/hours worked and company, any detailed problems/issues/delays, vehicles/equipment used, detailed work activities planned for the next day, Safety observations, Lost Time/Work Delay Block #14, etc. Construction Daily Activities Field Reports shall be submitted by Work Package to CHPRC by 10:00 a.m. each work day documenting the previous work day's activities. DAR's will be filled out until the project is completed or terminated. A DAR shall be submitted on days (normal work days) where no work has been done.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

01200-2

SECTION 01300 SUBMITTALS

PART 1 – GENERAL

1.1 SUMMARY

This Section provides the general procedures and requirements for preparing and processing submittals. Required submittals are identified in other Specification sections, other Contract sections, and the CHPRC OS/IH Manual. Required submittals are also summarized by CHPRC on the Master Submittal Register. The submittal register may not be all-inclusive, and identifies documents required with proposal submittal, post-award / prior to Notice-To-Proceed (NTP), and post NTP.

1.1.1 Requests for substitutions are prepared in accordance with Section 01630 and processed in accordance with this Section. “Deliverable documents” differ from submittals and are processed in accordance with Section 01720. Deliverable documents are Quality Assurance documents and are required by technical sections of the Specification.

1.2 CLARIFICATIONS

1.2.1 Immediately notify CHPRC of discrepancies in the submittal register.

1.2.2 Approval of a specific item does not constitute approval of a system or assembly of which an item is a component.

1.2.3 Materials and equipment that differ from approved submittals are subject to rejection and replacement at Contractor’s expense.

1.2.4 Delays arising from failure to provide required submittals in a timely manner will not constitute excusable delays for extension.

1.2.5 Standard processing time of submittals by CHPRC is one (1) week, unless otherwise stated, and is measured from date of submittal’s receipt by CHPRC to date of return mailing.

1.3 SUBMITTAL BY CONTRACTOR

1.3.1 The Contractor submittals identified herein on the submittal register shall be submitted to CHPRC Construction Document Control by the Contractor using the Contractor Document Submittal (Form A-6004-757). Instructions for completion of the submittal are included with the form.

1.3.2 The quantity, frequency, and type of submittal shall agree with the requirements set forth on the submittal register. The submittal number shall be entered on the

**SECTION 01300
SUBMITTALS**

submittal form by the Contractor in accordance with the submittal register. This number is used to identify each submittal.

- 1.3.3 When any submittal is returned to the Contractor with a request to resubmit (i.e., marked as: “B-YES – Resubmit Minor Comments” or “C – Resubmit”) the Contractor shall resubmit all corrected documents within the time specified on the returned submittal form, or if no time is specified, within five (5) working days from the disposition date.
- 1.3.4 Contact the Contract Specialist if additional submittal numbers are required.
- 1.3.5 Changes to a Contractor’s deliverables that have not been accepted by CHPRC as complete shall be re-submitted using the submittal form and in accordance with the Contractor’s CHPRC approved Quality Assurance Program.
- 1.4 MASTER SUBMITTAL REGISTER
 - 1.4.1 Contractor shall submit documents shown in section 01300A MASTER SUBMITTAL REGISTER:

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

01300-2

**SECTION 01300A
MASTER SUBMITTAL REGISTER**

MASTER SUBMITTAL REGISTER								
Aging Structures Stabilization								Revision:5
Submittal No.	Type of Copies	Technical Submittal	Vendor Information	Description of Submittal	Submittal Date (when required)	Approval Organization	CHPRC Review Time Needed (work days)	Contract Paragraph or Requirement Reference
01010 Summary of Work								
1	APW	N	N	Grout Conveyance Plan	SC-12	PM/CM/ENG	1 Week	01010, 1.3.1.2
2	APW	N	N	Off-site Mockup Plan	SC-12	PM/CM/ENG	1 Week	01010, 1.3.1.2
3	--	--	--	NOT USED	--	--	--	--
01036 Request for Clarification (RCI) and Changes								
4	APW	N	N	Name of person responsible for receiving changes to design media	SC-12	BTR	1 Week	01036, 1.2.3
01110 Occupational Safety & Industrial Hygiene								
5	APW	N	N	Hoisting and Rigging (Equipment Inspections)	As Required	S&H/CM	1 Week	01110, 1.2.2.5
6	APW	N	N	Alternate Safety and Health Program	As Required	S&H/PM	2 Weeks	01110, 1.2.2.1
7	APW	N	N	Employee Job Task Analysis	A+10	S&H/PM	1 Week	01110, 1.5.4
8	APW	N	N	Training Matrix	A+10	S&H/PM	1 Week	01150, 1.3.1.1
9	--	--	--	NOT USED	--	--	--	--
01130 Environmental, Radiological, and Nuclear Safety								
10	APW	N	N	Waste management plan	SC-12	WM	1 Week	01130, 1.2.2.1

01300A-1

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Aging Structures Stabilization

January, 2020

**SECTION 01300A
MASTER SUBMITTAL REGISTER**

MASTER SUBMITTAL REGISTER								
Aging Structures Stabilization								Revision:5
Submittal No.	Type of Copies	Technical Submittal	Vendor Information	Description of Submittal	Submittal Date (when required)	Approval Organization	CHPRC Review Time Needed (work days)	Contract Paragraph or Requirement Reference
11	APW	N	N	Safety Data Sheets (SDS)	As needed	S&H/FCC	1 Week	01130, 1.2.2.2
12	APW	N	N	Chemical sources	As needed	S&H/FCC	1 Week	01130, 1.2.2.3
13	APW	N	N	Chemical Inventory Worksheet(s)	A+10	S&H/FCC	1 Week	01130, 1.2.2.4
14	APW	N	N	Chemical Management Plan	A+10	S&H/FCC	1 Week	01130, 1.2.2.5
15	APW	N	N	Air emissions sources, Dust Control Plan	SC-12	ENV/FCC	1 Week	01130, 1.2.2.6
16	APW	N	N	Site Washout Plan	Prior to Install	PM/CM/ENV	1 Week	01010, 1.3.1.3
17	APW	N	N	Volatile Chemical information	As needed	ENV/S&H	1 Week	01130, 1.9.3
18	--	--	--	NOT USED	--	--	--	--
01150 Training and Qualification								
19	APW	N	N	Medical clearance and Training	A+10 and Weekly as needed	S&H	1 Week	01150, 1.2.2.1, 1.3.4.5, 1.3.4.6
20	APW	N	N	Onsite Field Superintendent Resume	A+10	S&H/PM	1 Week	01150, 1.3.1.3
21	APW	N	N	Onsite Safety/IH Representative Resume	A+10	S&H/PM	1 Week	01150, 1.3.1.4 01110, 1.2.2.2
22	FIO	N	N	Hoisting and Rigging OJE	As Needed	S&H/CM	1 Week	01150, 1.3.3.3

01300A-2

At CHPRC, Safety is no accident
Aging Structures Stabilization

January, 2020

**SECTION 01300A
MASTER SUBMITTAL REGISTER**

MASTER SUBMITTAL REGISTER								
Aging Structures Stabilization								Revision:5
Submittal No.	Type of Copies	Technical Submittal	Vendor Information	Description of Submittal	Submittal Date (when required)	Approval Organization	CHPRC Review Time Needed (work days)	Contract Paragraph or Requirement Reference
23	APW	N	N	Electrician Qualification Verification Checklist (Course 60038A or 60038B)	A+10	S&H/CM	1 Week	01150, 1.3.1.7
01315 Project Schedules, Project Controls, And Project Performance Milestones								
24	APW	N	N	Baseline Schedule	A+10	PC/PM	1 Week	01315, 1.1.3.1, 1.2
25	AP	N	N	Revised Schedule	As Needed	PC/PM	1 Week	01315, 1.1.3.3, 1.4
26	AP	N	N	Progress Reports	Monthly	PC/PM	1 Week	01315, 1.1.4.1, 1.6
27	--	--	--	NOT USED	--	--	--	--
01400 Quality Assurance and Control								
28	AP	N	N	Quality Assurance Program (QAP)	A+10	QA	1 Week	01400, 1.2.2.1
29	AP	N	N	Statement for Suspect/Counterfeit	EC+5	QA	1 Week	01400, 1.2.3.1, 1.4.3
30	AP	N	N	Test and Inspection Reports	Weekly As Needed	ENG/QA	1 Week	1400, 1.5.6
31	APW	N	N	Inspection and Test Personnel Certification with latest visual acuity examination	SC-12	ENG/QA	1 Week	01400, 1.5.7
32	APW	N	N	Testing Agency Qualifications	SC-12	ENG/QA	1 Week	01400, 1.5.8

01300A-3

At CHPRC, Safety is no accident
Aging Structures Stabilization

January, 2020

**SECTION 01300A
MASTER SUBMITTAL REGISTER**

MASTER SUBMITTAL REGISTER								
Aging Structures Stabilization								Revision:5
Submittal No.	Type of Copies	Technical Submittal	Vendor Information	Description of Submittal	Submittal Date (when required)	Approval Organization	CHPRC Review Time Needed (work days)	Contract Paragraph or Requirement Reference
33	AP	Y	N	NCR's	As necessary	ENG/QA	1 Week	01400, 1.6.1
34	--	--	--	NOT USED	--	--	--	--
01500 Construction Facilities and Temporary Controls								
35	APW	N	N	Traffic Control Plan	A+10	PM/CM/S&H	1 Week	01010, 1.3.1.3 01040, 1.4.2 1500, 1.4.2, 1.4.3, 1.4.3.1
36	--	--	--	NOT USED	--	--	--	--
01630 Product Options and Substitutions								
37	APW	N	N	Substitution Requests	As Needed	QA/ENG	1 Week	01630 1.1.2.1
01720 Project Record Documents and Additional Quality Assurance and Control								
38	AP	N	N	Grout Batch/Trip Tickets	Weekly	QA/ENG	1 Week	01720, 1.3.1.6
39	FIO	N	N	Daily Field Reports (DFR's)	Monthly	BTR	N/A	01720, 1.3.1.2
40	APW	N	N	Mix Designs	SC-12	QA/ENG	1 Week	See Drawings
41	APW	N	N	Freeze Protection Plan	SC-12	PM/CM	1 Week	See Drawings
42	APW	Y	N	Welding Inspection Agency Qualifications	SC-12	QA	1 Week	01010, 1.3.1.2

01300A-4

At CHPRC, Safety is no accident
Aging Structures Stabilization

January, 2020

**SECTION 01300A
MASTER SUBMITTAL REGISTER**

MASTER SUBMITTAL REGISTER								
Aging Structures Stabilization								Revision:5
Submittal No.	Type of Copies	Technical Submittal	Vendor Information	Description of Submittal	Submittal Date (when required)	Approval Organization	CHPRC Review Time Needed (work days)	Contract Paragraph or Requirement Reference
43	APW	Y	N	Welding Inspector Qualifications/Certifications with latest visual acuity examinations	SC-12	QA	1 Week	01010, 1.3.1.2
44	AP	Y	N	Weld Inspection Reports	SC-12	QA	1 Week	01010, 1.3.1.2
45	APW	Y	N	Welding Procedure Specifications with Associated Procedure Qualification Records	SC-12	QA	1 Week	01010, 1.3.1.2
46	APW	Y	N	Qualification Data for Qualified Installer (Welder Qualifications)	SC-12	QA	1 Week	01010, 1.3.1.2
47	APW	Y	N	Welder Performance Qualification Records (WPQR)	SC-12	QA	1 Week	01010, 1.3.1.2
48	AP	Y	N	Fabrication Inspection (AWS QC-1 CWI)	As Needed	QA	1 Week	01010, 1.3.1.3 01400, 1.5
49	AP	Y	N	Product Data (as needed)	Prior to Use	ENG/QA	1 Week	01010, 1.3.1.3
50	AP	Y	N	Field Quality Control	As Needed	ENG/QA	1 Week	Multiple
51	--	--	--	NOT USED	--	--	--	--

1. Typically a numerical sequence (i.e., 1, 2, 3...). However, other numbering systems may also be used.
2. Submittal type, number of copies and format:

01300A-5

At CHPRC, Safety is no accident
Aging Structures Stabilization

January, 2020

SECTION 01300A MASTER SUBMITTAL REGISTER

- APW** = Approval Required Prior to Work (CHPRC must approve the Contractor's submittal prior to the Contractor being authorized to proceed with any activity/work associated with the submittal).
- E** = Electronic
- AP** = Approval Required (CHPRC shall approve Contractor's submittal, however, work associate with submittal may proceed prior to CHPRC approval)
- Format** = Describes the type of submittal required (electronic or printed)
- DWG** = An AutoCAD drawing using the Hanford standard formatting (See PRC-STD-EN-40279 Engineering Drawing Standards)
- MFC** = Microsoft Format Compatible application (Word, Excel, Access, PowerPoint)
- P3** = A Primavera Project Planner schedule
- GEN** = General or Open Format/Media
- PDF** = Adobe Acrobat (Portable Document Format)
- FIO** = For Information Only

3. Technical submittals are Engineering or Quality affecting submittals. A Yes in this column designates the need for formalized comments, and a formalized comment disposition process by the Contractor. Examples of Technical Submittals would include Engineering or Fabrication Drawings, or Certificates of Conformance. Vendor Information for project record purposes.
4. Description / Document Title. Describe submittal.
5. Required submittal date or its relationship to project milestones. Examples are July 14, 2009, or Award + 15 days, Contract Completion +30 days.
 - A** Date of Award
 - CD** Conceptual Design Complete
 - PD** Preliminary Design Complete
 - FD** Final Design Complete
 - M** Mobilization
 - SC** Start of Construction
 - EC** End of Construction
6. Approver Organization. Examples are Construction Manager, Safety, Quality, Radiation Protection, and Waste Management.
7. The number of Work Days required for review of the submittal.

Contract Reference: Cross reference to the Contract requirement that defines this submittal.

01300A-6

At CHPRC, Safety is no accident
Aging Structures Stabilization

January, 2020

SECTION 01315
PROJECT SCHEDULES, PROJECT CONTROLS,
AND PROJECT PERFORMANCE MILESTONES

PART 1 – GENERAL

1.1 SCHEDULES

1.1.1 Schedule Preparation

1.1.1.1 Prepare and submit an initial project schedule at proposal. A comprehensive, detailed, logic driven and workable schedule is necessary for successful execution of the Work and to minimize the impacts to PFP. The project schedule shall include at a minimum the following activities:

- Notice to proceed
- Field crew training
- Field investigation cycles
- Procurement cycles for material and equipment
- Conveyance system design development and submittal
- Mock-up approach development and submittal
- Long Lead Equipment shall be identified (LLE)
- Work planning and HRBs
- Key interface meeting with CHPRC (EWPs, JHAs, etc.)
- Fabrication cycles
- Mock-up
- Site preparation and field crew/equipment mobilization
- Stabilization of the individual three (3) structures
- Turnover
- Clean-up and Demobilization

1.1.1.2 Prepare schedules using commercial project planning software. Preferred software (used by CHPRC) is Primavera Project Planner (P6). Other project planning software may be used if Contractor provides software translation capability to and from Primavera.

1.1.1.3 A sample P6 Activity Code Structure and Work Breakdown Structure will be provided to the Contractor in order to assist in the preparation of the Construction Schedule, which will enable communication and downloading of the Contractor's schedule with CHPRC IMES Schedule system.

1.1.1.4 Identify initial project schedule as Revision 0. This schedule, when approved, is the baseline project schedule.

1.1.2 See Section 01300 for submittal procedures.

01315-1

**SECTION 01315
 PROJECT SCHEDULES, PROJECT CONTROLS,
 AND PROJECT PERFORMANCE MILESTONES**

- 1.1.3 Approval Required
 - 1.1.3.1 Project Schedule: 10 days after Notice of Award, submit a baseline project schedule covering activities for duration of Contract, starting with receipt of Notice to Proceed, as specified in 1.2.
 - 1.1.3.2 Weekly Work Schedules: Provide a three-week “look ahead” schedule, updated weekly, one day prior to each scheduled Weekly Progress Meeting (1.5.1).
 - 1.1.3.3 Revised Schedules: When required, submit revised project schedules as specified in 1.4.
 - 1.1.3.4 Downtime/delay reports: On a daily basis or on the working day of an occurrence, submit downtime/delay reports.
- 1.1.4 Approval Not Required
 - 1.1.4.1 Progress Reports: One month after submittal of project schedule, and monthly thereafter, submit a progress report as specified in 1.6.
- 1.2 SCHEDULE PREPARATION
 - 1.2.1 The schedule submittal shall include a time-phased performance measurement baseline schedule for completing the individual construction Work.
 - 1.2.2 The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the contract period of performance. Identify critical path activities, including logical sequence and relationship of activities for submittals, procurement, fabrication, delivery, erection, installation, testing, and performance for work covered by Contract.
 - 1.2.3 See submittal register for quantity of copies to be submitted and approval code.
- 1.3 PROJECT MILESTONES

A.	Notice to Proceed (NTP)	30-Mar-2020
B.	Complete Structure Investigation	28-May-2020
C.	Complete Off-Site Mock-up	30-June-2020
D.	Stabilize 216-Z-2 and 241-Z-361	30-July-2020
E.	Start stabilization of 216-Z-9	01-Oct-2020
F.	Complete stabilization of 216-Z-9	05-Nov-2020
G.	Construction Complete Demobilize	19-Nov-2020

SECTION 01315
PROJECT SCHEDULES, PROJECT CONTROLS,
AND PROJECT PERFORMANCE MILESTONES

1.4 SCHEDULE REVISIONS

1.4.1 Whenever CHPRC determines that there are significant variances between actual and scheduled progress, endangering completion of the Contract Work within the scheduled time, the Contractor may be required to prepare and submit revised project schedules including corrective action plan(s).

