REQUEST FOR PROPOSAL

FOR

Stiles Vortex and Outfall Pipe

RFP No. 185332.75.2000

September 16, 2014

City of Memphis, Tennessee

Black & Veatch Corporation and Overland Contracting Inc. (OCI), a subsidiary of Black & Veatch Corporation, are the Program Manager and Construction Manager respectively, for the SARP10 Program for the City of Memphis.

Overland Contracting Inc.
3485 Poplar Avenue, Suite 230, Memphis, TN, 38111

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00160 - Request for Proposal

00160.1 Introduction

Sealed proposals will be received at the Office of the City of Memphis Environmental Administration, Room 620, City Hall, 125 N. Main, Memphis, TN 38103, until **3:00 p.m. local time, November 12th, 2014** for furnishing the City of Memphis with the following:

FOR THE DIVISION OF: PUBLIC WORKS FOR THE CONSTRUCTION OF:
SARP10 Program Stiles Vortex and Outfall Pipe

The Sealed Proposal envelope must be labeled with the project name, bidder's name, license bidder number, license expiration date, license classification. The Sealed Proposal envelope must contain one (1) hardcopy of the proposal and one (1) electronic CD copy of the proposal.

Sealed Proposals that are sent through the mail or other such delivery service shall be sent in such a manner so as to allow the opening of the "Mailing Container" and still have intact the sealed proposal. On the Mailing Container the sender shall state the words that a "**SEALED RESPONSE IS ENCLOSED**" and the Proposal number.

Subcontractors intending to bid on this project must have submitted Technical Prequalification documents electronically to Overland Construction, Inc. (OCI) per the instructions included in Advertisement Legal Notice Request for Proposal No. 1833.75.2000 dated September 9th, 2014 and due September 30th, 2014.
Subcontractors intending to bid on this project must have submitted Registration documents electronically to Overland Construction, Inc. (OCI) per the instructions included in Advertisement Legal Notice Request forProposal No. 185332.75.2000 dated September 9th, 2014 and due October 17th, 2014.

00160.2 Program Overview

The Program consists of the management of the capital program needed to bring the City's wastewater and sewer system into compliance with federal and state regulations per The City of Memphis Wastewater Collection and Transmission System (WCTS) Condition Assessment and Rehabilitation Program Consent Decree signed on September 21, 2012, including the procurement of studies, design and construction services associated with the City of Memphis SARP10 Program.

00160.3 Scope of Work

The general scope of work for this RFP is the furnishing of labor, equipment, and materials for the mainline sewer point repair.

00160.4 Proposal Guarantee Requirements

Guarantee Requirements:

(a) Bidder will not withdraw proposal for one hundred eighty (180) calendar days after opening of proposals without Purchaser's written consent.

(b) If proposal is accepted, bidder will enter into formal Subcontract with Purchaser, within five (5) calendar days after receipt of Subcontract documents for execution.

(c) If proposal is accepted, bidder will execute required 100% Performance/Payment Bond in accordance with Article 00561.6 and will obtain required insurance coverage in accordance with Article 00562.25 within ten (10) calendar days after receipt of Subcontract.

(d) All proposals will require a bidder's bond or certified or cashier's check made payable to the Purchaser on a solvent bank in the amount of 5% of the proposal. Said instrument to remain in effect and will be returned only after the Subcontract has been fully executed

and secured. Additionally, the successful bidder shall execute a performance bond in an amount equal to 100% of the Subcontract sum as security for the faithful performance of the Subcontract and for the payment of labor and material furnished and incorporated into the Work. The only acceptable form of instrument for this bid bond is bound herein, Article 00672.7.

Bidder shall be liable to the Purchaser for full amount of proposal guarantee as representing damage to the Purchaser on account of default of bidder if:

(a) Proposal is withdrawn within one hundred eighty (180) calendar days after receipt of bids without approval by Purchaser.

(b) Bidder fails to enter into contract with Purchaser and execute required Performance Bond and provide required insurance coverage within ten (10) calendar days subsequent to notice of award of the Subcontract.

Firms desiring to submit a Proposal should carefully review these instructions. Compliance with all requirements will be solely the responsibility of the Respondent.

00160.5 Request for Proposal Definitions

Terms used in this Request for Proposal documents are defined and have the meanings assigned to them as follows. The term "OCI", “Purchaser” or “Program Manager” means Overland Contracting Inc. The term "Respondent", “Firm”, “Company”, “Subcontractor” or “Bidder” means one who submits a Response for the purpose stated in this Solicitation Request for Proposal documents. The terms “PROPOSAL or BID”, “Response” or “Respondent's Response” mean all submittal documents provided by the Respondent as required by this Request for Proposal. The terms “Request for Proposal”, “Proposal Documents”, or “Bid Documents” mean the documents included in this Request for Proposal.

Every effort has been made to use industry-accepted terminology in this Request for Proposal. Any statement in this document, which uses words such as "must", "shall", "should", "provide for" or "have/provide the capability of/for", means that compliance with the intent of the statement is mandatory and that failure by the Respondent to satisfy that intent may be cause for the Response to be rejected.

00160.6 Minority Business Enterprise and Women Business Enterprise (M/WBE) Goals

This section shall set forth the respondent's M/WBE Participation Plan that must be submitted and include: (1) the level and dollar amount of participation your firm anticipates to achieve in the performance of the Subcontract resulting from this RFP; (2) the type of Work to be performed by the M/WBE firms participating; and (3) the names of the M/WBE firms the Respondent plans to utilize in the performance of the Subcontract resulting from this RFP.

Per Executive Order 11625 and SRF Fair Share Goals:

MBE goal	
Construction	**2.6%**
Supplies, Services, and Equipment	**5.2%**
WBE goal	
Construction	**2.6%**
Supplies, Services, and Equipment	**5.2%**

Per Executive Order 11246:

Construction SRF Goals	
Minority Group goals (work hours)	**32.3%**
Women goals (work hours)	**6.9%**

SARP10 overall MWBE goal: **30%**

00160.7 Clarification of Proposal

Purchaser reserves the right to obtain clarification of any point in a Response or to obtain additional information as necessary to properly evaluate a particular Response. Failure to respond to such a request for additional information or clarification in a timely manner may result in rejection of the Response.

00160.8 Not Used

00160.9 Responsiveness

Respondents should respond to all requirements of the Proposal to the maximum extent possible and are required to clearly identify any limitations or exceptions to the requirements.

00160.10 Examination of Request for Proposal Documents

Before submitting a Response, each Respondent must:

Study and carefully correlate the Respondent's observations and responses with the Proposal Documents.

Notify Purchaser, of all conflicts, errors and discrepancies, if any, in the Proposal Document submitted.

Review the Loss Control Manual and State Revolving Fund (SRF) Documents.

Respondents by and through the submission of their Response, agree that they shall be held responsible for having therefore familiarized themselves with the nature and extent of the requirements in the Proposal Documents.

00160.11 Interpretations and Addenda

If any prospective Firm is in doubt as to the true meaning of any part of the Requirements For Preparing and Submitting Proposal Submittal for the requested services, they may submit a written request (verbal requests will not be accepted) for an interpretation up to October 30, 2014. The person submitting the request will be responsible for its prompt delivery. Any interpretation of the proposed documents will be made only by addendum transmitted to each party receiving a set of such documents. Purchaser will not be responsible for any other explanations or interpretations of the proposed documents. Any requests not submitted within this time period will be deemed waived.

SUBMIT ALL QUESTIONS IN WRITING OR BY E-MAIL TO:
Overland Contracting Inc.
Attn: Brad Davis
3485 Poplar Ave, Suite 230
Memphis, TN 38111
E-Mail: DavisBJ@bv.com
Cc: KinkelaarAB@bv.com
(Reference: SARP10 Program Stiles Vortex and Outfall Pipe Proposal SUBMITTAL No. 185332.75.200

Each written request must reference the Proposal name and number "*SARP10 Program Stiles Vortex and Outfall Pipe Project, Proposal No. 185332.75.2000*" in the subject line and mailed (or e-mailed) to the attention of Brad Davis, Project Manager with a copy to Aaron Kinkelaar, Procurement Lead. All requests or questions should be clearly marked and must be received no later than the date and time listed in the Selection Schedule.

A response will be returned via addendum to all Firms along with the original question(s).

There shall be no communication between the Firm, their employees or subcontractors concerning this Proposal to anyone within Black & Veatch, OCI, Allen & Hoshall, Allworld Project Management, Gresham Smith and Partners, Integrated Circles Technologies, Tamco, Carter-Malone Group, or City of Memphis

employee or any such person's spouse, child, parent, brother, sister, dependent or person assuming a relationship being the substantially equivalent of the above except through Brad Davis. **Failure to comply with this requirement will be grounds for disqualification.**

00160.12 Modification or Withdrawal of Proposal Submittals

Responses may be modified or withdrawn by an appropriate document duly executed (in the same manner that a Response must be executed) and delivered to the place where Responses are to be submitted at any time prior to the submission deadline. A request for withdrawal or a modification must be in writing and signed by an authorized person. Evidence of such authority must accompany the request for withdrawal or modification. Withdrawal of a Response will not prejudice the rights of a Responder to submit a new Response prior to the Response deadline. After expiration of the period for receiving Responses, only Purchaser may request clarifications or additional information.

00160.13 Rejection of Responses

To the extent permitted by applicable local, state and federal laws and regulations, Purchaser reserves the right to reject any and all Responses, to waive any and all informalities not involving price, time, or changes in the Work with the successful Respondent, and the right to disregard all non-conforming, non-responsive, unbalanced or conditional Responses. Also, Purchaser reserves the right to reject a Response, in its sole discretion, if the City of Memphis believes that it would not be in its best interest to make an award to that Respondent.

Purchaser reserves the right to reject any Response if the evidence submitted by the Responder or if the investigation of such Respondent fails to satisfy Purchaser that such Respondent is properly qualified to carry out the obligations and to complete the Work contemplated therein. All Responses will be rejected if there is reason to believe that collusion exists among Respondents. Responses will be considered irregular and may be rejected if they show serious omissions, alterations in form, additions not called for, conditions or unauthorized alterations, or irregularities of any kind.

00160.14 Other Items

This Proposal does not commit Purchaser to enter into a Subcontract, nor does it obligate Purchaser to pay for any costs incurred in the preparation and submission of Responses or in anticipation of a Subcontract. Costs of preparing the Proposal in response to this request are solely the responsibility of the Respondent.

By responding to this solicitation, the respondent attests that no employee of Black & Veatch, OCI, Allen & Hoshall, Allworld Project Management, Gresham Smith and Partners, Integrated Circles Technologies, Carter-Malone Group, or City of Memphis employee or any such person's spouse, child, parent, brother, sister, dependent or person assuming a relationship being the substantially equivalent of the above, has an existing or pending, direct or indirect, financial interest in the respondent's business.

No Respondents to this solicitation shall discriminate against any employee or applicant for employment because of race, religion, color, sex, age, or national origin.

00160.15 Selection Process

Purchaser intends to select one Firm based on price and successful completion and approval of the OCI Registration process. There is a local contractor preference of 5%. For evaluation purposes the 5% will be applied to the Total Estimated Unit Price Value.

00160.16 Selection Schedule

The following schedule will be adhered to during the selection process. It is subject to change at the sole discretion of OCI.

Event	Completed By
Advertising date	September 9, 2014
Mandatory Pre-Proposal meeting	September 23, 2014
Technical Prequalification due	September 30, 2014
Technical Prequalification status provided	October 8, 2014
Registration Information submitted per 185332.75.2000 Advertisement	October 17, 2014
Last date for questions	October 30,,2014
Issue Addendum for answers to questions	November 5, 2014
Receive all Proposals	November 12, 2014 by 3:00 pm local time
Public Opening	November 12, 2014 immediately following receipt of proposals
Public Notice of Award	November 19, 2014
Tentative Notice to Proceed	December 3, 2014
Preconstruction Meeting with Subcontractor	December 5, 2014

00160.17 Mandatory Pre-Proposal Meeting

A mandatory pre-bid meeting will be held from **2:00 P.M to 3:30 P.M (local time) on the date listed above at the MC Stiles Wastewater Treatment Plant at 373** at **2303 North Second Street, Memphis, TN 38127**. You are required to attend the pre-proposal meeting at your own cost. Attendance shall be limited to three representatives per Bidder. Contact Purchaser at least two calendar days before the pre-proposal meeting in order to coordinate your attendance.

00260 - Instructions to Bidders

00260.1 Bidder's Compliance with Request for Proposal

Provide the information requested and any supporting information necessary to permit a complete analysis of your proposal. You acknowledge that preparation and submission of a proposal will be at your sole cost and that you will treat this RFP and any resulting discussions as confidential. If you do not agree to treat this RFP and associated discussions as confidential, return the complete RFP to Purchaser and delete or destroy any copies you made.

Three copies of technical documentation should be submitted with the proposal documents. This documentation must clearly state how the Proposer intends to accomplish the project tasks as outlined in the scope of services. Proposals shall be specific and detailed enough to illustrate resources to perform, in a satisfactory manner, all the work covered by the Scope of Services. The RFP should include the following:

- Project Team – Proposers should provide the name of the proposed project manager and other key individuals shall be provided. In case of joint proposals or subcontractors, the role of each firm shall be clearly specified.
- Project Experience - Proposers must supply a list of at least two verifiable projects with contact information similar in scope and complexity to this work. Specific experience related to wastewater treatment plant outfall modification and work adjacent to and within water bodies should be highlighted. The Contractor's experience must be detailed in an attachment submitted with the proposal.
- Initial Anticipated Schedule – Proposers should provide a detailed anticipated schedule with a discussion of the resources the proposer intends to use to meet this schedule, and any challenges to meeting the schedule that the proposer anticipates. The proposal should contain details as to the method to be used in transitioning flow from the current outfall to the new outfall. The submittal should indicate timelines regarding construction phasing and sequencing.
- List of Design Drawings - Proposers should provide a preliminary list of design drawings.
- List of Specifications – Proposers should provide a preliminary list of design specifications.
- Guaranteed Maximum Price – Proposer shall show a detailed breakdown of cost by project tasks. This cost portion of the proposal will be evaluated based on reasonableness and cost realism. Cost realism is the Proposer's demonstration that the proposed cost provides an adequate understanding of the nature and scope of work required.

Any proposal lacking this experience proof may be rejected as non-conforming.

Proposals will be evaluated with emphasis on the following factors:

(1) The suitability of the proposal in addressing project tasks, organization of the team, experience working together on other projects, and the overall quality and clarity of the proposal.
(2) Guaranteed Maximum Price.
(3) Demonstrated ability for the team members to deliver similar design/build projects on time and within budget. References for successful projects should be included.
(4) Demonstrated experience with the design and construction of projects with a similar scope of work.

The cost information of all proposals found to be technically acceptable will be reviewed and analyzed. Cost information shall be used to help determine the economic feasibility of pursuing proposals. It will not be the sole determining factor in the selection process.

Based upon evaluations of the technical and cost proposals, the Program Team may elect to conduct oral interviews.

Award of the contracts will normally be made to that Proposer who has been determined to be the most responsive and who offers the most advantageous final cost. However, the Program Team reserves the right to select a firm other than the lowest final Proposer and price will not be the determining factor. The

contract will be negotiated by the Owner or his designated representative. If a contract cannot be negotiated with the first Proposer selected, then selection may be made from those remaining on the list.

The Owner office reserves the right to reject any and/or all proposals, to waive any informality in the proposals received and to accept any proposal which it deems most favorable to its interests. Elaborate proposals are neither required nor desired. However, the Proposer should clearly state such details as will enable the Program Team to ascertain the exact nature, extent and quality of services and information to be provided.

Each Proposer must inform himself in all matters which may affect the proposal and no information furnished by the Owner or its representatives shall in any way relieve the Proposer from risk or responsibility in fulfilling all of the terms of the attached scope of services.

00260.2 General Proposal Parameters

Provide the information requested in Section 00260 and Section 00370 in the appropriate fields of Section 00370. Complete each line of Section 00370 in its entirety and submit it with your proposal in accordance with Section 00160. Do not alter Section 00370 forms in any way or deviate from the terminology used or the unit of measure indicated when completing Section 00370. Submit Section 00370 forms in their original core application software, with no embedded programming and no permissive encoding restricting access to the data provided.

00260.2.1 Bidder's Contact Information

Include contact information for your representative in Article 00370.2.1. Your representative must have the appropriate expertise and authority to negotiate on behalf of your company.

00260.2.2 Addenda to Request for Proposal

In Article 00370.2.2, list all addenda received from Purchaser and indicate "Yes" to show your receipt of and incorporation of the listed addenda into the proposal. Address any exceptions or clarifications to addenda in accordance with Article 00260.6.

00260.3 Proposal Pricing

You must include numerical values in the applicable fields of Table 00370.3.1.1. Non-numerical values, such as "included" or "not applicable," are not acceptable. Purchaser will evaluate fields left blank or filled with a zero as scope included in your proposal at no cost.

00260.3.1 Lump Sum Pricing

Provide the total firm lump sum pricing to perform the Work in accordance with this RFP in Table 00370.3.1. Lump sum price is the total amount to be billed to Purchaser for the cost of all work. Lump sum pricing includes all costs, overhead, profit and mark-up associated with delivering the complete and finishedwork.

00260.4 Supplemental Proposal Information

00260.4.1 Company Status

In Article 00370.4.1, indicate the type of your organization’s legal entity and the state and country in which it is organized.

00260.4.2 Contractor License

If you are not licensed to perform the Work, indicate “No" in Article 00370.4.2. If you indicate "No," declare an exception in accordance with Article 00260.6.

00260.4.3 Not Used

00260.4.4 Proposal Validity Period

Indicate "Yes" in Article 00370.4.4 if your proposal is valid for one hundred eighty calendar days after the Proposal Due Date (the "Proposal Validity Period"). If you indicate "No" in Article 00370.4.4, provide the

number of calendar days that your proposal is valid in Article 00370.4.4 and declare an exception in accordance with Article 00260.6. Purchaser may reject your proposal without prior notice if your proposal is not valid for the full Proposal Validity Period.

00260.4.5 Firm Non-Escalatable Pricing

Indicate "Yes" in Article 00370.4.5 if the proposal pricing is firm and not subject to escalation. If you indicate "No," declare an exception in accordance with Article 00260.6 and include the terms of escalation in your exception.

00260.4.6 Taxes

Tax requirements are identified in Article 00561.5. Indicate "Included" in Article 00370.4.6 if your proposal includes the tax requirements. If you indicate "Excluded" in Article 00370.4.6, declare an exception in accordance with Article 00260.6.

00260.4.7 Work at Jobsite

Identify the type of craft labor.
If you plan to subcontract any of the Work, indicate “Yes” in the appropriate section of Article 00370.4.7 and complete Table 00370.4.7.

00260.5 Schedule Compliance

Indicate "Yes" in Article 00370.5 if you can meet the schedule dates included in Table 00370.5. If you indicate "No," submit an alternative summary level schedule with your proposal.

00260.6 Compliance with Request for Proposal

00260.6.1 Declared Exceptions to RFP Requirements

An exception is any variation from an express RFP requirement. Declare all exceptions, whether commercial or technical in nature, in Table 00370.6.1. Provide specific exceptions and accurately reference the article number to which each exception applies. Exceptions of a general nature or that refer to your standard specifications or terms are not acceptable and may result in Purchaser rejecting your proposal without prior notice.

00260.6.2 Declared Clarifications to RFP Requirements

A clarification is the means by which you offer to meet an RFP requirement if the RFP does not identify the specific means by which the RFP requirement must be met. Declare any clarifications, whether commercial or technical in nature, in Table 00370.6.2. Reference the article number to which each clarification applies.

00260.7 Proposal Attachments

List any supplemental documents included in your proposal in Article 00370.7.

00260.8 Declarations

Indicate "Yes" in Article 00370.8 to confirm you have familiarized yourself with the conditions affecting the Work. If you indicate "No," declare an exception in accordance with Article 00260.6.

00260.9 Nondiscrimination

All entities contracting with the Purchaser agree to abide by and to take affirmative action when necessary to ensure compliance with the nondiscrimination clauses set out below, and agree to show proof of non-discrimination upon request and to post in conspicuous places available to all associate agents and their employees. In the event of non compliance with nondiscrimination clauses, or with provisions of Executive Orders 11141 (age), 11246, 11375 (women), 12086 (Vietnam veterans), 11478 (federal employees), 11625 (minority business) 11701 (veterans), Title 41, Chapter 60 (handicapped) and specifically the handicapped affirmative action clause in Section 60-741.6.9 of OFCCP Rules, and any and all other federal laws prohibiting discrimination, contracts may be canceled, terminated, or suspended in whole or in part by the Purchaser.

The Bidder shall execute the specified Nondiscrimination Certificate (see Section 00672.3) agreeing that, if awarded the Subcontract, he/she shall not discriminate against any Sub-subcontractor, employee, or applicant for employment on the grounds of race, color, national origin or sex, in accordance with the citations listed in the above paragraph; and shall require the execution of such a certificate for each Sub-subcontractor prior to award of any subcontract with the further requirement that each subcontractor shall include identical requirements in any lower tier subcontracts which might in turn be made. FAILURE TO EXECUTE AND SUBMIT SUCH CERTIFICATE WITH THE PROPOSAL MAY CAUSE THE PROPOSAL TO BE REJECTED AS NON-CONFORMING. The successful Bidder and all Sub-subcontractors under the general contract shall maintain copies of their payrolls and all subcontracts for each weekly payroll period for the life of the construction and for a period of **SEVEN (7) YEARS** after final release and payment is made by the Purchaser to the contractor.

00260.10 Equal Business Opportunity Program (EBO)

The Bidder must complete and return the Equal Business Opportunity Program Compliance Form included in Section 00672.4 of this RFP.

00370 – Commercial Proposal Form (10 pages)

00370 - Commercial Proposal Form

Bidder should refer to Section 00260, Instructions to Bidders, when completing this Proposal Form. Bidder shall complete this form entirely and return it with Bidder's Proposal.

00370.1 Proposal Submitted by	**Bidder Response Column**
Company Name	
Mailing Address/Number, Street	
Mailing Address/State, Zip Code	
Country	
Taxpayer ID Number (or EIN)	
Bidder's Bid Date	
Bidder's Proposal No.	

00370.2 General Proposal Parameters

Bidder is providing the information defined by the articles comprising Section 00260, INSTRUCTIONS TO BIDDERS, in the corresponding fields of this Section 00370, COMMERCIAL BID FORM.

00370.2.1 Bidder's Contact Information	**Bidder Response Column**
Bidder's Representative Name	
Title	
Mailing Address/Number, Street	
Mailing Address/City	
Mailing Address/State, Zip Code	
Delivery Address/Number, Street	
Delivery Address/State, Zip Code	
Country	
Email Address	
Phone Number	( ) - ( )
Mobile Phone Number	( ) - ( )
Fax Number	( ) - ( )
Business Interruption Plan	
Confirm that Bidder maintains a Business Interruption/Disaster Recovery Plan that documents how Bidder will respond to disaster or pandemic to help minimize impact - Yes/No (If Yes, plan should be submitted with RFP.)	

00370.2.2 Addenda to Request for Proposal

Bidder acknowledges receipt and inclusion of the following Addenda to the RFP - **Yes/No**

	Addenda Number	**Date Issued**	**Bidder Response Column: Received and Incorporated**

00370.3 See Lump Sum Bid Table 00370.3.1.

00370.4 Supplemental Proposal Information

Bidder provides the following information to supplement the Bidder's proposal pricing.

00370.4.1 Company Status	**Bidder Response Column**
Bidder's company status is:(i.e., partnership, individual owned, joint venture, corporation, etc.)	
in State of	
in Country of	
00370.4.2 Bid Requirements	
Bidder has provided preliminary list of drawings. (Yes/No)	
Bidder has provided preliminary list of specifications (Yes/No)	
Bidder agrees to Performance Objectives in Technical Specification 2.2 (Yes/No)	
Bidder has included details on how Performance Documentation will be accomplished per Technical Specification 2.2. (Yes/No)	
Bidder has provided an initial project schedule considering milestones in 00370.5	
Bidder has provided a list of any modifications that will add value to the project (Yes/No)	
Bidder has identified specific materials for piping (Yes/No)	
Bidder has provided a general description of the Foam Suppression System (Yes/No)	
Bidder has provided a preliminary dewatering and excavation plan (Yes/No)	
Bidder has reviewed Appendix B, CEH Modeling Report, and concurs with findings (Yes/No)	

Bidder certifies that it is licensed, as required, to engage in the RFP Work scope in the State/Province/Country the RFP Work is to be performed. - **Yes/No**	
1st License Title	
in State/Province of	
License Number	
2nd License Title	
in State/Province of	
License Number	
00370.4.3 DUNs Number	
00370.4.4 Proposal Validity Duration	**Bidder Response Column**
Bidder's proposal is valid for acceptance by the Purchaser for a period of 180 days from the bid due date. - **Yes/No**	
If no, Bidder's proposal is valid for indicated days from bid due date. - **No. Days**	
00370.4.5 Firm Non-Escalatable Pricing	**Bidder Response Column**
All of Bidder's prices herein proposal are firm and are non-escalatable. - **Yes/No** If No, explanation is included as an Exception.	
00370.4.6 Taxes	**Bidder Response Column**
Bidder's prices included herein are in accordance with Article 00561.5 Taxes. - **Yes/No** If No, explanation is included as an Exception.	
00370.4.7 Work at Jobsite	**Bidder Response Column**
Bidder's source of craft labor to be utilized in the performance of the Work is	
Bidder has accounted for all Jobsite existing and controlling conditions and limitations which may affect the Work performance and the Bidder's Proposal. - **Yes/No** If No, explanation is included in Exception.	
Bidder proposes that it will perform all the Work at the Jobsite with its own forces. - **Yes/No**	
Bidder has indicated proposed sub-subcontracted Work in attached Table 00370.4.7. - Yes/No	
Bidder has provided proposed Small Business/Minority/Disadvantaged Entrepreneur Participation Plan with its proposal. - **Yes/No**	
00370.5 Schedule Compliance	
Bidder agrees to meet the schedule dates indicated in the RFP documents: - **Yes/No** If No, explanation is included in Exception.	
If No, Bidder has completed and submitted an attached alternative summary level schedule: - **Yes/No**	
00370.6 Compliance with Request for Bid	
NOTE: A bid based on Bidder's standard terms and conditions will not be considered. The proposal must address specific exceptions, if any, to Purchaser's terms and conditions.	
Bidder certifies that its bid complies with all RFP commercial and technical requirements without exception and clarification. - **Yes/No**	
00370.6.1 Exceptions	
Bidder certifies that its bid complies with all RFP commercial and technical requirements except for the following:	**Bidder Response Column**
Proposal is based on acceptance of all commercial requirements of this RFP. - **Yes/No**	
If No, all Commercial Exceptions have been accurately defined and identified as "Commercial Exceptions" on the Purchaser provided and Bidder attached Exceptions Form: - **Yes/No**	
Proposal is based on acceptance of all technical requirements of this RFP. - **Yes/No**	
If No, all Technical Exceptions have been accurately defined and identified as "Technical Exceptions" on the Purchaser provided and Bidder attached Exceptions Form. - **Yes/No**	

00370.6.2 Clarifications	Bidder Response Column
Bidder certifies that its bid complies with all RFP commercial and technical requirements without clarification. - **Yes/No**	
If No, all Commercial Clarifications have been accurately defined and identified as "Commercial Clarifications" on the Purchaser provided and Bidder attached Clarification Form. - **Yes/No**	
If No, all Technical Clarification have been accurately defined and identified as "Technical Clarifications" on the Purchaser provided and Bidder attached Clarification Form. - **Yes/No**	
00370.7 Bid Attachments	
In addition to this Commercial Bid Form and Tables indicated herein, the Bidder's Bid contains supplemental information and details attached to this bid consisting of the following:	**Bidder Response Column**
(Attachment 1)	
(Attachment 2)	
(Attachment 3)	
(Attachment 4)	
(Attachment 5) (Add additional lines as needed)	
00370.8 Declarations	
The Bidder declares that it has familiarized itself with the conditions affecting the Work. The Bidder also declares that only the persons or firms interested in the proposal as principal or principals are named herein; that no other persons or firms have any interest in this bid or in the Subcontract to be entered into; that this proposal is made without connection with any person, company, or party likewise submitting a bid; and that it is in all respects for and in good faith, without collusion or fraud. - **Yes/No**	
If written notice of acceptance of this proposal is delivered to the Bidder within "Proposal Validity" days after the date set for receipt of bid, or any time thereafter before the proposal validity expires, the Bidder will, within 5 days after receipt of a formal Subcontract for signature, exercise and deliver to Purchaser a signed Subcontract in the form provided by the Purchaser in accordance with the documents provided herein. - **Yes/No**	

Table 00370.3.1 - Lump Sum Price Quotation Form

Bidder should refer to Section 00260, Instructions to Bidders, when completing this Proposal Form. Bidder shall complete this form entirely and return it with Bidder's Proposal.	
Proposal Submitted by (Company Name)	
00370.3 Quotation Pricing Information	
Bidder proposes to complete the subject RFP Work for the following firm, fixed, lump sum price (US dollars), which price would represent the full consideration to Bidder for its complete and satisfactory performance of the Work in compliance with all the terms and conditions of the RFP Documents:	
00370.3.1 Total Firm Lump Sum Price Quotation	**$ -**

The Total Firm Lump Sum Price stated above includes the cost of all the Work which is required or implied by the RFP documents or which may be inferred therefrom, and which is customarily provided in furnishing a complete and finished work of its kind. Further, any and all alterations, modifications, and adjustments to the Work, which are reasonably foreseeable or customarily encountered in providing and installing equipment, material, and services of the kind required by the resultant Subcontract, will be performed without additional compensation.

The above price also includes the furnishing of all indirect labor and material for Subcontractor-furnished items which do not become a permanent part of the project.

The above Total Firm Lump Sum Price is broken down as follows:

00370.3.1.1 Total Firm Lump Sum Price Breakdown		**Bidder Response Column**
Item No.	**Description**	
1	Engineering including Design Drawings and Specifications, and including Design Meetings	$ -
2	Mobilization	$ -
3	Demolition of Existing Concrete Dissipaters and Headwall	$ -
4	84" RCP Outfall Pipe to Vortex Drop Structure	$ -
5	Vortex Drop Structure	$ -
6	84" Outfall Pipe to River including 8" vent pipe	$ -
7	Foam Suppression System	$ -
8	Land Survey Work	$ -
9	Geotechnical Investigation	$ -
10	Excavation including dewatering and care of water	$ -
11	Construction Works including any temporary buildings or offices required	$ -
12	Final Site Work	$ -
13	Erection Equipment	$ -
14	Erection Supervision	$ -
15	Commissioning and Performance Testing	
16	Permits & Licenses, including all application fees and meetings with regulatory agencies	$ -
	Total Firm Lump Sum	**$ -**

Table 00370.4.7 - Sub-Subcontracts

Bidder should refer to Section 00260, Instructions to Bidders, when completing this Table.			
Proposal Submitted by (Company Name)			
00370.4.7 Sub-Subcontracts			
Bidder proposes that specific portions of the Work scope not performed by Bidder will be Sub-Subcontracted to the Sub-subcontractors indicated below. The value of each Sub-subcontract is indicated as an approximate percentage value of the total monetary value of the Bidder's Proposal.			
00370.4.7.1 Sub-Subcontracted Work			
Scope of Sub-Subcontracted Work	**Sub-subcontractors** (Name and Address)	**MBE or WBE**	**% of Total Work Value**
% of Work performed by Bidder.	(Bidder Company Name)		100.0%
(a)			
(b)			
(c)			
(d)			
(e)			
(f)			
(g)			
	Total Percentage Value (Must Equal 100%)		100.0%

00370.5 Schedule Compliance

State any exceptions in 00370.6.1.

00370.5.1 Construction Milestone Completion Dates

Item	Milestone Description	Construction Milestone Completion Date	*LDs Apply?	Bidder Complies? (Yes/No)
1	Mobilization	30 days after Notice to Proceed	No	
2	Project Substantial Completion	365 days after Notice to Proceed	Yes	
3	Final Acceptance	30 days after Project Substantial Completion	No	

*LD indicates that completion of the Work after the "Construction Milestone Completion Date" is subject to liquidated damages per applicable Articles of Section 00561.

*Note Subcontractor performance will directly impact future procurements for the SARP10 Program, schedule is critical and must be maintained.

Table 00370.6.1 - Exceptions Form

Bidder should refer to Section titled Instructions to Bidders, when completing this Form.	
Bid Submitted by (Company Name)	

00370.6.1 Exceptions

The Bidder's specific Exceptions herein itemized and included with the bid represent an exhaustive list of any and all explicit variations or deviations from the requirements of the RFP documents. Bidder confirms that otherwise, it is the intent of Bidder's bid that the Work will be performed in strict accordance with the requirements of the RFP documents.

00370.6.1.1 Commercial Exceptions

Count	Reference Article	Stated Commercial Exception
CE1		
CE2		
CE3		
CE4		
CE5		
CE6		
CE7		
CE8		
CE9		

00370.6.1.2 Technical Exceptions

Count	Reference	Stated Technical Exceptions
TE1		
TE2		
TE3		
TE4		
TE5		
TE6		
TE7		
TE8		
TE9		
TE10		
TE11		
TE12		
TE13		
TE14		
TE15		
TE16		
TE17		
TE18		
TE19		
TE20		

Table 00370.6.2 - Clarifications Form

Bidder should refer to Section titled Instructions to Bidders, when completing this Form.	
Bid Submitted by (Company Name)	

00370.6.2 Clarifications

All of Bidder's Clarifications herein itemized and included with the bid **do not** constitute explicit variation or deviation from performance of the Work by the Bidder in strict accordance with the requirements of RFP documents.

00370.6.2.1 Commercial Clarifications

Count	Reference Article	Stated Commercial Clarification
CC1		
CC2		
CC3		
CC4		
CC5		
CC6		
CC7		
CC8		
CC9		

00370.6.2.2 Technical Clarifications

Count	Reference	Stated Technical Clarification
TC1		
TC2		
TC3		
TC4		
TC5		
TC6		
TC7		
TC8		
TC9		
TC10		
TC11		
TC12		
TC13		
TC14		
TC15		
TC16		
TC17		
TC18		
TC19		
TC20		

00370.8 Schedule of Submittals

Effective Date: TBD

The following are post-award Subcontract submittals. This list is not all-inclusive. The RFP documents contain submittal requirements that are not included in this list. It will, however, remain the successful Bidder's responsibility to comply with submittal requirements whether or not the submittal is included in the following list:

If Bidder does not agree, state an exception in 00370.6.1.

Item	Reference Section	Submittal Item	Submittal Dates: Calendar Days		Submittal Dates: Event	Submittal Dates: Due Date	Bidder Agrees? Yes/No
00370.8.1 Commercial Submittals							
C01	None	Executed Subcontract in the form provided by the Purchaser	5	After	Receipt of Subcontract for Signature		
C02	00561	Payment Estimate Breakdown	10	After	Effective Date and Prior to First Payment with monthly updates		
C03	00561	Security Instruments	10	After	Effective Date		
C04	00562	Lien Waivers and Report of Disadvantaged Business Enterprise Participation Form		With	Each Invoice		
C05	00562	Final Lien Waivers from Subcontractor and Sub-subcontractors and Sub-subcontractors subcontractors and Report of Disadvantaged Business Enterprise Participation Form		With	Final Invoice		
C06	00561	Final Payment Invoice and Report of Disadvantaged Business Enterprise Participation Form	45	After	Issuance of the Notice Of Final Completion and Acceptance		
C07	00562	Contractor Licenses	14	Before	Mobilization Onsite		
C08	00562	Written Notice and Supporting Documentation, of all Claims	5	After	Occurrence of Event Giving Rise to the Claim		
C09	00562	Insurance Certificates for Purchaser Approval		Prior to	Mobilization		
C10	00562	Initial Issue Subcontractor's Work Execution Schedule	30	After	Effective Date		
C11	00561	Subcontractor Actual Man-hours Expended and Quantities Installed	Weekly	After	Mobilization Onsite		
C12	00565	Subcontractor's Daily Report	Daily	After	Mobilization Onsite		
C13	00565	Signed Daily Reports		Daily	After Mobilization Onsite		
C14	00565	Weekly Coordination Meeting Agenda Input	Weekly	Prior to	Weekly Coordination Meeting		
C15	00565	Subcontractor's Safety, Health and Accident Prevention Program		Prior to	Mobilization Onsite		
C16	00565	Subcontractor's Hazardous Waste Project Health and Safety Plan		Prior to	Mobilization Onsite		
C17	00565	Safety and Health Representative Resume		Prior to	Assignment and Mobilization		
C18	00565	Verification of meeting Hazardous Waste Requirements of 29CFR1910.120	5	Prior to	Mobilization Onsite		
C19	00565	Hazardous Materials Documentation		With	Each Hazmat Shipment		
C20	00565	Safety and Health Records	Monthly	After	Mobilization Onsite		
C21	00565	Evidence that Jobsite Personnel have Passed Drug Testing	10	Prior to	Mobilization Onsite		
C22	Loss Control Manual	Fall Protection Plan	5	Prior to	Starting Work Operations		
C23	Loss Control Manual	Chemical Hazard Communication Plan, as applicable	5	Prior to	Mobilization Onsite		
C24	Loss Control Manual	Substance Abuse Program	5	Prior to	Mobilization Onsite		
C25	SRF	W-9 of Subcontractor and Sub-subcontractors also include Contact Information for each including email and address		With	Proposal		
C26	00662.3	Certificate of Nondiscrimination for Subcontractor and Sub-subcontractors		With	Proposal		
C27	00662.4	Equal Business Opportunity Program Compliance Form for Subcontractor and Sub-subcontractors		With	Proposal		

00370.8 Schedule of Submittals

Effective Date: TBD

The following are post-award Subcontract submittals. This list is not all-inclusive. The RFP documents contain submittal requirements that are not included in this list. It will, however, remain the successful Bidder's responsibility to comply with submittal requirements whether or not the submittal is included in the following list:

If Bidder does not agree, state an exception in 00370.6.1.

Item	Reference Section	Submittal Item	Submittal Dates				Bidder Agrees? Yes/No
			Calendar Days		Event	Due Date	
C28	00662.6	Certification Regarding Debarment Subcontractor and Sub-subcontractors		With	Proposal		
C29	00662.6	Certification Regarding Equal Employment Opportunity for Subcontractor and Sub-subcontractors		With	Proposal		
C30	SRF	M/WBE Certificates for both Subcontractor and Sub-subcontractors as applicable		With	Proposal		
C31	SRF	EPA Form 6100-2 for DBE/MBE/WBE Sub-subcontractors	10	After	Effective Date and as updated		
C32	SRF	EPA Form 6100-3 for DBE/MBE/WBE Sub-subcontractors		With	Proposal and as updated		
C33	SRF	EPA Form 6100-4 for Subcontractor		With	Proposal and as updated		
C34	SRF	Employee Rights under the Davis-Bacon Act Poster (English and Spanish)		Posted	All Sites to be easily accessed/viewed and protected from weather		
C35	SRF	WH-1321 poster		Posted	All Sites to be easily accessed/viewed and protected from weather		
C36	SRF	Wage Decision		Posted	All Sites to be easily accessed/viewed and protected from weather		

00561 - Supplementary Terms and Conditions

00561.1 Notices and Correspondence

The Parties agree to send all notices arising out of or related to this Subcontract by one of the following methods: (a) personal delivery; (b) certified mail with return receipt; (c) nationally recognized overnight mail or courier service, with delivery receipt requested; or (d) email. The Parties may send routine correspondence by email or first class mail, each without confirmation of receipt. The Parties agree to address notices and correspondence as indicated in this article. Subcontractor agrees that delivery of a notice or of correspondence by Purchaser to Subcontractor's field office at or near the Jobsite constitutes personal delivery.

Electronic Technical Correspondence

Addressed to Purchaser:	**Addressed to Subcontractor:**
To: Brad Davis	To: [[name]]
DavisBJ@bv.com	[[email address]]
Cc: Gary Older	Cc: [[name]]
OlderGS@bv.com	[[email address]]

Non-Electronic Technical Correspondence

Addressed to Purchaser:	**Addressed to Subcontractor:**
Overland Contracting Inc.	[[subcontractor entity]]
3485 Poplar Avenue, Suite 230	[[street address]]
Memphis, TN 38111	[[city, state, zip code]]
Attention: Brad Davis	Attention:
185332.75.2000	[[subcontract number]]

Electronic Commercial Correspondence (excluding invoices)

Addressed to Purchaser:	**Addressed to Subcontractor:**
To: Aaron Kinkelaar	To: [[name]]
KinkelaarAB@bv.com	[[email address]]
	Cc: [[name]]
	[[email address]]

Non-Electronic Commercial Correspondence (excluding invoices)

Addressed to Purchaser:	**Addressed to Subcontractor:**
Overland Contracting Inc.	[[subcontractor entity]]
8400 Ward Parkway	[[street address]]
Kansas City, MO 64114	[[city, state, zip code]]
Attention: Aaron Kinkelaar	Attention:
185322.75.2000	[[subcontract number]]

Electronic Invoices
Prior to Invoice submission to BVAPMarkView@bv.com, Subcontractor will send a copy to OlderGS@bv.com, DavisBJ@bv.com and ChenJ2@bv.com for review and approval. Once Julia Chen receives Project Manager approval, she will notify the Subcontractor to submit the Invoice to BVAPMarkView@bv.com. Subcontractor shall utilize the A1A form, available upon request.

Original Invoice:

To: Overland Contracting Inc.

BVAPMarkView@bv.com

Fax (866) 941-9458

Attention: BVAP

185332.75.2000

With a Copy to:

To: Julia Chen

ChenJ2@bv.com

00561.2 Shipment and Delivery

Deliveries may be made to the Jobsite between _:__ a.m. and _:__ p.m. local time at the Jobsite, excluding local holidays. Subcontractor shall promptly unload shipments of the Work and promptly release the carrier's equipment from the Jobsite. If Subcontractor is unable to promptly unload shipments of the Work, Purchaser may unload or make arrangements for others to unload the shipments at Subcontractor's expense.

The shipping address is as follows:

[[project name]]

c/o [[receiving entity]]

[[street address]]

[[city, state, zip code]]

Attention:

00561.3 Payment Terms

Within ten calendar days after the Effective Date, Subcontractor shall submit to Purchaser a completed payment estimate breakdown. Purchaser may reject the payment estimate breakdown if it: (a) does not contain a reasonable distribution of the Subcontract Price; (b) contains front end loading of prices for early scheduled line item activities; or (c) contains breakdown line items that cannot be easily quantified by Purchaser when assessing progress of the Work against the payment estimate breakdown. Purchaser's approval of the payment estimate breakdown is a condition precedent to Purchaser's obligation to pay Subcontractor's initial invoice. The payment estimate breakdown, once approved by Purchaser, may only be revised by written Subcontract revision.

The Parties will meet each month at an agreed time in order to determine the percent complete status of each payment estimate breakdown line item for the invoice period. The Parties will use the current payment estimate breakdown to calculate that month's progress payment total by multiplying the percent complete for each line item times the contract value assigned to that line item. Purchaser will pay Subcontractor forty-five calendar days after the Parties have calculated the month's progress payment or forty-five calendar days after Purchaser's receipt of Subcontractor's deficiency-free invoice, whichever is later.

00561.3.2 Progress payments to the Subcontractor for the Work completed to the satisfaction of Purchaser, will be made for approved payment amounts as Purchaser is paid by Owner. Owner's payment to Purchaser for the Work is a condition precedent to Purchaser's obligation to pay

Subcontractor for the Work. Therefore, Subcontractor will only be paid to the extent that Purchaser receives payment for the Work from Owner.

00561.4 Liquidated Damages

00561.4.1 General

Subcontractor's failure to meet the requirements identified in this Article 00561.4 will cause Purchaser to incur harm that will be very difficult to ascertain with certainty. The Parties therefore agree the liquidated damages specified in this Article 00561.4 represent a reasonable estimate of Purchaser's harm and are not intended as a penalty. Subcontractor's payment of liquidated damages for breach of the specified requirement is Purchaser's sole and exclusive remedy with regard to Subcontractor's breach of that requirement, except for any other express remedies stated in the Subcontract. If Purchaser terminates the Subcontract for cause, liquidated damages will cease to accrue after the termination date and Subcontractor's remaining liability will be calculated in accordance with Article 00562.21.

00561.4.2 Submittals

The submittals subject to liquidated damages for late delivery are listed in the Article entitled “Schedule of Submittals and Applicable Liquidated Damages”. To be considered complete, all documents comprising a submittal must be delivered to Purchaser and must be properly prepared and sufficient to allow Purchaser to determine that the Work will meet the requirements of this Subcontract. Liquidated damages will accrue for each failure to deliver a complete submittal beginning on the first calendar day after the submittal due date and continuing until that submittal is completed. Liquidated damages will be assessed for each failure at the rate of $300 dollars per calendar day.

00561.4.3 Construction Milestone Completion Dates

Each construction milestone subject to liquidated damages for late completion is listed in the Article titled “Construction Milestone Completion Dates and Applicable Liquidated Damages”. If all portions of the Work comprising the construction milestone do not meet the Subcontract requirements on the construction milestone completion date, liquidated damages will accrue for each failure as shown below.

Beginning on the first calendar day after the specified construction milestone completion date for each construction milestone and continuing for thirty calendar days or until the construction milestone is completed, whichever is earlier, delay liquidated damages will be assessed at the rate of $1,000 dollars per calendar day.

Beginning on the thirtieth calendar day after the specified construction milestone completion date for each construction milestone and continuing until the construction milestone is completed, delay liquidated damages will be assessed at the rate of $1,500 dollars per calendar day.

00561.5 Taxes

Subcontractor shall pay all payroll and other related employment compensation taxes for Subcontractor’s employees, federal, state and other taxes which may be assessed on Subcontractor’s income from the Project, engineering and business license costs (collectively, the “Subcontractor Taxes”). Subcontractor shall administer and pay all sales, use, gross receipts and excise taxes (collectively, the “Project Taxes”). Subcontract price includes Subcontractor Taxes and all Project Taxes. Purchaser will not be responsible for any additional charges related to tax that were not included as part of the Subcontract Price. Where applicable, Purchaser shall furnish to Subcontractor a certificate complying with state and local governmental laws, regulations and ordinances identifying any components of the Work to be considered exempt from the Project Taxes. Subcontractor shall cooperate with Purchaser to establish appropriate procedures and minimize the amount of such taxes to the extent reasonable and practical. Subcontractor is responsible for all property taxes on the construction equipment; Owner is responsible for property taxes on all other items incorporated into the project. Subcontractor shall notify Purchaser, and Purchaser shall have the right to review prior to Subcontractor’s response to such document, of any correspondence with a federal or local taxing authority as it relates to sales and use, gross receipts, or excise taxes.

00561.6 Security Instruments

Subcontractor shall give Purchaser separate performance and payment bonds in the format of AIA Document 312 - 2010 Performance Bond and Payment Bond, each in the amount of the Subcontract Price. Subcontractor shall submit the bonds to Purchaser by the due date specified in the Article titled "Schedule of Submittals and Applicable Liquidated Damages". The bonding company must be licensed to bond in the state in which the Project is located and must be rated "A" or better by A.M. Best and included in the Department of the Treasury's Listing of Approved Sureties (Department Circular 570).

00561.7 Additional Insurance Requirements

Subcontractor shall maintain professional liability insurance protecting Subcontractor from claims arising out of or relating to professional services provided as part of the Work. Subcontractor shall maintain policy limits of at least one million dollars for each occurrence.

00562 - General Terms and Conditions

00562.1 Definitions

The terms below have the following definitions when used in this Subcontract:

"Applicable Laws" means all laws, statutes, regulations, codes, rules, treaties, ordinances, judgments, permits, decrees, approvals, interpretations, injunctions, writs, orders, or other legal requirements of a Governmental Authority having jurisdiction over the Jobsite or performance of the Work.

"Claims" means claims, actions, suits, liabilities, demands, damages, losses, costs, expenses (including reasonable attorneys' fees), impacts to price, impacts to schedule, awards, fines and judgments, of every kind and nature.

“Consent Decree” means the negotiated plan between Owner, Department of Justice, Environmental Protection Agency, Tennessee department of Environment and Conservation, and the Tennessee Clean Water Network that requires Owner to develop and implement plans to improve its wastewater systems.

"Construction Schedule" means the detailed network schedule developed by Subcontractor using the critical path method of scheduling and planning the Work.

"Construction Works" means everything used in the performance of work that is not intended to become a permanent part of the Project.

"Effective Date" means date Subcontract is issued.

"Engineer" means the entity providing engineering services to Purchaser for this Project.

"Final Completion" means: (a) the Work is complete and complies with the requirements of this Subcontract; (b) Subcontractor has removed all Subcontractor-furnished Construction Works from the Jobsite; (c) Subcontractor has paid to Purchaser all amounts owed by Subcontractor to Purchaser under this Subcontract; (d) Subcontractor has restored any damaged property to the condition in which it existed prior to the damage; (e) Subcontractor has completed all required clean up; and (g) Subcontractor has fulfilled all of its obligations under this Subcontract except obligations that, by the terms of this Subcontract, can only be fulfilled after completion of the Work or obligations that survive completion of the Work.

"Governmental Authority" means any governmental body entitled to exercise any administrative, executive, judicial, legislative, police, regulatory or taxing power.

"Indemnified Parties" means Owner and its officials, Purchaser, Engineer, and the parent companies, related companies, affiliated companies, subsidiaries, successors, and assigns of each, including the shareholders, officers, directors, partners, employees, and agents of each of the above firms. “Indemnified Parties” does not include Subcontractor or any Sub-subcontractor.

"Jobsite" means the parcel of land on which the Project is constructed, as may be further described in this Subcontract, other areas designated in this Subcontract as forming part of the Jobsite, and other areas provided by Owner for performance of the Work.

“Notice to Proceed” – shall mean the written notice provided by Purchaser to Subcontractor releasing Subcontractor to proceed with all or part of the Work.

"Owner" means the City of Memphis, Tennessee.

"Parties" means Purchaser and Subcontractor.

"Party" means Purchaser or Subcontractor.

"Program Manager" means Black & Veatch Corporation or Overland Contracting Inc. (OCI).

"Prime Agreement" means the agreement between Owner and Purchaser.

"Project" means the project undertaken by Owner for which Purchaser is procuring the Work.

"Project Substantial Completion" means the Project is substantially complete and has passed the startup demonstration period, including performance testing, and the Owner has assumed care, custody, and control of the Work.

"Purchaser" means the Party so identified in the Subcontract Agreement.

"Purchaser's Engineer" has the same meaning as "Engineer."

"SARP10 Program Office" 3485 Poplar Avenue, Suite 230, Memphis, TN 38111.

"Specifications" means Purchaser's documents describing the technical and other requirements of the Work, and the codes, standards, or specifications referenced in the documents.

"Subcontract" means the agreement between Purchaser and Subcontractor consisting of: (a) the Subcontract Agreement; (b) the documents listed in the Subcontract Agreement; (c) written Subcontract revisions; (d) attachments, appendices and exhibits to the Subcontract documents; (e) documents expressly incorporated by reference into the Subcontract; and (e) any requirements that can be reasonably inferred from any of the foregoing.

"Subcontract Agreement" means the Subcontract form executed by Purchaser and Subcontractor.

"Subcontract Price" means the total compensation to be paid to Subcontractor under this Subcontract.

"Subcontractor" means the Party so identified in the Subcontract Agreement.

"Sub-subcontractor" means any party, at any tier, having an agreement with Subcontractor or with a Sub-subcontractor, to perform a portion of the Work.

"Supplier" means Subcontractor.

"Technical Specifications" has the same meaning as "Specifications."

"US" or "USA" means the United States of America.

"Warranty Period" means a one year period of time after Project Substantial Completion is achieved, as may be extended pursuant to Article 00562.24.

"Work" means that which Subcontractor is to perform or provide under this Subcontract.

00562.2 Interpretation

00562.2.1 This Subcontract is the complete and final agreement between the Parties relating to the Work. All prior or contemporaneous negotiations and agreements relating to the Work are superseded by this Subcontract. Exceptions or terms submitted by Subcontractor in the course of accepting this Subcontract are void.

00562.2.2 Subcontractor agrees to obtain Purchaser's written clarification before proceeding with Work that may be affected by an apparent conflict, discrepancy or error in the Subcontract. If Subcontractor

does not obtain Purchaser's written clarification, the provision imposing the more stringent requirement on Subcontractor will apply as determined in Purchaser's sole discretion.

00562.2.3 Reference within a Subcontract document to an organization's codes or standards means the latest code or standard adopted at the time of performance of the Work. Except for technical requirements, no code or standard modifies Subcontractor's obligations under this Subcontract.

00562.2.4 Provisions of this Subcontract that contemplate performance or obligations subsequent to completion or termination of the Work or contain waivers or limitations of liability will survive such completion or termination. Termination of the Work will not affect the rights and obligations that arose before termination.

00562.2.5 No obligation under this Subcontract may be waived without the written agreement of the Party against whom enforcement of the waiver is sought. Failure or delay in exercising a right or remedy or requiring the satisfaction of an obligation under this Subcontract does not constitute a waiver of that right, remedy, or obligation.

00562.2.6 If any provision of this Subcontract is held to be unenforceable, the remaining provisions of this Subcontract will remain in effect.

00562.2.7 The Parties agree to make all payments due under this Subcontract in US dollars.

00562.3 Subcontractor's Representations and Status

00562.3.1 Subcontractor represents that it has sufficient resources and capacity and is fully qualified, properly equipped, sufficiently financed, and otherwise able to perform the Work in accordance with the Subcontract requirements. Purchaser may require that Subcontractor provide reasonable assurance of Subcontractor's continued satisfaction of these representations.

00562.3.2 Subcontractor is an independent contractor in the performance of the Work. Subcontractor is solely responsible for the means, methods, sequences, procedures, and safety precautions used or adopted by Subcontractor and any Sub-subcontractor in the performance of the Work. Except as provided in Article 00564.3 and 00564.6, Subcontractor has sole authority and responsibility to employ, manage, discharge, and otherwise control its employees.

00562.3.3 Subcontractor also represents that it has satisfied itself as to the character, quality and quantity of surface and subsurface materials, structures, utilities, or other obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the Jobsite and the Subcontract. Subcontractor agrees that Purchaser has no responsibility or liability for Subcontractor's conclusions or interpretations based on information Purchaser has made available to Subcontractor.

00562.4 Invoicing and Payment

00562.4.1 Subcontractor shall submit invoices to Purchaser with all documentation required to be submitted with the invoice. Each invoice must be itemized by the Subcontract line number. Each invoice must also clearly show the Subcontract number, the invoice number, the billing period (if applicable), the invoiced amount, retention (if applicable), and the net amount due. The final invoice must contain a copy of Purchaser's Notice of Final Completion. If an invoice does not contain the required documentation or information, Purchaser will notify Subcontractor of the deficiency.

00562.4.2 Subcontractor agrees to provide additional itemization of the Subcontract Price as Purchaser reasonably requests. If payment to Subcontractor will be on a time and material basis or a unit price basis, or if Subcontractor files a Claim under Article 00562.16, Subcontractor shall furnish Purchaser complete breakdowns and supporting information in the detail required by Purchaser to verify the accuracy of the invoiced or claimed amounts. Subcontractor shall retain the breakdowns and supporting

information for two years after acceptance by Owner of the completed Project, during which time Purchaser or Purchaser's designee may audit the aforementioned records at Purchaser's expense.

00562.4.3 Unless otherwise stated in this Subcontract, Purchaser will pay Subcontractor forty-five calendar days after acceptance by Purchaser of the Work or after receipt of Subcontractor's deficiency-free invoice, whichever occurs later. Purchaser will withhold ten percent retention from all invoices except the final invoice. Payment by Purchaser does not: (a) constitute approval or acceptance of any portion of the Work; (b) waive any of Purchaser's rights; or (c) relieve Subcontractor from responsibility or liability arising out of or related to this Subcontract. Acceptance by Subcontractor of final payment constitutes a release and waiver of all Claims by Subcontractor against Indemnified Parties.

00562.4.4. Purchaser may withhold or set-off amounts due under this Subcontract on account of: (a) Claims arising out of or related to Subcontractor's breach or reasonably anticipated breach of this Subcontract, (b) a claim filed against Subcontractor or reasonable evidence indicating a claim may be filed against Subcontractor; or (c) a reasonable doubt that Subcontractor can complete the Work for the unpaid portion of the Subcontract Price. If amounts owed by Subcontractor to Purchaser exceed the unpaid balance of this Subcontract, Subcontractor agrees to pay those amounts within forty-five calendar days after receipt of Purchaser's notice identifying the amounts due.

00562.4.5 Once Work that has undergone specified QA/QC is submitted, reviewed and approved by the Program Manager, the Subcontractor's invoice will be submitted along with the Program Manager's next invoice to the Owner. The Program Manager's invoice is typically submitted during the second week of each month for work performed during the previous month. Typical payment from the Owner to the Program Manager is anticipated to be thirty (30) calendar days upon Owner's acceptance of invoice, and the Program Manager will cause the Purchaser to pay the Subcontractor within two weeks of Program Manager's receipt of payment from the Owner.

00562.5 Schedule

Performance of the Work as scheduled under this Subcontract is of the essence. Subcontractor shall give Purchaser written notice of any delay or anticipated delay within three calendar days after the occurrence of the event giving rise to the delay. Subcontractor's notice must identify the cause of the delay or the anticipated delay and the actions Subcontractor is undertaking to recover from or avoid the delay. Subcontractor will be solely responsible for costs incurred to implement the corrective measures. Purchaser may direct Subcontractor to accelerate the Work by whatever means Purchaser deems necessary in order to recover and maintain the Work as scheduled under this Subcontract. Subcontractor will be solely liable for costs to accelerate the Work. In the instance of schedule impact due to weather, reference Exhibit A.

00562.6 Waivers of Lien

As a condition precedent to payment, Subcontractor shall furnish a lien waiver in the form of Article 00662.1 with each invoice except the final invoice. As a condition precedent to payment of the final invoice, Subcontractor shall furnish a lien waiver in the form of Article 00662.2 with the final invoice. If a lien is filed and Subcontractor does not remove or bond around the lien within seven calendar days after receipt of written notice from Purchaser or Owner, Purchaser or Owner may remove the lien. Subcontractor shall reimburse Purchaser or Owner, as applicable, for all costs and expenses incurred by Purchaser or Owner in removing the lien, including reasonable attorneys' fees and court costs.

00562.7 Subcontracting

Except for the supply of expendable materials and minor components or the supply of a portion of the Work for which a Sub-subcontractor is named in this Subcontract, Subcontractor may not subcontract the Work without first obtaining Purchaser's written consent. If Subcontractor subcontracts any portion of the Work, Subcontractor remains responsible for complying with the Subcontract requirements and is liable to Purchaser for the acts and omissions of Sub-subcontractors, including their failure to comply with the requirements of this Subcontract or fulfill the obligations imposed on Subcontractor by this Subcontract, as if the acts and omissions were those of Subcontractor. Purchaser has the right to contact Sub-subcontractors to discuss their progress of the Work.

00562.8 Assignment

00562.8.1 Subcontractor may not assign all or part of this Subcontract voluntarily, by operation of law, or otherwise, nor may Subcontractor assign any of the money payable under this Subcontract, without obtaining Purchaser's prior written consent.

00562.8.2 Purchaser may, at its sole discretion, assign this Subcontract to its affiliates or to Owner or Owner's designee and, upon such assignment, Purchaser will be released from all obligations or liabilities arising out of or related to this Subcontract.

00562.9 Quality Control

Subcontractor agrees to maintain a Purchaser-approved quality control system and manual during performance of the Work. Subcontractor also agrees to require each Sub-subcontractor to maintain a quality control system appropriate for each Sub-subcontractor's scope of work during Sub-subcontractor's performance of the Work. If Subcontractor or a Sub-subcontractor does not maintain a quality control system as required by this Article 00562.9, Purchaser may reject all or part of the Work.

00562.10 Inspection

00562.10.1 Subcontractor shall identify for Purchaser all locations, other than the Jobsite, where Work is to be performed and shall furnish information reasonably required by Purchaser to verify that the Work conforms to the requirements of this Subcontract. Subcontractor agrees to allow Purchaser and Owner reasonable and safe access to all locations, including the Jobsite, where the Work is being performed so Purchaser and Owner may: (a) inspect the Work; and (b) test or witness tests of the Work.

00562.10.2 Inspection or acceptance of the Work does not preclude subsequent inspection and rejection of the Work if the Work is later discovered not to conform to the Subcontract requirements or if Purchaser has reasonable grounds upon which to believe the Work does not conform to the Subcontract requirements. Inspection of the Work or performance or witnessing of tests is solely for the benefit of Purchaser and does not discharge Subcontractor from complying with the Subcontract requirements.

00562.11 Passage of Title, Risk of Loss, and Delivery

Subcontractor warrants that the Work (excluding Subcontractor-furnished Construction Works) will be free of all liens, claims, charges, security interests, encumbrances or defects in title. Title to the Work (excluding Subcontractor-furnished Construction Works) will pass to Purchaser upon the earlier of Subcontractor’s receipt of payment or delivery of the Work to the Jobsite. Subcontractor retains the risk of loss of the Work until Purchaser issues the notice of Final Completion. The terms of delivery have the meanings assigned them in the 2010 edition of the Incoterms published by the International Chamber of Commerce, except as modified in this Subcontract.

00562.12 Final Completion

00562.12.1 Subcontractor shall notify Purchaser in writing when Subcontractor believes the Work meets the requirements for Final Completion. Purchaser will inspect the Work within twenty calendar days after Purchaser’s receipt of Subcontractor’s notice. If Purchaser identifies any defective or non-conforming Work, Subcontractor shall correct that Work in accordance with Article 00562.23. The Parties will continue the process of inspection, notice and correction until the Work meets the requirements for Final Completion.

00562.12.2 Purchaser will issue a notice that Final Completion has been achieved when the Work meets the requirements for Final Completion. The notice will reflect the actual date of Final Completion. Purchaser’s issuance of the notice of Final Completion does not relieve Subcontractor of its obligations under this Subcontract.

00562.13 Warranty

00562.13.1 Subcontractor warrants to Purchaser and Owner that the Work: (a) will be new when delivered; (b) will be free from defects in design, material, and workmanship; (c) will comply with Applicable Laws; (d) will comply with the requirements of this Subcontract; and (e) will be fit for the purposes specified. Subcontractor also warrants to Purchaser and Owner that elements of the Work for which this Subcontract does not establish express standards of quality and fitness will comply with good industry practices for the specific application. Subcontractor agrees that Owner may directly enforce the warranties of this Article 00562.13.1.

00562.13.2 Subcontractor shall correct any breach of this warranty within ten calendar days after Purchaser gives Subcontractor written notice of the breach. The cost of warranty work and removal or replacement of other work will be at Subcontractor's expense. Subcontractor shall work diligently and without interruption to correct the breach. In the case of emergency where, in the reasonable judgment of Purchaser, delay could result in serious loss or damage to persons or property or if Purchaser at its sole discretion determines that the Project schedule or Owner's operations will be adversely affected, Purchaser may correct the defect or nonconformity at Subcontractor's expense.

00562.13.3 Subcontractor is responsible for any damage to the Work or other work caused by breach of the warranty. Subcontractor is also responsible for any rework of the Work or other work required by correction of the breach. Subcontractor shall, at its expense, perform inspections and tests as Purchaser may reasonably require to demonstrate that the corrected Work complies with the Subcontract requirements. This warranty applies to all repairs and replacements to the same extent the warranty applies to the original Work. The Warranty Period for repaired Work or replacements will be extended for a period of one year after the repair or replacement is complete or until the original Warranty Period expires, whichever occurs later.

00562.13.4 Subcontractor acknowledges that Owner’s failure to achieve 100 percent compliance with the Consent Decree requirements may result in the imposition of penalties, costs , and other damages imposed against the Owner and Purchaser. To the extent caused by Subcontractor’s failure to perform the Work in accordance with this Subcontract or to the extent caused by the negligence of Subcontractor or any Sub-subcontractor. Subcontractor agrees to pay penalties and costs incurred by Owner and Purchaser under the Consent Decree.

00562.14 Compliance with Laws

00562.14.1 Subcontractor shall comply with all Applicable Laws in effect during its performance of Work, including but not limited to the City of Memphis Living Wage Ordinance, City of Memphis Prevailing Wage Ordinance, Davis Bacon, the Fair Labor Standards Act, Occupational Safety and Health Administration (OSHA), and the Americans with Disabilities Act (ADA). Subcontractor shall obtain all licenses, permits, and inspections applicable to the Work except for licenses, permits, and inspections identified in this Subcontract as Purchaser’s or Owner’s responsibility. Subcontractor shall also comply with the USA's Foreign Corrupt Practices Act.

00562.14.2 Living Wage Ordinance:
The Prime Agreement is subject to Living Wage Ordinance #5185 as amended by Ordinance #5257 (effective July 1, 2008) that requires contractors who enter into a service contract with the City of Memphis to pay employees who work under the service contract a living wage. The minimum hourly wage shall be at least $10.27 per hour with health benefits for employees and their dependents or $12.32 per hour without health benefits. Subcontractor is also subject this ordinance as a subcontractor of Purchaser performing services. Subcontractor will submit certified payrolls as required by the ordinance to Purchaser, and Purchaser will forward to Owner. Copies of the ordinances are posted on Owner’s website (www.memphistn.gov). Once on the homepage, click on the “Business” link, and then click on “Doing Business with the City” link. A link to the ordinance will be on the top right side under the section “Links”. Annual adjustments to the rates will be posted on the site for the next year in February. Davis Bacon rates shall apply only if they are higher than the City of Memphis Living Wage Ordinance. Also if

the Subcontract price is higher than $500,000.00 the City of Memphis Prevailing Wage Rates applies unless the rates are lower than the Davis Bacon rates and then Davis Bacon rates would apply.

00562.14.3 Neither party shall engage in any conduct or activity in the performance of this Subcontract that constitutes a conflict of interest under Applicable Laws.

00562.15 Business Practices

Subcontractor shall uphold the good name and reputation of Purchaser and shall not take any action which is intended to or which causes damage to or discredits Purchaser. Subcontractor shall not:

(a) offer to give or agree to give any director, officer, employee or agent of any potential client a gift or consideration of any kind as an inducement or reward for: (i) doing or declining to do, or for having done or declined to do, any action in relation to obtaining or executing any contract or (ii) for showing or declining to show any favor or disfavor to any person in relation to any possible project; or

(b) induce or attempt to induce any officer, servant, or agent of any private or public body to depart from his or her duties to his or her client or, in the case of any officer, servant or agent of a public body, his or her duties to the applicable public body, the applicable body politic, or both.

00562.15.2 Subcontractor shall not engage or employ, on a full, part-time or any other basis during the term of the Prime Agreement and for a period of one year after the termination or expiration, any professional or technical personnel who are or have been at any time during the term of the Prime Agreement in the employ of Owner with the explicit written consent of Owner.

00562.15.3 Nondiscrimination:

(a) Subcontractor certifies and agrees that all persons employed by it, its affiliates, subsidiaries, or holding companies are and will be treated equally without regard to or because of race, creed, color, religion, ancestry, national origin, sexual orientation, sex, age, condition of physical or mental handicap, marital status, or political affiliation, in compliance with all Applicable Laws. Subcontractor shall certify, at Purchaser's request, that it is in full compliance with all applicable EEO rules and laws.

(b) Purchaser and Owner reserve the right to investigate any claims of illegal discrimination by Subcontractor and in the event a finding of discrimination is made and upon written notification thereof, Subcontractor shall take all necessary steps to cure and rectify such action to the reasonable satisfaction of Purchaser and Owner. Subcontractor's failure or refusal to do so shall be cause for termination of this Subcontract in accordance with the terms of this Subcontract.

00562.15.4 Purchaser is an affirmative action employer. Accordingly, the parties hereby incorporate by reference the requirements of Executive Order 11246, as amended, and the applicable regulations contained in 41 C.F.R. Parts 60-1 through 60-60; 29 U.S.C. Section 793 and the applicable regulations contained in 41 C.F.R. Part 60-741; 38 U.S.C. Section 4212 and the applicable regulations contained in 41 C.F.R. Part 60-250 and/or 60-300; and 29 C.F.R. Part 471, Appendix A to Subpart A.

00562.16 Claims

Subcontractor must give written notice, with appropriate supporting documentation, of all Claims for extra compensation or additional time for performance of the Work within ten calendar days after occurrence of the event giving rise to the Claim. Subcontractor acknowledges that failure of Subcontractor to give Purchaser notice and appropriate supporting documentation within the required time frame constitutes a waiver of all Claims arising out of or related to the event.

00562.17 Subcontract Revisions and Work Authorizations

00562.17.1 Purchaser may make additions, deletions, reductions in scope, or other changes to the Work. If a proposed change will cause a material increase or decrease in Subcontractor's cost or time for performance, Subcontractor shall so notify Purchaser in writing within three calendar days after Subcontractor's receipt of Purchaser's notice of change. Subcontractor's notice must include supporting documentation in order to be effective. If Purchaser agrees with Subcontractor's notice, the Parties will negotiate an equitable adjustment to the Subcontract Price, to the schedule, or both, in accordance with the Subcontractor's fee for overhead and profit as listed in Article 00562.17.2 below. These adjustments will be reflected in a written Subcontract revision.