1.4.2 Make schedule revisions in accordance with the following:

1.4.2.1 Show progress to date of submittal and projected completion dates for each activity.

1.4.2.2 Identify activities modified since the previous submittal, major changes in scope, and other identifiable changes.

1.4.2.3 Provide a narrative report defining the problem areas, anticipated delays, and schedule impacts.

1.4.2.4 Describe corrective action taken, or proposed, and its effect, including changes in schedules of subcontractors.

1.4.3 Send copies of revised schedules to CHPRC. Notify subcontractors, suppliers, and other concerned entities, instructing them to promptly report, in writing, problems anticipated due to revisions.

1.4.4 Upon approval, a revised schedule becomes the new baseline.

1.5 WEEKLY WORK SCHEDULE PREPARATION

1.5.1 Each week, prepare a detailed schedule of next three-week's work. Base weekly work schedules on the activity schedule. Electronic generation of these schedules is not required. Include the following:

- Work Description.
- Location of the Work.
- Work involving outages, overtime, weekends, etc.

1.6 PROGRESS REPORT PREPARATION

1.6.1 Prepare a summary progress report each reporting period, show actual progress versus scheduled progress. Scheduled progress is given by baseline project schedule. Show actual progress in the form of percentages completed for activities or resources.

**SECTION 01315
PROJECT SCHEDULES, PROJECT CONTROLS,
AND PROJECT PERFORMANCE MILESTONES**

- 1.6.2 A variance analysis shall be prepared on the current month and cumulative to date, and shall include cause, impact, and corrective action. Variance analysis shall include explanations, as required, to adequately address problems.
- 1.6.3 Develop and include a line graph (“S” curve) to show cumulative actual progress versus cumulative scheduled progress. Progress shown shall be consistent with that indicated by the reports.
- 1.6.4 Update project schedule each reporting period, or more frequently if requested by CHPRC, when progress report is prepared. Include an updated data disk and a hard copy of updated schedule with the progress report.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

SECTION 01400
QUALITY ASSURANCE AND CONTROL

PART 1 – GENERAL

1.1 REFERENCES

1.1.1 The following documents and others referenced therein form part of Contract to extent designated in this section. Referenced documents are those current as of the date of this Section unless otherwise indicated.

1.1.1.1 American Society of Mechanical Engineers (ASME)

NQA-1: 2008 (with NQA-1a 2009 addenda)

Quality Assurance Program Requirements for Nuclear Facility Applications. Include Requirements 1 through 18, subparts 2.7 and 2.14 as applicable for the scope of work being performed.

1.1.1.2 American Society for Quality (ASQ)

E4 Specifications and Guidelines for Quality Systems for Environmental Data Collection And Environmental Technology Programs

1.1.1.3 Code of Federal Regulations (CFR)

Title 10 Energy

Part 50 Domestic Licensing of Production and Utilization Facilities

Part 72 Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste

Part 830, Subpart A Quality Assurance Requirements

Title 29 Labor

Part 1910 Occupational Safety and Health Administration (OSHA)

Part 1926 Safety and Health Regulations for Construction

01400-1

SECTION 01400
QUALITY ASSURANCE AND CONTROL

- 1.1.1.4 Department of Energy (DOE)
 - Process Guide Identification and Disposition of Suspect/Counterfeit items or Defective items
 - DOE-0359 Hanford Site Electrical Safety Program (HSESP)
- 1.1.1.5 Factory Mutual (FM)
 - Approval Guide
- 1.1.1.6 Institute of Electrical and Electronics Engineers (IEEE)
 - C2 National Electrical Safety Code (NESC)
- 1.1.1.7 International Standards Organization (ISO)
 - ISO 9000:2000 Quality Management and Quality Assurance Standards
- 1.1.1.8 National Electrical Manufacturers Association (NEMA)
 - MG-1 Motors and Generators
- 1.1.1.9 National Fire Protection Association (NFPA)
 - 70-2017 National Electrical Code (NEC)
- 1.1.1.10 Underwriters Laboratories (UL)
 - Electrical Appliance and Utilization Equipment Directory
 - Electrical Construction Materials Directory
- 1.2 SUBMITTALS
 - 1.2.1 See Section 01300 for submittal process.
 - 1.2.2 Approval Required
 - 1.2.2.1 With proposal, submit a Quality Assurance Program (QAP) meeting the requirements of the Contract and this Section. Include subcontracted work and work performed off of the Hanford Site. If QAP is based on a consensus national standard or other quality management system, furnish a matrix showing the cross-references between the QAP and the standard or system.

01400-2

SECTION 01400
QUALITY ASSURANCE AND CONTROL

- 1.2.3 Approval Not Required
- 1.2.3.1 At project completion, submit a written statement warranting that all items supplied under Contract are genuine, new, and unused in accordance with 1.4.
- 1.3 **QUALITY ASSURANCE PROGRAM REQUIREMENTS**
- 1.3.1 The QAP requirements imposed by this Specification are under the authority of the Price Anderson Amendments Act (PAAA) of 1989. Quality assurance provisions are developed from U.S. Department of Energy Nuclear Safety Management Regulation 10 CFR 830.120. QAPs developed from other national standards (e.g., ASME NQA-1, 10 CFR 50, 10 CFR 72, ISO 9000, ASQ E4) may be used as a basis for satisfying the criteria specified, and should be supplemented and submitted as necessary to satisfy the requirements.
- 1.3.2 The QAP shall apply to all activities, including subcontracted activities and for work performed off the Hanford Site. The QAP shall include provisions for the following:
- 1.3.2.1 Management: Program, training/qualification, discrepancy identification, document/records.
- a. Quality documents shall describe the organizational structure, functional responsibilities, levels of authority and interfaces for those managing and performing the Work.
 - b. Personnel shall be trained and qualified to ensure they are capable of performing their assigned work. Plans shall address specific training, qualification, and certification requirements.
 - c. Items and processes that do not meet the requirements shall be identified, controlled, and corrected. Identify items or materials that do not meet specified requirements and control them to prevent inadvertent use, shipment, or intermingling with acceptable materials or items.
 - d. Documents shall be prepared, reviewed, approved, issued, revised and maintained. Approved and current issues of design documents, applicable submittals, procedures, procurement documents and instructions shall be used. Records shall be legible, identifiable, and retrievable.
- 1.3.2.2 Performance: Work Processes, Design, Procurement, Inspection, and Testing
- a. Items shall be identified and controlled to ensure proper use. Items shall be maintained to prevent their damage, lost or deterioration.

SECTION 01400
QUALITY ASSURANCE AND CONTROL

- b. Design work, including changes, shall incorporate applicable requirements and design basis and be correctly translated into design outputs.
 - 1. Design inputs and interfaces shall be identified and controlled.
 - 2. Changes to the approved design shall be justified and subjected to measures commensurate with the original design.
 - 3. For designs not previously proven, adequacy of design outputs shall be verified by individuals or groups other than those who performed the design. Minimum verification shall include a checking process.
- c. Purchased items and services shall meet established requirements and perform as specified. Procurement controls shall include actions to prevent the use of suspect or counterfeit products (1.4).
- d. Contractor shall be responsible for the performance of all inspection and testing activities as specified in the CHPRC Quality Assurance Inspection Plan. Inspection and testing of specified items and processes shall be conducted using established acceptance and performance criteria.
 - 1. Perform and document inspections and testing required by the Specification. Documented inspections shall report the true and physical/functional condition of the inspection activity. As a minimum prepare daily reports when inspections and testing are performed. Reports shall provide sufficient detail to describe inspections and testing performed, with applicable requirements referenced, and results and determinations of inspections and tests shown.
 - 2. Test procedures, when required, shall include the reference test objectives, prerequisites, and acceptance criteria. Test procedures shall also identify test configuration, safety instructions, instrumentation requirements, required monitoring, and environmental conditions. Test procedures from standards, codes, supplier manuals and equipment maintenance instructions may be used in lieu of specially prepared test procedures.
 - 3. Complete required inspections and tests and have documentation available for review, before requesting overview inspection by CHPRC.
 - 4. Measuring and Test Equipment (M&TE) shall be properly calibrated maintained, accounted for and used when required. Calibration shall be traceable to National Institutes of Standards and Technology Calibration Standards. Perform calibration at specified intervals based on the type of equipment, required accuracy, and frequency of use, stability

01400-4

SECTION 01400 QUALITY ASSURANCE AND CONTROL

characteristics, and other conditions affecting performance. Maintain records and mark equipment to show calibration status.

5. When M&TE is found to be out of calibration, specify means to identify its use since the last calibration and methods to re-verify acceptability of items previously tested.
6. Calibration shall have accuracy traceable to national standards (where they exist), and calibration standards shall have the accuracy to ensure that the M&TE has the required tolerances.

1.3.3 Electrical/Electronic Product Acceptability

1.3.3.1 Electrical control panels and electrical equipment (a general term to include material, fittings, devices, appliances, luminaries [fixtures], apparatus, and the like used as part of or in connection with an electrical installation) delivered or brought onto the Hanford Site in performance of this Contract shall be listed or labeled by an organization currently recognized by OSHA as an NRTL in accordance with DOE-0359.

1.3.3.2 Electrical equipment installed as part of this contract shall comply with the NEC and, where applicable, the NESC. CHPRC reserves the right to inspect electrical equipment and installations. Contractor shall notify CHPRC when installations are available for NEC inspection.

1.3.3.3 Electric motors shall be manufactured and testing in accordance with NEMA MG-1 as applicable, or listed by an organization currently recognized by OSHA as an NRTL. Documentation of NEMA MG-1 compliance shall be made available to CHPRC on request.

1.4 EXCLUDING SUSPECT AND MISREPRESENTED PRODUCTS

1.4.1 Contractor warrants that items provided to CHPRC are genuine and unused unless otherwise specified in writing by CHPRC. Contractor further warrants that items used during the performance of the Work include genuine, original, and new components, or are otherwise suitable for the intended purpose. The Contractor indemnifies CHPRC, its agents, and third parties for any financial loss or property damage resulting directly or indirectly from material, components, or parts that are not genuine, original, and unused, or otherwise suitable for the intended purpose. This includes materials that are defective, suspect, or counterfeit; materials that have been provided under false pretenses; and materials or items that are materially altered, damaged, deteriorated, degraded, or result in product failure.

SECTION 01400 QUALITY ASSURANCE AND CONTROL

- 1.4.2 Types of material, parts, and components known to have been misrepresented include fasteners; hoisting, shackles, turnbuckles, cable clamps, wire rope, rigging, and lifting equipment; cranes; hoists; valves; pipe and fittings; electrical equipment and devices; plate, bar, shapes, channel members, and other heat-treated materials and structural items; welding rod and electrodes; and computer memory modules. The Contractor's warranty shall also extend to labels and trademarks or logos affixed, or designed to be affixed, to items supplied or delivered to CHPRC. In addition, because falsification of information or documentation may constitute criminal conduct, CHPRC may reject and retain such information or items, at no cost; and identify, segregate, and report such information or activities to the DOE.
- 1.4.3 Contractor shall submit a written statement that "all items furnished under this Contract are genuine (i.e., not counterfeit) and match the quality, test reports, markings, and fitness for use required by the Contract." The statement shall be on Contractor letterhead and signed by an authorized agent of Contractor.
- 1.4.4 Any materials furnished as part of this Contract that have been previously found to be suspect/counterfeit by the DOE will not be accepted. For more information about suspect/counterfeit items, refer to Process Guide for the Identification and Disposition of S/CI or defective items at the following link:
<http://www.hss.doe.gov/sesa/corporatesafety/sci/guide.html>
- 1.5 INSPECTION AND TESTING
- 1.5.1 Inspection and testing shall be performed in accordance with this SOW and Work Control Documents (approved work packages).
- 1.5.2 CHPRC may perform oversight and inspections to verify compliance to requirements.
- 1.5.3 Verifications shall be performed for specific verification points as scheduled in the Inspection Plan.
- 1.5.4 Prerequisites to verification points: Ensure that personnel have completed inspections of, and approved portions of, work in accordance with the Specification requirements before notifying CHPRC.
- 1.5.5 Specific verification points are defined as follows:
- **QA Hold Point:** A type of signature step in a technical work document that satisfies established criteria for designation of Hold Points at which specific personnel are required to sign for the specified action. Hold Points consist of an action; acceptance criteria for Hold Point completion; and blocks for signature of performer, printed name of performer, and date. QA Hold points are placed at those steps where omission or incorrect accomplishment of the

SECTION 01400 QUALITY ASSURANCE AND CONTROL

step could result in a significant problem or hazard. The completion and documentation of a Hold Point must occur prior to proceeding to the next working step.

- **Verification Point:** A step in an inspection plan, procedure, or other work document that requires inspection personnel to review, inspect, test, check, or otherwise determine and document whether or not items, processes, services, or documents conform to specified requirements.
- **Witness Point:** A step in an inspection plan, procedure, or other work document that requires inspection personnel to observe an activity (e.g., examination or test).
- **Radiological Control Hold Point:** A hold point that is used when the potential exists in which incorrect implementation of radiological controls could exceed one or more of the following criteria:
 - Radiation exposures in excess of Administrative Control Levels.
 - High airborne radioactivity concentrations without protection or controls.
 - The uncontrolled release of radioactive contamination.

1.5.6 Test and Inspection Reports: Prepare and submit for approval, certified written reports specified in other Sections. Include the following:

- Date of issue.
- Project title and number.
- Name, address, and telephone number of testing agency.
- Dates and locations of samples and tests or inspections.
- Names of individuals making tests and inspections.
- Description of the Work and test and inspection method.
- Identification of product and Specification Section.
- Complete test or inspection data.
- Test and inspection results and an interpretation of test results.
- Record of temperature and weather conditions at time of sample taking, testing, and inspecting.
- Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
- Name and signature of laboratory inspector.
- Recommendations on retesting and re-inspecting.

01400-7

SECTION 01400
QUALITY ASSURANCE AND CONTROL

- 1.5.7 Inspection and Test Personnel Certifications: Submit for approval, Qualifications and Certification of personnel performing inspections and tests to include latest visual acuity examination results.
- 1.5.8 Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Submit proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- 1.6 DEFICIENCY REPORTING
 - 1.6.1 Utilize a deficiency reporting system (e.g. nonconformance/deviation reports) to document deviations from requirements. Deficiency reports shall have a recommended disposition and shall be formally submitted to CHPRC within 48 hours of discovery.
 - 1.6.2 Dispositions of deficiency reports shall be documented in one of the four following categories: Use-as-is; Reject; Repair; or Rework. Definitions for these categories may be found in ASME NQA-1.
 - 1.6.2.1 Use-as-is and repair deficiencies with justification shall be submitted for concurrence and approval. Reject and rework deficiencies shall be submitted for information. After the recommended disposition has been evaluated by CHPRC, the form will be returned to the Contractor with a disposition of "approved" or "rejected." The Contractor shall take corrective action on the nonconformance only after the form is approved. The Contractor's completed nonconformance form shall be shipped with the affected item.
 - 1.6.2.2 Deficient items described by the report shall be physically tagged with a deficiency tag or segregated, when feasible.
 - 1.6.2.3 Deficiency tagging shall remain intact during correction of deficient conditions, unless tagging inhibits directed corrective action. If removal of tag is necessary to accomplish directed corrective action, removal shall be performed or delegated by the initializing organization.
 - 1.6.2.4 Clearance of deficiency tags shall be performed or delegated by the initializing organization.
 - 1.6.2.5 Official punch-list and final work acceptance.

SECTION 01400
QUALITY ASSURANCE AND CONTROL

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

01400-9

SECTION 01500
CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 – GENERAL

1.1 REFERENCES

1.1.1 The following documents and others referenced herein form part of Contract to extent designated in this section. Referenced documents are those current as of the date of this section unless otherwise indicated.

1.1.1.1 National Fire Protection Association (NFPA)

701 Methods of Fire Tests for Flame-Resistant Textiles and Films

1.1.1.2 Washington State Department of Transportation (WSDOT)

M 41-10 Road, Bridge, and Municipal Construction

1.1.1.3 Hanford Site Electrical Safety Program (HSESP), DOE-0359

1.2 ACCESS AND PARKING

1.2.1 Parking for a limited number of Contractor's company vehicles will be made available near worksite, outside Limited area. "No Parking" signs are posted to show fire and emergency lanes. No on-street parking will be permitted.

1.2.2 First Aid: Facilities for first line medical attention are available onsite and are located at the 2719WB building located in the 200 West Area of the Hanford Site. Facilities for radiological decontamination are also available onsite and are located at the 272AW building in the 200 East Area.

1.2.3 Operation and Storage Areas: Worksite operations, including storage of materials, will be designated by CHPRC during the preconstruction conference.

1.3 FIELD OFFICE

1.3.1 A Field Office in the 200W (MO # TBD) will be provided to the Contractor during the onsite Construction period.

1.3.2 Furniture will be provided in the Field Office for Contractor use.

1.3.3 Sanitary Facilities: Sanitary Facilities near or within the Contractor Field Office will be provided use. The Contractor shall mobilize and maintain the necessary temporary sanitary facility (blue rooms) for their crew to the Radiological Buffer Area where the pumping and mixer truck deliveries will be present.

01500-1

SECTION 01500
CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

- 1.3.4 Telephone: Utilities for telephone service are not available. Contractor shall provide cellular phone for emergencies and communication with CHPRC.
- 1.3.5 Water: Contractor shall supply drinking water.
- 1.3.6 CHPRC will make non-potable (raw) water sources available for use.
- 1.4 TEMPORARY CONTROLS
 - 1.4.1 Temporary Enclosures: Plastic sheeting materials used to form enclosures or provide shade shall be six (6) mils minimum thickness, and have fire retardant properties in accordance with NFPA 701, Test 2..
 - 1.4.1.1 Frames for temporary enclosures shall be constructed of metal unless otherwise approved by the Deputy Fire Marshal.
 - 1.4.1.2 Non-combustible materials shall be used to the fullest extent possible. When use of non-combustible materials is not possible, approval for use of alternate materials shall be obtained from the Deputy Fire Marshal.
 - 1.4.1.3 If the Deputy Fire Marshal specifies Fire Retardant Treated Wood (FRTW), it shall meet the following minimum criteria:
 - 1.4.1.3.1 Wood is impregnated with chemicals by a pressure process or other means during manufacturing
 - 1.4.1.3.2 Have a listed frame spread index of 25 or less (Class A) when tested in accordance with ASTM E84, "Standard Test Method for Surface Burning Characteristics of Building Materials."
 - 1.4.1.3.3 Contain an identification mark of an approved agency in accordance with Section 1703.5 of the International Building Code.
 - 1.4.1.3.4 Identified, as "Exterior" to indicate there is no increase in the listed flame spread index as defined in Section 2323.2 when subjected to ASTM D2898.
 - 1.4.1.3.5 Be Kiln Dried After Treatment (KDAT).
 - 1.4.2 Vehicle and equipment movement
 - a. Slow moving vehicles and equipment shall not travel on the Hanford Site roads during heavy traffic periods between 6:30 AM and 7:30 AM, and 3:30 and 5:30 PM.

SECTION 01500
CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

- b. Movement of slow moving loads e.g. class 8 forklifts under its own power is allowed but limited to short distances (approx. 3 miles) during off peak traffic hours (e.g. after 0800 hours and before 1500 hours weekdays) with an escort vehicle trailing the slow moving load/class 8 forklifts. Movements over longer distances shall be done with low boy tractor/trailer, tilt equipment trailer or other suitable trailer with a load capacity that will safely and compliantly transport the slow moving load/class 8 forklifts over the public highways/roads.
 - c. Do not block existing roads.
 - d. Do not park on roadway shoulders.
 - e. Vehicles that require a portable fire extinguisher in accordance with PRC-PRO-SH-40078, Appendix F, shall have the extinguisher secured in an approved manner (vehicle mounting bracket designed for specific extinguisher, or stowed in a secured equipment container).
- 1.4.3 Traffic Control: Barricades shall be in accordance with WSDOT M 41-10, Section 1-10.3(3)D.
- 1.4.3.1 Submit Traffic Control Plan for approval.
- 1.4.4 Oversized vehicles and loads:
- a. Obtain a Hanford Site Oversize/Overweight Permit from CHPRC before movement of oversize loads. See Section 01065. Verify route suitability and limitations before applying for the permit.
 - b. Display oversize load sign on the front of the towing vehicle and on the rear of the trailing unit. Attach red flags to each corner.
 - c. Travel between 8:30 AM and 2:30 PM unless special arrangements are made. Comply with escort vehicle requirements in the permit during travel.
 - d. Contractor will provide qualified spotters when working near energized overhead lines as required per DOE-0359.
 - e. Personnel who will be using Commercial Motor Vehicles on-site which are required to be operated under a Department of Transportation (DOT) license / Commercial Driver's License will require the Contractor to meet all the DOT Federal Motor Carrier Safety Regulations in 49 CFR Parts 40, 382, 383, 387, 390-397.
- 1.4.5 Fuels and Lubricants:

01500-3

SECTION 01500
CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

- a. Oils, greases, and similar materials shall be stored in non-flammable bins or buildings or in a fenced compound remote from other combustible materials as approved by CHPRC.
- b. "No smoking" signs shall be provided by Contractor and prominently displayed in areas where flammable materials are stored. Additionally, Contractor shall provide and maintain suitable fire extinguisher in such areas.
- c. Contractor shall provide all fuel for heating, ventilation, and air conditioning of Temporary Facilities (unless these are run using free issue power).

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

01500-4

**SECTION 01610
MATERIAL AND EQUIPMENT
DELIVERY, STORAGE, AND HANDLING**

PART 1 – SUMMARY

1.1 SUMMARY

This section contains requirements for delivery, inspection, marking, storage, and handling. Product-unique requirements are contained in other sections. Chemicals shall be handled, stored, and tracked in accordance with Section 01130; flammable/combustible liquid storage shall be in accordance with Section 01130.

1.2 DELIVERY

1.2.1 Provide equipment and labor required for unloading, transporting, and handling delivered products.

1.2.2 SDSs shall be kept accessible at each jobsite where material is stored. See Section 01130.

1.3 RECEIVING INSPECTION

1.3.1 Arrange for immediate disposal and replacement of products found to be defective, damaged beyond repair, or in otherwise unacceptable condition.

1.3.2 Perform standard inspections and additional inspections required by this SOW.

1.3.3 Dry and clean products that have become wet or have accumulated foreign substances during shipment, but have not become damaged.

1.3.4 Perform additional identification marking of products when necessary to meet requirements of this SOW.

1.3.5 CHPRC may inspect products and product marking and storage methods for compliance with this SOW.

1.4 PRODUCT IDENTIFICATION AND SEGREGATION

1.4.1 Provide identification tags or markings for products of similar appearance, or intended for similar use, procured to different specifications, or from different manufacturers. Safety Significant items shall be segregated from general services items, as well as stainless steel from carbon steel.

01610-1

At CHPRC, Safety is no accident
Aging Structures Stabilization

January, 2020

SECTION 01610
MATERIAL AND EQUIPMENT
DELIVERY, STORAGE, AND HANDLING

- 1.4.2 As applicable, include following information on tags: Manufacturer's name; product brand name; specification number; product type, grade and class; and other information required by other sections of this SOW.
- 1.4.3 Segregate tagged or marked products and provide separate storage for each product.
- 1.4.4 Preserve identity of bulk and lot products during storage and in-process work.
- 1.4.5 When pipe and tube is removed from storage and prior to cutting, clearly and permanently re-mark remaining pieces with either original markings or field code identification symbols. Return pipe and tube to storage after re-marking.
- 1.4.6 On pipe and tube, use permanent marking methods such as indelible ink, crayon, paint, and paint stick. Vibratory etching equipment may be used with approval of CHPRC. Marking with steel stamps is not acceptable.
- 1.5 **STORAGE**
 - 1.5.1 Store packaged products in original, unbroken packages and containers. Leave seals and labels intact.
 - 1.5.2 Store rolled products in upright position.
 - 1.5.3 Store products with finished surfaces in manner that prevents surface damage.
 - 1.5.4 If contact between products could result in damage or reduction of utility, store products far enough apart to prevent contact. If close proximity storage is necessary, provide a barrier between products. Care shall be taken to preclude carbon and halide contamination of stainless steel products.
 - 1.5.5 Keep ports, nozzles, ends, and other openings on equipment, tanks, pipe, and tube capped or plugged during storage.
 - 1.5.6 Follow manufacturer's storage recommendations.
 - 1.5.7 Remove, dispose of, and replace products with expired shelf-life dates. Dispose of hazardous products in accordance with Section 01130.
- 1.6 **INDOOR STORAGE**
 - 1.6.1 Provide indoor storage for products that can be damaged by, or can deteriorate from, changes in temperature and relative humidity.

01610-2

**SECTION 01610
MATERIAL AND EQUIPMENT
DELIVERY, STORAGE, AND HANDLING**

- 1.6.2 When required by this Specification, or when recommended by product manufacturer, provide environmentally controlled storage. Maintain temperature 60°F to 70°F, relative humidity below 55%, and provide ventilation.
- 1.7 SHOP SPACE
- 1.7.1 Not Used.
- 1.8 OUTDOOR STORAGE
- 1.8.1 Avoid ground contact by providing skids, pallets, platforms, and other supports.
- 1.8.2 Provide sunshade protection for products that can be damaged by, or can deteriorate from, exposure to sunlight.
- 1.8.3 Provide weatherproof covers for products that can be damaged by, or can deteriorate from, contact with rain, snow, ice deposits, and blowing sand and debris.
- 1.8.4 Arrange stacked products so that condensation drains.
- 1.9 HANDLING
- 1.9.1 Provide handling tools and equipment, and use methods designed to prevent occurrence of following.
- a. Impact, rubbing, and other contact damage to ends and surfaces of pipe, tube, and other cylindrical products, and to edges, corners, and surfaces of panel, sheet and other flat products.
 - b. Twisting, racking, and other distortion of prefabricated structures and equipment assemblies.
 - c. Tearing, puncturing, and breaking of wrappings, coverings, and seals on packages and cartons.
 - d. Surface contamination of stainless steel products.

01610-3

**SECTION 01610
MATERIAL AND EQUIPMENT
DELIVERY, STORAGE, AND HANDLING**

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

01610-4

At CHPRC, Safety is no accident
Aging Structures Stabilization

January, 2020

SECTION 01630
PRODUCT OPTIONS AND SUBSTITUTIONS

PART 1 – GENERAL

1.1 SUBMITTALS

1.1.1 See Section 01300 for submittal process.

1.1.2 Approval Required

1.1.2.1 Before starting Work or material delivery to the worksite, submit a completed Substitution Approval Request to CHPRC for each requested substitution.

1.1.3 Approval Not Required: None

1.2 CONDITIONS

1.2.1 Products include those identified in this SOW, in the Specifications or other contract documents, and on the Drawings. References in the Specifications to products, or to patented or proprietary processes, by trade name, make, or catalog number, shall be regarded as establishing a standard of quality, and shall not be construed as limiting competition. The following conditions and limitations apply:

1.2.1.1 Substitution requires approval of a CHPRC Change Form (A-6004-820) if any of the following apply.

- Proposed substitute is more hazardous than the specified product.
- Product callout includes the phrase “or approved substitute.”

1.2.1.2 Substitution shall be applied to the total quantity of the product required in the SOW. Partial quantity substitutions are not acceptable.

1.2.1.3 Approval of fabrication drawings and other design media does not constitute approval of substitute products identified within the media.

1.2.1.4 Submittals required for a specified item are also required for an approved substitute.

1.3 CHANGE FORM PREPARATION

1.3.1 Using the CHPRC Change Form, identify addressed product by the SOW or Specification section and article or paragraph numbers or by the Drawing number. Provide manufacturer’s name and address, trade name, and model or catalog number. List fabricators as appropriate.

SECTION 01630
PRODUCT OPTIONS AND SUBSTITUTIONS

- 1.3.2 Attach descriptive information to define the operational and physical characteristics of the specified substitute product and to provide a basis for comparison. Include drawings, calculations, and data as appropriate.
- 1.3.3 Provide an itemized comparison between the proposed substitute and the original specified product. Include the following information:
 - 1.3.3.1 Applicable SOW or Specification section and article or paragraph numbers or applicable Drawing number.
 - 1.3.3.2 Quality and performance comparison. List variations.
 - 1.3.3.3 Cost data. Show the net Contract price change.
- 1.3.4 List the availability of maintenance service and replacement materials.
- 1.3.5 State the effect of the substitution on the schedule and identify the changes required in other work or products. Submit drawings, calculations, and vendor data to show the revisions necessary to accommodate the substitution.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

01630-2

SECTION 01670
CONSTRUCTION ACCEPTANCE TESTING

PART 1 – GENERAL

Not Used

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

01670-1

SECTION 01720
PROJECT RECORD DOCUMENTS

PART 1 – GENERAL

1.1 SUMMARY

1.1.1 Hanford Site work requires that certain documents, defined herein, be used to record construction process and administration of the Contract. CHPRC will assemble pertinent data for final disposition.

1.1.2 Some data required for project records shall be delivered to CHPRC during the course of construction and contract administration, while other data shall be assembled after completion of construction for delivery to CHPRC.

1.1.3 Certain information for project records shall be recorded on CHPRC provided forms. These forms are identified in Specifications sections where required. Copies will be supplied during the Preconstruction Conference (see Section 01200).

1.1.4 Project Record Documents, required by Contract, shall be prepared, preserved and delivered to CHPRC. These deliverable documents are in addition to submittals required by Section 01300.

1.2 PROCEDURE

1.2.1 Identification and Marking: Mark documents that will become project records before use for construction. Upon completion, identify documents by title or number.

1.2.1.1 Notes or markings added by hand shall be legible, utilizing permanent non-smearing marking media, such as ink or felt tip markers, in contrasting color.

1.2.1.2 Mark items to record actual construction, including changes to dimensions and details, manufacturer's name, catalog number and substitute products.

1.2.2 Availability: Keep copies of Project Record Documents at the Project site, and make available to CHPRC during the progress of the Work.

1.2.3 Storage: Store one (1) set at the Project site, apart from documents used in construction and maintain in a clean dry and legible condition.

1.2.4 Delivery: Record delivery of documents by retaining copies of letters of transmittal itemizing delivered items and reports delivered during the course of the Work. Retain until construction completion. An alternate means, acceptable to CHPRC, may be used.

1.3 ACTIVITY AND ADMINISTRATIVE DOCUMENTS

1.3.1 Deliver or retain in accordance with the following:

01720-1

SECTION 01720
PROJECT RECORD DOCUMENTS

- 1.3.1.1 Certified Payrolls: Deliver certified payrolls as required by the Contract Provisions to CHPRC. Progress payments will not be processed unless certified payrolls for work periods have been received by CHPRC.
- 1.3.1.2 Construction Daily Field Report (A-6004-822): Before noon each day, deliver to CHPRC one copy of an activity report, covering labor and supervision of Contractor and subcontractors for the previous day. The report shall include a general description of the Work performed, and a list of major items of equipment that are onsite. On a monthly basis all DFR's shall be bundled and submitted to Construction Document Control for archiving.
- 1.3.1.3 Weekly Manpower Reports: Prepare weekly manpower reports and deliver to CHPRC before 10 AM on Monday, for the previous week, during the performance of the Contract.
- 1.3.1.4 Pre-Job Briefing Checklist: Prepare checklist during each pre-job briefing and post-job review. Deliver checklists to CHPRC within five (5) days after briefing.
- 1.3.1.5 Trip Tickets: Deliver copies to CHPRC with each truck load of engineered grout and retain Contractor copies until Contract closeout. After closeout, deliver to CHPRC.
- 1.4 CONSTRUCTION, QUALITY ASSURANCE AND SUPPORTING DOCUMENTS
 - 1.4.1 Deliver in accordance with Technical Documents.
- 1.5 PRODUCT SAMPLES AND MANUFACTURER'S INSTRUCTIONS
 - 1.5.1 In addition to the submittals required in Section 01300, and the requirements of this Section, information received by Contractor (from suppliers) that document products used and how they were installed shall be delivered to CHPRC as Project Records.