00562.17.2 The Subcontractor's fee for overhead and profit shall be determined as follows:

For costs incurred for labor the maximum fee shall be fifteen percent to the Subcontractor or the Sub-subcontractor performing the Work.

For costs incurred for materials and equipment the maximum fee shall be five percent to the Subcontractor or the Sub-subcontractor providing the materials and equipment.

If applicable, the Subcontractor may receive an additional fee of five percent on labor or materials and equipment performed or provided by a Sub-subcontractor, as long as the total combined fee does not exceed fifteen percent.

00562.17.3 If Purchaser, in its sole discretion, determines that the time required for the development of a Subcontract revision will adversely impact the Construction Schedule or the Project schedule, Purchaser may issue a Work authorization. Upon receipt of a written Work authorization, Subcontractor shall proceed with the change identified in that Work authorization. Purchaser will convert one or more Work authorizations to a Subcontract revision. A written Subcontract revision is required before Subcontractor is entitled to payment for the Work performed under the Work authorization. Subcontractor will bear the expense of performing any change not supported by a written Work authorization or written Subcontract revision.

00562.17.4 Subcontractor may request changes to the Work by written request to Purchaser. If a proposed change will cause a material increase or decrease in Subcontractor's cost or time for performance, Subcontractor shall so identify those changes in Subcontractor's request. If Purchaser agrees to Subcontractor's request, the Parties will negotiate an equitable adjustment to the Subcontract Price, to the Construction Schedule, or both, with the adjustment to be reflected in a written Subcontract revision. Subcontractor, however, shall proceed with the change if Purchaser issues a written Work authorization.

00562.17.5 Purchaser will not be liable to Subcontractor for Claims arising from a decrease in the Work. No change is effective without a written Subcontract revision issued by Purchaser.

00562.18 Intellectual Property

00562.18.1 Subcontractor hereby grants to Purchaser and Owner an irrevocable, royalty-free, fully paid-up, non-exclusive license under all intellectual property owned or controlled by Subcontractor or Sub-subcontractors to the extent necessary for the installation, operation, maintenance, repair or alteration of the Work. Purchaser and Owner may reproduce any submittals received from Subcontractor that are considered necessary for engineering, construction, start-up, commissioning, maintenance, or other purposes related to the Project, despite any notice to the contrary appearing on the document.

00562.18.2 If all or part of the Work is held to constitute an infringement of any intellectual property right or an unauthorized use or disclosure of a trade secret, and if the use of all or part of the Work is enjoined, Subcontractor shall, at its own expense, and at Purchaser's or Owner's option: (a) procure for Purchaser or Owner the perpetual right to use such Work; (b) replace the Work with Work that does not infringe any intellectual property right or constitute an unauthorized use or disclosure of a trade secret; or (c) modify the Work so it does not infringe any intellectual property right or constitute an unauthorized use or

disclosure of a trade secret. Replacement of or modification of the Work does not relieve Subcontractor of the Subcontract requirements.

00562.19 Non-Disclosure

Subcontractor shall not make any news releases, authorize or participate in any interview concerning this Subcontract, or issue other advertising pertaining to the Project or this Subcontract without the prior written approval of Purchaser. Subcontractor shall treat all information provided by Purchaser as confidential and only disclose such information as necessary to perform the Work, and will require the employees, agents, and Subcontractors who need to know to adhere to the terms of this provision. Purchaser's disclosure of information to Subcontractor does not constitute a transfer of ownership of the information to Service Contractor. Subcontractor agrees Purchaser will be entitled to relief at law and in equity, including, but not limited to, injunctive relief and specific performance, upon any breach or anticipated breach of this Article 00562.19.

00562.20 Suspension of Work

00562.20.1 Purchaser may, at any time and in its sole discretion, suspend performance of all or part of the Work. Purchaser will provide a written notice to Subcontractor specifying the extent to which the Work is suspended and identifying the effective date of the suspension. Subcontractor shall suspend performance of the Work on the effective date to the extent specified in the notice, but shall continue to perform the Work not suspended.

00562.20.2 If the suspension is unrelated to Subcontractor's failure to comply with this Subcontract, Purchaser will adjust the schedule and/or Construction Schedule to reflect the reasonable delay due to the suspension and will reimburse Subcontractor for the reasonable and direct additional costs incurred by Subcontractor due solely to the suspension. Subcontractor's sole and exclusive remedies for a Purchaser-directed suspension are the remedies specified in this Article 00562.20.2.

00562.20.3 Subcontractor shall promptly resume performance of all or part of the suspended Work in accordance with Purchaser's written authorization to resume the Work. Subcontractor must present all Claims and supporting materials related to a suspension under this Article 00562.20 within ten calendar days after the date set by Purchaser for resumption of the suspended Work.

00562.21 Termination for Cause

00562.21.1 If Subcontractor defaults in any obligation under this Subcontract and does not cure the default within ten calendar days after receipt of Purchaser's written notice identifying the default, Purchaser may terminate all or part of the Work. If Purchaser terminates all or part of the Work, Purchaser will give Subcontractor written notice of termination specifying the extent to which the Work is terminated. Subcontractor shall continue to perform all portions of the Work not terminated.

00562.21.2 Requests for compensation attributable to termination under this Article 00562.21 must be submitted to Purchaser in accordance with Article 00562.16. Subcontractor will not be entitled to recover from Purchaser any damages, losses, costs or expenses related to or arising out of the terminated portion of the Work. Subcontractor’s compensation under this Article 00562.21 will not exceed an amount commensurate with the ratio that the terminated Work accepted by Purchaser bears to all of the Work.

00562.22 Termination Without Cause

00562.22.1 Purchaser may, at any time and in its sole discretion, terminate all or part of the Work. Purchaser will provide a written notice to Subcontractor specifying the extent to which the Work is terminated and the effective date of the termination. Subcontractor shall continue to perform all portions of the Work not terminated.

00562.22.2 Subject to Subcontractor's compliance with this Subcontract, Subcontractor will recover from Purchaser, as the complete and final settlement for the terminated Work and all related Claims, a sum equal to Subcontractor's direct cost for the terminated Work satisfactorily performed as of the effective date of termination, plus an allowance for reasonable overhead and profit on such direct cost.

00562.22.3 Requests for compensation under this Article 00562.22 must be submitted to Purchaser in accordance with Article 00562.16. Subcontractor will not be entitled to recover from Purchaser any damages, losses, costs or expenses related to or arising out of the terminated portion of the Work. Payment of the compensation specified in this Article 00562.22 is the sole and exclusive remedy of Subcontractor against Purchaser arising out of or related to termination under this Article 00562.22.

00562.23 Purchaser's Remedies

00562.23.1 Purchaser may reject defective or nonconforming Work and return the rejected Work to Subcontractor, at Subcontractor's risk and expense, for repair, replacement or credit, at Purchaser's option. If Purchaser chooses to accept defective or nonconforming Work, Subcontractor shall correct the defect or nonconformity in accordance with Article 00562.23.2. However, if Purchaser chooses to accept defective or nonconforming Work without correcting it, Subcontractor and Purchaser will negotiate an equitable reduction in the Subcontract Price to account for the defect or nonconformity.

00562.23.2 If Purchaser discovers a defect or nonconformity in the Work before the Warranty Period begins, Subcontractor shall correct the defect or nonconformity within ten calendar days after Purchaser gives Subcontractor notice of the defect or nonconformity. In the case of emergency, where in the reasonable judgment of Purchaser, delay could result in serious loss or damage to persons or property or if Purchaser at its sole discretion determines that the Project schedule would be adversely affected if the correction of such defect or nonconformity is not performed before the ten day period expires, Purchaser may correct the defect or nonconformity at Subcontractor's expense.

00562.23.3 If Subcontractor by its action or inaction indicates that it is unable or unwilling to proceed with the Work in a reasonable time or if Purchaser intends to perform any corrective work under Article 00562.13 or 00562.23, Purchaser may, upon written notice to Subcontractor, accomplish the Work in question by the most expeditious means available and backcharge Subcontractor for the costs incurred. Subcontractor shall sign and return the notice of backcharge within one calendar day after receipt.

00562.23.4 Subcontractor shall pay all direct costs incurred by Purchaser under Articles 00562.23.2 and 00562.23.3, including engineering (charged at $100/hour), labor, material, transportation, insurance, subcontracts, tools, and equipment. Subcontractor shall also pay twenty-five percent of the direct costs incurred by Purchaser under Articles 00562.23.2 and 00562.23.3 for Purchaser's overhead and general and administrative costs. The performance of Work under this Article 00562.23 does not relieve Subcontractor of its obligations under this Subcontract including, but not limited to, warranty, liquidated damages, and indemnity.

00562.23.5 Purchaser's remedies under this Subcontract and existing at law or in equity are cumulative and may be exercised concurrently.

00562.24 Indemnity

00562.24.1 Subcontractor agrees to defend, indemnify, and hold harmless Indemnified Parties against any Claims arising out of or relating to:

(a) the negligence or wilful misconduct of Subcontractor, Sub-subcontractor, or their respective officers, employees and agents;

(b) infringement by the Work of any intellectual property right or unauthorized disclosure or use of trade secrets by Subcontractor, Sub-subcontractor, or their respective officers, employees and agents;

(c) violation of Applicable Laws by Subcontractor, Sub-subcontractor, or their respective officers, employees and agents;

(d) the filing of a lien, or other encumbrance, on all or part of the Project by Subcontractor, Sub-subcontractor, or their respective officers, employees and agents.

(e) Subcontractor's failure to provide insurance as required by this Subcontract.

00562.24.2 Subcontractor will immediately notify Purchaser of any claim or suit made or filed against Subcontractor or its Sub-subcontractors in which Purchaser or Owner is named as a co-defendant.

00562.25 Insurance Requirements

00562.25.1 Subcontractor shall, at its sole cost, maintain insurance as required by this Subcontract and shall impose the obligations of this Article 00562.25 on all Sub-subcontractors. Subcontractor shall give Purchaser ACORD insurance certificates evidencing the required coverage by the due date identified in the article titled “Schedule of Submittals and Applicable Liquidated Damages,” and as Purchaser may request from time to time. Subcontractor shall ensure the policies:

(a) Contain a provision or endorsement that the coverage will not be cancelled, materially changed, or renewal refused unless the insurer gives at least thirty calendar days prior written notice to Purchaser.

(b) Remain in effect through the Warranty Period if coverage is occurrence-based and remain in effect at least one year after expiration of the Warranty Period if coverage is claims-based.

(c) Are primary with respect to insurance covering Indemnified Parties as additional insureds. All insurance carried by Indemnified Parties will be excess insurance.

(d) Contain a waiver of all rights of subrogation by the insurance carriers in favor of Indemnified Parties.

(e) Comply with all Applicable Laws of the jurisdiction in which any part of the Work is to be performed including, but not limited to, admitted and compulsory coverage.

(f) Are rated "A-" or better by A.M. Best's "Insurance Guide and Ratings."

00562.25.2 Subcontractor shall maintain broad form commercial general liability insurance protecting Subcontractor, and Indemnified Parties as additional insureds (using endorsements CG 20 10 and CG 20 37 or their equivalent), against claims arising out of bodily injury or property damage arising from the Work. The policy must include a cross-liability or severability of interest clause, a per project aggregate endorsement, and coverage for personal injury liability, contractual liability, products and completed operations (covering lawsuits brought in the USA and the country of the Jobsite), explosion, building collapse, and damage to underground property. The policy must include coverage for riggers liability if applicable to the Work. Subcontractor shall maintain policy limits of at least one million dollars for each occurrence.

00562.25.3 Subcontractor shall maintain worker's compensation insurance protecting Subcontractor against all claims under applicable worker's compensation laws, including, but not limited to, the United States Longshoremen's and Harbor Worker's Act and the Jones Act. If Subcontractor is required to maintain worker's compensation insurance in the USA, the worker's compensation insurance must contain an "all states" or "other states" endorsement. For Work performed in the USA, Subcontractor shall also maintain employer's liability insurance protecting Subcontractor against claims for injury, disease or death of employees which are not covered by the worker's compensation insurance.

Subcontractor shall maintain worker's compensation policy limits as required by statute and, if applicable to this Subcontract, employer's liability policy limits of at least one million dollars for each occurrence.

00562.25.4 Subcontractor shall maintain comprehensive automobile liability insurance protecting Subcontractor, and Indemnified Parties as additional insureds, against all claims for injuries to members of the public and damage to property of others arising from the use of motor vehicles, whether owned, non-owned, or hired. Subcontractor shall maintain policy limits of at least one million dollars for each occurrence.

00562.25.5 Subcontractor shall maintain umbrella liability insurance that follows the form of the commercial general liability insurance, the employer's liability insurance and the automobile liability insurance. The umbrella liability insurance must protect Subcontractor, and Indemnified Parties as additional insureds, against claims in excess of the limits of the commercial general liability insurance, the employer's liability insurance, and the automobile liability insurance. Subcontractor shall maintain policy limits of at least four million dollars for each occurrence.

00562.25.6 Subcontractor is responsible for maintaining any and all property insurance on their own equipment and shall require all Sub-subcontractors to do likewise.

00562.26 Audit

Purchaser reserves the right to audit the records of Subcontractor. Accordingly, Subcontractor shall make and keep as the same accrue, full and complete records and books of accounts of revenue and income, and costs and expenses that specifically relate to performance under this Subcontract. Records and books of account, together with any or all memoranda pertaining thereto that may be kept, maintained, or possessed by Subcontractor, shall be opened to examination during regular business hours by Purchaser or its representatives for the purposes of inspecting, auditing, verifying, or copying the same or making extracts therefrom. Subcontractor shall make and keep said records and books of account for a period of seven (7) years after the completion of the contract obligations of the final payment under the Subcontract, whichever is later.

00562.27 Governing Law and Disputes

00562.27.1 Except as detailed in Article 00562.27.2, claims and disputes arising out of or related to this Subcontract will be governed by the law of the State of Missouri, USA, excluding provisions that would apply the law of another jurisdiction. The Parties hereby elect to exclude application of the United Nations Convention on Contracts for the International Sale of Goods pursuant to Article 6 of the Convention.

00562.27.2 Subcontractor agrees to be bound by all decisions arising out of the claims and dispute resolution process set forth in the Prime Agreement to the extent: (a) the decisions relate to the Work; (b) a claim by Owner against Purchaser involves the performance of Subcontractor or the Work; or (c) a Claim of Subcontractor gives rise to a claim by Purchaser against Owner. The initiation of claim and dispute resolution under the Prime Agreement will stay claim and dispute resolution under this Subcontract on any claim related to the claim under the Prime Agreement.

00562.27.3 To the extent Subcontractor will be bound as set forth in Article 00562.27.2, Purchaser consents to Subcontractor's participation in such claim and dispute resolution process. Subcontractor and Purchaser will each bear their own costs associated with their participation in the claim and dispute resolution process. A Party will follow the other Party's directions regarding that other Party's Claims, unless such directions adversely affect the Party's own Claims. In that event, the Parties will agree on how to proceed. Each Party will give the other Party reasonable assistance.

00562.27.4 Disputes between Subcontractor and Purchaser not addressed in Articles 00562.27.2 and 00562.27.3, will be resolved exclusively by the Tenth Judicial District Court of Kansas, located in Johnson County, Kansas, or the United States District Court for the District of Kansas, located in Kansas City, Kansas, as their jurisdiction permits. To the extent Purchaser or Subcontractor prevails against the other

Party on such dispute, reasonable dispute resolution costs including attorney fees are recoverable from the losing Party.

00562.27.5 Pending resolution of any claim or dispute, and without prejudice to Subcontractor's rights, Subcontractor shall continue to perform as directed by Purchaser.

00562.28 Hazardous Conditions

00562.28.1 Subcontractor is not responsible for any Hazardous Conditions encountered in the performance of the Work at the Jobsite. Upon encountering any Hazardous Conditions, Subcontractor will stop services immediately in the affected area and duly notify Purchaser. For purposes of this Subcontract, Hazardous Conditions is defined as any materials, wastes, substances and chemicals deemed to be hazardous under any Applicable Law or the handling, storage, remediation, or disposal of which are regulated by Applicable Laws and applies to any hazardous or toxic substance, material, or condition present at the locations in which the Work is performed which was not brought onto such site or sites by Service Contractor for the exclusive benefit of Subcontractor.

00562.28.2 Subcontractor shall be obligated to resume the Work at the affected areas only after Owner's expert provides it with written certification that (i) the Hazardous Conditions have been removed or rendered harmless and (ii) all necessary approvals have been obtained from all Governmental Authority having jurisdiction over the location.

00562.28.3 Subcontractor will be entitled, to an adjustment in its compensation and all times for performance of the Work to the extent Subcontractor cost or time of performance have been adversely impacted by the presence of Hazardous Conditions, subject to submission of appropriate documentation by Subcontractor and Subcontractor's duty to mitigate.

00562.29 Force Majeure

00562.29.1 If Subcontractor is delayed in the performance of the Work due to acts, omissions, conditions, events, or circumstances beyond its control, the times for performance shall be reasonably extended by on a not less than day for day basis. By way of example and not of limitation, events that will entitle Subcontractor to an extension of the times for performance include without limitation acts or omissions of Owner or Purchaser, or anyone under Owner's control (including separate contractors), Hazardous Conditions, wars, terrorism, civil unrest, actions and inactions of delay of Governmental Authorities, floods, labor disputes and unrest, unusual delay in transportation, epidemics, earthquakes, tsunami, adverse weather conditions, and acts of God.

00562.29.2 In addition to Subcontractor's right to a time extension for those events set forth above, Subcontractor shall also be entitled to an appropriate increase in the compensation due to the impacts or delays arising from such events. Subcontractor will file all claims in accordance with Article 00562.17.

00562.30 Consequential Damages

Except for Subcontractor's obligations arising out of or relating to, or liability for breach of, Articles 00562.13, 00562.19, or 00562.24 or as set forth in any provision for liquidated damages in this Subcontract, Purchaser and Subcontractor will not be liable to each other for loss of profits, loss of use, loss of contracts, or consequential damages arising out of or relating to this Subcontract.

00563 – Project Controls Terms and Conditions

00563.1 Coordination and Staffing

00563.1.1 Purchaser will direct coordination of all field construction and erection and will coordinate work between subcontractors at the Jobsite. Subcontractor agrees that Purchaser has the authority to resolve conflicts regarding scheduling or coordination between subcontractors at the Jobsite. Subcontractor shall actively participate in Purchaser's schedule development and implementation program and shall provide appropriate planning information and updates in the formats and frequencies required by Purchaser.

00563.1.2 Subcontractor shall provide one dedicated project controls representative who is responsible for cost engineering, planning, scheduling, contract administration, forecasting, invoicing, cash flow management, progress reporting, and man-hour tracking activities.

00563.2 Construction Schedule

Subcontractor shall provide to Purchaser, for Purchaser's approval, an electronic copy of the Construction Schedule ten calendar days after the Effective Date or prior to commencing Work at the Jobsite, whichever occurs first. The Construction Schedule must be in the most current version of Primavera Planner or a Purchaser-approved alternative. Subcontractor shall submit to Purchaser weekly and monthly updates to the Construction Schedule with cut-off dates and submittal dates as requested by Purchaser from time to time.

00563.3 Construction Schedule Development

Subcontractor shall coordinate with Purchaser's project controls representative to support the Project's scheduling requirements. Coordination includes, but is not limited to, use of activity IDs, activity descriptions, relationships, layouts, activity codes, dictionaries, as specified or directed by Purchaser. Subcontractor agrees to work closely with Purchaser to develop a mutually agreeable Construction Schedule that is coordinated with Purchaser's master schedule. The Construction Schedule must be based on, and support, the start and completion dates for the work provided by Purchaser. Each completion date must shall be constrained as "Finish No Later Than" on the appropriate activity.

00563.4 Weekly Progress and Schedule Review

00563.4.1 Purchaser and Subcontractor representatives shall meet weekly at Purchaser's Jobsite offices to review the Work's progress and update the Construction Schedule. Subcontractor's representative will present:

(a) the current status of the Work progress;

(b) a detailed three week look-ahead schedule (see Article 00563.4.2);

(c) current and projected manpower by craft;

(d) the status of equipment and material;

(e) the status of drawings and other submittals;

(f) any changes in the Work;

(g) safety and quality control issues; and

(h) problem areas or concerns.

If Subcontractor performs any part of the Work on a time and materials basis or a target price basis, Subcontractor shall also participate in a separate weekly productivity meeting with Purchaser.

00563.4.2 In addition to the Construction Schedule, every week Subcontractor shall develop a three week look-ahead schedule based on a detailed breakdown of the Construction Schedule. The look ahead schedule must clearly cross reference each schedule activity in the Construction Schedule and the required completion dates necessary for Subcontractor to meet its contractual turnover dates.

00563.4.3 Subcontractor's look-ahead schedule must:

(a) indicate all planned Work to be accomplished during the current week and the next two week period all in support of, and in accordance with, the Construction Schedule;

(b) include specific man-power requirements by craft;

(c) include major construction equipment requirements;

(d) reflect the planned and actual activities of the previous week;

(e) include any activities that must be accomplished by others in order to avoid impact to Subcontractor in starting, performing or completing the Work in accordance with the Construction Schedule; and

(f) be presented in the level of detail sufficient to direct the efforts of craft on a day-to-day basis.

00563.5 Subcontractor's Daily Report

Starting on the day Subcontractor mobilizes at the Jobsite, Subcontractor shall submit to Purchaser before 10:00 a.m. each day a completed and signed daily report using the form included in Article 00663.1.

00563.6 Cash Flow Forecast

Within fifteen days after Purchaser's approval of the Construction Schedule, Subcontractor shall prepare and submit a cash flow forecast to Purchaser for Purchaser's approval. This cash flow forecast must indicate the expected progress and associated invoice amount for each month through completion of the Work. Subcontractor shall submit an updated cash flow forecast for Purchaser's review before the fifth of each month.

00564 – Jobsite Operations Terms and Conditions

00564.1 Uninterrupted Operation of the Plant

00564.2 Subcontractor Scope of Work

00564.2.1 Except as expressly provided in this Subcontract, Subcontractor shall furnish all materials, tools, equipment, vehicles, supplies, services, labor and supervision required to perform the Work. Unless otherwise stated in this Subcontract, the Work includes unloading, off transport, hauling, receiving, storing, maintaining, protecting, erecting, installing, cleaning, adjusting, and all other work required to make the Work ready for operation.

00564.2.2 Review by Purchaser of any plan, schedule or method proposed by Subcontractor does not relieve Subcontractor of its responsibility to perform the Work in accordance with the Subcontract requirements. Subcontractor agrees that any method of performing the Work suggested by Purchaser, but not directed in this Subcontract, is used at Subcontractor's sole risk.

00564.3 Safety Requirements

00564.3.1 Subcontractor shall conduct all operations under this Subcontract in a manner that avoids the risk of bodily harm and damage to property. At a minimum, Subcontractor shall comply with the requirements of this Article 00564.3, Section 00565, the Loss Control Manual, and Owner's safety requirements. Subcontractor's failure to comply with the requirements of this Article 00564.3, Section 00565, the Loss Control Manual, or Owner's safety requirements constitutes a material breach of this Subcontract. Subcontractor acknowledges that the costs and expenses of complying with the requirements identified in this Article 00564.3.1 are included in the Subcontract Price.

00564.3.2 When at the Jobsite, Subcontractor shall continuously inspect all Work and conduct surveys of all Work areas to identify any unsafe condition and shall immediately take adequate precautions against any unsafe condition identified. Subcontractor is solely and exclusively responsible for the discovery and correction of such conditions. Subcontractor agrees that nothing contained in this Article 00564.3, Section 00565, the Loss Control Manual, or Owner's safety requirements shifts responsibility for bodily harm or damage to property sustained resulting from violation of those provisions from Subcontractor to Owner or Purchaser. Subcontractor remains solely and exclusively responsible for compliance with all safety requirements.

00564.3.3 Subcontractor shall immediately correct any unsafe condition identified by Purchaser. If, in Purchaser's sole discretion, Subcontractor has not taken sufficient precautions for the avoidance of bodily harm and damage to property, or in response to Purchaser's identification of an unsafe condition, Purchaser may stop the Work at Subcontractor's expense or implement suitable precautions at Subcontractor's expense, or both. Purchaser's right to stop the Work and to implement suitable precautions does not impose on Purchaser a duty to exercise those rights and does not relieve Subcontractor of responsibility for damage resulting from violation of Article 00564.3, Section 00565, the Loss Control Manual, or Owner's safety requirements.

00564.3.4 Compliance with this Article 00564.3, Section 00565, the Loss Control Manual, and Owner's safety requirements is the minimum standard required of Subcontractor. Subcontractor is responsible for examining all Work-related requirements and determining whether additional or more stringent health and safety provisions are required or appropriate for the Work. Subcontractor shall notify Purchaser promptly in writing if a charge of noncompliance with this Article 00564.3, Section 00565, the Loss Control Manual or Owner's safety requirements has been filed against Subcontractor or a Sub-subcontractor in connection with the performance of the Work.

00564.4 Construction Area Operations

00564.4.1 Subcontractor shall observe the boundary limits set by Purchaser and only use access roads, parking areas, storage areas, and construction areas designated for Subcontractor's use. Subcontractor may only enter areas not designated for Subcontractor's use with Purchaser's prior written consent and must limit entry to the specific areas identified by Purchaser in the written consent. Subcontractor may only place or store Work on property of Owner or Purchaser if Purchaser has agreed to the location requested by Subcontractor.

00564.4.2 Subcontractor shall interfere as little as possible with public or Jobsite travel, vehicular or pedestrian, during the performance of the Work. If necessary to cross, obstruct, or close roadways or walks, Subcontractor shall obtain permission from the appropriate parties and maintain suitable detours or other expedients for the accommodation of traffic.

00564.4.3 Subcontractor may encounter systems, operating equipment and facilities at or near the Jobsite that must remain energized and functional during performance of the Work. Subcontractor is responsible for the safety and protection of personnel at the location of the Work and shall employ all methods necessary to protect the personnel and to assure continuity of the energized systems, operating equipment, and facilities.

00564.4.5 During periods of unfavorable weather, wet grounds, or other unsuitable construction conditions, Subcontractor shall confine its operations to construction activities not adversely affected by the conditions. No portion of the Work may be performed under conditions adversely affecting the quality or safety of the Work, unless appropriate measures are taken by Subcontractor to perform the Work in those conditions.

00564.5 Weekend, Holiday, and Night Work

Construction activities may not be performed between [[insert time]] p.m. and [[insert time]] a.m. or on Saturday, Sundays, or legal holidays without Purchaser's prior written consent. Subcontractor must submit an "After Hours Work Request" by [[insert time]] [[insert "a.m." or "p.m."]] of that work day or by [[insert time]] [[insert "a.m." or "p.m."]] of Friday for weekend work if Subcontractor wishes to perform Work at off hours times. Subcontractor must maintain adequate equipment and supervision for the proper conduct and control of construction activities at night. Purchaser's approval of off hours activities does not entitle Subcontractor to additional compensation unless agreed to in a written Subcontract revision.

00564.6 Labor

00564.6.1 Subcontractor shall provide an adequate number of qualified and competent personnel to perform the Work. Subcontractor shall designate a supervisor at the Jobsite who has the authority to act on behalf of and to bind Subcontractor in all matters relating to or arising out of this Subcontract. The supervisor must be fluent in English and satisfactory to Purchaser.

00564.6.2 Subcontractor shall strictly comply with all work rules and procedures established by Purchaser and Owner for the conduct of work at the Jobsite. Subcontractor agrees to replace, at no cost to Purchaser, any Sub-subcontractor or any personnel of Subcontractor or Sub-subcontractor who Purchaser reasonably requests be replaced.

00564.7 Project Meetings

All of Subcontractor's personnel assigned to the Work must attend the Project orientation meeting, if held, and Purchaser's coordination meetings. Subcontractor shall attend Project management meetings as requested by Purchaser. Subcontractor's senior Jobsite representative shall provide Purchaser-requested information in advance of meetings.

00564.8 Quality Control Field Staff

Subcontractor's field staff shall include personnel appropriately assigned to quality control and assurance as all or part of their job responsibilities. The personnel must be free of the influences of production and

schedule requirements and have authority to stop the Work, to reject the Work, or both. Subcontractor shall prohibit discrimination against personnel who raise safety or quality concerns.

00564.9 Jobsite Records

Subcontractor shall maintain in good order at the Jobsite: (a) a copy of this Subcontract (including Subcontract revisions); (b) Work authorizations; (c) all drawings related to the Work with superseded drawings clearly marked as superseded; (d) a complete and current set of "released for construction drawings"; (e) a set of "as built" drawings; (f) copies of all Subcontractor submittals; and (g) copies of all correspondence between Purchaser and Subcontractor organized by date. Subcontractor shall make these documents available to Purchaser upon Purchaser's request and shall deliver them to Purchaser upon completion of the Work.

00564.10 Security

Subcontractor shall promptly take all necessary and adequate precautions to protect its property and equipment against risk of property loss, theft, vandalism, sabotage, or damage by other means. Although Subcontractor agrees to cooperate with Purchaser on all security matters and to comply promptly with any Project security requirements established by Purchaser, Subcontractor is solely responsible for discovery, determination, and correction of conditions that could result in property loss, theft vandalism, sabotage, or damage by other means to the Work, to Purchaser-furnished equipment in Subcontractor's custody, to Purchaser-furnished Construction Works in Subcontractor's custody, or to Subcontractor-furnished Construction Works.

00564.11 Construction Works, Utilities, and Services

00564.11.1 The Parties agree to furnish the Construction Works in accordance with Section 00664. Subcontractor shall provide all Construction Works required for performance of the Work but not identified as provided by Purchaser in Section 00664. Purchaser will schedule use and custody of Purchaser-furnished Construction Works to optimize their service to the Project. Subcontractor agrees not to make unreasonable demands on Purchaser-furnished Construction Works. Purchaser does not guarantee uninterrupted use of Purchaser-furnished Construction Works and Subcontractor has no Claim against Purchaser for any loss or inconvenience suffered due to interruption in availability.

00564.11.2 Subcontractor-furnished Construction Works must be in good working condition, safe, and fit for the intended uses throughout use in performance of the Work. Subcontractor shall immediately repair or remove and replace, at Subcontractor's expense, the Subcontractor-furnished Construction Works that do not meet the requirements of this Article 00564.11.2. Subcontractor shall remove all Subcontractor-furnished Construction Works when the Work at the Jobsite is completed.

00564.11.3 If Subcontractor uses Purchaser-furnished Construction Works, Subcontractor accepts those Construction Works "as is" and waives any Claims arising out of or relating to the use of those Construction Works. Subcontractor must return Purchaser-furnished Construction Works used by Subcontractor in satisfactory condition when the Work is completed.

00564.11.4 Subcontractor may not use Purchaser-furnished cranes, elevators, and hoisting facilities without Purchaser's prior written approval. Subcontractor may only file a Claim for a schedule extension or an increase in the Subcontract Price arising out of or relating to Purchaser's scheduling of the cranes, elevators, and hoisting facilities if Purchaser withdraws Purchaser's prior written approval for Subcontractor's scheduled use of the cranes, elevators, or hoisting facilities.

00564.12 Possession of the Work

Purchaser and Owner shall have the right to take possession of or use all or part of the Work, as Purchaser or Owner may deem necessary. Purchaser, on its own behalf or on behalf of Owner, will notify Subcontractor in writing if Purchaser or Owner will take possession of or use all or part of the Work. Possession or use does not constitute acceptance of the Work.

00564.13 Equipment and Material Control

00564.13.1 Subcontractor shall provide onsite equipment and material control for the Work, including Purchaser-furnished equipment and material, and shall receive, check, unload, handle, and store all equipment and material to be incorporated into the Work. Subcontractor shall maintain a system of inventory storage control and management for all equipment and material in Subcontractor's custody. At a minimum, this system must record the descriptions, quantities, and dates each item is received into Subcontractor's inventory and each time any item is withdrawn. Subcontractor is responsible for shortage of or damage to equipment and material in Subcontractor's custody.

00564.13.2 Subcontractor shall store equipment and material for the Work in the Purchaser-assigned lay-down areas and storage facilities. Storage by Subcontractor of equipment and material in Purchaser-designated lay-down areas and storage facilities does not constitute a transfer of custody to Purchaser or others. Subcontractor shall move equipment and material into the permanent building or onto its permanent foundation as soon as construction status and environmental conditions permit. Subcontractor shall maintain protection from damage for the equipment and material after placement in their final location until Purchaser determines that construction completion for the area has been achieved.

00564.14 Equipment and Material Furnished by Purchaser

00564.14.1 Subcontractor shall unload equipment and material provided by Purchaser for Subcontractor to install, erect, or use as part of the Work. If the packaging allows, Subcontractor shall inspect and inventory the equipment and material before unloading it from the carrier. If inspection and inventory is not feasible before unloading, Subcontractor shall inspect and inventory the equipment and material as soon as practical but before moving the equipment and material to storage. Subcontractor shall re-handle and reload, if appropriate, all rejected equipment and materials.

00564.14.2 Subcontractor shall notify Purchaser in writing of all defects in Purchaser-furnished equipment and material or of any other issues that render the equipment and material unsuitable for, or that interfere with proper execution of, the Work. Subcontractor acknowledges that failure of Subcontractor to give Purchaser written notice of all such defects constitutes Subcontractor's acceptance of the equipment and material as suitable for the Work as well as Subcontractor's waiver of all Claims arising out of or relating to that equipment and material. Acceptance of the equipment and material constitutes Subcontractor's assumption of custody for that equipment and material.

00564.14.3 Subcontractor is responsible for shortage of or damage to the Purchaser-furnished equipment and material if Subcontractor does not inspect and inventory equipment and material as required by this Article 00564.14 or for shortage of or damage to the equipment and material not identified by Subcontractor within seven calendar days of unloading. Except for shortage and damage identified in the immediately preceding sentence, Subcontractor is responsible for shortage of or damage to the equipment and material occurring after Subcontractor unloads the equipment and material.

00564.14.4 Subcontractor shall readjust, straighten, and repair minor defects and fabrication errors normally encountered in equipment and materials furnished by Purchaser. When field labor is needed to correct significant errors in equipment and material furnished by Purchaser, Subcontractor shall furnish such labor when so requested by the manufacturer or by Purchaser. Subcontractor will be entitled to recover the expenses for this labor if Subcontractor files a Claim in accordance with Article 00562.16.

00564.15 Protection of Equipment and Material

00564.15.1 Subcontractor shall handle and store all equipment and material carefully in order to prevent damage. Storage methods are subject to Purchaser's approval. At a minimum, Subcontractor shall store equipment and material in accordance with the following unless Purchaser approves in writing other storage options for specific equipment or material:

(a) the storage methods must be in accordance with the manufacturer's recommendations and requirements;

(b) electronic equipment or equipment incorporating electrical equipment must be stored indoors in areas with dust control;

(c) small, loose items subject to loss, breakage or misuse must be stored indoors; and

(d) devices or other items subject to damage from outdoor exposure must be stored indoors.

00564.15.2 Subcontractor shall clean equipment of all sand, dirt, and other foreign materials immediately after removal from storage and before bringing equipment into the facility or to the installation site. Subcontractor shall thoroughly wipe and vacuum clean the interior of all electrical equipment, including relays and electrical contacts. Before initial operation of individual items of equipment, and prior to acceptance by Purchaser, Subcontractor shall remove all dirt, mortar, and other material that has been spilled, misplaced, or otherwise marred the surfaces of equipment.

00564.16 Protection and Restoration of Property

00564.16.1 Subcontractor shall, at its expense, protect the Work, the environment, and all other property from hazards arising out of or relating to the Work and from natural elements. Subcontractor shall, at its expense, promptly repair or remove and replace any damage or loss and, to the extent practicable, restore property affected by the Work to its original condition, as determined by Purchaser. Subcontractor is solely responsible for protection of the Work until Final Completion.

00564.16.2 At the completion of the Work, Subcontractor shall fill and grade all holes, ruts, settlements, and depressions resulting from the Work to match the elevations of adjacent surfaces. Subcontractor shall also restore all areas disturbed by the performance of the Work to their original condition to the maximum extent practicable as determined by Purchaser.

00564.16.3 At the completion of the Work, Subcontractor shall remove all Subcontractor-furnished Construction Works from the Jobsite and shall remove and deposit in Subcontractor-furnished waste facilities all scrap, trash, waste materials, and debris resulting from the Work. Subcontractor shall thoroughly remove all accumulations of dust, scraps, waste, oil, grease, weld spatter, insulation, paint, and other foreign substances resulting from performance of the Work and shall restore all surfaces affected by those substances.

00565 - Safety, Health and Accident Prevention

00565.1 Project Safety and Health Program

Purchaser will implement and coordinate the Project Safety and Health Program. The Project Safety and Health Program will apply to all subcontractors at the Jobsite and will be used to resolve conflicts regarding safety and health measures and practices. The Project Safety and Health Program will be an administrative process that generally follows the requirements of the Occupational Safety and Health Act of 1970, as amended. However, some requirements and elements of the Project Safety and Health Program will exceed the Act's standards. Subcontractor should use the Loss Control Manual, which outlines the specific requirements of the Project Safety and Health Program, in developing Subcontractor's Safety, Health and Accident Prevention Program. The LCM is attached as part of this Subcontract.

00565.2 Safety, Health, and Accident Prevention Program

00565.2.1 Subcontractor shall implement and maintain a written Safety, Health and Accident Prevention Program specifically applicable to the Work. Subcontractor's Safety, Health and Accident Prevention Program must meet the requirements of Applicable Laws and adhere to the Project Safety and Health Program, if implemented by Purchaser. Subcontractor shall submit Subcontractor's Safety, Health and Accident Prevention Program for Purchaser's review at least thirty calendar days before starting Work at the Jobsite. Purchaser's review does not relieve Subcontractor of Subcontractor's sole responsibility for safety and health in relation to the Work, nor does Purchaser's review limit Subcontractor's obligation to undertake any action necessary to establish and maintain safe working conditions relating to the Work at the Jobsite.

00565.2.2 Purchaser may monitor Subcontractor's safety and health performance and may require changes to Subcontractor's Safety, Health and Accident Prevention Program during the performance of the Work. Purchaser's monitoring and requirement of changes does not relieve Subcontractor of Subcontractor's sole responsibility for safety and health in relation to the Work, nor does Purchaser's monitoring and requirement of changes limit Subcontractor's obligation to undertake any action necessary to establish and maintain safe working conditions relating to the Work at the Jobsite.

00565.3 Not Used

00565.4 Protective Clothing, Equipment and Instrumentation

Subcontractor agrees to furnish special protective clothing, respiratory protective equipment, and monitoring instrumentation as required by Applicable Laws, the Project's safety-related plans and programs, and Purchaser's and Owner's rules and regulations. Subcontractor shall ensure that personnel performing Work at the Jobsite properly use the clothing, equipment, and instrumentation. Subcontractor shall furnish and maintain all safety equipment, including but not limited to, barriers, signs, warning lights, and guards necessary for adequate protection of persons and property.

00565.5 Safety and Health Representative

Subcontractor shall appoint a qualified and experienced Safety and Health Representative who may have other duties, but is assigned fulltime to the Jobsite as directed by the B&V Environmental, Safety, Health & Security. Before assigning the Safety and Health Representative to the Jobsite, Subcontractor shall submit the training and experience record for Purchaser's review and written approval. The Safety and Health Representative will administer Subcontractor's Safety, Health and Accident Prevention Program, attend all safety and health meetings at the Jobsite and, if Purchaser has implemented a Project Safety and Health Program for the Project, participate fully in the Project Safety and Health Program. The Safety and Health Representative must have authority to correct unsafe conditions and to stop Work in the area of an unsafe condition. In addition, Subcontractor's Company Safety Manager shall routinely visit the Jobsite.

00565.6 Safety and Health Goal

Subcontractor shall endeavor to attain the Project's safety goal of zero injuries. Subcontractor shall maintain accurate accident and injury reports and shall furnish Purchaser a monthly summary of injuries and man-hours lost due to injuries by the third of each month. Subcontractor accident rates must be calculated monthly in accordance with the Bureau of Labor Statistics incident rate, frequency rate, and days away from work rate methods. If Subcontractor or Sub-subcontractor accident rates exceed the Project's safety goal, Subcontractor shall take immediate corrective action, which may include, but is not limited to:

(a) submittal of a written corrective action plan to Purchaser by Subcontractor;

(b) additions or modifications to Subcontractor's Safety, Health and Accident Prevention Program;

(c) removal from the Jobsite of any Subcontractor or Sub-subcontractor personnel not implementing or following the necessary safety and health measures; and

(d) increasing the amount of Subcontractor safety and health training.

00565.7 Drug Prevention Program

As part of the Work, Subcontractor shall assist Purchaser in administering the Project requirements for a drug detection and prevention program. Subcontractor agrees that all costs for drug testing and alcohol testing are included in the Subcontract Price. Subcontractor must provide evidence to Purchaser that all personnel assigned to the Work at the Jobsite have passed the drug test within three calendar days of completion of the test. The drug detection and prevention program will include, but will not be limited to, the following: (a) a pre-Jobsite assignment test; and (b) post-Jobsite assignment tests, such as reasonable suspicion tests, post accident tests, and unannounced random drug tests of ten percent of the workforce on a monthly basis.

00565.8 Owner's Programs

Subcontractor shall comply with Owner's safety programs when performing the Work in or near existing facilities to which those programs apply. If conflicts exist between the requirements of Article 00564.3, this Section 00565, the Loss Control Manual or Owner's programs, the most stringent requirements will apply as determined in Purchaser's sole discretion.

00662 - General Conditions Attachments

00662.1 Partial Waiver and Release of Lien Rights

AFFIDAVIT AND PARTIAL WAIVER OF CLAIMS AND LIENS AND RELEASE OF RIGHTS FOR SUBCONTRACTORS

The undersigned, who is the _____(designate title) of _____which is the _____ (designate whether subcontractor, supplier or otherwise) for the _____ (designate the type of work, supplies or services rendered) on the improvements constructed on the premises hereafter identified, declares that his contract with _____ (General Contractor) is in the total amount of $_____ , which includes extras and all change orders to the date hereof.

The undersigned further states that as of _____ (date) the total value of work completed and material stored is $_____. Of this amount $_____ has been received (the receipt and sufficiency of which is hereby acknowledged by the undersigned including $_____ in payment of Payment Application or Invoice Number _____. A total of $_____ is being held as retainage.

In consideration of the amounts and sums received, the undersigned does hereby waive and release to the **City of Memphis (Owner)** and to _____ (General Contractor) any and all claims and liens and rights to liens upon the premises described below and upon improvements now thereon, and upon the monies or other considerations (due as of the date of the aforesaid payment application or invoices from the **City of Memphis (Owner)** or _____ (General Contractor) or from any other person, firm or corporation), said claims and liens and rights to liens being on account of labor, services, materials, fixtures or apparatus heretofore furnished by or at the request of the undersigned. The premises as to which said claims and liens and rights to liens are hereby released are identified as follows:

Project Name:
Address of Project:
City:_____ County: Shelby_____ State: TN Zip Code: _____

The undersigned further represents and warrants that he is duly authorized and empowered to sign and execute this waiver on his own behalf and on behalf of the company or business for which he is signing; that he has properly performed all work and furnished all the materials of the specified quality per plans and specifications and in a good and workmanlike manner through the date of said payment application or invoice; that he has paid for all the labor, materials, equipment, and services that he has used or supplied to the above premises through the date of said payment application or invoice; that he has no other outstanding and unpaid payment applications, invoices, retentions, holdbacks, chargebacks or unbilled work or materials against _____ (General Contractor) as of the date of the aforementioned payment application; and that any materials which have been supplied or incorporated into the above premises were either taken from his fully-paid or open stock or were fully paid for and supplied as stated on the payment application or invoice.

The undersigned further agrees to reimburse and does hold harmless and fully indemnify the **City of Memphis (Owner)** and _____ (General Contractor) for any losses or expenses should any such claims, lien or right to a lien be asserted (by the undersigned or by any laborer, materialman or subcontractor of the undersigned), including, without implied limitation, attorneys' fees incurred in the defense thereof.

The undersigned further accepts and acknowledges the receipt of the aforesaid sums in full accord and satisfaction for the aforementioned claims with full knowledge that the contractors, **City of Memphis (Owner)** and _____ (General Contractor), their successors and assigns, are relying thereon; and furthermore, the undersigned agrees to perform, now and in the future, each and every covenant and provision of this written contract or supplier's agreement (as the case may be) as modified or changed in writing with _____ (General Contractor) or any subcontractor of _____ (General Contractor) hereby acknowledging that said contract or supplier's agreement is now in full force and effect.

In addition, for and in consideration of the amounts and sums received, the undersigned hereby waives, releases and relinquishes any and all claims, rights or causes of action whatsoever arising out of or in the course of the work performed on the above-mentioned project, contract or event transpiring prior to the date hereof, excepting the right to receive payment for work performed and properly completed and retainage, if any, after the date of the above-mentioned payment application or invoices.

Signed and delivered the _____ day of _____, 20____.
Company_____

By:_____
(Printed Name)

_____
(Signature)

Title:_____

Before me, the undersigned Notary Public in and for the said County and State, personally appeared _____, and acknowledged execution of the foregoing affidavit as his voluntary act and deed and further stated that the facts recited are true of his personal knowledge.

My Commission Expires:_____
_____
Notary Public
Residence

County/State:_____

00662.2 Final Waiver and Release of Lien Rights

AFFIDAVIT AND FINAL WAIVER OF CLAIMS AND LIENS AND RELEASE OF RIGHTS FOR SUBCONTRACTORS

The undersigned, who is the _____(designate title) of _____which is the _____ (designate whether subcontractor, supplier or otherwise) for the _____ (designate the type of work, supplies or services rendered) on the improvements constructed on the premises hereafter identified, declares that his contract with _____ (General Contractor) is in the total amount of $_____ , which includes extras and all change orders to the date hereof.

The undersigned further states that as of _____ (date) all work on said project has been performed and completed in accordance with the plans and specifications for the project, and said work has been accomplished in accordance with the terms and conditions of his subcontract and those documents which, by reference, are a part of said subcontract. The total value of work completed and material stored is $_____. Of this amount $_____ has been received (the receipt and sufficiency of which is hereby acknowledged by the undersigned including $_____ in payment of Payment Application or Invoice Number _____. A total of $_____ is being held as retainage.

In consideration of the amounts and sums received, the undersigned does hereby waive and release to the **City of Memphis (Owner)** and to _____ (General Contractor) any and all claims and liens and rights to liens upon the premises described below and upon improvements now thereon, and upon the monies or other considerations (due as of the date of the aforesaid payment application or invoices from the **City of Memphis (Owner)** or _____ (General Contractor) or from any other person, firm or corporation), said claims and liens and rights to liens being on account of labor, services, materials, fixtures or apparatus heretofore furnished by or at the request of the undersigned. The premises as to which said claims and liens and rights to liens are hereby released are identified as follows:

Project Name:
Address of Project:
City: _____ County: Shelby _____ State: TN _____ Zip Code: _____

The undersigned further represents and warrants that he is duly authorized and empowered to sign and execute this waiver on his own behalf and on behalf of the company or business for which he is signing; that he has properly performed all work and furnished all the materials of the specified quality per plans and specifications and in a good and workmanlike manner as required by the contract; that he has paid for all the labor, materials, equipment, and services that he has used or supplied to the above premises as required by the contract; that he has no other outstanding and unpaid payment applications, invoices, retentions, holdbacks, chargebacks or unbilled work or materials against _____ (General Contractor); and that any materials which have been supplied or incorporated into the above premises were either taken from his fully-paid or open stock or were fully paid for and supplied as stated on the payment application or invoice.

The undersigned further agrees to reimburse and does hold harmless and fully indemnify the **City of Memphis (Owner)** and _____ (General Contractor) for any losses or expenses should any such claims, lien or right to a lien be asserted (by the undersigned or by any laborer, materialman or subcontractor of the undersigned), including, without implied limitation, attorneys' fees incurred in the defense thereof.

The undersigned further accepts and acknowledges the receipt of the aforesaid sums in full accord and satisfaction for the aforementioned claims with full knowledge that the contractors, **City of Memphis (Owner)** and _____ (General Contractor), their successors and assigns, are relying

thereon; and furthermore, the undersigned agrees to perform, now and in the future, each and every covenant and provision of this written contract or supplier's agreement (as the case may be) as modified or changed in writing with _____ (General Contractor) or any subcontractor of _____ (General Contractor) hereby acknowledging that said contract or supplier's agreement is now in full force and effect.

In addition, for and in consideration of the amounts and sums received, the undersigned hereby waives, releases and relinquishes any and all claims, rights or causes of action whatsoever arising out of or in the course of the work performed on the above-mentioned project, contract or event transpiring prior to the date hereof, except retainage, if any, after the date of the above-mentioned payment application or invoices.

Signed and delivered the _____ day of _____, 20____.
Company_____

By:_____
(Printed Name)

_____
(Signature)

Title:_____

Before me, the undersigned Notary Public in and for the said County and State, personally appeared _____, and acknowledged execution of the foregoing affidavit as his voluntary act and deed and further stated that the facts recited are true of his personal knowledge.

My Commission Expires:_____

_____
Notary Public
Residence County/State:_____

00662.3 Certificate of Nondiscrimination (1 page)

As Bidder, Contractor, or Subcontractor on Purchaser's Contract,

SARP10 Program 75.2000 Project

The undersigned states that it does not discriminate against any subcontractor, employee, or applicant for employment on the grounds of race, color, national origin or sex and, if awarded a contract for this project, agrees in performance of work:

1. Not to discriminate against any sub contractor, employee, or applicant for employment on the grounds of race, color, national original or sex;

2. To maintain payrolls of laborers and mechanics employed on this contract until three (3) years after final release and final payment by the City;

3. To require a similar certificate to be executed by each subcontractor at the time a subcontract is executed under the contract with the requirement that such subcontractor agrees to require a similar certificate of requirement on any lower tiers of subcontracts.

4. To conform to federal law, state statutes, executive orders, and local ordinances identified and listed under Non-discrimination, Section 00270.9.

_____
Subcontractor's Name

_____
Date

_____
Signature

_____
Printed or Typed Name and Title

THIS FORM MUST BE SUBMITTED WITH THE BID OR THE BID MAY BE CONSIDERED NON-CONFORMING.

00662.4 Equal Business Opportunity Program

This form must be submitted with Bidder's proposal. Failure to execute and submit this documents with Bidder's proposal may cause the proposal to be rejected as non-conforming. In addition, each Sub-Subcontractor must execute the form.

This Subcontract will be subject to the requirements of the City of Memphis Ordinance #5384 which establishes the Equal Business Opportunity ("EBO") Program. It is up to the Respondent to ensure that all requirements of this ordinance are met. The Ordinance may be accessed on the City's website at www.memphistn.gov under "Doing Business". The intent of the EBO Program is to increase the participation of locally owned minority and women owned business enterprises ("M/WBE"). Toward achieving this objective, the M/WBE participation goal for this solicitation is 50%. The percentage of M/WBE participation is defined as the dollar value of subcontracts awarded to certified minority and/or women business enterprises divided by the total proposed base bid amount.

Additionally, in accordance with federal executive Order 11625 and 12138, the local government must make a good faith effort to include participation from Disadvantage Business enterprises (DBE) in subagreement awards. The DBE fair share goal for this project is minimum of **2.6%** s WBE and minimum of **2.6%** MBE. **Please note Subcontractor must meet both percentages independently to satisfy the requirements.**

Per Executive Order 11625 and SRF Fair Share Goals:

MBE goal	
Construction	**2.6%**
Supplies, Services, and Equipment	**5.2%**
WBE goal	
Construction	**2.6%**
Supplies, Services, and Equipment	**5.2%**
SARP10 overall MWBE goal:	**30%**

Per Executive Order 11246:

Minority Group goals (work hours)	**32.3%**
Women goals (work hours)	**6.9%**

Participation Plan

The Participation Plan must include: (1) level and dollar amount of participation your firm anticipates to achieve in the performance of contract resulting from this RFP; (2) the type of work to be performed by the M/WBE participation; and (3) the names of the M/WBE and/or DBE firm(s) the Respondent plans to utilize in the performance of the contract resulting from this RFP.

Eligible M/WBE and/or DBE Firms

To qualify as an M/WBE firm, per the requirements of City of Memphis Ordinance #5384, a firm must be included on the City's list of certified M/WBE firms. All contractors identified as a Disadvantaged Business Enterprise (DBE) must be on the Tennessee Uniform Certification Program (TNUCP) List at the time of the bid opening.

A list of the City's eligible M/WBE firms and DBE firms may be requested from Purchaser as a guide only. If a Bidder desires to utilize an M/WBE or DBE firm not included on the list, it is the Bidder's responsibility to confirm that the desired firm is certified by the City of Memphis. Such confirmation must be obtained from the City's Contract Compliance Office, in writing, before the bid/response due date. Requests for verification must be submitted to the City's Contract Compliance Office listed below:

Mary Bright, Esq.
City of Memphis, Contract Compliance Office
125 North Main Street, Suite 546
Memphis, TN 38103

Phone: (901) 576-6210 - Fax: (901) 576-6560
Email: mary.bright@memphistn.gov

MINORITY/WOMEN BUSINESS ENTERPRISE COMPLIANCE FORM (1 page)

SUBCONTRACT TITLE: 185332.75.2000 Stiles Vortex and Outfall Pipe

Project M/WBE Goal: Executive Order 11625:
MBE minimum **2.6%**
WBE minimum **2.6%**

Executive Order 11246:
Minority Group goals (work hours) **32.3%**
Women goals (work hours) minimum **6.9%**

The following sections must be completed by Bidder. A certified Sub-subcontractor or supplier is defined as a firm from the list of certified firms provided with this specification.

_____
Bidder's Name

Section A - If the Bidder is a certified firm, so indicate here with a check mark.

_____ MBE _____ WBE _____ DBE

Section B - Identify below those certified firms that will be employed as Sub-subcontractors or suppliers on this Project. By submitting this Bid, the Bidder commits to the use of the firms listed below.

$ = Show the dollar value of the subcontract to be awarded to this firm

% = Show the percentage this subcontract is of your base Bid

M/WBE = Show by inserting an M or W whether the subcontractor is an MBE or WBE

$	%	M/WBE	DBE	CERTIFIED SUBCONTR. NAME, ADDRESS, TEL. #
_____	_____	_____	____	_____
_____	_____	_____	____	_____
_____	_____	_____	____	_____
_____	_____	_____	____	_____
_____	_____	_____	____	_____
_____	_____	_____	____	_____
_____	_____	_____	____	_____

$_____ %_____ = *Total M/WBE and/or DBE*

THIS FORM MUST BE SUBMITTED WITH THE BID OR THE BID MAY BE CONSIDERED NON-CONFORMING.

00662.5 Report of Disadvantaged Business Enterprise Participation Form (1 page)

PROJECT NUMBER:_______________

SUBCONTRACTOR'S REPORT OF DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION

Project Name: ______________________________ Month of ____________, 200 _____
General Contractor: ____
Contact Person: ______________________________ Telephone: ______________
Address: ____
Amount of Subcontract: $ ______________ MBE %: __________ WBE %: __________

DBE Information: Circle either MBE or WBE and Complete Form.

MBE/WBE Firm Name: ______________ Contact Person: ______________
Date of Award: ______________ Contract Value: $ ______________
Completed-to-Date: $ ______________ Paid-to-Date: $ ______________
Work Description: ______________ Telephone #: ______________
Comments: ____

MBE/WBE Firm Name: ______________ Contact Person: ______________
Date of Award: ______________ Contract Value: $ ______________
Completed-to-Date: $ ______________ Paid-to-Date: $ ______________
Work Description: ______________ Telephone #: ______________
Comments: ____

MBE/WBE Firm Name: ______________ Contact Person: ______________
Date of Award: ______________ Contract Value: $ ______________
Completed-to-Date: $ ______________ Paid-to-Date: $ ______________
Work Description: ______________ Telephone #: ______________
Comments: ____

MBE/WBE Firm Name: ______________ Contact Person: ______________
Date of Award: ______________ Contract Value: $ ______________
Completed-to-Date: $ ______________ Paid-to-Date: $ ______________
Work Description: ______________ Telephone #: ______________
Comments: ____

Attach additional pages as required.

General Contractor's Signature: ______________________________ Date: ____________

00662.6 State Revolving Fund (SRF) Front-Ends (56 pages)

This Project 185332.75.2000 must maintain SRF compliance for the SARP10 Program, the SRF "Front-Ends" consisting of various forms and documents are attached herein. Furthermore, Davis Bacon is referenced within these SRF Front-Ends, and applies to the scope of Work. As a special note, the Bidder's Requirements on page 13 of 56 of the SRF Front-Ends, outlines Pre-Bid Requirements where all bidders must send certified mail and return receipts to a minimum of 10 certified DBE subcontractors, soliciting their service.

The following SRF Forms are to be submitted with your proposal and will be attached to the Subcontract: *(Please also include a signed form from each Sub-subcontractor as applicable refer to Table 00370.8 Schedule of Submittals)*

1. Certification Regarding Debarment (page 2 of 56)
2. Certification Regarding Equal Employment Opportunity (page 3 of 56)
3. EPA Form 6100-3 (page 21-22 of 56)
4. EPA Form 6100-4 (page 23-24 of 56)

STATE REVOLVING FUND LOAN PROGRAM

Inserts for Specifications

Clean Water – Unsubsidized

Projects Funded with FY 2010 and After Funds

Subject	File Name
Certification Regarding Debarment	02_CertificationRegardingDebarment.pdf
Certification Regarding Equal Employment Opportunity	03_CertificationRegardingEqualEmploymentOps.pdf
Retainage – TCAs 66-34-104, 203,103	04_RetainageTCAs.pdf
Advertisement for Bids Example – DBE	05_AdvertisementForBidsExample_DBE.pdf
DBE-Guidance Document	06_DBE01_GuidanceDocument.pdf
DBE-Loan Recipient's Requirements	06_DBE02_LoanRecip_Requirements.pdf
DBE-Loan Recipient's Good Faith Effort Letter	06_DBE03_LoanRecip_GoodFaithEffortLtr.pdf
DBE-Loan Recipient's Certification Summary Form	06_DBE04_LoanRecip_CertificationSummaryForm.pdf
DBE-Bidder's Requirements	06_DBE05_BidderRequirements.pdf
DBE Form 6100-2 Contractor Receipt Letter	06_DBE06_Form6100_2_ContractorReceiptLtr.pdf
DBE Form 6100-2 Subcontractor Participation	06_DBE07_Form6100_2_SubcontractorParticipation.pdf
DBE Form 6100-3 Subcontractor Performance	06_DBE08_Form6100_3_SubcontractorPerformance.pdf
DBE Form 6100-4 Subcontractor Utilization	06_DBE09_Form6100_4_SubcontractorUtilization.pdf
DBE-Certified List	06_DBE10_CertifiedList.pdf
Davis Bacon Poster - English	08_DavisBacon_Poster_English.pdf
Davis Bacon Poster - Spanish	08_DavisBaconsigninSpanish.pdf
Project Wage Sheet - HUD-4720	08_ProjectWageSheet_HUD-4720.pdf
Wage Rate - Bidder's Guidance to Davis Bacon	08_WageRates_BidderGuidanceToDavisBacon_20110215.pdf
Wage Rate – Loan Recipient's Guidance to DavisBacon	08_WageRates_LoanRecipGuidanceToDavisBacon_20110215.pdf
Tracking and Reporting – Loan Recipient's and Contractor's Guidance	09_TrackingAndReporting_LoanRecipAndBidderGuidance_FY2010andAfter.pdf
Storm Water General Permit NOI	11_StormWater_NOI.pdf
Storm Water General Permit NOT	11_StormWater_NOT.pdf
Project Sign Detail - Clean Water – Unsubsidized	14_CWSRF_ProjectSign_Color_Unsubsidized.pdf
Project Sign Detail - Clean Water – Unsubsidized	14_CWSRF_ProjectSign_NoColor_Unsubsidized.pdf
Bid Package Submittal Requirements	15_BidPackageSubmittalRequirements.pdf
Letter In Lieu of a Site Certificate	16_LetterInLieuofaSiteCertificate.pdf
Site Certificate	16_SiteCertificate.pdf

U.S. Environmental Protection Agency

CERTIFICATION REGARDING DEBARMENT, SUSPENSION AND OTHER RESPONSIBILTITY MATTERS

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statues or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (b) of this certification; and

(d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Sec. 1001, a false statement may result in a fine of up to $10,000 or imprisonment for up to 5 years, or both.

_____

Typed Name & Title of Authorized Representative

_____

Signature of Authorized Representative Date

____ I am unable to certify to the above statements. My explanation is attached.

CERTIFICATION BY PROPOSED PRIME OR SUBCONTRACTOR REGARDING EQUAL EMPLOYMENT OPPORTUNITY

_____

Name of Prime Contractor **Project Number**

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246, Part II, Section 203 (b), 30 F.R. 12319-25). Any bidder or prospective contractor, or any of their proposed subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicated that the prime or subcontractor has not filed a compliance report due under applicable instruction, such contractor shall be required to submit a compliance report.

CONTRACTOR'S CERTIFICATION

Contractor's Name: _____

Address: _____

_____

_____

1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause. Yes □ No □

2. Compliance Reports were required to be filed in connection with such contract or subcontract. Yes □ No □

   If yes, state what reports were filed and with what agency.

   _____

3. Bidder has filed all compliance reports due under applicable instructions, including SF-100. Yes □ No □

4. If answer to Item 3 is NO, please explain in detail on reverse side of this certification.

Certification - The information above is true and complete to the best of my knowledge and belief. (A willfully false statement is punishable by law-U.S. Code, Title 18, Section 1001.)

_____

Name and title of signer (Please type)

_____ _____

Signature **Date**

*** Current through the 2012 Regular Session ***

Title 66 Property
Chapter 34 Prompt Pay Act
Part 1 General Provisions

Tenn. Code Ann. § 66-34-103 (2012)

66-34-103. Withholding of retainage -- Violations -- Penalties.

(a) All construction contracts on any project in this state, both public and private, may provide for the withholding of retainage; provided, however, that the retainage amount may not exceed five percent (5%) of the amount of the contract.

(b) The owner, whether public or private, shall release and pay all retainages for work completed pursuant to the terms of any contract to the prime contractor within ninety (90) days after completion of the work or within ninety (90) days after substantial completion of the project for work completed, whichever occurs first. As used in this subsection (b), work completed shall be construed to mean the completion of the scope of the work and all terms and conditions covered by the contract under which the retainage is being held. The prime contractor shall pay all retainages due any subcontractor within ten (10) days after receipt of the retainages from the owner. Any subcontractor receiving the retainage from the prime contractor shall pay to any subsubcontractor or material supplier all retainages due the subsubcontractor or material supplier within ten (10) days after receipt of the retainages.

(c) Any default in the making of the payments shall be subject to those remedies provided in this part.

(d) In the event that an owner or prime contractor withholds retainage that is for the use and benefit of the prime contractor or its subcontractors pursuant to § 66-34-104(a) and (b), neither the prime contractor nor any of its subcontractors shall be required to deposit additional retained funds into an escrow account in accordance with § 66-34-104(a) and (b).

(e) (1) It is an offense for a person, firm or corporation to fail to comply with subsection (a) or (b) or § 66-34-104(a).

(2) (A) A violation of this subsection (e) is a Class A misdemeanor, subject to a fine only of three thousand dollars ($3,000).

(B) Each day a person, firm or corporation fails to comply with subsection (a) or (b) or § 66-34-104(a) is a separate violation of this subsection (e).

(C) Until the violation of this subsection (e) is remediated by compliance, the punishment for each violation shall be consecutive to all other such violations.

(3) In addition to the fine imposed pursuant to subdivisions (e)(2)(A) and (B), the court shall order restitution be made to the owner of the retained funds. In determining the appropriate amount of restitution, the formula stated in § 40-35-304 shall be used.

HISTORY: Acts 2007, ch. 201, § 3; 2008, ch. 804, § 3; 2012, ch. 609, § 1.

*** Current through the 2012 Regular Session ***

Title 66 Property
Chapter 34 Prompt Pay Act
Part 1 General Provisions

Tenn. Code Ann. § 66-34-104 (2012)

66-34-104. Retention of portion of contract price in escrow -- Applicability -- Mandatory compliance.

(a) Whenever, in any contract for the improvement of real property, a certain amount or percentage of the contract price is retained, that retained amount shall be deposited in a separate, interest-bearing, escrow account with a third party which must be established upon the withholding of any retainage.

(b) As of the time of the withholding of the retained funds, the funds shall become the sole and separate property of the prime contractor or remote contractor to whom they are owed, subject to the rights of the person withholding the retainage in the event the prime contractor or remote contractor otherwise entitled to the funds defaults on or does not complete its contract.

(c) In the event that the party withholding the retained funds fails to deposit the funds into an escrow account as provided herein, such party shall be responsible for paying the owner of the retained funds an additional three hundred dollar ($300) penalty per day for each and every day that such retained funds are not deposited into such escrow account.

(d) The party with the responsibility for depositing the retained amount in a separate, interest-bearing, escrow account with a third party shall have the affirmative duty to provide written notice that it has complied with the requirements of this section to any prime contractor upon withholding the amount of retained funds from each and every application for payment, including:

(1) Identification of the name of the financial institution with whom the escrow account has been established;

(2) Account number; and

(3) Amount of retained funds that are deposited in the escrow account with the third party.

(e) Upon satisfactory completion of the contract, to be evidenced by a written release by the owner or prime contractor owing the retainage, all funds accumulated in the escrow account together with all interest on the account shall be paid immediately to the prime contractor or remote contractor to whom the funds and interest are owed.

(f) In the event the owner or prime contractor, as applicable, fails or refuses to execute the release provided for in subsection (c), then the prime contractor or remote contractor, as applicable, may seek any remedy in a court of proper jurisdiction and the person holding the fund as escrow agent shall bear no liability for the nonpayment of the fund to the prime contractor or remote contractor; provided, however, that all claims, demands, disputes, controversies, and differences that may arise between the owner, prime contractor or prime contractors, and remote contractor or remote contractors regarding the funds may be, upon written agreement of all parties concerned, settled by arbitration conducted pursuant to the Tennessee Uniform Arbitration Act, compiled in title 4, chapter 5, part 3, or the Federal

Arbitration Act, 9 U.S.C. § 1, et seq., as may be applicable.

(g) In contracts to which the state or any department, board or agency of the state, including the University of Tennessee, is a party, interest shall be paid on the retained amounts at the same rate interest is paid on the funds of local governments participating in the local government investment pool established pursuant to § 9-4-704, for the contract period.

(h) The provisions of this section shall be applicable to the state, any department, board or agency of the state, including the University of Tennessee, and all counties and municipalities and all departments, boards or agencies of the counties and municipalities, including all school and education boards, and any other subdivision of the state.

(i) This section shall be applicable to all prime contracts and all subcontracts thereunder for the improvement of real property when the contract amount of such prime contract is five hundred thousand dollars ($500,000) or greater, notwithstanding the amount of such subcontracts.

(j) Compliance with this section shall be mandatory, and may not be waived by contract.

(k) Failure to deposit the retained funds into an escrow account as provided herein, within seven (7) days' receipt of written notice regarding such failure, is a Class A misdemeanor.

HISTORY: Acts 1975, ch. 345, §§ 1-4; T.C.A., §§ 64-1148 -- 64-1151; Acts 1985, ch. 340, §§ 1, 2; 1986, ch. 551, § 9; 2007, ch. 189, § 43; 2007, ch. 201, §§ 1, 2; T.C.A. § 66-11-144; Acts 2008, ch. 804, §§ 1, 2; 2010, ch. 875, §§ 1, 2; 2012, ch. 609, §§ 2-5.

*** Current through the 2012 Regular Session ***

Title 66 Property
Chapter 34 Prompt Pay Act
Part 2 Owner/Contractor Payment

Tenn. Code Ann. § 66-34-203 (2012)

66-34-203. Withholding of payment or retainage by owner.

Nothing in this chapter shall prevent the owner from reasonably withholding payment or a portion of a payment to the contractor; provided, that such withholding is in accordance with the provisions of the written contract between the owner and the contractor. The owner may also withhold a reasonable amount of retainage as specified in the written contract between the owner and the contractor; provided, however, that the retainage amount may not exceed five percent (5%) of the amount of the contract.

HISTORY: Acts 1991, ch. 45, § 1; 2007, ch. 201, § 4.

ADVERTISEMENT FOR BIDS EXAMPLE – DBE

The {City/Town/County/Utility District/Authority} will receive separate sealed BIDS for the construction of a {water or wastewater} project at {location to deliver bid proposal} until {closing time}, local time, on {date}, and, then, at said time, publicly open and read the BIDS aloud.

The work to be bid on is as follows: {Description of work to be performed here.}

The allotted time for construction is {# of days for work to be performed} calendar days.

The information for Bidders; Bid Form; Form of Agreement; Drawings; Specifications information; Bid Bond, Performance Bond, and Payment Bond information; and other contract documents may be examined at the addresses below:

{Please type address of consulting engineer's office}

{Please type address of City/Town/Utility District/Authority}

Ms. Marilyn Robinson, Executive Director
Nashville Minority Business Office
1919 Charlotte Avenue, Suite 310
Nashville, TN 37203
(615) 255-0432

Copies of the CONTRACT DOCUMENTS may be obtained at the {name of office to pick up contract documents} Office, located at {address of office}, upon payment of $ {Amount} for each set.

Any BIDDER, upon returning the CONTRACT DOCUMENTS within {number of days} days after BID opening and in good condition, will be refunded {his/her payment or $ amount} and any non-bidder will be refunded $ {Amount}.

No bid may be withdrawn within (#) days after the scheduled time for receipt of bids.

DAVIS-BACON ACT REQUIREMENTS

This project is being funded by a State Revolving Fund loan from FY 2010 (or later) EPA Capitalization Grant Funds. The loan recipient must be in compliance with all applicable Davis-Bacon Act requirements.

DISADVANTAGED BUSINESS ENTERPRISES (DBE) REQUIREMENTS

Any contract or contracts awarded by the Owner through this invitation for bids will be funded by a State Revolving Fund (SRF) loan from the State of Tennessee. State and Federal funds will be involved in this project, and, as a result, Bidders must comply with the SRF Loan Program's Disadvantaged Business Enterprises (DBE) requirements including contacting a minimum of 10 qualified DBE sub-contractors, professional service providers, vendors, and/or suppliers by certified mail to solicit bids. The apparent successful Bidder must submit to the Owner copies of the certified letters and return receipts prior to contract award. Neither the State of Tennessee nor any of its departments, agencies, or employees is or will be a party to this Invitation for Bids or any resulting contract(s) awarded by the Owner.

SPECIAL NOTICE TO DISADVANTAGED BUSINESS ENTERPRISES (DBE) FIRMS

All qualified Disadvantaged Business Enterprises (DBE) firms desiring to bid as a General Contractor, sub-contractor, professional service provider, supplier, or equipment vendor are encouraged to contact Ms. Marilyn Robinson at the Nashville Minority Business Center office listed above to review bidding/contract documents. Qualified Disadvantaged Business Enterprises (DBE) firms may also contact {Name of the Engineer, office address, and phone number}, in order to obtain a list of prospective bidding General Contractors or to obtain copies of bidding/contract documents.

Disadvantaged Business Enterprise (DBE) Requirements
for
State Revolving Fund Loans Awarded after May 27, 2008

GUIDANCE DOCUMENT

Items included in the Guidance Document:

- **General Contract Administration Provisions Table**
- **Six Good Faith Efforts, Purpose and Definitions Table**
- **List of DBE Forms for Loans Awarded After May 27, 2008**

GENERAL CONTRACT ADMINISTRATION PROVISIONS—www.epa.gov			
Requirement	**Circumstance**	**Responsible Party:**	**Submitted To:**
A **Loan Recipient** must be notified in writing by its **Prime Contractor** prior to any termination of a **DBE Subcontractor** for convenience by the **Prime Contractor**.	Termination of a **DBE Subcontractor** for convenience by the **Prime Contractor**	**Prime Contractor**	**Loan Recipient**
A **Loan Recipient** must require its **Prime Contractor** to pay its **Subcontractor** for satisfactory performance no more than 30 days from the **Prime Contractor's** receipt of payment from the **Loan Recipient**.	**DBE Subcontractor's** satisfactory performance	**Loan Recipient** **Prime Contractor**	**DBE Subcontractor**
If a **DBE Subcontractor** fails to complete work under the subcontract for any reason, the **Loan Recipient** must require the **Prime Contractor** to employ the **Six Good Faith Efforts** (see Table below) if soliciting a replacement **Subcontractor**.	**DBE Subcontractor** fails to complete work under the subcontract for any reason and will be replaced	**Loan Recipient** **Prime Contractor**	**SRF Loan Program**
A **Loan Recipient** must require its **Prime Contractor** to employ the **Six Good Faith Efforts** (see Table below) even if the **Prime Contractor** has achieved its fair share objectives.	Employment of the **Six Good Faith Efforts**	**Loan Recipient** **Prime Contractor**	**SRF Loan Program**
Inclusion, completion, and/or transmittal of required **DBE Forms** as instructed below: **Loan Recipient Requirements** **Bidder Requirements** **DBE Participation/Certification Summary** **Advertisement for Bids and Publisher's Affidavit** 10 Certified Letters and Return Receipts to certified **DBEs** **Good Faith Letter** **Prime Contractor's Notice Letter** for EPA Form 6100-2 **EPA Form 6100-2** **EPA Form 6100-3** **EPA Form 6100-4**	---	**Loan Recipient** **Prime Contractor** **DBE Subcontractor**	See instructions below and on Forms

SIX GOOD FAITH EFFORTS—www.epa.gov	
PURPOSE	The Good Faith Efforts are required methods employed by all EPA financial assistance agreement recipients to ensure that all disadvantaged business enterprises (DBEs) have the opportunity to compete for procurements funded by EPA financial assistance dollars.
Definitions	
EFFORT 1	Ensure DBEs are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities. For Indian Tribal, State and Local and Government recipients, this will include placing DBEs on solicitation lists and soliciting them whenever they are potential sources.
EFFORT 2	Make information on forthcoming opportunities available to DBEs and arrange time frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in the competitive process. This includes, whenever possible, posting solicitations for bids or proposals for a minimum of 30 calendar days before the bid or proposal closing date.
EFFORT 3	Consider in the contracting process whether firms competing for large contracts could subcontract with DBEs. For Indian Tribal, State and local Government recipients, this will include dividing total requirements when economically feasible into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.
EFFORT 4	Encourage contracting with a consortium of DBEs when a contract is too large for one of these firms to handle individually.
EFFORT 5	Use the services and assistance of the Small Business Administration (SBA) and the Minority Business Development Agency of the Department of Commerce.
EFFORT 6	If the **Prime Contractor** awards subcontracts, require the **Prime Contractor** to take the steps in the Good Faith Efforts 1 through 5 (above) and in the General Contract Administration Provisions (above).

Disadvantaged Business Enterprise (DBE) Requirements
for
State Revolving Fund Loans Awarded after May 27, 2008

GUIDANCE DOCUMENT

DBE FORMS FOR SRF LOANS AWARDED AFTER MAY 27, 2008—www.epa.gov				
Form	**Requirement**	**Provided By:**	**Completed By:**	**Submitted To:**
List of certified **DBE** contractors, subcontractors, supplies vendors, equipment vendors, and service providers	Keep list with project files/information for duration of project	**SRF Loan Program**	---	---
Loan Recipient's Requirements regarding DBEs	Include this information sheet in the Information for Bidders section of bid documents	**SRF Loan Program**	---	To be included in the contract specifications book
Bidder's Requirements regarding DBEs	Include this information sheet in the Information for Bidders section of bid documents	**SRF Loan Program**	---	To be included in the contract specifications book
Loan Recipient's Certification and Summary of **DBE** Participation	To be completed and submitted with the Authority-to-Award/ Bid Package. The SRF Loan Program must be notified of any changes, additions, or deletions to the contract during construction.	**SRF Loan Program**	**Loan Recipient**	**SRF Loan Program**
Advertisement for Bids and **Publisher's Affidavit**	**DBE** solicitation information must be included in the actual advertisement for bids. A Publisher's Affidavit (signed, original, notarized certification of publication) denoting the actual published date of the advertisement will be submitted to the SRF Loan Program as part of the Authority-to-Award/Bid Package documents.	An example advertise-ment with appropriate **DBE** language is supplied to the Loan Recipient by the **SRF Loan Program**	**Loan Recipient**	A copy of the actual advertisement and a Publisher's Affidavit will be submitted to the **SRF Loan Program** as part of the Authority-to-Award/Bid Package documents
10 Certified Letters and **Return Receipts** to potential certified DBE subcontractors, supplies vendors, service providers, and/or equipment vendors	These certified letters and copies of the corresponding return mail receipts are submitted with the completed **Loan Recipient's DBE Participation and Certification Summary Form.**	**Prime Contractor and/or Loan Recipient**	**Loan Recipient**	SRF Loan Program as part of the Authority-to-Award/Bid Package documents
Good Faith Letter	If **no DBE** participation is obtained for the contract, the "Good Faith" letter must be written.	Form letter provided by the **SRF Loan Program**	**Loan Recipient**	**SRF Loan Program**

Disadvantaged Business Enterprise (DBE) Requirements
for
State Revolving Fund Loans Awarded after May 27, 2008

GUIDANCE DOCUMENT

DBE FORMS FOR SRF LOANS AWARDED AFTER MAY 27, 2008—www.epa.gov				
Form	**Requirement**	**Provided By:**	**Completed By:**	**Submitted To:**
Prime Contractor's Notice Letter for EPA Form 6100-2	The **Prime Contractor** must submit the Notice Letter to verify that Form 6100-2 was supplied to all **DBE Subcontractors** participating in the contract.	**SRF Loan Program**	**Prime Contractor**	**Loan Recipient** for inclusion in the Authority-to-Award / Bid / Proposal package
EPA Form **6100-2**	**Loan Recipient** required to have **Prime Contractors** provide form to **DBE Subcontractors** This form gives a **DBE Subcontractor** the opportunity to describe the work the **DBE Subcontractor** received from the **Prime Contractor**, how much the **DBE Subcontractor** was paid, and any other concerns the **DBE Subcontractor** might have.	**Loan Recipient** **Prime Contractors**	**DBE Subcontractors**	**EPA DBE Coordinator** at the conclusion of **DBE Subcontractor** participation in the project (Address on Form)
EPA Form **6100-3**	**Loan Recipient** required to have **Prime Contractors** provide form to **DBE Subcontractors** This form captures an intended **Subcontractor's** description of work to be performed for the **Prime Contractor** and the price of the work submitted to the **Prime Contractor**.	**Loan Recipient**	**Prime Contractors** **DBE Subcontractors**	**Loan Recipient** for inclusion in the Authority-to-Award / Bid / Proposal package
EPA Form **6100-4**	**Loan Recipient** required to have **Prime Contractors** complete the form This form captures the **Prime Contractor's** intended use of an identified **DBE Subcontractor** and the estimated dollar amount of the subcontract.	**Loan Recipient**	**Prime Contractors**	**Loan Recipient** for inclusion in the Authority-to-Award / Bid / Proposal package

STATE REVOLVING FUND LOAN PROGRAM

Loan Recipient's Requirements for Solicitation and Documentation of Disadvantaged Business Enterprises (DBE) Participation
on State Revolving Fund (SRF) Projects

A goal-oriented system has been established to promote **Disadvantaged Business Enterprises (DBE)** participation by providing construction services, professional services, supplies, and/or equipment on SRF Loan-funded water and wastewater projects. It is the Loan Recipient's responsibility to ensure that Bidders make a good faith effort during the bidding phase to solicit for subcontractor participation by **DBE** subcontractors, service professionals, suppliers, and/or equipment vendors on all SRF-funded projects.

DEFINITIONS

DBE - Minority Business Enterprise (MBE): A qualified socially and economically disadvantaged minority-owned business certified by any State or Federal agency, such as the Tennessee Department of Transportation, U.S. EPA's Office of Small and Disadvantaged Business Utilization, or the U.S. Small Business Administration.

DBE - Women's Business Enterprise (WBE): A qualified independent business at least 51% owned by a woman or women and certified by any State or Federal agency such as the Tennessee Department of Transportation, U.S. EPA's Office of Small and Disadvantaged Business Utilization, or the U.S. Small Business Administration.

Fair-Share Goals: The MBE fair-share goal is 2.6% for construction and 5.2% for supplies, services, and equipment. The WBE fair share goal is 2.6% for construction and 5.2% for supplies, services, and equipment.

INSTRUCTIONS TO LOAN RECIPIENTS

Pre-Bid Requirements

Loan Recipients must include the SRF Loan Program's "Bidder's Requirements for Solicitation and Documentation of **DBE** Participation on SRF-Funded Projects" information sheet in the Information for Bidders section of bid documents. Loan Recipients must also ensure that Bidders take the following affirmative steps that constitute a good-faith effort to secure **DBE** participation:

- Include certified **DBEs** on solicitation lists whenever they are potential sources,
- Divide construction contracts into subcontracts, when economically feasible, to encourage maximum participation by **DBEs**,
- Establish delivery schedules, where requirements of the work permit, that encourage participation by **DBEs**,
- Use the services and assistance of the Office of Minority Business Enterprises of the U.S. Department of Commerce, or the U.S. EPA's Office of Small and Disadvantaged Business Utilization. For assistance or information, Bidders may be referred to:

Tennessee Department of Transportation
Small Business Development
505 Deaderick Street, Suite 1800
Nashville, TN 37243-0347
(615) 741-3681
http://www.tdot.state.tn.us/construction/DBE%20list/dbe_list.pdf

Mr. W. Clinton Smith, District Director
U.S. Small Business Administration
50 Vantage Way, Suite 201
Nashville, TN 37228
(615) 736-5881
http://pro-net.sba.gov/

Ms. Jeanette L. Brown, Director
U.S. Environmental Protection Agency
Office of Small and Disadvantaged Business Utilization
1200 Pennsylvania Avenue, N.W. (1230A)
Washington, D.C. 20460
(202) 564-4100 http://www.epa.gov/osdbu/

POST-BID REQUIREMENTS

Whether or not DBE participation was obtained, the Loan Recipient must complete the **"Loan Recipient's Certification and Summary"** form for every contract detailing whether or not **DBE** participation of subcontractors, professional service providers, suppliers, and/or equipment vendors was obtained. The **"Loan Recipient's Certification and Summary"** form must be submitted to the Administrative Section of the SRF Loan Program prior to the award of any construction contract(s) along with the newspaper **advertisement**, a **Publisher's Affidavit**, and **return receipts** and copies of the **certified letters** that were mailed to a minimum of 10 qualified **DBEs**.

STATE REVOLVING FUND LOAN PROGRAM

Loan Recipient's Requirements for Solicitation and Documentation
of
Disadvantaged Business Enterprises (DBE) Participation
on State Revolving Fund (SRF) Projects

If DBE participation was obtained, the **"Loan Recipient's Certification and Summary"** form must clearly indicate whether **DBE** participation was obtained from either a subcontractor, professional service provider, supplier, and/or equipment vendor participation; identify the **DBE** firm(s) to be used; and certify that the **DBE** firm(s) is a certified **DBE**. In addition to the **"Loan Recipient's Certification and Summary"** form, the Loan Recipient must include in the submittal to the SRF Loan Program, copies of the **Prime Contractor's Notice Letter for EPA Form 6100-2**, **EPA Form 6100-3**, and **EPA Form 6100-4**.

If no DBE participation was obtained, the Loan Recipient must submit a separate letter documenting that a "**good-faith effort**" was made to secure **DBE** participation. This letter is submitted along with the above-mentioned **"Loan Recipient's Certification and Summary"** form, newspaper **advertisement**, **Publisher's Affidavit**, **return receipts,** and copies of the **certified letters.** The SRF Loan Program provides a template to the Loan Recipient for this letter.

This documentation is the only form of documentation that will be accepted by the SRF Loan Program. Failure to provide the required documentation may result in a delay of the SRF Loan Program's approval of the Authority-to-Award/Bid Package, thereby delaying the award of the construction contract(s).

The Loan Recipient should direct all inquiries regarding the SRF Loan Program's requirements for **DBE** solicitation and documentation to Dr. Bagher Sami at (615) 532-0501, bagher.sami@tn.gov, or the following address:

Dr. Bagher Sami, Manager
Administrative and Financial Section
Tennessee State Revolving Fund Loan Program
WRS - Tennessee Tower, 12th Floor
312 Rosa L. Parks Avenue
Nashville, TN 37243

STATE REVOLVING FUND LOAN PROGRAM

Loan Recipient's Good Faith Effort Letter for DBE Participation

(Insert on Loan Recipient's Letterhead)

(Date)

Dr. Bagher Sami, Manager
Administrative and Financial Sections
State Revolving Fund Loan Program
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 12th Floor
Nashville, TN 37243

RE: Good Faith Effort – Disadvantaged Business Enterprises (DBE) Participation
City/County/UD/Authority (??? County), Tennessee
Loan No. SRF/CWA/CGA/DWF/DWA/DGA 20??-???
Contract No. ????, Contract Description

Dear Dr. Sami:

This letter is to inform you that the City/County/UD/Authority did, in good faith, encourage Disadvantaged Business Enterprises (DBE) to participate in the above referenced project by placing a special notice to Disadvantaged Business Enterprises (DBE) firms in both the invitation to bid and the public advertisement for bids. The City/County/UD/Authority, through the consulting engineer, (A/E Consulting Firm), sent a copy of the invitation to bid and a set of contract documents to the Office of Minority Business Enterprises. The City/County/UD/Authority also sent certified letters, return receipts requested, to a minimum of ten (10) DBE potential subcontractors, professional service providers, suppliers, and equipment vendors requesting DBE participation through their office, A/E, or their contractor. The consulting engineer on this project is (Name), (Firm).

We have not received any DBE participation; we believe we have done a good faith effort.

If you have any questions, please don't hesitate to contact us.

Sincerely,

(Authorized Representative Name)
(Authorized Representative Title)

cc: (A/E Consultant Name and Firm)

STATE REVOLVING FUND LOAN PROGRAM

Loan Recipient's Certification and Summary
of
Disadvantaged Business Enterprises (DBE) Participation

SRF Loan Recipient: _____ SRF Loan No. _____

INSTRUCTIONS TO SRF LOAN RECIPIENTS

The SRF Loan Recipient's Authorized Representative must clearly indicate the Contractor's **Disadvantaged Business Enterprises (DBE)** participation results by placing a check in the appropriate box below. The remainder of the form must be completed if **DBE (Minority Business Enterprise-MBE or Women's Business Enterprise –WBE)** participation was obtained. The form must be signed and dated and returned to Dr. Bagher Sami of the Administrative Section of the SRF Loan Program.

The **completed Form** must be accompanied by **copies of the certified letters** sent from the selected Bidder to a minimum of 10 qualified DBE potential subcontractors, supplies vendor, services provider, and/or equipment vendors, and **copies of the corresponding return mail receipts**.

The SRF Loan Program must be notified of any changes, additions, or deletions to the contract during construction.

☐ **No, Disadvantaged Business Enterprises (DBE) participation was not obtained for this SRF-funded project.** I certify that a good-faith effort was made to solicit **DBE** participation in accordance with the four affirmative steps outlined in the SRF Loan Program's Requirements for Solicitation and Documentation of **DBE** Participation on SRF-Funded Projects. A letter documenting that a good–faith effort was made to secure **DBE** participation has been provided to the SRF Loan Program.

OR

☐ **Yes, Disadvantaged Business Enterprises (DBE) participation was obtained for this SRF-funded project.** I certify that the **DBE** firms participating in this SRF-funded project are qualified in accordance with the SRF Loan Program's Requirements for Solicitation and Documentation of **DBE** Participation on SRF-Funded Projects. Below is a listing of firms to be utilized and the amounts of their respective participation.

1. **DBE type (circle one): Subcontractor, Supplies Vendor, Service Provider, Equipment Vendor**
DBE Name: _____
Address: _____
Subcontract Amount: $ _____ **MBE** ____ **WBE** ____ **% of Contract $:** _____ **%**

2. **DBE type (circle one): Subcontractor, Supplies Vendor, Service Provider, Equipment Vendor**
DBE Name: _____
Address: _____
Subcontract Amount: $ _____ **MBE** ____ **WBE** ____ **% of Contract $:** _____ **%**

3. **DBE type (circle one): Subcontractor, Supplies Vendor, Service Provider, Equipment Vendor**
DBE Name: _____
Address: _____
Subcontract Amount: $ _____ **MBE** ____ **WBE** ____ **% of Contract $:** _____ **%**

4. **DBE type (circle one): Subcontractor, Supplies Vendor, Service Provider, Equipment Vendor**
DBE Name: _____
Address: _____
Subcontract Amount: $ _____ **MBE** ____ **WBE** ____ **% of Contract $:** _____ **%**

PARTICIPATION SUMMARY

Total SRF Loan Amount: $ _____ **Total Construction Contract Amount: $** _____

Total MBE Participation: $ _____ **Total WBE Participation: $** _____

_____ _____
Signature and Title of SRF Loan Recipient's Authorized Representative Date

STATE REVOLVING FUND LOAN PROGRAM

Bidder's Requirements for Solicitation and Documentation of Disadvantaged Business Enterprises (DBE) Participation

A goal-oriented system has been established to promote **Disadvantaged Business Enterprises (DBE)** participation by providing construction services, professional services, supplies, and/or equipment on SRF Loan-funded water and wastewater projects. It is the Bidder's responsibility to make a good faith effort to secure participation by **DBE** subcontractors, professional service providers, suppliers, and/or equipment vendors.

DEFINITIONS

DBE - Minority Business Enterprise (MBE): A qualified socially and economically disadvantaged minority-owned business certified by any State or Federal agency, such as the Tennessee Department of Transportation, U.S. EPA's Office of Small and Disadvantaged Business Utilization, or the U.S. Small Business Administration.

DBE - Women's Business Enterprise (WBE): A qualified independent business at least 51% owned by a woman or women and certified by any State or Federal agency such as the Tennessee Department of Transportation, U.S. EPA's Office of Small and Disadvantaged Business Utilization, or the U.S. Small Business Administration.

Fair-Share Goals: The MBE fair-share goal is 2.6% for construction and 5.2% for supplies, services, and equipment. The WBE fair share goal is 2.6% for construction and 5.2% for supplies, services, and equipment.

INSTRUCTIONS TO BIDDERS

Pre-Bid Requirements

All Bidders must send letters by certified mail with return receipt requested to a minimum of 10 certified **DBE** subcontractors, professional service providers, suppliers, and/or equipment vendors to solicit their subcontract participation in the work. Lists of certified **DBE** firms may be obtained from various State and Federal agencies, including the following:

Tennessee Department of Transportation
Small Business Development
505 Deaderick Street, Suite 1800
Nashville, TN 37243-0347
(615) 741-3681
http://www.tdot.state.tn.us/dbedirectinternet/Vendor.aspx

Mr. W. Clinton Smith, District Director
U.S. Small Business Administration
50 Vantage Way, Suite 201
Nashville, TN 37228
(615) 736-5881
http://pro-net.sba.gov/

U.S. Environmental Protection Agency
Office of Small and Disadvantaged Business Utilization
1200 Pennsylvania Avenue, N.W. (1230A)
Washington, D.C. 20460
(202) 564-4100
http://www.epa.gov/osdbu/

Post-Bid Requirements

Whether or not DBE participation was obtained, the successful Bidder (Prime Contractor) must maintain supporting documents such as certification lists, solicitation documents, letters of intent, contracts, etc., for the duration of the project.

If DBE participation was obtained, the apparent successful Bidder must identify to the Loan Recipient all **DBE** firms to be utilized on the contract and the respective **DBE** type--subcontractors, supplies vendors, service providers, and/or equipment vendors (see "Loan Recipient's Certification and Summary" form)**.** Copies of the State's or Federal agency's **DBE** certification list(s) identifying that the **DBE** firms are certified minority or women's business enterprises must be provided to the Loan Recipient. In addition, copies of the **Prime Contractor's Notice Letter for EPA Form 6100-2**, **EPA Form 6100-3** (to be co-completed by the Prime Contractor and each DBE subcontractor**)**, and **EPA Form 6100-4** must also be provided to the Loan Recipient prior to tentative loan award. The Prime Contractor must provide **EPA Form 6100-2** to each **DBE** utilized on the contract.

If no DBE participation was obtained by the apparent successful Bidder, it remains the responsibility of the Prime Contractor to provide documentation to the Loan Recipient, prior to contract award, that a good faith effort was made to obtain **DBE** participation. Copies of the **certified letters** sent to a minimum of 10 qualified **DBE** potential subcontractors, supplies vendors, service providers, and/or equipment vendors and the corresponding **return mail receipts** are the only documentation of a good-faith effort that will be acceptable to the Loan Recipient.

*Failure to provide the required certified letters, return receipts, State or Federal agency **DBE** certification list(s), **Prime Contractor's Notice Letter for EPA Form 6100-2**, **EPA Form 6100-3**, and **EPA Form 6100-4** to the Loan Recipient may delay the contract award until the required documentation has been provided to and accepted by the Loan Recipient.*

STATE REVOLVING FUND LOAN PROGRAM

Contractor Receipt Letter – Form 6100-2

(Please Insert on Contractor Letterhead)

(Date)

Dr. Bagher Sami, Manager
Administrative and Financial Sections
State Revolving Fund Loan Program
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 12th Floor
Nashville, TN 37243

RE: Receipt and Distribution of EPA Form 6100-2
Disadvantaged Business Enterprise (DBE) Participation
(City/County/UD/Authority) (??? County), Tennessee
Loan No. SRF/CWA/CGA/DWF/DWA/DGA 20??-???
(Contract Name and/or Number)

Dear Dr. Sami:

This letter is to inform you the EPA Form 6100-2 was received from the (City/County/UD/Authority) and was then given to all DBE Subcontractors as required who are going to provide either construction, services, supplies, or equipment for this project.

If you have any questions concerning this notification, please contact us at (Phone No., e-mail, etc.).

Sincerely,

(Contractors Authorized Representative)
(Title)

cc: (Consulting Engineer for the contract)
(City/County/UD/Authority's Authorized Representative)

United States Environmental Protection Agency

OMB Control No: 2090-0030
Approved: 8/13/2013
Approval Expires: 8/31/2015

Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Participation Form

An EPA Financial Assistance Agreement Recipient must require its prime contractors to provide this form to its DBE subcontractors. This form gives a DBE[1] subcontractor[2] the opportunity to describe work received and/or report any concerns regarding the EPA-funded project (e.g., in areas such as termination by prime contractor, late payments, etc.). The DBE subcontractor can, as an option, complete and submit this form to the EPA DBE Coordinator at any time during the project period of performance.

Subcontractor Name	Project Name	
Bid/ Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.	Email Address	
Prime Contractor Name	Issuing/Funding Entity:	

Contract Item Number	Description of Work Received from the Prime Contractor Involving Construction, Services , Equipment or Supplies	Amount Received by Prime Contractor

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

United States Environmental Protection Agency

OMB Control No: 2090-0030
Approved: 8/13/2013
Approval Expires: 8/31/2015

Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Participation Form

Please use the space below to report any concerns regarding the above EPA-funded project:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Subcontractor Signature	Print Name
Title	**Date**

United States Environmental Protection Agency

OMB Control No: 2090-0030
Approved: 8/13/2013
Approval Expires: 8/31/2015

Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Performance Form

This form is intended to capture the DBE[1] subcontractor's[2] description of work to be performed and the price of the work submitted to the prime contractor. An EPA Financial Assistance Agreement Recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractors bid or proposal package.

Subcontractor Name	Project Name	
Bid/ Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.	Email Address	
Prime Contractor Name	Issuing/Funding Entity:	

Contract Item Number	**Description of Work Submitted to the Prime Contractor Involving Construction, Services , Equipment or Supplies**	**Price of Work Submitted to the Prime Contractor**
DBE Certified By: ___ DOT ___ SBA ___ Other: _____	Meets/ exceeds EPA certification standards? ___ YES ___ NO ___ Unknown	

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

United States Environmental Protection Agency

OMB Control No: 2090-0030
Approved: 8/13/2013
Approval Expires: 8/31/2015

Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Performance Form

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware of that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	**Date**

Subcontractor Signature	Print Name
Title	**Date**

United States Environmental Protection Agency

OMB Control No: 2090-0030
Approved: 8/13/2013
Approval Expires: 8/31/2015

Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Utilization Form

This form is intended to capture the prime contractor's actual and/or anticipated use of identified certified DBE[1] subcontractors[2] and the estimated dollar amount of each subcontract. An EPA Financial Assistance Agreement Recipient must require its prime contractors to complete this form and include it in the bid or proposal package. Prime contractors should also maintain a copy of this form on file.

Prime Contractor Name		Project Name
Bid/ Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.		Email Address
Issuing/Funding Entity:		

I have identified potential DBE certified subcontractors	___ YES	___ NO
If yes, please complete the table below. If no, please explain:		

Subcontractor Name/ Company Name	**Company Address/ Phone/ Email**	**Est. Dollar Amt**	**Currently DBE Certified?**

Continue on back if needed

[1] A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2] Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

United States Environmental Protection Agency

OMB Control No: 2090-0030
Approved: 8/13/2013
Approval Expires: 8/31/2015

Disadvantaged Business Enterprise (DBE) Program
DBE Subcontractor Utilization Form

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware of that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	**Date**

TENNESSEE DEPARTMENT OF TRANSPORTATION (TDOT)

Certified Disadvantaged Business Enterprises (DBE) List

Below is the link to the Tennessee Department of Transportation (TDOT) Web Page for the Certified DBE List. This certified list is periodically updated by TDOT.

Here is the link: http://www.tdot.state.tn.us/dbedirectinternet/Vendor.aspx

EMPLOYEE RIGHTS
UNDER THE DAVIS-BACON ACT

FOR LABORERS AND MECHANICS EMPLOYED ON FEDERAL OR FEDERALLY ASSISTED CONSTRUCTION PROJECTS

THE UNITED STATES DEPARTMENT OF LABOR WAGE AND HOUR DIVISION

PREVAILING WAGES — You must be paid not less than the wage rate listed in the Davis-Bacon Wage Decision posted with this Notice for the work you perform.

OVERTIME — You must be paid not less than one and one-half times your basic rate of pay for all hours worked over 40 in a work week. There are few exceptions.

ENFORCEMENT — Contract payments can be withheld to ensure workers receive wages and overtime pay due, and liquidated damages may apply if overtime pay requirements are not met. Davis-Bacon contract clauses allow contract termination and debarment of contractors from future federal contracts for up to three years. A contractor who falsifies certified payroll records or induces wage kickbacks may be subject to civil or criminal prosecution, fines and/or imprisonment.

APPRENTICES — Apprentice rates apply only to apprentices properly registered under approved Federal or State apprenticeship programs.

PROPER PAY — If you do not receive proper pay, or require further information on the applicable wages, contact the Contracting Officer listed below:

or contact the U.S. Department of Labor's Wage and Hour Division.

For additional information:

1-866-4-USWAGE

(1-866-487-9243) TTY: 1-877-889-5627

U.S. Wage and Hour Division

WWW.WAGEHOUR.DOL.GOV

U.S. Department of Labor | Employment Standards Administration | Wage and Hour Division

WH 1321(Revised April 2009)

DERECHOS DEL EMPLEADO
BAJO LA LEY DAVIS-BACON

PARA OBREROS Y MECÁNICOS EMPLEADOS EN PROYECTOS DE CONSTRUCCIÓN FEDERAL O CON ASISTENCIA FEDERAL

LA SECCIÓN DE HORAS Y SUELDOS DEL DEPARTAMENTO DE TRABAJO DE EEUU

SALARIOS PREVALECIENTES
No se le puede pagar menos de la tasa de pago indicada en la Decisión de Salarios Davis-Bacon fijada con este Aviso para el trabajo que Ud. desempeña.

SOBRETIEMPO
Se le ha de pagar no menos de tiempo y medio de su tasa básica de pago por todas las horas trabajadas en exceso de 40 en una semana laboral. Existen pocas excepciones.

CUMPLIMIENTO
Se pueden retener pagos por contratos para asegurarse que los obreros reciban los salarios y el pago de sobretiempo debidos, y se podría aplicar daños y perjuicios si no se cumple con las exigencias del pago de sobretiempo. Las cláusulas contractuales de Davis-Bacon permiten la terminación y exclusión de contratistas para efectuar futuros contratos federales hasta tres años. El contratista que falsifique los registros certificados de las nóminas de pago o induzca devoluciones de salarios puede ser sujeto a procesamiento civil o criminal, multas y/o encarcelamiento.

APRENDICES
Las tasas de aprendices sólo se aplican a aprendices correctamente inscritos bajo programas federales o estatales aprobados.

PAGO APROPIADO
Si Ud. no recibe el pago apropiado, o precisa de información adicional sobre los salarios aplicables, póngase en contacto con el Contratista Oficial que aparece abajo:

o póngase en contacto con la Sección de Horas y Sueldos del Departamento de Trabajo de EEUU.

Para obtener información adicional:

1-866-4-USWAGE
(1-866-487-9243) TTY: 1-877-889-5627

WWW.WAGEHOUR.DOL.GOV

U.S. Department of Labor | Employment Standards Administration | Wage and Hour Division

WH 1321 SPA (Revised April 2009)

Project Wage Rate Sheet

U.S. Department of Housing and Urban Development
Office of Labor Relations

PROJECT NAME:	**WAGE DECISION NUMBER/MODIFICATION NUMBER:**
PROJECT NUMBER:	**PROJECT COUNTY:**

WORK CLASSIFICATION	**BASIC HOURLY RATE (BHR)**	**FRINGE BENEFITS**	**TOTAL HOURLY WAGE RATE**	**LABORERS FRINGE BENEFITS:**		**$**
				GROUP #	**BHR**	**TOTAL WAGE**
Bricklayers			**$**			
Carpenters			**$**			**$**
Cement Masons			**$**			**$**
Drywall Hangers			**$**			**$**
Electricians			**$**			**$**
Iron Workers			**$**			**$**
Painters			**$**	**OPERATORS FRINGE BENEFITS:**		**$**
Plumbers			**$**	**GROUP #**	**BHR**	**TOTAL WAGE**
Roofers			**$**			**$**
Sheet Metal Workers			**$**			**$**
Soft Floor Layers			**$**			**$**
Tapers			**$**			**$**
Tile Setters			**$**	**TRUCK DRIVERS FRINGE BENEFITS:**		**$**
OTHER CLASSIFICATIONS				**GROUP #**	**BHR**	**TOTAL WAGE**
			$			**$**
			$			**$**
			$			**$**

ADDITIONAL CLASSIFICATIONS (HUD Form 4230-A)

WORK CLASSIFICATION	**BASIC HOURLY RATE**	**FRINGE BENEFITS**	**TOTAL HOURLY WAGE RATE**	**DATE OF HUD SUBMISSION TO DOL**	**DATE OF DOL APPROVAL**
			$		
			$		
			$		
			$		

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General Decision Number: TN140135 02/07/2014 TN135

Superseded General Decision Number: TN20130135

State: Tennessee

Construction Type: Heavy
Including Water and Sewer Line Construction

County: Shelby County in Tennessee.

HEAVY CONSTRUCTION PROJECTS (including sewer/water
construction).

Modification Number	Publication Date
0	01/03/2014
1	02/07/2014

ELEC0474-015 01/07/2013

	Rates	Fringes
ELECTRICIAN	$ 24.30	11.46

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* ENGI0369-012 05/01/2013

	Rates	Fringes
Operating Engineers:		
Bulldozer, Crane, and Forklift	$ 24.47	10.85

LABO0386-001 05/01/2013

	Rates	Fringes
LABORER: Common or General	$ 15.60	5.35

SUTN2009-133 12/02/2009

	Rates	Fringes
LABORER: Flagger	$ 8.73	0.00
LABORER: Pipelayer	$ 11.68	0.00
OPERATOR: Backhoe/Excavator/Trackhoe	$ 16.82	0.00
OPERATOR: Loader	$ 13.50	0.00
TRUCK DRIVER: Dump Truck	$ 10.76	0.00

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

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Unlisted classifications needed for work not included within
the scope of the classifications listed may be added after

award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

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

Union Identifiers

An identifier enclosed in dotted lines beginning with characters other than "SU" denotes that the union classification and rate have found to be prevailing for that classification. Example: PLUM0198-005 07/01/2011. The first four letters , PLUM, indicate the international union and the four-digit number, 0198, that follows indicates the local union number or district council number where applicable , i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2011, following these characters is the effective date of the most current negotiated rate/collective bargaining agreement which would be July 1, 2011 in the above example.

Union prevailing wage rates will be updated to reflect any changes in the collective bargaining agreements governing the rates.

0000/9999: weighted union wage rates will be published annually each January.

Non-Union Identifiers

Classifications listed under an "SU" identifier were derived from survey data by computing average rates and are not union rates; however, the data used in computing these rates may include both union and non-union data. Example: SULA2004-007 5/13/2010. SU indicates the rates are not union majority rates, LA indicates the State of Louisiana; 2004 is the year of the survey; and 007 is an internal number used in producing the wage determination. A 1993 or later date, 5/13/2010, indicates the classifications and rates under that identifier were issued as a General Wage Determination on that date.

Survey wage rates will remain in effect and will not change until a new survey is conducted.

WAGE DETERMINATION APPEALS PROCESS

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

* an existing published wage determination
* a survey underlying a wage determination

* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

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

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

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

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

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

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

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

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

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

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END OF GENERAL DECISION

STATE REVOLVING FUND LOAN PROGRAM

Bidder's Requirements

Davis-Bacon Act Wage Determination

The Loan Recipient must ensure the bidder is in compliance with the Davis-Bacon Act as outlined below. Additionally, ten (10) days prior to the scheduled bid opening date, the wage rates need to be checked to ensure they have not changed.

The Davis-Bacon Act as amended, requires that each contract over $2,000 to which the United States or the District of Columbia is a party for the construction, alteration, or repair of public buildings or public works shall contain a clause setting forth the minimum wages to be paid to various classes of laborers and mechanics employed under the contract. Under the provisions of the Act, contractors or their subcontractors are to pay workers employed directly upon the site of the work no less than the locally prevailing wages and fringe benefits paid on projects of a similar character. The Davis-Bacon Act directs the Secretary of Labor to determine such local prevailing wage rates.

The **wage determination** (including any additional **classifications** and **wage rates** conformed) **and** a Davis-Bacon poster (WH-1321) **must be posted on the work site at all times** by the contractor and its subcontractors in a prominent and accessible place where it can be easily seen. The WH-1321 poster **may be obtained at no charge** from offices of the Wage and Hour Division.

With each **pay estimate** submitted, the contractors **must submit** a certification stating that workers have been paid the current prevailing wage rates for each classification according to the Davis-Bacon wage rate schedule currently in effect for this project.

Wage Determinations

A "wage determination" is the listing of wage rates and fringe benefit rates for each classification of laborers and mechanics which the Administrator of the Wage and Hour Division of the U.S. Department of Labor has determined to be prevailing in a given area for a particular type of construction (e.g., building, heavy, highway, or residential).

Extensions of Wage Determinations

When a general wage determination has not been awarded within 90 days after bid opening, the head of the contracting/assisting agency may request an extension of the 90 day period from the Wage and Hour Administrator. When, due to unavoidable circumstances, a project wage determination expires before award but after bid opening, the head of the contracting/assisting agency may request an extension of the expiration date of the project wage determination in the bid specifications instead of issuing a new wage determination.

Extension requests should be supported by a written finding including a brief statement of the factual support, that extension of the expiration date of the determination is necessary and proper in the public interest to prevent injustice or undue hardship or to avoid serious impairment in the conduct of Government business.

The Administrator of the Wage and Hour Division of the U.S. Department of Labor will either grant or deny the request for an extension after consideration of all the circumstances, including an examination to determine if the previously issued rates remain prevailing. If a request for the extension of a project wage determination is denied, a new wage determination will be issued to replace an expired project wage determination.

Additional information concerning the Davis-Bacon Act and current wage rate determinations can be obtained at the following sites: www.gpo.gov/davisbacon/referencemat.html and www.wdol.gov/ .

Wage Rate Requirements Under FY 2010 Appropriations

3. Contract and Subcontract provisions.

(a) The Recipient shall insure that the subrecipient(s) shall insert in full in any contract in excess of $2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a treatment work under the CWSRF or a construction project under the DWSRF financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in § 5.1 or the FY 2010 appropriation , the following clauses:

(1) Minimum wages.

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

Subrecipients may obtain wage determinations from the U.S. Department of Labor’s web site, www.dol.gov.

(ii)(A) The subrecipient(s), on behalf of EPA, shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The State award official shall approve a request for an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the subrecipient(s) agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), documentation of the action taken and the request, including the local wage determination shall be sent by the subrecipient (s) to the State award official. The State award official will transmit the request, to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210 and to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification request within 30 days of receipt and so advise the State award official or will notify the State award official within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the subrecipient(s) do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the award official shall refer the request and the local wage determination, including the views of all interested parties and the recommendation of the State award official, to the Administrator for determination. The request shall be sent to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt of the request and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii)(B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the

contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding. The subrecipient(s), shall upon written request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the (Agency) may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to the subrecipient, that is, the entity that receives the sub-grant or loan from the State capitalization grant recipient. Such documentation shall be available on request of the State recipient or EPA. As to each payroll copy received, the subrecipient shall provide written confirmation in a form satisfactory to the State indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week. The payrolls shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on the weekly payrolls. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the subrecipient(s) for transmission to the State or EPA if requested by EPA , the State, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the subrecipient(s).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under § 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under § 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or

indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the State, EPA or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency or State may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and trainees--

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the

apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency

recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the EPA determines may by appropriate, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for

the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and Subrecipient(s), State, EPA, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

4. **Contract Provision for Contracts in Excess of $100,000.**

(a) Contract Work Hours and Safety Standards Act. The subrecipient shall insert the following clauses set forth in paragraphs (a)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by Item 3, above or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such

laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (a)(1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (a)(1) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (a)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The subrecipient**,** upon written request of the EPA Award Official or an authorized representative of the Department of Labor, shall withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (a)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (a)(1) through (4) of this section.

(b) In addition to the clauses contained in Item 3, above, in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in 29 CFR 5.1, the Subrecipient shall insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Subrecipient shall insert in any such contract a clause providing hat the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

STATE REVOLVING FUND LOAN PROGRAM

Loan Recipient's Requirements

Davis-Bacon Act Wage Determination

The Loan Recipient must ensure the bidder is in compliance with the Davis-Bacon Act as outlined below. Additionally, ten (10) days prior to the scheduled bid opening date, the wage rates need to be checked to ensure they have not changed.

The Davis-Bacon Act as amended, requires that each contract over $2,000 to which the United States or the District of Columbia is a party for the construction, alteration, or repair of public buildings or public works shall contain a clause setting forth the minimum wages to be paid to various classes of laborers and mechanics employed under the contract. Under the provisions of the Act, contractors or their subcontractors are to pay workers employed directly upon the site of the work no less than the locally prevailing wages and fringe benefits paid on projects of a similar character. The Davis-Bacon Act directs the Secretary of Labor to determine such local prevailing wage rates.

The specifications must incorporate a clause stating that the current Davis-Bacon wage rate is required **(**with the Davis-Bacon links and information).

The Bid Advertisement **must include** a clause that the **Davis-Bacon wage rates** are a requirement. (Refer to the ADVERTISEMENT FOR BIDS EXAMPLE – DBE, ARRA)

If modifications to the existing **wage rates** occur **ten (10) days** prior to the Bid Opening Date, the Loan Recipient **must** incorporate the proper **wage rates** into the plans and specifications by Addendum. All Bidders **must** be informed that this addendum **must** be incorporated into the plans and specifications that they have received.

However, if these modifications occur **less than ten (10) days** prior to the Bid Opening Date, these modifications **shall be effective unless** the agency **finds** that there is not a reasonable time still available before the Bid Opening to notify bidders of the modifications. (A report of this **finding** shall be inserted in the contract file.)

The **wage determination** (including any additional **classifications** and **wage rates** conformed) **and** a Davis-Bacon poster (WH-1321) **must be posted on the work site at all times** by the contractor and its subcontractors in a prominent and accessible place where it can be easily seen. The WH-1321 poster **may be obtained at no charge** from offices of the Wage and Hour Division.

With each **pay estimate** submitted, the contractors **must** certify that workers have been paid the current prevailing wage rates for each classification according to the Davis-Bacon wage rate schedule currently in effect for this project.

The loan recipients **must keep a file** in which all documentation **must be filed** for the current classifications and wage rates (under the Davis-Bacon Act) for the construction of their projects. This file must be kept for three (3) years after the project is completed and **will** be subject to audit by the State of Tennessee and the Environmental Protection Agency (EPA).

Wage Determinations

A "wage determination" is the listing of wage rates and fringe benefit rates for each classification of laborers and mechanics which the Administrator of the Wage and Hour Division of the U.S. Department of Labor has determined to be prevailing in a given area for a particular type of construction (e.g., building, heavy, highway, or residential).

Extensions of Wage Determinations

When a general wage determination has not been awarded within 90 days after bid opening, the head of the contracting/assisting agency may request an extension of the 90 day period from the Wage and Hour Administrator. When, due to unavoidable circumstances, a project wage determination expires before award but after bid opening, the head of the contracting/assisting agency may request an extension of the expiration date of the project wage determination in the bid specifications instead of issuing a new wage determination.

Extension requests should be supported by a written finding including a brief statement of the factual support, that extension of the expiration date of the determination is necessary and proper in the public interest to prevent injustice or undue hardship or to avoid serious impairment in the conduct of Government business.

The Administrator of the Wage and Hour Division of the U.S. Department of Labor will either grant or deny the request for an extension after consideration of all the circumstances, including an examination to determine if the previously issued rates remain prevailing. If a request for the extension of a project wage determination is denied, a new wage determination will be issued to replace an expired project wage determination.

Additional information concerning the Davis-Bacon Act and current wage rate determinations can be obtained at the following sites: www.gpo.gov/davisbacon/referencemat.html and www.wdol.gov/ .

Wage Rate Requirements Under FY 2010 Appropriations

3. Contract and Subcontract provisions.

(a) The Recipient shall insure that the subrecipient(s) shall insert in full in any contract in excess of $2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a treatment work under the CWSRF or a construction project under the DWSRF financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in § 5.1 or the FY 2010 appropriation , the following clauses:

(1) Minimum wages.

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in §

5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

Subrecipients may obtain wage determinations from the U.S. Department of Labor's web site, www.dol.gov.

(ii)(A) The subrecipient(s), on behalf of EPA, shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The State award official shall approve a request for an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the subrecipient(s) agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), documentation of the action taken and the request, including the local wage determination shall be sent by the subrecipient (s) to the State award official. The State award official will transmit the request, to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210 and to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification request within 30 days of receipt and so advise the State award official or will notify the State award official within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the subrecipient(s) do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the award official shall refer the request and the local wage determination, including the views of all interested parties and the recommendation of the State award official, to the Administrator for determination. The request shall be sent to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt of the request and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii)(B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the

contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding. The subrecipient(s), shall upon written request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the (Agency) may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to the subrecipient, that is, the entity that receives the sub-grant or loan from the State capitalization grant recipient. Such documentation shall be available on request of the State recipient or EPA. As to each payroll copy received, the subrecipient shall provide written confirmation in a form satisfactory to the State indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week. The payrolls shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on the weekly payrolls. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g.,

the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the subrecipient(s) for transmission to the State or EPA if requested by EPA , the State, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the subrecipient(s).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under § 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under § 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the State, EPA or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency or State may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and trainees--

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or

with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the

apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the EPA determines may by appropriate, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for

the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and Subrecipient(s), State, EPA, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

4. **Contract Provision for Contracts in Excess of $100,000.**

(a) Contract Work Hours and Safety Standards Act. The subrecipient shall insert the following clauses set forth in paragraphs (a)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by Item 3, above or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such

laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (a)(1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (a)(1) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (a)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The subrecipient**,** upon written request of the EPA Award Official or an authorized representative of the Department of Labor, shall withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (a)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (a)(1) through (4) of this section.

(b) In addition to the clauses contained in Item 3, above, in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in 29 CFR 5.1, the Subrecipient shall insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Subrecipient shall insert in any such contract a clause providing hat the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

STATE REVOLVING FUND LOAN PROGRAM

Loan Recipient's and Contractor's Guidance

FY2010 and After

Tracking and Reporting

For tracking and reporting purposes, the **Loan Recipient** is responsible for the following:

- Ensuring that the Contractor is in compliance with the Davis Bacon provisions of ARRA
- The loan recipients **must keep a file** in which all documentation **must be stored** for the current classifications and wage rates (under the Davis-Bacon Act) for the construction of their projects. This file must be kept for three (3) years after the project is completed and **will** be subject to audit by the State of Tennessee and the Environmental Protection Agency (EPA).
- Any additional tracking and reporting requirements from EPA

For tracking and reporting purposes, the **Contractor** is responsible for the following:

- Achieving and maintaining compliance with the Davis Bacon provisions of ARRA
- Submitting with each **pay estimate** a certification stating that workers have been paid the current prevailing wage rates for each classification according to the Davis-Bacon wage rate schedule currently in effect for this project
- Any additional tracking and reporting requirements from EPA

Please contact Dr. Bagher Sami, Administrative Section Manager for the SRF Loan Program, at 615-532-0501 or bagher.sami@tn.gov to obtain details.

NOTICE

THIS ENTITY IS A RECIPIENT OF STATE AND FEDERAL FUNDS. IF YOU HAVE KNOWLEDGE OF ANY ACTIVITY WHICH YOU CONSIDER TO BE ILLEGAL, IMPROPER, OR WASTEFUL, PLEASE CALL THE STATE COMPTROLLER'S TOLL-FREE HOTLINE:

1-800-232-5454

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

Notice of Intent (NOI) for General NPDES Permit for Stormwater Discharges from Construction Activities (TNR100000)

Site or Project Name:		**Existing NPDES Tracking Number: TNR**
Street Address or Location:		Start date:
		Estimated end date:
Site Activity Description:		Latitude (dd.dddd):
		Longitude (dd.dddd):
County(ies):	MS4 Jurisdiction:	Acres Disturbed:
		Total Acres:
Does a topographic map show dotted or solid blue lines ☐ and/or wetlands ☐ on or adjacent to the construction site? If wetlands are located on-site and may be impacted, attach wetlands delineation report. If an Aquatic Resource Alteration Permit has been obtained for this site, what is the permit number? ARAP permit No.:		
Receiving waters:		
Attach the SWPPP with the NOI ☐ SWPPP Attached		Attach a site location map ☐ Map Attached

Site Owner/Developer Entity (*Primary Permittee*)**:** (person, company, or legal entity that has operational or design control over construction plans and specifications):			
Site Owner/Developer Signatory (V.P. level/higher - signs certification below): (individual responsible for site):		Signatory's Title or Position (V.P. level/higher - signs certification below):	
Mailing Address:		City: State:	Zip:
Phone: ( )	Fax: ( )	E-mail:	

Optional Contact:		Title or Position:	
Mailing Address:		City: State:	Zip:
Phone: ( )	Fax: ( )	E-mail:	

Owner or Developer Certification (must be signed by president, vice-president or equivalent, or ranking elected official) (Primary Permittee)

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Owner or Developer Name; (print or type)	Signature:	Date:

Contractor(s) Certification (must be signed by president, vice-president or equivalent, or ranking elected official) (Secondary Permittee)

I certify under penalty of law that I have reviewed this document, any attachments, and the SWPPP referenced above. Based on my inquiry of the construction site owner/developer identified above and/or my inquiry of the person directly responsible for assembling this NOI and SWPPP, I believe the information submitted is accurate. I am aware that this NOI, if approved, makes the above-described construction activity subject to NPDES permit number TNR100000, and that certain of my activities on-site are thereby regulated.

Contractor company name (print or type):			
Contractor signatory (print/type): (V.P. level or higher)		Signature:	Date:
Mailing Address:		City: State:	Zip:
Phone: ( )	Fax: ( )	E-mail:	

Other Contractor company name (print or type):			
Other Contractor signatory (print/type): (V.P. level or higher)		Signature:	Date:
Mailing Address:		City: State:	Zip:
Phone: ( )	Fax: ( )	E-mail:	

OFFICIAL STATE USE ONLY

Received Date:	Reviewer:	Field Office:	Permit Number **TNR**	Exceptional TN Water:
Fee(s):	T & E Aquatic Flora and Fauna:		Impaired Receiving Stream:	Notice of Coverage Date:

Notice of Intent (NOI) for General NPDES Permit for Stormwater Discharges from Construction Activities (TNR100000)

Purpose of this form A completed notice of intent (NOI) must be submitted to obtain coverage under the Tennessee General NPDES Permit for Discharges of Stormwater Associated with Construction Activity (permit). **Requesting coverage under this permit means that an applicant has obtained and examined a copy of this permit, and thereby acknowledges applicant's claim of ability to be in compliance with permit terms and conditions.** This permit is required for stormwater discharge(s) from construction activities including clearing, grading, filling and excavating (including borrow pits) of one or more acres of land. This form should be submitted at least 30 days prior to the commencement of land disturbing activities, or no later than 48 hours prior to when a new operator assumes operational control over site specifications or commences work at the site.

Permit fee (see table below) must accompany the NOI and is based on total acreage to be disturbed by an entire project, including any associated construction support activities (e.g. equipment staging yards, material storage areas, excavated material disposal areas, borrow or waste sites). There is no fee for sites less than 1 acre.

Acres Disturbed	= or > 150 acres	= or > 50 < 150 acres	= or > 5 < 50 acres	= or > 1 < 5 acres
Fee	$7,500	$4,000	$1,000	$250

Who must submit the NOI form? Per Section 2 of the permit, all site operators must submit an NOI form. "Operator" for the purpose of this permit and in the context of stormwater associated with construction activity means any person associated with a construction project who meets either or both of the following two criteria: (1) The person has operational or design control over construction plans and specifications, including the ability to make modifications to those plans and specifications. This person is typically the owner or developer of the project or a portion of the project (e.g. subsequent builder), or the person that is the current land owner of the construction site. This person is considered the primary permittee; or (2) The person has day-to-day operational control of those activities at a project which are necessary to ensure compliance with a SWPPP for the site or other permit conditions. This person is typically a contractor or a commercial builder who is hired by the primary permittee, and is considered a secondary permittee.

Owners, developers and all contractors that meet the definition of the operator in subsection 2.2 of the permit shall apply for permit coverage on the same NOI, insofar as possible. After permit coverage has been granted to the primary permittee, any subsequent NOI submittals must include the site's previously assigned permit tracking number and the project name. The comprehensive site-specific SWPPP shall be prepared in accordance with the requirements of part 3 of the permit and must be submitted with the NOI unless the NOI being submitted is to only add a contractor (secondary permittee) to an existing coverage.

Notice of Coverage The division will review the NOI for completeness and accuracy and prepare a notice of coverage (NOC). Stormwater discharge from the construction site is authorized as of the effective date of the NOC.

Complete the form Type or print clearly, using ink and not markers or pencil. Answer each item or enter "NA," for not applicable, if a particular item does not fit the circumstances or characteristics of your construction site or activity. If you need additional space, attach a separate piece of paper to the NOI form. **The NOI will be considered incomplete without a permit fee, a map, and the SWPPP.**

Describe and locate the project Use the legal or official name of the construction site. If a construction site lacks street name or route number, give the most accurate geographic information available to describe the location (reference to adjacent highways, roads and structures; e.g. intersection of state highways 70 and 100). Latitude and longitude (expressed in decimal degrees) of the center of the site can be located on USGS quadrangle maps. The quadrangle maps can be obtained at the USGS World Wide Web site: http://www.usgs.gov/; latitude and longitude information can be found at numerous other web sites. Attach a copy of a portion of a 7.5 minute quad map, showing location of site, with boundaries at least one mile outside the site boundaries. Provide estimated starting date of clearing activities and completion date of the project, and an estimate of the number of acres of the site on which soil will be disturbed, including borrow areas, fill areas, stockpiles and the total acres. For linear projects, give location at each end of the construction area.

MS4 Jurisdiction: If this construction site is located within a Municipal Separate Storm Sewer System (MS4), please list name of MS4. A current list of MS4s in Tennessee may be found at http://www.tn.gov/environment/wpc/stormh2o/docs/MS4s_Jan2012.pdf

Give name of the receiving waters Trace the route of stormwater runoff from the construction site and determine the name of the river(s), stream(s), creek(s), wetland(s), lake(s) or any other water course(s) into which the stormwater runoff drains. Note that the receiving water course may or may not be located on the construction site. If the first water body receiving construction site runoff is unnamed ("unnamed tributary"), determine the name of the water body that the unnamed tributary enters.

ARAP permit may be required **If your work will disturb or cause alterations of a stream or wetland, you must obtain an appropriate Aquatic Resource Alteration Permit (ARAP).** If you have a question about the ARAP program or permits, contact your local Environmental Field Office (EFO).

Submitting the form and obtaining more information Note that this form must be signed by the company President, Vice-President, or a ranking elected official in the case of a municipality, for details see subpart 2.5. For more information, contact your local EFO at the toll-free number 1-888-891-8332 (TDEC). Submit the completed NOI form (keep a copy for your records) to the appropriate EFO for the county(ies) where the construction activity is located, addressed to **Attention: Stormwater NOI Processing**.

EFO	**Street Address**	**Zip Code**	**EFO**	**Street Address**	**Zip Code**
Memphis	8383 Wolf Lake Drive, Bartlett	38133-4119	Cookeville	1221 South Willow Ave.	38506
Jackson	1625 Hollywood Drive	38305-4316	Chattanooga	540 McCallie Avenue STE 550	37402-2013
Nashville	711 R S Gass Boulevard	37243	Knoxville	3711 Middlebrook Pike	37921
Columbia	1421 Hampshire Pike	38401	Johnson City	2305 Silverdale Road	37601

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)
Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-TDEC (8332)

Notice of Termination (NOT) for General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

This form is required to be submitted when requesting termination of coverage from the CGP. The purpose of this form is to notify the TDEC that either all stormwater discharges associated with construction activity from the portion of the identified facility where you, as an operator, have ceased or have been eliminated; or you are no longer an operator at the construction site. Submission of this form shall in no way relieve the permittee of permit obligations required prior to submission of this form. Please submit this form to the local WPC Environmental Field Office (EFO) address (see table below). For more information, contact your local EFO at the toll-free number 1-888-891-8332 (TDEC).

Type or print clearly, using ink.

Site or Project Name:	**NPDES Tracking Number: TNR**
Street Address or Location:	County(ies):

Name of Permittee Requesting Termination of Coverage:			
Permittee Contact Name:	Title or Position:		
Mailing Address:	City:	State:	Zip:
Phone: ( )	E-mail:		

Check the reason(s) for termination of permit coverage:

☐	Stormwater discharge associated with construction activity is no longer occurring and the permitted area has a uniform 70% permanent vegetative cover OR has equivalent measures such as rip rap or geotextiles, in areas not covered with impervious surfaces.
☐	You are no longer the operator at the construction site (i.e., termination of site-wide, primary or secondary permittee coverage).

Certification and Signature: (must be signed by president, vice-president or equivalent ranking elected official)

I certify under penalty of law that either: (a) all stormwater discharges associated with construction activity from the portion of the identified facility where I was an operator have ceased or have been eliminated or (b) I am no longer an operator at the construction site. I understand that by submitting this notice of termination, I am no longer authorized to discharge stormwater associated with construction activity under this general permit, and that discharging pollutants in stormwater associated with construction activity to waters of the United States is unlawful under the Clean Water Act where the discharge is not authorized by a NPDES permit. I also understand that the submittal of this notice of termination does not release an operator from liability for any violations of this permit or the Clean Water Act.

For the purposes of this certification, elimination of stormwater discharges associated with construction activity means that all stormwater discharges associated with construction activities from the identified site that are authorized by a NPDES general permit have been eliminated from the portion of the construction site where the operator had control. Specifically, this means that all disturbed soils at the portion of the construction site where the operator had control have been finally stabilized, the temporary erosion and sediment control measures have been removed, and/or subsequent operators have obtained permit coverage for the site or portions of the site where the operator had control.

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Permittee name (print or type):	Signature:	Date:

EFO	**Street Address**	**Zip Code**	**EFO**	**Street Address**	**Zip Code**
Memphis	8383 Wolf Lake Drive, Bartlett, TN	38133	Cookeville	1221 South Willow Ave.	38506
Jackson	1625 Hollywood Drive	38305	Chattanooga	540 McCallie Avenue STE 550	37402
Nashville	711 R S Gass Boulevard	37243	Knoxville	3711 Middlebrook Pike	37921
Columbia	1421 Hampshire Pike	38401	Johnson City	2305 Silverdale Road	37601

CLEAN WATER STATE REVOLVING FUND

IDENTIFICATION SIGN

All plans and specifications for each project approved shall contain provisions for requiring the general contractor to provide identification signs. The signs shall conform to the following basic features:

1. The following diagram shall be used as a design:

CLEAN WATER FOR TENNESSEE

DEPARTMENT OF ENVIRONMENT AND CONSERVATION

GOVERNOR
BILL HASLAM

COMMISSIONER
BOB MARTINEAU

CITY OF

MAYOR

STATE REVOLVING FUND PROJECT

CWSRF LOAN . . . $ _____

2. The sign shall be a 4'0" X 8'0" sheet of exterior grade plywood and shall be built so as to remain erected during the entire construction phase of the project.

3. The background of both sides shall be white. The lettering shall be black and shall be large enough to take advantage of the full size of the plywood. The stars shall be white set on a blue field and surrounded by a white ring placed inside a state map in red with a stripe of white and blue on the right side. The sign shall be bordered by a one-inch blue stripe.

Revised: JANUARY 20, 2011

STATE REVOLVING FUND LOAN PROGRAM

BID PACKAGE SUBMITTAL REQUIREMENTS

PRIOR TO FINAL CONTRACT AWARD by the State Revolving Fund (SRF) Loan Program, the Loan Recipient must prepare and submit a completed Bid Package to the SRF Loan Program for review and **written approval**. An **Authority-to-Award (ATA)** letter from the SRF Loan Program must be obtained prior to the final contract award and the initiation of construction activities.

A completed Bid Package submittal consists of the following:

1. A copy of the **Advertisement for Bids** appearing in a local or major regional newspaper or the Dodge Report (40 CFR 31.36 (d)(2)(ii)(A)). *The project must be advertised for a minimum of 14 days prior to the bid opening.*
2. An original copy of either the **Award Resolution or the minutes** from the meeting of the governing body (or a certified copy of either) that tentatively awards the contract(s) to the lowest, responsible, responsive bidder(s)
3. A **certified bid tabulation** stamped and signed by the consulting engineer reviewing the bids
4. A copy of the **signed Bid Proposal** of the apparent successful bidder
5. **Equal Employment Opportunity (EEO) documentation** signed by the apparent successful bidder
6. **Bid Bond with Power of Attorney** (40 CFR 31.36(h))
7. Signed and dated U.S. EPA (or other agency) **Contractor Debarment Form**, such as the U.S. Environmental Protection Agency Certification Regarding Debarment, Suspension and Other Responsibility Matters
8. An original, notarized certification of publication (**Publisher's Affidavit**) signed by the editor of the newspaper
9. Copies of a minimum of 10 **certified letters** and "**Return Receipt Requested"** forms sent to potential **Disadvantaged Business Enterprises (DBE)** subcontractors, supplies vendors, service providers, and/or equipment vendors
10. A copy of the current **Davis-Bacon** wage rates used on this project (Davis-Bacon Act)
11. A completed **Loan Recipient's Certification and Summary** of **DBE** Participation on SRF Projects **(**40 CFR 31.36 (e)(2)(i through vi))
12. If **DBE** participation was obtained,
    - **Prime Contractor's Notice Letter** for EPA Form 6100-2
    - **EPA Form 6100-3** completed by Prime Contractor and **DBE Subcontractor(s)**
    - **EPA Form 6100-4** completed by the Prime Contractor
13. If no **DBE** participation was obtained, a "**Good Faith Effort**" letter (See Good Faith Effort Steps at 40 CFR 31.36 (e)(2)(i through vi))
14. Reference documents:
    - **Loan Recipient's Requirements** for Solicitation and Documentation of **DBE** Participation on SRF Projects
    - **Bidder's Requirements** for Solicitation and Documentation of **DBE** Participation on SRF Projects
    - **Loan Recipient's Certification and Summary** of **DBE** Participation on SRF Loan-Funded Projects
    - **Guidance Document** for **DBE** Requirements for SRF loans
15. If applicable, documentation of the justification for not awarding the contract to the lowest bidder if the award is to be made to a bidder other than the low bidder. The justification must indicate why the low bidder is not responsive or responsible and include documentation of any negotiations leading to the determination.
16. Resume of the resident inspector(s)
17. Documentation of the extension of the bid proposal and bid bond expiration dates, if necessary

If the lowest bid received exceeds the amount budgeted for construction in the SRF-approved SRF Loan Budget, the loan recipient must choose only from the following options:

- **Re-allocate** SRF funds through a budget revision. A revised Budget/Re-budget Form must be submitted to the SRF for review and approval if the re-budgeting option is chosen.
- **Provide** additional funds needed to pay the contract from **local funds** or funding source(s) other than the SRF loan
- **Apply** for an **SRF loan increase**. Application for a loan increase will require re-evaluation of the loan recipient's user rates to determine if the anticipated revenues will be sufficient to repay the requested loan increase and fund the additional depreciation. **Principal forgiveness does not apply to loan increases.**
- **Reject** all bids and **re-bid the project**

Please contact Dr. Bagher Sami by telephone at (615) 532-0501 or by e-mail at bagher.sami@tn.gov if you have any questions concerning the contents of the Bid Package submittal for State Revolving Fund projects.

City Letter Head

Dr. Bagher Sami,
Administrative and Financial Section Manager
State Revolving Fund Loan Program
William R. Snodgrass - Tennessee Tower
312 Rosa L. Parks Avenue, 12th Floor
Nashville, Tennessee 37243-1102

RE: Property, Easements, Rights-of-Way Certification
City/County/UD/Authority (xxxx County or xxx and xxxx Counties), Tennessee
Loan No. SRF CWA CGA DWF DWA DGA 200x-xxx
Loan Description: xxxxxxxxx
Contract No. / Name 1 of 2—Contract Description
Contract No. / Name 2 of 2—Contract Description

Dear Dr. Sami:

This letter is to certify that all property, easements, and rights-of-way necessary to construct the projects included in the above-referenced contract are owned (or in the case of right-of-way permitted for the use) by the City/County/UD/Authority. And/or The plant improvements are to be constructed on the same site as our existing facility. Based upon this, no "Site Certificate" is required.

Sincerely,

Authorized Representative, Title

SITE CERTIFICATION

I certify that the applicant, the City of ???, ??? County, the ??? Utility District, the ??? Water/Wastewater/Energy Authority has acquired or has entered into condemnation proceedings for all real property including easements and rights-of-way that are or will be required for the construction (erection, extension, modification, addition), operation, and maintenance of the entire wastewater treatment works funded under loan number SRF/CWA/CGA/DWF/DWA/DGA 200?-???.

I certify that any deeds or documents required to be recorded in order to protect the title of the owner and the interest of the City of ???, ??? County, the ??? Utility District, the ??? Water/Wastewater/Energy Authority have been duly recorded and filed for record wherever necessary.

I further certify that real property including easements required for the entire wastewater treatment works project was acquired in accordance with the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and EPA's regulation 40 CFR Part 4.

Dated this _____day of _____, 20___.

_____

Applicants' Authorized Representative

_____

Title (Mayor, City Manager, Commissioner, etc.)

_____

Attorney (Typed and Signed)

00662.7 Bid Bond

Know all men by these presents, that we, the undersigned,
_____ as

Principal, and_____as surety,

Hereby held and firmly bound unto _____ as Owner on the sum of _____ for the payment of which, well and truly to be made, We hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

Signed this _____ day of _____, 2013.

This condition of the above obligation is such that whereas the principal has submitted to the Purchaser a certain bid, attached hereto and hereby made a part of hereof to enter into a contract in writing for the construction of:

SARP 10 Program 185322.75.2000 Stiles Vortex and Outfall Pipe

Now therefore,

A) If said bid shall be rejected, or in the alternative,

B) If said bid shall be accepted and the principal shall execute and deliver a contract in the form of contract attached hereto (properly completed in accordance with said bid), required insurance certificates, and shall furnish a Bond for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said Bond,

Then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the surety for any and all claims hereunder shall, in no event, exceed the amount of this obligation as herein stated.

The surety, for value received, hereby stipulates and agrees that the obligations of said surety and its bond shall be in no way impaired or affected by any extension of the time within which the Purchaser may accept such bid; and said surety does hereby waive notice of any such extension.

In witness whereof, the principal and the surety hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year set forth above.