PART 2 – PRODUCTS

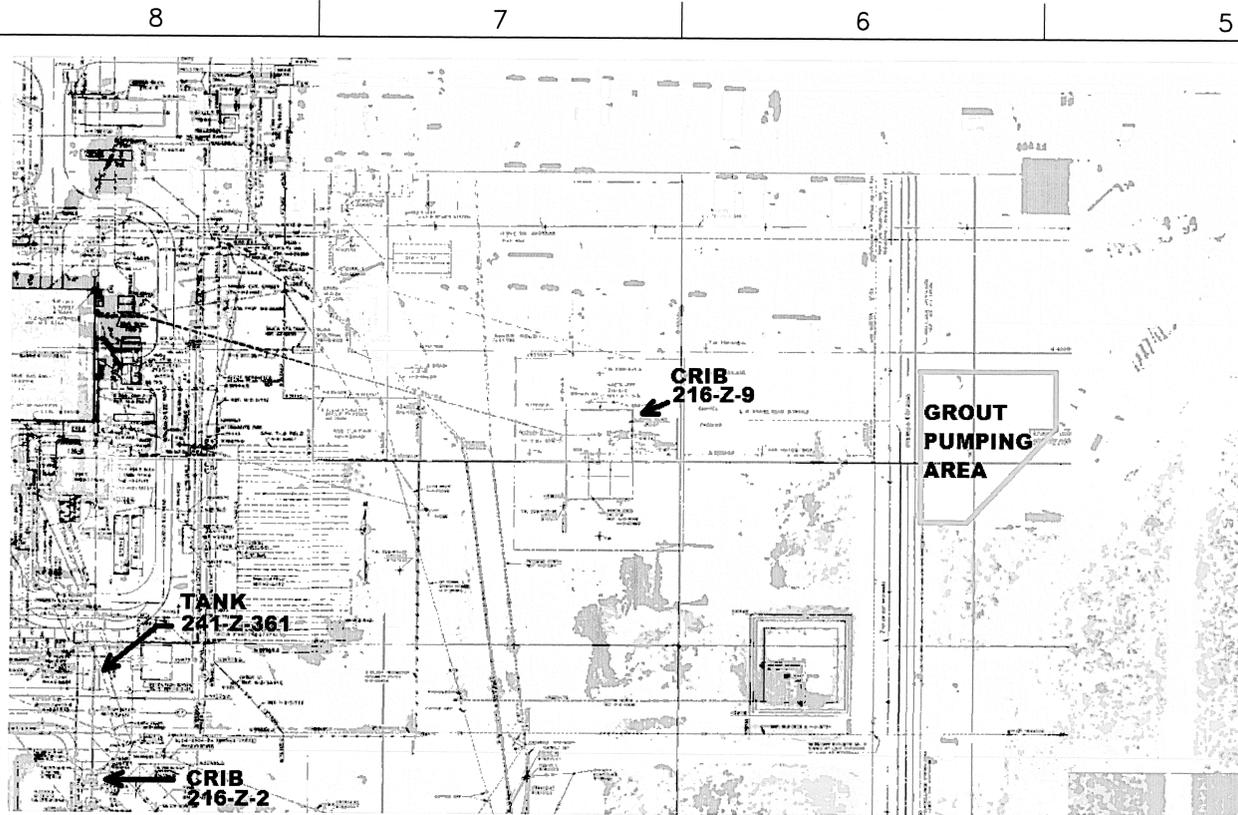
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PART 3 – EXECUTION

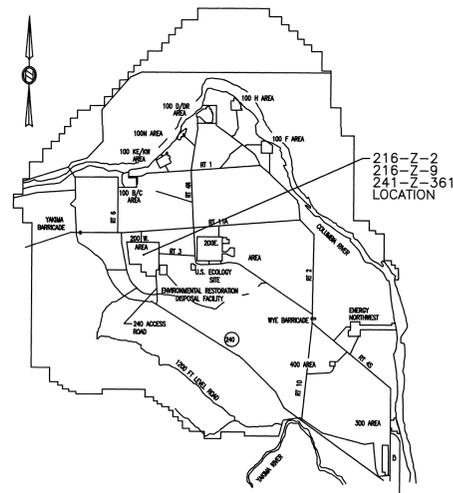
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END OF SECTION

01720-2



TANK, CRIB LOCATIONS



KEY PLAN
SCALE: NONE

DRAWING TITLE

- H-2-838868 Z-COMPLEX STABILIZATION PROJECT SITE PLAN
- H-2-838869 Z-COMPLEX STABILIZATION PROJECT VENTILATION SYSTEM
- H-2-838870 Z-COMPLEX STABILIZATION PROJECT TANK 361
- H-2-838871 Z-COMPLEX STABILIZATION PROJECT CRIB Z-2
- H-2-838872 Z-COMPLEX STABILIZATION PROJECT CRIB Z-9

NOTES:

1. FOR ABBREVIATIONS NOT LISTED, SEE ASME Y14.38 "ABBREVIATION AND ACRONYMS" PUBLICATION AS DISTRIBUTED BY THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME).

SPECIFICATIONS:

EARTHWORK

1. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE SLOPE OF ALL EXCAVATIONS WHEN REQUIRED (1.5:1 MINIMUM HORIZONTAL-TO-VERTICAL UNLESS APPROVED BY THE STRUCTURAL ENGINEER) BASED ON THE TYPE AND CONDITION OF SOIL ENCOUNTERED AND FOR CONFORMING TO ALL LOCAL, STATE, AND FEDERAL REQUIREMENTS, INCLUDING DOE-0344, HANFORD SITE EXCAVATING, TRENCHING AND SHORING PROCEDURE.
2. AT-REST LATERAL EARTH PRESSURE COEFFICIENTS:
 - $K_0 = 0.50$ HORIZONTAL GROUND SURFACE
 - $K_{0i} = K_0 * [1 + \sin(\theta)]$ SLOPING GROUND SURFACE (θ = SLOPE OF GROUND SURFACE IN DEGREES)
3. GROUNDWATER TABLE IS MORE THAN 300 FT BELOW PROJECT SITE.
4. MATERIALS:
 - BASE COURSE SHALL CONFORM TO WSDOT M41-10 SECTION 9-03.9(3).
 - TOP COURSE SHALL CONFORM TO WSDOT M41-10 SECTION 9-03.9(3) OR MAINTENANCE ROCK CONFORMING TO WSDOT M41-10 SECTION 9-03.9(4).
5. CLEAR AND GRUB ALL IMPROVEMENT AREAS SHOWN ON SITE PLAN. PLACE STRIPPINGS IN GOVERNMENT FURNISHED CONTAINERS FOR REMOVAL BY OTHERS.
6. UNIFORMLY MOISTEN OR AERATE SUBGRADE AND EACH SUBSEQUENT LAYER OF BASE COURSE AND TOP COURSE BEFORE COMPACTION TO WITHIN TWO (2) PERCENT OF OPTIMUM MOISTURE CONTENT. REMOVE AND REPLACE, OR SCARIFY AND AIR DRY, OTHERWISE SATISFACTORY SOIL MATERIAL THAT EXCEEDS OPTIMUM MOISTURE CONTENT BY MORE THAN TWO (2) PERCENT.
7. VIBRATORY EQUIPMENT SHALL NOT BE USED TO PROVIDE COMPACTION. ALL COMPACTION SHALL BE PERFORMED WITH PNEUMATIC AND SMOOTH DRUM ROLLERS (WITHOUT VIBRATION). COMPACT WITH 15-20 TON, SELF-PROPELLED, PNEUMATIC ROLLER A MINIMUM OF FOUR OVERLAPPING PASSES. ALTERNATELY, COMPACTION MAY BE PERFORMED WITH A 25-35 TON, SELF-PROPELLED, SMOOTH DRUM ROLLER WITH VIBRATORY CAPABILITY REMOVED. MAXIMUM RATE OF ROLLER TRAVEL SHALL NOT EXCEED 8 MPH. AFTER FINAL COMPACTION OF TOP COURSE, THE ENTIRE SURFACE SHALL BE ROLLED WITH A SMOOTH-WHEELED ROLLER. ROLLING SHALL CONTINUE UNTIL THE ENTIRE ROADWAY SURFACE PRESENTS A FIRM, DAMP, AND UNYIELDING SURFACE.
8. SCARIFY, MOISTURE CONDITION, AND COMPACT EXISTING SUBGRADE PRIOR TO PLACING BASE COURSE OR TOP COURSE.
9. PLACE BASE COURSE ON SUBGRADES FREE OF MUD, FROST, SNOW, OR ICE. ON PREPARED SUBGRADE, PLACE BASE COURSE LAYERS IN (LOOSE) THICKNESS NOT TO EXCEED SIX (6) INCHES. AREA OF PREPARED BASE COURSE SHALL BE SUFFICIENT TO PROVIDE FINAL ROAD WIDTHS SHOWN ON THE SITE PLAN. COMPACTED BASE COURSE SHALL BE A MINIMUM 4-INCH IN THICKNESS.
10. PLACE TOP COURSE ON PROOF ROLLED BASE COURSE OR SUBGRADE FREE OF MUD, FROST, SNOW, OR ICE. COMPACT AND ROLL TOP COURSE AS A FINISHED DRIVABLE SURFACE PROVIDING ROAD WIDTHS AS SHOWN ON SITE PLAN. COMPACTED TOP COURSE SHALL BE A MINIMUM 4-INCH IN THICKNESS. PLACE TOP COURSE LAYERS IN (LOOSE) THICKNESS NOT TO EXCEED SIX (6) INCHES.
11. FIELD QUALITY CONTROL:
 - ALLOW INSPECTION AGENCY TO OBSERVE SUBGRADE PREPARATION AND PLACEMENT OF EACH LAYER. PROCEED WITH SUBSEQUENT EARTH MOVING ONLY AFTER PREVIOUSLY COMPLETED WORK COMPLIES WITH REQUIREMENTS.
 - PROOF-ROLL HAUL ROAD SUBGRADE WITH A FULLY LOADED (20 TON MINIMUM) TANDEM AXLE DUMP TRUCK TO IDENTIFY SOFT POCKETS AND AREAS OF EXCESS YIELDING. DO NOT PROOF-ROLL WHEN SUBGRADE IS WET OR SATURATED. SOFT POCKETS SHALL BE REMOVED AND REPLACED WITH COMPACTED BASE COURSE MATERIAL. REMOVALS DEEPER THAN 12-INCHES SHALL BE APPROVED BY BTR PRIOR TO EXCAVATION. RECONSTRUCT SUBGRADES DAMAGED BY FREEZING TEMPERATURES, FROST, RAIN, ACCUMULATED WATER, OR CONSTRUCTION ACTIVITIES, DURING HAUL ROAD CONSTRUCTION, AS DIRECTED BY BTR.
 - WHEN INSPECTION AGENCY REPORTS THAT SUBGRADES, FILLS, OR BACKFILLS HAVE NOT MET PROOF ROLLING REQUIREMENTS OR ARE NOT RESULTING IN A FIRM AND UNYIELDING SURFACE, SCARIFY AND MOISTEN OR AERATE, OR REMOVE AND REPLACE SOIL MATERIALS TO DEPTH REQUIRED; RE-COMPACT UNTIL A FIRM AND UNYIELDING SURFACE IS OBTAINED.
 - INSPECTION AGENCY SHALL DOCUMENT SOIL CONDITION, ESTIMATED QUANTITY PLACED, LOOSE LIFT THICKNESS, AND FINAL COMPACTION LIFT THICKNESS. INSPECTION AGENCY SHALL ALSO DOCUMENT COMPACTION EQUIPMENT, NUMBER OF PASSES OF EQUIPMENT PER LIFT, AND AVERAGE SPEED OF EQUIPMENT.

- SET RETARDER MASTERSSET DELVO AS MFRD BY BASF
- CLEAN AND POTABLE WATER CONTAINING LESS THAN 500 PPM CHLORIDES OR NON-POTABLE WATER SUPPLIED FROM LOCAL FIRE HYDRANT
- 3. UNLESS OTHERWISE APPROVED, GROUT PROPERTIES SHALL INCLUDE THE FOLLOWING:
 - SELF CONSOLIDATING, CAPABLE OF HORIZONTAL PLACEMENTS UP TO 200 FEET
 - WATER/CEMENT RATIO (W/C) 0.60 FOR GROUT MIX DESIGN
 - SPREAD 28 INCH MIN DIAMETER UNLESS OTHERWISE APPROVED BY THE STRUCTURAL ENGINEER, ASTM C1611
 - MINIMUM COMPRESSIVE STRENGTH 2000 PSI AT 28-DAYS
 - CAPABLE OF ENTERING AND FILLING OPENINGS AND VOIDS WITH 1/2 INCH
 - CAPABLE OF PLACEMENT FOR UP TO 3 HOURS MIN AFTER ADDING CEMENT TO WATER, DEMONSTRATED THROUGH DOCUMENTED TRIAL BATCH TESTING
 - 4. GROUT MIX DESIGN SHALL BE DEVELOPED IN COLLABORATION WITH THE STRUCTURAL ENGINEER AND DEMONSTRATED TO MEET DESIGN AND CONSTRUCTION PROJECT REQUIREMENTS THROUGH A MINIMUM OF (2) TWO DOCUMENTED TRIAL BATCH TESTING THAT ARE WITNESSED, REVIEWED, AND APPROVED BY THE STRUCTURAL ENGINEER.
 - 5. TRIAL BATCH TESTING SHALL BE PERFORMED AS DIRECTED BY THE STRUCTURAL ENGINEER AND SHALL INCLUDE THE FOLLOWING:
 - MINIMUM FLOW 80 LINEAR FEET HORIZONTALLY WITHOUT SEGREGATION
 - TEMPERATURE ASTM C1064
 - TIME OF SET FINAL SET TIME
 - DENSITY ASTM C642
 - COMPRESSIVE STRENGTH ASTM C39 USING 4" DIA x 8" TEST CYLINDERS. MIN 1 PAIR CYLINDERS TESTED AT 1, 2, 3, 7 AND 28 DAYS AFTER SAMPLING
 - 6. GROUT FIELD QUALITY CONTROL SHALL INCLUDE THE FOLLOWING:
 - PROVIDE ADEQUATE FACILITIES FOR SAFE STORAGE AND PROPER CURING OF GROUT TEST CYLINDERS ON SITE FOR FIRST 24 HOURS INCLUDING ADDITIONAL TIME AS REQUIRED BEFORE TRANSPORTING TO TEST LAB FOR CYLINDERS TO BE TESTED AT 3, 7, AND 28 DAYS.
 - A. IN THE EVENT, THE 3-DAY OR 7-DAY "BREAK" IS TO BE PERFORMED ON A "NON-WORKDAY", IT MAY OCCUR THE FOLLOWING WORK DAY.
 - B. IN THE EVENT GROUT IS PLACED ON A FRIDAY OR SATURDAY (OR EXTENDED WEEKEND), INITIAL CURE TIME MAY BE EXTENDED TO A MAXIMUM 72 HOURS.
 - PROVIDE GROUT FOR TESTING INCLUDING SLUMP FLOW, TEMPERATURE, UNIT WEIGHT AND MAKING OF GROUT TEST CYLINDERS AFTER FIELD ADDITION OF SUPERPLASTICIZERS AND WORKABILITY-RETAINING ADMIXTURES.
 - MINIMUM OF ONE SET OF GROUT SAMPLES (2 CYLINDERS) SHALL BE CAST AND TESTED FOR EVERY 170 CUBIC YARDS PLACED PER DAY, WITH SAMPLES TAKEN FROM RANDOMLY SELECTED TRUCKS. FREQUENCY OF TESTING MAY BE INCREASED AT DISCRETION OF STRUCTURAL ENGINEER. VISUAL INSPECTION OF EACH TRUCK SHALL BE PERFORMED BY THE STRUCTURAL ENGINEER (OR DESIGNATED REPRESENTATIVE) TO VISUALLY CONFIRM GROUT FLOWABILITY CHARACTERISTICS ARE CONSISTENT WITH GROUT TRIAL BATCH TEST RESULTS.
 - TESTING SHALL BE PERFORMED IN ACCORDANCE WITH: ASTM C1611 SLUMP FLOW ASTM C1064 TEMPERATURE ASTM C138 UNIT WEIGHT, YIELD ASTM C39 COMPRESSIVE STRENGTH

ABBREVIATIONS:

ACI	AMERICAN CONCRETE INSTITUTE	LLH	LONG LEG HORIZONTAL
ADDTL	ADDITIONAL	LLV	LONG LEG VERTICAL LONG
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION		LONGITUDINAL
ALUM, AL	ALUMINUM	MATL	MATERIAL
APPROX	APPROXIMATE	MAX	MAXIMUM
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS	MECH	MECHANICAL
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	MIN	MINIMUM
AWS	AMERICAN WELDING SOCIETY	MFR	MANUFACTURER
B.O.A.	BOTTOM OF	MFRD	MANUFACTURED
BLDG	BUILDING	N	NORTH
BM	BEAM	NIC	NOT-IN-CONTRACT
BOT	BOTTOM	NO.	NUMBER
BRG	BEARING	NTS	NOT-TO-SCALE
BTWN	BETWEEN	N/S	NORTH/SOUTH DIRECTION
BTR	BUYER'S TECHNICAL REPRESENTATIVE	O TO O	OUT-TO-OUT
C	CHANNEL	OC, O.C.	ON-CENTER
CJP	COMPLETE JOINT PENETRATION	OD, O.D.	OUTSIDE DIAMETER
CL	CENTERLINE	OPNG	OPENINGS
CLR	CLEAR, CLEARANCE	OPNGS	OPENINGS
CONC	CONCRETE	OPP	OPPOSITE
CONFCG	CONFIGURATION	PCF	POUNDS PER CUBIC FOOT
CONN	CONNECTION	PERIM	PERIMETER
CONT	CONTINUOUS	PJF	PREFORMED JOINT FILLER
COORD	COORDINATE	PL	PLACE
CTR	CENTER	PLCS	PLACES
CTRD	CENTERED	PSF	POUNDS PER SQUARE FOOT
DBL	DOUBLE	PSI	POUNDS PER SQUARE INCH
DIA	DIAMETER	R	RADIUS
DIAG	DIAGONAL	REINF	REINFORCING
DIM	DIMENSION	REQD	REQUIRED
DIR	DIRECTION	RECT	RECTANGULAR
DWG	DRAWING	SCHED	SCHEDULE
(E)	EXISTING	SH, SHT	SHEET
EA	EACH	SIM	SIMILAR
EF	EACH FACE	SP	SPACE, SPACES
EL	ELEVATION	SPEC	SPECIFICATION
ELEC	ELECTRICAL	SO	SQUARE
EMBED	EMBEDMENT	SST	STAINLESS STEEL
ENGR	ENGINEER	STD	STANDARD
EQ	EQUAL	STRUCT	STRUCTURAL
EQ SP	EQUAL SPACING	SYMM	SYMMETRICAL
EQUIP	EQUIPMENT	T&B	TOP AND BOTTOM
EXST	EXISTING	THK	THICK
EXTER	EXTERIOR	T.O.	TOP OF
EW	EACH WAY	TOC	TOP OF CONCRETE
E/W	EAST/WEST DIRECTION	TOS	TOP OF STEEL
FDN	FOUNDATION	TOW	TOP OF WALL
FG, F.C.	FINISH GRADE	TS	HOLLOW STRUCTURAL SECTION (RECTANGULAR OR CIRCULAR)
FT	FOOT, FEET	TRANSV	TRANSVERSE
FTG	FOOTING	TYP	TYPICAL
FV	FIELD VERIFY	UNIF	UNIFORM, UNIFORMLY
GA	GAUGE	UNO, UNO	UNLESS OTHERWISE NOTED
GALV	GALVANIZE	VERT	VERTICAL
HORIZ	HORIZONTAL	WT	WEIGHT
HSS	HOLLOW STRUCTURAL SECTION (RECTANGULAR OR CIRCULAR)	W/	WITH
IBC	INTERNATIONAL BUILDING CODE		
ID, I.D.	INSIDE DIAMETER		
IN	INCH, INCHES		
INTER	INTERIOR		
L	ANGLE		
LBS	POUND(S)		
LG	LONG		

ENGINEERED GROUT

1. ENGINEERED GROUT FILLING OF THE CRIBS AND TANK IS FOR THE PURPOSE OF STABILIZATION
2. UNLESS OTHERWISE APPROVED, GROUT MIX FORMULATION SHALL INCLUDE USE OF THE FOLLOWING MATERIALS:
 - CEMENT TYPE I-II, ASTM C150 OR TYPE II, ASTM C595
 - FLY ASH CLASS F, ASTM C618
 - FINE AGGREGATE NATURAL SANDS ONLY, ASTM C33 (MFRD SAND IS NOT ALLOWED)
 - WATER-REDUCING ADMIXTURE TYPE A OR D, ASTM C494, CONTAINING NO CHLORIDES

ORIGINAL

Approved for Construction
ISSUED BY
DOCUMENT CONTROL
Date: 1/16/2018

REG. NO.
21822
21629
2412361

CAUTION
NOT COMPLETE WITHOUT CURRENT CHANGE DOCUMENTS FROM DATABASE

ATTENTION
DESTROY THIS DOCUMENT BY SHREDDING MAY CONTAIN SENSITIVE INFORMATION

NAME	DATE	STATUS
K. LEIST	1/15/20	CHPNC
...