CONTRACTOR	**SURETY**
_____	Surety:_____
Contractor's Company Name	Name
_____	By: _____
Signature (principal)	Attorney in Fact - Signature
_____	_____
Printed or Typed Name and Title	

00663 - Subcontract Attachments

00663.1 Subcontractor's Daily Report

Subcontract No._____ Date_____

Subcontractor						Project			
Days/Week		Shifts				Hours/Shift			
Weather		Temperature a.m. p.m.				Work Days on Job			
Personnel	General Foreman	Foreman	Journey-man	Helper	Total	M/Hr Today	Absent	Equipment	No.
Boilermakers								Trucks-Pickup	
Ironworkers-Struct								Trucks-Dump, Flatbed	
Ironworkers-Rebar								Air Compressors	
Millwrights								Tractors	
Oper. Engineers								Crawler-Backhoe	
Testers								Tractor-Backhoe	
Pipefitters								Welding Mach.-Elec	
Carpenters								Welding Mach.-Comb.	
Cement Finishers								Office Trailer	
Laborers								Winch Trucks	
Bricklayers								Cranes Cap	
Electricians								Cranes Cap	
Painters								Cranes Cap	
Insulators								Other	
Sheet Metalworkers									
Roofers									
Clerical Help									
Engineering Asst									
QC Inspectors									
NDE Technicians									
Superintendent									
TOTALS								TOTALS	

COMMENTS:_____

_____
Signature

00664 - Division of Responsibilities

Construction Facilities, Utilities, and Services	Provided by		
Item	Subcontractor	Purchaser	Details
Field Office			
Field office structure	X		
Field office furniture	X		
Field office equipment	X		
Field office supplies	X		
Craft change facilities	X		
Fabrication shops	X		
Tools			
Erection tools	X		
Special erection tools	X		
Purchaser-supplied equipment special erection tools			None Provided
Test equipment for erection, testing, startup and operation	X		
Equipment			
Construction equipment	X		
Subcontractor construction elevator	X		
Communication			
Construction Site Internet Connection	X	X	Each provides their own as needed
Telephone			
Construction telephone service	X	X	Each provides their own as needed
Subcontractor's telephone equipment and system wiring	X		
Compressed Air			
Construction compressed air source	X		
Construction compressed air distribution	X		
Electrical Power			
Construction power source		X	Point of connection provided

Construction Facilities, Utilities, and Services	Provided by		
Item	Subcontractor	Purchaser	Details
Construction power source maintenance	X		
Construction power primary distribution system	X		
Construction power primary distribution system maintenance	X		
Construction power Subcontractor's distribution system	X		
Construction power Subcontractor's distribution system maintenance	X		
Construction power Subcontractor's energy usage payment		X	Owner pays usage
Lighting			
General areas temporary lighting and maintenance	X		
Subcontractor specific work area temporary lighting and maintenance	X		
General areas site lighting and maintenance	X		
Subcontractor areas site temporary lighting and maintenance	X		
Water - potable and nonpotable			
Construction water source		X	Point of connection provided
Construction water primary distribution system	X		
Construction water Subcontractor's distribution and maintenance system	X		
Construction water Subcontractor's usage payment	X		
Drinking water distribution	X		
Heat			
Temporary heating facilities/system	X		
Sanitary Facilities			
Construction primary sanitary facilities and maintenance	X		Subcontractor to provide a designated port-a-john for Purchaser/Owner
Subcontractor's construction sanitary facilities and maintenance	X		
Access Roads			

Construction Facilities, Utilities, and Services	Provided by		
Item	Subcontractor	Purchaser	Details
Primary access roads		X	
Subcontractor specific access roads and maintenance	X		
Primary access road maintenance		X	
Primary access road dust control	X		
General Work related dust control	X		
Provide Subcontractor construction parking area		X	Designated work area will be identified
Construction parking area maintenance	X		
Access road and parking area snow removal	X		
Storage Facilities			
Onsite laydown space		X	Designated work area will be identified
Subcontractor storage area maintenance	X		
Construction warehousing	X		
Existing warehouse usage			None provided
Tool storage facilities	X		
Climate controlled storage facilities	X		
Construction equipment fueling facilities	X		
Security			
Overall site security		X	
Subcontractor specific areas security	X		
Overall site security badging system and materials	X		
Subcontractor badging and materials	X		
Medical Facilities			
Onsite first aid/medical services	X		
Project emergency ambulance	X		
Drug sampling/testing facilities	X		
Fire Protection			
Construction fire protection - fire extinguishers	X		
Overall site fire brigade participation	X		

Construction Facilities, Utilities, and Services	Provided by		
Item	Subcontractor	Purchaser	Details
Cleanup			
General trash collection and disposal	X		
Subcontractor specific trash collection and disposal	X		
Purchaser field office janitorial service	X		
Concrete source			
Concrete source	X		
Concrete usage payment	X		
Concrete test facilities and testing	X		
Scaffolding			
Scaffolding supply/erection	X		
Welding			
Welder testing	X		
Welder test facilities	X		
Welding/cutting consumables	X		
Food Services			
Allowed onsite - Yes/No			No
Survey Datum Points			
Basic horizontal and vertical control points		X	Bench marks to be provided
Detail layout control points	X		
General Work related survey layout	X		
Misc. Services & Materials			
Bolting materials between any equipment or materials installed	X		
Solvents and cleaning materials	X		
Supply and placement of grout and grouting materials	X		
Touchup paint	X		
Supply lubricants for installed equipment	X		
Application of lubricants for installed equipment	X		
Dewatering System			

Construction Facilities, Utilities, and Services	Provided by		
Item	Subcontractor	Purchaser	Details
Main site dewatering system	X		
Subcontractor direct Work related dewatering	X		
Startup			
Startup support craft	X		

00760 – Loss Control Manual

City of Memphis
Wastewater Collection and Transmission System (WCTS) – Assessment and Rehabilitation Program

LOSS CONTROL MANUAL

City of Memphis
Wastewater Collection and Transmission System (WCTS) - Assessment and Rehabilitation Program

LOSS CONTROL MANUAL

OVERLAND CONTRACTING

Contents

Contents (Continued)

1.0 General Safety

1.1 City of Memphis Project Loss Control Program

1.1.1 Introduction

This Project Loss Control Program provides an administrative structure within which subcontractors present on the project site shall provide both for the safety and health of their employees and other individuals affected by their activities and for the protection of the environment and property. The Project Loss Control Program does not relieve subcontractors of any of their traditional or specific legal responsibilities with respect to occupational safety and health or the protection of the environment or property. Instead, the Project Loss Control Program provides for consistency among the various subcontractors' individual programs; monitoring of subcontractors' conformance with their individual programs, the Project Loss Control Program, and the City of Memphis Project Environmental, Safety, Health, and Security (ESH&S) requirements; initiation of corrective actions when nonconformances are identified; and administration and reporting to reveal the effectiveness of the Project Loss Control Program. Note: The requirements set forth in this manual are to be passed down to all contractors' lower-tier subcontractors.

The figures that are referenced within this Loss Control Manual can be found in an attached file.

1.1.2 Project Loss Control Program Elements

The Project Loss Control Program includes the following major elements:

- A Project Loss Control Program Manual that will establish safety and health guidelines and requirements.
- Identification of the minimum requirements for individual subcontractors' loss control programs.
- Review of each subcontractor's loss control program for conformance with the minimum requirements of a subcontractor's Loss Control Program as stated in Section 1.2.
- Monitoring of the subcontractors' activities for general compliance with the Project Loss Control Program and the Subcontractors' Loss Control Program requirements.
- Procedures for advising subcontractors of safety and health violations and issuance of violation notices.
- Procedures for initiating corrective action and back charges to the subcontractor if he/she does not comply with safety, health, security, and environmental violation notices.

1.1.3 Project Loss Control Program Administration

Overland Contracting Construction Inc. (OCI) shall administer the Project Loss Control Program and shall have such authority as described in this Project Loss Control Program Manual.

1.2 Subcontractor's Loss Control Responsibilities and Program Requirements

1.2.1 Responsibilities

The Project Loss Control Program is designed to provide consistent loss control efforts during construction. The Project Loss Control Program does not relieve a subcontractor of his/her contract responsibilities for safety, health, security, and environment, or for complying with any applicable governmental regulations.

Subcontractors shall be responsible for the safety and health of all persons, the environment and property affected by the subcontractors' performance of the work, including work performed by their subcontractors. This requirement shall apply continuously during the entire contract period and shall not be limited just to normal working hours. Subcontractors shall be responsible for implementation of a written Loss Control Program (Subcontractors' Loss Control Program) to prevent their employees from working under conditions that are unsanitary or dangerous to their safety and health or to the environment. Subcontractors' conformance with the requirement to initiate and maintain such a program is mandatory under the provisions of their construction contract.

Subcontractors shall designate a qualified safety representative to be responsible for the administration of the Subcontractors' Loss Control Programs, the Project Loss Control Program, and the City of Memphis Project ESH&S requirements. Subcontractors shall also be responsible for the administration of the Subcontractors' Loss Control Programs and the Project Loss Control Program for their subcontractors.

1.2.2 Program Requirements

Subcontractors' Loss Control Programs shall meet the minimum applicable requirements of the Occupational Safety and Health Act of 1970 and environmental regulations, as amended. In addition, to meet the minimum requirements of the Project Loss Control Program, the following additional requirements shall be a mandatory part of each Subcontractor's Loss Control Program:

- Deliver one copy of the Subcontractor's Loss Control Program to OCI for review prior to mobilization.

- Submit to OCI as part of the Loss Control Program a Designation of Competent Persons Form (Figure 1). The subcontractors shall designate competent persons for each area listed that is applicable to their work. Occupational Safety and Health Administration (OSHA) defines a competent person as:

  > "One who through training and experience is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees and who has authorization to take prompt corrective measures to eliminate them."

  The subcontractors' competent persons shall be the competent persons for each lower-tier subcontractor unless that lower-tier subcontractor identifies an alternate competent person.

- Participate in regularly scheduled construction coordination meetings as defined by the Subcontract Agreement.

- Cooperate with OCI, state, federal, and local agencies, and Owner representatives concerning safety and health and property damage matters.

- Participate in the implementation of fire control measures as may be appropriate for the protection of individuals and property.

- Provide and document training and education to the subcontractor's employees in the recognition, avoidance, and prevention of unsafe working conditions and unsafe work practices, and in the implementation of emergency procedures.

- Maintain accurate safety and health records and statistics, and submit to OCI, by the first of each month, the Loss Management Monthly Summary (Figure 2).

- Provide a system for ensuring that reports and documents required by the Project Loss Control Program are submitted to OCI in a timely manner.

- Provide a system for ensuring that safety task assignments (STAs) are held and documented daily for all subcontractor employees. A copy of the STA reports (Figure 3) must be submitted weekly to OCI.

- Provide a system for immediately reporting all injuries, accidents, illnesses, fires, hazardous material spills, environmental incidents and unsafe conditions and procedures to the subcontractor's safety representative or designee and OCI.

- Hold and document a system of weekly "toolbox" safety meetings for all subcontractor employees. A copy of the Weekly Safety Meeting Reports (Figure 4) must be submitted to OCI.

- Establish a system to prevent the use of unsafe or defective equipment, tools, materials, or machinery, which includes procedures for tagging and/or locking out and rendering inoperable such unsafe items.

- Provide a system for ensuring that only employees who are qualified by training or experience are allowed to operate equipment, tools, and machinery.

- Establish a documented hazard communication program for the protection of employees who are required to handle or use flammable liquids, gases, toxic materials, poisons, caustics, and other harmful substances. The objectives of the program will be to create an employee awareness of the potential hazards of such substances, the recommended personal hygiene for those exposed to such hazards, the personal protective measures and devices required, and the emergency notification procedures to be used in the event of an accident. The subcontractor program shall include the items outlined in Subsection 1.6.5 of this manual.

- Establish a documented program of instruction for employees who are required to enter confined or enclosed spaces. Instructions shall include the nature of the hazards involved, the necessary precautions to be taken, and the proper use of required protective and emergency equipment. The subcontractor's program shall include a permit system as outlined in Subsection 1.6.9 of this manual.

- Establish a documented program for protecting employees from occupational health hazards resulting from airborne dusts, mists, vapor, or fumes; noise; and radiation (ionizing and nonionizing), with emphasis on materials such as lead, asbestos, hexavalent chromium, cadmium, arsenic, or silica. A Job Hazard Analysis (JHA) (refer to Subsection 1.6.1) shall be performed to determine the appropriate steps to control the hazard. The subcontractor shall use engineering controls wherever possible to eliminate the hazard. If engineering controls are not effective, administrative controls or personal protective equipment (PPE) shall be used. If any hazardous condition (material, waster, substances, and/or chemicals) that exists is found in the work area, then the work shall be halted immediately and the Program Manager shall notify the City of Memphis and request a written response on how to proceed.

- Provide a written program for employees who require, because of the hazards of the work being performed, the use of PPE.

- Establish a system (and procedure) that provides for routine, documented inspections of all equipment and tools in accordance with applicable Project federal, state, and local regulations. These procedures, and support documentation, are to be submitted to OCI for review upon request. Such

equipment and tool inspections include, but are not limited to, the following: mobile equipment, rigging, lever hoists, fall protection, fire extinguishers, ladders, electrical tools, cords, and leads. Forms for documentation of inspections can be obtained from OCI. NOTE: For the purpose of this manual, routine means monthly, unless otherwise specified.

- Provide a copy of the project tagging procedures to each employee and train all employees to reasonably ensure their understanding of these procedures.

- Provide a written orientation program to include, but not be limited to, the following: job hazard analysis, emergency communication procedures, and disciplinary procedures; Project Loss Control Program requirements; OSHA requirements; and the City of Memphis Project ESH&S requirements. Records of such training shall be maintained onsite by the subcontractor and made available upon request for inspection by OCI.

- Provide written disciplinary procedures equal to or greater than those discussed in Subsection 1.3.2 of this Project Loss Control Program Manual. This procedure must include enforcement responsibilities of all supervisory personnel.

- Provide appropriate first aid/medical coverage for their employees and submit weekly First Aid Logs (Figure 5) to OCI.

- If steel erection activities are being performed as described in CFR 1926.750, develop a site-specific steel erection program that meets OSHA Subpart R 1926.750-761 requirements in addition to specific steel erection requirements set forth in this manual (Subsection 1.6.14).

- Develop, document, and implement evacuation/emergency plans for medical emergencies, fire, and hazardous material spills. Subcontractors' programs shall be in compliance with OCI and City of Memphis project requirements. As part of the subcontractor's evacuation/emergency plans, the subcontractor will include a comprehensive list of resources and emergency contact list similar to that found on Figure 6.

- Adhere to OCI's JHA Policy as outlined in Section 1.6. (Refer to Figure 7 for a guide to completing the JHA.)

- Develop and implement a Drug and Alcohol Testing Program as required by the contract documents.

- Conduct daily work area safety, health, and environmental inspections (Figure 8) with written reports submitted weekly to OCI. Included in the reports shall be deficiencies detected and corrective action taken.

- Develop and implement an Environmental Control Program that is compliant with Section 5.0 of the Project Loss Control Manual and all applicable federal, state, and local environmental regulations.

1.2.3 Drug Testing

OCI will enforce strict requirements for a drug and alcohol free workforce. Failure to require drug and alcohol tests will be considered a breach of contract and could subject the subcontractor to expulsion from the jobsite and contract termination.

All subcontractor employees and lower-tier subcontractors shall submit to drug and alcohol screening tests before reporting at the project jobsite, and 10 percent monthly thereafter, reasonable suspicion, post accident/incident, and/or near miss incident. Only employees who are certified drug free and alcohol free shall be permitted by the subcontractor to work at the project. (Refer to Figure 9.) This requirement applies to all subcontractor employees, including supervisory employees, who are or will be assigned to the jobsite for more than a few days. Supplier representatives, home office employees, and field technical representatives who visit the jobsite on a short-term basis are not subject to drug testing, although such persons are subject to the search procedures for drugs set forth in this Loss Control Manual.

1.2.3.1 OCI Drug and Alcohol Policy

Policy

Dependency on alcohol and/or drugs can interfere with a professional's health and job performance and may pose serious safety, health, or security risks not only to the user, but also to those who work with the user. This includes professionals employeed by both OCI, subcontractors, and their subtiers. It is the obligation and intent of OCI to maintain a safe, healthful, secure, and efficient working environment for all of its professionals, clients, and subcontractors and to protect the company's property, equipment, and operations.

Use, Possession, or Sale of Drugs or Alcohol

The policy is as follows:

- Illegal Drugs:
  - Using, selling, manufacturing, purchasing, transferring, dispensing, distributing, or possessing illegal drugs by any professional while in an OCI facility, on an OCI jobsite, or while performing OCI business is strictly prohibited. Illegal drugs are described at the end of this section.
  - A professional engaged in the performance of work for OCI is required to notify OCI of any criminal drug statute conviction for a violation occurring in the workplace no later than 5 days after such conviction.

- Prescription and/or Legal Drugs:

  - A professional required to take prescription drugs or over-the counter drugs that may affect the safety of co-workers or members of the public, the professional's job performance, or the security and safe operation of OCI property and facilities shall notify their employer and OCI of the need for such usage. The professional may continue to work unless management determines that use of the drug poses one of the above risks.

Disciplinary Action

Violation of any portion of this policy will result in removal from the jobsite and immediate termination of employment (where applicable), even for the first offense. Professionals sign an Acknowledgment and Consent Form prior to employment or assignment to a jobsite attesting to their understanding of the consequences for a violation of this policy.

Searches

OCI reserves the right to conduct unannounced searches for illegal drugs or alcohol in OCI facilities or on jobsites at any time. Searches do not have to be based on reasonable suspicion. This includes, but is not limited to persons, personal effects, and vehicles. Submission to such searches is a condition of employment and continuing employment. Refusal to submit will result in immediate termination of employment.

Definitions

For purposes of this policy, the following definitions apply:

- Alcohol--This is the intoxicating agent in beverage alcohol, ethyl alcohol or other low molecular weight alcohols, including methyl and isopropyl alcohol.

- Controlled Substance--These are defined by 49 CFR Part 40.85 as the following drugs or classes of drugs:

  - Marijuana metabolites.

  - Cocaine metabolites.

  - Amphetamines.

  - Opiate metabolites.

  - Phencyclidine (PCP).

- A controlled substance in Schedule I through V of Section 202 of the Controlled Substance Act (21 U.S.C 812), and as further defined in regulations at 21 CFR 1308.11 - 1308.15.

- Also included are look-alikes, designer drugs, and drug paraphernalia.

- Conviction--A finding of guilt (including a plea of nolo contendere) or imposition of sentence, or both, by any judicial body charged with the responsibility to determine violations of the federal or state criminal drug statutes.

- Criminal Drug Statute--A federal or nonfederal criminal statute involving the manufacture, distribution, dispensing, possession, or use of any controlled substance.

- Under the Influence--Means that the professional is affected by drugs or alcohol in any detectable manner. The symptoms of influence are not confined to those consistent with misbehavior or impairment of physical or mental abilities such as slurred speech or difficulty in maintaining balance.

1.2.3.2 Drug Screening Procedures

For OCI Professionals

Project Managers will forward to their OCI Safety and Health Manager a copy of the contract outlining drug screening requirements. The Drug Screen Administrator will arrange for a collection facility near the jobsite.

For Subcontractors and Lower-Tier Subcontractors

Subcontractors under contract by OCI shall be responsible for making their own arrangements with a collection facility near the jobsite. Testing shall meet the requirements of the terms of the subcontract agreement and this Loss Control Manual.

Acknowledgment and Consent Form

Professionals are expected to sign the Acknowledgment and Consent Form--Drug and Alcohol Testing as a condition of (a) employment and continued employment, or (b) to be assigned to perform services on a construction jobsite. Included in the consent form is the agreement to submit to periodic unannounced (random) testing during the course of their employment. Refusal to cooperate with or submit to such testing will result in immediate removal from the jobsite and termination of employment (where applicable), even for a first time refusal. The professional's signature, affixed to this form, is acknowledgment that this information was made available before employment with OCI or acceptance of an assignment on the jobsite. The form shall be provided to OCI prior to starting work on the jobsite.

Testing Procedures

Professionals reporting work-related accidents will be required to submit for a drug test at a predesignated testing facility. For purposes of this policy, an "accident" is defined as the following:

- Work-related injury/illness--An injury or illness, such as a cut, fracture, sprain, strain, amputation, or musculoskeletal disorder, etc., that results from a work accident.

- Work-related motor vehicle accident--An automobile accident that occurs while a professional is in a rental car performing OCI business, or at any time a professional is in an OCI company vehicle, or operating any vehicle in the construction area of an OCI jobsite.

- Near-misses--An incident that does not result in an injury, but that has the potential for serious injury or fatality.

- Significant property damage--Any incident that causes damage in excess of $5,000 to OCI property or property on the jobsite.

Violation of any portion of this policy can result in immediate removal from the jobsite and disciplinary action, up to and including termination of employment (where applicable)--even for a first offense.

Post-accident drug testing is one of the ways OCI is working to create a safe and healthy work environment. For additional information, please contact the Drug Screen Administrator at 913-458-8574.

If the prospective professional or current professional or subcontractor or second tier subcontractor refuses to sign the consent form and/or submit to the drug screening, an explanation of the consequences of refusal will be provided so that the individual may reconsider. If the individual continues to refuse, the prospective professional will not be permitted to work at the jobsite or hired or the employment of a current professional will be terminated (where applicable).

Standards of Testing

The standard for drug testing initially will be via enzyme multiplied immunoassay technique (EMIT), and where positive, followed by a more precise test, the gas chromatography/mass spectrometry (GC/MS). The substances tested shall be those included in the Substance Abuse and Mental Health Services Administration (SAMHSA) Panel 5 (amphetamines, cocaine, marijuana, opiates, and phencyclidine or metabolites of these drugs) plus alcohol unless stated otherwise in the client contract.

Cutoff levels will be those established by the federal Department of Transportation (DOT) as set forth in 49 CFR Part 40 unless stated otherwise in the prime contract.

Screenings for alcohol will be conducted by breath, QED (Quantitative Enzyme Diagnostic) A-150 Saliva Alcohol Test, breathalyzer, or urinalysis. In the event of a positive result on the initial screening, a confirming blood sample will be drawn to measure blood alcohol. The standards for cutoff levels are determined by the state in which the jobsite is located.

Specimen Collection/Laboratory

Collection shall be conducted by a qualified agency in compliance with the guidelines established by the US Department of Health and Human Services, set forth in 53 Fed. Reg. 11970 (April 11, 1988). Where stated in prime contracts, laboratory analysis shall be conducted in accordance with the above cited regulations by a laboratory certified by the SAMHSA. OCI has named Medtox Laboratories, Inc., 402 W. County Rd. D., St. Paul, MN, 55112, as the SAMHSA laboratory of use for their professionals. Screening levels appropriate to each prime contract will be provided to the laboratory prior to specimen collection.

Recordkeeping and Confidentiality

The request to submit to drug testing is to be handled discretely. Any resulting allegations of drug policy violations will be kept highly confidential. Disclosures will not be made except to those in strict "need to know" management positions.

If subcontract agreements call for a subcontractor, subtier or other entity with a presence on the jobsite to be notified of drug screening results prior to entry on the jobsite, the administrator of the drug screening program will notify the entity in writing, listing the professional(s) name, employee number, date of the screening, and certifying the negative results.

OCI requires the same standards of screening, certification of laboratories and reporting of all its subcontractors, subtiers or other entities having a presence on the jobsite.

Non-Negative Results

In the event of a non-negative drug test, the professional will be notified. Non-negative tests performed after assignment to the jobsite will result in the professional being immediately removed from the jobsite, employment being terminated (where applicable), and being barred from employment from all OCI and OCI subsidiary company projects.

Audits

OCI reserves the right to audit drug screening records of subcontractors, or any other entity involved at the jobsite with written approval from each subcontractor professional. OCI will submit a request in writing at least 1 week in advance of the audit.

Periodic Unannounced (Random) Drug Testing

Professionals assigned to OCI jobsites are subject to periodic unannounced (random) drug and alcohol testing. The procedures listed below are to be followed.

Random Selection and Frequency

Random testing shall be conducted at least once each month. Supervisors at the jobsite will not be informed of the date of testing and the selected professionals until the morning of the selected day.

Selection of Test Subjects

Random selection includes all professionals on the jobsite the day selected for random testing.

The pool of candidates from which the random selection is made shall include all professionals assigned to the jobsite, including those who have been selected for testing on previous occasions. Thus, it is conceivable that an individual could be selected to undergo testing more than one time in any given period.

Notification Procedure

At the time of random drug testing, the following steps shall be taken:

- If a professional refuses to submit to the testing, the supervisor will explain to the professional that he/she will be immediately removed from the jobsite and terminated immediately (where applicable) unless he/she submits and offer the opportunity for the professional to reconsider. Managers and supervisors are not to attempt to use force in seeking compliance.

- When management receives the results of the tests, OCI will be notified and will take any appropriate disciplinary action in the event of positive results.

Refer to the applicable form--Acknowledgment and Consent Form--Drug and Alcohol Testing.

1.3 Safety and Health Surveillance Policy and Procedures

1.3.1 Surveillance Policy

Subcontractors are responsible for the enforcement of their respective Subcontractors' Loss Control Programs, the Project Loss Control Program, and City of Memphis Project ESH&S requirements. OCI will provide surveillance of subcontractors' activities to observe whether such activities are in compliance with the Project Loss Control Program.

1.3.2 Violation Notification Procedures

If an apparent violation of a safety, health, or environmental standard occurs, OCI will advise the subcontractor of the violation and direct that the violation be corrected. If there is a conflict between project loss control rules, Subcontractors' Loss Control Program rules, the City of Memphis Project ESH &S rules, and governmental regulations, the most

restrictive shall apply. Subcontractors shall be informed of the violation by one of the following methods.

1.3.2.1 Environmental, Safety, Health, and Security Violation Notice

The subcontractor will be informed of identified violations of environmental, safety, health, or security standards by means of an Occupational Violation Notice (Figure 9). Violation notices will be delivered by the most expeditious method to the subcontractor's onsite construction office. The subcontractor will receive an original and one copy of each violation notice.

The subcontractor shall take corrective action within the abatement period shown on the violation notice or propose an alternate solution within the abatement period given. If corrective action is not taken within the abatement period, work shall stop in the affected location and/or the affected equipment shall not be used until the cited violation is corrected.

After corrective action has been completed, the subcontractor shall state in writing the corrective action taken, date and sign the original notice, and return it to OCI.

There are four types of violations:

- Serious--Any condition or practice that is causing or likely to cause death or serious physical harm to any person.
- Nonserious--Any condition or practice that is not likely to cause death or serious physical harm to any person.
- Stop Work/Imminent Danger--The existence of any condition or practice that would reasonably be expected to cause death or serious physical harm before such condition or practice can be corrected. This is a "stop work" situation. All persons shall be withdrawn from the affected area, and no one allowed in such area except those people deemed necessary to correct the condition or practice.
- Stop Work/Noncompliance--A violation (serious or nonserious) described in a notice has not been totally corrected within the noted abatement time, and the abatement time should not be extended. This is a "stop work" situation. All persons shall be withdrawn from the affected area, and no one allowed in such area except those people deemed necessary to correct the condition or practice.

1.3.2.2 Imminent Danger Notification

If OCI or a City of Memphis Project representative considers a violation to be imminently dangerous to life, limb, or property, the subcontractor's representative at that location will be directed to immediately cease work in that area. The imminent danger condition shall be corrected to the satisfaction of OCI and/or City of Memphis management and federal, state, and local requirements before work is allowed to continue.

1.3.2.3 Repeated Violations

In addition to the above notification procedures, the Owner and/or OCI will notify the subcontractor's corporate office if a particular violation is repeated or if the subcontractor's field supervision is not cooperative. Such notification to the subcontractor's corporate office may be either by telephone or in writing; however, telephone notifications will be followed up with written notification.

Repeated nonconformance with the Project Loss Control Program and repeated failure to comply with correction directives may result in removal of subcontractor management from the project site or termination of the contract.

1.3.3 Abatement

If the safety and health hazard noted on the Occupational Violation Notice is not abated within the time period specified and no acceptable alternate solution has been proposed by the subcontractor, OCI will initiate steps to correct the violation and back charge such expenses to the subcontractor.

1.3.4 Notice to Employee of Safety and Health Violation

Subcontractor employees who knowingly violate the project's loss control rules will be issued an Occupational Violation Notice (Figure 10). If any one employee receives three Personal Violation Notices, disciplinary action, which shall include discharge from the project, will result. Employees knowingly or willfully violating project loss control rules shall be subject to discharge without prior warning. Nonserious type personal violation notices are handled with progressive discipline protocols as follows:

- First Offense: Oral Warning (documented).
- Second Offense: Written Warning, 3 day suspension (nonpaid) from the Project.
- Third Offense: Permanent removal from the Project.

Variances from protocols are not allowed unless approval is granted by OCI. Subcontractors that issue safety and health related personal violation notices to their employees are required to forward the discipline records to OCI within 24 hours after issuance.

Employers will receive a copy of all Personal Violation Notices issued to their employees.

Personal Violation Notices may be issued to subcontractor supervisors for not enforcing the Project Loss Control Program rules with the employees under their supervision.

Employees discharged for violation of Project Loss Control Program rules shall not be eligible for rehire for the duration of the project.

1.3.5 Tagging Equipment Out of Service

The procedures for tagging defective equipment, tools, or cords out of service at the project shall be strictly adhered to. If a safety and health hazard is recognized by OCI or a City of Memphis Project representative, the affected equipment will be tagged with a "Danger" tag (Figure 11), immediately taken out of service, and remain out of service until the defect is corrected.

The "Danger" tag shall be removed from the equipment by the subcontractor representative after corrective action has been completed. The subcontractor shall state in writing on the tag the corrective action taken, date and sign the tag, and return it to OCI. Anyone removing this tag before corrective action has been completed shall be subject to immediate discharge from the project.

1.4 Project Loss Control Program Operation

1.4.1 Project Loss Control Program Manual

OCI will distribute copies of the Project Loss Control Program Manual to all subcontractors. The subcontractors shall ensure that all their employees and subcontractors are familiar with, and abide by, the contents of this manual, including any changes distributed by OCI.

1.4.2 Project Construction Coordination Meetings

OCI will schedule project construction coordination meetings weekly and at any other time deemed necessary. The purposes of the meetings, among other things, will be to discuss safety and health concerns as they relate to the project, provide for two-way communication between subcontractors' safety representatives and OCI and Owner and, in general, further the Project Loss Control Program. All subcontractors are required to have their safety representative in attendance.

1.4.3 Injury/Illness and Near Miss/Property Damage Reporting

Immediately after they happen, all injuries, occupational illnesses, near misses, and property damage accidents shall be investigated by the subcontractor's safety representative and reported to OCI, who, in turn, will report to a City of Memphis Project representative. The safety representative shall complete an Injury/Illness Investigation form (Figure 12) or Near Miss/Property Damage form (Figure 38). The safety representative shall submit the completed report to OCI along with any supportive information such as photographs, witness statements, etc., within 2 working days after the accident happens. Reports shall be dated and signed by the subcontractor's safety representative. OCI shall, in turn, submit the report to a City of Memphis Project representative within 5 days.

If a serious injury (see definition below), fatality, property damage, accident, or any damaging fire occurs, OCI shall be immediately notified regardless of the day or hour. This reporting requirement is in addition to the requirements outlined in the above paragraph. A serious injury is defined as any injury that requires medical treatment beyond first aid (as defined by OSHA in the publication "Recordkeeping Guidelines for Occupational Injuries

and Illnesses"), any trip to the hospital or doctor's office, or any single incident where two or more employees are injured.

Incident reporting and associated investigations include the following:

- All injuries and illnesses to personnel that occur on the Project.
- All injuries and illnesses involving the general public as a result of activities associated with the Project.
- All equipment and property damage incidents on the Project.
- All "near-miss" incidents on the Project.

A drug and alcohol test shall be administered to personnel injured and/or any personnel in a work crew involved in an incident involving personal injury. Drug and alcohol testing may also be required for "near-miss" incidents at the discretion of the OCI.

1.4.4 Return-to-Work Program

Every effort shall be made to **return workers to work** after a work-related injury or illness, under the direction of the physician. The insurance carrier will be in contact with the physician to determine the worker's physical demands and limitations. Subcontractors shall also be aware of the worker's status and assist in managing the return-to-work program.

A return-to-work program shall be developed and implemented by each subcontractor to assist workers who are temporarily disabled due to an injury or illness. The subcontractors shall participate in the return-to-work program.

The subcontractor shall agree that their injured workers shall be treated by an authorized medical treating facility. The site medical facility shall be utilized for initial treatment and evaluation of all injured workers. Follow-up care will be provided in accordance with applicable Workers' Compensation statutes.

When subcontractor workers report a work-related illness or injury, immediate notice shall be provided to OCI and the subcontractor employee shall be taken to the approved medical facility for examination and/or treatment. If the doctor determines that the worker qualifies for "Return to Work" ("restricted-duty"), the doctor will complete appropriate forms indicating the restrictions and conditions for transitional work. The subcontractor shall provide modified work until their employee is able to resume regular duties. All modified work is temporary in nature and is designed to facilitate a return to regular duties as soon as possible. Modified duty positions may be offered at any location of the Project or on any shift. Modified work can also be provided at other work locations of the subcontractor with approval from OCI.

In no case shall an injured worker be laid off or terminated from an "alternative work" position unless first discussed with OCI.

1.4.5 Government Agency Inspection Procedures

OCI Project Management shall be notified immediately of the presence of a government agency inspection official on the site.

A representative from OCI may accompany the government agency inspection official during inspections of the construction site. Also, each subcontractor will require his employees to select a representative(s) to accompany the government agency inspection official during site inspections.

OCI shall examine the government agency inspection official's credentials prior to the start of any onsite inspection. At all times while onsite, the government agency inspection official shall be treated courteously and given full cooperation.

Subcontractor agrees that, in the event of any violation of ESH&S laws arising from subcontractor's and/or subcontractor's employees' action or failure to act, subcontractor shall take immediate action to resolve the violation with the appropriate regulatory authority; pay any and all fines, penalties, or other costs that are levied by a regulatory authority; and reimburse to OCI and the City of Memphis Project all directly related and documented costs expended to resolve the violation.

1.5 Fire Protection

1.5.1 Responsibilities

Each subcontractor shall be responsible for fire protection throughout all phases of construction as required by the National Fire Protection Code and OSHA Standard 29 CFR 1926 Subpart F.

Only work procedures that minimize fire hazards to the greatest extent practical shall be used. Fuels, solvents, and other volatile or flammable materials shall be stored in an area designated by OCI. Good housekeeping is essential to fire prevention and shall be practiced by all site subcontractors.

Unless otherwise specified, untreated canvas, paper, plastic, and other flammable flexible materials shall not be used inside buildings near spark producing activities. If such materials are on equipment or materials that arrive at the project site, they shall be removed and replaced with an acceptable covering before the equipment or material is stored or moved into the construction area. Permanent storage of flammable or combustible materials shall be in designated areas. Temporary storage inside buildings is allowed only if the materials are necessary for construction, and all materials are removed from inside at the end of the day.

Fire extinguishers shall be maintained and inspected on a regular basis. (Refer to Figure 13.)

1.5.2 Reporting Fires

All fires, regardless of size, shall be reported immediately to OCI after extinguishing the fire and/or calling for assistance from the local fire department.

In the event of a fire that cannot be locally controlled by fire extinguishers, the subcontractor shall follow the emergency procedures outlined in Section 2.0.

1.6 Specific Requirements

1.6.1 Job Hazard Analysis Policy

1.6.1.1 Requirement

Subcontractors shall conduct a JHA on all major work operations, work operations that are particularly hazardous by nature, and those operations requiring special planning. The following list of general activities can be used as a guide to help determine when a JHA is required. This list is not meant to be all-inclusive:

- Excavation and trenching operations.
- Blasting.
- Pile driving and drilled pier installation.
- Foundation construction.
- Concrete work.
- Structural steel erection.
- Roofing and decking work.
- Tower construction.
- Transmission line construction.
- Tank, vault, basin, and vessel construction.
- Building construction.
- Metal wall panel and precast panel installation.
- Mechanical equipment installation.
- Electrical equipment installation.
- Insulation work.
- Painting, coating, and lining operations.
- Heavy rigging and lifting operations.
- Chemical cleaning activities.

- Pressure testing.
- Startup and commissioning activities.
- Cofferdam installation.
- Tunneling operations.
- Hazardous waste remediation.
- Work in roadways.
- Confined space work.
- Occupational health hazards.

1.6.1.2 Personnel

Before the start of a work operation that requires a JHA, the appropriate people shall be assembled. The people needed to complete a JHA shall be dependent on the complexity of the work operation being evaluated. As applicable, persons shall be included who have knowledge in the following areas; but, as a minimum, at least one management and one craft employee shall be involved in the process:

- Hazards associated with the work operation.
- Knowledge on the equipment and tools needed to safely perform the work.
- Procedures to perform the work.
- Applicable OSHA standards.
- OCI Safety and Health Program requirements.
- Chemicals and processes involved.

1.6.1.3 Procedure

Figure 7 shall be used as a guide to completing the JHA. The form is divided into three areas: Sequence of the Job; Potential Hazards; and Recommended Action, Procedure, and/or Equipment. The following shall be considered when completing each section:

- Sequence of the Job--The job shall be broken down into manageable steps with enough detail to adequately cover the task being evaluated. For example, steel erection can be broken down into several tasks such as steel delivery, offloading, staging, anchor bolt installation, column erection, beam installation, fill-in steel, bolt up, stairs and handrail, grating, etc. These major sections can be broken down into manageable subsections; for example, offloading can be further broken down into the following categories--

positioning the truck, setting up the crane, selecting the appropriate rigging, rigging the steel, swinging the load, unhooking the rigging, etc.

- Potential Hazards--For each task identified in the Sequence of the Job section of the JHA form, the hazards associated with the task shall be identified. Typically, each task will have more than one potential hazard listed; for example, hazards created while "positioning the truck" from the example described above would include the load shifting and crushing employees; the truck backing over workers; situating the truck under an overhead powerline, causing a potential electrical hazard; the truck hitting and damaging other equipment and structures, etc.

- Recommended Action or Procedure--For each hazard identified in the Potential Hazard section of the JHA form, a way to eliminate the hazard shall be described in this section. Emphasis should be placed on time, material, equipment, training, and procedures. For example, the hazard listed in the above example, "the truck backing over workers," could be eliminated by the following: ensuring that all trucks are equipped with a backup alarm, assigning someone to act as a signal person (that person will need to be trained), requiring the signal person to wear an orange reflectorized vest, etc.

Upon completion of the JHA, but before the start of the work operation, the subcontractor shall submit the JHA to OCI for review.

Upon approval by OCI, the subcontractor shall use the form to ensure that the elements listed are in place before the start of the work operation. The subcontractor shall also use the form as a training tool to ensure that each employee involved in the work operation is adequately trained on each element of the JHA.

If a situation arises during the work operation that has not been addressed by the JHA, or if a situation occurs that requires an existing element of the JHA to be modified, the subcontractor shall modify the JHA as appropriate to address the issue. The subcontractor shall ensure that affected employees are trained on any changes or additions made to the JHA.

1.6.2 Housekeeping

Subcontractors shall, at all times, maintain the premises free from accumulations of waste material, trash, and debris caused by their work.

Pre-job planning shall include consideration of housekeeping plans and will also include methods and necessary equipment or tools. The subcontractors shall instruct their supervisors to maintain good housekeeping.

Each work area shall be cleaned and swept daily, if applicable, by the subcontractor or as often as necessary to remove fire and safety hazards discovered through regularly scheduled inspections. All tools, scaffolding, and materials shall be removed from the work area at the completion of the work. All scrap, waste material, and rubbish shall be removed from the work area daily.

Refusal to maintain or negligence in maintaining good housekeeping can result in the following:

- Back charges to the subcontractor for removal of trash, rubbish, and waste materials from the work area and also for clearing aisles; walkways; and work areas of tools, material, and equipment.

- Reports to the Owner of inadequate subcontractor performance.

- Suspension of the work until a proper level of housekeeping is achieved, as deemed necessary by OCI.

All recommendations for improved housekeeping from an OCI or City of Memphis Project representative shall be acted upon immediately by the subcontractor in violation.

Housekeeping

(1) Leads, hoses, and extension cords shall be hung up (approximately 7 feet) with a nonconductive material, off all floors, stairways, and walkways. Leads, hoses, and cords are to be removed from the work area when the work is completed or when they are no longer intended to be used. Lead, hose, and cord "roll-ups" will be required if an excessive amount of equipment accumulates in a work area creating housekeeping or trip hazards.

(2) Trash such as drinking cups, cans, and scraps from lunch are not to be thrown down, but should be disposed of properly in marked containers.

(3) Available material, equipment, concrete forms, pipe, etc., are to be orderly and stacked out of walkways and from in front of doors, stairways, and ladders.

(4) Oil, grease, and other such liquid spills shall be cleaned up at the time of the spill and are not to be left unattended.

(5) Each craft is responsible for housekeeping in its respective work areas.

(6) Where such items as protruding rebar and anchor bolts create impalement or tripping hazard, they shall be properly protected and conspicuously marked.

(7) Trash barrels and 55 gallon drums shall not be hoisted by holes cut in the sides; adequate means of support shall be used.

1.6.3 Ground Fault Protection

Ground fault circuit interrupters shall be used with all power tools and cords. These shall be used regardless of the power source, including portable and wheel mounted generators. The ground fault circuit interrupter shall be tested before each use. (Refer to Figure 14.)

1.6.4 Crane and Articulating Boom Work Platform

Each day, before use of any crane, the operator shall perform and document a daily crane inspection to ensure the equipment is in good working condition. These inspections are to be made available upon request in the field and are to be submitted to OCI at the end of each week. The documents are to be submitted for each crane and are to be in chronological order by date. This daily inspection protocol is also required for all articulating boom work platforms ("JLGs," "Genie Lifts," etc.). Subcontractors may use their own daily inspection forms for these pieces of equipment.

All cranes in use on the project shall be inspected on a monthly basis by a competent person. Inspection results shall be recorded on a Monthly Crane Inspection Report form (Figure 15), which must be submitted to OCI by the fifth working day of each month. Inspection report forms can be obtained from OCI. Subcontractors may use their own report form as long as the form contains the same information contained in Figure 15.

Additionally, the subcontractor shall submit a current third-party annual crane inspection report to OCI for each crane used on the project. Annual crane inspection reports shall be submitted before the crane is placed in service. The annual inspection shall be performed by a third-party certified inspection service.

Failure to submit the above inspection reports will result in a violation notice, which will stop the use of the crane in violation until the required report(s) are submitted. Anyone knowingly making any false statement, representation, or certification in either a monthly or an annual crane inspection report shall be subject to immediate discharge and will be barred from the project.

The above policy shall in no way eliminate any requirements for crane inspections set forth in the OSHA Standard 1926.1400.

1.6.5 Crane Suspended Work Platform

The use of a crane or derrick to hoist employees on a personnel platform is prohibited, except when the erection, use, and dismantling of conventional means of reaching the worksite, such as a personnel hoist, ladder, stairway, aerial lift, elevated work platform or scaffold, would be more hazardous or is not possible because of structural design or worksite conditions.

The suspended personnel platform design criteria, platform specifications, platform loading, rigging trial lift, inspection and proof testing, work practices, traveling, and prelift meeting shall comply with OSHA Standard 29 CFR 1926 Subpart CC Cranes and Derricks.

Cranes, Derricks, Hoisting Equipment

(1) Only authorized persons shall be permitted in the cab or on the equipment. Only those designated persons who are trained and qualified shall operate the hoisting equipment.

(a) Only certified crane operators with a national recognized certifying agency shall operate a crane or boom truck on the project.

(2) No person shall be permitted to ride the hook, sling, or load of any hoisting equipment.

(3) Load limits specified by the manufacturer shall not be exceeded under any circumstances.

(4) Operating and maintenance procedures specified by the manufacturer shall be followed.

(5) Before a lift is attempted, the lifting mechanism shall be level and firmly supported with the hoist line centered over the center of gravity of the load to be lifted.

(6) No load shall be lifted until its weight has been determined.

(7) For the first lift of each day, the load shall be test lifted and the brakes checked (load lifted several inches and then tested).

(8) With every load, the slings and bindings shall be checked and shall be readjusted as necessary to ensure safety and stability.

(9) Signals to the equipment operator shall be given by one person designated to perform this task. The operator shall, however, obey a "Stop" signal given by anyone.

(10) No employee shall be under a suspended load or inside the angle of a hoist line. No employee shall stand or work near a cable, chain, or rope under tension.

(11) Hoist lines, ropes, or wire cables shall not be guided by hand when an employee is standing within reach of the drum or sheave.

(12) Wire rope loops shall be made by proper splicing or mechanical clamping of the tail section. Wire rope clips shall not be used to form eyes in wire rope bridles or slings.

(13) Operators shall not leave their position at the controls of cranes, hoists, derricks, or other lifting devices while the load is suspended. Operators found sleeping while in the cab will be removed from the Project.

(14) Operators of cranes, derricks, hoists, and other hoisting equipment shall exercise extreme caution when close to energized lines or equipment. The operator shall keep the equipment away from overhead lines in accordance with OSHA 1926 Subpart CC.

(15) Tag lines shall be used on all loads.

(16) All spreader bars shall be tagged with the rated capacity and have annual inspections in accordance with ANSI B30.20.

(17) All cranes shall be equipped with functioning anti-two blocking devices and a functioning load moment indicator.

(18) A lift plan shall be required prior to all critical lifts. Critical lifts are defined as (1) any lift that utilizes more than one crane or hoisting device, (2) any lift that is over 20 tons, (3) any lift involving a crane suspended work platform, (4) any lift over critical operating and/or process equipment, (5) any lift that exceeds 75 percent of the crane's capacity and/or 90 percent of the crane's load chart, (6) helicopter lifts, (7) within the approach distance of overhead power lines under OSHA 1926 Subpart CC Cranes and Derricks.

1.6.6 Hazardous Material Program

It is solely the subcontractor's responsibility to implement and maintain a written Hazard Communication Program as stated in OSHA Standard 29 CFR 1910.1200. Subcontractors shall submit a copy of their written Hazard Communication Program to OCI before they begin work onsite.

If any hazardous condition (material, waster, substances, and/or chemicals) that exists or is found in the work area, then the work shall be halted immediately and the City of Memphis shall be notified immediately on how to proceed.

Subcontractors shall submit a Material Safety Data Sheet (MSDS) to OCI for any and all hazardous material they bring onsite or for which they are responsible. The MSDS shall be submitted before the material arrives onsite.

If a subcontractor's work with a hazardous material could affect the safety and health of other subcontractors' employees, the subcontractor shall coordinate the work with the other subcontractors to ensure the safety and health of the subcontractors' employees.

Subcontractors shall be responsible for the safe storage, use, and disposal of all hazardous material they bring onsite, or for which they are responsible.

Subcontractors shall conspicuously label with their company name all containers of hazardous material for which they are responsible.

1.6.7 Onsite Storage and Dispensing of Flammable and Combustible Liquids

The subcontractors shall strictly adhere to the applicable sections of 29 CFR, Parts 1926.152 and 1926.153, Safety and Health Regulations for Construction, of the Occupational Safety

and Health Act. Refer to the Combustible and Flammable Material Storage Requirements (Figure 16) for general guidelines.

The location of outdoor storage tanks shall be acceptable to OCI before installation.

1.6.8 Fall Protection

The subcontractors shall strictly adhere to the OSHA Fall Protection Standard 29 CFR 1926 Subpart M. No person or work operation is exempt from the standard on this project. This includes structural steel erection operations, structural steel connectors, and scaffold erectors. Fall protection is required 100 percent of the time as follows, whether employees are climbing, traveling, or working when exposed to a fall of greater than 6 feet or more (including into or through a manhole, vault, etc):

- Fall Protection Plan--Before starting work operations that require fall protection, the subcontractor shall submit a fall protection plan to OCI. The fall protection plan shall include, but not be limited to, the following:
  - Name of qualified person in charge of the operation.
  - Description of work operation.
  - List of fall exposures.
  - Description of fall protection methods used to eliminate the fall exposures.
  - Training and enforcement methods used to ensure employee compliance with the plan.

    Note: Refer to the Sample Fall Protection Plan in Appendix E to the 29 CFR 1926 Subpart M, Fall Protection Standards.
- Body Harnesses, Lanyards, and Lifelines--Body harnesses, lanyards, and lifelines shall be used in accordance with OSHA Standard 1926.502 (d), with the following exceptions:
  - Full body harnesses shall be used in lieu of safety belts on this project.
  - Only lanyards with shock absorbers and locking type snap hooks shall be used.
  - At least two lanyards shall be used to provide 100 percent fall protection when employees are moving around obstructions, connection points, or other similar items.

- Training--The subcontractor shall provide a training program as follows for each employee who might be exposed to fall hazards:

  – The training program shall be taught by a competent person and shall meet the requirements specified in 29 CFR 1926.503.

Safety monitors are not an acceptable method of performing fall protection and shall not be allowed on the project.

Fall Protection

(1) Fall protection is required 100 percent of the time when employees are exposed to a fall in excess of 6 feet or when required by additional rules. One hundred percent fall protection is required whether the employee is climbing, traveling from Point A to Point B, connecting structural steel, or erecting scaffolds or other temporary platforms. No employee or work operation is exempt from the 100 percent fall protection requirement.

(2) When not protected by any other means of fall protection, such as safety nets or scaffold with proper guardrails, employees shall use full body harnesses, shock absorbing lanyards with double locking snap hooks, and an adequate anchorage (fall arrest equipment). To achieve 100 percent fall protection, employees may need to use a double lanyard system and/or vertical or horizontal lifelines, retractable lifelines, or other such approved devices.

(3) Fall arrest equipment shall be rigged so that employees can neither free fall more than 6 feet nor contact any lower object. Anchorage points for fall arrest equipment shall be capable of supporting 5,000 pounds per employee and be located above the employee's body harness attachment point where practicable. Anchorage points shall be independent of any anchorage being used to support or suspend scaffolds or other platforms.

(4) When vertical lifelines are used, each employee shall be protected by a separate lifeline. The lifeline shall be properly weighted at the bottom and terminated to preclude a device such as a rope grab from falling off the line.

(5) Horizontal lifelines should be limited to two persons at one time between supports. Horizontal lifelines shall be designed, installed, and used under the supervision of a qualified person. The horizontal lifeline shall be designed to maintain a safety factor of at least two.

(6) Before each use, employees shall visually inspect all fall arrest equipment for cuts, cracks, tears or abrasions, undue stretching, overall deterioration, mildew, operational defects, heat damage, or acid or other corrosion. Equipment showing any defect shall be withdrawn from service.

(7) All fall arrest equipment subjected to impacts caused by a free fall or by testing shall be removed from service.

(8) Employees shall store all fall arrest equipment in a cool dry place not subjected to direct sunlight.

(9) Employees shall not use fall arrest equipment until they have been properly trained in its use.

(10) Foremen shall ensure that fall protection is available and used as required for all employees for whom they are responsible.

(11) Fall arrest equipment shall not be used for any other purpose, such as tow ropes or hoist lines.

(12) Proper guardrails shall be installed on open sides of all walkways and runways where the fall distance exceeds 6 feet.

(13) Proper guardrails shall be installed on all open sided floors where the fall distance exceeds 6 feet.

(14) All floor openings or floor holes shall be protected by guardrails or hole covers. If hole covers are used, they shall be strong enough to support the maximum intended load, secured against displacement, and properly labeled. If the cover is subject to vehicular traffic, it shall be capable of supporting at least two times the axle load of the largest vehicle expected to cross over it.

(15) When an employee is operating a scissor lift work platform, the lift shall have guardrails on all open sides and the door access chains or rails in place.

(16) Employees operating aerial lifts shall wear a body harness and lanyard attached to the aerial lift. Employees shall not attach the lanyard to an independent structure.

(17) Employees riding in a crane-suspended work platform shall wear a body harness and lanyard attached to the grab rail of the platform.

(18) Employees working on wall forms or rebar shall wear a body harness and lanyard, in addition to a positioning device, when exposed to a fall in excess of 6 feet. Positioning devices shall be rigged to prevent a free fall greater than 24 inches.

(19) Stairs, ladders, or ramps shall be provided for all access ways where there is a change in elevation greater than 19 inches.

(20) When guardrails are used for fall protection, they shall consist of a top rail, intermediate rail, and toeboard. The top rail shall have a vertical height of 42 inches, the midrail shall be at 21 inches, and the toeboard 4 inches. Guardrail systems shall be constructed so that there are no openings greater than 19 inches. When wood railings are used, the post shall be of at least 2 inch by 4 inch stock spaced not to exceed 8 feet, the top rail shall be of at least 2 inch by 4 inch stock, and the intermediate rail shall be of at least

1 inch by 6 inch stock. If pipe is used, it shall be at least 1-1/2 inch nominal diameter. If structural steel is used, it shall be 2 inch by 2 inch by 3/8 inch angles or equivalent. If wire rope is used for railings, it shall have a diameter of at least 1/2 inch and be stretched taut to allow no more than a 3 inch deflection. Guardrail systems shall be capable of supporting a force of at least 200 pounds applied within 2 inches of the top edge. A screen system (i.e., orange snow fence, plywood, netting, etc.) shall be installed on all guardrail systems to prevent anything from falling between the rails. All guardrail systems shall be posted with proper signage showing hazards to employees and public.

Guardrail systems shall be constructed so that when a 200 pound force is applied in a downward direction, it will not deflect to a height less than 39 inches.

If wire rope is used for top rails, it shall be flagged at no more than 6 foot intervals with high visibility material.

Manila or synthetic rope shall not be used as guardrails.

(21) Employees shall not stand or sit on guardrails.

1.6.9 Scaffold Tagging Procedures

1.6.9.1 Intent

The intent of the scaffold tagging procedure is to provide personnel with a scaffold that is complete and constructed in accordance with Project Loss Control Program rules and OSHA regulations. If there is a conflict between Project Loss Control Program rules, the subcontractor's Loss Control Program rules, and governmental regulations, the most restrictive shall apply.

1.6.9.2 Compliance

It is the policy of OCI that <u>all</u> onsite personnel shall comply with this scaffold tagging procedure. Scaffolds not displaying a signed scaffold tag shall not be used.

In addition to the procedures contained in this scaffold tagging procedure, all employees are subject to the OSHA scaffold requirements contained in 29 CFR 1926.451.

1.6.9.3 Subcontractors' Requirements

Subcontractors are responsible for ensuring that their subcontractors tag their scaffolds in accordance with the project scaffolding tagging policy.

1.6.9.4 Procedure

Scaffold tags (Figure 17) shall be provided by the subcontractor and shall conform to the following color codes and wording.

All scaffolds shall be marked with one of the following tags (Figure 17):

- Green Tag--This scaffold was built to meet OSHA scaffold regulations; it is safe to use.

- Yellow Tag--This scaffold does not meet OSHA scaffold regulations; 100% Fall Protection shall be worn.

- Red Tag--Warning--This scaffold is not complete; DO NOT USE.

A competent person designated by the subcontractor who constructed the scaffold shall inspect the scaffold for compliance with project and OSHA requirements (1926.451), and shall sign his/her name to the tag before allowing anyone to access the scaffold.

All scaffolds that cannot be equipped with standard top rail, midrail, and toeboard because of interferences with structures or equipment shall be marked with a yellow tag stating "100% Fall Protection Shall Be Used."

Scaffolds that are being constructed, torn down, or that are incomplete shall be marked with a red tag.

1.6.9.5 Responsibilities

The foreman who constructs the scaffold or has the scaffold constructed is responsible for ensuring that the scaffold is built to project and OSHA standards.

Subcontractor personnel shall periodically monitor all scaffolds. The auditing shall ensure that all scaffolds are properly tagged and in compliance with project and OSHA standards.

If a foreman wishes to use another subcontractor's or crew's scaffold, the foreman shall obtain permission to use the scaffold and shall inspect and tag the scaffold before use.

Any employee working from a scaffold that does not have a scaffold tag, or any supervisor assigning employees to work on an untagged scaffold, shall be subject to disciplinary action as outlined in Subsection 1.3.4, Notice to Employee of Safety and Health Violation, of this Project Loss Control Program Manual.

Safe Supports and Scaffolds

(1) No employee, nor any material or equipment, shall be supported or permitted to be supported on any portion of a pole structure, scaffold, ladder, walkway, or other elevated structure, crane or derrick, etc., without its first being determined that such support is adequately strong and properly secured in place.

(2) Employees shall check all scaffolding before use to ensure that it is of sufficient strength and rigidity to safely support the weight of persons and material to which it will be subjected.

(3) Employees shall not use a scaffold over 6 feet in height unless a standard guardrail, with midrail and toeboard, or a personal fall arrest system (PFAS) is present to provide adequate employee protection.

(4) Scaffold planks shall be secured in place and shall extend over their end supports by not less than 6 inches (unless cleated) nor more than 12 inches.

(5) Scaffolds shall not be moved without first removing all loose tools, materials, and equipment resting on the scaffold deck.

(6) The footing or anchorage points for scaffolds shall be sound, rigid, and capable of carrying the maximum intended load without settling or displacement. Unstable objects such as barrels, boxes, loose brick, or concrete blocks shall not be used to support scaffolds or planks.

(7) Scaffolds shall be erected level and plumb and rigidly braced to prevent swaying and displacement.

(8) Scaffolds shall not be altered or moved horizontally while being used or occupied except when specifically designed for such use. Movable scaffolds shall have the casters or wheels locked to prevent movement.

(9) The width of all scaffolds, ramps, and platforms shall be sufficient to prevent congestion of persons, materials, or equipment; and, in no case, shall they be less than 18 inches wide.

(10) Synthetic or natural fiber rope shall not be used as guardrails.

(11) Employees working on suspended scaffolds shall be protected by an independent lifeline, body harness, and a lanyard.

(12) Safe access shall be provided for all scaffolds. Structural members should not be used as a means of access. Fall protection is required on scaffold access ladders when access to the work platform exceeds 12 feet.

(13) Employees shall not use a scaffold unless it is properly tagged according to the project scaffold tagging procedure.

1.6.10 Confined Space Entry Procedure

1.6.10.1 Confined Space Definition

A confined space shall not be limited to a tank, vessel, silo, vault, pit, open topped space more than 4 feet (1.2 m) deep, pipeline, duct, sewer, or tunnel. Any item that meets the following criteria shall be considered a confined space:

- Limited means of access or egress, and
- Not designed for continuous employee occupancy, and
- Large enough to enter.

- The space could also have one or more of the following characteristics and be deemed a Permit Required Confined Space:

  – Less than 19.5 percent or more than 23.5 percent oxygen.

  – Flammable/combustible/explosive atmospheres present or capable of being generated or entering into an area.

  – Toxic atmospheres present or capable of being generated or entering into an area.

  – Areas not protected against entry of water, gas, sand, gravel, ore, grain, coal, biologicals, radiation, corrosive chemicals, or any other substance which could possibly trap, suffocate, or harm a person.

  – Poor ventilation.

  – Restricted entry for rescue purposes.

1.6.10.2 Intent

The intent of the confined space entry procedure is to ensure that personnel who perform work in a confined space are in compliance with project safety and governmental regulations. If there is a conflict between project loss control rules, the subcontractor's Loss Control Program rules, and governmental regulations, the most restrictive shall apply. All Confined Space Entries shall be treated as a Permit Required Confined Space Entry.

1.6.10.3 Compliance

It is the policy of OCI that all onsite personnel shall comply with this confined space entry procedure. All confined spaces meeting the definition of Subsection 1.6.10.1 shall be authorized for entry by means of a permit. No personnel shall enter a confined space prior to compliance with all permit criteria. All personnel entering a confined space shall be trained in accordance with all applicable requirements of OSHA 1910.146 and 1926.21 (and any other applicable standard addressing the hazards of a confined space entry).

All training certification shall be submitted to OCI prior to the work being done to ensure that all training requirements have been met.

Confined or Enclosed Spaces

(1) Only employees who have been properly trained on the hazards associated with confined space work shall be allowed to enter a confined space.

(2) Before entering a confined space, employees shall obtain a Confined Space Entry Permit (Figure 18) from the subcontractor. All monitoring activities shall be documented as a part of the permit.

(3) Before any entrance cover to a confined space is removed, it shall be determined that there are no temperature or pressure differences, or other hazardous conditions that may injure the employees removing the cover. Any entry that requires a 4 foot or greater depth, all personnel shall be equipped or attached to a mechanical retrieval system.

(4) When covers are removed from confined spaces, the opening shall be guarded by a railing, temporary cover, or other temporary barrier including screening material to prevent anyone or anything from falling through the railing system.

(5) Before entering a confined space, employees shall test all levels of the confined space for the presence of flammable or toxic gases and vapors or an oxygen deficient atmosphere.

(6) If flammable or toxic gases or vapors are detected or if an oxygen deficiency is found, forced ventilation shall be used to maintain oxygen at a safe level and to prevent a hazardous concentration of flammable or toxic gases and vapors.

(7) While work is being performed in the confined space, a person with basic first aid training shall be immediately available to render emergency assistance if there is reason to believe that a hazard may exist in the space or if a hazard exists.

(8) Entry into a confined space with an unsafe atmosphere shall be avoided if at all possible. Employees required to enter a confined space with an unsafe atmosphere shall be equipped with a fresh air breathing apparatus, body harness, and attended lifeline.

(9) Electric welding, gas welding, cutting, or any other hot work shall not be performed on the interior or exterior, or near the openings of any confined space that may contain flammable or explosive gases or vapors until the space has been properly cleared.

(10) Compressed gas bottles shall not be taken into a confined space.

(11) Safe access to the confined space shall be maintained at all times. If possible, all cords, hoses, leads, etc., shall be routed through an entrance other than the employee access into the confined space.

(12) Before employees are allowed to enter a confined space, all electrical and mechanical energy sources that could affect the employees working in the space shall be physically rendered inoperative, locked out, and tagged. If required, the space shall be drained, vented, and cleaned.

(13) Subcontractors are responsible for supplying workers with the proper air monitoring equipment.

1.6.10.4 Procedure

Confined Space Entry Permits (Figure 18) shall be made available through the subcontractor's safety representative. The subcontractor's Confined Space Entry Permit content shall either meet or exceed the content on Figure 18.

Subcontractors shall fill out the permit in full, post a copy of the form in a conspicuous location at the entrance to the confined space, and retain a copy for their records.

If there is more than one entrance to the confined space, all entrances shall be posted with a copy of the permit.

Before entering the confined space, all persons shall be given a briefing as to the precautions that must be taken including showing all air testing samples that were made and documented on the permit. When testing the atmosphere of a confined space, all areas (lower, middle, and upper) areas shall be checked for any hazardous atmosphere.

All manhole, vault, etc., ladder rungs shall be visually inspected prior to allowing an employee to use them. If it is deemed unsafe or the condition of the rungs cannot be determined, then a portable ladder shall be utilized.

When the work in the confined space is completed, the person authorizing entry into the confined space shall verify that all persons have exited the confined space and that it is safe to remove the permit. The authorizing person shall then sign, date, and write in the time the permit was removed.

Subcontractors shall retain all issued permits for their records. Copies of the permits shall be made available to OCI for auditing purposes.

1.6.11 Trenching and Excavation Notice

Before subcontractors commence work on any trench or excavation, they shall first submit a completed Trench and Excavation Notice (Figure 19) to OCI. The notice shall be submitted far enough in advance to allow OCI ample time to verify the subcontractor's submittal. After verifying the information, the authorized OCI representative shall sign the notice and return a copy of it to the subcontractor, and inform the City of Memphis Project representative. The subcontractor may commence work after receiving the signed notice. All trenches over 5 feet deep shall be protected from cave in; unless the competent person deems otherwise for a more shallow depth. For all trenches or excavations over 20 feet deep, the subcontractor must have the sloping, shoring, or shielding method designed by a Professional Engineer registered in the state. The design must be submitted to OCI as an attachment to the Trench and Excavation Notice.

The subcontractor shall appoint a competent person, as defined in OSHA Standard 29 CFR 1926 Subpart P, to fill out the permit and monitor all trench and excavation work. Daily excavation inspections are also required to be performed and documented. These forms are to be made available to OCI upon request.

The signature by OCI in no way changes the subcontractor's responsibility for locating all underground utilities and repairing damaged utilities as required by the contract. OCI shall not be held responsible for the safety requirements for the trench or excavation. The subcontractor's competent person shall be responsible for all safety requirements as stated in OSHA Standard 29 CFR 1926 Subpart P.

Excavations

(1) Before excavation work begins, an excavation permit shall be obtained. A separate permit must be obtained for each excavation. All safety requirements in OSHA Subpart P Excavations shall be met.

(2) All excavations 5 feet or deeper or less than 5 feet in unstable soil shall be sloped, shored, or shielded to prevent cave-ins in accordance with the competent person's direction.

(3) All excavations 4 feet or deeper shall have a ladder or ramp for access into the excavation with no more than 25 feet of travel in any direction.

(4) All excavated and available material shall be retained 2 feet or more from the edge of the excavation.

(5) All excavations shall be barricaded with the appropriate barrier tape and other protective devices as required.

(6) When employees enter an excavation that may be considered a hazardous environment by site safety representatives, they must wear proper personal protective equipment.

1.6.12 Barrier Tape Identification System

In order to uniformly identify particular hazards on the construction site, a barrier tape identification system has been developed for use by all the subcontractors working on the project.

This system has been developed so that any employee working on the site, regardless of employer, can recognize and avoid a hazard when properly marked.

The following barrier tape identification system shall be used:

- Yellow Barricade Tape: Used for isolating an area, passageway, equipment, etc., while providing a warning to personnel in the area that an abnormal condition exists. Yellow barricade tape is printed with the word "Caution" and additional language related to the nonserious hazard situation. Individuals not involved in the activities related to the application of the yellow barricade tape may enter or cross the area if they know the nature of the hazard and how to avoid it.

- Red Barricade Tape: Used for barricading an area, passageway, etc., that contains or may present a serious safety hazard and prohibiting access to unauthorized personnel. Red barricade tape is printed with the word "Danger" and additional language related to the hazardous condition. Only authorized individuals directly involved with the activities associated with the application of the red barricade tape shall cross and/or enter the area.

- Yellow and Magenta (Purple) Tape: Used for warning of a possible radiation hazard, X-ray, etc. "Do not cross."

- Protective Barricade: Provides physical protection and shall be able to withstand 200 pounds of force in any direction with minimal deflection. Examples are wooden posts and railings or cables surrounding a floor opening. Protective barricades must be used in combination with the appropriate colored barricading tape.

The subcontractor erecting the barrier tape shall hang a tag on the tape that indicates the hazard, duration of hazard, name of subcontractor, and name and phone number of the person erecting the tape.

The barriers shall be erected far enough back from the hazard to allow for adequate warning and protection. The barrier shall be constructed so that it will stand against adverse weather conditions and construction traffic. If the hazard is of a magnitude that requires additional protection, it shall be the subcontractor's responsibility to provide such protection as well as the barrier tape. It will be the responsibility of the subcontractor erecting the barrier tape to maintain it as long as the hazard is present.

1.6.13 Welding and Cutting Permit

Subcontractors shall obtain a Welding and Cutting Permit (Figure 20) from their safety representative before welding, cutting, grinding, or performing any other work that produces sparks in work areas or in other areas identified by OCI.

The subcontractor requesting the permit shall address each item listed on the permit and resolve any problems before starting the work. The permit shall be issued after satisfactory completion of all items.

The subcontractor shall maintain a copy of the permit in the work area until the work is completed. Upon completion of the work, and once it is determined that no fire hazards exist, the subcontractor shall return the permit to his safety representative for filing.

Welding and Cutting--General

(1) Before performing welding, cutting, grinding, or any other spark producing work in any area, employees shall obtain a Welding and Cutting Permit (Figure 20) from their subcontractor. Hazardous areas are those areas where there is the presence or the potential of the presence of flammable or combustible materials, liquids, gases, vapors, or dusts.

(2) Welding and cutting shall be performed only by experienced and properly trained persons. Before welding or cutting is started, the area shall be inspected for potential fire hazards.

(3) When welding or cutting in elevated positions, employees shall take precautions to prevent sparks or hot metal from falling onto people or flammable material below.

(4) Suitable fire extinguishing equipment shall be immediately available at all locations where welding and cutting equipment is used.

(5) Matches shall not be carried by welders or their helpers when they are engaged in welding or cutting operations.

(6) A fire watch shall be maintained whenever welding or cutting is performed in locations where combustible materials present a fire hazard. A fire check shall be made of the area not more than 1/2 hour after completion of welding.

(7) Where combustible materials such as paper clippings, coal, or wood shavings are present, the floor shall be swept clean for a radius of 35 feet before welding is performed. Combustible floors shall be kept wet or protected by fire-resistant shields. Where floors have been wetted down, personnel operating arc welding or cutting equipment shall be protected from possible shock.

(8) To protect his/her eyes, face, and body during welding and cutting, the operator shall wear an approved helmet or goggles, proper protective gloves, and clothing. Helpers or attendants shall wear proper eye protection. Other employees shall not observe welding operations unless they use approved eye protection.

(9) Proper eye protection shall be worn to guard against flying particles when the helmet or goggles are raised.

(10) Machinery, tanks, equipment, shafts, or pipes that could contain explosive or highly flammable materials shall be thoroughly cleaned and decontaminated before heat is applied.

(11) In dusty or gaseous spaces where there is a possibility of an explosion, welding or cutting equipment shall not be used until the space is adequately ventilated.

(12) Welders shall place welding cable, hoses, and other equipment so that it is clear of passageways, ladders, and stairways.

(13) Where the work permits, the welder should be enclosed in an individual booth or shall be enclosed with noncombustible screens. Workers or other persons adjacent to the welding areas shall be protected from rays by shields or shall be required to wear appropriate eye and face protection.

(14) After welding or cutting operations are completed, the welder shall mark the hot metal or provide other means of warning other workers.

(15) Potentially hazardous materials used in fluxes, coatings, and covering, and filler metals used in welding and cutting are released to the atmosphere during welding or cutting operations. While welding or cutting, employees shall use adequate ventilation or approved respiratory protection equipment. Employees shall take special precautions when using materials that contain cadmium, fluorides, mercury, chlorinated hydrocarbons, stainless steel, zinc, galvanized materials, beryllium, and lead. Employees shall refer to their company's Hazard Communication Program for specific requirements pertaining to the above listed hazardous materials. Compliance with the OSHA hexavalent chromium standard is mandatory.

(16) Gas Welding and Cutting--Only approved gas welding or cutting equipment shall be used.

(17) Approved backflow check valves shall be used on gas welding rigs.

(18) Welding hose shall not be repaired with tape.

(19) Matches shall not be used to light a torch; a torch shall not be lighted on hot work. A friction lighter or other approved device shall be used.

(20) Oxygen or fuel gas cylinders shall not be taken into confined spaces.