U.S. DEPARTMENT OF ENERGY
Richland Operations Office
Z-COMPLEX STABILIZATION PROJECT SITE PLAN

INDEX NO. 0000 0100 0209	DESCRIPTION RELEASED PER DCN-ZPLANTCRIB-002	DATE 1/15/20	SCALE NONE
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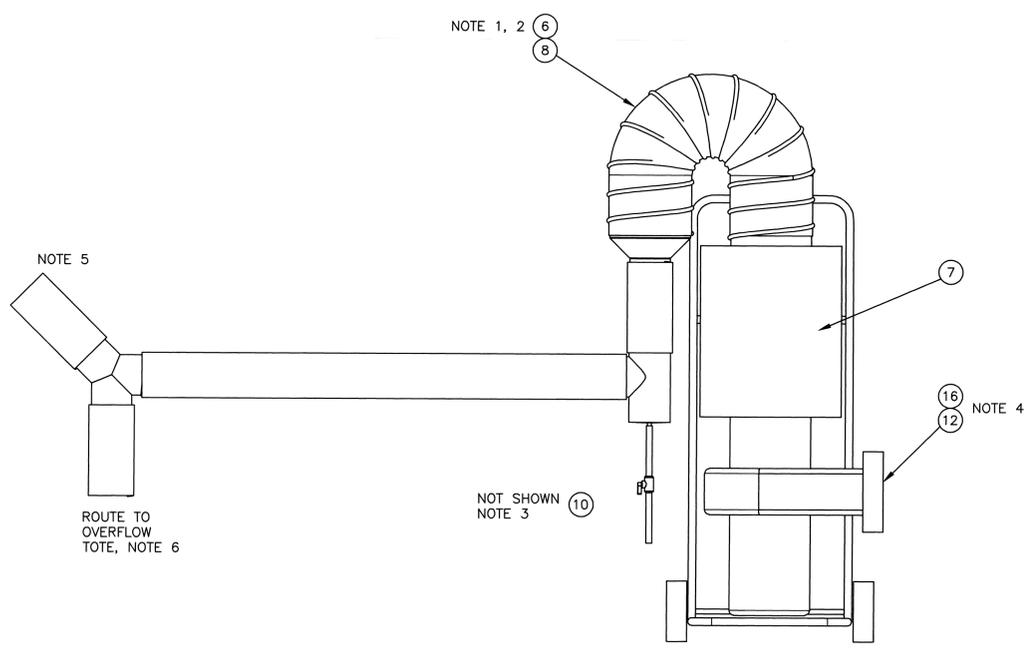
PARTS LIST/MATERIAL LIST

QTY	PARTS/DASH NUMBER	NOMENCLATURE/DESCRIPTION	MATERIAL/REFERENCE	SHEET	ITEM NO
	-010	GROUTING VENTILATION SYSTEM ASSEMBLY		X	1
	-020	VENTILATION DUCT ASSEMBLY		X	2
					3
					4
					5
					6
1	FM37VFD	VENTILATION UNIT, HEPA FILTERED, 500 CFM @ 2"WG, MAX STATIC PRESSURE NOT TO EXCEED 7"WG, VARIABLE SPEED FAN	RPS OR EQUAL		7
1	(4796K73)	VALVE, BALL, PVC BODY, 3/8" BARBED CONNECTIONS	MCMMASTER OR EQUAL		8
1	(CR64)	REDUCER, DUCT, 8" X 4", 18 GAUGE, STAINLESS STEEL	RADIATION PROTECTION SYSTEMS OR EQUAL		9
1	(3795T25)	CARBOY, CONDENSATION COLLECTION, 1 GALLON MINIMUM VOLUME	MCMMASTER OR EQUAL		10
AR	(5215K12)	CLAMP, DUCT HOSE, FOR 4" HOSE, WORM DRIVE	MCMMASTER OR EQUAL		11
AR	AR (45955K74)	CLAMP, DUCT HOSE,, 8", SPIRAL HOSE TYPE, WORM DRIVE	MCMMASTER OR EQUAL		12
1	(2SVEVWC04)	FITTING, 4" DUCT, VERTICAL CONDENSATE DRAIN, 3/8" TUBE DRAIN, STAINLESS STEEL	Z-FLEX OR EQUAL		13
AR	(AS79)	DUCT, 4" Y 18 GAUGE, SST	RPS OR EQUAL		14
AR	(5348K33)	DUCT, FLEX, 4", SMOOTH INNER SURFACE, 15 INWG MIN VACUUM CAPACITY	MCMMASTER OR EQUAL		15
AR	AR (5348K37)	DUCT, FLEX, 8", SMOOTH INNER SURFACE, 15 INWG MIN VACUUM CAPACITY	MCMMASTER OR EQUAL		16
1	(6516T28)	TUBING, 3/8" ID, 1/8 WALL THICKNESS, PVC, 15 INWG MIN VACUUM CAPACITY	MCMMASTER OR EQUAL		17

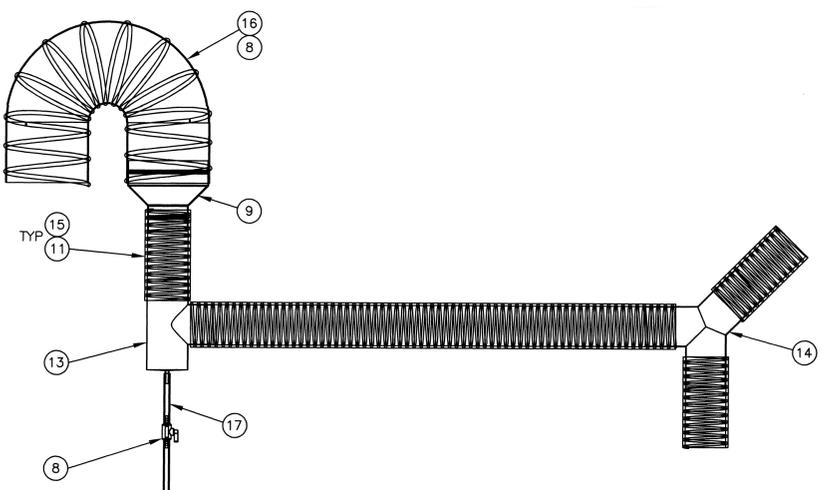
NOTES:

- SUPPORT 8" DUCT SECTION TO ALLOW CONDENSATE DRAIN TO GRAVITY DRAIN INTO ITEM 3.
- SUPPORT AND ROUTE 4" SECTION TO PROMOTE DRAINAGE BACK TO CRIB OR TANK.
- CUT HOLE INTO CONTAINER LID TO ALLOW ITEM 2 CONDENSATE HOSE TO REACH BOTTOM OF CONTAINER.
- EXHAUST HOSE IS OPTIONAL, BASED ON RADCON/IH DETERMINATION.
- ATTACH END TO VENT ASSEMBLY APPLICABLE TO TANK/CRIB BEING FILLED.
- ONLY USED FOR OVERFLOW TOTE APPLICATION.

1 GROUTING VENTILATION SYSTEM ASSEMBLY
SCALE: NONE



2 VENTILATION DUCT ASSEMBLY
SCALE: NONE



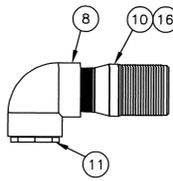
ORIGINAL

Approved for Construction
ISSUED BY
DOCUMENT CONTROL
Date: 1/16/20

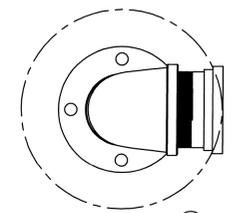
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DESIGNED BY S. BARNES	DATE 1-15-20	CH2M HILL
ENGINEERING CHECKER K LEIST	DATE 1/16/20	CH2M HILL
DESIGN AUTHORITY K LEIST	DATE 1/16/20	CH2M HILL
INDEX NO. 9901	SIZE F	DRAWING NUMBER H-2-838869
0 RELEASED PER DCN-ZPLANT/CRIB-002	SCALE NONE	SHEET 1
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DWG NUMBER	TITLE	REF NUMBER	TITLE
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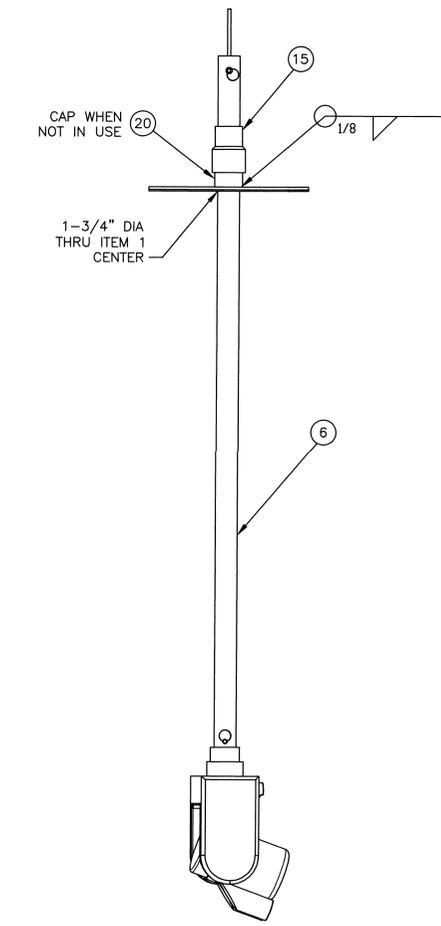
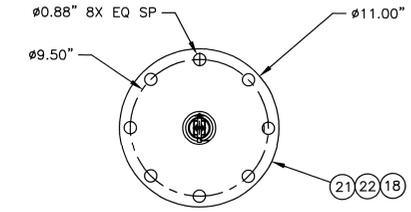
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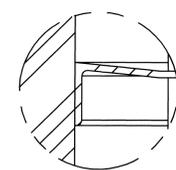
3 VENT ADAPTER 216-Z-361
SCALE: 1:4



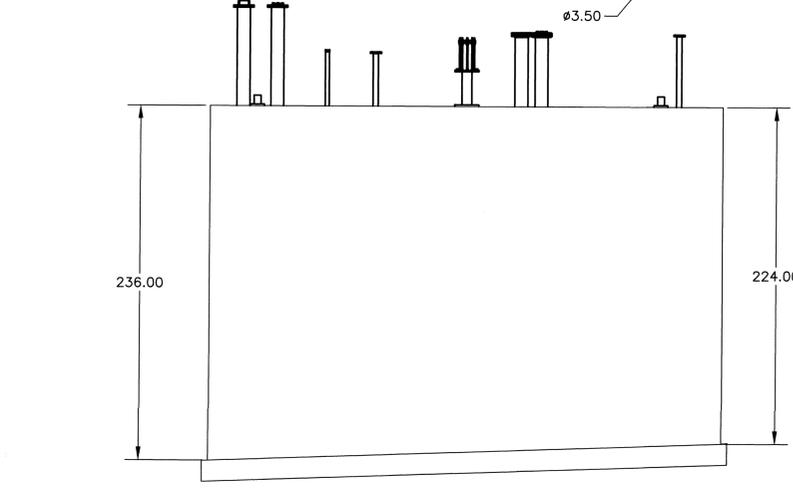
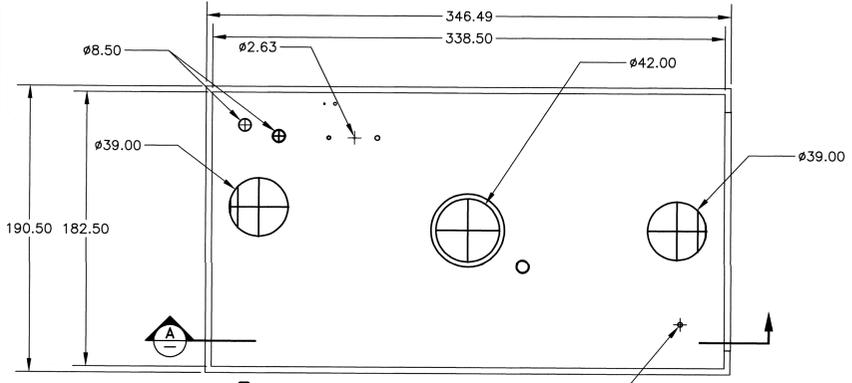
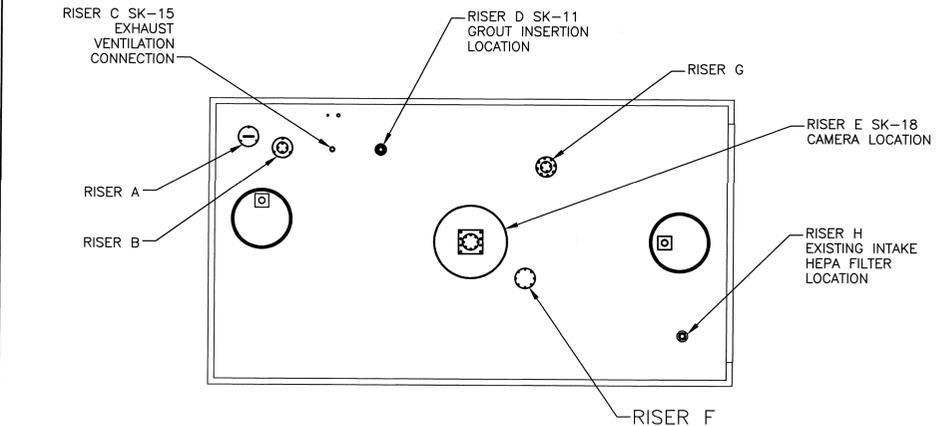
4 GROUT ADAPTER 216-Z-361
SCALE: 1:4



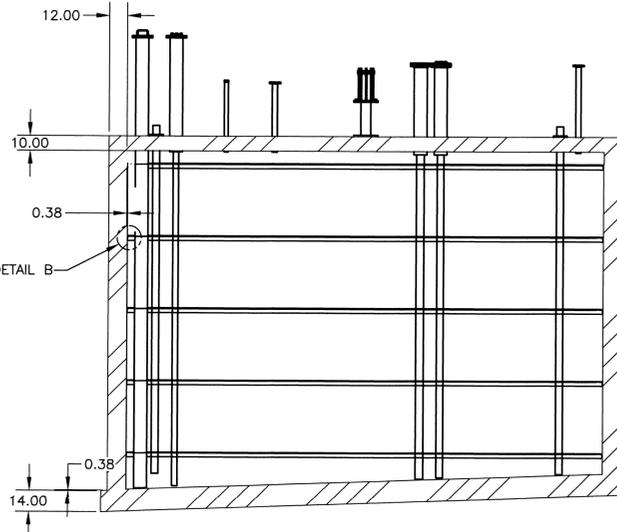
2 CAMERA ASSEMBLY 216-Z-361
SCALE: 1:5



DETAIL B
SCALE: NONE



1 GROUTING EQUIPMENT ARRANGEMENT
SCALE: NONE



SECTION A
SCALE: NONE

QTY		PARTS/DASH NUMBER	NOMENCLATURE/DESCRIPTION	MATERIAL/REFERENCE	SHEET	ITEM NO.
-040	-030					
		-010	GROUTING EQUIPMENT ARRANGEMENT		X	1
		1 -020	CAMERA ASSEMBLY 216-Z-361		X	2
		1 -030	VENT ADAPTER 216-Z-361		X	3
		1 -040	GROUT ADAPTER 216-Z-361		X	4
						5
		1 H-2-837316-040	CAMERA ASSEMBLY, MODIFIED BY NOTE 1 AND 2			6
						7
		1 (4596K628)	ELBOW, 3" FPT X 3" SOCKET, ASTM D1784 PVC	MCMMASTER OR EQUAL		8
		1 (44605K13)	ELBOW, 4" FPT, SCHED 40, CARBON STEEL, ASME B16.3	MCMMASTER OR EQUAL		9
		1 (53555K57)	ADAPTER, 3" MPT X 4" EASYFIT BARBED HOSE, CARBON STEEL	MCMMASTER OR EQUAL		10
		1 (4596K837)	ADAPTOR, 3" MALE SOCKET X 2" FPT, ASTM D1784 PVC	MCMMASTER OR EQUAL		11
		1 (5363K49)	ADAPTER, 4" MPT X 4" EASY-FIT BARBED HOSE, CARBON STEEL	MCMMASTER OR EQUAL		12
		1 (AD40DMT)	ADAPTER, 4" MPT X 4" HEVI DUTY	CONFORMS OR EQUAL		13
		1 (68095K127)	FLANGE, 3" FPT, ASME B16.5, STEEL	MCMMASTER OR EQUAL		14
		1 (4511K74)	BOOT, REDUCING, 2" X 1-1/2", WITH WORM DRIVE CLAMPS, PVC PLASTIC	MCMMASTER OR EQUAL		15
AR		(5215K12)	CLAMP, DUCT HOSE, FOR 4" HOSE, WORM DRIVE	MCMMASTER OR EQUAL		16
		1 (9166K84)	GASKET, FULL FACE, FOR 3" ANSI CLASS 150 FLANGE, WITH FASTENERS	MCMMASTER OR EQUAL		17
		1 (94368A115)	KIT, PIPE FLANGE SCREW AND NUT, FOR 6" PIPE, 3/4"-10 THREADED FASTENERS	MCMMASTER OR EQUAL		18
						19
		1	HALF NIPPLE, 1-1/2", SCHED 40, CARBON STEEL, 2" LG	ASTM A53		20
	AR		PLATE, 3/16"	ASTM A36		21
	AR		SHEET, 1/8" NEOPRENE, 50A DUROMETER	ASTM D2000		22

GENERAL NOTES:

- ITEM 1 DOES NOT INCLUDE (H-2-837316) ITEMS 11 AND 30.
- (H-2-837316) ITEM 4 LENGTH IS REDUCED TO 48".
- TEMPLATE HOLES FROM ITEM 1.