(21) Electric Welding--Only approved electric welding equipment shall be used and grounded.

(22) Rules and instructions supplied by the manufacturer or affixed to the machine shall be followed.

(23) Welders shall not strike an arc with an electrode whenever there are persons nearby who might be affected by the arc.

(24) When electrode holders are to be left unattended, the electrodes shall be removed and the holders shall be so placed or protected that they cannot make electrical contacts with employees or conducting objects.

(25) When the welder must leave his or her work or stop work for more than an hour, or when the welding machine is to be moved, the power supply switch to the equipment shall be opened.

(26) Grounding shall be provided to the piece being welded.

1.6.14 Steel Erection

1.6.14.1 Purpose

The purpose of this procedure is to ensure that steel erection activities are being performed in accordance with OSHA Standard Subpart R 1926.750-761 requirements. All contractors associated with steel erection activities, as defined by OSHA, shall develop plans to meet the

OSHA requirements as well as the specific steel erection requirements set forth in this manual.

1.6.14.2 Fall Protection Requirements

Fall protection requirements as outlined in Subsection 1.6.8 of this manual shall be followed. No employee or work operation is exempt from the 6 foot 100 percent fall protection requirement. This includes connectors, boltup operations, decking operations, etc. The exemptions set forth in the OSHA standard that allow certain workers and work operations to not utilize fall protection when exposed to falls greater than 6 feet ARE NOT recognized or allowed on this project.

1.6.14.3 Steel Erection Program Requirements

The requirements listed below are considered minimum requirements and must be followed for all steel erection activities:

- A site-specific steel erection plan and a JHA must be provided to OCI before steel erection activities begin. This plan must be prepared by a qualified person as defined by OSHA and address at least all of the following:
  - Fall protection procedures for the erection process.
  - Training of workers involved with the steel erection process.
  - Erection sequence.
  - Crane selection and placement.
  - Crane inspection program.
  - Rigging inspection program.
  - Site preparation requirements (e.g., adequate access roads, means and methods for pedestrian and vehicular control, site drainage, soil compaction and stability).
  - Overhead protection/routing of lifts.
  - Critical lift procedures.
  - Procedures for steel erection activities (e.g., bracing/guying, connections, decking, roofing, siding, grating, etc.).
  - Falling object protection procedures.
  - Perimeter fall protection planning and turnover.

- Contractors shall complete the Steel Erection Checklist (Figure 21) and submit it to OCI before any steel erection activities begin. The checklist shall be discussed in a specific steel erection meeting that will be coordinated by OCI. All contractors involved in the steel erection process shall be at the steel erection planning meeting and shall comply with the requirements of this section.

- Steel erection activities may not start until OCI formally notifies the steel erector in writing that steel erection activities may commence. Notification will be in the form of a letter with an attached verification that anchor bolt repairs and concrete curing requirements have been met (Figure 22).

1.6.14.4 Perimeter Guardrail Fall Protection Systems

OCI shall arrange the transfer of responsibility for perimeter fall protection, such as cable guardrails, when the steel erection contractor leaves the jobsite. To facilitate the process, OCI and the steel erection contractor shall complete an inspection of the perimeter guardrails. Any deficiencies noted with the perimeter guardrails during the inspection shall be documented on the Perimeter Guardrail Turnover Form (Figure 23). The deficiencies shall be corrected by the responsible party noted on the form. After the deficiencies are corrected, OCI and the steel erection contractor will sign off on the Perimeter Guardrail Turnover Form. Subcontractors that work in areas that are protected by previously installed fall protection components will be given a copy of the Guardrail Turnover Form for review. Upon acceptance of the form, that subcontractor assumes responsibility for maintenance of the fall protection system(s). If a contractor damages the guardrail system, that contractor must make repairs immediately.

<u>Steel Erection</u>

(1) Fall protection is required 100 percent of the time for all steel erection activities when employees are exposed to a fall in excess of 6 feet or when required by additional rules.

(2) Cranes involved in steel erection activities shall be inspected prior to each shift by a competent person.

(3) The crane operator shall have the authority to stop work operations that are unsafe.

(4) All loads shall be rigged by a qualified rigger.

(5) A qualified rigger shall inspect the rigging prior to each shift in accordance with 29 CFR 1926.251.

(6) No employee shall work directly below a suspended load except for employees engaged in the initial connection of the steel or employees necessary for the hooking and unhooking of the load.

(7) Bundle packaging and strapping shall not be used for hoisting unless specifically designed for that purpose.

(8) Uninstalled metal decking shall be secured against displacement.

(9) Roof and floor hole openings shall be decked over or protected in accordance with 29 CFR 1926.760(a)(1).

(10) Metal decking holes and openings shall not be cut until immediately prior to being permanently filled with the equipment or structure needed or intended to fulfill its specific use or shall be immediately covered.

(11) All covers shall be capable of supporting twice the weight of any loads that may be imposed on them at any one time, secured against displacement, and shall be marked to warn of the hazard. Smoke domes and skylight fixtures that have been installed are not considered covers for openings.

(12) All columns shall be anchored by a minimum of four anchor rods.

(13) Anchor rods shall not be repaired, replaced, or field modified without the approval of the project engineer of record. If an employee notices damaged anchor rods, he/she shall immediately notify his/her supervisor.

(14) No construction loads shall be placed on steel joists until all bridging is installed and all joist bearing ends are attached.

(15) On systems engineered metal buildings, joist connections shall be made on both ends before releasing hoisting cables, allowing personnel on joists, and allowing any construction loads on joists.

(16) Purlins and girts shall not be used as anchorage points for fall arrest systems unless written approval is obtained from a qualified person.

1.6.15 Chromium VI Exposure Program

These procedures apply to all occupational exposures to Chromium VI in all forms and compounds while performing construction work.

Subcontractors are to provide to OCI the following:

- A written list of chemicals/substances/products that they use that contain Chromium VI along with corresponding Material Data Safety Sheets. If a contractor does not use any chemicals/substances/products that contain Chromium VI, provide a letter to OCI stating such.
- If exposures are possible, provide a written baseline monitoring plan in accordance with this procedure as well as applicable OSHA regulations.
- Provide monitoring results that also include sampling strategies and standard industrial hygiene sampling documentation information (i.e., date of sample, weather conditions, work process, duration of sample, calibration information, etc.).

Whenever there is a potential for exposure to Chromium VI, the workers' exposure must be assessed by representative sampling (worst case) or a combination of air monitoring data, historical data, and objective data. All sampling records used for worker exposure must identify processes, materials used, control methods, work practices, and environmental conditions. Copies of the documentation supporting the assessment must be provided to OCI.

Eating and drinking areas must be maintained as free as practicable of Chromium VI.

Workers must be provided respiratory protection for exposures above the Permissible Exposure Level of 5 micrograms of Chromium VI per cubic meter of air.

Whenever exposures are determined to be above the action limit of 2.5 micrograms of Chromium VI per cubic meter of air, the subcontractor must provide OCI with a written plan of action compliant with applicable requirements of 29 CFR 1926.1126. Such written program must address notification of exposure, exposure determinations, protective clothing and equipment, respiratory protection, hygiene areas and practices, medical surveillance, labels, training, and recordkeeping.

1.6.16 Traffic Control Plan

If OCI or one of the subcontractors on this project has to close down a lane of travel, or a street of any kind, or working near or within 15 feet of a travel lane, OCI will follow the City of Memphis Lane Closure Procedures as well as ensure that all employees are protected from traffic hazards. All lane closures shall be in accordance with the most current version of the Manual on Uniform Traffic Control Devices. All personnel involved in lane closure activity shall be trained in traffic control safety and wear the appropriate level of PPE for working in or near traffic.

A traffic control plan shall be developed and submitted to the City of Memphis Traffic Control Engineering Department for review and approval for the lane closure permits. A permit is required if a street has to be closed more than 1 day for the city. The traffic control plan shall be developed, written, and approved by a Registered Professional Engineer with their stamp applied accordingly for the plan to be approved by the City of Memphis Traffic Control Engineering Department.

1.7 Demolition-Related Hazardous Materials Protection Program

1.7.1 General

This section identifies the hazards of and sets forth procedures to limit employee exposure to hazardous materials (lead, asbestos, heavy metals, etc.) encountered during demolition activities that disturb previously installed building materials.

To accomplish this task, OCI focuses on having the Owner, if possible, remove identified demolition-related hazardous materials that may pose a hazard as a result of the demolition activities. The primary objective shall be to verify that the Owner has adequately identified and abated the demolition-related hazardous materials to a level that removes OCI from application under the relevant governmental employee protection regulations. The Owner

is responsible for the identification and removal of known potential hazards. The Owner will be requested, in writing, to provide certification by a qualified party that the work areas affected by demolition are free of demolition-related hazardous materials to a degree that removes OCI from application of the relevant governmental employee protection regulations. Upon the receipt of the Owner's certification, OCI will have a qualified party verify the adequacy of the Owner's report. In recognition that some demolition-related hazardous materials may be overlooked by either of the parties, and to minimize and mitigate unexpected releases or exposures to those materials, employees are trained to recognize and avoid demolition-related hazardous materials that may be present on the job.

In the event that removal of the demolition-related hazardous material becomes part of the Scope of Work, additional programs will be implemented that will specifically address the demolition-related hazardous material(s) in question. If subcontractors are hired and are potentially exposed to the materials, specific programs are to be developed by the subcontractor which ensures that material identification and handling are executed in accordance with this procedure and with applicable governmental regulations.

1.7.2 Program Administration

OCI is the program administrator and is responsible for the overall management and administration of the Demolition-Related Hazardous Materials Protection Program. If the project does not have a safety professional onsite, the Project Manager assumes responsibility and will work with the Division Safety and Health Manager to ensure compliance with this procedure.

1.7.3 Worksite-Specific Procedure

This procedure is supplemental to any Owner procedure already in place. The worksite specific procedures will be updated as necessary to reflect changes in workplace conditions that may affect the Demolition-Related Hazardous Materials Protection Program. The Owner is solely responsible for the abatement of any potential hazards that may result from the planned demolition.

1.7.4 Demolition-Related Hazardous Materials Protection Program

All OCI employees and/or OCI subcontractors, including lower-tier subcontractors, involved in or potentially affected by demolition activities will receive the following training at the time of orientation training:

- The methods of recognizing building materials that contain demolition-related hazardous materials. These materials are identified in Subsections 1.7.8.1 and 1.7.8.2.

- The requirement to stop work if a demolition-related hazardous material is suspected.

- The requirements for reporting potential demolition-related hazardous materials to the OCI responsible party and Owner.

- The Owner's methods of labeling or posting potential demolition-related hazardous materials for identification purposes.

1.7.5 Pretask Activities

- Before any work or task commences, the subcontractor's supervisor responsible for the work, OCI representative(s) responsible for the work, OCI consultant, Owner representative, and a worker shall perform a walk-through of the planned demolition area to assess and identify any potential for the presence of demolition-related hazardous materials. Variations to this list of individuals are allowed, depending on the nature of the work and the timing of the inspection.

- A safety meeting shall be held to inform employees of the efforts made to identify and remove potential demolition-related hazardous materials. The likely sources of those materials, the means to avoid the hazards, and the means to report a potential hazard will be reviewed. A copy of the safety meeting shall be forwarded to the OCI responsible party.

- Any discovery of, or potential for, suspect demolition-related hazardous materials must be forwarded to the OCI responsible party so that identification and abatement can be initiated through the Owner.

- The Owner will provide OCI with a report certifying that the areas impacted by the planned demolition are free of demolition-related hazardous materials and will pose no hazards as a result of demolition activities.

- The OCI responsible party, using a qualified inspector, will have an independent inspection for demolition-related hazardous materials conducted in accordance with the requirements of applicable regulations to confirm and demonstrate that no potential demolition-related hazardous materials are present.

- The inspector will provide the OCI responsible party with a report certifying that the areas impacted by the planned demolition are free of demolition-related hazardous materials and will pose no hazards as a result of demolition activities.

- Before any work or task commences, the contractor's supervisor responsible for the work, the OCI representative(s) responsible for the work, an OCI qualified inspector, the Owner representative, and a worker shall perform a second walk-through of the planned demolition area to assess and identify any remaining potential for the presence of demolition-related hazardous materials following the abatement activity.

1.7.6 Task Activities

- A JHA, or equivalent, shall be completed for all demolition activities and a copy submitted to OCI for review. This analysis must be completed before any task may proceed.

- All employees working in an area where demolition activities are taking place shall receive demolition-related hazardous materials awareness training that covers recognition and avoidance of such hazards. The training will be documented, with a copy forwarded to OCI.

1.7.7 Emergency Response

- Upon discovery or accidental release of suspected demolition-related hazardous materials from previously installed building materials, all work shall cease and the employees shall leave the area. The employees will notify their supervisor. The supervisor will see that OCI and the Owner are notified.

- The supervisor shall barricade the suspect area on all sides plus 25 feet to restrict access and eliminate further spread of the possible contamination.

- Work will not resume until OCI has documented assurance that the area is clear of any potential demolition-related hazardous materials.

1.7.8 Identification of Demolition-Related Hazardous Materials

The following lists are provided to help individuals identify potential demolition-related hazardous materials, in accordance with the Demolition-Related Hazardous Materials Protection Program. These lists are not to be considered all-inclusive and may not specify all materials that may be encountered on all jobsites. Further analysis for specific demolition-related hazardous materials may be needed on a case-by-case basis. Additions may be added to these lists for project-specific hazards.

1.7.8.1 Identification List of Materials That May Contain Asbestos

The following materials may contain asbestos:

- Acoustical plaster.

- Adhesives.

- Any material that is marked using the phrase “stos.”

- Asphalt floor tile.

- Back of electrical panel waffle board.

- Base flashing.

- Blown-in insulation.
- Boiler insulation.
- Breaching insulation.
- Caulking/putties.
- Ceiling tiles and lay-in panels.
- Cement pipes.
- Cement siding.
- Cement wallboard.
- Chalkboards.
- Construction mastics (floor tile, carpet, ceiling tile, etc.).
- Cooling towers.
- Decorative plaster.
- Ductwork flexible fabric connections.
- Electric wiring insulation.
- Electrical cable.
- Electrical cable marked with “Rockbestos.”
- Electrical cloth.
- Electrical panel partitions.
- Elevator brake shoes.
- Elevator equipment panels.
- Expansion joints.
- Fire blankets.
- Fire curtains.
- Fire doors.
- Fireproofing materials.

- Flooring backing.
- Grout material.
- Heating and electrical ducts.
- High temperature gaskets.
- HVAC duct insulation.
- Interior fire doors.
- Joint compound in older homes/buildings.
- Joint compounds.
- Laboratory gloves.
- Laboratory hoods/table tops.
- Lightweight concrete.
- Packing materials (for wall/floor penetrations).
- Pipe insulation (corrugated air-cell, block, etc.).
- Power cable insulation.
- Putty caulks and cements (such as in chemical-carrying cement pipes).
- Roofing felt.
- Roofing shingles.
- Siding on old residential buildings.
- Spackling compounds.
- Spray on insulation barrier-claymastic.
- Spray-applied insulation and fireproofing.
- Taping compounds (thermal).
- Textured paints/coatings.
- Thermal paper products.
- Transite duct bank.

- Vinyl floor tile.
- Vinyl sheet flooring.
- Vinyl wall coverings.
- Wall penetrations-claymastic.
- Wall veiling texture in older buildings/homes.
- Wallboard.
- Water diverter panels.

1.7.8.2 Identification List of Materials That May Contain Heavy Metals (Lead, Hexavalent Chromium, Arsenic, Cadmium, etc.)

The following materials may contain heavy metals:

- Paint and coatings (usually found on structures such as tanks, vessels, and equipment; also may be found on pipes, structural steel, walls, ceilings, ductwork, noise control materials, handrails, steps, etc.). Additionally, heavy metals may be found in batteries, solder, pottery glaze, window glazing, water and sewer piping, gasoline, cable coverings, stainless steel, high-pressure steel, cadmium coated metals, fluorescent bulbs, mercury vapor lamps, emergency lighting lamps, etc.
- Lead-based paint was widely used in industrial environments to help the coating resist corrosion. In 1978, the Consumer Product Safety Commission (CPSC) banned lead in paints for residential use. Lead-based paint is more prevalent in the industrial community, especially in older facilities.
- Ash from combustion or incineration may contain heavy metals. Ash and fly ash are commonly found in incinerators and burners that use various products as fuel or for volume reduction. If ash is encountered or suspected to be encountered, testing of the ash shall be conducted to identify its makeup and the concentrations of heavy metals.
- Sludge may also contain heavy metals. If sludge is encountered or suspected to be encountered in the demolition or construction process, testing of the sludge is necessary to identify concentrations of heavy metals in the product.

1.8 Lockout/Tagout Clearance Procedures

1.8.1 Requirement

Subcontractors shall establish a program consisting of energy control procedures, employee training, and periodic inspections on subcontractor-owned machinery and equipment to

ensure that, before any employee performs work where the unexpected energizing, startup, or release of stored energy could occur and cause injury, the machine or equipment shall be isolated from the energy source and rendered inoperable.

The use of both tags and locks shall be included in the subcontractor's program.

As required by project conditions, the subcontractor shall coordinate the use of a project-specific lockout/tagout procedure for all work on permanent plant equipment and interface work with the Owner's existing facilities.

1.8.2 OCI Safety Lockout/Tagout Procedure

1.8.2.1 Purpose

The purpose of the Safety Lockout/Tagout (LOTO) Procedure is to establish the method by which lockout/tagout and permit to work (PTW) functions will be administered. The intent of implementing this procedure is to avoid any hazardous release of energy that could threaten the health and safety of project personnel or damage equipment. Energy in this context includes, but is not limited to, electrical, thermal, hydraulic, pneumatic, chemical, and potential energy, such as that from elevated weights and compressed springs.

LOTO is required whenever construction, modification, testing, startup (commissioning), servicing, or maintenance is being performed on equipment or systems in which the unexpected energization, startup, or release of stored energy could cause injury to people or damage equipment.

1.8.2.2 Definitions

- Affected Employee--An Affected Employee is a person whose job requires him/her to operate or use a machine or equipment on which construction, modification, testing, startup, servicing, or maintenance is being performed under a Do Not Operate (DNO) Isolation, or whose job requires him/her to work in an area where such activities are being performed (all non-Authorized Tagging Authorities on the project site).

- Authorized Tagging Authority--An Authorized Tagging Authority is a person, usually at supervisor level or above, who is authorized to request LOTO tagging and implement an isolation as directed by the applicable Tagging Manager. This person must be trained and demonstrate understanding and competence in the execution of the LOTO and PTW programs (understanding and competence is demonstrated by passing a written test).

- Caution--System Under Test (SUT) Tags (yellow with black lettering)--This tag is used to identify major equipment or systems that may be operated or energized as necessary for the testing of the system or components (Attachment LOTO-A1).

- Caution--System Under Operations (SUO) Tags (orange with black lettering)--This tag is used to identify major equipment and systems that

may be operated or energized as necessary to support the project operational requirements (Attachment LOTO-A2).

- Crew--A group of workers, under the direction of a supervisor, who perform specific work (e.g., electrician, pipefitter, millwright, etc.).

- Danger--Do Not Operate (DNO) Tags (white with red and black lettering)--This tag is used to identify an isolation point and control the position or status of any device (valve, breaker, etc.) required to ensure a safe lockout. These tags will have a unique number and must be accompanied by an appropriate locking device (Attachment LOTO-A3).

- Isolation Logs--These log sheets are specific to each electrical or mechanical isolating device and are used to track LOTO status on that device. Authorized Tagging Authorities are required to sign on and off the log as LOTO is implemented and released (Attachment LOTO-A4 and Attachment LOTO-A5).

- Energy Isolating Device--An energy isolating device is a device that physically prevents the transmission or release of energy. Typical energy isolating devices are as follows:

  – A manually operated circuit breaker.

  – A disconnect switch.

  – A manual isolation valve.

  – A blank flange, slip blind, or any similar device used to physically block or isolate energy.

  – Physical separation (e.g., lifted leads, misaligned pipes).

- DNO Isolation Request--A form used to request a DNO Isolation.

- Holder--Any Authorized Tagging Authority who is signed onto the Isolation Log. By becoming a Holder, the Authorized Tagging Authority ensures that the LOTO is maintained.

- Job Hazard Analysis (JHA)--A preliminary hazard analysis of work operations for their potential to cause injury, property damage, or both that outlines the sequence of the job, potential hazards of the job, and recommended actions, procedures, and/or equipment to eliminate the identified hazards (Attachment LOTO-A6).

- Locking Device--A device that facilitates the use of the lock. Typical lockout devices and their acceptable use are as follows:

  – Multi-Lock Device(s)--A device that accommodates more than one lock, such as a multi-lock hasp.

- Electrical Distribution Panel Breaker Locking Device(s)--A panel board locking device affixed over the breaker or any other means of hazardous energy control that provides equal protection.

- Physical Separation--Mechanical blind or method of physically separating or cordoning off a component or system.

- Valve Locking Devices--Chains or specialized locking devices that prevent operation of manual valves.

- Lock--A device, used in conjunction with a locking device that uses positive means to hold an energy isolating device in the safe position (e.g., padlocks).

- LOTO Coordinator--An Authorized Tagging Authority delegated by the Tagging Manager to perform all Tagging Manager tasks except for determining if it is safe to perform planned work and what LOTO conditions are required to ensure the safety of personnel and equipment.

- Permit to Work (PTW)--A work authorization that, at the discretion of the Tagging Manager, may be required to perform work on equipment, systems, or subsystems that have been turned over to Startup or Operations (Attachment LOTO-A7).

- Personal Lock--A lock that is supplied by an individual employee that may be used to supplement the protection provided by the Safety Lockout/Tagout Procedure.

- Safety Tagging Displays--Displays located throughout the plant which identify tags and communicate general information regarding LOTO procedures.

- Safety Task Assignment (STA)--A form completed by the supervisor before the start of a work operation. The form considers LOTO hazards, work procedures, emergency procedures, equipment, material, time, and training necessary to complete the work operation and includes employee input (Attachment LOTO-A8).

- Tagging Manager--A manager level employee who has been assigned the responsibility for implementing the project LOTO and PTW programs. The Tagging Manager is the person who approves PTWs, DNO Isolations, the hanging of SUT and SUO tags, and who has been trained in the applicable OSHA standards.

  Note: The Tagging Manager may delegate all tasks of the LOTO procedure except for determining if it is safe to perform planned work and what LOTO conditions are required to ensure the safety of personnel and equipment.

Table 1-1
Outline of Roles and Responsibilities

Stage	Tagging Manager	Authorized Tagging Authority	Notes
Construction	Construction Manager	LOTO Coordinator Discipline Superintendent General Foremen Discipline Foremen	• Construction is in control of equipment and systems. • DNOs are used for LOTO.
Startup	Startup Manager	LOTO Coordinator Discipline Superintendent General Foremen Discipline Foremen Startup Engineer Startup Technician	• Startup has accepted items on a system basis. • SUTs indicate items are in startup phase. • DNOs are used for LOTO.
Operations	Startup Manager	LOTO Coordinator Discipline Superintendent General Foremen Discipline Foremen Startup Engineer Startup Technician Client Personnel	• Operations has accepted control of system. • SUOs indicate items are in operation. • City of Memphis system is used for LOTO.

1.8.2.3 Training Requirements

Before a job requiring LOTO is performed, training and verification of knowledge as outlined below shall be completed to ensure that the purpose and function of the Safety Lockout/Tagout Procedure are clearly understood by all field employees.

Training

Affected Employees shall be trained during project orientation, and the training shall cover the following areas:

- The purpose of the safety tagging program.
- The use and appearance of locks and tags.
- The potential hazards that locks and tags protect against.
- Potential hazards caused by failing to adhere to the safety tagging program.
- The penalties for removing locks and tags.
- Prohibitions against attempting to operate locked or tagged equipment.
- Recognition of hazardous energy sources.

Authorized Tagging Authorities are required to be trained in the following areas:

- The use of this procedure.
- Recognition of hazardous energy sources.
- Type and magnitude of hazardous energy present in workplace (potential danger).
- Method and means necessary for proper isolation and control.
- Proper use of the following forms: Isolation Request, PTW, Isolation Logs.
- Proper methods and sequencing for placing and removing LOTOs.
- Proper identification of the need for additional permits (confined space entry, hot work permit, safe work plan), and establishment of these programs in accordance with the project safety manual.
- Closing out a PTW.

Tagging Managers are required to be trained in the following areas:

- The use of this procedure.
- Recognition of hazardous energy sources.
- Type and magnitude of hazardous energy present in workplace (potential danger).
- Methods and means necessary for proper isolation and control.
- Proper use of the following forms: Isolation Request, PTW, Isolation Logs.
- Proper methods and sequencing for placing and removing LOTOs.
- Closing out a PTW.
- Considerations in determining if and when a requested work activity can be approved to proceed.
- Proper delegation of LOTO functions and follow-up to ensure that the program is implemented properly.
- Proper identification of the need for additional permits (confined space entry, hot work permit, safe work plan) and establishment of these programs in accordance with the project safety manual.

Retraining

Retraining will be provided for all Affected Employees and Authorized Tagging Authorities under the following conditions:

- When there is a change in the project safety tagging procedure.
- When there is a change in job assignment.
- When inadequacies in an employee's knowledge are identified.
- When deviations in the use of the safety tagging procedure are identified.
- When systems are turned over to the City of Memphis and the Project's Safety Tagging Procedure is in place.

Training Documentation

The Site Safety Manager, or designated alternate, shall maintain a record of all Tagging Manager, Authorized Tagging Authority, and Affected Employee training efforts. A list of Authorized Tagging Authorities will be kept and made available to the Tagging Managers for the purposes of verifying Authorized Tagging Authorities. Employees shall receive hard hat stickers to indicate their level of training (Attachment LOTO-A9).

1.8.2.4 Compliance

Failure to comply with the tagging procedure rules shall be considered just cause for discharge or removal of the persons involved from the project site.

Examples of failure to comply include the following:

- Operating or working on a system or piece of equipment without obtaining a proper LOTO and/or PTW.
- Operating or working on a system or piece of equipment in violation of the tags in place.
- Removing tags from a system or piece of equipment without proper authorization.

1.8.2.5 Procedure

Preparation

- Order and obtain LOTO supplies from Construction Equipment & Fleet Services Center (Attachment LOTO-A10).
- Prepare LOTO informational boards for display in prominent areas on the project site. The display should include the purpose of LOTO, sample tags and a brief description of their uses, and consequences for failure to comply with procedures.
- Prepare Isolation Logs. A log sheet should be developed for each energy isolating device. Log sheets should be placed in three ring binders and organized in a logical manner to permit easy access.
- Complete the LOTO contact sheet for all Authorized Tagging Authorities (Attachment LOTO-A11).

General Rules

1. The Project Field Manager and/or the Tagging Manager shall ensure implementation of the Safety Lockout/Tagout Procedure.
2. All isolations shall be recorded on an Isolation Log sheet specific to that energy isolation device.
3. If a tag or tags are found either missing or lying on the ground, they are to be reported to the appropriate Tagging Manager A.S.A.P.! Employees must NOT assume they know where the tags are to be placed or try to replace them. Upon notification, the Tagging Manager shall immediately investigate and determine the status of the LOTO, whether the tag can be reattached, or if a work stoppage is necessary for personnel or equipment safety.

4. When construction activities are necessary after a system has been turned over to Startup, a PTW (Attachment LOTO-A7) shall be required (refer to Subsection 1.8.2.8, Permit to Work).

5. When work is required in an electrical panel where it is not possible and/or feasible to de-energize all parts in the panel, the following shall be done:

    a. Only qualified personnel shall perform the work, and a JHA shall be completed before the work is performed (Attachment LOTO-A6).

    b. Temporary insulating and shielding shall be done unless the application of the shielding presents a greater hazard than the work.

6. Personal locks are allowed if all three of the following conditions are met:

    a. An Authorized Tagging Authority has already obtained the DNO Isolation for the device to be locked. *Personal locks without the proper DNO Isolation are not allowed and are at risk of being removed by the Tagging Manager*.

    b. The lock is clearly marked with the employer, craft, and individual's name. *Personal locks that are not identified are in violation of this procedure and are at risk of being removed by the Tagging Manager.*

    c. The lock is only to be applied while the individual is physically onsite. *Personal locks left in place when the individual is not onsite are in violation of this procedure and are at risk of being removed by the Tagging Manager*.

<u>DNO Tag Rules</u>

1. Each crew performing work that requires Hazardous Energy Control shall obtain the appropriate DNO Isolations in accordance with this procedure. No crew shall perform work under another crew's isolation.

2. All DNO Isolations must be initiated by completing the Isolation Request (Attachment LOTO-A12).

3. The Tagging Manager, LOTO Coordinator, or designated Authorized Tagging Authority can place DNO tags, locking devices, and locks.

4. All locking devices shall be accompanied by a DNO tag and must be traceable to the Holder through the Isolation Logs.

5. After the locking devices, tags, and locks are placed, the Authorized Tagging Authority will sign the Isolation Log as a Holder, indicating the position (open/close) of the device.

6. Locking devices/locks not accompanied by a DNO tag are at risk of being removed (refer to Subsection 1.8.2.7, Emergency Release Procedures).

7. DNO tags cannot be applied to the same Energy Isolating Device at the same time as an SUT tag.

8. DNO tags can have multiple Holders.

9. Authorized Tagging Authorities can remove locks they applied as a Holder after signing them as released on the Isolation Log.

10. Prior to removing a DNO Isolation, all Holders must have signed off the Isolation Log.

11. Only the Tagging Manager or LOTO Coordinator can authorize removal of DNO tags and locking devices.

12. Circuit breaker Locking Devices fit for the purpose shall be used for DNO Isolations in power panels.

SUT Tag Rules

1. An SUT tag can only be placed when there are no Holders on the Isolation Log.

2. An SUT tag cannot be applied to the same Energy Isolating Device at the same time as a DNO tag.

3. The Tagging Manager shall approve removal of the DNO Isolation and placement of an SUT tag.

4. The Tagging Manager, LOTO Coordinator, or designated Authorized Tagging Authority can place SUT tags.

5. SUT tags must have the appropriate Authorized Tagging Authority's name on the tag.

6. After the tags are placed, the Authorized Tagging Authority will sign the Isolation Log as a Holder, indicating the status of the device as 'System Under Test' (SUT).

7. SUT tags are generally used during startup activities, but may also be used by Construction as advisories or measures of control for construction testing activities (hydro), if required. The tag must clearly be labeled "Construction Testing" and have the appropriate Authorized Tagging Authority's name written on the tag.

8. Power panel circuit breakers that are to be SUT tagged shall be identified with a color-coded sticker affixed to the circuit breaker. The SUT tag shall be placed in a group attached to the power panel door.

SUO Tag Rules

1. SUO tags may only be placed when the Tagging Manager approves removal of the SUT tag and placement of the SUO tag.

2. SUO tags are placed on devices or pieces of equipment after the associated subsystem has been turned over to the City of Memphis for operation.

3. After the tags are placed, the Authorized Tagging Authority will sign the Isolation Log as a Holder, indicating the status of the device as 'System Under Operation' (SUO).

4. SUO tags are for informational purposes only and signify the following:

   a. System is ready for normal operation and maintenance by the City of Memphis staff at the direction of the Startup Manager.

   b. The City of Memphis Safety LOTO Procedure shall control access to an operation of the equipment.

5. Once placed, SUO tags shall not be removed unless the subsystem has been returned to Startup Control (SUT) or project completion.

6. Power panel circuit breakers that are to be SUO tagged shall be identified with a color-coded sticker affixed to the circuit breaker. The SUO tag shall be placed in a group attached to the power panel door.

1.8.2.6 Sequence

After a need is determined for DNO Isolation, the following occurs:

1. The Authorized Tagging Authority requests a DNO Isolation for specific work activity by completing the Isolation Request (Attachment LOTO-A12).

2. The Tagging Manager determines if it is safe to perform the planned work and verifies the conditions required to ensure the safety of personnel and equipment.

3. The Tagging Manager or LOTO Coordinator prepares the DNO Isolation for implementation (i.e., issues tags and lockout devices).

4. The Authorized Tagging Authority or LOTO Coordinator locates and operates Energy Isolating Devices to properly isolate hazardous energy from the area or equipment to be protected.

5. The Authorized Tagging Authority or LOTO Coordinator affixes Locking Devices, Locks, and Tags to the Energy Isolating Devices, leaving means to release any stored energy left in the system.

6. The Authorized Tagging Authority or LOTO Coordinator releases any stored energy (by venting, draining, grounding, or ventilating), including release or securing of potential energy sources such as compressed springs and elevated weights, etc.

7. The Authorized Tagging Authority or LOTO Coordinator applies Locking Devices, Locks, and Tags to the means used to release stored energy (if applicable).

8. The Authorized Tagging Authority or LOTO Coordinator verifies effectiveness of isolation (by visual inspection, voltage testing, attempt to operate, sniffer, etc).

9. The Authorized Tagging Authority signs the Isolation Log as a Holder.

10. Affected Employees are notified by the Holder of the DNO Isolation and any special requirements for the work to be performed through completion of an STA (Attachment LOTO-A8).

11. After Affected Employees sign off on the STA, work may commence.

12. After the work is completed and the Holder has verified the proper restored condition of the area or equipment (e.g., cleanliness, complete reassembly, etc.), and notified all affected personnel working under the DNO Isolation that the isolation will be released, the Holder signs the Isolation Log as released.

13. The Authorized Tagging Authority removes the locks applied for the DNO Isolation after the Isolation Log has been signed. Only the Tagging Manager or the LOTO Coordinator can authorize removal of the Locking Devices and Tags.

14. The Tagging Manager takes responsibility for ensuring that equipment and devices are in a safe condition (i.e., status of Energy Isolating Device is safe for the level of completion or status of the equipment – operational or otherwise).

    Note: Certain types of equipment may have specific startup instructions from the manufacturer or that result from a process hazard analysis conducted under the provisions of 29 CFR 1910.119, Process Safety Management.

1.8.2.7 Emergency Release Procedures

Under extraordinary circumstances, it may be necessary to remove a Lock or Tag that has been affixed by someone else or without the proper signoff of a Holder. Only the Tagging Manager may authorize the removal of a Lock or Tag, and only in accordance with the following stipulations:

1. The employee who is responsible for the Lock or Tag or is a Holder of the isolation is not present at the facility, and all reasonable efforts have been taken to contact the responsible employee.

2. All measures are to be taken to notify the employee before he/she resumes work.

3. The Holder's supervisor will sign the Isolation Log as released alongside the Tagging Manager. Additionally, the entry shall be labeled as an "Emergency Release."

1.8.2.8 Permit to Work (PTW)

PTW Determination

The Tagging Manager shall determine if a PTW is required. The following circumstances shall require a PTW:

- When work is to be performed by Construction on systems under the control of Startup or Operations.

- When work is to be performed by Startup on systems under the control of Operations, except for required troubleshooting, problem solving, and optimization.

- When the work covered by a PTW cannot be completed in the work shift, a new PTW shall be required for each subsequent work shift until completion.

PTW Sequence

After the Tagging Manager determines a PTW is required, the following sequence occurs:

1. The Authorized Tagging Authority in charge of the work completes the requester section of the PTW form and submits it to the Tagging Manager.

2. The Tagging Manager reviews the PTW and reviews any required DNO Isolations.

3. The Tagging Manager and the Safety Manager review the PTW and determine if any other permits are required to safely perform the work.

4. Procedures for the execution of additional permitting or planning requirements are defined in the Project Safety and Health Manual and must be followed. Examples of other permits or plans that may be required are: confined space entry permit, hot work permit, safe work plan, and job hazard analysis.

5. After the PTW is completed and approved and any other safety requirements are satisfied, the original of the PTW form is given to the Authorized Tagging Authority requesting the PTW and serves as their work authorization.

6. PTWs must either be in the possession of the person performing the work or in the vicinity of the work and accessible upon request.

7. After completion of the work, the Authorized Tagging Authority signs the PTW as complete and returns the PTW to the Tagging Manager.

The following OCI LOTO attachments can be found in a separate attached file:

LOTO-A1	System Under Test (SUT) Tag
LOTO-A2	System Under Operation (SUO) Tag
LOTO-A3	Do Not Operate (DNO) Tag
LOTO-A4	Electrical DNO Isolation Log
LOTO-A5	Mechanical DNO Isolation Log
LOTO-A6	Job Hazard Analysis
LOTO-A7	Permit to Work
LOTO-A8	Safety Task Assignment Report
LOTO-A9	Hard Hat Stickers
LOTO-A10	Lockout/Tagout (LOTO) Equipment Request Form
LOTO-A11	Authorized Tagging Authority List
LOTO-A12	Isolation Request

1.9 Other Project Safety and Health Requirements

1.9.1 Policy

In addition to other requirements of the Project Loss Control Program, OCI has established mandatory safety and health rules. Subcontractors shall ensure that their employees receive a copy of the Project Safety and Health Rules (Figure 24) and are familiar with these rules and the possible penalties for violations. Mandatory Project Safety and Health Rules may be added or deleted from this Project Loss Control Program Manual as deemed necessary by OCI. Revisions or additional rules will be sent to each subcontractor. Upon receipt, the subcontractor will be responsible for informing each of his or her employees and subcontractors of the revised or additional rules.

1.9.2 Other Project Safety and Health Requirements

The following Project Loss Control Program rules are adopted for the protection of persons involved with the construction of this project. These rules apply to management, Owner, subcontractor personnel, and visitors while on the jobsite. These rules are general in nature and are not to be considered all-inclusive; nor do they relieve the Owner, OCI, subcontractors, or their employees from applicable Occupational Safety and Health regulations promulgated by governmental authorities:

Personal Protective Equipment

(1) Eye Protection--ANSI approved safety glasses with side shields shall be worn at all times except while employees are in vehicles with enclosed cabs.

Welders are required to wear safety glasses under their welding hoods unless approval is obtained from OCI.

Safety goggles shall be worn when possible eye hazards are present.

Full face shields shall be worn while employees are grinding, chipping concrete, or when possible eye and face hazards are present. Safety glasses are required to be worn under the face shields.

(2) Hearing protection shall be worn when employees are working in excessively noisy areas.

(3) Respiratory protection shall be worn when employees are exposed to hazardous levels of gas, vapor, or particulate contaminants in the atmosphere after the appropriate training and testing has been completed.

(4) Hard hats shall be worn at all times in the construction area. Specific Subcontractor hard hats are to be colored the same for identification purposes.

(5) Work Boots--In the construction area, good leather ANSI approved safety-toe work boots with a hard sole and 6 inch tops that support the ankle are required.

Tennis shoes shall not be allowed on the jobsite.

(6) Shirts and Pants--Shirts covering the full trunk and shoulders are required. Tanktops or midriff shirts are not allowed.

Cutoff jeans or shorts shall not be worn on the jobsite.

High visibility work vests, with reflective markings, shall be worn in all construction areas during all phases of construction and commissioning. The vests must meet the ANSI Class II specifications and be fluorescent (orange or lime green).

(7) Seat belts shall be worn by all personnel riding in vehicles, as well as heavy equipment operators and forklift operators.

(8) No riders other than the operator shall be allowed on any piece of mobile equipment.

(9) Personnel are not allowed to ride in the back of pick-up trucks, on flat-bed trailers, or on any piece of mobile equipment not designed for that purpose.

Compressed Gases

(1) Care shall be exercised in handling all compressed gas cylinders. They shall not be dropped, jarred, or exposed to temperature extremes.

(2) Cylinders shall have the valve cap or valve protection device in place at all times, except when in actual use or connected to a welding set.

(3) Cylinders shall not be rolled and shall not be lifted by the valve or valve cap; a suitable cradle or other device shall be used.

(4) Cylinder contents shall be properly identified.

(5) Cylinders not having fixed handwheels shall have keys, handles, or non-adjustable wrenches on the valve stems while the cylinders are in service.

(6) Compressed gas cylinders, whether full or empty, shall be stored and transported in an upright position and chained or otherwise secured so they cannot fall or be upset.

(7) Oxygen cylinders in storage shall be separated from fuel-gas cylinders or combustible materials (especially oil or grease) a minimum distance of 20 feet or by a 5 foot high noncombustible barrier.

(8) Cylinders shall not be placed where they might become part of an electric circuit or within 5 feet of an electrical outlet.

(9) Employees shall never force connections that do not fit, nor shall they tamper with the safety relief devices of cylinder valves.

(10) Before the regulator is removed from a cylinder, the valve shall be closed and all pressure released from the regulator.

(11) A leaking cylinder shall not be used. Such cylinders shall be taken outdoors away from sources of ignition. The supervisor shall be notified.

(12) A flame shall never be used to detect gas leaks.

(13) The recessed top of cylinders shall not be used as a place for tools.

(14) Oxygen--Oil, grease, or similar materials shall not be allowed to come in contact with any valve, fitting, regulator, or gauge of oxygen cylinders:

- Oxygen shall never be used as a substitute for compressed air.
- When an oxygen cylinder is in use, the valve should be opened fully in order to prevent leakage around the valve stem.

(15) Acetylene--Acetylene cylinders shall be properly secured and always used, transported, or stored in a vertical position. Cylinders shall be protected from sparks, flames, and contact with energized electrical equipment:

- An acetylene cylinder valve shall not be opened more than 1-1/2 turns of the spindle and preferably no more than 3/4 of a turn.
- Employees shall not use acetylene in a free state at pressures higher than 15 psi.
- Flashback arrestors are required on all oxygen/acetylene fuel burning rigs. Arrestors are to be placed between the regulator and the hose connections and the torch-hose connections (if not already built into the torch assembly).

Rigging Equipment

(1) All rigging equipment shall be of sufficient strength and of proper type and shall be safe for its intended use.

(2) Rigging equipment shall not be loaded beyond its rated capacity.

(3) Before each use, all slings, fastenings, and attachments shall be inspected for damage or defects. Damaged or defective equipment shall be immediately removed from service. Periodic, documented inspections on such equipment are also required.

(4) Makeshift lifting devices formed from bolts, rods, or reinforcing steel shall not be used.

(5) Slings shall not be shortened with knots, bolts, or other makeshift devices.

(6) Slings used in a basket hitch shall have the load balanced to prevent slippage.

(7) Slings shall be securely attached to the load by the use of hooks with retaining devices or the use of shackles or other positive latching device.

(8) Slings shall be padded or protected from the sharp edges of their loads.

(9) A sling shall not be pulled from under a load when the load is resting on the sling.

(10) Slings shall be long enough to provide the maximum practical angle between the sling leg and the horizontal plane of the load.

(11) Shackle pins shall never be replaced with bolts or other nonapproved devices.

(12) Only hooks with approved retaining devices shall be used. Hooks shall never be rigged so that they are point loaded at the tip of the hook unless they are designed for that purpose. The load shall be securely seated in the saddle of the hook.

(13) When eye bolts are used, care shall be taken to ensure that the bolt is not side loaded.

(14) Chain falls, come-alongs, and other such devices shall not be loaded beyond their rated capacities.

(15) Chain falls, come-alongs, and other such devices shall always be rigged for a straight pull.

(16) The chain or hoist cable for chain falls, come-alongs, or other such devices shall not be wrapped around a load and used in place of a sling unless specifically designed for that purpose.

(17) Special rigging devices and equipment such as spreader beams, clamps, etc., shall be designed, proof tested prior to use to 125 percent of their rated load, and marked with the safe working load.

Ladders--General

(1) Wooden ladders shall not be painted so as to obscure a defect in the wood; only a clear, nonconductive finish shall be used.

(2) All ladders shall be inspected frequently and regularly. Ladders with weakened, broken, or missing steps; broken side rails; or other defects shall be tagged and removed from service.

(3) All ladders must meet Type I or IA strength requirements.

(4) Portable metal ladders shall not be used. Areas around ladders, scaffolding, and aerial lifts shall be properly barricaded.

(5) Ladders shall not be placed in front of a door that opens toward the ladder, unless the door is open, locked, or guarded. Areas around ladders, scaffolding, and aerial lifts shall be properly barricaded.

(6) When ascending or descending ladders, employees shall have both hands free and shall face the ladder.

(7) Only one employee shall work from a ladder at one time (except for hook type ladders). If two employees are required, a second ladder shall be used.

(8) Ladders shall not be used as scaffold platforms.

(9) Boxes, chairs, etc., shall not be used as ladders.

(10) Employees shall not use a ladder until they have been properly trained in its use. Documented inspections of ladders are required on a periodic basis.

Straight Ladders

(1) Portable straight ladders shall not be used without nonskid bases.

(2) The ladder shall be placed so that the distance between the bottom of the ladder and the supporting point is approximately 1/4 of the ladder length between supports.

(3) Straight ladders shall not be climbed beyond the third step from the top.

(4) When employees work from a portable ladder, the ladder must be securely placed, held, tied, or otherwise made secure to prevent slipping or falling.

(5) When dismounting from a ladder at an elevated position (as at a roof), the employee shall ensure that the ladder side rails extend at least 3 feet above the dismount position, or that grab bars are present.

(6) Employees shall wear a body harness and lanyard, and tie off to a secure anchor whenever both hands must be used for the job or whenever employees are exposed to a fall in excess of 6 feet.

(7) Ladders shall not be spliced together to form a longer ladder.

(8) A ladder shall not be placed against an unsafe support.

(9) Employees climbing a ladder with a fall exposure greater than 12 feet shall be protected by an approved cage, ladder climbing device, or by the use of a body harness, lanyard, or lifeline system.

Step Ladders

(1) The top two steps shall not be used.

(2) Step ladder legs shall be fully spread and the spreading bars locked in place.

(3) Step ladders shall not be used as straight ladders.

(4) When an employee is working on a step ladder over 6 feet high, the employee shall use a body harness and lanyard attached to a substantial anchor.

Material Handling

(1) An employee shall obtain assistance in lifting heavy objects or shall use power equipment to lift them.

(2) When two or more persons carry a heavy object that is to be lowered or dropped, there shall be a prearranged signal for releasing the load.

(3) When two or more persons are carrying an object, each employee, if possible, should face the direction in which the object is being carried.

Note: The right way to lift is easiest and safest. Crouch or squat with the feet close to the object to be lifted, secure good footing, take a firm grip, bend the knees, keep the back vertical, and lift by bending at the knees and using the leg and thigh muscles. Employees shall not attempt to lift beyond their capacity. Caution shall be taken when lifting or pulling in an awkward position.

(4) Employees should avoid twisting or excessive bending when lifting or setting down loads.

(5) When moving a load horizontally, employees should push the load rather than pull it.

(6) When a task is performed that requires repetitive lifting, the load should be positioned to limit bending and twisting. The use of lift tables, pallets, and mechanical devices shall be used in these instances.

(7) When using such tools as screw drivers and wrenches, employees should avoid using their wrists in a bent (flexed), extended, or twisted position for long periods of time. Their wrists should be maintained in a neutral (straight) position.

(8) When gripping, grasping, or lifting an object such as a pipe or a board, an employee's whole hand and all the fingers should be used. Gripping, grasping, and lifting with just the thumb and index finger should be avoided.

Hand Tools

(1) All tools, regardless of ownership, shall be of an approved type and maintained in good condition. (Tools are subject to inspection at any time. A supervisor has the authority and responsibility to condemn unserviceable tools, regardless of ownership.)

(2) Defective tools shall be tagged to prevent their use and shall be removed from the jobsite.

(3) Employees shall always use the proper tool for the job performed.

(4) Hammers with metal handles, screwdrivers, knives with metal continuing through the handle, and metallic measuring tapes shall not be used on or near energized electrical circuits or equipment.

(5) Tools shall not be thrown from place to place or from person to person; tools that must be raised or lowered from one elevation to another shall be placed in tool buckets or firmly attached to hand lines.

(6) Tools shall never be placed unsecured on elevated places.

(7) As impact tools such as chisels, punches, drift pins, etc., become mushroomed or cracked, they shall be dressed, repaired, or replaced before further use.

(8) Chisels, drills, punches, ground rods, and pipes shall be held with suitable holders or tongs (not with the hands) while being struck by another employee.

(9) Shims shall not be used to make a wrench fit.

(10) Wrenches with sprung or damaged jaws shall not be used.

(11) Pipe shall not be used to extend a wrench handle for added leverage unless the wrench was designed for such use.

(12) Tools shall be used only for the purposes for which they have been approved.

(13) Tools with sharp edges shall be stored and handled so that they will not cause injury or damage. They shall not be carried in pockets.

(14) Wooden handles that are loose, cracked, or splintered shall be replaced. The handle shall not be taped or lashed with wire.

(15) All cutting tools such as saws, wood chisels, drawknives, or axes shall be kept in suitable guards or in special compartments.

(16) Tools shall not be left lying around where they may cause a person to trip or stumble.

(17) When employees are working on or above open grating, a canvas or other suitable covering shall be used to cover the grating to prevent tools or parts from dropping to a lower level where others are present, or the danger area shall be barricaded or guarded.

(18) The insulation on hand tools shall not be depended upon to protect users from shock.

Portable Electric Tools

(1) The noncurrent-carrying metal parts of portable electric tools such as drills, saws, and grinders shall be effectively grounded when connected to a power source unless:

- The tool is an approved double-insulated type.
- The tool is connected to the power supply by means of an isolating transformer or other isolated power supply, such as a 24 volt dc system.

(2) All powered tools shall be examined before use to ensure general service-ability and the presence of all applicable safety devices. The electric cord and electric components shall be given an especially thorough examination. Periodic documented inspections of all portable electric tools are required.

(3) Powered tools shall be used only within their capability and shall be operated in accordance with the instructions of the manufacturer.

(4) All tools shall be kept in good repair and shall be disconnected from the power source while repairs are being made.

(5) Electrical tools shall not be used where there is a hazard of flammable vapors, gases, or dusts.

(6) All power tools and cord sets shall be protected by ground fault circuit interrupters.

Pneumatic Tools

(1) Compressed air and compressed air tools shall be used with caution.

(2) Pneumatic tools shall never be pointed at another person.

(3) Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tool from becoming accidentally disconnected.

(4) Safety clips or retainers shall be securely installed and maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally expelled.

(5) Compressed air shall not be used for general cleaning purposes. Vacuum cleaning is an acceptable alternative.

(6) Compressed air shall not be used to blow dust or dirt from clothing. Vacuuming methods are to be used for these cleaning purposes.

(7) The manufacturer's safe operating pressure for hoses, pipes, valves, filters, and other fittings shall not be exceeded.

(8) The use of hoses for hoisting or lowering tools shall not be permitted.

(9) All hoses exceeding 1/2 inch inside diameter shall have a safety device (excess flow check valve) at the source of supply or branch line to reduce pressure in case of hose failure or disengagement of a connection.

(10) Before adjustments are made or air tools are changed, unless they are equipped with quick-change connectors, the air shall be shut off at the air supply valve ahead of the hose. The hose shall be bled at the tool before the connection is broken.

(11) Eye protection, foot protection, and other protective devices shall be worn when their use could reduce the possibility of injury.

(12) Pneumatic tools shall be operated only by competent persons who have been trained in their use.

(13) A pneumatic tool used where it may contact exposed live electrical parts shall have a nonconductive hose and an accumulator to collect moisture.

(14) Employees shall not use any part of their bodies to locate or attempt to stop an air leak.

Flammable and Combustible Liquids

(1) "Danger, No Smoking" signs shall be posted around all flammable and combustible liquid storage areas.

(2) All aboveground tanks shall have impervious containment around them of adequate size to contain spills.

(3) Tanks shall be vented with a pipe not less than 1-1/4 inch inside diameter and shall be 12 feet high from the adjacent ground level.

(4) Tanks shall be kept at least 20 feet from buildings.

(5) At least one 20 pound (4A60BC) ABC fire extinguisher shall be kept between 25 feet to 75 feet from tanks.

(6) All tanks shall be properly grounded.

(7) All tanks shall be labeled with the contents and subcontractor's name.

Heaters

(1) UL approved salamanders, Redi heaters, and space heaters are the only approved heaters on the jobsite.

Heaters shall be used in accordance with 29 CFR 1926.154.

(2) Job-made heaters, solid fuel salamanders, and open fires are prohibited on the jobsite.

Powered Industrial Trucks (Forklifts)

(1) All powered industrial truck operators shall be trained and certified by their employer for the type of truck to be used.

(2) Training will include both formal instruction and practical training.

(3) At a minimum, formal training will include instruction on the following:

(a) Hazards associated with the type of truck.

(b) Hazards of the workplace.

(c) General hazards that apply to most trucks.

(d) Safe operation and maintenance.

(e) Manufacturer's operating instructions.

(4) Retraining is required after an accident or a near miss.

(5) The Operator's Daily Checklist will be completed before each shift and any hazardous condition corrected before use (refer to Figure 25).

Earth Removal Equipment

(1) Any person operating any type of earth removal equipment shall be qualified to operate such equipment. The subcontractor shall provide documentation that the person is qualified to operate each piece of equipment used on the project

(2) No one shall ride on any equipment unless a seat and seat belt is provided.

(3) No one shall ride in a bucket to be lowered into a confined space, excavation, trench, etc.

(4) All equipment shall be in good working order, not leaking fluids, and be provided with a working backup alarm.

Reporting Accidents and Injuries

All accidents and injuries are to be reported to the Subcontractor's Safety Representative on the same day they happen.

Violations

Penalties for willful or repeated violation of the Project Occupational Safety and Health Rules by an individual shall include discharge from the City of Memphis Project.

If there is a conflict between project safety and health rules, subcontractor's Safety Program rules, and governmental regulations, the most restrictive shall apply.

1.10 Safety Policy Memorandum

From time to time, as the need is identified, OCI will issue safety policy memoranda that affect the entire project.

Safety policy memoranda will be identified by a number and a specific safety subject, such as Safety Policy Memorandum 1 (Scaffolding).

Safety policy memoranda will be issued to all persons who have received a Project Loss Control Manual. They are to be inserted as new pages at the end of this section. The person responsible for the receipt and maintenance of the manual shall also be responsible for informing his/her firm's employees and subcontractors of the contents of the safety policy memoranda.

Safety policy memoranda will have an effective date and an expiration date. Prior to the expiration date, OCI will review the memorandum and either reissue or direct that the memorandum be removed from the manual.

2.0 Emergency Procedures

2.1 City of Memphis Project Emergency Response Procedures

In order to facilitate a prompt and orderly response to site emergencies, subcontractors shall comply with the emergency procedures outlined in this section.

2.2 Introduction

In any emergency situation on the City of Memphis Project, the emergency response will take the form of an Incident Command System. OCI will assume the role of Incident Commander. In the absence of any OCI personnel, the subcontractor shall implement the system. All personnel on the project shall obey the Incident Commander's every command no matter who assumes the role. Subcontractor personnel shall assist only as directed by the Incident Commander. The Incident Commander may ask for equipment to assist in the emergency. In this case, the subcontractor shall provide any necessary equipment. Subcontractors will not be compensated for any downtime or lost production for any emergency situation.

At no time shall the subcontractor address media concerning an onsite emergency. This shall be done only by an OCI official or under the direction of an OCI official or by the City of Memphis.

A list of site-specific resource and emergency contacts (Figure 6) will be developed by OCI and be provided to subcontractors to supplement their own resource and emergency contacts list. Subcontractors are to include a comprehensive list of resource and emergency contacts as part of the Subcontractor Loss Control Program.

2.3 Medical Emergency Response

If an injury occurs that requires emergency assistance, the subcontractor's in-house system should alert subcontractor supervisors to the situation.

During normal working hours, the subcontractor shall notify OCI. The individual should be prepared to relay the following information:

- Type of emergency.
- Severity of emergency.
- Name and telephone number of the person making the call.

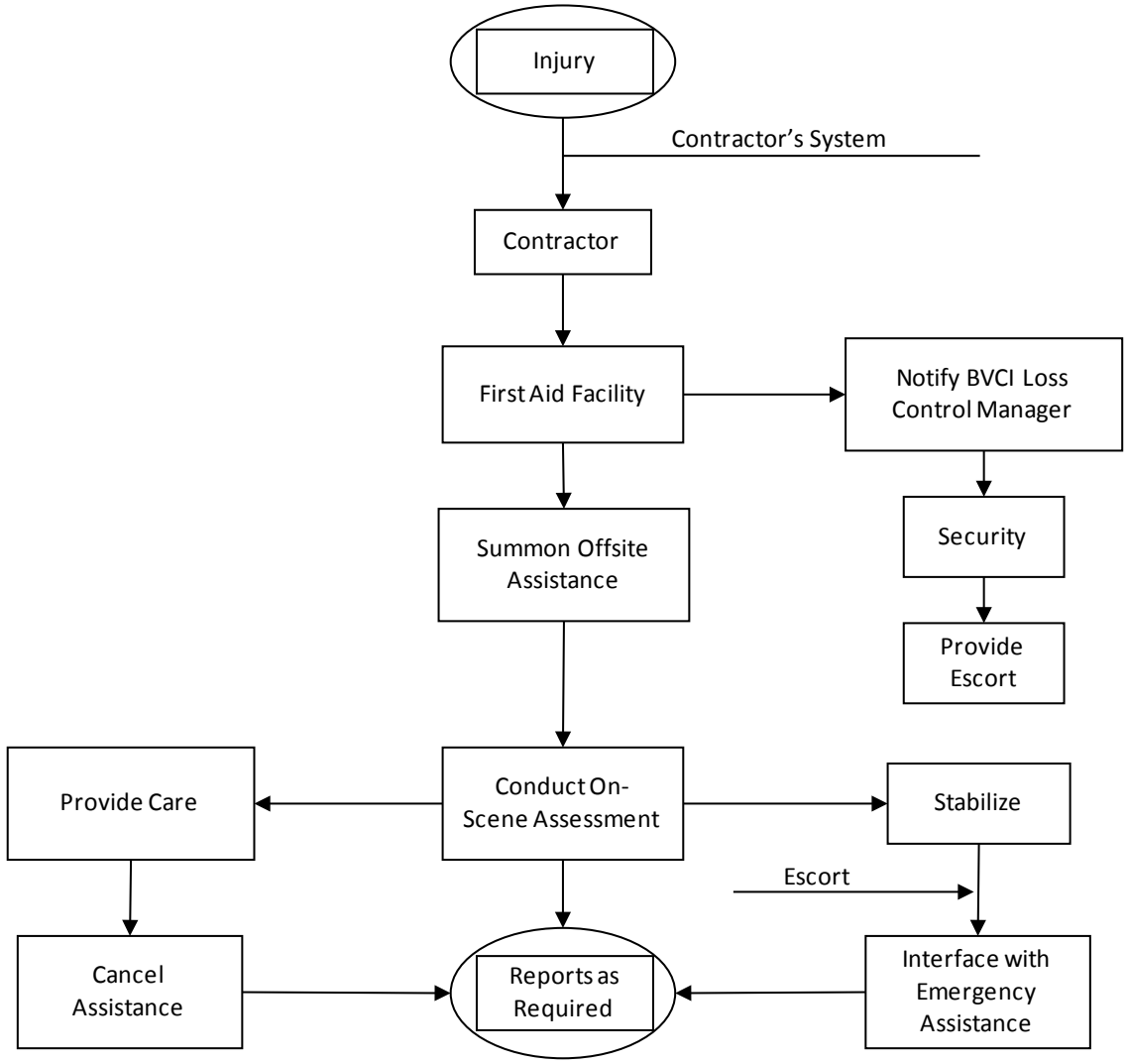
The individual shall not break communication until directed to do so.

The subcontractor shall, in any emergency situation, notify OCI, regardless of time of day.

During normal working hours, depending on the magnitude of the emergency, first aid personnel may request emergency assistance.

The first aid staff will respond to the incident and conduct a scene assessment. They will either treat the patient and cancel the offsite emergency assistance or they will stabilize the victim and interface with the offsite emergency personnel. (Refer to Figure 26.)

Security and other site personnel may be required to escort emergency vehicles to the emergency scene.



Medical Emergency Response Flow Chart

2.4 Fire and Hazardous Material Emergency Plan

If a fire or hazardous material spill occurs, the subcontractor shall use an in-house emergency notification system to alert the subcontractor's supervisors of the situation.

Minor Emergency – If it is safe to do so and if the subcontractor's employees have been properly trained, they should assess the situation and extinguish the fire or clean up the spill. The subcontractor should then report the incident to OCI.

Major Emergency – During normal working hours, the subcontractor shall alert OCI and inform them of the situation. If the fire or spill occurs after hours, the subcontractor shall call the onsite supervisor. The individual should be prepared to relay the following information:

- Type of emergency.
- Location.
- Severity of emergency.
- Name and telephone number of the person making the call.

During normal working hours, OCI will relay the information to project management and summon offsite assistance.

OCI Project Management shall assemble and determine if the emergency is of a magnitude that requires an evacuation of employees.

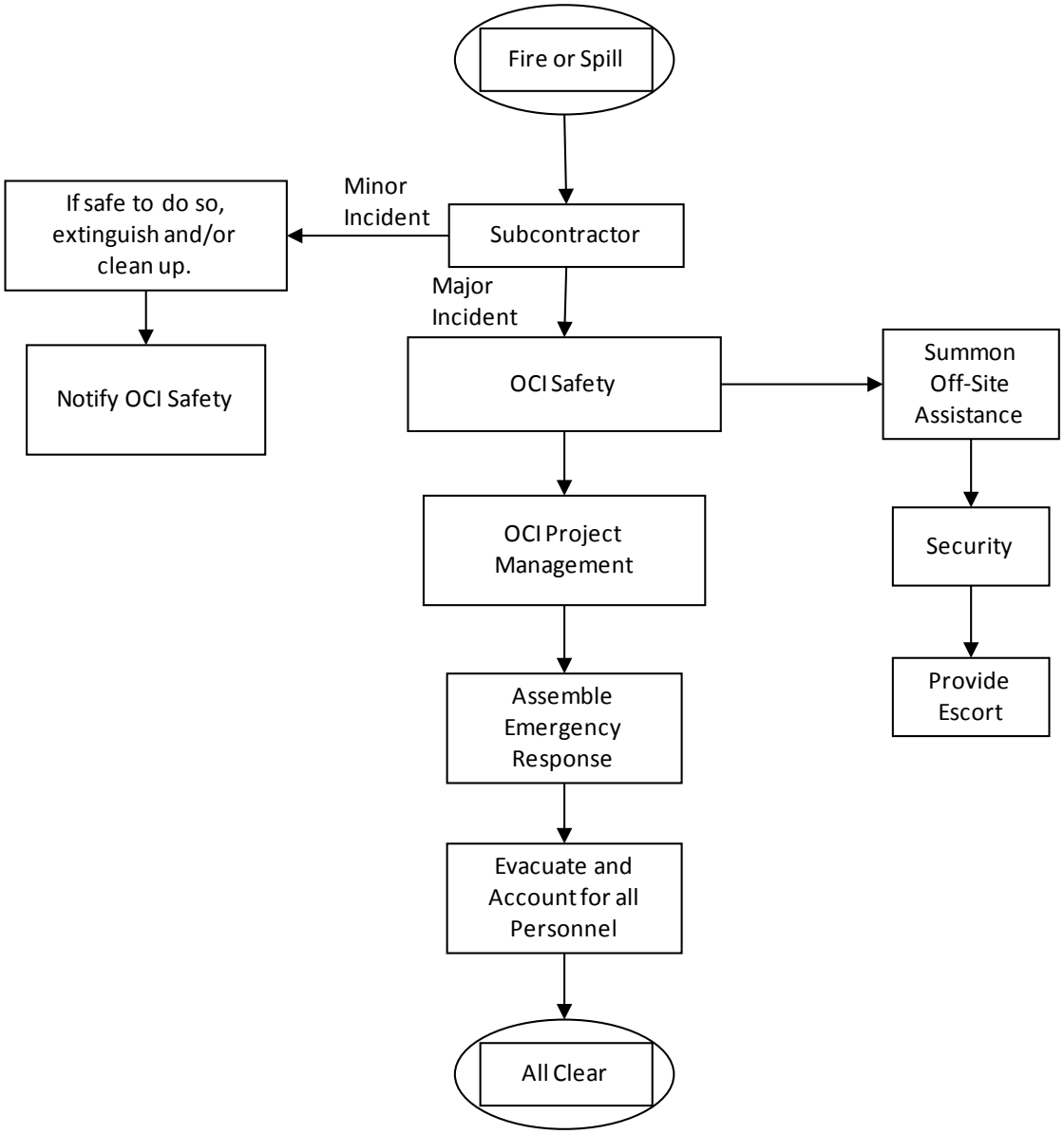
The construction workforce shall be notified to evacuate by direct communication from OCI through the use of site radios and telephones.

Subcontractors shall account for their personnel and report any missing person to OCI.

All personnel shall remain in these evacuation areas until released by OCI.

Any small chemical spill shall be cleaned up immediately if there is no hazard to those cleaning the spill. The person who cleans the spill shall notify his or her supervisor, who, in turn, will notify the subcontractor safety representative. The supervisor/safety representative shall see that the material is properly disposed of. The spill shall be reported to OCI as soon as possible, but no later than 24 hours after the spill.

Any major chemical spill shall be immediately reported to OCI. The spill shall be contained as much as possible. The Incident Commander shall determine what emergency assistance is required to control or clean up the spill. The subcontractor responsible for the spill shall be solely responsible for the proper cleanup and may be back charged for the associated costs. The cleanup efforts may be directed by OCI. In any spill, immediate steps shall be taken to control the spill and prevent contamination of the local environment.



Fire and Hazardous Material Emergency Plan Flow Chart

2.5 Severe Weather Procedures

OCI will monitor weather conditions for impending severe conditions by using local weather stations, the Internet, or other reliable means.

When severe weather is imminent, these procedures will be followed:

- Thunderstorm/Lightning – In the event of a thunderstorm, employees will be informed to seek shelter through the use of site radios and telephones. Upon hearing the announcement, employees shall assemble in subcontractor break trailers and remain there until the all clear is sounded.

- Tornado – In the event of a tornado warning, employees shall assemble at the designated shelter. Employees will be given notice to take shelter by sets of three short air horn blasts followed by a voice announcement:

  > "A tornado warning has been issued for this area. Please report to your designated shelter."

Subcontractors shall be responsible for their personnel and report anyone missing to OCI.

All personnel shall remain in the designated shelter area until released by the OCI.

Based on reports from local weather stations, the Internet, or some other reliable source, the local weather shall be monitored by OCI. If it is found that a tornado may hit the site, an evaluation team will be assembled by OCI. If the situation does not allow time for a team to assemble and meet, OCI shall assume control and direct actions to be taken.

OCI shall determine what actions are necessary to secure the site and personnel from the inclement weather. If there is enough notice of the incoming storm, OCI may have subcontractor personnel called at home on off-hours to secure the site. All securing of material and site preparation for inclement weather shall be the responsibility of the subcontractor and no compensation will be granted.

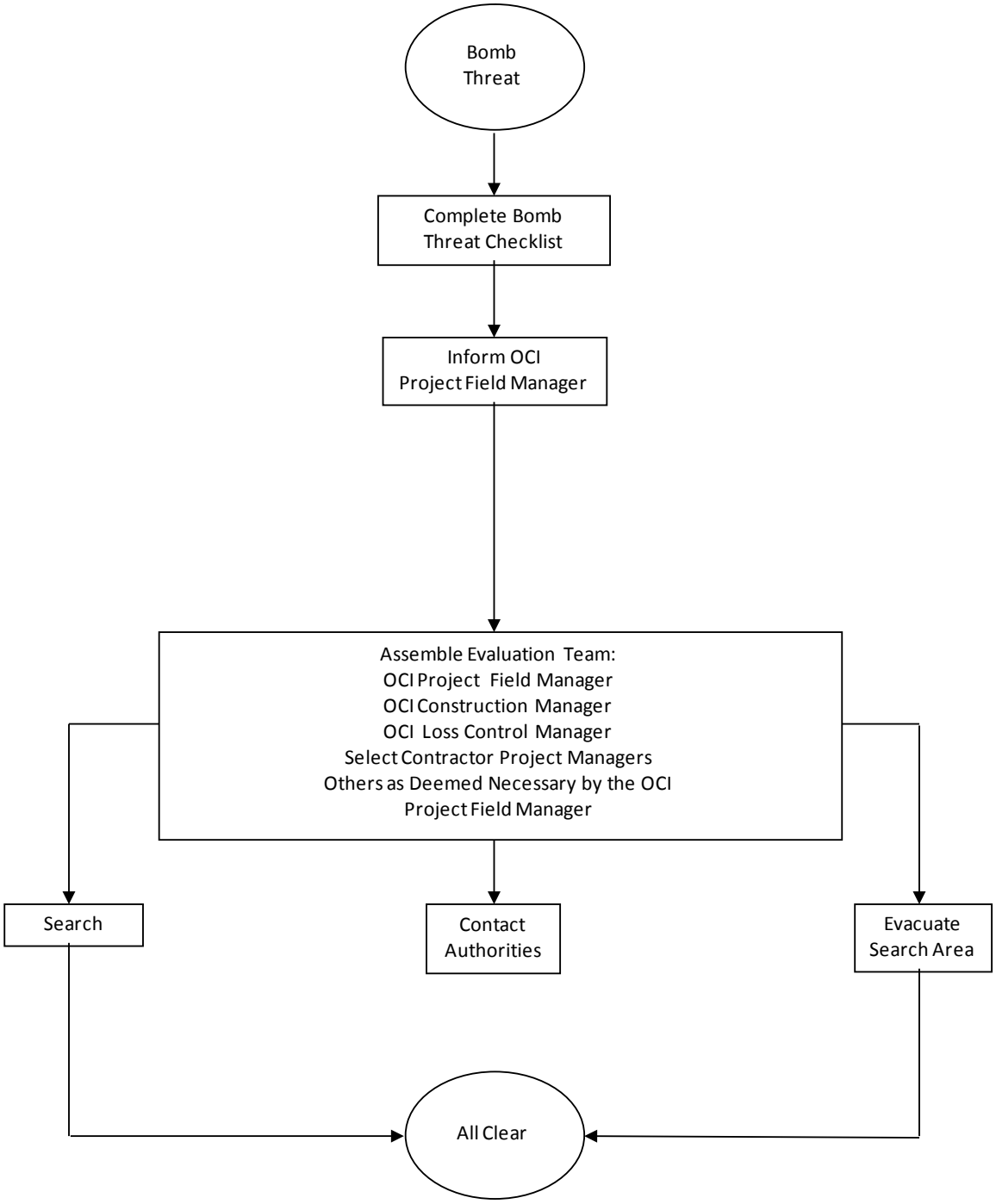
2.6 Bomb Threat Procedures

Upon receiving a bomb threat, the person receiving the call should fill out a bomb threat checklist (Figure 27). After completing the checklist, the person should notify the OCI Project Field Manager who shall then assemble a project evaluation team and notify the appropriate City of Memphis personnel. The evaluation team shall review the bomb threat checklist and determine what course of action to follow:

- Search the area without evacuating.