GROUTING NOTES/INSTRUCTIONS:

UNLESS OTHERWISE SPECIFIED

- TANK 241-Z-361
- THE TANK IS APPROXIMATELY 2 FT BELOW GRADE.
 - RISER DETAILS ARE AS FOLLOWS: - A IS 8" FLANGED AND IS THE ORIGINAL TANK GAMMA WELL - B, F, AND G ARE 8" FLANGED RISERS AND ACCESS 4" SAMPLE WELLS - C IS A 2" THREADED RISER - D IS A 3" FLANGED RISER - E IS A REINFORCED 6" FLANGED RISER. - F IS A 3" RISER WITH A FILTERED VENT.
 - THE HEPA FILTER VENT AT RISER H WILL SUFFICE AS AN INTAKE FILTER.
 - THE HEPA VENTILATION UNIT WILL CONNECT TO RISER C.
 - A PTZ-140 CAMERA CAN BE INSTALLED INTO RISER E.
 - ADDITIONAL LIGHTING IS NOT REQUIRED, GIVEN THE PTZ-140 CAMERA CAPABILITIES.
 - GROUTING WILL END WHEN THE TANK IS CONSIDERED FULL FROM THE CAMERA DISPLAY.
 - AT COMPLETION, THE ADAPTERS ARE REMOVED AND THE ORIGINAL BLIND FLANGES REINSTALLED.

ORIGINAL

Approved for Construction
ISSUED BY
DOCUMENT CONTROL
Date: 4/16/2008

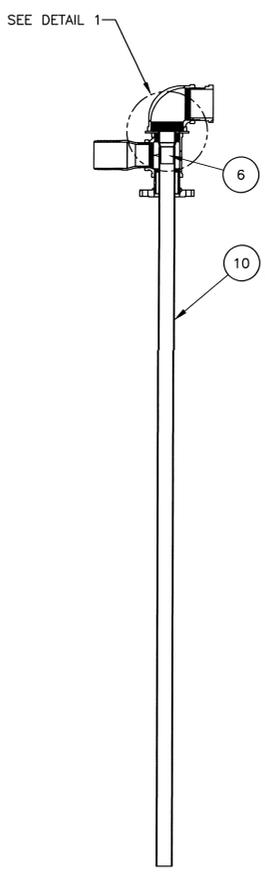
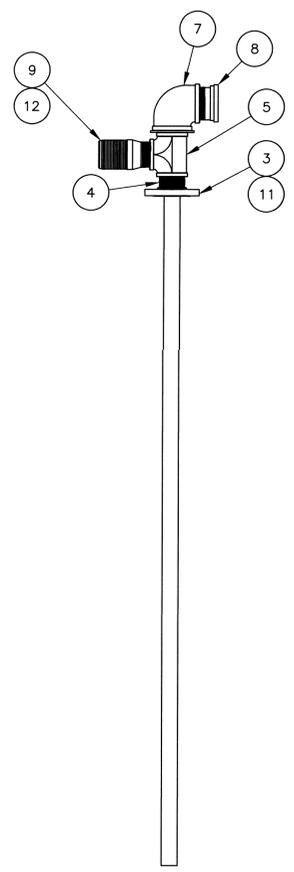
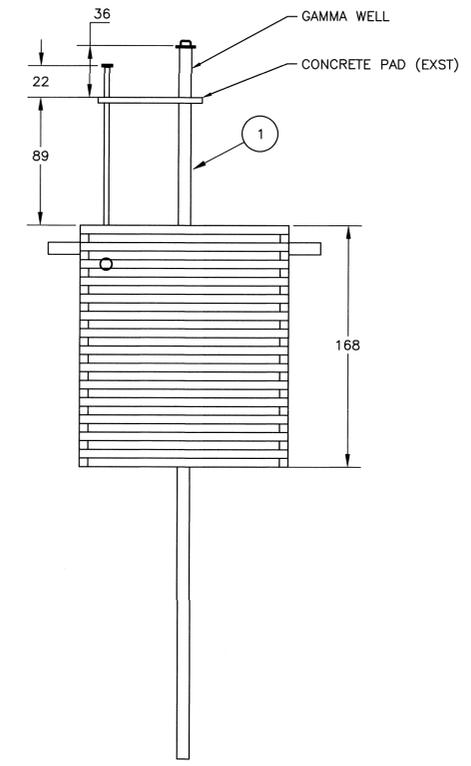
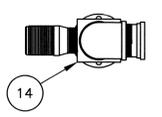
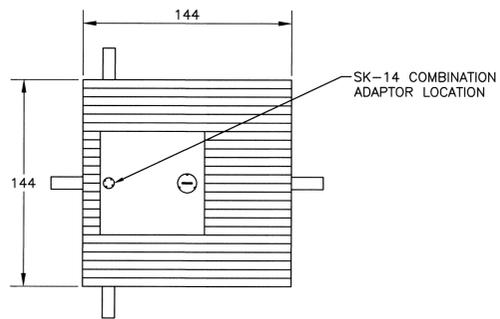
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	U.S. DEPARTMENT OF ENERGY Richland Operations Office	
Z-COMPLEX STABILIZATION PROJECT TANK 361		
INDEX NO. 9901	SIZE F	DRAWING NUMBER H-2-838870
	SCALE AS SHOWN	SHEET 1
		REV 0

DWG NUMBER	TITLE	REF NUMBER	TITLE
	DRAWING TRACEABILITY LIST		REFERENCES
			NEXT USED ON END ITEM

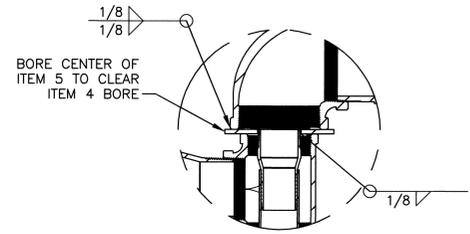
REV NO.	DESCRIPTION
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PARTS LIST/MATERIAL LIST

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-010		ASSEMBLY, COMBINATION ADAPTER			1
					2
1	(68095K127)	FLANGE, 3" FPT, CARBON STEEL, ASME B16.5 CLASS 125, RAISED FACE	MCMMASTER OR EQUAL	X	3
1	(44615K122)	NIPPLE, PIPE, 3" SCHED 40 CARBON STEEL, NPT ENDS, 3" LONG	MCMMASTER OR EQUAL	X	4
1	(44605K52)	TEE, 3" FPT, SCHED 40, CARBON STEEL, ASME B16.3	MCMMASTER OR EQUAL	X	5
1	(5363K56)	ADAPTER, 2"MPT X 2" EASYFIT BARBED HOSE, CARBON STEEL	MCMMASTER OR EQUAL	X	6
1	(44605K13)	ELBOW, 4" FPT, SCHED 40, CARBON STEEL, ASME B16.3	MCMMASTER OR EQUAL	X	7
1	(AD40DMT)	ADAPTER, 4"MPT X 4" HEVI DUTY	CONFORMS OR EQUAL	X	8
1	(53555K57)	ADAPTER, 3"MPT X 4" EASYFIT BARBED HOSE, CARBON STEEL	MCMMASTER OR EQUAL	X	9
1	(45845K3)	HOSE, 2" ID X 100", HIGH PRESSURE WATER DISCHARGE, REINFORCED	MCMMASTER OR EQUAL	X	10
1	(9166K84)	GASKET, FULL FACE, FOR 3" ANSI CLASS 150 FLANGE, WITH FASTENERS	MCMMASTER OR EQUAL	X	11
1	(5215K12)	CLAMP, DUCT HOSE, FOR 4" HOSE, WORM DRIVE	MCMMASTER OR EQUAL	X	12
					13
AR		ADAPTOR PLATE, 1/4" THK, 6" X 6"	ASTM A36	X	14



1 ASSEMBLY, COMBINATION ADAPTER
SCALE: 1:10



1 DETAIL
SCALE: 1:4

GROUTING NOTES/INSTRUCTIONS:

- UNLESS OTHERWISE SPECIFIED
- CRIB 216-7-2
- THE CRIB'S ROOF IS APPROXIMATELY 7 FT BELOW GRADE.
 - THE WOODEN CRIB HAS TWO RISERS: - THE CENTER RISER EXTENDS 20 FT BELOW THE CRIB BOTTOM. IT MAY HAVE BEEN A GAMMA PROBE WELL. IT IS LIKELY EITHER CAPPED AT THE BOTTOM OR PLUGGED. - A 3" VENT RISER IS PRESENT WHICH IS CURRENTLY CAPPED.
 - NO CAMERA ACCESS IS AVAILABLE DURING GROUTING.
 - A COMBINATION GROUTING/VENTILATION ADAPTER WILL TEMPORARILY REPLACE THE EXISTING 3" BLIND FLANGE.
 - THE GROUTING HOSE, WHICH WILL HAVE A 4" HEVI-DUTY CONNECTION, WILL ATTACH TO THE COMBINATION ADAPTER.
 - THE VENTILATION HOSE WILL INCLUDE A GROUT OVERFLOW TEE, WHICH WILL DRAIN TO A VENTED PALLET TANK (TOTE).
 - THE TOTE VENT WILL BE OF SUFFICIENT SIZE TO ALLOW HEPA VENTILATION UNIT OPERATION.
 - THE HEPA VENTILATION UNIT WILL CONNECT TO THE GROUT OVERFLOW TEE.
 - GROUT DENSITY IS LIKELY HIGHER THAN THE SOIL BULK DENSITY AND THE WOODEN CRIB ROOF. FOR THIS REASON, GROUT MAY DISPLACE THE CRIB ROOF BEFORE GROUT EXITS THE COMBINATION ADAPTER.
 - GROUTING WILL END WHEN EITHER: - GROUT REACHES THE VENTED TOTE. - THE COMBINATION ADAPTER IS REMOVED AND GROUT LEVEL IS WITNESSED TO BE ADEQUATELY FULL. - A PREDICTED VOLUME OF GROUT IS PUMPED INTO THE CRIB.
 - AT COMPLETION, THE COMBINATION ADAPTER IS REMOVED AND THE BLIND FLANGE REINSTALLED.

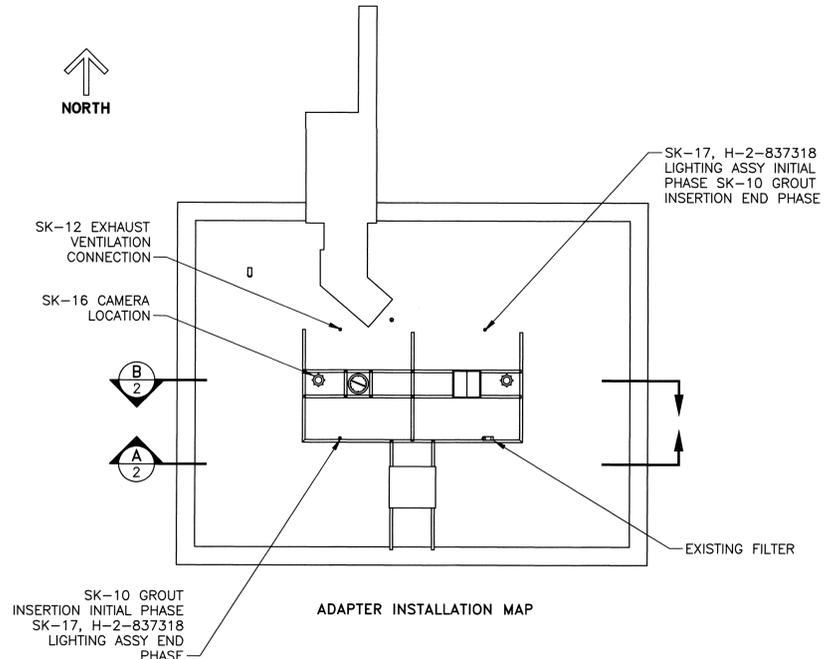
ORIGINAL

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DOCUMENT CONTROL
Date: 4/10/20

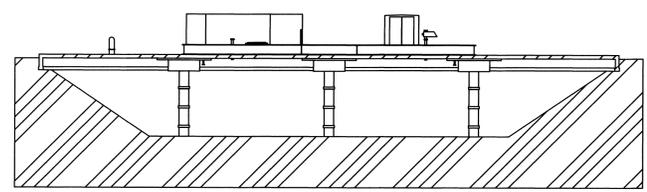
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DRAWN BY K LEIST DESIGNED BY S. PAPPENBUSH CHECKED BY S. PAPPENBUSH ENGINEERING CHECK DATE 1/15/20 DATE 1/15/20 DATE 1/15/20	NAME K LEIST DATE 1/15/20 CHECKED BY S. PAPPENBUSH DATE 1/15/20 ENGINEERING CHECK S. PAPPENBUSH DATE 1/15/20	U.S. DEPARTMENT OF ENERGY Richland Operations Office Z-COMPLEX STABILIZATION PROJECT CRIB Z-2 SIZE F DRAWING NUMBER H-2-838871 SHEET 1 REV 0 SCALE AS SHOWN

DWG NUMBER	TITLE	REF NUMBER	TITLE

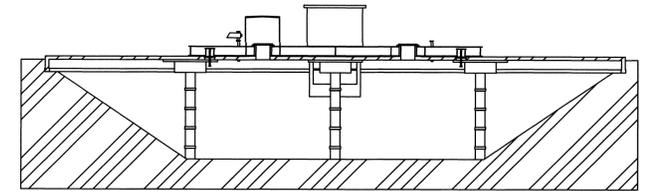
REV NO.	DESCRIPTION
0	RELEASED PER DCN-ZPLANTCRIB-002



1 ASSEMBLY, GROUTING EQPT ARRANGEMENT
SCALE: 1:240



A SECTION
SCALE: SHOWN



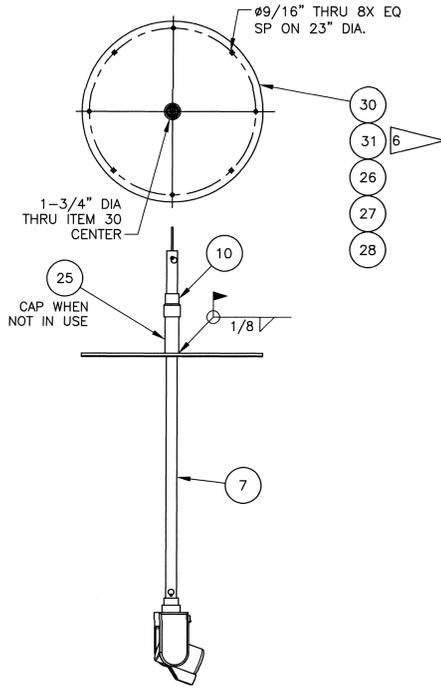
B SECTION
SCALE: SHOWN

- NOTES:**
- ITEM 30 DOES NOT INCLUDE H-2-837316 ITEMS 11 AND 30.
 - (H-2-837316) ITEM 4 LENGTH IS REDUCED TO 48".
 - REFER TO FLANGE MFR INSTRUCTIONS FOR FASTENER TORQUE.
 - USE THREAD LUBRICANT COMPATIBLE FOR COMPONENT MATERIALS.
 - USE PVC CEMENT/PRIMER APPROPRIATE FOR COMPONENT MATERIALS.

- TEMPLATE HOLES FROM ITEM 30.
- THE BALLASTED SODIUM LIGHT ASSEMBLY MAY BE REPLACED BY AN INCANDESCENT LIGHT ASSEMBLY, PROVIDING ASSEMBLY (H-2-837318) ITEMS 7, 19, AND 24 ARE RETAINED.