- Evacuate the area, then search.

- Notify the proper authorities.



Bomb Threat Procedure Flow Chart

2.7 Search

Search teams, determined by the evaluation team, will search the project area and report any findings to the evaluation team. Based on the search team's report, the evaluation team will either evacuate the project area and call the appropriate authorities or issue an "all clear."

2.8 Evacuation

If an evacuation is required, the evaluation team will establish an evacuation area. The evaluation team will inform each subcontractor of the situation. It will be each subcontractor's responsibility to assemble and account for all his/her employees in the established evacuation area. Unless otherwise indicated, the evacuation area will be just inside the employee walk-in gate. Any subcontractor who finds that an employee is missing shall notify the OCI Project Field Manager. The Project Field Manager shall assemble a team to search for the individual in the area that he/she was last seen, or in his/her work area. All other personnel shall remain in the evacuation area until released by the OCI Project Field Manager. Additional evacuation areas and routes shall be identified later and the information distributed to all subcontractors upon their arrival onsite. Only when the site has been searched and the evaluation team has determined the site to be clear, shall personnel be allowed back in the work area.

3.0 Security

3.1 City of Memphis Project Security Program

3.1.1 Introduction

This Project Security Program provides an administrative structure within which each subcontractor present on the project site shall provide for the safety and health of employees and other individuals affected by construction activities and for the protection of property. The Project Security Program does not relieve any subcontractor of any of the traditional or specific legal responsibilities with respect to the protection of property. Instead, the Project Security Program provides for coordination among the various subcontractors and the surveillance to determine subcontractors' conformance with the Project Security Program, initiation of corrective actions where nonconformances are identified, and administration and reporting to reveal the effectiveness of the Project Security Program.

In order to meet this end, an effective Project Security Program will be conducted at the City of Memphis Project. For the protection of everyone, security officers will take immediate action against any violator.

3.1.2 Project Security Program Elements

The Project Security Program includes the following major elements:

(1) This Project Loss Control Manual that will establish security guidelines and requirements.

(2) Daily surveillance of the subcontractors' activities for conformance with the minimum requirements of the Project Security Program.

(3) Procedures for advising subcontractors of security violations, which include verbal, written, and personal notice of violations.

General Scope of Services

3.1.3 Project Security Program Administration

OCI will administer the Project Security Program and shall have such authority as is described in this manual.

3.2 Project Security Rules

3.2.1 Policy

In addition to other requirements of the Project Security Program, OCI has established mandatory security rules for the City of Memphis Project. All employees will receive a copy of the Security Regulations as part of their orientation and check-in process (Figure 28). Subcontractors shall ensure that all employees are familiar with these rules and the possible penalties for violations. Security Regulations may be added to or deleted from the Project Loss Control Manual as deemed necessary by OCI. Revisions or additional rules will be sent to each subcontractor. Upon receipt, the subcontractor shall be responsible for informing each of his/her employees of the revised or additional rules. The subcontractor shall take all reasonable and necessary precautions to protect his/her employees, material, equipment, etc., from harm on any location where work is being performed on this project potentially including, but not limited to, hiring security or off-duty police officers to be able to meet this requirement.

3.2.2 Mandatory Project Security Rules

The following Mandatory Project Security Rules are adopted for the protection of all persons involved with the construction of the City of Memphis Project. These rules apply to management and subcontractor personnel as well as visitors while on the jobsite. These rules are general in nature and are not to be considered all-inclusive; nor do they relieve OCI, subcontractors, or their employees from applicable regulations promulgated by governmental authorities:

(1) Alcohol and Drugs--The use of narcotics and alcohol is strictly prohibited at the City of Memphis Project. Anyone reporting for work under the influence of narcotics, intoxicants, or nonprescribed drugs will be discharged. Anyone who transports, or allows transportation, onto the City of Memphis Project, any narcotic, alcoholic beverage, or nonprescribed drug will be discharged. Individuals may be inspected for narcotics prior to entering the City of Memphis Project.

(2) Visitors--Visitors will not be permitted in the City of Memphis Project without proper clearance and identification.

(3) Security Rules--Anyone working at the City of Memphis Project will be subject to discharge and/or prosecution on criminal charges if he or she:

- Violates any state or federal law on the project site,
- Fights, creates a disturbance, or engages in any negligent act which could result in injury or death,
- Conspires or participates in placing a threat of any type to disrupt any work effort,
- Destroys or attempts to destroy any property,

- Intentionally engages in conduct constituting a substantial step towards the commission of any criminal offenses,
- Possesses firearms or other deadly weapons on his/her person or within a vehicle under his/her control on the project site,
- Enters without authorization into an area which is not his/her assigned work area,
- Commits any act which constitutes moral misconduct,
- Drives any vehicle in a manner which may result in injury to anyone on the City of Memphis Project site.

Possible consequences for prohibited acts include a variety of options ranging from Safety/Security Violations to arrest and criminal prosecution.

The following are specifically prohibited at the City of Memphis Project:

- Firearms or other deadly weapons.
- Explosives or fireworks.
- Alcoholic beverages.
- Narcotics or nonprescribed drugs.
- Pets.
- Any unauthorized vending device including soft drinks, snacks, or other foodstuffs.
- Unauthorized sale of food, tickets, beverages, or other merchandise.
- Any open fires including barrels and fire rings.
- Posting of unauthorized signs.

All site personnel are expected to comply with requests of City of Memphis Project security officers. Failure to do so may result in discharge.

3.3 Subcontractor Security Responsibilities and Program Procedures

3.3.1 Responsibilities

Subcontractors shall be responsible for all materials and equipment in their custody or placed in construction by them. Security methods shall be employed as required to ensure the protection of all materials, equipment, and construction work from theft, vandalism, fire, and all other damage and loss.

The subcontractor shall comply with the requirements of the project's security system.

3.3.2 Program Procedures

The following program procedures are adopted for the protection of all persons involved with the construction of the City of Memphis Project.

3.4 Security Surveillance Policy and Procedures

3.4.1 Surveillance Policy

Subcontractors are responsible for the enforcement of the Project Security Program. OCI and security will provide surveillance of subcontractors' activities to observe whether such activities are in compliance with the Project Security Program.

3.4.2 Violation Notification Procedures

In the event of an apparent violation of a security regulation, OCI will advise the subcontractor of the violation and direct that the violation be corrected. If there is a conflict between project security rules, subcontractors' security rules, and governmental regulations, the most restrictive shall apply. The subcontractor shall be informed of the violation by one of the following methods.

3.4.2.1 Personal Violation Notice

To subcontractor employees who knowingly violate the project security regulations, a Personal Violation Notice (Figure 10) will be issued. If any one employee should receive three Personal Violation Notices, disciplinary action will result; this may include removal of the employee from the project site or termination. Employees who knowingly or willfully violate project rules shall be subject to termination or removal without prior warning.

A copy of all Personal Violation Notices issued to employees will be forwarded to their employers.

A Personal Violation Notice may be issued to subcontractor supervisors for not enforcing the Project Security Program rules with the employees under their supervision.

3.4.2.2 Project Loss Control Meetings

OCI will schedule weekly project loss control meetings. The purpose of these meetings is to discuss safety and security concerns as they relate to the City of Memphis Project; provide for two-way communication between the subcontractor's representatives and OCI; and, in general, further the Project Safety and Security Program. All subcontractors are required to have their safety representative in attendance; the safety representative shall, in turn, pass on the security information that should be discussed at the subcontractor weekly toolbox meetings.

3.4.2.3 Emergency Vehicles

OCI shall be notified that emergency vehicles are in route immediately after such vehicles have been dispatched. Emergency vehicles will be directed to the emergency scene by a security officer. OCI has developed close working relationships with local medical care facilities and fire departments in an effort to keep them informed of site changes made since their last visit.

3.4.2.4 Law Enforcement

OCI personnel will develop close working relationships with local, state, and federal law enforcement agencies. If a criminal problem does develop, the full weight of available law enforcement resources will be brought to bear.

4.0 Safety Committee

Craft Safety and Health Representative Programs help supplement onsite inspection resources. These programs capitalize on the expertise of employees and employers who are in the workplace all day, every day, to handle problems and to provide continuous monitoring of the worksite for potential hazards. Often, under these programs, corrections are immediately made, thus producing average or lower injury and lost workday case rates, compared to overall industry rates.

The subcontractors shall inform OCI that they have an internal Safety Committee that meets and discusses issues within their individual companies. The subcontractor shall provide copies of documented meeting minutes and an attendance roster showing not only management commitment to safety but employee participation.

5.0 Environmental Operations Plan

OCI professionals, subcontractors, and subcontractors' employees present or performing work on the project site must comply with requirements contained in this and any addendums. Compliance with the Environmental Operations Plan does not relieve subcontractors of any of their traditional or specific legal responsibilities with respect to environmental protection. However, it does ensure a certain level of consistency among the subcontractors' individual programs and the monitoring of subcontractors' conformance with the requirements.

The goal of this Environmental Operations Plan is to ensure consistent compliance with applicable regulatory and permit requirements and to minimize environmental impacts to the construction site and its surroundings during the construction project.

5.1 Plan Contents and Administration

5.1.1 Environmental Operations Plan Elements

The Environmental Operations Plan contains the following:

- Minimum requirements for individual subcontractors' environmental programs.
- Subcontractor's responsibilities for performance, coordination, communication, monitoring, reporting, and recordkeeping during the project.
- Specific and required construction practices with respect to the environmental programs that apply to this project.
- Procedures for advising subcontractors of environmental violations and issuance of violation notices.
- Procedures for initiating corrective action and back charges to the subcontractor if he/she does not comply with environmental violation notices.

5.1.2 Environmental Operations Plan Administration

OCI will administer the Environmental Operations Plan and will have such authority as described herein.

5.1.3 Subcontractor's Responsibilities

The Environmental Operations Plan is designed to require consistent and effective environmental protection activities during construction, startup, and commissioning. The Environmental Operations Plan does not relieve a subcontractor of its other contract obligations or of its duties to comply with all applicable governmental regulations, including permits applied for and obtained for this project.

Subcontractors will be responsible for the performances of their own employees, as well as those of their subcontractors. This requirement will apply continuously during the entire contract period and will not be limited to normal working hours.

Subcontractor is responsible for the development and implementation of a written Loss Control Program that includes an environmental operations plan that meets or exceeds the requirements of this Environmental Operations Plan and all applicable federal, state, or local regulatory requirements. Subcontractors' conformance with the requirements to initiate and maintain such a program is mandatory under the provisions of the governing contract.

The subcontractor's environmental operations program must comply with federal, state, and local regulations. OCI does not make the claim that the Environmental Operations Plan represents all federal environmental requirements. The subcontractor is required to include in its environmental control plan the federal requirements that pertain to its work and activities. The subcontractor is also required to include state and local environmental requirements, which are typically more stringent and broader in scope.

Subcontractors will designate a subcontractor representative to be responsible for the administration of the subcontractor environmental operations programs, the Environmental Operations Plan, and the Owner environmental requirements found in the applicable permits and approvals. Subcontractors also will be responsible for the administration of the subcontractor environmental operations programs and the Environmental Operations Plan for its subcontractors, at any tier.

5.1.4 Program Requirements

The subcontractor environmental operations plan will meet the minimum applicable requirements of all current federal, state, and local agencies that have authority over environmental aspects of construction and those of the project owner. In addition, the subcontractor must do the following:

- Deliver one copy of the subcontractor environmental operations plan to OCI for review and comments.
- Initiate and maintain procedures that are necessary to comply with environmental regulations and requirements.
- Participate in weekly construction coordination meetings.
- Cooperate with OCI; federal, state, and local agencies; and Owner representatives concerning environmental issues.
- Participate in the implementation of environmental control measures as may be appropriate for the protection of the environment.

- Submit a written orientation program to include, but not be limited to, the environmental impacts of construction, emergency communication procedures, environmental incident response and mitigation, disciplinary procedures, Environmental Operations Plan requirements, and the Owner environmental requirements.

- Be responsible for the attendance of all new employees at orientation meetings.

- Maintain suitable equipment and procedures for the prevention and control of spills and releases.

- Provide a system that ensures their employees comply with the Environmental Operations Plan of the project Loss Control Manual and *List of Site Specific Environmental Requirements for Construction Operations*.

- Conduct and document training for the subcontractor's and the subcontractor's employees in the recognition of environmental hazards, prevention of environmental degradation, recognition of environmental incidents, response to and mitigation of environmental incidents, and reporting of environmental activities and incidents. Records of such training will be maintained onsite by the subcontractor and copies provided to OCI.

- Maintain accurate environmental compliance records and statistics and submit the Loss Management Monthly Summary (Figure 2) to OCI by the first of each month. Included in the summary will be deficiencies detected and corrective action taken.

- Provide a system for ensuring that reports required by the Environmental Operations Plan are submitted to OCI in a timely manner.

- Provide a system for immediately reporting all environmental incidents to the nearest supervisor and to OCI.

- Address environmental issues as part of the weekly safety meeting required by the Project Safety and Health Program. In accordance with that program, a copy of the Weekly Safety Meeting Report (Figure 4) must be submitted to OCI. Use this form to report on the environmental subjects discussed. Weekly Safety Meeting Report forms can be obtained from OCI.

- Designate a qualified representative to be responsible for managing, shipping, and disposing of regulated wastes.

- Establish a system that documents frequent and regular inspections of environmental control systems within their area of responsibility by a qualified person.

- Provide frequent and regular inspections of the jobsite, materials, and equipment by competent or qualified persons.

- Provide written disciplinary procedures equal to or greater than those described in this Environmental Operations Plan. The procedures must include enforcement responsibilities of all supervisory personnel.

- Conduct daily work area environmental inspections, complete the Daily Work Area Inspection Checklist (Figure 8), and submit them weekly to OCI.

5.1.5 Environmental Surveillance Policy and Procedures

OCI will provide surveillance of subcontractors' activities to determine whether such activities are in compliance with the Environmental Operations Plan. If an apparent violation of an environmental requirement occurs, OCI will advise the subcontractor of the violation and require that the violation be corrected. If there is a conflict among project environmental requirements, subcontractor environmental operations program, Owner safety rules, and government regulations, the most restrictive requirement will apply. Subcontractors will be informed of the violation by one of the following methods.

5.1.5.1 Environmental Violation Notice

The subcontractor will be informed of identified violations of environmental requirements and permit conditions by means of the Safety, Health, and Environmental Violation Notice (Figure 9). Violation notices will be delivered by the most expeditious method to the subcontractor's onsite construction office. The subcontractor will receive an original and one copy of each violation notice.

The subcontractor will take corrective action within the abatement period shown on the violation notice or will propose an alternate solution within the abatement period. If corrective action is not taken within the abatement period, work will stop in the affected area until the cited violation is corrected.

After corrective action has been completed, the subcontractor will state, in writing, the corrective action taken, date and sign the original notice, and return it to OCI.

The following are four types of violations:

- Serious--Any condition or practice that is causing or likely to cause significant environmental damage or threat to human health.

- Nonserious--Any condition or practice that is not likely to cause significant environmental damage or threat to human health.

- Stop Work/Imminent Danger--Any condition or practice that would reasonably be expected to cause a significant environmental incident before such condition or practice can be corrected. This is a "stop work" situation. All persons will be withdrawn from the affected area, and no one will be allowed back in, except those individuals that are needed to correct the condition or practice.

- Stop Work/Noncompliance--Any violation (serious or nonserious) described in a notice, but not totally corrected within the noted abatement time. The abatement time shall not be extended. This is a "stop work" situation. All persons will be withdrawn from the affected area, and no one will be allowed back in, except those individuals that are needed to correct the condition or practice.

If OCI or an Owner's representative considers a violation to be imminently dangerous to the environment or to human health, the subcontractor's representative will be directed to cease work immediately in that area. The imminent danger condition will be corrected to the satisfaction of OCI; the Owner; and federal, state, and local requirements before work is allowed to continue.

5.1.5.2 Repeated Violations

In addition to the above notifications, the Owner or OCI will notify the subcontractor's corporate office if a particular violation is repeated or if the subcontractor's field supervision is not cooperative. Such notification to the subcontractor's corporate office may be either by telephone or in writing; however, each telephone notification will be followed up with a written notification.

Repeated nonconformance with the Environmental Operations Plan or subcontractor environmental operations plan and repeated failure to comply with correction directives may result in removal of the subcontractor's management from the project site or termination of the contract.

5.1.5.3 Personal Violation Notice

Subcontractor's employees who violate the project's environmental requirements will be issued a Personal Violation Notice (Figure 10). If any employee receives three Personal Violation Notices, disciplinary action up to and including removal from the project will result. Employees knowingly or willfully violating project environmental requirements will be subject to discharge or removal without prior warning. Employers will receive a copy of all Personal Violation Notices issued to their employees.

Personal Violation Notices may be issued to the subcontractor's supervisors for not enforcing the Environmental Operations Plan requirements with the employees under their supervision. Employees discharged for violation of environmental requirements will not be eligible for rehire or allowed back on the project for the duration of the project.

5.1.6 Environmental Operations Plan Operations

OCI will distribute to all subcontractors copies of the Environmental Operations Plan as part of the Project Site Safety Plan. Subcontractors will ensure that all their employees and subcontractors are familiar with, and abide by, the contents of this plan, including any changes distributed by OCI.

5.1.6.1 Project Construction Coordination Meetings

OCI will schedule project construction coordination meetings weekly and at any other time that is deemed necessary. The meetings will include a discussion of environmental aspects of the project; encouragement of communication among the Subcontractor's safety representative, OCI, and the Owner; and the promotion of activities required by the Environmental Operations Plan. All subcontractors are required to have their Subcontractor Environmental Representative and Subcontractor Operations Management in attendance.

5.1.6.2 Environmental Incident Reporting

The subcontractor's representative will immediately report to OCI any environmental incident. OCI, in turn, will report to an Owner. The subcontractor's representative will complete an Environmental Incident Report form (Figure 36) and submit the completed report to OCI within 24 hours after the incident, along with any supporting information such as photographs and witness statements. Reports will be dated and signed by the subcontractor's Environmental Representative. OCI will, in turn, submit the report to Owner within 48 hours.

If a serious incident involving notification of regulatory agencies occurs, OCI will be notified immediately, regardless of the day or hour. This reporting requirement is in addition to the requirements outlined in the above paragraph.

5.1.6.3 Regulatory Agency Inspection Procedures

OCI Project Management will be notified immediately when an agency environmental compliance officer is onsite. A representative from OCI may accompany the agency environmental compliance officer during inspections of the construction site.

OCI will examine the agency compliance officer's credentials prior to the start of any onsite inspection. At all times while onsite, the compliance officer will be treated courteously and given full cooperation. The compliance officer shall be accompanied by a subcontractor representative at all times.

Subcontractor agrees that, in the event of any violation of environmental regulations or laws arising from subcontractor's or subcontractor's employees' action or failure to act, subcontractor will take immediate action to resolve the violation with the appropriate regulatory authority; pay any and all fines, penalties, or other costs that are levied by a regulatory authority; and reimburse to OCI and the Owner Agency all directly related and documented costs expended to resolve the violation.

5.2 Hazardous Materials, Fuel, and Oil Management

5.2.1 Hazardous Materials Management

For the purpose of this section, hazardous materials are defined as follows:

- A material that exhibits a hazardous characteristic (flammable, combustible, toxic, corrosive, poison, explosive, etc., or contains a hazardous substance above a reportable quantity).
- Used oil.
- Hazardous wastes.
- Universal wastes.

5.2.1.1 Receiving Hazardous Materials

Workers receiving hazardous materials will verify that the MSDS is on file before storage or use will be permitted.

5.2.1.2 Containers

Containers are defined as barrels, bottles, cans, cylinders, drums, reaction vessels, or storage tanks, but do not include piping. Bulk storage containers include tanks, drums, and mobile or portable totes.

Containers of hazardous materials must be closed during storage, except when it is necessary to add or remove contents.

Containers of hazardous materials must be marked or labeled with the material owner's company name, an appropriate hazard warning statement, and a chemical identity that refers to the Chemical Inventory and MSDS file maintained in accordance with the OSHA Hazardous Communications Standard (29 CFR 1910.1200). Containers in storage must be positioned so that the label is visible upon approach.

Containers that are not defined as hazardous shall use the wording "non-hazardous" as an appropriate warning statement.

Containers of hazardous materials must be placed on foundations or bases capable of providing support without ill effects from settlement, compression, or uplift.

Containers that are deteriorating (e.g., cracked, rusted) or leaking must not be used. Hazardous materials stored in defective containers must be transferred to suitable containers in good condition.

Hazardous materials must be managed to prevent fires, explosions, gaseous emissions, leaching, or other discharge of hazardous waste or hazardous waste constituents that could result from the mixing of incompatible wastes or materials if containers break or leak.

Incompatible materials must not be placed in the same container.

Hazardous materials must not be placed in an unwashed container that previously held an incompatible waste or material.

A storage container holding a hazardous material that is incompatible with any waste or other materials stored nearby in other containers, piles, open tanks, or surface impoundments must be separated from the other materials or protected from them by means of a dike, berm, wall, or other device.

The hazardous material storage area must be separated and protected from sources of ignition or reaction, including but not limited to, the following:

- Open flames.
- Smoking.
- Cutting and welding.
- Hot surfaces.
- Frictional heat.
- Sparks (static, electrical, or mechanical).
- Spontaneous ignition (e.g., from heat-producing chemical reactions).
- Radiant heat.

While ignitable or reactive materials are being handled, the subcontractor must confine smoking and open flames to specially designated locations. “No Smoking” signs must be conspicuously placed wherever there is a hazard from ignitable or reactive waste.

5.2.1.3 Spill Response for Container Leaks

For container systems that are leaking, the following steps are required:

- The flow of material from the container or into the secondary containment system must be immediately stopped and the system inspected to determine the cause of the release.
- Leaked material shall be removed from containment systems or the secondary containment system within 24 hours.

- Visible releases to the environment shall be contained, removed, and disposed of immediately after assessment and determination of the method of cleanup.

Where hazardous materials are stored in portable containers or used, spill response supplies must be readily available for immediate use. The spill response kit shall be of a size capable of collecting and containing 110 percent of the largest container. Mobile vehicles will have a spill kit with at least a 4 gallon capacity with it at all times. Fueling vehicles are required to carry a spill kit with a 10 gallon capacity. Personnel using hazardous materials must be trained in the proper use of the spill response kit.

5.2.1.4 Secondary Containment

Containers of liquid or flowable hazardous materials in containers equal to or exceeding 30 gallons in capacity must be provided with secondary containment. Deviations from this requirement require OCI's approval.

Secondary containment must be designed, installed, and operated to prevent release and migration of materials or accumulated liquids out of the system to the soil, groundwater, or surface waters at any time during use or storage.

Secondary containment for tanks must include the following:

- Capacity sufficient to contain 110 percent of the capacity of the largest container within the secondary containment area with sufficient freeboard for precipitation.

- External liner or material that is impervious and free from cracks and gaps. It must cover all surrounding earth likely to come into contact with material released from the tank.

- Double-walled tanks that must be designed as an integral structure, so that any release from the inner tank is contained by the outer shell. The tanks must be protected against corrosion.

- Inspections for tank systems, which must occur at least once each operating day. The tank system inspection will include overfill/spill control equipment, aboveground portions of the tank system, and the area surrounding the tank system.

- Daily inspections, which are to be documented on the Daily Work Area Inspection Checklist (Figure 8) or equivalent.

5.2.1.5 Storage

OCI will determine the location of appropriate storage areas for hazardous materials. These areas will be identified on the construction facilities drawing, as determined during initial site activities and posted in the construction office.

Areas used to store containers of hazardous materials must comply with the following criteria unless otherwise approved in writing by OCI:

- Posted with the type of materials and hazard present.
- Protected against entry of rain and snow (compressed gas cylinders excluded).
- Protected from the sun (compressed gas cylinders excluded).
- Protected with secondary containment (compressed gas cylinders excluded).
- Located away from surface water or drainage systems.
- Located outside the 100 year flood plain.
- Located at least 50 feet from the facility property line or nearest building or storage structure or within a flammable storage cabinet.

Containers of incompatible hazardous materials must be stored in a manner where they are separated or protected from each other by means of a dike, berm, wall, or other device.

Aisle space must allow for unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of the site in the event of an emergency.

5.2.1.6 Inspection

The subcontractor's representative will inspect all hazardous material storage areas daily for leaks, container integrity, storage practices, spill prevention/control equipment and supplies, and fire extinguishers. Inspections must be documented in writing and include the date and time of inspection. The daily inspections will be documented on the Daily Work Area Inspection Checklist (Figure 8) or equivalent.

5.2.1.7 Inventory

The subcontractor's representative will provide to OCI a hazardous material inventory of all hazardous material onsite by the fifth of each month. The inventory will list the chemical name shown on the label and MSDS, the location of storage, and the amount stored.

5.2.2 Fueling

Subcontractor will use drip pans, absorbent pads, or equivalent measures during vehicle and equipment fueling, unless the fueling is performed over an impermeable surface. Absorbent spill cleanup materials and spill kits shall be available in fueling areas and on fueling trucks and shall be disposed of properly after use.

Vehicles being fueled are required to carry a spill kit capable of addressing a spill of at least 10 gallons of fuel or oil. Fueling trucks are required to carry a spill kit capable of addressing a spill of at least 10 gallons of fuel or oil. When fueling is done onsite, an 80 gallon salvage drum and absorbent compatible with fuels shall be readily available.

Subcontractor will not fuel vehicles within 50 feet of storm drains, open ditches, water bodies, or wetlands. Nozzles used in vehicle and equipment fueling must be equipped with an automatic shutoff to control drips and releases.

5.2.3 Mobile Equipment with Hydraulic Reservoir

Whenever the subcontractor uses mobile equipment with fuel or hydraulic reservoirs, storm drains, open ditches, water bodies, or wetlands within 50 feet will be protected against a release of fuel or hydraulic fluid from the equipment.

Mobile equipment with hydraulic reservoirs is required to carry a spill kit capable of addressing a spill of at least 4 gallons of hydraulic oils. When fueling is done onsite, an 80 gallon salvage drum and absorbent compatible with hydraulic oils shall be readily available.

5.2.4 Spill or Release Response

Spill or release response and reporting shall be implemented when substances are released or spills are in excess of the Reportable Quantity (RQ) as listed in the Consolidated List of Chemicals Subject to the Emergency Planning and Community Right-to-Know Act (EPCRA), and Section 112(r) of the Clean Air Act (also known as the List of Lists), and if the spill has the potential to migrate beyond the boundary or perimeter of the construction site. The Owner must report the release immediately to the National Response Center (800-424-8802), the State Emergency Response Commission (SERC), and the Local Emergency Planning Commission (LEPC).

5.2.4.1 Response to Incidental Spills or Releases

Contractor shall establish and implement a written spill containment program to handle the possibility of a spill or leakage of drummed or containerized hazardous materials involving any of the following activities: transfer, transport, disposal, and excavations.

The Contractor shall identify the following onsite or offsite personnel and equipment or services necessary to isolate, contain, and mitigate the spill:

- Cleanup contractor or personnel.
- Estimate of response time of offsite contractors.
- Spill containment procedures.

- Special safety precautions.

- Equipment and supplies on hand at site or readily available to respond to contain and clean up the spill.

5.3 Waste Management

5.3.1 Solid Waste Management

5.3.1.1 General Practices

Solid waste, such as garbage, refuse, and sludge and solid, liquid, semi-solid, or contained gaseous materials must be contained. The solid waste must be stored in a manner that does not constitute a fire, health, or safety hazard and must be contained or bundled so as not to result in a spill. Bulk or noncontainerized nonhazardous liquid wastes are prohibited from disposal at a solid waste landfill.

The solid waste must be collected with sufficient frequency to inhibit the propagation or attraction of vectors such as animals or insects or the creation of a nuisance. Food waste must be collected at least weekly.

5.3.1.2 Waste Containers

Containers will be provided in areas where waste is generated to collect and segregate waste streams. These waste containers will be labeled according to the type of waste for which they are intended.

Waste containers for garbage or recycling must be of adequate size and number to handle the amount of waste being generated. Containers storing food wastes must be covered, leakproof, and maintained to prevent a nuisance (e.g., odor, sight) and control vectors such as animals and insects.

Free liquids, as defined by the paint filter test (SW-846 Manual Method 9095B: Paint Filter Liquids Test), will be not be disposed of in the trash. Any liquid wastes will be limited to small containers such as those found in household trash (e.g., soda in a can or cups, hand-washing detergent container with some residue).

5.3.2 Hazardous Waste

5.3.2.1 Hazardous Waste Assessment

The subcontractor who generates solid waste must determine if their waste is defined as hazardous waste, in accordance with this Loss Control Manual and federal, state, and local requirements, and if it is generated, stored, transported, treated, and disposed in accordance with those requirements.

Solid waste will be classified as a hazardous waste if it meets any of the following four conditions:

(1) The waste exhibits any of the following four characteristics of a hazardous waste: ignitability, corrosivity, reactivity, and toxicity, as defined by 40 CFR 261.

(2) The waste is specifically defined as being a hazardous waste in one of four lists:

  (a) Hazardous waste from specific sources (40 CFR Part 261.32 K List).

  (b) Hazardous waste from nonspecific sources (40 CFR Part 26131 F List).

  (c) Discarded commercial products and spill residues (40 CFR 261.33 P and U Lists) acute hazardous waste (40 CFR Part 261.30).

  (d) Toxic hazardous wastes (40 CFR Part 261.20).

(3) The waste is a mixture of a listed hazardous waste and a nonhazardous waste.

(4) The waste is declared as hazardous by the generator.

The following are exempt from the hazardous waste rules:

- Nuclear materials.
- Fly ash.
- Mining overburden.
- Drilling fluids.
- Ore processing waste.

The subcontractor is responsible to report in writing to OCI the type of hazardous waste it typically generates prior to the creation of the waste stream or within 24 hours of creating an unexpected hazardous waste.

5.3.2.2 Generator Status

The amount of hazardous waste generated at the site in a calendar month will determine the generator status of the subcontractors and the site collectively. The subcontractors will work toward a goal of minimizing the generation of hazardous waste with the objective that the site does not allow the following:

- Generate more than 220 pounds of hazardous waste or 2 pounds of acute hazardous waste in a calendar month.
- Accumulate more than 2,200 pounds of hazardous waste at any one time.

When determining the quantity, all hazardous waste generated will be included, except the following:

- Scrap metal.
- Empty containers and rinsates from these containers.
- Waste managed immediately upon generation in an onsite elementary neutralization unit.
- Wastewater treatment unit.
- Totally enclosed treatment facilities.
- Used oil managed under 40 CFR 261(6)(a)(4) and 40 CFR Part 279.
- Spent lead acid batteries managed under 40 CFR 266, Subpart G.
- Universal waste managed under 40 CFR 261.9 and 40 CFR Part 273.

OCI will coordinate with the subcontractor in keeping the monthly amount of hazardous waste generated to less than 220 pounds of hazardous waste or 2 pounds of acute hazardous waste.

If the amount of hazardous waste generated onsite in one calendar month exceeds 220 pounds of hazardous waste or 2 pounds of acute hazardous waste, OCI will develop a Site Hazardous Waste Management Plan for the overall site that must be followed by the subcontractor. The subcontractor will develop its own Hazardous Waste Management Plan for activities that interface with the OCI Site Hazardous Waste Management Plan. The Site Hazardous Waste Management Plan will address the following:

- Requirements for container labeling.
- Personnel training.
- Preparedness and prevention.
- Emergency procedures.
- Waste analysis plans when treating hazardous waste onsite to meet the land disposal restriction treatment standards.

5.3.2.3 Notification of Waste Generating Activities

When more than 220 pounds of hazardous waste or 2 pounds of acute hazardous waste are generated per calendar month, OCI is responsible for ensuring that the state environmental agency or the United States Environmental Protection Agency (USEPA) is notified of onsite regulated waste activities.

OCI will determine if there is any specific state or local requirements for notifications for generating hazardous waste.

5.3.2.4 Identification Number

OCI will determine if there are any requirements for notifying agencies of hazardous waste generation activity and obtaining an identification number. The Owner is responsible for obtaining the required identification number, in coordination with OCI. OCI will provide the EPA identification number to subcontractors.

As a minimum, the USEPA identification must be obtained from the USEPA or state environmental agency when any of the following conditions exist:

- More than 220 pounds of hazardous waste or 2 pounds of acute hazardous waste are produced per month,
- Hazardous waste is disposed,
- Hazardous waste is offered for transport, or
- More than 11,000 pounds of universal waste is accumulated at any one time.

A USEPA identification number must be obtained using USEPA Form 8700-12, Notification of Regulated Waste Activity or equivalent.

5.3.2.5 Hazardous Waste Collection

Containers used to collect hazardous wastes must be labeled with the subcontractor's name and the date on which filling of the container began. In addition, the container must be marked as "hazardous waste" and must include the specific type of waste it contains.

Containers used to store and transport hazardous waste must be compliant with 49 CFR.

Containers used to collect hazardous waste must be equipped with a cover and closure device that forms a continuous barrier over the container.

When a defect is detected in the container, cover, or closure device, efforts shall be made to repair the defect within 24 hours. In no case will the defect be permitted to exist for longer than 5 days without removing the hazardous chemicals from the container.

Up to 440 pounds (55 gallons) of hazardous waste or 2 pounds (1 quart) of acute hazardous waste may be accumulated in containers located close to, and under the control of, the source generating the waste. Containers used to collect hazardous waste at the points of generation must be moved to the accumulation (storage) area when full or when an activity generating the waste is complete.

5.3.2.6 Hazardous Waste Container Labels and Markings

Containers of hazardous waste offered for transport must be marked with the following words and information:

- HAZARDOUS WASTE--Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority or the USEPA.
- Generator's Name and Address.
- Generator's EPA Identification Number.
- Manifest Tracking Number.

5.3.2.7 Hazardous Waste Secondary Containment

Containers of hazardous waste containing free liquids, regardless of size, must be provided with secondary containment. Secondary containment must be designed, installed, and operated to prevent the release and migration of materials or accumulated liquids out of the system to the soil, groundwater, or surface waters at any time during use or storage. Refer to Subsection 5.2.1.5 for secondary containment requirements.

5.3.2.8 Hazardous Waste Empty Container Rule

A container is considered empty and not counted toward hazardous waste limits regardless of what the container previously held if the following occurs:

- All practical means are used to empty the container, such as pouring, pumping, aspirating, etc., and no more than 1 inch of residue remains on the bottom of the container or liner when the container is less than 110 gallons in capacity, or no more than 0.3 percent by weight of the total capacity of the container remains in the container or liner when the container is greater than 110 gallons in capacity.
- A container that held compressed gas is considered empty when the pressure in the container approaches atmospheric pressure.
- A container or liner of a container that held an acute hazardous material is empty following a triple rinse with a solvent capable of removing the hazardous material.

Rinsates of Resource Conservation and Recovery Act (RCRA) empty containers may be discharged to a publicly owned water treatment plant (POWTP) providing the discharge meets pretreatment standards.

5.3.2.9 Hazardous Waste Storage

Full containers of hazardous waste may not accumulate longer than 90 days before it is transported offsite for proper disposal at a treatment storage or disposal facility. At no time will more than 1,600 pounds (200 gallons) of hazardous waste be accumulated before arranging for transport, storage, or disposal.

Note: This upper limit may be less if the City of Memphis wants to maintain specific generator status or meet established goals.

5.3.2.10 Waste Piles

Waste piles must be managed so that wind and water dispersal is controlled. Waste piles will be located on a flat dry area. It will be located with due consideration to security and public access.

The waste pile will be on an impervious surface such as a layer of 30 mil plastic sheeting or equivalent material that is approved by OCI. The edges of the waste pile will be contained by a sediments barrier such as silt fence or hay bales. The impervious surface will extend at least 3 feet from the outside edge of the sediment barrier. Joints of the impervious materials will overlap at least 12 inches.

A run-on control system must be capable of preventing flow onto the waste pile during peak discharge from at least a 25 year storm. The run-off management system must be capable of collecting and controlling the water volume resulting from a 25 year, 24 hour rainfall event.

The waste pile will not exceed 15 feet in height and will not be sloped steeper than one vertical to two horizontal. The waste pile will be covered with impervious materials, such as a tarpaulin or plastic sheeting, at the end of each day and during adverse weather conditions. The cover will have a 12 inch overlap at all joints and will be secured in place to prevent displacement during adverse weather conditions and wind action. The cover will be large enough to extend beyond the limits of the bottom layer and will be secured in place with tie-downs or ballasts.

No liquid or materials containing free liquids may be placed in the waste pile.

Drainage from the waste pile will be controlled in a manner, so that run-on or runoff from the waste pile is minimized and mitigated. All wastes from the sediment barrier system will be managed in accordance with this Environmental Operations Plan.

Temporary soil piles resulting from excavation or earth moving activities are not required to have an impervious surface.

Temporary soil piles resulting from excavation or earth moving activities are not required to have a run-on control system or cover, unless the soil pile is older than 48 hours.

C&D material covered or coated with metal bearing coatings (arsenic, lead, chrome, cadmium, mercury, selenium, or silver) must be contained or stockpiled to prevent dust, coating flakes, or slag or residue from the waste pile so that soils are not contaminated. To determine if they are hazardous, a berm or similar containment system must be built to prevent run or run off of rain or other water sources, If the material exhibits characteristics of toxicity, as determined by the Toxicity Characteristic Leaching Procedure (TCLP), Test Method 1311 in "Testing Methods for Evaluating Solid Waste, Physical/Chemicals Methods" EPA Publications SW-846, the soils must be managed as a hazardous waste unless recycled. Recycled scrap metal is exempt from the hazardous waste requirements.

5.3.2.11 Disposal

Scrap metal will be screened for radiation levels as required by the scrap metal facility or disposal facility. The person taking the radiation screen must be qualified.

5.3.2.12 Disposal

Solid waste will be collected and disposed in accordance with local rules and regulations.

Hazardous waste, PCB waste, and asbestos waste will not be disposed in municipal landfill without the landfill owner and OCI approval.

5.3.2.13 Recycling

Recycling is encouraged for paper products as well as other materials, such as chemicals, batteries, glass, metals, aluminum, and plastic, if it is economically feasible.

5.3.2.14 Hazardous Waste Inventory

The subcontractor's representative will report on the amount of hazardous waste generated from site activities on the Loss Management Monthly Summary Report (Figure 2).

5.3.2.15 Hazardous Waste Disposal

Hazardous wastes must be shipped to a designated facility that treats, recycles, or disposes of a particular type of hazardous waste. Prior to sending a shipment of hazardous waste offsite, the subcontractor must notify the receiving facility and secure an agreement of acceptance. The agreement will be in writing. A copy of the written agreement will be submitted to OCI by the fifth of the month.

Rinsates of RCRA empty containers are not hazardous waste and may be disposed to a POWTP providing the discharge to the POWTP meets pretreatment requirements.

5.3.2.16 Hazardous Waste Transportation

Before the waste is transported offsite, it must be packaged in accordance with USDOT 49 CFR Parts 173, 178, and 179.

Before the waste is transported offsite, each package must be labeled in accordance with USDOT 49 CFR Part 172 and USEPA 40 CFR 262.

Before containers less than 110 gallons in capacity are transported offsite, each package or container must be marked in accordance with 49 CFR 172.304 and USEPA 40 CFR 262.

When hazardous waste is transported or offered for transport for offsite treatment, storage, or disposal, USEPA Form 8700-22, or a manifest equivalent to this form must be completed prior to transport.

Copies of the signed manifest must be provided to OCI at the time the hazardous waste is shipped offsite and at the time the hazardous waste is received at the designated facility.

Before hazardous waste is transported offsite, a placard, in accordance with 49 CFR Part 172, Subpart F, will be offered to the initial transporter.

The subcontractor will provide OCI the USEPA identification number and license number, and a copy of the transporter's license of the transporter of hazardous waste before loading the shipment.

5.3.2.17 Recordkeeping of Waste Disposal

The following records will be retained in the project files:

- Copies of each signed manifest.
- Copies of test results, waste analysis, or other hazardous waste determinations for 10 years.
- Copies of daily and weekly inspection reports.
- Written agreement with waste disposal firms.

5.3.3 Universal Wastes

Universal wastes are hazardous wastes that may be managed using less restrictive practices. Each state defines universal waste differently.

Universal wastes typically include batteries, pesticides, mercury-containing equipment, and lamps.

All universal waste must be managed in a way that will prevent a release to the surrounding environment.

5.3.3.1 Containers

Universal wastes must be stored in a container that remains closed, is structurally sound, is compatible with the contents, and lacks evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions.

5.3.3.2 Labeling/Marking

The collection or storage container or the individual item must be marked as follows:

Universal Waste Type	Waste Label Wording
Batteries	Universal Waste - Batteries
Pesticide	Original FIFRA label, USDOT label, Universal Waste - Pesticide(s)
Mercury-Containing Equipment	Universal Waste - Mercury-Containing Equipment
Lamps	Universal Waste - Lamp(s)

5.3.3.3 Storage

Universal wastes cannot be stored onsite for more than 1 year. Subcontractors must be able to demonstrate the length of time the universal waste has been accumulating by marking the collection start date on the collection or storage container or individually marking each item with the date it became a waste.

5.3.3.4 Employee Training

Workers who handle universal waste or have responsibility for universal waste must be informed of proper handling and emergency procedures.

5.3.3.5 Disposal

Universal wastes must be shipped to a designated facility that treats, recycles, or disposes of a particular type of universal waste. Prior to sending a shipment of universal waste offsite, the subcontractor must notify the receiving facility and secure an agreement of acceptance. The agreement will be in writing. A copy of the written agreement will be submitted to OCI by the fifth of the month.

5.3.3.5.1 Batteries

With the exception of the following, batteries are managed as a universal waste:

- Spent lead acid batteries managed under 40 CFR Part 266, Subpart G.
- Batteries that are classified as a characteristic hazardous waste identified in 40 CFR 261, Subpart C.

Waste batteries that show evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions must be stored in a container. The container must be closed; structurally sound; compatible with the contents of the battery; and must lack evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions.

The following activities are permitted as long as the casing of each individual battery cell is not breached and remains intact and closed (cells may be opened to remove electrolyte, but must be immediately closed after removal):

- Sorting batteries by type,
- Mixing battery types,
- Discharging batteries,
- Regenerating used batteries,
- Disassembling batteries or battery packs,
- Removing batteries from consumer products, or
- Removing electrolyte from batteries.

Subcontractors will dispose of spent lead acid batteries via an authorized recycler. Unsealed lead acid batteries that are not recycled will be treated as a hazardous waste.

5.3.3.5.2 Pesticides

Pesticides are managed as a universal waste.

Subcontractors applying a USEPA restricted use pesticide on the construction site must use certified pesticide applicators.

Subcontractors applying a restricted use pesticide on the construction site must present to OCI a copy of the applicator's pesticide applicator certification or license before application of the pesticide.

Pesticides stored onsite must be managed in accordance with label directions and the following requirements:

- The pesticide storage areas shall be in a dry, well ventilated, secured room or building, with spill containment and runoff retention systems.
- Identification and warning signs are required on the room or building and on movable equipment used to handle the pesticides (e.g., sprayers).
- The pesticide containers must have visible labels, be segregated according to formulation, and be inspected regularly for corrosion and leaks.

5.3.3.5.3 Lamps

Lamps are managed as a universal waste, are defined as the tube portion of an electrical lighting device, and include the following:

- Fluorescent bulbs.
- High intensity discharge lamps.
- Neon lamps.
- Mercury vapor lamps.
- High-pressure sodium lamps.
- Metal halide lamps.

Lamps for the purpose of this section do not include those that exhibit one or more characteristics of hazardous waste including ignitability, corrosivity, reactivity, or toxicity.

Lamp drum-top crushing devices or similar devices that crush the lamp for volume reduction are not permitted.

Broken lamps must be cleaned up immediately and disposed of in a container that is structurally sound and suitable for any waste lamp. Containers must prevent the release of metal vapors (e.g., mercury, sodium) during storage and disposal.

5.3.3.5.4 Mercury-containing equipment

Mercury-containing equipment is managed as a universal waste and includes devices, items, or articles that contain varying amounts of elemental mercury. Mercury-containing equipment includes the following:

- Thermometers.
- Manometers.
- Barometers.
- Relay switches.
- Mercury regulators.
- Meters.
- Pressure gauges.
- Sprinkler system contacts.
- Silent switches.

Mercury Handling Procedures. When elemental mercury is handled onsite, the following handling procedures must be followed:

- Transfer of mercury must be done over or in a containment device (e.g., tray or pan sufficient to collect and contain any released mercury).

Mercury cleanup kits must be available at the following locations:

- The site of the transfer operation.
- In the storage area.

Mercury cleanup will never include the following practices:

- Use of a vacuum or broom to clean up mercury. Doing so creates a greater hazard to exposure.
- Washing mercury contaminated clothing in home washing machines.

5.3.4 Oil Management

5.3.4.1 Used Oil

Types of oil include, but are not limited to, the following:

- Petroleum.
- Fuel oil.
- Sludge.
- Oil refuse.
- Oil mixed with waste other than dredged soils.
- Fats.
- Animal fats.
- Vegetable oils.
- Synthetic oils.
- Mineral oils.

5.3.4.2 Used Oil Management

5.3.4.2.1 Source

Used oil is defined as any oil that has been refined from crude oil or any synthetic oil that has been used, and as a result of use or as a consequence of extended storage or spillage, has been contaminated with physical or chemical impurities.

Used oil must not contain more than 1,000 parts per million (ppm) of total chlorinated hydrocarbons or risk being presumed as a hazardous waste as defined in Sub-section 5.3.4.2.4, Presumption of Hazardous Waste.

If the used oil waste is free of flowing oil (free of liquids), it is a solid waste unless it is used for energy recovery as used oil.

Used oils include, but are not limited to, those listed in Table 5-1. Used oils combined with hazardous wastes must be managed as hazardous wastes. In some states, used oil is classified as a hazardous waste and must be managed as one. Oil-like materials that are not used oils include those listed in Table 5-2.

5.3.4.2.2 Prohibited uses for used oil

Used oils are prohibited from the following:

- Used as dust suppressant (road oiling).
- Used as insect or weed control.
- Disposed of on land or to sewers and other water systems.
- Burned as a fuel or incinerated.
- Disposed of in public used oil collection centers.
- Mixed with oil generated from houses or other sources, since this would require further testing for halogens to counter the presumption of the used oil being a hazardous waste.

5.3.4.2.3 Container labels and markings

Tanks and containers holding used oil must be labeled with the words “Used Oil,” the initial date of accumulation, and the name and address of the generator.

Table 5-1 Examples of Used Oil
Vehicular crankcase oils
Engine lubricating oils
Transmission fluids
Gearbox and differential oils
Used industrial oils
Hydraulic oil
Compressor oil
Turbine oil
Bearing oil
Gear oil
Transformer (electrical) oil
Metal working oils

Table 5-2 Oil-Like Materials That Are Not Used Oils
Antifreeze
Brake fluid
Other vehicular wastes
Fuels (gasoline, diesel, kerosene, etc.)
Grease
Solvents
Oils with a flash point below 140° F
Oils contaminated with more than 1,000 ppm total halogens, unless the presumption is rebutted
Oils mixed with hazardous wastes
Wastewater containing small amounts of used oils
Oils containing 5 ppm or greater of polychlorinated biphenyls (PCBs)
Tank bottoms
Used oil processing bottoms
Used oil rerefining bottoms

5.3.4.2.4 Presumption of hazardous waste

Used oil containing greater than 1,000 ppm total halogen is presumed to be hazardous waste unless it can be demonstrated that the used oil has been managed in a manner that prevented the introduction of halogenated hydrocarbons.

5.3.4.2.5 Off-site shipment of used oil

The subcontractor that generates the used oil must transport the used oil to a used oil collection center that is registered, licensed, permitted, or recognized by a state/county/municipal government to dispose of or recycle used oil. Containers of used oil being transported to a used oil collection center must not exceed 55 gallons.

5.3.4.2.6 Used non-terne plated oil filter management

Unless the used oil is hot drained as described below, the used oil filter (with residual oil) is a solid waste and must have a hazardous waste determination.

Before disposing of used oil filters in the solid waste stream, the oil filter shall be hot drained in the following manner:

- Hot drain all free flowing oil from the oil filter.
- Properly contain the used oil filters.
- Properly label the container as "Used Oil Filters."
- Transport to a licensed facility.
- Transport under a bill of lading with a copy provided to OCI.
- Manage the oil removed from the filters as used oil.

Oil filters that are hot drained and crushed are defined as process scrap metal and are excluded from the definition of solid waste if recycled.

5.3.4.2.7 Spill prevention and control

A Spill Prevention, Control, and Countermeasure Plan must be developed by a professional engineer and implemented by subcontractors when the following criteria are met:

- Site stores, uses, transfers, or otherwise handles oil.
- Site has a maximum aboveground storage capacity greater than 1,320 gallons of oil (which includes both bulk and operational storage volumes) or total underground storage capacity greater than 42,000 gallons of oil, counting only those containers with capacities of at least 55 gallons.

- There is a reasonable expectation (based on the location of the site) that an oil spill would reach navigable waters or adjoining shorelines of the United States.

- It stores PCB-containing equipment or materials.

5.3.4.2.8 Oil spill definition

An oil spill or discharge is defined as a quantity that possesses the following characteristics:

- Causes a film or "sheen" upon, or discoloration of, surface water or adjoining shorelines.

- Violates applicable water quality standards.

- Causes a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.

If the oil spill has the potential to harm people offsite, the SERC and the LEPC or the local fire department must be notified.

5.3.5 PCB Management

5.3.5.1 Sources of PCB

Despite a federal ban on the manufacture, processing, and distribution in commerce of PCBs, they can be encountered during demolition or excavation activities. PCB-containing equipment or materials includes those listed in Table 5-3.

5.3.5.2 Source Sampling

All potential sources of PCB-containing equipment or material must be tested and proven to be PCB free prior to exposing workers to materials and equipment that may contain PCBs. Source sampling of suspected PCB containing materials will be under the supervision of a certified industrial hygienist.

5.3.5.3 Discovery of PCB-Containing Equipment or Material

Upon discovery of potential PCB-containing equipment or material, work must cease immediately and the appropriate supervisor must be notified. The subcontractor will notify OCI as soon as possible. Work area will be barricaded. Work will not resume until authorization is provided by the Owner that the area is free of PCBs.

Table 5-3 Examples of PCB-Containing Equipment or Materials
Mineral oil-filled electrical equipment manufactured before July 2, 1979
Capacitors or transformers manufactured before July 1979
Dielectric fluids in transformers, capacitors, and electrical components
Protective coatings
Hydraulic fluids
Heat transfer fluids
Caulk
Fluorescent light ballasts
Voltage regulators
Sealants
Plasticizers
Lubricants
Adhesives
Cutting oils
Dedusting agents
Gaskets
Electric cable (plastic)
Sound deadening felts
Air compressor lubricants

5.3.6 Contaminated Soils

5.3.6.1 Materials Management Plan

When contaminated soils are known to exist at the site, the subcontractor will develop a Materials Management Plan. The plan will describe how the subcontractor will manage contaminated soils to prevent impact to the environment and the workers. The Materials Management Plan will address the following:

- Excavation.
- Worker protection.
- Storage and stockpiling.
- Sampling and analysis.
- Transportation.
- Disposal.

5.3.6.2 Discovery of Contaminated Soils

Upon the discovery of soils that appear to pose an environmental concern or are significantly different in composition and classification than those noted in boring logs or similar tests, the subcontractor will immediately stop work and notify OCI. OCI will notify the Owner and determine if there is a need to make further notifications. OCI will decide if the soils need to be sampled to determine the presence and degree of contamination. The sampling performed by OCI shall not relieve the subcontractor of its obligation to identify and evaluate the contaminants for the protection of employees and the environment. If the contamination exceeds the threshold for regulated soils, a Material Management Plan will be developed by the subcontractor before work resumes.

5.3.6.3 Notification

OCI will immediately be notified.

OCI will notify the Owner. Any necessary report or notification to governmental agencies is the responsibility of the Owner.

OCI will make the notification to the Owner and government agencies as soon as possible unless previous arrangements have been made for the Owner to make the notifications.

OCI will immediately notify the Project Manager who will coordinate further communications of the release in accordance with the OCI Crisis Communication Plans.

5.3.6.4 Stockpile

Subcontractor will segregate material of differing types and degrees of contamination to prevent cross contamination of uncontaminated material. During excavation activities, when soils are discovered that appear to pose an environmental concern or are significantly different in composition and classification than those noted in boring logs or similar tests, these soils shall be segregated from other soils until proper testing can confirm the nature of the soils.

Subcontractor will place stockpiles of excavated soils in dry areas on a minimum 30 mils thick polyvinyl chloride (PVC) sheeting or equivalent. All joints in the underlying PVC sheeting will overlap, with a minimum of 12 inches at the ends. The stockpile will be contained with sediment control devices, such as hay bales or silt fence, placed continuously at the perimeter of the stockpile.

Stockpiles will be covered with minimum 30 mils thick PVC sheeting or equivalent. The sheeting will be secured in place with tie-downs or heavy objects at the end of the workday and during adverse weather conditions. All joints in the cover will have a minimum 12 inch overlap and securing materials will be placed along the joints so that the cover will not be opened by wind action.

The subcontractor will maintain the sheeting and needs to repair damage and replace displaced cover sheeting. Subcontractor will provide protection against run-on or storm water, migration of contaminants, dusting, erosion, and unauthorized contact.

The stockpiled soils will be sampled and analyzed for waste characterization to determine the proper disposal options.

5.4 Wastewater and Storm Water Management

5.4.1 Dewatering

All water from dewatering activities will be collected, tested, and disposed of in accordance with applicable permits and regulations

5.4.2 Water Discharge

All discharges of water to the ground, surface waters, groundwater, wetlands, sewers, drains, or ditches or swales that lead to surface water, must be done under an NPDES permit.

The Contractor will notify OCI whenever there is a water discharge in excess of 30 gallons. The Water Discharge Notification Form (Figure 37) must be provided to OCI prior to the discharge of water.

In the event that the discharge was unexpected or unplanned, the Water Discharge Notification Form (Figure 37) must be submitted to OCI within 24 hours of the discharge of water.

5.4.3 Concrete Waste Management

5.4.3.1 Concrete Washout Area

Subcontractor shall require concrete washouts to be performed offsite whenever possible. Onsite concrete washout areas will be located at least 50 feet from storm drain inlets, open drainage facilities, watercourses, or wetlands in an area designated by OCI.

The concrete washout area will be designed to prevent runoff from this area through the use of a temporary pit or bermed area large enough to contain the liquid and solid waste. Subcontractors must perform onsite concrete washouts in designated areas.

Only concrete from mixer truck chutes shall be washed into the concrete washout. Concrete washout from concrete pumper bins can be washed into concrete trucks and discharged into the designated washout area or properly disposed of offsite.

Once concrete wastes are washed into the designated area and allowed to harden, the concrete shall be broken up, removed, and disposed of as solid waste. Subcontractor will post a sign adjacent to each temporary concrete washout facility to inform concrete equipment operators to utilize the proper facilities.

5.4.4 Storm Water Management

5.4.4.1 Spills and Releases Controls

Every construction project disturbing more than 1 acre of land will have a Storm Water Pollution Prevention Plan. The subcontractor must comply with all provisions and requirements of the plan. The subcontractor is responsible for protecting storm drains, open ditches, water bodies, or wetlands from receiving contaminated liquids through the use of flow control devices such as absorbents and dikes.

5.4.4.2 Erosion and Sediment Controls

Storm drains, open ditches, water bodies, or wetlands will be protected from receiving sediment-laden runoff through the use of sediment control devices such as hay bales or silt fences. Washouts in seeded areas and rip rap must be repaired in a timely manner.

Erosion and sediment controls must be replaced or cleaned at 50 percent capacity.

Silt and sediment removed may be placed and stabilized on designated site in a manner that does not foul existing or proposed storm drainage systems.

5.4.4.3 Stabilized Construction Entrance/Exit

Points of entrance and exit to a construction site must be stabilized to reduce the tracking of mud and dirt onto public or clean roads by construction vehicles. When mud and dirt is tracked onto public roads or adjacent public rights-of-way, subcontractor will sweep or vacuum the street to remove the mud, dirt, or sediments.

5.4.4.4 Vehicle and Equipment Cleaning

Vehicle and equipment cleaning procedures and practices must eliminate or reduce the discharge of pollutants to surface waters or inlets/drains. Procedures and practices include, but are not limited to, the following:

- Using offsite facilities.
- Washing in designated contained areas only.
- Wash without the use of detergents or soaps.
- Eliminating discharges to the inlets/drains by filtering the wash water.
- Training employees and subcontractors in proper cleaning procedures.

5.5 Air Emissions and Odor Control

5.5.1 Vehicle Exhaust

Subcontractor will ensure that all its vehicles are in good repair and conform to the relevant regulatory requirements for emissions standards. The use of equipment that fails to meet current emissions limits will not be permitted until it has been serviced and retested. Subcontractor will maintain records of equipment maintenance and defect reports in a designated file, and these records will be made available as required.

Vehicle exhausts will be directed vertically upwards where possible and directed away from the ground, at a minimum. Wherever possible, equipment will not be left running for long periods when not directly in use. Where appropriate, electrically-powered equipment will be used in place of diesel-powered equipment.

When diesel powered equipment is used, the low emitting diesels are preferred.

5.5.2 Fugitive Dust Control

Fugitive dust can be generated from activities such as demolition, site preparation, excavation, earth moving, and vehicular traffic associated with site ingress and egress and equipment delivery.

Subcontractor will plan, locate, and control worksite activities that have the potential to generate dust or smoke, so that nearby sensitive receptors are not adversely affected. Subcontractor will implement dust control measures, such as water or chemical dust suppression, when conditions are conducive to dust migrating from the construction site. During earthworks and excavations, the site will be kept damp during dry weather and will be revegetated, sealed, or completed as soon as possible.

For demolition, enclosed chutes will be used for dropping to ground level demolition materials that have the potential to cause dust.

Vehicles transporting materials capable of generating dust to and from the site will be suitably sheeted on each journey to prevent release of materials and particulate matter. The sheeting material will be maintained in good order and will be free from excessive rips and tears. A maximum speed of 10 miles per hour (mph) will be strictly enforced over all unpaved surfaces. Reductions to this speed limit may be applied at the discretion of OCI or the Owner where dust problems dictate.

Unpaved roads will be routinely damped down, especially during dry periods and according to weather conditions. Where haul routes run over materials with high dust raising potential that cannot be satisfactorily controlled by watering or other methods, temporary surfacing must be installed by the subcontractor.

Burning of wastes or unwanted materials will not be permitted onsite.

5.5.3 Odor

In residential areas or other locations where the public would be exposed, the subcontractor will minimize the release of objectionable odors.

5.6 Site Clearing and Resource Protection

5.6.1 Vegetation and Site Clearing

Areas that are not to be disturbed during construction activities will be marked by the subcontractor with temporary fencing or substantial barriers that prevent entry by vehicles or heavy equipment. Sufficient setback will be provided to protect the root systems of trees and shrubs that are not to be disturbed. Heavy equipment, vehicular traffic, or storage of construction materials are not permitted within the protected areas.

The subcontractor will report damage to trees or shrubs to OCI within 24 hours of discovery. Temporary roadways, stockpiles, and lay down areas will be located to avoid stand of trees, shrubs and grass.

5.6.2 Threatened and Endangered Species

When the subcontractor suspects a threatened or endangered species has been identified, any work activity that may impact their environment, including unnatural noise and light, must cease and OCI must be notified immediately. OCI will not permit work to continue until it has been determined that the subcontractor's activities will not impact threatened or endangered species.

5.6.3 Protection of Historic and Archaeological Resources

In the event that historic or prehistoric archaeological resources, such as arrowheads, pottery, and structures, are discovered during trench excavations, demolition, or other site disturbing activities, work activity in the immediate area of discovery will stop. The area where the artifacts are discovered will be secured and flagged as being off limits for work. The artifacts will not be touched, moved, or further disturbed. The nearest supervisor will

be notified. The subcontractor will immediately notify OCI. OCI will notify Owner and determine if there is a need to make further notifications.

Construction will only proceed in the affected area after the Owner and OCI has reviewed the discovery and has authorized construction activities to resume.

5.6.4 Human Remains Discoveries

If bones or other evidence of human remains are identified during construction, the subcontractor will immediately stop work on activities that could further harm the remains and will immediately notify OCI. The area where the remains are discovered will be secured and flagged as being off limits for work. The remains will not be touched, moved, or further disturbed. In all cases, subcontractor will take due care to ensure that the remains, regardless of origin, are afforded the utmost respect and protection. The exact location and time of discovery will be immediately forwarded to the Owner who will be responsible for managing the discovery. Work will not resume until authorized by Owner and OCI.

5.7 Noise Control

Subcontractor must give consideration to the effects of this noise on people working in operations at the construction site, and on nearby residents, businesses, and institutions.

Construction activities that are the source of the loudest noises include earth moving, excavating, blasting, pile driving, use of pneumatic tools, fabrication and assembly of structural steel, and operation of heavy equipment and vehicles.

The adoption of appropriate control measures and anticipation of complaint-causing activities will assist in the mitigation of these effects. Measures to be implemented to minimize noise or control its effect on sensitive receptors include the following:

- Properly maintaining equipment and using mufflers whenever possible.
- Performing certain noisy operations only during the day or during normal work hours for the project.
- Adopting and implementing work practices to mitigate the effects of noise, such as shutting off equipment not in constant use and avoiding unnecessary revving of vehicles.
- Siting noisy equipment and operations away from sensitive noise boundaries when possible. When not possible, controlling noise by the erection of acoustic shielding or siting behind spoil heaps as appropriate.
- Loading and unloading vehicles, dismantling site equipment, such as scaffolding, or moving equipment or materials around the site to minimize noise generation and, when possible, these activities will be conducted away from noise sensitive areas.

- Limiting vehicle and equipment speeds to 10 mph onsite for the safety of the workforce and to minimize disturbance from noise and dust.

- Using electrically-powered equipment instead of diesel-powered equipment whenever feasible.

5.8 Community Relations

The objective of a community relations plan is to ensure that good public relations are maintained at all times during the construction project. Complaints must be dealt with swiftly and, when appropriate, remedial action will be taken.

5.8.1 Responsibilities

Owner and OCI have overall responsibility for undertaking all communications with outside third parties. Subcontractors receiving complaints onsite will immediately contact OCI, who will report the complaints to Owner.

5.8.2 Management Measures

OCI and Owner will seek to set up and maintain good public relations through a program that informs the public of the project and its schedules and by being available to answer questions about the project in an informed and consistent manner. In the event of unusual activities, including work performed outside of normal hours, the subcontractor will notify OCI, who will notify Owner in advance. Owner will, in turn, notify all affected neighbors.

Complaints from neighbors or other parties will be treated seriously and the cause will be fully investigated. OCI will log the complaint and, when appropriate, remedial action will be taken. The complainant will be informed by Owner of the action that has been taken.

Neighborhood liaison issues will be routinely discussed at the site management meetings. Complaints will be actively followed up and corrective action will be taken, as appropriate.

5.8.3 Documentation

OCI will record all complaints from neighbors or other parties in its project log. This will provide a permanent record of the performance of the project. OCI will maintain copies of all correspondence from Owner regarding complaints with neighbors onsite for the duration of the project.

5.9 Training

Anyone handling, using, transporting, or storing a hazardous material is required to have documented training in the following:

- How to stop a release.

- How to select the proper PPE.

- How to confine a release.

- How to collect, absorb, and dispose of the residues.
- How to decontaminate equipment.
- How to report and notify incidents.

5.10 Permit Conditions and Approval Requirements

Subcontractor will identify all relevant federal, state, and local permits or permit modifications or certifications needed to implement the construction activity.

Subcontractor will provide a written plan of action for complying with the identified permits during the construction phase of the project. A copy of the plan will be included as an addendum to the subcontractor environmental operations program.

City of Memphis
Water Collection and Transmission System (WCTS) - Assessment and Rehabilitation Program
Project Number 179821

LOSS CONTROL MANUAL FORMS

OVERLAND CONTRACTING™

1.0 Figures

- Blank 10 percent Random Substance Abuse Letter
- Blank Loss Management Monthly Summary Form
- Chain Fall Inspection Form
- Chemical Storage Area Inspection Form
- Competent Person Form
- Confined Space Entry Permit
- Critical Lift Form
- Chain Fall Inspection Form
- Electrical DNO Isolation Log
- Emergency Action Plan
- Energized Electrical Work Authorization Form
- Equipment Operator Daily Checklist Form
- ESHS Occupational Violation Notice Form
- Excavation Inspection Form
- Fall Protection Inspection Form Monthly
- Hazardous Material Inventory Form
- First Aid Log
- Illness Injury Investigation Form
- Levered Hoist Inspection Form
- Loss Control Department Training form
- Master Job Hazard Analysis Form
- Monthly Inspection Color Form

- Monthly Inspections (Ladder, GFCI, Fire Extinguisher, Electrical Cord) Form
- Near Miss Property Damage Investigation Form
- Offsite Emergency Medical Treatment Action Plan
- Offsite Non-emergency Medical Treatment Action Plan
- Onsite First Aid Action Plan
- OSHA Inspection Form
- Personnel work Platform Lift Plan
- Pre Lift Safety Checklist Form
- Pre-Construction Substance Abuse Letter
- Request for Lower tiered Usage Form
- Sling and Rigging Inspection Form
- Trench and Excavation Permit
- Trenching and Excavation Notice
- Utility Avoidance Program Form
- Utility Locate Tacking Log
- Utility Strike Investigation Form
- Weekly Safety Meeting Form
- Welding and Cutting Permit

Appendix

Appendix 1: Environmental Permits

Appendix 2: Later

Click here to type date

OCI
587 Sigman Road NE, Suite 100
Conyers, GA 30013

Subject: Click here to type Subcontractor's name
Click here to type project name
10% Random Drug and Alcohol Test

Attention:

Dear

The following employee(s) has (have) undergone a 10% Monthly Random drug and alcohol test and has (have) been found in compliance/noncompliance (choose one) with the Drug Free Workplace policy:

Click here to type name(s)

This list will be updated as each transferred or newly hired employee is drug tested.

Sincerely,

CLICK HERE TO TYPE SUBCONTRACTOR COMPANY NAME

Click here to type name of signer
Click here to type title of signer

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Loss Management Monthly Summary

Project Name		Month/Year	
Project Number		Contractor	
# of Professionals		Contact Name:	

Man-hours

Total Hours Worked for the Month by Subcontractors and their tiered subcontractors.	

First Aid Cases

Total number of First Aid Cases for the Month including tiered subcontractors	
First Aid Case Rate (# of incidents x 200,000) / Total Monthly Man hours Worked	

Recordable Cases

Total number of Medical Treatment Cases for the Month including tiered subcontractors	
Recordable Incident Rate (IR) (# of incidents x 200,000) / Total Monthly Man hours Worked	

Loss Time Cases

Total number of Medical Treatment Cases involving lost time for the Month including tiered subcontractors	
Loss Time Case Rate (# of incidents x 200,000) / Total Monthly Man hours Worked	

Substance Abuse Testing

	Total # of Test	# of Test Passed	# of Test Failed
Pre-Assignment Testing			
10 % Random Testing			
Probable Cause Testing			
Post Accident Testing			

Written Safety and Health Violations

Total # of Written Violation issued for the Month including tiered subcontractors.	

Incident Description

Give a Brief Description of OSHA Recordable Injuries, Property Damage, and/or Near Miss Incidents (Contractor, Date, Injured Body Part, Description of Incident, Property Damaged, Care Given, Actions Taken)

CHAIN FALL

Monthly Inspections are required on all devices.