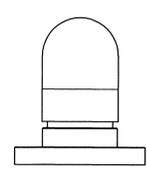
GROUTING NOTES/INSTRUCTIONS:
UNLESS OTHERWISE SPECIFIED

- CRIB 216-Z-9
- THE CRIB MAY BE USED TO CLEAN OUT THE GROUT DELIVERY PIPING/HOSE SUPPORTING 241-Z-361 AND 216-Z-2.
 - THE EXISTING MINING SUPPORT FACILITY INTAKE AND EXHAUST VENTILATION FILTERS ARE CONSIDERED ADEQUATE TO PROVIDE INTAKE AIR TO SUPPORT THE GROUT VENTILATION UNIT OPERATION.
 - THE HEAVY EQUIPMENT EXCLUSION PERIMETER IS AT THE EDGE OF THE CRIB ROOF.
 - GROUT MAY HAVE A SURFACE GRADE EXCEEDING 3% AND A SECOND PHASE OF FILLING AT THE OPPOSITE CRIB CORNER MAY BE NECESSARY.
 - THE CRIB WILL BE CONSIDERED FULL AS DETERMINED FROM THE CAMERA DISPLAY.
 - AT COMPLETION, ADAPTERS ARE REMOVED AND BLIND FLANGES INSTALLED.

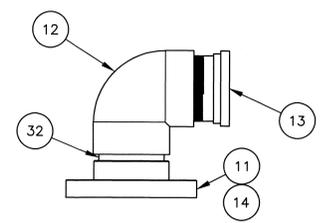


2 SUBASSY, CAMERA
SCALE: 1:10

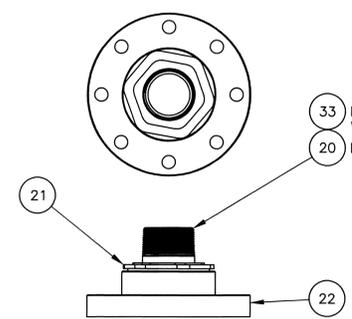
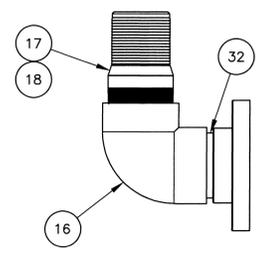
PARTS LIST/MATERIAL LIST					
QTY	PARTS/DASH NUMBER	NOMENCLATURE/DESCRIPTION	MATERIAL/REFERENCE	SHEET	ITEM NO
	-010	ASSEMBLY, GROUTING EQPT ARRANGEMENT		X	1
	-020	SUBASSY, CAMERA		X	2
	-030	SUBASSY, GROUT ADAPTER		X	3
	-040	SUBASSY, VENT ADAPTER		X	4
	-050	SUBASSY, VENT ADAPTER		X	5
					6
	1	H-2-837316-040	CAMERA ASSEMBLY, MODIFIED BY NOTE 1 AND 2		7
	1	H-2-837318-019	PUREX TUNNEL NO. 2 INTERIM STABILIZATION LIGHTING RACK ASSEMBLY		8
					9
	1	(4511K74)	BOOT, REDUCING, 2"-1-1/2", WITH PLASTIC DRIVE CLAMPS, PVC PLASTIC	MCMASTER OR EQUAL	10
	1	(4881K239)	FLANGE, 4" PIPE, PVC, SOCKET	MCMASTER OR EQUAL	11
	1	(4596K629)	ELBOW, PVC SCHED 80, 4" FPT X 4" SOCKET	MCMASTER OR EQUAL	12
	1	(AD40DMT)	ADAPTOR, 4" MPT X 4" HEVI DUTY	CONFORMS OR EQUAL	13
	1	(9166K86)	GASKET, FULL FACE, FOR 4" ANSI CLASS 150 FLANGE, WITH FASTENERS	MCMASTER OR EQUAL	14
	1	(4881K239)	FLANGE, 4" PIPE, PVC, CLASS 150, SOCKET, ASTM D1784	MCMASTER OR EQUAL	15
	1	(4596K629)	ELBOW, PVC SCHED 80, 4" FPT X 4" SOCKET	MCMASTER OR EQUAL	16
	1	(5363K49)	ADAPTER, 4" MPT X 4" EASY-FIT BARBED HOSE, CARBON STEEL	MCMASTER OR EQUAL	17
	1	(9166K86)	GASKET, FULL FACE, FOR 4" ANSI CLASS 150 FLANGE, WITH FASTENERS	MCMASTER OR EQUAL	18
	1	(5215K12)	CLAMP, DUCT HOSE, FOR 4" HOSE, WORM DRIVE	MCMASTER OR EQUAL	19
	1	(4881K239)	FLANGE, 4" PIPE, PVC CLASS 150, SOCKET, ASTM D1784	MCMASTER OR EQUAL	20
	1	(4881K688)	BUSHING, PVC, 4" SOCKET X 2-1/2" SOCKET, ASTM D1784	MCMASTER OR EQUAL	21
	1	(9166K86)	GASKET, FULL FACE, FOR 4" ANSI CLASS 150 FLANGE, WITH FASTENERS	MCMASTER OR EQUAL	22
	1	(4596K9)	CAP, PIPE, 2-1/2 SCHED 80 PVC, NPT	MCMASTER OR EQUAL	23
					24
	1		HALF NIPPLE, 1-1/2" SCHED 40, CARBON STEEL X 6" LONG	ASTM A53	25
	8		NUT, HEX, 1/2-13UNC, CARBON STEEL, ZN PLATED	ASTM A307	26
	8		SCREW, HEX HEAD, 1/2-13UNC X 1-1/2" LG, ZN PLATED	ASTM A307	27
	8		WASHER, SPLIT LOCK, 1/2", ZN PLATED STEEL		28
					29
	1		PLATE, 3/8" X 25" DIAMETER	ASTM A109	30
	AR		SHEET, 1/8" NEOPRENE, 50A DUROMETER	ASTM D2000	31
	AR	1	PIPE, 4" PVC SCHED 80, ASTM D1784	ASTM D1784	32
	AR		HALF NIPPLE, 2-1/2" SCHED 80 PVC, NPT ONE END	ASTM D1784	33



3 SUBASSY, GROUT ADAPTER
SCALE: 1:5



4 SUBASSY, VENT ADAPTER
SCALE: 1:5



5 SUBASSY, LIGHT ADAPTER
SCALE: 1:4

ORIGINAL
Approved for Construction
ISSUED BY
DOCUMENT CONTROL
Date: 4/16/2008

BUILD. NO. 216Z9	CAUTION NOT COMPLETE WITHOUT CURRENT CHANGE DOCUMENTS FROM DATABASE	ATTENTION DESTROY THIS DOCUMENT BY SHREDDING MAY CONTAIN SENSITIVE INFORMATION												
<table border="1"> <tr> <th>NAME</th> <th>DATE</th> <th>COMPANY</th> </tr> <tr> <td>K LEIST</td> <td>1/15/08</td> <td>CH2M</td> </tr> <tr> <td>S. BABENUSS</td> <td>1-15-08</td> <td>CH2M</td> </tr> <tr> <td>ENGINEERING CHECKER</td> <td></td> <td></td> </tr> </table>	NAME	DATE	COMPANY	K LEIST	1/15/08	CH2M	S. BABENUSS	1-15-08	CH2M	ENGINEERING CHECKER			U.S. DEPARTMENT OF ENERGY Richland Operations Office Z-COMPLEX STABILIZATION PROJECT CRIB Z-9	
NAME	DATE	COMPANY												
K LEIST	1/15/08	CH2M												
S. BABENUSS	1-15-08	CH2M												
ENGINEERING CHECKER														
DESIGN AUTHORITY K LEIST	DATE 1/15/2008	SIZE DRAWING NUMBER F H-2-838872 SCALE AS SHOWN												

DWG NUMBER	TITLE	REF NUMBER	TITLE	DESCRIPTION	REVISIONS
0	RELEASED PER DCN-ZPLANTCRIB-002				

DWG NUMBER	TITLE	REF NUMBER	TITLE
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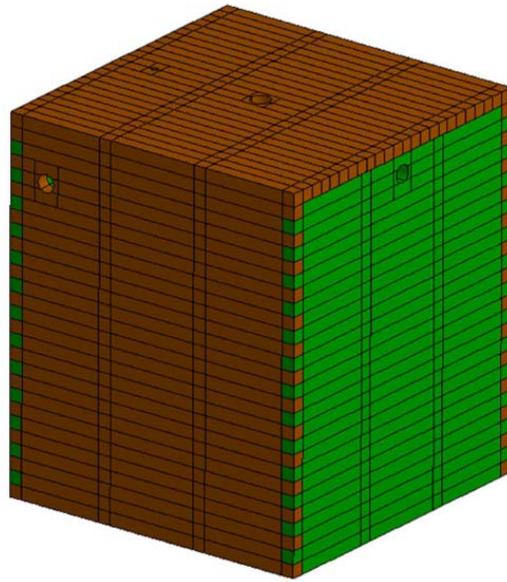
Aging Structures SOW – Attachment 1

Photos and Figures for 216-Z-2, 216-Z-9 and 241-Z-361



PFP Area Overview





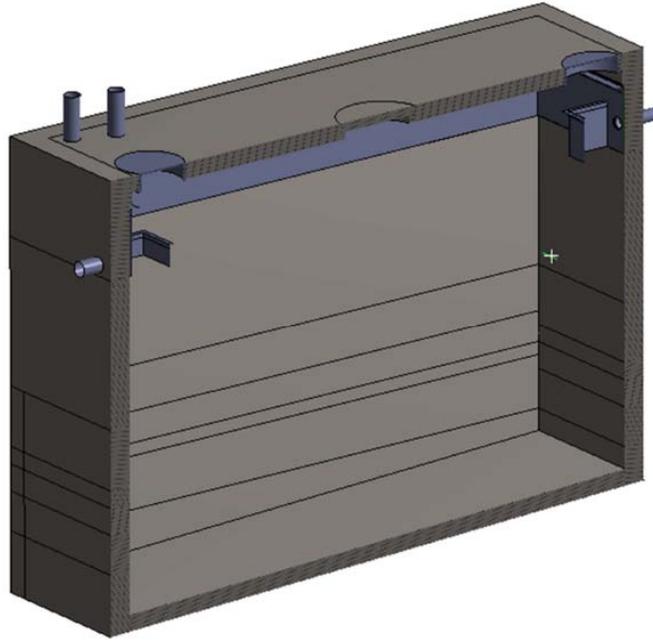
216-Z-2 modeling of timber structure



241-Z-361

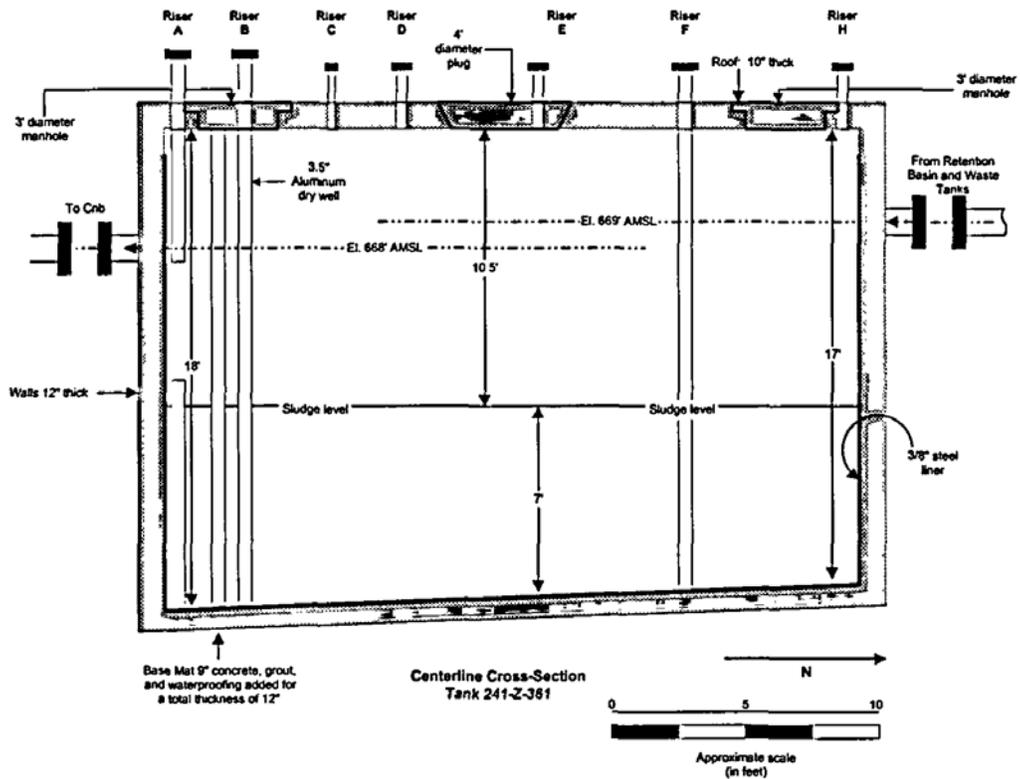
216-Z-2

Site overview looking Southwest from PFP August 2016



241-Z-361 modeling showing cross section of structure

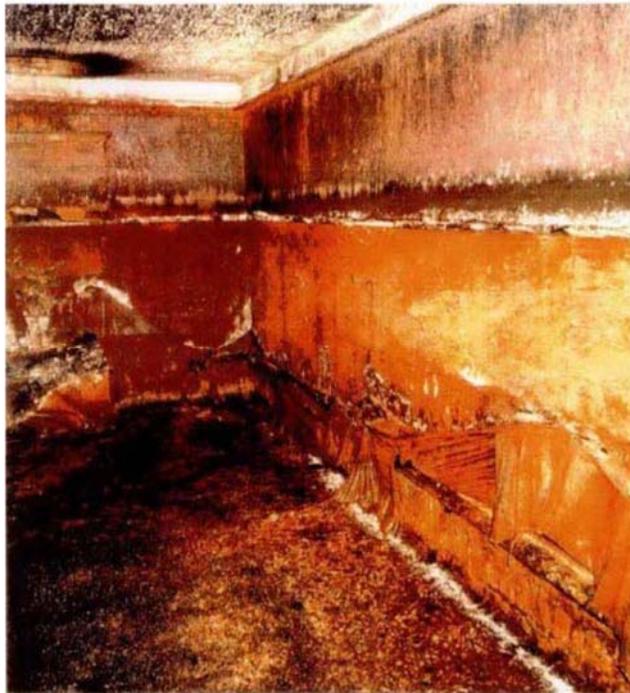
Figure 4. Side View of Tank Z-361.



241-Z-361 dimensions and sludge level



241-Z-361 overview of risers and support structure at grade level



241-Z-361 interior photo from 1999 characterization and surveillance activities



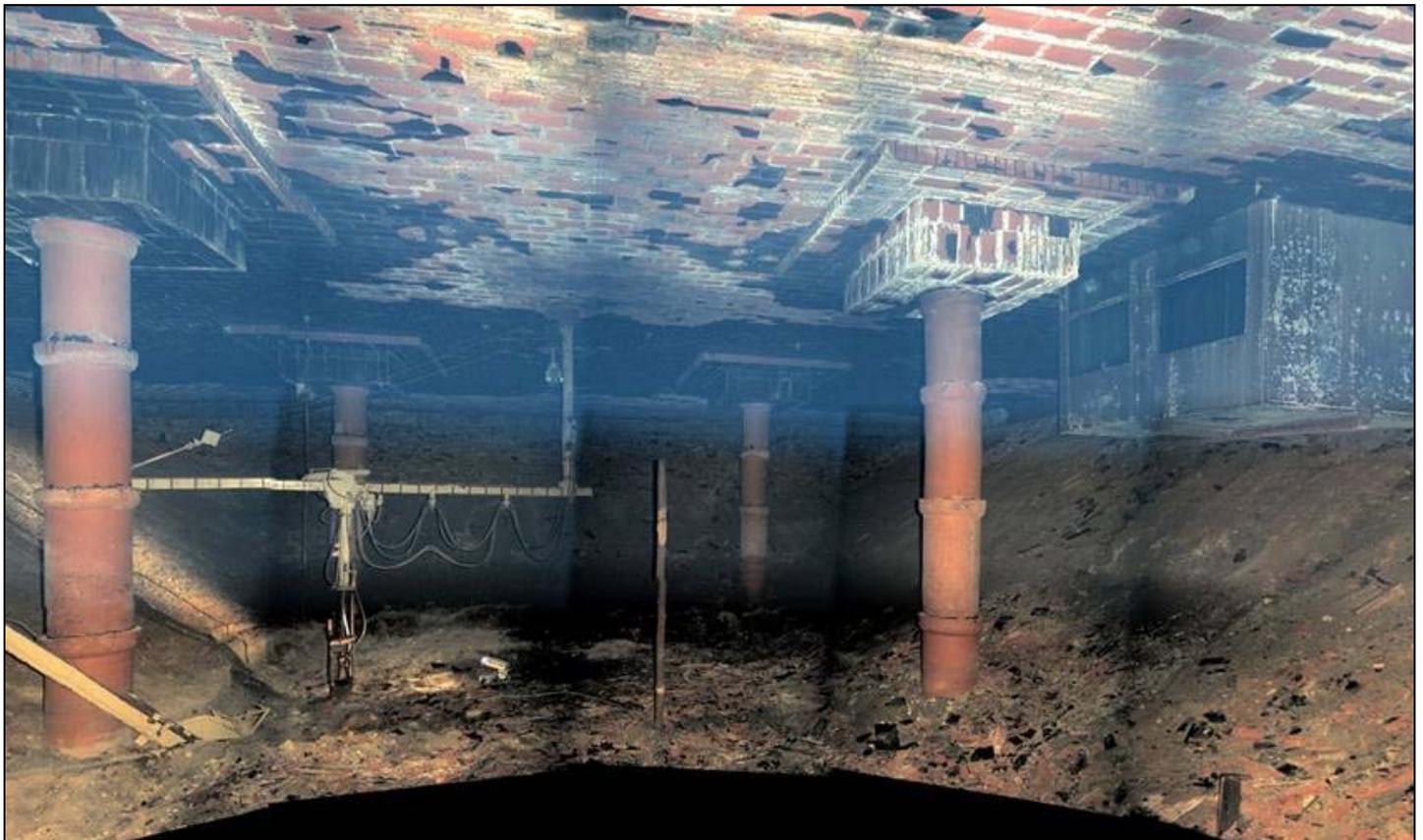
216-Z-9 under construction 1955



216-Z-9 exterior view after construction completion, note some roof risers are shown



216-Z-9 operation and mining support building, date of photo unknown



216-Z-9 interior, note mining operation control room (upper right corner)



216-Z-9 view into trench from mining operation control room (note concrete support column in right window)



216-Z-9 looking from the East with PFP in the background, August 2018



216-Z-9 looking from the north, note exclusion barrier, August 2018



217Z maintenance tent looking from south, note bumpers and miscellaneous equipment that will have to be relocated to prepare Contractors approximately 100' x 120' pumping area



TANK
241-Z-361

CRIB
216-Z-2

CRIB
216-Z-9

GROUT DELIVERY LINE

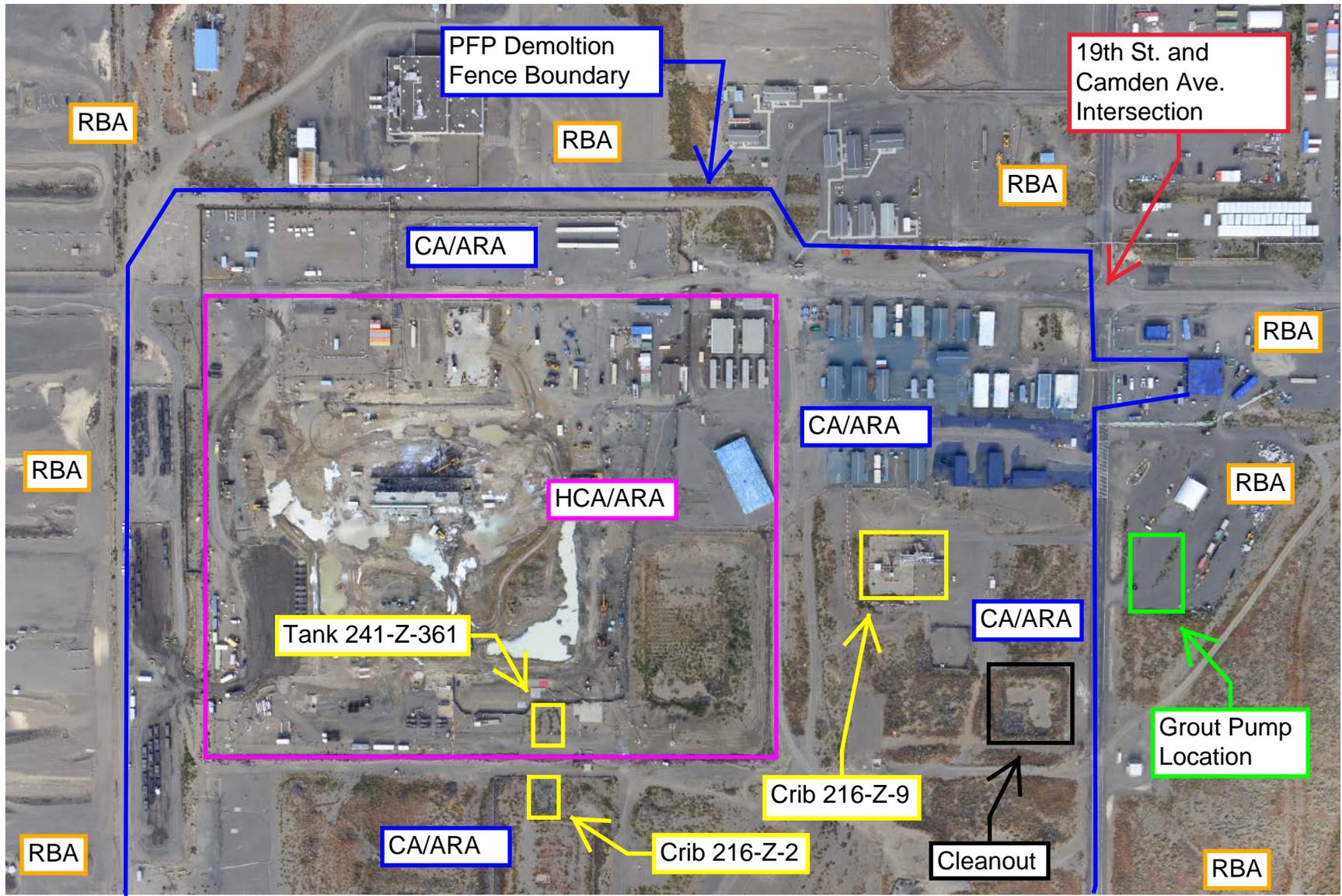
PUMP LOCATION
241-Z-361: 1300 FT
216-Z-9: 550 FT

OPTION GROUT
DELIVERY LINE

ALT PUMP
LOCATION:
241-Z-361: 1050 FT
216-Z-9: 475 FT

CLEANOUT

MIXER TRUCK
PATH



PFP Demolition
Fence Boundary

19th St. and
Camden Ave.
Intersection

RBA

RBA

RBA

CA/ARA

RBA

RBA

HCA/ARA

CA/ARA

RBA

Tank 241-Z-361

CA/ARA

Grout Pump
Location

RBA

CA/ARA

Crib 216-Z-2

Crib 216-Z-9

Cleanout

RBA

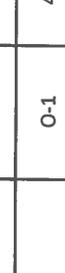
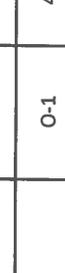
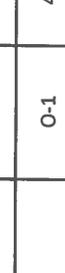
CHPRC Buyer Furnished Property: Chain of Custody

Company: CHPRC
 Turnover Location: ~~200W~~ / MO6114 RMA / Tote 1
 New Custodian: CPRM / Jim Johnson (509) 942-6658

CH2M HILL Plateau Remediation Company (CHPRC)/BTR/Phone: PTS / Nikki Danakas / (509)376-5919

Construction Title/Contract No.: Intermech / 66769

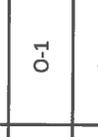
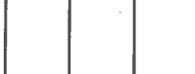
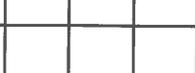
Construction Contact/Title/Phone: Scott Hanson / FWS / (509) 628-9141

Contract No.	Item No.	Item Name or Description/Quality Level/Storage Classification	Specification/Drawing No.	*Condition	Quantity /Unit	CPRM Disposition (Accepted, Rejected, and/or Comments)
66769	1	Cable Drop Lights, 100 LF, Used in Air	NA	O-1	4 / EA	
66769	2	Twist Lock Adapter	NA	N-1	5 / EA	
66769	3	Bare Copper solid wire 3:15 ft	NA	N-1	1 / EA	
66769	4	Camera, head, 36X optical, 12X digital for 432x total zoom, PTZ 140	NA	O-1	1 / EA	

NOTE: The items listed above are transferred from CHPRC to Contractor as indicated by signatures and dates by representatives from each company below.

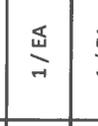
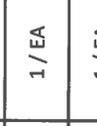
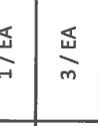
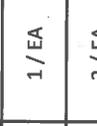
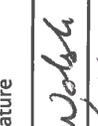
*Condition Codes (Letter and Number) Example: R-3		Certification of Accuracy by Contractor Representative Authorized to Acknowledge Acquisition of Property Listed Above			
N = New	1 = Excellent	Name (Print)	Signature	Title	Date Signed
E = Used - Reconditioned	2 = Good	Ryan Waiste		CHPRC BTR and/or Material Coordinator	5/9/19
O = Usable without Repair	3 = Fair	BOB SKARBETZ		CHPRC PTS QAE	5-9-19
R = Used - Repair Required	4 = Poor	SCOTT HANSON		Construction Authorized Representative	5-9-19
X = Salvage or Scrap	5 = Contaminated			CPRM Authorized Representative	5-9-19

CHPRC Buyer Furnished Property: Chain of Custody

Company: CHPRC		CH2M HILL Plateau Remediation Company (CHPRC)/BTR/Phone: PTS / Nikki Danakos / (509)376-5919				
Turnover Location: 200W / MO6114 RMA / Tote 3 200E		Construction Title/Contract No.: Intermech / 66769				
New Custodian: CPRM / Jim Johnson (509) 942-6658		Construction Contact/Title/Phone: Scott Hanson / FWS / (509) 628-9141				
Contract No.	Item No.	Item Name or Description/Quality Level/Storage Classification	Specification/Drawing No.	*Condition	Quantity /Unit	CPRM Disposition (Accepted, Rejected, and/or Comments)
66769	13	Mentor Visual IQ	NA	O-1	1 / EA	
66769	14	Everest Ca-Zoom 6.2 Controller	NA	O-1	3 / EA	
66769	15	CA zoom display remote	NA	O-1	3 / EA	
NOTE: The items listed above are transferred from CHPRC to Contractor as indicated by signatures and dates by representatives from each company below.						
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Certification of Accuracy by Contractor Representative Authorized to Acknowledge Acquisition of Property Listed Above

CHPRC Buyer Furnished Property: Chain of Custody

Company: CHPRC		CH2M HILL Plateau Remediation Company (CHPRC)/BTR/Phone: PTS / Nikki Danakos / (509)376-5919				
Turnover Location: 200W / MO6114 RMA / Tote 4 200E		Construction Title/Contract No.: Intermech / 66769				
New Custodian: CPRM / Jim Johnson (509) 942-6658		Construction Contact/Title/Phone: Scott Hanson / FWS / (509) 628-9141				
Contract No.	Item No.	Item Name or Description/Quality Level/Storage Classification	Specification/Drawing No.	*Condition	Quantity /Unit	CPRM Disposition, (Accepted, Rejected, and/or Comments)
66769	16	High Speed HDMI 50 ft	NA	N-1	1 / EA	
66769	17	6 plug surge protector	NA	O-2	1 / EA	
66769	18	Samsung TV remotes	NA	O-1	4 / EA	
66769	19	Miscellaneous Cables	NA	O-2	1 / EA	
66769	20	VGA Cable	NA	O-1	1 / EA	
66769	21	S-Video MD4 6 ft	NA	N-1	3 / EA	
66769	22	Advanced memory card reader	NA	O-1	1 / EA	
66769	23	Pen D cable	NA	N-1	2 / EA	
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O = Usable without Repair	3 = Fair	BOB SKERBETZ		CHPRC PTS QAE	5.9.19	
R = Used - Repair Required	4 = Poor	SG HANSON		Construction Authorized Representative	5/9/19	
X = Salvage or Scrap	5 = Contaminated			CPRM Authorized Representative	5.9.19	

CHPRC Buyer Furnished Property: Chain of Custody

Company: CHPRC
 Turnover Location: ~~200W/~~ MO6114 RMA / Tote 4
 New Custodian: CPRM / Jim Johnson (509) 942-6658

CH2M HILL Plateau Remediation Company (CHPRC)/BTR/Phone: PTS / Nikki Danakos / (509)376-5919

Construction Title/Contract No.: Intermech / 66769

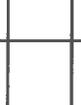
Construction Contact/Title/Phone: Scott Hanson / FWS / (509) 628-9141

Contract No.	Item No.	Item Name or Description/Quality Level/Storage Classification	Specification/Drawing No.	*Condition	Quantity /Unit	CPRM Disposition (Accepted, Rejected, and/or Comments)
66769	24	6 plug surge protector	NA	N-1	1 / EA	
66769	25	4K HDMI cable	NA	N-1	3 / EA	
66769	26	Memory card	NA	N-2	14 / EA	
66769	27	Premium video cable	NA	N-1	1 / EA	
66769	28	Standard converter with gen lock	NA	N-1	1 / EA	
66769	29	Audio video processors	NA	O-1	3 / EA	
66769	30	Microfiber cloths (20 pack)	NA	N-1	2 / EA	
66769	31	Outdoor TV screen premium cleaning kit	NA	N-1	1 / EA	

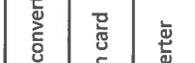
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O = Usable without Repair	3 = Fair	BOB SKERBEK		CHPRC PTS QAE	5.9.19
R = Used - Repair Required	4 = Poor	SC HANSON		Construction Authorized Representative	5/9/19
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CHPRC Buyer Furnished Property: Chain of Custody

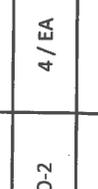
Company: CHPRC		CH2M HILL Plateau Remediation Company (CHPRC)/BTR/Phone: PTS / Nikki Danakos / (509)376-5919				
Turnover Location: 200W / MO6114 RMA / Tote 4 <i>200E</i>		Construction Title/Contract No.: Intermech / 66769				
New Custodian: CPRM / Jim Johnson (509) 942-6658		Construction Contact/Title/Phone: Scott Hanson / FWS / (509) 628-9141				
Contract No.	Item No.	Item Name or Description/Quality Level/Storage Classification	Specification/Drawing No.	*Condition	Quantity /Unit	CPRM Disposition (Accepted, Rejected, and/or Comments)
66769	32	Tendak 3 RCA AV video converter	NA	O-1	1 / EA	
66769	33	Sandisk 128 GB flash card	NA	N-1	3 / EA	
66769	34	VGA to HDMI converter	NA	N-1	1 / EA	
66769	35	TV stand	NA	O-1	1 / EA	
66769	36	TV cleaner	NA	O-3	1 / EA	
66769	37	Miscellaneous owners manuals	NA	O-2	1 / EA	

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E = Used - Reconditioned	BOB SKERBETZ		5.9.19
O = Usable without Repair	SCOTT HANSON		5/9/19
R = Used - Repair Required			
X = Salvage or Scrap			

CHPRC Buyer Furnished Property: Chain of Custody

Company: CHPRC		CH2M HILL Plateau Remediation Company (CHPRC)/BTR/Phone: PTS / Nikki Danakos / (509)376-5919	
Turnover Location: 200W / MO6114 RMA / Tote 5 R00E		Construction Title/Contract No.: Intermech / 66769	
New Custodian: CPRM / Jim Johnson (509) 942-6658		Construction Contact/Title/Phone: Scott Hanson / FWS / (509) 628-9141	

Contract No.	Item No.	Item Name or Description/Quality Level/Storage Classification	Specification/Drawing No.	*Condition	Quantity /Unit	CPRM Disposition (Accepted, Rejected, and/or Comments)
66769	38	200 ft extension camera cable	NA	O-2	4 / EA	
66769	39	HDMI Cable	NA	O-1	2 / EA	

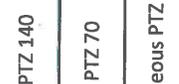
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R = Used - Repair Required	4 = Poor	SG Hanson		Construction Authorized Representative	5/9/19
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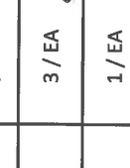
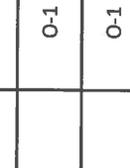
CHPRC Buyer Furnished Property: Chain of Custody

Company: CHPRC		CH2M HILL Plateau Remediation Company (CHPRC)/BTR/Phone: PTS / Nikki Danakas / (509)376-5919				
Turnover Location: 200W/ MO6114 RMA R00E		Construction Title/Contract No.: Intermech / 66769				
New Custodian: CPRM / Jim Johnson (509) 942-6658		Construction Contact/Title/Phone: Scott Hanson / FWS / (509) 628-9141				
Contract No.	Item No.	Item Name or Description/Quality Level/Storage Classification	Specification/Drawing No.	*Condition	Quantity /Unit	CPRM Disposition (Accepted, Rejected, and/or Comments)
66769	40	PTZ 140	NA	O-5	2 / EA	
66769	41	PTZ 70	NA	O-5	3 / EA	
66769	42	Miscellaneous PTZ cabling	NA	O-5	1 / EA	
66769	43	Sprayer Unit	NA	O-5	1 / EA	

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CHPRC Buyer Furnished Property: Chain of Custody

Company: CHPRC		CH2M HILL Plateau Remediation Company (CHPRC)/BTR/Phone: PTS / Nikki Danakos / (509)376-5919				
Turnover Location: 200W / MO6114		Construction Title/Contract No.: Intermech / 66769				
New Custodian: CPRM / Jim Johnson (509) 942-6658		Construction Contact/Title/Phone: Scott Hanson / FWS / (509) 628-9141				
Contract No.	Item No.	Item Name or Description/Quality Level/Storage Classification	Specification/Drawing No.	*Condition	Quantity /Unit	CPRM Disposition (Accepted, Rejected, and/or Comments)
66769	44	Monitors, LED TV, Outdoor/Full sun	NA	O-1	3 / EA	
66769	45	Samsung TV monitor 32 in	NA	O-1	1 / EA	

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