Month _____ Year _____

Chain Fall

Inspection Criteria:

- Chain moves in smooth movements
- No broken welds in links
- Hooks have workable latches in place
- No damage to casing
- Lifting capacity clearly labeled

Items listed below have been inspected and passed the inspection

Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____

CHEMICAL STORAGE AREA INSPECTION LOG

DATE _____

PROJECT NAME _____

PROJECT NO. _____

SITE NO. _____

SUBCONTRACTOR NAME _____

SUBCONTRACTOR FIELD SUPERVISOR _____

		Storage Area					All Containers					Additional Inspection Items for Compressed Gas Cylinders (CGC)					
Inspection Date	Inspector's Initials	Storage area has proper signage and signs are legible	Storage area free of spills and leaks and containers are not in contact with standing water	Eye wash\safety showers serviced and tagged (weekly)	ER equipment and spill kits functional and maintained	Fire extinguishers serviced and tagged (monthly)	Containers properly labeled and labels are legible	Containers free of damage, residue, or corrosion	Appropriate secondary containment is in place	Containers sealed with tight-fitting lids/bungs	Incompatibles properly segregated	CGCs secured to rack or wall with two straps or approved alternate	CGC valves closed and fitted with safety caps	CGCs containing toxic or flammable gases leak tested (monthly)	Empty CGCs labeled "empty" and segregated from CGCs containing product	CGCs well ventilated, not blocking exits or near a heat source (>125° F)	Observations / corrective action (list full details on back of form)

OVERLAND CONTRACTING	CHEMICAL STORAGE AREA INSPECTION LOG

Observations and Corrective Actions Log

Inspection Date	Inspector Initials	Observation or Comment	Corrective Action Required	Date Action Completed

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DESIGNATION OF COMPETENT PERSONS

Project No. _____ Project Name _____ Date _____

Site _____ Contractor _____ Filed by _____

OSHA Standard	Applies to Contractor (Yes/No)	Designated Competent Person Employee Name
Subpart C - General Provisions		
1926.20 General Safety		
Subpart D - Health and Environmental Controls		
1926.53 Ionizing Radiation		
1926.54 Nonionizing Radiation		
1926.55 Gases, Vapors, Fumes, Dusts, Mists		
1926.57 Ventilation		
1926.59 Hazard Communication		
1926.62 Lead		
Subpart E - Personal Protective Equipment		
1926.101 Hearing		
1926.103 Respirator Protection		
Subpart H - Materials Handling, Storage		
1926.251 Rigging Equipment for Material Handling		
Subpart J - Welding and Cutting		
1926.354 Welding, Cutting, and Heating		
Subpart K - Electrical		
1926.404 Wiring Design and Protection		
Subpart L - Scaffolding		
1926.451 Scaffolding		
Subpart M - Fall Protection		
1926.502 Fall Protection Criteria and Practices		
1926.503 Training		
Subpart N - Cranes, Derricks		
1926.550 Cranes and Derricks		
1926.552 Hoists and Elevators		

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DESIGNATION OF COMPETENT PERSONS (Continued)

OSHA Standard	Applies to Contractor (Yes/No)	Designated Competent Person Employee Name
Subpart O - Motor Vehicles and Equipment		
1926.601 Motor Vehicles		
Subpart P - Excavations		
1926.651 Specific Excavation Requirements		
1926.652 Requirements for Protective Systems		
Subpart Q - Concrete and Masonry Construction		
1926.701 General Requirements		
1926.703 Cast-In-Place Concrete		
1926.705 Lift-Slab Operations		
Subpart R - Steel Erection		
1926.752 Bolting, Riveting, Fitting-Up, Etc.		
Subpart S - Tunnels, Shafts, Caissons		
1926.800 Tunnels and Shafts		
1926.802 Compressed Air		
Subpart T - Demolition		
1926.850 Preparatory Operations		
1926.852 Chutes		
1926.859 Mechanical Demolition		
Subpart U - Blasting and Use of Explosives		
1926.900 General Provisions		
1926.901 Blaster Qualifications		
1926.911 Misfires		
Subpart V - Power Transmission and Distribution		
1926.955 Overhead Lines		
1926.957 Construction in Energized Substations		
Subpart X - Stairways and Ladders		
1926.1053 Ladders		
1926.1060 Training Requirements		
Subpart Z - Toxic and Hazardous Substances		
1926.1101 Asbestos		
1926.1102 thru 1926.1148 Toxic and Hazardous Substances		

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CONFINED SPACE ENTRY PERMIT

Project: _____ Site: _____

Date/Time of Entry: _____ Permit Expires: _____

Location of Confined Space: _____ Contractor: _____

Tank _____ Pipe _____ Manhole _____ Tunnel _____ Vault _____ Other _____

Work Description/Purpose of Entry: _____

Verification:	Date	Supervisor's Signature
Tagout/Lockout (electrical, agitators, valves)		
Purged, Cleaned, and Drained		
Employees Briefed on Safety Procedures		

Special Requirements:	Mandatory? Yes	No		Mandatory? Yes	No
Notify Plant Control Room			Fire Extinguisher		
B&V ESH&S Manager Notified	Y	N/A	Lifelines		
Adequate Access	Y	N/A	Harness, Safety Belt		
Lighting Adequate (low voltage)			Respirators		
Attendant Required Outside			Air Supplied Respirator		
Warning Signs Posted at Access	Y	N/A	Protective Clothing		
Ventilation Required			Radio Communication		
Personnel Entry/Exit Log at Access			Signaling Air Horns		
Rescue Equipment at Access Point	Y	N/A	Tripod Emergency Escape Unit		
Daily Monitoring			Employee Training/Indoctrination (include T/I record on back)	Y	N/A

Other Requirements: _____

Atmosphere Check for Oxygen, Combustibles, and Gas/Vapor

Instrument Type: _____

Atmosphere Checked By: _____

	Pre-entry Reading	a.m.	a.m.	Permissible Exposure Level
Oxygen				19.5% to 23.5%
Combustible Gases				10.0% or less
Toxic Gases				CO + 35 ppm, SO_2 2 ppm, H_2S 10 ppm

In case of emergency, call: _____

The following authorizing signatures indicate the above requirements have been met:

Superintendent in Charge of Work: _____ Date: _____

Foreman in Charge of Work: _____ Date: _____

Attendant: _____ Date: _____

Permit Issued By: _____ Date: _____

Authorized Entrants (please print name)	Initial/Time		Authorized Entrants (please print name)	Initial/Time	
	In	Out		In	Out

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CONFINED SPACE ENTRY PERMIT

TRAINING/INDOCTRINATION RECORD

Site: _____ Contractor: _____

Items/Subject Matter Covered/Included: _____

_____

_____

_____

_____

Your Emergency Communication Device is: _____

Your Emergency Communication Device is located: _____

Your Confined Space Entry Supervisor is: _____

Printed Name	Signature	Date

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RECOMMENDATIONS FOR SAFE ENTRY: A CHECKLIST

Use the following checklist to evaluate the confined space.

Do <u>not</u> enter a confined space until you have considered every question and have determined the space to be safe.

YES	NO	
☐	☐	Is entry necessary?
		<u>TESTING</u>
☐	☐	Are the instruments used in atmospheric testing properly calibrated?
☐	☐	Was the atmosphere in the confined space tested?
☐	☐	Was the oxygen at least 19.5 percent - not more than 23.5 percent?
☐	☐	Were toxic, flammable, or oxygen-displacing gases/vapors present?
		-Hydrogen Sulfide
		-Carbon Monoxide
		-Methane
		-Carbon Dioxide
		-Other (list) _____
		_____
		<u>MONITORING</u>
☐	☐	Will the atmosphere in the space be monitored while work is going on?
☐	☐	Continuously?
☐	☐	Periodically? (If yes, give interval: _____)
☐	☐	**Remember – Atmospheric changes may occur due to the work procedure or the product stored.**
☐	☐	<u>CLEANING</u>
☐	☐	Has the space been cleaned before entry is made?
☐	☐	Was the space steamed?
☐	☐	If so, was it allowed to cool?
		<u>VENTILATION</u>
☐	☐	Has the space been ventilated before entry?
☐	☐	Will ventilation be continued during entry?
☐	☐	Is the air intake for the ventilation system located in an area that is free of combustible dusts and vapors and toxic substances?
☐	☐	If atmosphere was found unacceptable and then ventilated, was it retested before entry?
		<u>ISOLATION</u>
☐	☐	Has the space been isolated from other systems?
☐	☐	Has electrical equipment been locked out?
☐	☐	Have disconnects been used where possible?
☐	☐	Has mechanical equipment been blocked, chocked, and disengaged where necessary?
☐	☐	Have lines under pressure been blanked and bled?

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YES	NO	
		CLOTHING/EQUIPMENT
☐	☐	Is special clothing required (boots, chemical suits, glasses, etc.)?
		(If so, specify: _____)
☐	☐	Is special equipment required (rescue equipment, respirators, communications equipment, etc.)?
		(If so, specify: _____)
☐	☐	Are special tools required (sparkproof)?
		(If so, specify type: _____)
		RESPIRATORY PROTECTION
☐	☐	Are MSHA/NIOSH-approved respirators of the type required available at the worksite?
☐	☐	Is respiratory protection required (air-purifying, supplied air, self-contained breathing apparatus, etc.)?
		(If so, specify: _____)
		TRAINING
☐	☐	Have you been trained in proper use of a respirator?
☐	☐	Have you received first aid/CPR training?
☐	☐	Have you been trained in confined space entry and do you know what to look for?
		STANDBY/RESCUE
☐	☐	Will there be a standby person on the outside in constant visual or auditory communication with the person on the inside?
☐	☐	Will the standby person be able to see and/or hear the person inside at all times?
☐	☐	Has the standby person(s) been trained in rescue procedures?
☐	☐	Will safety lines and harness be required to remove a person?
☐	☐	Are company rescue procedures available and can they be followed in the event of an emergency?
☐	☐	Are you familiar with emergency rescue procedures?
☐	☐	Do you know who to notify and what to do in the event of an emergency?
		PERMIT
☐	☐	(The permit is an authorization in writing that states that the space has been tested by a qualified person; that the space is safe for entry; what precautions, equipment, etc. are required; and what work is to be done.)
☐	☐	Has a confined space entry permit been issued?
☐	☐	Does the permit include a list of emergency telephone numbers?

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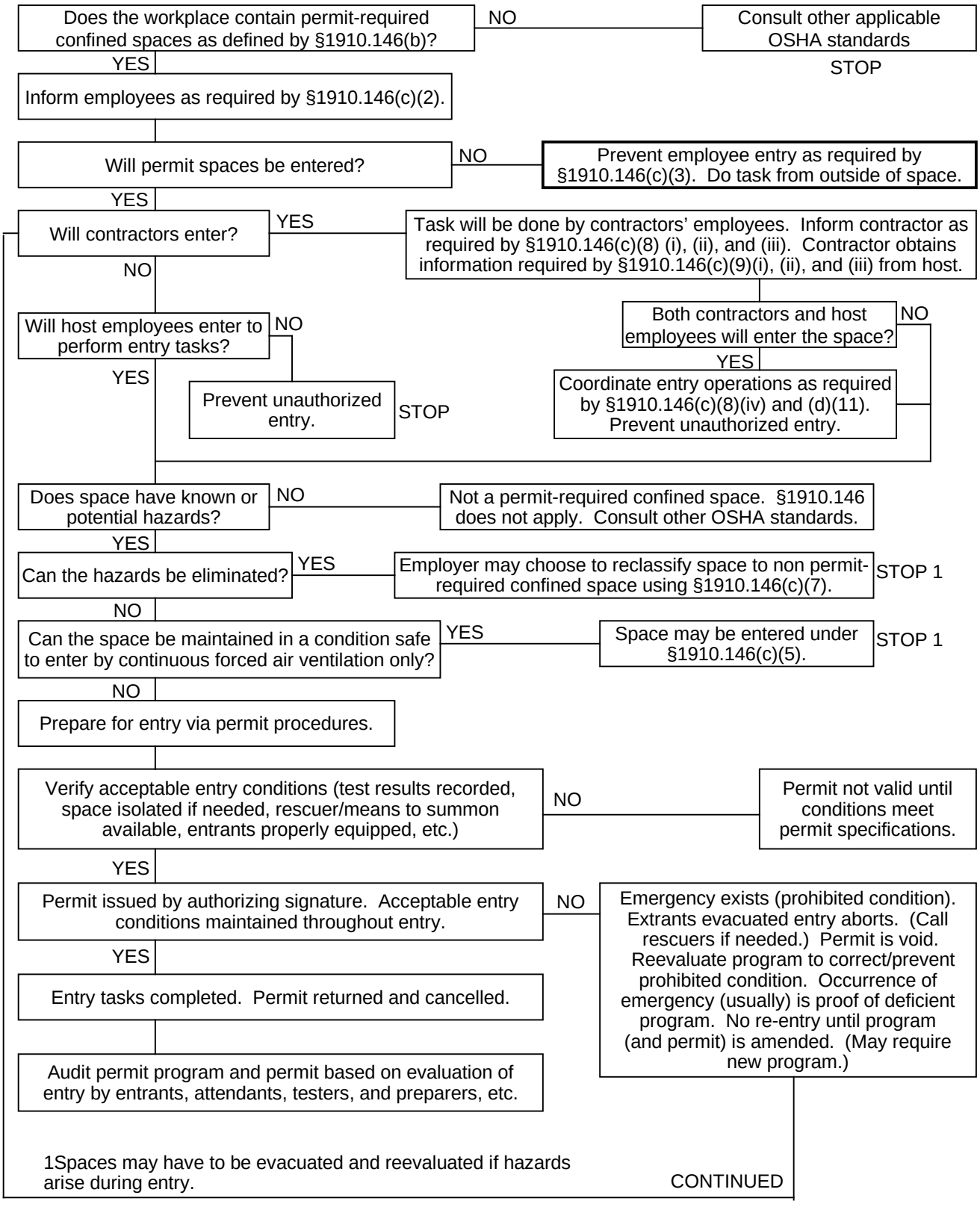
PERMIT-REQUIRED CONFINED SPACE DECISION FLOW CHART



1Spaces may have to be evacuated and reevaluated if hazards arise during entry.

CONTINUED

Critical Lift Worksheet

Lift Description: Lift Date:

1. Project Name	2. Contractor:	3. Lift Location:	4. Crane Manufacturer:
5. Model Number:	6. Serial Number:	7. Counter Weight being used:	8. Total Boom/Jib Length @ Time of Lift: ft
9. Max. Radius During Lift: Pick: Swing Set:	10. Direction and Degrees of Swing CW CCW Rotation <0	11. Lift Elevation: Max. ft Min. ft	12. Boom Angle Pick Swing Set
13. Will Jib be Used? Yes: No: Length: ft Weight: lbs Erected: Stowed:		14. Manufacturers Minimum rated capacity from chart as outlined in Blocks 8-13 lbs	

15. Crane Components and rigging weights:

Jib/Boom Extensions	0	lbs
Jib Ball and Hook:	0	lbs
Jib Hoist Line:	0	lbs
Main Block, Ball, and Hook:	0	lbs
Main Hoist Line:	0	lbs
Slings & Misc. Lifting Equip:	0	lbs
Lifting Beam or Bars:	0	lbs
Other:	0	lbs
Total:	0	lbs

16. Load description and weight

Pick: lbs

17. Who determined weight of load and lift?

How?

18. Total load weight during lift: 0 lbs

19. Load % of crane capacity: #DIV/0!

20. Rigging Safety Factor 5 to 1? Yes: No:

21. Choker size and condition:

22. Tag line required? Yes: No:

23. Communication/signaling method to be used?

24. Bearing Conditions:

Soil Type & Condition:

Calculation Required?

If yes, explain:

Crane Mats Required?

If yes, size and description:

Outrigger pads at least 3x's size of float used?

25. Hazards:

Electrical? Yes: No: If Yes Explain:
Precautions:

Underground? Yes: No: If Yes Explain:
Precautions:

Locates Completed? Yes: No:
Precautions:

26. When will lift meeting be conducted?

27. Signatures

1. Crane Operator: Date
2. Supervisor: Date
3. Supervisor of Rigger: Date
4. Signal Person: Date

Documents Required to be Submitted For Critical Lifts Above 3,000 LBS:

	Attached	N/A		Attached	N/A
Operator Certification Card	☐	☐	Spreader Bar Certification & Annual Inspection	☐	☐
Operator DOT Health Card Showing Drug Screen	☐	☐	Annual Crane Inspection	☐	☐
Certified Signal Person	☐	☐	Copy of Load Chart	☐	☐
Plan View Sketch	☐	☐	Elevation View Sketch	☐	☐

To Avoid Delays, Documentation Should Be Turned In 48 Hours In Advance Of The Lift Date For Review.

Documents Required to be Submitted For Critical Lifts Below 3,000 LBS (Suspended Personnel Basket Will Still Require Full Documentation Turned in 48 Hours in Advance):

	Attached	N/A
Copy of Load Chart	☐	☐
Annual Crane Inspection	☐	☐

All other relevant documentation from above shall be available onsite for review by OCI Personnel

To Avoid Delays, Documentation Should Be Turned In 24 Hours in Advance Of The Lift Date For Review.

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DAILY CHAIN INSPECTION FORM

Project Name _____ Project Number: _____

Supervisor Name: _____

Week Ending: _____

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday

Inspect the chain sling for the following damage:

- Missing or Illegible Tag
- Twisted, Bent or Cut Links
- Cracks in the Weld Area or Other Area of the Links
- Excessively Stretched Links
- Severe Corrosion
- Worn or Damaged Master Links
- Hooks Opened More Than 15% of the Normal Throat Openings or Bent More Than 10 Degrees From the Plane of the Hook
- When a chain shows excessive wear, or is cracked or pitted, remove it from service
- Non-alloy repair links cannot be used
- Only **Grade 8** or Better **ALLOY** Chain can be Used for Overhead Lifting Purposes! All Chain is Not Rated the Same!
- Chain Must Have a Capacity Tag Attached to it
- Damaged latch

If any apparent damage is found that can deter from the safety of the sling / rigging, then the sling / rigging shall be taken out of service.

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Electrical DNO Isolation Log

Equipment Source Tag No.: _____

Supplied Equipment Tag No.: _____

Supplied Equipment Description: _____

_____

Tagging Manager

Note: Check box as appropriate.

☐ Const. _____

☐ Startup _____

☐ Ops _____

Tag No.	Print Name	Employer	Equipment Position/Status	**Hold**	**Date/Time**	Released	Date/Time

EMERGENCY ACTION PLAN FOR SITE ID

General Contractor: Company Name
Safety Manager: Name
Telephone: Phone Number

MINOR SITUATION:

IF TRAINED for situation, **RESPOND AND NOTIFY** Immediate Supervisor. If necessary, see map and driving directions to nearest Occupational Clinic or Hospital on following pages.

IF NOT TRAINED for situation, **ALERT** assigned Daily Competent Person (see Daily JSA) or nearest competent person(s) **AND** notify Immediate Supervisor. If necessary, see map and driving directions to nearest Occupational Clinic or Hospital on following pages.

✚ **OCCUPATIONAL CLINIC (non emergency)** Enter Clinic Name, Enter Clinic Address, Enter Clinic Number
*see map and driving directions on next pages

✚ **HOSPITAL** Enter Hospital Name, Enter Hospital Address, Enter Hospital Number
*see map and driving directions on next pages

EMERGENCY/EVACUATION SITUATION:

You are located at: **Enter Site Name**
Enter Street Address
Enter City Name

AMBULANCE dial 9-1-1

FIRE-RESCUE dial 9-1-1

POLICE dial 9-1-1

POISON CONTROL dial 1-800-222-1222

EVACUATION:
Assemble for head-count at the designated area Enter Designated Area

In the event of an EMERGENCY, RESPOND to the immediate situation(s) and THEN notify appropriate person(s):

Enter Contact Name **(###) ###-####**

✚ OCCUPATIONAL CLINIC (non emergency)

✚ Enter Clinic Name

✚ Enter Clinic Number

Driving Directions :

- **HOSPITAL**
- Enter Hospital Name
- Enter Hospital Number

Driving Directions :

ENERGIZED ELECTRICAL WORK AUTHORIZATION

Project Name & Number:			One-time Use Only ☐
Subcontractor Name:			
Site No:	Room/Floor:		Authorization #
Subcontractor Field Supervisor:		Date Start:	Expiration Date:
Description of work to be done:			
Description of Circuit/Equipment:			
Work to be conducted in de-energized state: YES NO			
Justification for why equipment cannot be de-energized:			

Results of Shock Hazard Analysis (NFPA-70E 2012)

Maximum Voltage:	Glove Voltage Rating: (Inspect gloves before use, check certification date)	
Limited Approach Boundary: (ft.)	Restricted Approach Boundary: (ft.)	Prohibited Approach Boundary: (ft.)
Means to restrict unqualified persons:		

Results of Arc Flash Hazard Analysis (NFPA-70E 2012)

Risk Category:	Flash Protection Boundary: (ft.)
☐ All Natural Fiber Outerwear	Clothing Description:
☐ Fire Retardant Clothing	Clothing Description:
☐ Required Additional PPE:	

Safety Checklist (Verify that proper controls are in place):

- ☐ Workers must be trained, qualified, and have full knowledge of equipment. Qualifications must be attached to authorization.
- ☐ Observer/Safety Buddy is required. This person must be trained, qualified, be able to cut off all power sources, and have immediate access to a telephone or radio to call 911 in case of emergency.
- ☐ Insulated tools and equipment required.
- ☐ Remove all jewelry and metal apparel.
- ☐ Use barricades and warning signs.
- ☐ Documented job briefing including discussion of any job-specific hazards.
- ☐ See attachment for added information, special requirements, procedures, or written work plans.

APPROVALS

Hazard analysis performed by:	Date:
Subcontractor Field Supervisor:	Date:
OCI Field Construction Manager:	Date:
OCI Lead Construction Manager:	Date:
OCI ESH&S Manager	Date:

AUTHORIZED WORKERS that understand and agree to the above:

Printed or typed name(s):	Signature(s)	Date(s)

Project #:_____

OVERLAND CONTRACTING™

Equipment Operator's Daily Checklist

Type Of Equipment:_____ **Serial No.**_____ **Week Beginning:**_____

Shift No.:_____

Truck No.: _____

This check must be made by the truck operator daily at the start of the shift. Certain items listed are not included on some models. Check all items applicable to unit noted above.

Check appropriate box: check mark If OK or X If needs repair or adjustments (give details in comments section)

		MON		TUES		WED		THUR		FRI		SAT		SUN	
	DAMAGE Bent, dented or broken parts														
	LEAKS Drive unit, brakes, hydraulics														
	TIRES & WHEELS Drive wheels, load wheels, casters														
	FORKS In place, properly secured														
	CHAINS, CABLES & HOSES In place														
	HOUR MEETER Operating														
	BATTERY Water level, vent caps in place, cleanliness														
	BATTERY CONNECTOR Cracked, burnt, light indicating														
	GUARDS Overhead, load backrest, battery retainer														
	SAFETY DEVICES Flashing lights, indicator lights, safety shield, operator harness, warning labels, etc., in condition as equipped														
	HORN Sounds														
	STEERING Handling, no excessive play														
	TRAVEL CONTROLS All speed range, forward & reverse, no unusual noise														
	HYDRAULIC CONTROLS Raise & lower, tilt forward & rearward, reach in & out, side shift right & left, etc. no unusual noise														
	BRAKES Stop truck within required distance, work smoothly, brake override functions														
	PARKING BRAKE Seal, hand, foot														
	BATTERY CHARGE Discharge meter in full green or 75% charge after raising forks														
	POWER DISCONNECT Cuts off all electric power														
	ATTACHMENTS Functions properly, no unusual noise														
	UNIT SWITCHES Travel limit, lift limit, tilt limit														
	HOUR METER READING														
	OPERATOR'S INITIALS														
	SUPERVISOR'S OK														

COMMENTS (items needing repair or adjustment) :_____

_____

_____

CAUTION: If the truck is found to be in need of repair or in any way unsafe, or contributes to an unsafe condition, the matter shall be reported immediately to the designated authority; and, the truck shall not be operated until it has been restored to safe operating condition.

If during operation, the truck becomes unsafe in any way, the matter shall be reported immediately to the designated authority; and, the truck shall not be operated until it has been restored to safe operating condition.

Do not make repairs or adjustments unless specifically authorized to do so.

OVERLAND CONTRACTING	**ESH&S OCCUPATIONAL VIOLATION**

Date _____

Project Name _____

Project No. _____

Site No. _____

Subcontractor Name _____

Subcontractor Field Supervisor _____

Description of Violation:

Type of Violation: ☐ Serious ☐ Stop Work--Imminent Danger
☐ Nonserious ☐ Stop Work--Noncompliance

Issued By _____

_____ _____ _____
Printed Name Signature Title

SUBCONTRACTOR FIELD SUPERVISOR ACKNOWLEDGMENT

In order to ensure a safe and secure construction site, we ask your cooperation in complying with all security and safety regulations.

_____ _____ _____
Printed Name Signature Title

Repeat Violation? ☐ Yes ☐ No

Abatement Period: Date _____ Time _____

Standard Source: ☐ OSHA ☐ NEC ☐ NIOSH ☐ ANSI ☐ NFPA ☐ Safety Program

Actions to Correct Violation:

Violation Corrected _____ _____
Signature Date

1. An Occupational Safety/Health Violation Notice will be issued for each violation identified.

2. The Subcontractor will receive an original plus one copy of the violation notice.

3. The Subcontractor shall take corrective action within the abatement period shown on the violation notice or propose an alternate solution within the abatement period given. If corrective action is not taken within the abatement period, work shall stop in the respective location, and/or the affected equipment shall not be used until the cited violation is corrected.

4. When corrective action has been completed, the Subcontractor shall state in writing the corrective action taken, and date and sign the original notice.

5. DEFINITIONS:

Serious--Any condition or practice that is causing or is likely to cause death or serious physical harm to any person.

Nonserious--Any condition or practice that is not likely to cause death or serious physical harm to any person.

Stop Work/Imminent Danger--The existence of any condition or practice that would reasonably be expected to cause death or serious physical harm before such condition or practice can be corrected. This is a "Stop Work" situation. All persons shall be withdrawn from the affected area, and no one is allowed in such area except those people deemed necessary to correct the condition or practice.

Stop Work/Noncompliance--A violation (serious or nonserious) described in a notice has not been totally corrected within the noted abatement time, and the abatement time should not be extended. This is a "Stop Work" situation. All persons shall be withdrawn from the affected area, and no one is allowed in such area except those people deemed necessary to correct the condition or practice.

OVERLAND CONTRACTING™

DAILY EXCAVATION INSPECTION

Date ____________________ Time ____________ Project No. ____________

Location		
Excavation*	Depth	Width
Soil Type	Cohesive Granular (circle)	
Visual Inspection	A - B - C (circle)	B - C (circle)
Manual	A - B - C (circle)	B - C (circle)
Penetrometer/Soils Test	t/sf	Blows/ft
Subsurface Water	Yes	No
Weather	Temp Wind	Rain Snow
Hazardous Atmosphere	Yes No (circle)	
Protection Type**	Shielding Shoring	Sloping Benching- A/B only (circle)
Comments:		
Inspector's Name		

Date ____________________ Time ____________ Project No. ____________

Location		
Excavation*	Depth	Width
Soil Type	Cohesive Granular (circle)	
Visual Inspection	A - B - C (circle)	B - C (circle)
Manual	A - B - C (circle)	B - C (circle)
Penetrometer/Soils Test	t/sf	Blows/ft
Subsurface Water	Yes	No
Weather	Temp Wind	Rain Snow
Hazardous Atmosphere	Yes No (circle)	
Protection Type**	Shielding Shoring	Sloping Benching- A/B only (circle)
Comments:		
Inspector's Name		

Date ____________________ Time ____________ Project No. ____________

Location		
Excavation*	Depth	Width
Soil Type	Cohesive Granular (circle)	
Visual Inspection	A - B - C (circle)	B - C (circle)
Manual	A - B - C (circle)	B - C (circle)
Penetrometer/Soils Test	t/sf	Blows/ft
Subsurface Water	Yes	No
Weather	Temp Wind	Rain Snow
Hazardous Atmosphere	Yes No (circle)	
Protection Type**	Shielding Shoring	Sloping Benching- A/B only (circle)
Comments:		
Inspector's Name		

*Excavations/trenches in excess of 20 feet deep require a professional engineer's approval.

**Protection type includes sloping, benching, boxes, and shoring in conformance with OSHA 1926.652 (indicate type selected). This form must be completed by a competent person for all open excavations and submitted with the daily report.

OVERLAND CONTRACTING™

FALL PROTECTION INSPECTION FORM

Note: Complete a written inspection for each employee.

Site: ______________________ Contractor: ______________________

Project: ______________________ Inspected By: ______________________

Area: ______________________ Date: ______________________

Employee Name:

____

____

	ID No.	Acceptable Yes	Acceptable No	Remove From Service Yes	Remove From Service No	Comments
Full Body Harness						
Shock Absorbing Lanyard						
Rope Lanyard						
Double-Locking Snap Hook						
Rope Grab						
Wire Rope Grab						

Employee Initials: __________

Employee Name:

____

____

	ID No.	Acceptable Yes	Acceptable No	Remove From Service Yes	Remove From Service No	Comments
Full Body Harness						
Shock Absorbing Lanyard						
Rope Lanyard						
Double-Locking Snap Hook						
Rope Grab						
Wire Rope Grab						

Employee Initials: __________

Employee Name:

____

____

	ID No.	Acceptable Yes	Acceptable No	Remove From Service Yes	Remove From Service No	Comments
Full Body Harness						
Shock Absorbing Lanyard						
Rope Lanyard						
Double-Locking Snap Hook						
Rope Grab						
Wire Rope Grab						

Employee Initials: __________

***** WHAT TO LOOK FOR *****

Full Body Harness:

Do buckles work freely
Are d-rings and hardware free from cracks, distortion
Back pad and seat strap free from tares and abrasions
Is webbing free from cuts, tares and abrasions
Is webbing free from mold, burns, discoloration
Is stitching in good condition
All labels are present and fully legible

Lanyards with shock absorber:

All snap hooks open freely
All snap hooks close and lock freely
Lanyard webbing is free of tares and abrasions
Lanyard webbing is free of knots
Energy absorber cover is secure and not torn or damaged

Positioning lanyard:

Snap hooks open freely
Snap hooks close and lock freely
Adjuster works freely
Lanyard webbing is free of tares and abrasions
Lanyard webbing is free from discoloration and mold
Lanyard webbing is free of knots

Cable grab:

Operation of handle/cable shoe is free and smooth
Locking lever works smooth
Locking lever springs back to locked position when released
Minimal wear on the inside body where cable rides
All rollers spin freely
Gravity stop rotates to locking position when upside down

Rope Grab with Lanyard:

Snap hook opens freely
Snap hook closes freely and locks
Energy absorber is secure and not torn or damaged
Lanyard webbing is free of tares and abrasions
Lanyard webbing is free from discoloration and mold
Rope grab gate opens smoothly
Retainer pin locks gate closed
Retainer pin can not come out unless button is depressed
Rope grab works when locking arm is pulled down
Rope grab moves freely when locking arm is pulled up

50 Feet of Rope:

Snap hook opens freely
Snap hook closes freely and locks
Rope has been inspected for tares and abrasions
Rope has been inspected for mold and discoloration
Rope is still tightly braided

- ***Your rope is not to be used for lifting materials. It is issued only for use as part of a personal fall arrest system!***

Tie-back:

The two dee-rings are not deformed
The webbing is free from tares and abrasions
The webbing is free from discoloration and mold

- ***Your tieback is not to be used for lifting. It is issued only for use as part of a personal fall arrest system!***

Self Locking Carabineer:

Carabineer is the original shape (not deformed or bent)
Safety latch opens freely
Safety latch closes freely and locks

OVERLAND CONTRACTING

FIRST AID LOG

Date	Name	Foreman	Part Affected	Inj. Date	Company	Cause	Recommendation

Figure 5

Figure 5

HAZARDOUS MATERIAL INVENTORY

Item	Type	Location	Container Type	Inventory (end of month)
	☐ Solid ☐ Hazardous ☐ Universal ☐ Exempt ☐ Product			
	☐ Solid ☐ Hazardous ☐ Universal ☐ Exempt ☐ Product			
	☐ Solid ☐ Hazardous ☐ Universal ☐ Exempt ☐ Product			
	☐ Solid ☐ Hazardous ☐ Universal ☐ Exempt ☐ Product			
	☐ Solid ☐ Hazardous ☐ Universal ☐ Exempt ☐ Product			
	☐ Solid ☐ Hazardous ☐ Universal ☐ Exempt ☐ Product			
	☐ Solid ☐ Hazardous ☐ Universal ☐ Exempt ☐ Product			

Project #:

OVERLAND CONTRACTING

INJURY / ILLNESS INVESTIGATION

Date:

Please enter data using Blue font color

Company:	**Project Name and Address:**	
Work Area: Outdoors ☐ Indoors ☐ Location on Project:		
Person Injured or people involved:		**Sex:** ☐ Male ☐ Female
Age:	**Incident Date:**	**Incident Time:**
Injured Persons Home Address:		
Injured Person's Job Title:	**Task Performed When Injured:**	**Shift Schedule:**
Employment Length in Trade: Years Months	**Length of Service on jobsite at Time of Incident:** Years Months Weeks Days	
Employment Category (Check): ☐ Full-Time ☐ Part-Time ☐ Temporary ☐ Non Employee = _____		
Brief Incident Description:		
Record Any Previous Incidents Similar to Above (Show data, name of injured/involved, and what happened):		

Type of Incident:	Type of Injury / Illness:	
☐ Struck Against	☐ Abrasion	☐ First Aid
☐ Struck By	☐ Burn	☐ Medical Treatment
☐ Caught In ☐ Other (describe):	☐ Bruise ☐ Other (describe):	☐ Lost Workdays (Away from work)
☐ Fall	☐ Cut	☐ Restricted Duty Case
☐ Slip	☐ Dislocation	☐ Fatality
☐ Overexertion	☐ Fracture	☐ Other (describe):
☐ Inhalation	☐ Foreign Body	
☐ Arc Exposure	☐ Irritation	
☐ Vehicle	☐ Poisoning	
☐ Burn	☐ Sprain	

Name and Address of Physician/Hospital/Clinic:

Describe the treatment rendered and who administered the treatment (sutures, prescriptions, work restrictions, etc.):

Incident During:

☐ Normal Work Period ☐ Rest Period ☐ Meal Period
☐ Overtime ☐ Entering ☐ Leaving Other: ☐ _____

INCIDENT INVESTIGATION

Date:

DETAILED INCIDENT DESCRIPTION (SEQUENCE OF EVENTS):

1. **Describe what the employee did during the previous 24 hours.**

2. **Describe specifically what the employee did after reporting to the job until the time of the incident.**

3. **Describe exactly what he or she was doing when the incident occurred.**

4. **Describe specifically what the employee did immediately after the injury or illness.**

Injured Employee's Supervisor's Name:	**Title:**
Describe where the Supervisor was at time of incident:	
Was there a Written Procedure fore the Job? ☐ **Yes** ☐ **No**	**Was the Procedure Being Followed?** ☐ **Yes** ☐ **No**
Did the Procedure Include Safety Rules? ☐ **Yes** ☐ **No**	**Were the Safety Rules Followed?** ☐ **Yes** ☐ **No**
Was the Employee Trained concerning the Safety Rules and/or Procedure? ☐ **Yes** ☐ **No** **If yes – When** **By whom:** **Record** ☐ **Yes** ☐ **No**	
Did the Incident Involve? ☐ **Machines** ☐ **Equipment** ☐ **Processes** ☐ **Hazardous Materials** = _____	
WERE THE APPLICABLE OSHA, ANSI, NFPA, AND OTHER PERTINENT STANDARDS COMPLIED WITH? ☐ **Yes** ☐ **No** **If no – describe:**	
Were there Witnesses? ☐ **Yes** **Name(s):** ☐ **No**	**Witness Statement(s) Obtained and Attached:** ☐ **Yes** ☐ **No** **If no – why not:**
Inquire about routine sleep habits: How much did the individual or other crew members receive the night before the incident? ☐ **8 hours or more** ☐ **7 hours** ☐ **6 hours** ☐ **less than 6 (actual hrs. slept _____)** **If multiple people are involved, describe in narrative:**	**How much sleep does the individual or other crew members normally get (routinely)?** ☐ **8 hours or more** ☐ **7 hours** ☐ **6 hours** ☐ **less than 6 (routine actual hrs. of sleep _____)** **If multiple people are involved, describe in narrative:**

INCIDENT INVESTIGATION

Date:

BASIC INCIDENT CAUSES

Were these engineering, administrative (rules/procedures), education and training, and/or safety rules/procedures enforcement problems?

Direct Cause(s):

Contributing Factors

Root Cause: (If you can still ask why, you have not determined the root cause)

RECOMMENDATIONS DEVELOPED BY INCIDENT REVIEW TEAM TO PREVENT RECURRENCE:
(Review Team Charter for Members)

1.

2.

3.

Prepared By:	Title:	Date:	Reviewed By:	Title:	Date:

OVERLAND CONTRACTING™

LEVERED HOIST (Come Along)
Monthly Inspections are required on all devices.

Month _____ Year _____

Levered Hoist (Come Along)
Inspection Criteria:

- Cable moves in smooth movements
- No brakes in the cable
- Hooks have workable latches in place
- No damage to casing
- Lifting capacity clearly labeled

Items listed below have been inspected and passed the inspection

Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____

OVERLAND CONTRACTING	**Permit to Work**	PTW No.	

Request

Requested By: _____ _____ Signature _____ Company	Date: _____ Time : _____
System Code: (if applicable) _____	Date Needed: _____
Equipment Tag No.: (if applicable) _____	Time Needed: _____
Description of the Work:	Expected Duration of the Work:
	Mark-Up Drawings Attached: ☐ Yes ☐ No

Approval

DNO LOTO Required: ☐ Yes ☐ No

Additional Permits

Hot Work Permit: ☐ Yes ☐ No		Confined Space Entry: ☐ Yes ☐ No	
Safe Work Plan (JHA): ☐ Yes ☐ No		Other: ☐ Yes ☐ No	_____

Tagging Manager Comments:

Tagging Manager Approval: ☐ Yes ☐ No _____ Signature _____ Date	Safety Manager Approval: ☐ Yes ☐ No If Additional Permits Required _____ Signature _____ Date

Closure

PTW Closed Requester _____ Signature _____ Date	Work Completed:
PTW Closed Tagging Manager _____ Signature _____ Date	Comments:

OVERLAND CONTRACTING

ENVIRONMENTAL, SAFETY, HEALTH AND SECURITY (ESH&S) MASTER JOB HAZARD ANALYSIS (MJHA)

Date ______________________________

OCI Project Name/Market ______________________________

OCI Project No. ______________________________

Contractor Name ______________________________

Awarded Scope of Work ______________________________

Person Performing Analysis ______________________________

Sequence of Job	Potential Hazards	Recommended Action, Procedure, and/or Equipment

Mechanical DNO Isolation Log

Equipment Tag No.: _____

Equipment Description: _____

_____

Tagging Manager

Note: Check box as appropriate.

☐ Const. _____

☐ Startup _____

☐ Ops _____

Tag No.	Print Name	Employer	Equipment Position/Status	Hold	Date/Time	Released	Date/Time

Monthly Inspections

Color Codes

Extension Cords, GFCI, Ladders, Fire Extinguisher

Assured Equipment Grounding Conductor Program Color Code			
Month #	**Month Tested**	**Color of tape(s) to apply to cord**	
1	January	White	White
2	February	White +	Yellow
3	March	White +	Blue
4	April	Green	Green
5	May	Green +	Yellow
6	June	Green +	Blue
7	July	Red	Red
8	August	Red +	Yellow
9	September	Red +	Blue
10	October	Orange	Orange
11	November	Orange +	Yellow
12	December	Orange +	Blue

OVERLAND CONTRACTING™

MONTHLY INSPECTION FORM

All items must be inspected monthly. If any item is not acceptable it must be tagged with a "*DO NOT OPERATE*" tag until repairs can be made.

Project Number: _____ Month: _____ Year: _____

LADDER INSPECTION

Ladder Number/Location	Acceptable - Yes / No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No

GFCI INSPECTION

GFCI Number/Location	Acceptable - Yes / No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No

ELECTRICAL EQUIPMENT INSPECTION

Type of Equipment	Acceptable - Yes / No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No

FIRE EXTINGUISHER INSPECTION

Extinguisher Number/Location	Acceptable - Yes / No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No
_____	☐ Yes ☐ No

Inspections Completed By: _____ Date: _____

Project #:

OVERLAND CONTRACTING™

NEAR-MISS / PROPERTY DAMAGE INVESTIGATION

Date:

Company:	**Project Name and Address:**
Name of Person Completing Form (Last, First, Middle Initial):	**Title of Person Completing Form:**
Contact Phone Number(s):	**Witness (Name and Phone #):**
Date and Time of Incident **Date: _____ Time: _____ AM** **Time: _____ PM**	**Near-Miss Location: (Bldg. name, Room no., stairwell). If outside of building, give location in reference to nearest building:**

Incident Description (Describe fully, the protocol/procedures being followed including all substances, equipment, and machinery being used which was related to the incident. Use additional sheets if necessary.)

Personal Protective Equipment (PPE) Used (if applicable):

Severity – Circle the level of severity which you feel could occur if such an incident evolved (Example: <u>High</u> = fatality, permanent disability, high dollar loss; <u>Medium</u> = temporary disability, moderate dollar loss; <u>Low</u> = minor or no injury, minimal or no dollar loss. Consider such factors as physical injuries, damage to equipment/property, and environmental impacts.)

HIGH MEDIUM LOW

Probability – Circle the level of probability which you feel that a person or property may be exposed to in a similar situation and that required hazards or system failures may be present or likely (Example: <u>High</u> = tasks occur frequently and by numerous individuals; <u>Medium</u> = tasks occur on a regular basis by certain individuals; <u>Low</u> = tasks occur infrequently by few individuals. Also consider such criteria as complexity of the system, latent and human factors, etc.)

HIGH MEDIUM LOW

Corrective Actions (What should be done or has been done to prevent recurrence of this incident? e.g. employee training, change of procedures, purchasing of equipment, etc.)

Miscellaneous Information (Provide any other information or recommendations which you feel are pertinent to this incident.)

OVERLAND CONTRACTING™

587 Sigman Road, NE, Suite 100, Conyers, GA 30013

Emergency Medical Treatment Action Plan

Requiring Emergency Transport

1. Call 911

Prior to Arrival of Emergency Medical Technicians

2. Render Care
   (First Aid/CPR until you are relieved by Emergency Medical Technicians)

3. Verbally notify your Safety Manager immediately
   (If you are rendering care direct someone else to notify the appropriate safety manager)

   Project Safety Manager: _____ Ph # _____

   * *If your unable to contact your office safety manager attempt to contact one of the other office safety managers and inform them of the injury..*

4. Verbally notify your Supervisor
   (If you are rendering care direct someone else to notify your supervisor)

While the Injured Employee is Being Transported to Hospital

5. Accompany the injured employee if permitted or follow the employee to the hospital in a company vehicle.

6. Bring Following Forms:
   a. Zurich Authorization for Medical Information Release
   b. Drug & Alcohol Testing Consent Form

7. Update the appropriate safety manager of the condition of the employee.

Upon Arrival to the Hospital

8. Verbally notify your safety manager of arrival at the hospital and estimated time of treatment.

9. Inform the Emergency Room that a drug test needs to be performed.

10. Update your appropriate safety manager of any information that you are given by the Emergency Care Professionals regarding the condition & care given/required of the injured employee.
    (If the treating physician is available ask him if he would contact your safety manager to convey the information)

Immediately after Completion of the Emergency Treatment

10. Complete the appropriate state first report or injury form and fax it to: Your safety Manager

11. Have the injured employee sign the authorization to obtain information form.

12. Complete the Preliminary Accident/Illness/Incident Investigation Form and Fax it to your safety manager.

13. Complete the First Aid Report (if first aid care was rendered prior to medical care).

15. Complete the Incident Investigation Report and submit it to your office safety manager as soon as possible. Include all associated paperwork in the investigation packet (documentation from the clinic, return to work forms, authorization letters from the employee, bills, etc…)

16. Continue to monitor & treat the injury (clean, bandage, ice, heat, doctors follow ups, etc…) until the injury has healed.

17 .Verbally notify your office safety manager if the condition of the injury changes or does not improve.

OVERLAND CONTRACTING™

587 Sigman Road, NE, Suite 100, Conyers, GA 30013

Non-Emergency Medical Treatment Action Plan

OCI Supervisor Transport

Prior to Arrival at the treatment facility

1. Render First Aid Care

2. Verbally notify your Office Safety Manager immediately

   Project Safety Manager _____ Ph # _____

   * *If you are unable to contact your safety manager attempt to contact one of the other safety managers and inform them of the injury.*

3. Verbally notify your Supervisor

Upon Arrival at the treatment facility

4. Have the injured employee sign the Drug & Alcohol Testing Consent Form

5. Have a drug screen be performed.

6. Have the treating doctor/nurse at the facility call your safety manager immediately after he has completed his/her assessment of the injured employee and prior to providing care or medication to the employee.

Immediately after Completion of Treatment

6. Complete the first report or injury and Fax it to your safety manager

7. Have the injured employee sign the authorization to obtain information form.

8. Complete the First Aid Report (if first aid care was rendered prior to medical care)

9. Complete the Preliminary Accident/Illness/Incident Investigation Form and Fax it to your safety manager

10. Complete the Incident Investigation Report and submit it to your safety manager as soon as possible. Include all associated paperwork in the investigation

packet (documentation from the clinic, return to work forms, authorization letters from the employee, bills, etc…)

11. Continue to monitor & treat the injury (clean, bandage, ice, heat, doctors follow ups, etc…) until the injury has healed.

11. Verbally notify your safety manager if the condition of the injury changes or does not improve.

OVERLAND CONTRACTING™

587 Sigman Road, NE, Suite 100, Conyers, GA 30013

First Aid Action Plan

1. Render Care to the employee.

2. Verbally notify your Safety Manager immediately

   Project Safety Manager: _____ Ph # _____

   * *If you're unable to contact your office safety manager attempt to contact one of the other safety managers and inform them of the first aid incident.*

3. Verbally notify your supervisor

4. Complete the First Aid Report and submit it to your office safety manager as soon as possible.

5. Complete the Incident Investigation Report (if requested) and submit it to your safety manager as soon as possible.

6. Continue to monitor & treat the injury (clean, bandage, ice, heat, etc…) until the injury has healed.

7. Verbally notify your safety manager if the condition of the injury changes or does not improve.

OVERLAND CONTRACTING	OSHA inspection SUMMARY

PROJECT NAME _____ **ADDRESS** _____

CITY/STATE/ZIP _____

INSPECTION FORM COMPLETED BY _____ **TELEPHONE NUMBER** _____

SUBCONTRACTOR _____ **MOBILE NUMBER** _____

DIVISION _____ **DATE OF INSPECTION** _____

A. PRE-INSPECTION

1. WHO DID THE INSPECTOR MAKE CONTACT WITH FIRST AT THE JOBSITE?

_____ _____ _____

NAME ***TITLE*** ***COMPANY***

2. WHAT TIME DID THE INSPECTOR ARRIVE? **AM** _____ **PM** _____

3. DID THE INSPECTOR SHOW HIS/HER CREDENTIALS? ☐ **YES** ☐ **NO**

INSPECTOR'S NAME _____

OFFICE ADDRESS _____

TELEPHONE NUMBER _____

IF A BUSINESS CARD WAS OBTAINED, PLEASE ATTACH.

B. OPENING CONFERENCE

DATE _____ **START TIME** _____ **END TIME** _____

LOCATION _____

1. WHO WAS PRESENT?

NAME	TITLE	COMPANY

2. WHAT WAS THE PURPOSE OF THE INSPECTION AS EXPLAINED BY THE INSPECTOR?

☐ **GENERAL INSPECTION** ☐ **COMPLAINT** ☐ **ACCIDENT** ☐ **CONSULTATION**

SUMMARIZE THE INSPECTOR'S EXPLANATION REGARDING THE PURPOSE OF THE INSPECTION. _____

OVERLAND CONTRACTING	OSHA inspection SUMMARY

3. IF A COMPLAINT WAS THE PURPOSE OF THE INSPECTION, WERE YOU GIVEN A COPY? ☐ **YES** ☐ **NO**

IF YES, PLEASE ATTACH.

OVERLAND CONTRACTING	OSHA inspection SUMMARY

C. RECORDKEEPING REVIEW

1. Did the inspector review any records or documents? ☐ Yes ☐ No

2. List all documents reviewed by the inspector.

Document Name

_____
_____
_____
_____
_____
_____
_____

3. Did the inspector take copies of any records or documents? ☐ Yes ☐ No

Document Name

_____
_____
_____
_____
_____
_____
_____

4. Please provide a summary of any comments made by the inspector during the recordkeeping review:

D. EMPLOYEE INTERVIEWS

1. Did the inspector interview any employees? ☐ Yes ☐ No
   If yes, please provide the following information.

OVERLAND CONTRACTING	OSHA inspection SUMMARY

E. PHYSICAL INSPECTION

Start Time _____ End Time _____

1. Who was present during the walk-around?

NAME	TITLE	COMPANY

2. Briefly list any comments made by the inspector during the walk-around.

3. Did the inspector take any pictures? ☐ Yes ☐ No
If yes, write down the exact locations and what was photographed. (Note: take duplicate pictures of everything the inspector photographed.)

PHOTOGRAPH NO.	LOCATION	DESCRIPTION

4. Were any safety issues identified that required immediate action? ☐ Yes ☐ No
If yes, please complete the table below.

SAFETY ISSUE	CORRECTION	BY WHOM	DATE	TIME

OVERLAND CONTRACTING	OSHA inspection SUMMARY

E. PHYSICAL INSPECTION (CONTINUED)

5. Was any portion of the job shut down? ☐ Yes ☐ No

If yes, what portion of the job was shut down and for how long?

6. Additional Comments

F. CLOSING CONFERENCE

DATE _____ **START TIME** _____ **END TIME** _____

LOCATION _____

1. WHO WAS PRESENT?

NAME	TITLE	COMPANY

2. WERE ALLEGED VIOLATIONS OF STANDARDS DISCUSSED? ☐ **YES** ☐ **NO**

IF YES, PLEASE LIST THE ALLEGED VIOLATIONS.

DESCRIPTION	STANDARD NUMBER	TYPE OF VIOLATION

3. Additional Comments

OVERLAND CONTRACTING	**PRE-LIFT SAFETY CHECKLIST**

Date _____

Project Name _____

Project No. _____

Site No. _____

Subcontractor Name _____

Subcontractor Field Supervisor _____

Payload Name:	Crane lift: ☐ Hoist lift: ☐
Payload Number:	Rigging Drawing Number:
Verified weight of payload:	Dimensions of Lifts: x x
Make and model of hoisting device:	Equipment Number of hoisting device:
Weather Conditions:	

PRE-LIFT VERIFICATIONS:

1. DID THE CREW USE THE APPROVED RIGGING PLAN TO SET UP THIS LIFT? ☐ Yes ☐ No

2. Operator(s) and Flagman:
   - ☐ Operator(s) Name:
   - ☐ Operator(s) Certified by:
   - ☐ Signalperson Name:
   - ☐ Signalperson Qualification

3. Safety measures and communications assurance:
   - ☐ JSA completed
   - ☐ Crane has OSHA Annual Inspection, or if Hoist, ASME Annual Inspection.
   - ☐ Crane(s) Daily Report with Operator, or if Hoist, ASME Daily Inspection.
   - ☐ Personnel Safety barricades up
   - ☐ Proper PPE with Lift Personnel
   - ☐ Crane's or alternate air horn available
   - ☐ Tail swing barricades installed
   - ☐ Lift, Travel & Swing Area clear
   - ☐ Radio communication required?

4. Final Check of machinery:
   - ☐ Crane(s) or Hoists(s) set-up & located per the Rigging Drawings
   - ☐ Crane(s) set-up on mats if required (verify size & quantity)
   - ☐ Radius from crane(s) Center of Rotation to Payload checked
   - ☐ Crane(s) on even terrain and level, or if Hoist is it securely anchored.
   - ☐ Boom length & number of line parts in Block is correct
   - ☐ Safe working distance from power lines verified
   - ☐ Underground utilities verified & protection installed as required
   - ☐ Crane travel paths (where applicable) leveled & compacted and matted where specified

5. Final Check of Below the Hook lift devices:
   - ☐ Sling eyes are seated properly in the block hook(s)
   - ☐ Correct size shackles are installed
   - ☐ Hook block latches fitted and working properly
   - ☐ Softeners provided at rigging bearing points (where req'd)

OVERLAND CONTRACTING	PRE-LIFT SAFETY CHECKLIST

☐ Correctly rated Slings selected per rigging arrangement

☐ Recorded inspections and test certificates, as required by OSHA and this procedure, current for all Rigging used. Paperwork on file and available at site.

☐ Correct Spreader Bar or Beam is installed (if required)

☐ Tag Lines attached to control payload

6. Does the actual rigging scheme differ from the approved rigging diagrams?

☐ Yes ☐ No If yes, explain why:

7. A brief and final description of the planned sequence of the lifting operation was discussed with ALL individuals involved in the lift?

☐ Yes ☐ No If no, explain why, or if yes and there were any comments from the discussion that should be noted :

A FULL DESCRIPTION OF THE PLANNED LIFTING PROCEDURE HAS BEEN DESCRIBED AND I UNDERSTAND MY ROLES AND RESPONSIBLITIES DURING THIS UPCOMING LIFT.

EMPLOYEE NO.	CRAFT/TRADE	NAME (PRINT)	SIGNATURE

OVERLAND CONTRACTING™

587 Sigman Road NE Suite 100, Conyers, GA. 30013
Phone (678) 413-0333 Fax (678) 413-0330

Subject: Company Name
Project #
Pre-Construction Drug and Alcohol Test

The following employee has undergone a Pre-Construction drug and alcohol test and has been found in compliance with the Drug Free Workplace policy:

This list will be updated as each transferred or newly hired employee is drug tested.

Sincerely,

OC OVERLAND CONTRACTING	**REQUEST FOR LOWER-TIERED SUBCONTRACTOR USAGE FORM**

Date _____

Project Name _____

Project No. _____

Region/Location _____

Contractor requesting the use of a lower-tiered subcontractor _____

Contractor professional making the request _____

CONTRACTOR TO COMPLETE

Legal name of lower-tiered subcontractor being requested:	
Reason for the request of use:	
Scope of work to be awarded to lower-tiered subcontractor:	
Has a subcontractor qualification review been performed in another region or project within the past year and where? If yes, no additional information is needed after this point. If no, subcontractor shall use CPESHSP Tier Contractor 1.6-2 Qualification Review Form (required to be completed and accompany the request).	

REGIONAL ESH&S MANAGEMENT TO COMPLETE- ***NOT TO BE COMPLETED BY CONTRACTOR:***

Has the lower-tiered subcontractor been rejected by the Subcontractor Qualification Process?	☐ Yes	☐ No
Is the lower-tiered subcontractor's current Experience Modification Rate (EMR)? < 1.00	☐ Yes	☐ No
Is the lower-tiered subcontractor's recordable injury rate for the previously completed year? < 3.5	☐ Yes	☐ No
What are the lower-tiered subcontractor's days away from work rate for the previously completed year? < 1.2	☐ Yes	☐ No
Has the lower-tiered subcontractor had any fatalities in the past 3 years? If yes, describe:	☐ Yes	☐ No
Has the lower-tiered subcontractor been cited by OSHA in the past 3 years? If yes, describe:	☐ Yes	☐ No
Subcontractor has furnished all relevant training documentation and client requirements met for substance abuse and/or background check **(for original, first time approval only)**	☐ Yes	☐ No

REQUEST APPROVAL STATUS

☐ **Approved** ☐ **Subcontractor is required to complete an exception request using the Exception Request for Use of a Lower-Tiered Subcontractor (Attachment 1.6-3) and submit it to the Regional ESH&S Manager for review and approval.**

Reason for Rejection _____ **Risk Mitigation Plan Required** ☐ Yes ☐ No

Approved By _____

_____ _____

Regional ESH&S Manager's Printed Name Regional ESH&S Manager's Signature

MONTHLY SLING/RIGGING INSPECTION FORM

For the Month of _____, 20 _____

Project Name _____ Project Number: _____

Supervisor Name: _____

REJECTION CRITERIA

Synthetic Slings:

1. Slings shall be marked with the manufacturer's name or trademark, code number type of web material, and rated safe working load.

2. Check for:

- ❒ worn eyes or fittings
- ❒ bent, corroded, or twisted fittings
- ❒ frayed or torn webbing
- ❒ cuts and holes, especially along edges
- ❒ worn or broken stitching
- ❒ wear from abrasion
- ❒ acid, caustic or heat charring or burns

Wire Rope Slings:

1. Ten randomly distributed broken wires in one rope lay, or five broken wires in one strand in one rope lay. Snagged, nicked, or severely bent wires count as broken wires.

2. Abrasion, scrubbing, or peening causing loss of more than 1/3 of the original diameter of outside individual wires.

3. Evidence of rope deterioration from corrosion.

4. Kinking, crushing, or other damage that results in detrimental distortion of the rope structure.

5. Any evidence of heat damage including bare electrical conductor, ground, or welding arc.

6. Any marked reduction in diameter either along the entire main length or in one section.

7. Unlaying or opening up of a tucked splice.

8. Core protrusion along the main length.

9. End attachments that are cracked, deformed, worn, or loosened.

10. Any indication of strand of wire slippage in end attachments.

11. More than one broken wire in the vicinity of a zinced-on or swaged fitting.

Rejected slings shall be destroyed.

SYNTHETIC SLINGS
Monthly Inspections are required on all devices.

Month _____ Year _____

Synthetic Sling

Items listed below have been inspected and passed the inspection

Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____

WIRE ROPE SLINGS
Monthly Inspections are required on all devices.

Month _____ Year _____

Wire Rope Slings

Items listed below have been inspected and passed the inspection

Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____
Serial Number _____	Serial Number _____

TRENCH AND EXCAVATION PERMIT

SITE: _____ **CONTRACTOR:** _____

PROJECT: _____ **BEGIN DATE:** _____ **END DATE:**_____

LOCATE TICKET NUMBER: _____ (*Permit is good for a maximum of 14 days from the date of the locate ticket*)

This document must be completed <u>on site</u> by the contractor and an OCI representative. It cannot be completed until all locates both public and private (Power, Gas and Water - past the meter, Communication - past the NIU or similar equipment) have been performed. The completed permit is to be kept in the site binder, OCI representative must take a picture for their records.

1. Location and Description of Work:

2. What equipment will be used to complete the work?

3. Size of Trench or Excavation: _____ **Feet Long** _____ **Feet Wide** _____ **Feet Deep**

- If depth is greater than 5 feet must complete Sections 9 and 10

4. Lines in the Vicinity of Work: **Yes**_____ **No**_____ *(If yes section 11 must be completed and attached to this document)*

A. Electrical _____ **B. Communication** _____ **C. Water** _____ **D. Sewer** _____

E. Gas _____ **F. Drain** _____

G. Other (Specify) _____

5. Are any of the lines in the Vicinity Private? **Yes**_____ **No**_____ **If yes what type?** _____

- If private utility lines are present then private locates must be done **Who will be performing Private locates?** _____

6. Other Known Obstructions: **Yes**_____ **No**_____

A. Footings _____ **B. Pilings** _____ **C. Concrete Encasements** _____

D. Other (Specify) _____

7. Have available drawings been used to identify existing Utilities and Obstructions? **Yes** _____ **No** _____

If no, why not? _____

8. What precautions will be taken to avoid the Utilities identified?

A. De-energize Lines _____ **B. Ground Tools** _____ **C. Insulate Operator** _____ **D. Hand Excavate** _____

9. What type of Soil? **Type A** _____ **Type B** _____ **Type C** _____ **Solid Rock** _____

Test used to determine class? _____

10. What type of Protective System will be Used?

_____ **Sloping (circle one)** **Type A 3/4:1 (53 degrees)** **Type B 1:1 (45 degrees)** **Type C 1.5:1 (34 degrees)**

_____ **Benching (circle one)** **Type A 3/4:1 (53 degrees)** **Type B 1:1 (45 degrees)**

_____ **Shoring, Type:** _____

_____ **Shield, Type:** _____

11. Utility Avoidance Plan **(to be completed on Site Plan drawing if available and must include the following)**

_____ **Path of proposed excavation**

_____ **Pictures of marked utilities**

_____ **Location of all marked utilities both public and private on the site drawing**

_____ **Location of all required potholes** **(all utlity crossings must be potholed)**

_____ **Location of all required hand digging** **(hand digging is required within 36" of all marked utilities)**

Contractor Signature: _____ **Date:** _____

OCI Representative Signature: _____ **Date:** _____

THE SIGNATURE BY THE OCI REPRESENTATIVE IN NO WAY CHANGES THE CONTRACTOR'S RESPONSIBILITY FOR LOCATING ALL UNDERGROUND UTILITIES AND REPAIR OF DAMAGED UTILITIES, AS REQUIRED BY THE CONTRACT. THE OCI REPRESENTATIVE CANNOT BE HELD RESPONSIBLE FOR THE SAFETY REQUIREMENTS FOR THE EXCAVATION.

TRENCH AND EXCAVATION NOTICE

Site: _____

Contractor: _____ Date Work Will Start: _____

Competent Person: _____ Date Work Will End: _____

A. Specific Location and Description of Work: _____

_____

B. Sketch of Location Attached? Yes _____ No _____

C. Size of Trench or Excavation: _____ Feet Long x _____ Feet Wide x _____ Feet Deep

D. Lines in Vicinity of Work:

a.	Electrical	_____	e.	Steam	_____	i.	Other _____	(Specify)
b.	Telephone	_____	f.	Alarm	_____			
c.	Water	_____	g.	Drain	_____			
d.	Sewer	_____	h.	Process	_____	(Specify)		

Contact local authorities? Yes _____ No _____ If yes, who? _____

When? _____ If no, why not? _____

OCI locating Equipment (Ridgid Seektech™):

Date utilized to confirm authority locator marks: _____ Date/time used to locate underground facilities: _____

E. Other Known Obstructions:

a.	Footings	_____	c.	Concrete Encasements	_____
b.	Pilings	_____	d.	Other	_____ (Specify)

F. Precautions to be Taken:

a.	De-energize Lines	_____	c.	Insulate Operator	_____
b.	Ground Tools	_____	d.	Hand Excavate	_____

G. Precautions to be Taken:

Type A	_____	Type C	_____
Type B	_____	Solid Rock	_____

Tests to be used to determine class: _____

_____

H. Protective System:

_____	Sloping	_____	Vertical (ft)	_____	Horizontal (ft)
_____	Benching	_____	Vertical Cut (ft)	_____	Horizontal Cut (ft)
_____	Shoring, Type:	_____			
_____	Shield, Type:	_____			

I. Drawing Number Used for Reference: _____

THE ABOVE DATA HAS BEEN CHECKED WITH BLUEPRINTS ON FILE. WHEN CLOSE CLEARANCES ARE INDICATED, HAND EXCAVATION MUST BE USED TO DETERMINE THE EXACT LOCATION. EXISTING LINES AND INTERFERENCES IN THE VICINITY OF WORK MUST BE MARKED BY STAKES INDICATING LOCATION AND DEPTH PRIOR TO EXCAVATION.

_____

Competent Person Signature

Utility Avoidance Program

As a way to help avoid striking existing utilities, subcontractors and their lower-tiered subcontractors shall follow this procedure.

1 Prior to commencing work on any trench or excavation, the Contractor shall first submit a completed Trench and Excavation Notice, along with a written Utility Avoidance Plan (see below), to the construction manager and regional safety manager. The notice shall be submitted far enough in advance to allow the construction manager and regional safety manager a minimum of 48 hours to review the Contractor's submittal. When all the required documentation that supports the information on the Notice is submitted, it will then be reviewed by the construction manager and regional safety manager. The construction manager and regional safety manager shall sign the notice indicating that it has been reviewed and return a copy of it to the Contractor.

UTILITY AVOIDANCE PLAN:

2 The subcontractor and their lower-tiered subcontractor shall setup and ensure that public and private locates have been done, are current, and are documented on the Locate Tracker form. All markings shall be protected to ensure the subcontractor and lower tiered subcontractor knows exactly where the utilities are located.

3 The Subcontractor and their lower-tiered subcontractors shall transpose these markings, from the locates at the site, onto the civil drawings to identify possible conflicts with the existing utilities. The appropriate color code for the utility shall be marked on the drawing for ease of identification.

4 These conflicts shall be marked on the drawings. Potholes shall be hand dug at the conflict locations to identify the exact location of these items. Non Conductive tools shall be used during the potholing process.

5 Prior to any potholing being done on the site, a review of the revised drawing shall be done with the subcontractor and lower-tiered subcontractor to show the locates and potholing requirements. Everyone involved in the potholing process shall sign the drawing indicating that they have reviewed and understand the process, markings, and potholing requirements.

6 Once the potholing process has been accomplished, if actual conflicts do occur between the new and old utilities, then a resolution shall be determined prior to the start of the installation of the new utility.

7 The subcontractor and their lower-tiered subcontractor shall coordinate with the OCI construction manager to ensure these items are done.

8 After this process has been accomplished, then the installation of the new utilities can begin after the subcontractor and construction manager have made the regional safety manager aware of these efforts.

9 Then all other applicable safety requirements shall be used for trench and excavation safety as outlined in the safety program.

OVERLAND CONTRACTING

UTILITY LOCATE TRACKING LOG

Project Name ______________________________

Project No. ______________________________

Site No. ______________________________

Subcontractor Name ______________________________

Subcontractor Field Supervisor ______________________________

Utility Locate Information

Date	Permit No.	Location/Site No.	Utility Service Company	Date and Time of Requested Locate	Locate Request No.

UTILITY STRIKE INVESTIGATION

Date _____
Project Name _____
Project No. _____
Site No. _____
Subcontractor Name _____
Subcontractor Field Supervisor _____

What was the immediate impact to people, property, and the community?

What utilities were impacted?

☐ Gas ☐ Electric ☐ Sewer ☐ Storm Water
☐ Communication ☐ Water ☐ Other (specify) _____

What was the depth of the utility in feet?

☐ 0-1 ☐ 1-2 ☐ 2-3 ☐ 3-4 ☐ 4-5 ☐ 5-6 ☐ Other (specify) _____

What was the size of the utility in inches?

☐ 0-1 ☐ 1-2 ☐ 2-3 ☐ 3-4 ☐ 4-5 ☐ 5-6 ☐ Other (specify) _____

Was the utility in service at the time of incident? ☐ Yes ☐ No

What was the utility casing made of?

☐ Concrete ☐ Galvanized ☐ Iron ☐ PVC
☐ Steel ☐ None ☐ Other (specify) _____

Was the utility marked/unmarked? ☐ Marked ☐ Unmarked
☐ Unmarked, unidentified on plans

What was the soil type around the utility? ☐ Clay ☐ Rock
☐ Sand ☐ Other (specify) _____

Who was the utility locate performed by? ☐ Subcontractor ☐ Lower-tiered subcontractor
☐ Outside company (provide name)

What methods were used to locate the utility? ☐ Detection Device ☐ Locate Service
☐ Drawing Search ☐ As-Builts
☐ Other (specify) _____

What methods were used to perform the excavation/ installation? ☐ Open Trench ☐ Rail Plowing
☐ Direction Boring ☐ Plowing
☐ Other (specify) _____

Work Process Information

Was the utility in service at the time of incident?	☐ Yes	☐ No
Are detection instruments an integral part of machinery?	☐ Yes	☐ No
Did the operator receive proper briefing of existing underground interferences prior to the start of work?	☐ Yes	☐ No
Has current boring operator been trained and certified by the employer on the equipment used?	☐ Yes	☐ No
Does the subcontractor have previous experience in the market?	☐ Yes	☐ No
Was the calling tree utilized?	☐ Yes	☐ No
Was there a Field Construction Manager onsite at the time of the incident?	☐ Yes	☐ No
Are photographs of the incident attached?	☐ Yes	☐ No

Describe the incident in detail (injuries, location, specific equipment or property damage, operators, and employee involved).

Acknowledgment of Supervisor performing the investigation.

Printed Name _____ Signature _____

WEEKLY SAFETY MEETING REPORT

B&V File No.: _____

Site: _____ Contractor: _____

Date: _____ Supervisors Conducting Meeting: _____

All Supervisors Attending Meeting: _____

Summary of Items Discussed: _____

Accidents and Injuries Discussed: _____

Employee Comments and Suggestions: _____

EMPLOYEES ATTENDING MEETING

1	14	27	40
2	15	28	41
3	16	29	42
4	17	30	43
5	18	31	44
6	19	32	45
7	20	33	46
8	21	34	47
9	22	35	48
10	23	36	49
11	24	37	50
12	25	38	51
13	26	39	52

OVERLAND CONTRACTING

CHECK SUBJECTS YOU DISCUSS

- ☐ Abrasive Wheels
- ☐ Accident Reporting
- ☐ Air Hoses
- ☐ Air Tools
- ☐ Arc Welding
- ☐ Backing Equipment
- ☐ Backup Alarms
- ☐ Batteries
- ☐ Blasting & Explosives
- ☐ Blocking
- ☐ Carbon Monoxide
- ☐ Chemical Handling
- ☐ Clothing
- ☐ Concrete Burns
- ☐ Confined Entry
- ☐ Connecting & Bolting
- ☐ Conveyors
- ☐ Cranes
  - ☐ Chokers & Slings
  - ☐ Crane Capacity
  - ☐ Crane Inspections
  - ☐ Hand Signals
  - ☐ Rigging
  - ☐ Swing Radius
  - ☐ Tag Lines
- ☐ Electrical
  - ☐ Cords
  - ☐ Equipment Grounding Program
  - ☐ Ground Fault Circuit Interrupters
  - ☐ Lockouts
  - ☐ Tools
- ☐ Emergency Numbers
- ☐ Employee Parking
- ☐ Equipment Maintenance
- ☐ Excavations
- ☐ Eye Protection
- ☐ Defective Equipment
- ☐ Dismounting Equipment
- ☐ Drinking and Drugs
- ☐ Dust
- ☐ Fall Protection
  - ☐ Floor Openings
  - ☐ Guardrails
  - ☐ Safety Belts & Lanyards
  - ☐ Safety Lines
  - ☐ Safety Nets
  - ☐ Scaffolding
  - ☐ Skip Boxes
- ☐ Fire
  - ☐ Extinguishers
  - ☐ Fueling
  - ☐ Gasoline
  - ☐ Safety Cans
  - ☐ Welding & Cutting
- ☐ First Aid
- ☐ Frostbite
- ☐ Gas Lines
- ☐ Gas Welding
- ☐ Gloves
- ☐ Grinding
- ☐ Hard Hats
- ☐ Haul Roads
- ☐ Hearing Protection
- ☐ Heat Exhaustion
- ☐ Horseplay
- ☐ Housekeeping
- ☐ Ladders
- ☐ Laser Beams
- ☐ Lifting Techniques
- ☐ Lighting
- ☐ Lightning Storms
- ☐ Material Handling
- ☐ Material Storage
- ☐ Out in the Mud
- ☐ Overexertion
- ☐ Overhead Lines
- ☐ Painting
- ☐ Pickup Abuse
- ☐ Pile Driving
- ☐ Pinch Points
- ☐ Pride in Workmanship
- ☐ Project Speed Limits
- ☐ Public Relations
- ☐ Railroad Crossing
- ☐ Respirators
- ☐ Riding Equipment
- ☐ Safety Attitude
- ☐ Safety Equipment
- ☐ Sandblasting
- ☐ Sanitation
- ☐ Seat Belts
- ☐ Snow & Ice
- ☐ Steps
- ☐ Stripping
- ☐ Telephone Cables
- ☐ Theft
- ☐ Traffic Controls
  - ☐ Flagmen
  - ☐ Flashers
  - ☐ Reflectorized Vests
  - ☐ Signs & Barricades
- ☐ Trenches
  - ☐ Ladder
  - ☐ Overhead Lines
  - ☐ Slopes
  - ☐ Spoil Pile
  - ☐ Trench Box
  - ☐ Underground Utilities
- ☐ Trucking
- ☐ Vandalism
- ☐ Water Safety
  - ☐ Grab Pole
  - ☐ Life Boat
  - ☐ Life Vest
  - ☐ Oil Spill Boom
  - ☐ Ring Buoys
- ☐ Wind

Start Planning Your Next Safety Meeting

OVERLAND CONTRACTING

WELDING AND CUTTING PERMIT

Site _____ Contractor _____

Person Requesting Permit _____

Location of Permit _____

Duration of Permit Date _____ Time _____ Thru/Date _____ Time _____

Nature of Work _____

_____

The person requesting the permit and a person authorized to issue a permit shall check the following items and resolve any problems prior to issuing the permit.

Yes	No	N/A	
_____	_____	_____	General condition of area housekeeping.
_____	_____	_____	Necessary equipment locked / tagged.
_____	_____	_____	Fire protection system in service.
_____	_____	_____	Remove all flammable and combustible materials within 35 feet.
_____	_____	_____	Remove or cover flammable and combustible liquid storage cabinets and containers that cannot be moved.
_____	_____	_____	Check area for combustible vapors _____ %.
_____	_____	_____	Purge or inert any piping or vessels prior to welding, cutting, or heating (if they are used to transport or store flammables or combustibles).
_____	_____	_____	Opening in floors or walls shall be covered to contain sparks and hot slag.
_____	_____	_____	Fire watch provided and equipped with a fire extinguisher and the location of the nearest fire cabinet identified.
_____	_____	_____	Fire watch instructed to stay in the area 30 minutes after the work is complete to ensure there is no fire hazard.
_____	_____	_____	Work area barricaded or roped off if necessary.
_____	_____	_____	Check the communications in the area (phones, radios).
_____	_____	_____	Notify the watch engineer or appropriate operations area supervision.

_____ _____ _____ _____

Signature of Authorizing Person | Date | Signature of Person Requesting Permit | Date

Memorandum to Loss Control Manual

September 8, 2014

SARP 10 Project

Project 179821

To: All subcontractors

In keeping with section 1.10 of the SARP 10 Loss Control Manual (LCM) this memorandum is being sent to all subcontractors. LCM memoranda will be issued to all persons who have received a LCM. The memoranda are to be inserted into and be considered part of the LCM. All changes shall be communicated to subcontractors and subcontractors' crewmen.

The person responsible for the receipt and maintenance of the LCM shall also be responsible for informing his/her firm's crewmen and subcontractors of the contents of the LCM memoranda.

Safety Policy Memorandum, # 140908-01, Confined Space Procedure (training) Section 1.6.10.3

This memorandum is being issued to address the requirement and procedure for confined space training. Below identifies the new requirements for training prior to entries into a confined space.

1. All employees entering confined spaces, all attendants for such entries shall and supervisors receive confined space entry training and emergency rescue training at least annually.

Very Truly Yours,

Mark McKeon

ESH&S Manager

Overland Contracting Inc.

Exhibit A: Schedule Impact Due to Weather

Program Manager will determine Contractor's entitlement to an extension of the Contract Time as a result of weather delays, based on the data included in Tables 1 and 2. Extensions of time will be granted at the discretion of the Program Manager for circumstances not covered by the flow chart.

The following rules apply to any analysis for weather related delays to this Project. Weather delay days may be awarded if the first two rules are met. Additional days may be awarded if conditions in Rule 3 are met for unusually heavy precipitation independent of Rules 1 and 2.

1. Rule 1: The average monthly precipitation amount must have been exceeded.

   If the total amount of actual precipitation in a month exceeds the average for that month shown in Table 1, the first test has been met. Go to rule number 2. (Precipitation is defined as the quantity of water deposited by rain, hail, sleet, or snow.)

2. Rule 2: The number of days in a month with actual precipitation greater than the threshold amount shown in Table 2 has been exceeded.

   The number of days with actual precipitation greater than the threshold amounts shown in Table 2 are eligible for award as weather delays days.

Additional days may be awarded for unusually heavy precipitation independent of meeting the rules above.

3. Rule 3: Unusually heavy precipitation has occurred.

   Precipitation greater than one inch in a single day may be justification for an additional day time extension for each precipitation day. This rule may be applied singly but not in addition with any other rule.

National Weather Service Data for Memphis International Airport – Years 2003-2013

Table 1

Average Precipitation by Month (In Inches)											
Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
4.14	3.79	4.49	5.54	6.30	2.52	4.19	3.23	3.01	3.79	4.27	4.87

Table 2

Average Number of Days with Precipitation Greater than 0.25 Inches											
Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
5	5	5	5	5	3	4	3	3	4	5	5

Any weather-related extension of Contract time shall be non-compensable. Efficiencies gained as a result of favorable weather within a calendar month, where the number of days of normally anticipated weather days is less than expected, shall contribute to the project float and shall not affect the Contract Times.

Application for a weather related extension of time shall be submitted to the Program Manager, and shall state the extension requested and be supported by the relevant weather data.

Exhibit B - Technical Specifications

1. Section 09905 - CITY OF MEMPHIS STANDARD CONSTRUCTION SPECIFICATION
2. Design/Build Technical Package

SECTION 09905 - CITY OF MEMPHIS STANDARD CONSTRUCTION SPECIFICATION

This specification references American Society for Testing and Materials (ASTM) standards, which are made part hereof by such reference, and shall be the latest edition and revision thereof. If there is a conflict between those standards and this specification, these specifications will govern:

THE CITY OF MEMPHIS *STANDARD CONSTRUCTION SPECIFICATIONS* ARE HEREBY INCORPORATED BY REFERENCE.

The City of Memphis *Standard Construction Specifications* are posted on the City of Memphis web site. These specifications may be viewed on-line at the following address:

http://www.memphistn.gov/Government/EngineeringDivision/StandardConstructionSpecifications.aspx
See the link on the right hand side of the page

END OF SECTION 09905

Design Build Technical Package

Table of Contents

Notes on the Design/Build Technical Package:

1. The conceptual design was developed by CDM Smith in conjunction with Clemson Engineering Hydraulics. This project has been added to the Memphis Sewer Assessment and Rehabilitation Consent Decree Program, referred to as the SARP10 Program. This report has been modified only with respect to references to meetings, schedule, or to the program team. All modifications from the original report have been redacted by blacking out.
2. Be advised that several design concepts were considered and evaluated and are discussed. However, the selected design concept is included in APPENDIX C.

Section 1
Background

1.1 Existing Facilities

The M.C. Stiles Wastewater Treatment Plant (Stiles WWTP) is located at 373 Stiles Drive, Memphis, Tennessee and began operation in 1977. This plant treats an average daily flow of approximately 80 million gallons of wastewater. The treatment regime includes coarse bar screens, fine bar screens, grit removal and activated sludge contact-stabilization followed by secondary clarification. Treated wastewater is discharged to the Mississippi River under National Pollutant Discharge Elimination System (NPDES) Permit No. TN0020711.

The Stiles WWTP facilities applicable to this project are limited to the following:

Chlorine Contact Basin

- Refer to the historical drawings (**G-51, G-52, G-72,** and **G-73** in **Appendix A**) from 1972 for details of how effluent flow is routed from the chlorine contact basin to the current outfall system.
- The current effluent flows over a broad-crested weir as it leaves the chlorine contact basin into either the primary or secondary outfall pipes depending on the water level in the Mississippi River.

Primary Outfall

- The current outfall consists of an 84-inch reinforced concrete pipe, which maintains a constant slope from the chlorine contact basin to a vertical drop structure adjacent to the Mississippi River bank.
- The drop structure has an approximate 20-foot drop from the pipe that flows into the structure to the outfall piping into the Mississippi River.
- Once leaving the effluent drop structure, effluent flows into the river through an 8-foot wide headwall structure.
- The invert elevation for the outfall pipe at the river is 190 feet.
- Refer to the historical drawing G-72 from 1972, and provided in Appendix A, for an approximate plan and profile of the existing primary outfall and structure.

Secondary Outfall

- This outfall pipe is only active when the water level of the Mississippi River rises to a level where the water backups within the chlorine contact basin effluent structure and spills over the weir to the secondary outfall.
- The outfall consists of an 84-inch reinforced concrete pipe, which is sloped from the chlorine contact basin to a headwall structure located approximately 200 feet from the riverbank.

- When effluent is diverted to the secondary outfall pipe, the outlet is surcharged by the river and the flow discharges to the flood plain above the riverbank.
- Refer to the historical drawing G-72 from 1972, and provided in Appendix A, for a plan and profile of the existing secondary outfall and endwall structure.

1.2 Project History

The current NPDES permit requires that "there shall be no distinctly visible floating foam, scum, oil, or other matter contained in the wastewater discharge." While the City of Memphis has taken steps to reduce foaming, including the use of a defoaming agent, foam is still periodically observed in the river immediately downstream from the outfall.

In 2010, CDM Smith conducted a study to determine the probable sources of foaming and to evaluate mitigation alternatives. This study concluded that the foam produced immediately downstream of the outfall is a mixture of biologically produced fatty acids, and to a lesser degree, man-made surfactants. This mixture arises from multiple sources and products discharged from the users of the Memphis wastewater system. The study also concluded that the foam levels observed in the river are due in large part to the hydraulic drops located at the overflow weir at the chlorine contact basin and the effluent structure near the river that allow energy and air to be imparted into the water. As such, and considering the impracticality of identifying and eliminating all the surfactant and fatty acids discharging to the plant, mitigation alternatives have focused on restructuring the outfall to modify the large hydraulic drop such that the foam can be managed.

Various associated alternatives have been evaluated by CDM Smith to assess the potential for foam reduction while factoring in both constructability and cost. While there are multiple alternatives that can potentially be expected to reduce foam in the outfall, the amount of reduction cannot easily be quantified through calculations, nor can the impact of minor design adjustments on the extents of foam mitigation. As such, CDM Smith engaged Clemson Engineering Hydraulics, Inc. (CEH) to construct and test physical models of the outfall to help finalize the design concept.

As described in CEH's final report, which is provided in **Appendix B**, the modeling work included constructing and testing a model of the existing outfall at an approximate 1:6 scale. A good correlation was observed between the laboratory model and current outfall at the simulated conditions. CEH then proceeded to construct and test three outfall alternatives to determine the ability of each alternative on foam mitigation. The alternatives evaluated include the following:

1. Modifications to the existing outfall drop structure
2. Construction of a moderately sloped spillway with no drop structure
3. Construction of a vortex effluent drop structure on the existing secondary outfall

Evaluation of each alternative included testing various modifications in real time to help optimize a solution. The recommended approach to be designed and constructed by the selected Design-Build Team, referred to as the Contractor in the remainder of this document, is a vortex structure on the existing secondary outfall. The design concept for this approach is detailed further in Section 3.

Completion of this project is part of the City's Consent Decree (CD) for sewer overflows and has been memorialized in the CD. To be in compliance, the City must complete this project within 24 months of the U.S. Environmental Protection Agency (EPA) approval of CD Amendment No. 1. ~~Contractor schedule requirements are detailed in Section 2.3.~~

Section 2
Scope of Services

2.1 General Scope of Services

The purpose of this section is to outline the general scope of services and requirements of the Contractor. As described below, the selected Contractor will be responsible for final design, permitting, and construction of the new facilities. This section is intended to supplement, not replace, the City's specifications and contract documents for this project.

2.1.1 Design

The City of Memphis and CDM Smith have prepared the Design Concept outlined in Section 3. This Design Concept includes specific design criteria and details the work the City and CDM Smith believe will be necessary to achieve the performance objectives noted in Section 2.2. The Contractor shall be responsible for completing final design and shall be the engineer of record for the project deliverables. Modifications to the Design Concept that the Contractor believes will best serve the project and City are permissible and encouraged. However, any such modifications shall be approved by the City ~~and CDM Smith~~.

The Contractor shall perform final design services, including all associated field work as deemed necessary, for the design. The Contractor's bid shall include, but not necessarily be limited to, all of the following:

- Land survey work as necessary to support design. CDM Smith has completed limited survey work in the area and there is a recent bathymetric survey provided by the U.S. Army Corps of Engineers (USACE). These surveys are included on drawing **C-1**, which is provided in **Appendix C**, and the original and combined electronic files shall be made available to potential bidders upon request.

- Geotechnical investigations, as necessary, to support design. While not in the exact location of the proposed new outfall pipe and vortex structure, drilling and testing of four soil borings was performed in the vicinity of the existing outfalls adjacent to the river. The locations and results are provided in **Appendix D**.

- Preparation of a complete and coordinated set of design drawings for all engineering disciplines with an adequate level of detail to allow for construction, as well as approval by all necessary regulatory agencies. Drawings used for permit applications require the signature and seal of a licensed professional engineer in the State of Tennessee. The drawing sets require segregation by major discipline. As part of its bid, the Contractor shall identify a preliminary list of design drawings.

- Preparation of technical specifications using the 16-division CSI Spec-Text format. Specifications shall reflect only the scope of work for the current project. Standard specifications shall be modified to exclude items not applicable to the current project. As part of its bid, the Contractor shall identify a preliminary list of specifications.

- Preparation and maintenance of a progress schedule throughout the duration of the contract. An initial anticipated project schedule shall be submitted with bid package.

- Preparation for and facilitation of three design meetings with the ~~City and CDM Smith~~ project team:

    1. Design/project kickoff meeting
    2. 60% progress review meeting
    3. Final design review meeting

  The meetings will be held at the project site. Design documents for the second and third meetings are to be distributed for review at least five (5) working days prior to the meetings.

2.1.2 Permitting

The Contractor shall be responsible for determining which Local, State, and Federal permits are required for this project, preparing necessary permit applications, and providing technical input as required in securing these permits. The Contractor shall also provide the City with information regarding the approximate length of review time for each permit, and any special requirements that could delay this process (e.g., public comment). Except for extraordinary revisions required by regulatory agencies, the Contractor is expected to revise reports, plans, and specifications as necessary to secure permits as part of its bid. The permit applications will be formally submitted and paid for by the Contractor.

CDM Smith has already had preliminary discussions with the Tennessee Department of Environment and Conservation (TDEC) and USACE. Based on these discussions, it is anticipated that the following State and Federal permits and plans review will be required:

- TDEC Construction Plans Review and Approval
- TDEC Aquatic Resource Alteration Permit (general permit)
- USACE 404 permit (general permit)

The need for either a TDEC or USACE individual permit as opposed to a general permit will be dependent on the amount of anticipated disturbance of river sediments during construction. While TDEC and USACE have indicated that they believe only general permits will be required, close coordination with both agencies shall be anticipated, and it is recommended to meet with the appropriate agencies early in the design process.

2.1.3 Construction

The Contractor shall be responsible for all aspects of construction as specified in the final design documents. This shall include:

- Preparation and maintenance of a progress schedule throughout the duration of the contract
- Attendance at and facilitation of construction progress meetings (monthly meetings at a minimum are required)
- Engineering services during construction
- Start-up services
- Preparation of record drawings

This list is only a partial list of requirements. Please refer to the City's specifications and contract documents for a complete set of requirements and documentation.

2.2 Performance Objectives

The primary objective of this project is to significantly reduce foaming observed in the Mississippi River. Specific criteria other than the wording in the NPDES permit have not been established by the regulatory agencies, and the Consent Decree simply states that "It is the expectation of the Parties that this Work Plan, once implemented, will eliminate the underlying cause(s) of the alleged noncompliance with the NPDES Permit for the M.C. Stiles WWTP."

Considering the ambiguity in wording, the City of Memphis does not have specific performance criteria that can be easily passed onto the selected Contractor. Additionally, very little has been documented regarding existing foaming conditions. While the City understands that the presence of foam may not be entirely eliminated under all scenarios (e.g., under low level conditions within the Mississippi River), the City expects to be able to clearly demonstrate to EPA that foaming has been reduced significantly as a result of the new outfall.

To determine performance against expectations, the selected Contractor shall document before and after conditions regarding foam in the river for presentation to both the City and EPA. This documentation shall include, at a minimum, the following:

- Video / photo evidence of the outfall throughout the entire construction duration before flow is switched to the new outfall. This evidence shall include conditions both with and without the use of defoamer.
- Video / photo evidence of the outfall for a minimum of two weeks following completion of the new outfall.
- A comparison of the use of defoamer for pre- and post-construction. At least three months shall be used for the post-construction comparison.

The Contractor shall include details in their bid on how documentation will be accomplished.

2.3 Schedule

As stated in the Consent Decree Amendment No. 1, the City has 24 months to complete this project and have the new outfall operational from the effective date of Amendment No. 1. ~~As of the publish date for this project package, Amendment No. 1 has not yet become effective. It is anticipated that the Contractor will have 16 months for final design, permitting, and construction. More time may be available depending on the actual effective date of Amendment No. 1.~~

The ~~16-month~~ design and construction schedule is based on the following assumptions:

- ~~Contractor award and contract execution within 165 working days of the Amendment No. 1 effective date~~
- 90 working days for final design and submittal of permit applications
- 20 working days for regulatory permitting and plans approval
- 220 working days after receipt of permitting approvals for construction and startup and testing

The Consent Decree Amendment No. 1 schedule allows for more time should permit approvals take longer than 20 working days. For example, if it takes two months (approximately 40 working days) to receive a permit after an application is submitted, the 24-month schedule is extended by one month.

When preparing the project schedule, the selected Contractor should consider the following:

- Management of plant operations during construction, and specifically, how effluent discharge will be switched from the current outfall to the revised outfall.
- Seasonal river levels (spring and summer = high level season).
- Endangered species protection. TDEC has identified two endangered species (Pallid Sturgeon (Scaphirhynchus albus) and the state threatened Blue Sucker (Cycleptus elongates)) in the vicinity of the outfall. As a worst case scenario, TDEC has indicated that the ARAP permit may limit construction in the waterway during the spring and summer months. It is recommended that the selected contractor follow-up with both agencies early in the design process.

2.4 Coordination with Other Projects

The outfall modification project is a stand-alone project. However, final design for another project is underway that will involve adding chemical disinfection to the plant. As part of that project, the existing chlorine contact basin will be converted to serve as a contact basin for peracetic acid disinfection. A newly constructed tank farm will occupy the open space east of the contact basin. Underground piping will be installed between the tank farm and contact basin; as well as on the north, east, and south sides of the basin to feed disinfectant to the wastewater. Other improvements to be made in this area of the plant include relocation of utilities and existing process piping, as well as improvements to the plant access road.

Construction for the disinfection project may occur concurrently with the outfall project. Thus, some coordination may be required between projects. For example, it is anticipated that both projects will include identifying and extending a potable water line for operations. More details on coordination and timing of the disinfection project will be shared as available.

Section 3
Design Concept

The purpose of this section is to describe the identified approach to meet the project objectives. The design and construction shall be based on the design criteria and details outlined below and in the Preliminary Drawings (attached). The Contractor is encouraged to review this Design Concept and identify modifications that will add value to the project by decreasing construction costs, increasing reliability, improving safety, etc. Any proposed modifications shall balance potential impacts on schedule, and as previously stated, will be reviewed and approved by the City of Memphis.

The Preliminary Drawings described in the text below and provided in Appendix C are:

C-1	84" Outfall Pipeline Plan / Profile
CD-1	Vortex Drop Structure and Plant Effluent Line Modification Detail Plan and Section
CD-2	Vortex Drop Structure and Plant Effluent Line Modification Detail Plan and Section
CD-3	Vortex Drop Structure and Plant Effluent Line Modification Detail Plan and Section

3.1 Design Summary

This project will include constructing a new outfall to reduce foaming in the Mississippi River. The identified approach is to build a vortex-type drop structure that will transition flow vertically down to the elevation of discharge into the river with minimal air entrainment. As described in CEH's modeling report, these structures work by generating strong vortex action in the vertical drop pipe, which causes the flow to attach to the side of the drop pipe; and therefore, reduces the volume of air becoming entrained.

Flow will enter the vortex structure through a moderately sloped pipe from the existing secondary outfall and exit the structure through a horizontal pipe to the river. A crown plate will be installed at the end of the outfall to capture any foam at the top of the water column and "push" it through one of three vents along the horizontal outlet pipe to the vortex structure. To further limit foam generation, the intent of the design is to have the outfall pipe fully submerged at least 95% of the time based on the revised invert elevation of the outfall pipe.

Any foam generated in or routed back to the vortex structure will be controlled using a suppression system. This system will consist of potable water and nozzles to "knock down" the foam. The foam suppression system must also be capable of distributing defoamer through the system piping and nozzles if potable water is ineffective at mitigating the return foam.

3.2 General Design Criteria

The following list provides general design criteria for the project. Additional criteria are specified in the following sections for particular structures and equipment.

- The treatment plant must remain fully operational and accessible throughout construction. Shutdowns of individual facilities will only be permitted as needed to allow for completion of piping connections or other required modifications. The number, and duration, of facility or equipment shutdowns must be kept to a minimum, and completed in a manner and timeframe

acceptable to the City. All process shutdowns of any type shall be approved by the City of Memphis and must be requested and defined a minimum of seven (7) days in advance of needed operations modification or shut down. A maintenance of operations and effluent flow shall be submitted with each request.

- To reduce construction costs and limit the effect on operations, use of the existing secondary outfall piping is proposed for the initial run of piping to the vortex structure. Under this approach, the secondary outfall would become the primary outfall and the primary outfall will become the secondary outfall. This approach will require that the overflow weir to the existing secondary outfall structure be removed and another overflow weir be installed at the same elevation as the existing weir to control flow to the existing primary outfall structure. The existing piping must be modified to allow discharge at an elevation similar to the existing secondary outfall.
- The effluent, 84-inch diameter pipe between the chlorine contact basin and the drop structure shall be set at a slope between 0.5% and 2.0%.
- The top slab of the drop structure shall be at an elevation of at least 227 feet and shall be equipped with appropriate access hatches as shown on the Preliminary Drawings at the top of the structure for entry.
- The center of the drop structure shall be located on the plant site where the existing ground surface elevation is 220 feet or higher.
- The invert elevation of the pipe at its connection (entrance) into the vortex structure shall be between elevations 216.5 and 221 feet.
- The invert elevation for the outfall pipe shall be at 172 feet into the river. Based on CDM Smith's analysis of river levels for the last 50 years, the water level is expected to be above 179 feet (i.e., the crown of an 84-inch pipe) 97% of the time, ultimately reducing the potential for foam to be observed.
- A crown plate shall be installed on the outfall pipe between the third vent and the end of the pipe where it daylights into the river.
- Acceptable pipe materials for the outfall shall be either reinforced concrete and/or glass-fiber-reinforced pipe. Specific materials proposed for this project shall be identified in the Contractor's bid.
- No instrumentation and controls are anticipated as part of this project. Electrical requirements are not anticipated either, or expected to be limited depending on the final design of the foam suppression system.

3.3 Vortex Structure and Venting

Important details for the vortex drop structure design are provided in the drawings. All dimensions provided on the drawings are firm and should be considered a design requirement. The vent piping for the drop structure discharge pipe shall have a minimum of 3-feet of cover and be sloped at a minimum of 5%. All vent piping shall slope upwards at a slope of at least 5% from the discharge pipe

to the drop structure to facilitate transmission of air back to the drop structure. All three of the vents shall be 8 inches in diameter and be manufactured of a compatible material to the primary outfall.

- The first vent shall be located 25-feet away from the vortex drop structure.
- The second vent shall be installed approximately half of the distance of the centerline from the first vent to the end of the outfall.
- The third vent shall be located 10 feet or less from where the outfall pipe crown daylights into the river. The crown plate shall be located between the third vent and the end of the pipe to capture air that may pass the vent and force it back into the third vent pipe.

3.4 Foam Suppression System

A foam suppression system shall be installed inside the vortex drop structure. Nozzle design, piping layout, and elevation of the system shall be determined by the Contractor. The system shall have the capability to convey both the current defoamer used at the WWTP and potable water with no restrictions, clogging or other long-term operational issue. The ability to choose to use defoamer or potable water shall be provided at the top of the structure. Also, the system shall be designed in such a way that plant maintenance personnel can easily and safely access the nozzles and piping for routine maintenance and inspection. The City has indicated that the foam suppression system will not require remote monitoring, remote control, or tie-in to the WWTP's Supervisory Control and Data Acquisition (SCADA) System. The system shall be manually operated from a local control switch / panel; however, the operators shall be able to observe foaming conditions within the structure without having to enter the structure, such as with the use of a camera tied into the local control panel.

Appendix A
Historical Drawings

NORTH

G-52A

2½"Chlorine Residual Analyzer Line

5"Effluent Screen Spray Water

8"Chlorine Solution Inv. Elev.229.08

Grating

Handrail

24"Final Effluent Inv. Elev.233.08

24"Chlorine Tank Drain Inv. Elev.222.00

Valve Box & Operating Nut.

96"Final Tank Effluent ℄ Elev. 230.08

Mixing Drive Unit

G-52C

Chkd Plate

2-Butterfly Gates 6'-0"x6'-0"

96"Final Tank Effluent ℄ Elev. 230.08

G-52D

24"Chlorine Tank Drain Inv. Elev. 222.00

Valve Box & Operating Nut.

Ladder

Floor Elev. 226.08

16"Wide Baffles

Sluice Gate Operators

Baffle Wall

Drainage Opening

1"Exp. Joint

Floor Elev. 226.50

4"Final Effluent Sampler Line ℄ Elev.235.00

Handrail

Scum Trough

Floor Elev. 226.32

Top Elev. 242.00

EFFLUENT CHAMBER

8"Scum Line Inv. Elev. 237.00

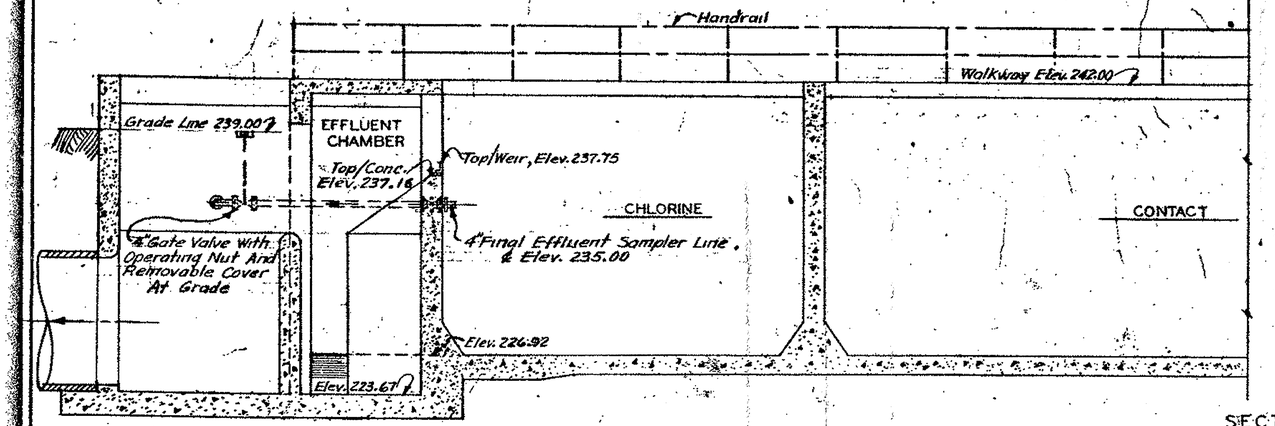
G-52B

SCALE 1/8" = 1'-0"

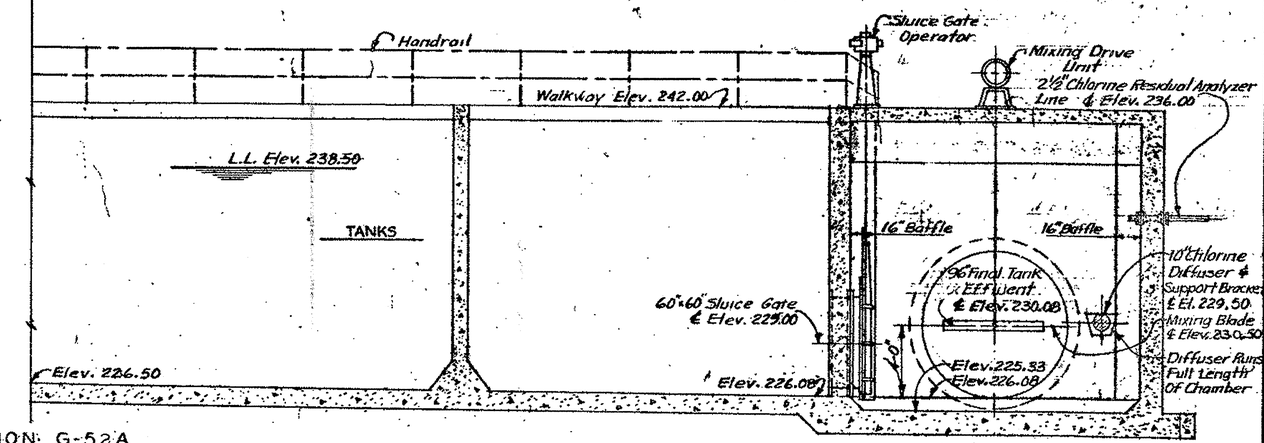
MEMPHIS, TENNESSEE
NORTH SEWAGE TREATMENT PLANT

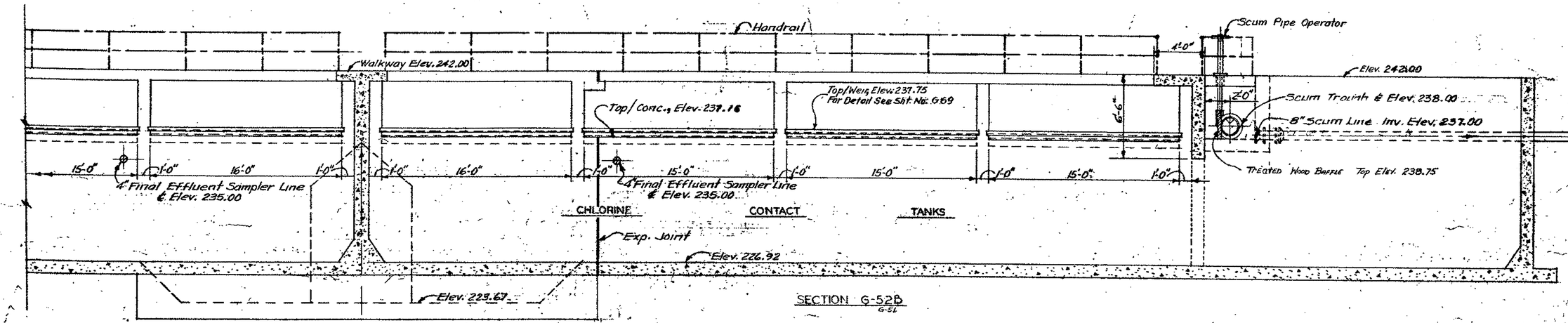
CHLORINE CONTACT TANKS - PLAN

DRAWN MW	CHECKED RRR	ELLERS, REAVES, FANNING & OAKLEY, INC. CONSOER, TOWNSEND & ASSOCIATES CONSULTING ENGINEERS A JOINT VENTURE	REVISED
APPROVED			DATE Aug. 1972
APPROVED GIB.			SCALE 1/8" = 1'-0"
PROJECT NO. 6936		APPROVED FOR CITY	SHEET NUMBER G-51 OF 80

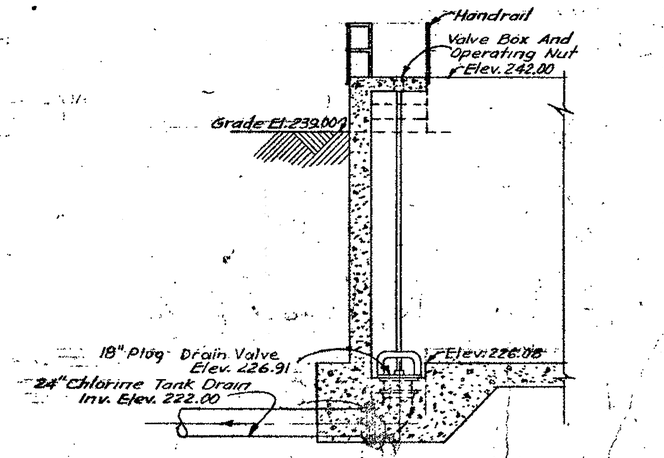


SECTION G-52A
G-51

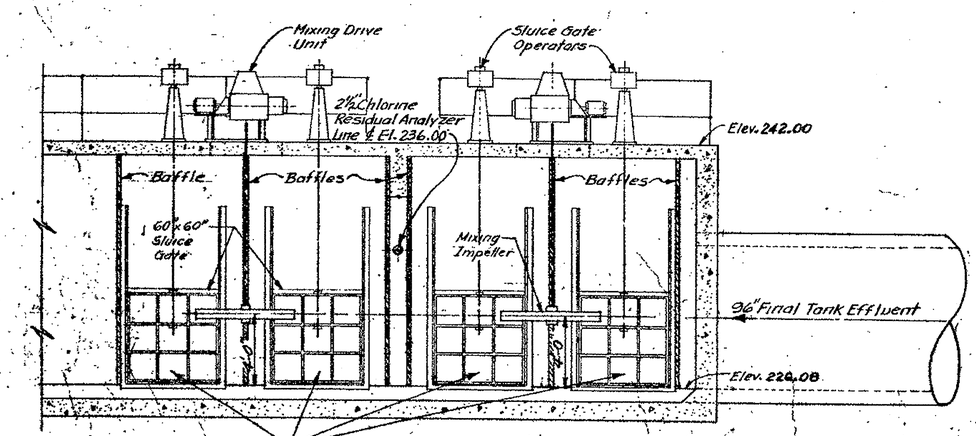




SECTION G-52B
G-51



SECTION G-52D
G-51



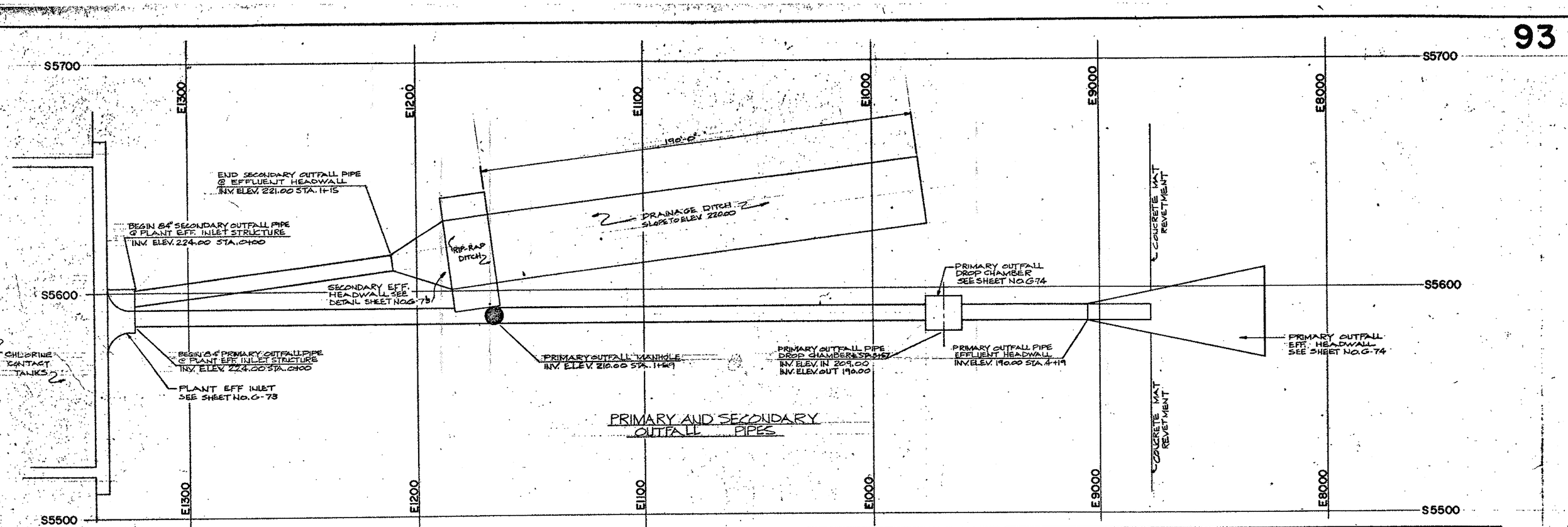
Sluice Gates To Be Revised Under Deductive Alternate Item 6

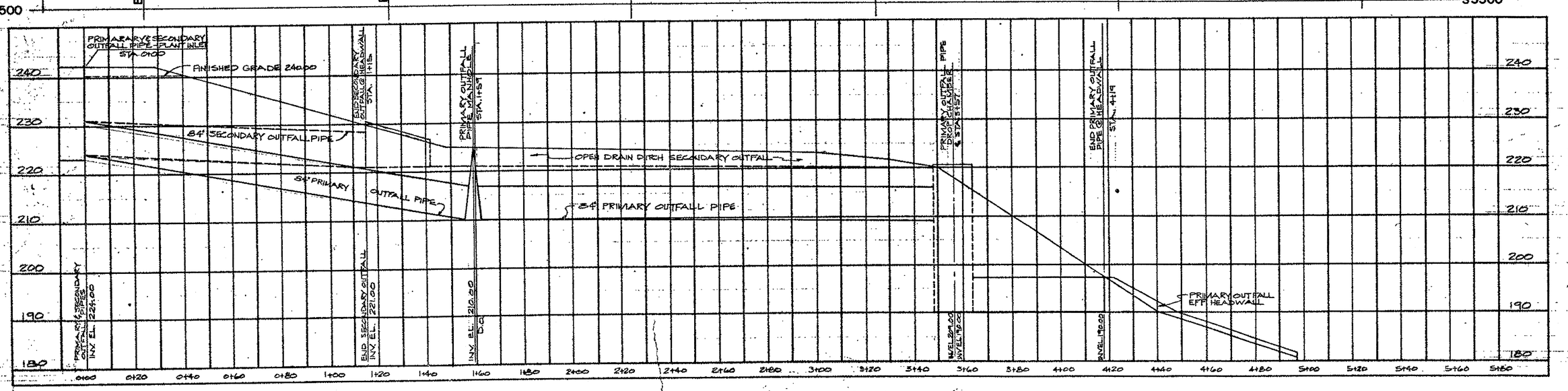
SECTION G-52C
G-51

SCALE
1/8" = 1'-0"

MEMPHIS, TENNESSEE
NORTH SEWAGE TREATMENT PLANT
CHLORINE CONTACT TANKS – SECTIONS

DRAWN MW	CHECKED RRR	ELLERS, REAVES, FANNING & OAKLEY, INC.	REVISED
APPROVED		CONSOER, TOWNSEND & ASSOCIATES	DATE Aug. 1972
APPROVED GIB		CONSULTING ENGINEERS	SCALE 1/4"=1'-0"
PROJECT NO. 69364		A JOINT VENTURE	SHEET NUMBER G-52 of 80
		APPROVED FOR CITY	





N

SCALE

10' 0 5' 10'

1" = 10'

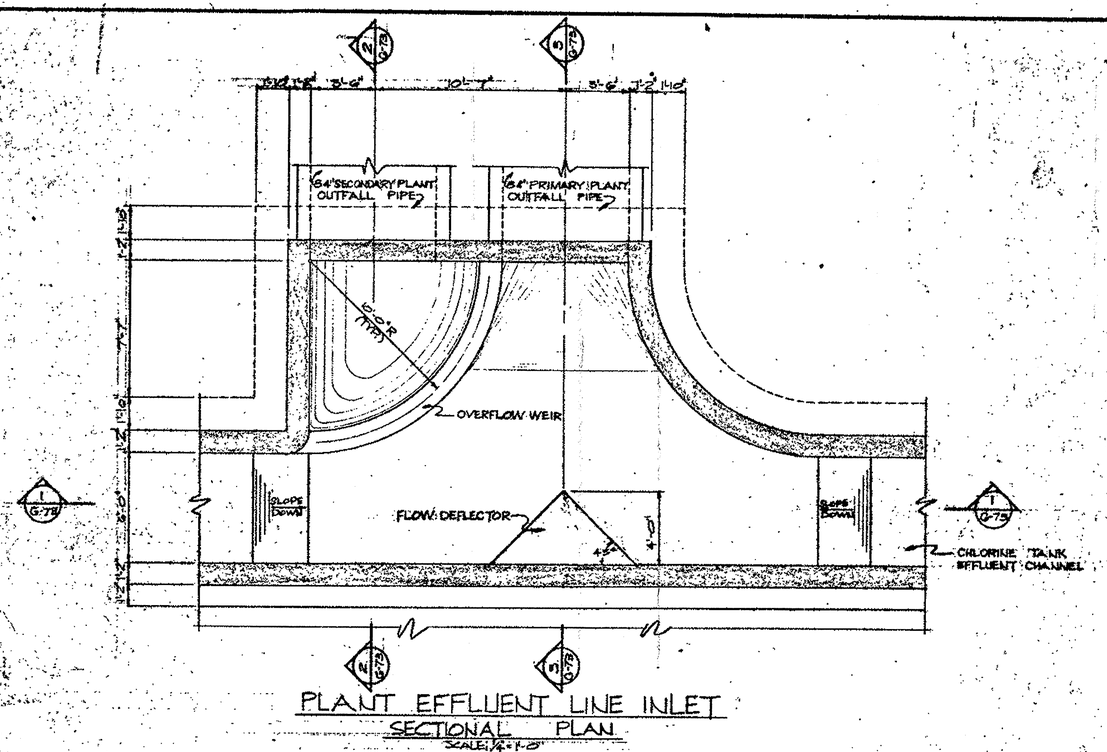
20' 0 10' 20'

1" = 20'

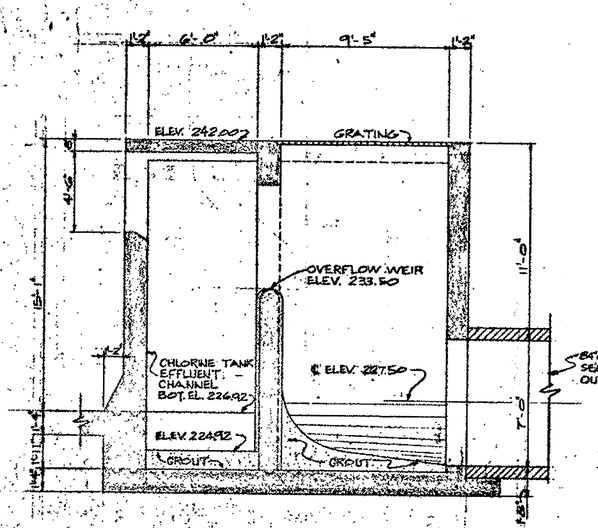
MEMPHIS, TENNESSEE
NORTH SEWAGE TREATMENT PLANT

PRIMARY AND SECONDARY OUTFALL PIPES PLAN AND PROFILE

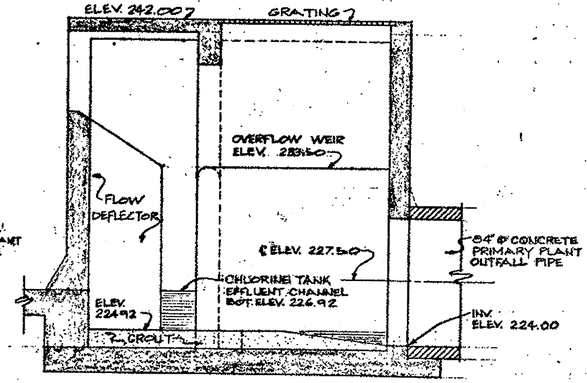
DRAWN M.R.B.	CHECKED D.A.G.	ELLERS, REAVES, FANNING & OAKLEY, INC. CONSOER, TOWNSEND & ASSOCIATES CONSULTING ENGINEERS A JOINT VENTURE	REVISED
APPROVED			DATE AUGUST, 72
APPROVED			SCALE H 1" = 20'-0" V 1" = 10'-0"
PROJECT NO.		APPROVED FOR CITY	SHEET NUMBER G-72 OF 80



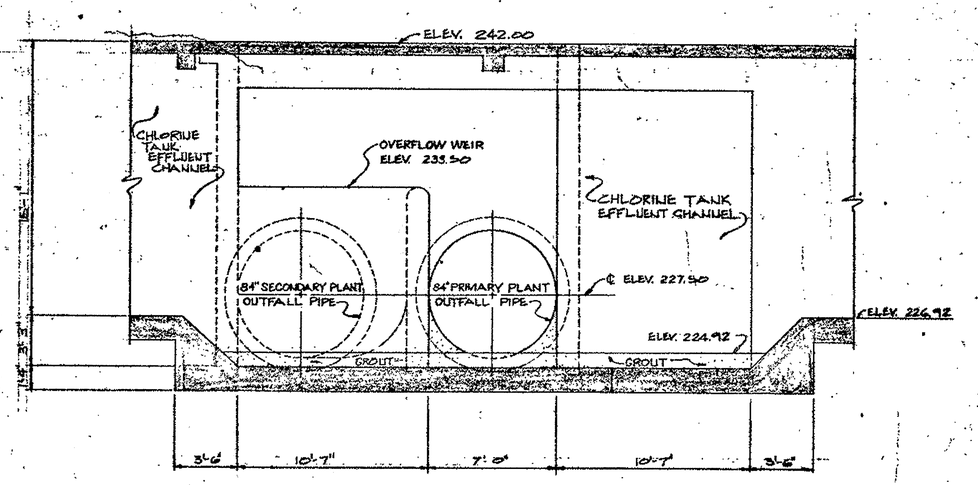
PLANT EFFLUENT LINE INLET
SECTIONAL PLAN
SCALE: 1/4" = 1'-0"



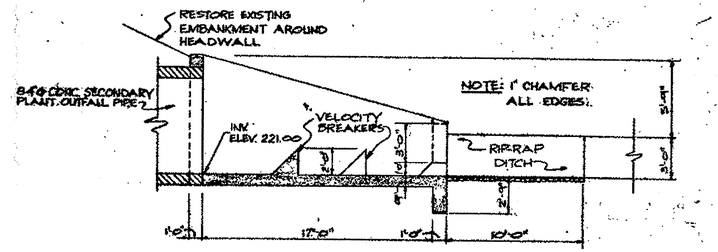
SECTION (2 G-73)
SCALE: 1/4" = 1'-0"



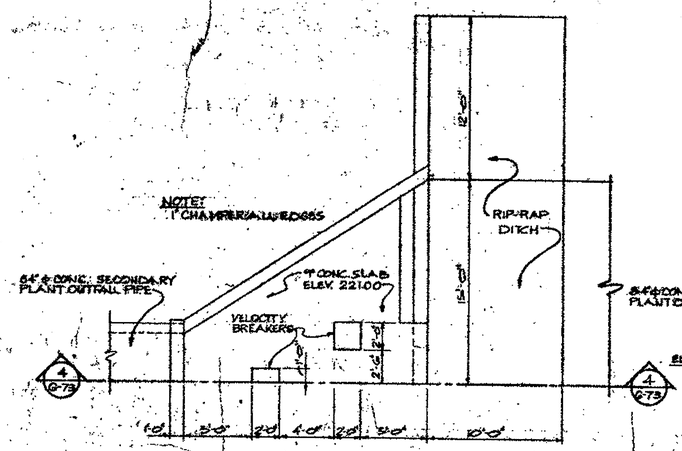
SECTION (3 G-73)
SCALE: 1/4" = 1'-0"



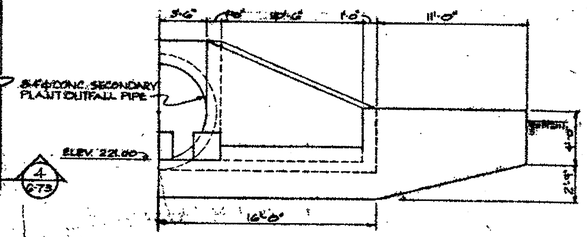
SECTION (1 G-73)
SCALE: 1/4" = 1'-0"



SECTION (4 G-73)
SCALE: 3/16" = 1'-0"



SECONDARY EFFLUENT PIPE HEADWALL PLAN
℄SYMMETRICAL ABOUT ℄
SCALE: 3/16" = 1'-0"



FRONT ELEVATION
SCALE: 3/16" = 1'-0"

SCALE
3/16" = 1'-0"
1/8" = 1'-0"

MEMPHIS, TENNESSEE
NORTH SEWAGE TREATMENT PLANT

PLANT EFFLUENT LINE DETAILS

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APPROVED	
APPROVED	
PROJECT NO.	

ELLERS, REAVES, FANNING & OAKLEY, INC.
CONSOER, TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS
A JOINT VENTURE

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REVISED	
DATE	AUGUST, 72
SCALE	SHOWN
SHEET NUMBER	G-73 OF 80

Appendix B

CEH Modeling Report

MEMPHIS NORTH (STILES) SEWAGE TREATMENT PLANT DISCHARGE DROP SHAFT STRUCTURE PHYSICAL HYDRAULIC MODEL STUDY

FINAL REPORT (rev 1)

Conducted For

CDM Smith

CEH Report No. 448-13

CEH
CLEMSON ENGINEERING HYDRAULICS, INC.
1046 Watkins Road • Anderson, SC 29625

1046 Watkins Road • Anderson, SC 29625
P 864.231.9585 F 864.231.9588

MEMPHIS NORTH (STILES) SEWAGE TREATMENT PLANT DISCHARGE DROP SHAFT STRUCTURE PHYSICAL HYDRAULIC MODEL STUDY

FINAL REPORT (Rev 1)

Conducted For

CDM Smith

CEH Report No. 448-13

December, 2013

Prepared by:

Matthew Havice, P.E.
Project Engineer

Approved by:

David E. Werth. Ph.D., P.E.
Principal Engineer

EXECUTIVE SUMMARY

Clemson Engineering Hydraulics, Inc. (CEH) assisted CDM Smith in conducting a model study of the Memphis North Sewage (Stiles) Plant primary and secondary outfall pipe drop shaft structures. A 1:6.4 scale model was constructed and tests were conducted to evaluate the existing discharge structure and determine if modifications could be made to reduce turbulence and foaming. Initial tests conducted at 75 MGD indicated the presence of a large amount of turbulence within the drop structure which trapped significant amounts of air and led to foaming issues. Conditions in the model closely matched those of the actual structure based on observations of the prototype structure operating in the field. The discharge structure was then modified from a vertical drop to a free-surface sloping spillway. These tests also showed foaming and air entrainment due to the large vertical distance the flow must transition from between the drop-box and the low river elevation.

Additional testing of a new discharge configuration was also conducted. The model was revised to simulate a single pipe vortex drop-shaft structure. This testing showed significantly less air reaching the river, even at maximum flows and low river levels. However, some air was observed, and given that air does not scale conservatively in a physical model, additional modifications were evaluated. These tests demonstrated that the original vent box was not necessary and that several (minimum of 3) simple crown vents were more effective. A 12-inch crown plate was installed at the discharge pipe outlet. This crown plate should be attached to the end of the pipe and will block the top 12-inches of the discharge pipe. The intention of the crown plate is to trap any remaining air that has reached the crown of the pipe. A vent located within 12-inches from the end of the discharge pipe will provide a means for this air to escape.

The vertical separation (drop shaft length) between the upper and lower drop chambers can vary based on final construction locations etc., and should not have a significant impact. Testing showed that the drop-shaft structure could pass 230 MGD at all water levels up to where the level starts to get higher than the invert of the upper chamber (entrance to the drop shaft). At levels higher than this, the intake will begin to become submerged and the capacity will be reduced. At this level and all levels down to river EL. 178.5-ft, no air was observed leaving the discharge pipe. However, given that air does not scale in the physical model, there is the possibility that some air may remain entrained in the prototype and exit the pipe at high flow rates. However, the amount will be significantly less than presently exits. The longer the distance between the drop shaft and the outlet pipe exit the more likely that air will be removed.

It is recommended that a vortex drop-shaft structure be installed within the existing secondary outfall system and that the primary outfall be converted to the secondary system or abandoned. As much distance as possible between the drop shaft and discharge pipe outlet as possible should be included (at least 75-ft and ideally more). A crown plate should be installed at the outlet of the discharge pipe that blocks the top 12-inches of the pipe. The crown of the outlet pipe should be set at El. 178-ft or lower. A minimum of three (3) 12-inch vents should be installed on the crown of the discharge pipe with the downstream vent located within 12-inches of the pipe outlet. The remaining two should be evenly spaced between the downstream vent and the drop shaft structure. Figure 3-4 shows the upper vortex drops shaft details and the appendix shows the lower details per the CDM Smith design.

1.0 INTRODUCTION

1.1 Revision 1 Changes

Revision 1 of this report contains grammatical clarifications, corrections, and additional discussion in the conclusions regarding the recommended distance between the vortex drop shaft structure and the river. No changes to the technical content or recommendations were made.

1.2 Background

Clemson Engineering Hydraulics, Inc. (CEH) worked with CDM Smith in conducting a physical hydraulic model study of the existing Memphis North Sewage (Stiles) Plant primary outfall pipe drop shaft structure and modification alternatives using the secondary outfall pipe. The plant discharges into the Mississippi River and the discharge structure generates foaming due to the wastewater discharge composition and air entrainment which occurs during the discharge process. CDM Smith is evaluating the system to determine if modifications can be made to the system to minimize air entrainment and foaming.

The system consists of an 84-inch influent pipe utilizing a vertical drop shaft structure with two vertical 48-inch shafts which take the flow from the inflow invert of El. 209-ft to El. 190-ft. Once at the bottom of the shafts the flow again travels horizontally to a concrete outfall structure. The system flows from approximately 58 to 232 MGD and often operates with very low tail waters within the Mississippi River, possibly below El. 180-ft.

1.3 Objective

The objectives of this model study were as follows:

- Evaluate the existing discharge structure to identify the causes of foam generation and build-up.
- Evaluate changes to the existing structure to minimize the potential for foam build-up and to evaluate and compare different alternatives.
- Evaluate outfall alternatives and their ability to minimize foam

1.4 Open Channel Flow Models

When evaluating open channel flow models such as discharge structures it is important to ensure that the model and prototype are operated in the same flow regime. Given the high discharge velocity and vertical drop shafts the prototype flow will be fully turbulent. To ensure that the model accurately simulated the prototype a Froude Scaled (gravity driven) model was utilized and a scale was chosen to ensure that flow was fully turbulent in the model. Even so it is

important to note that several parameters including “bubble” generation may not scale correctly. Because the same fluid was used in the model and prototype the size of the bubbles produced from the falling discharge will be similar in the model and prototype. It is this bubble generation that can lead to the formation of foam. As a result some care must be taken when interpreting the results. Bubbles in the model will tend to rise to the surface quicker than those in the prototype. As a result, additional care and additional conservatism is incorporated into models of this type but not all features, such as foam generation, are duplicated and need to be inferred from the amount of turbulence, circulation, air bubbles etc.

1.5 Video Documentation

During the course of the testing, the primary documentation and reporting was through a series of photographs and short videos that were transmitted immediately after testing. This type of model lends itself to a "visual" analysis rather than traditional reporting. This report is being submitted based upon, among other things, the determinations made from the videos.

2.0 MODEL SCALING AND TEST SETUP

2.1 Model Scaling

To obtain accurate results from a physical model study, there must be dynamic similitude between the model and the prototype. To satisfy this requirement, there must be exact geometric similitude. In addition, the ratio of the dynamic pressures must also be maintained. Strictly satisfying dynamic similitude requires a 1:1 scale model. This is usually not feasible, so some compromise is made. To accomplish this, geometric similarity is maintained and the dominant forces associated with the prototype are determined and maintained between the model and prototype.

The primary forces that affect fluid flow are viscosity, surface tension, velocity (inertial), pressure, gravity and elastic forces. In structures with a free surface, such as a pump intake or spillway, gravitational and inertial forces are far greater than the viscous and turbulent shear forces. Therefore, when modeling free surface structures, geometric similarity and the ratio of inertial to gravitational forces, or the Froude number, is maintained between the model and prototype.

Simply holding the Froude number constant violates the strict definition of dynamic similitude. However, if the model is operated within a high enough range of Reynolds numbers, viscous and surface tension scale effects may be minimized. For example, when modeling pump stations, the 2012 Hydraulic Institute Standards (HI 2012) recommends that the minimum Reynolds number at the bell be greater than 6×10^4. Therefore, when choosing the model scale, it is necessary to ensure that the scaled flow rate will result in a high enough Reynolds number to minimize scale effects. It is common to be conservative and select a scale that results in a Reynolds number closer to 1×10^5 and a Weber number greater than 240.

When modeling open channel flows there is less stringent criteria than typical pump stations but the model and prototype should both be operated in the same flow regime (i.e. turbulent flow). Additional care must be taken when modeling free surface and closed conduit systems. The minimum depth of water in a model is generally agreed to be 1-inch (25-mm) but best practice suggests that in a complex flow field flows minimum depths on the order of 2 to 3 inches (50 to 75-mm) are preferred. Ensuring model depths in excess of 6-inches minimizes the impact of surface roughness. In the closed conduit, this means having Reynolds numbers which approach 100,000 simulated form losses. In a large model like this there must be a balance between open and closed conduit criteria to ensure accurate results but to minimize the size of the model.

Upon selecting an appropriate model or length scale, it is possible to determine relationships such as velocity, flow, and pressure between the model and prototype. This is accomplished by setting the model and prototype governing equations equal to one another. As mentioned above, the governing equation is determined by evaluating the dominating forces. These equations are typically dimensionless numbers such as the Froude, Reynolds, Weber, Euler, or Mach numbers. These common modeling relationships are shown below:

$$\textit{Froude Number} \qquad F = \frac{U}{\sqrt{gL}} = \frac{\textit{Inertial Force}}{\textit{Gravity Force}} \tag{2-1}$$

$$\textit{Reynolds Number} \qquad Re = \frac{UL}{\nu} = \frac{\textit{Inertial Force}}{\textit{Viscous Force}} \tag{2-2}$$

$$\textit{Euler Number} \qquad E = \frac{\rho U^2}{\Delta P} = \frac{\textit{Inertial Force}}{\textit{Pressure Force}} \tag{2-3}$$

$$\textit{Weber Number} \qquad W = \frac{U}{\sqrt{\sigma / \rho L}} = \frac{\textit{Inertial Force}}{\textit{Surface Tension Force}} \tag{2-4}$$

$$\textit{Mach Number} \qquad M = \frac{U}{\sqrt{K / \rho}} = \frac{\textit{Inertial Force}}{\textit{Compressive Force}} \tag{2-5}$$

Where:

U = characteristic velocity
g = gravitational constant
L = characteristic length
ρ = fluid density
ΔP = pressure difference
ν = kinematic viscosity of the fluid
σ = surface tension of the fluid
K = bulk modulus of elasticity of the fluid

If the governing equation is held constant between the model and prototype, the corresponding model flow rate, velocity, pressure, etc., can be solved directly. For example, setting the Froude number of the model equal to the prototype yields the following relationships, where the subscripts *p* & *m* denote prototype & model, respectively:

$$F_p = F_m \tag{2-6}$$

$$\frac{U_p}{\sqrt{gL_p}} = \frac{U_m}{\sqrt{gL_m}} \tag{2-7}$$

Using equation 2-7, the model velocity, and therefore, the flow rate Q can be solved for if the prototype velocity and length ratio is known. Typically, the model parameters are solved for

based on the prototype to model length ratio, L_P/L_M, or L_R. Doing so yields the following equations for Q & U:

$$\frac{Q_p}{Q_m} = L_R^{5/2} \tag{2-8}$$

$$\frac{U_P}{U_M} = \sqrt{L_R} \tag{2-9}$$

Based on the above discussion, a Froude scaled, undistorted and geometrically similar model with a scale of 1:6.4 was utilized. This scale resulted in sufficient depth in the 84-inch inflow pipe and a Reynolds number of approximately 180,000 in a 48-inch drop shaft pipe (one pipe at the lowest flow rates) which will accurately simulate any air entrainment. Conducting a distorted model, or one in which the vertical and horizontal scales are different, is not recommended in this case given the secondary current distortion which occurs in this type of model and the fact that the approach flow and turbulence levels at the drop shaft entrance must be maintained.

2.2 Model Overview

The model is shown below in Photos 2-1 through 2-4 and Figures 2-1 through 2-3. The upstream model boundary included a portion of the 84-inch pipe upstream of the drop shaft structures to approximately Sta. 1+100, which included the controlling break in grade and the normal depth flow profile within the pipe. The important parameter is the velocity of the discharge and location of the pipe exit relative to the drop shaft and spillway which was simulated correctly.

The downstream model boundary was considered to be a portion of the Mississippi River. The specific bathymetry and cross-flow of the river was not simulated as the model was intended to simulate flow and foaming at the exit of the pipe rather than the conditions within the river. Water was withdrawn by a lab pump at the far end of the model and was then re-circulated back through to the model head-box. An orifice plate located in return piping allowed for an accurate flow rate measurement through the system.

Photo 2-1 Model Overview and Influent Pipe

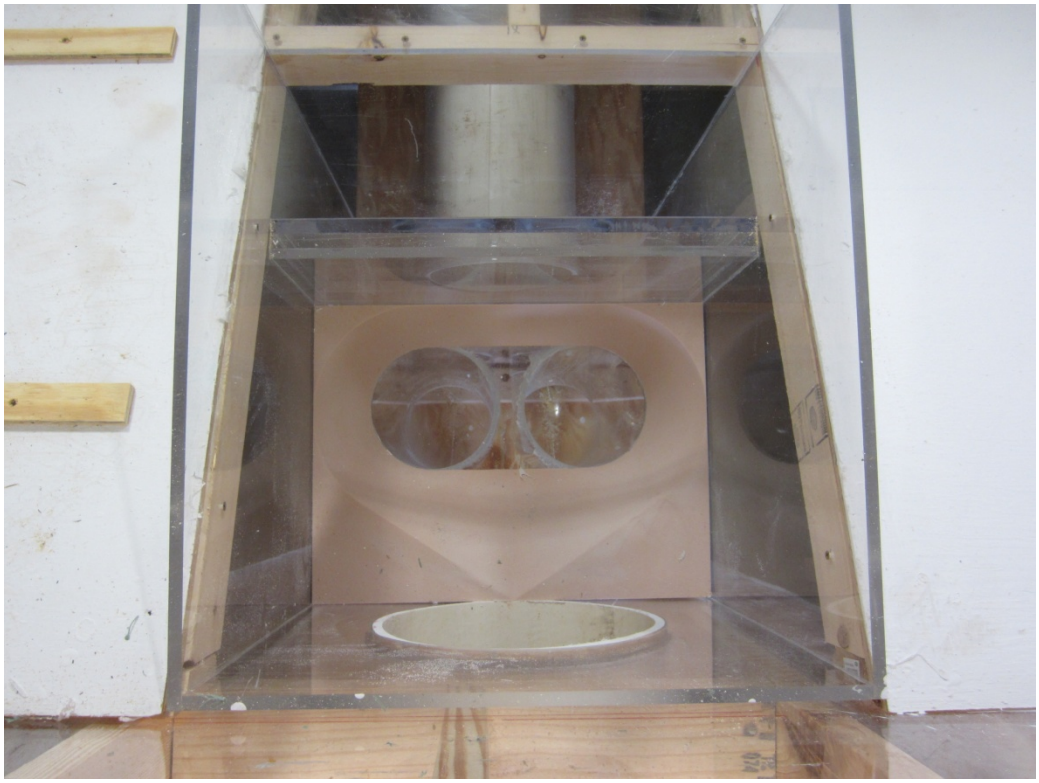


Photo 2-2 Looking Down on Drop Shafts

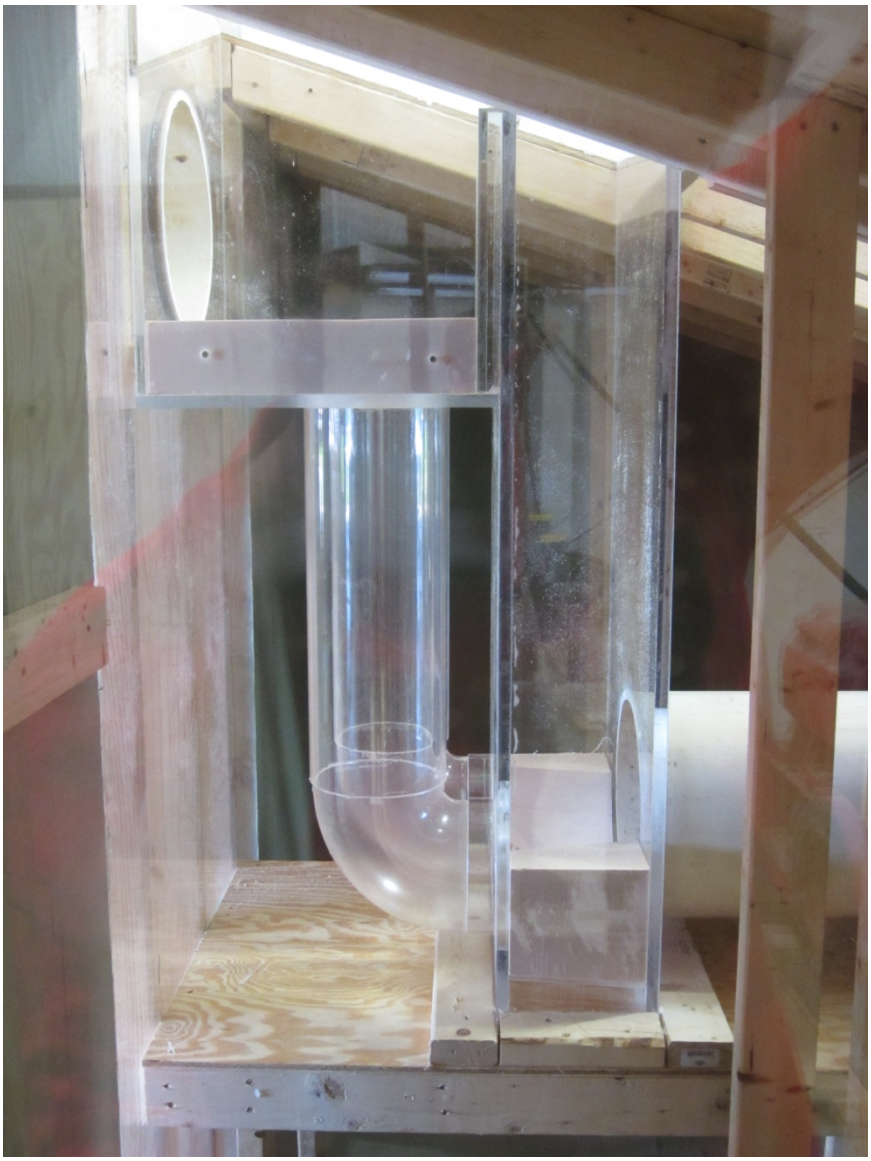
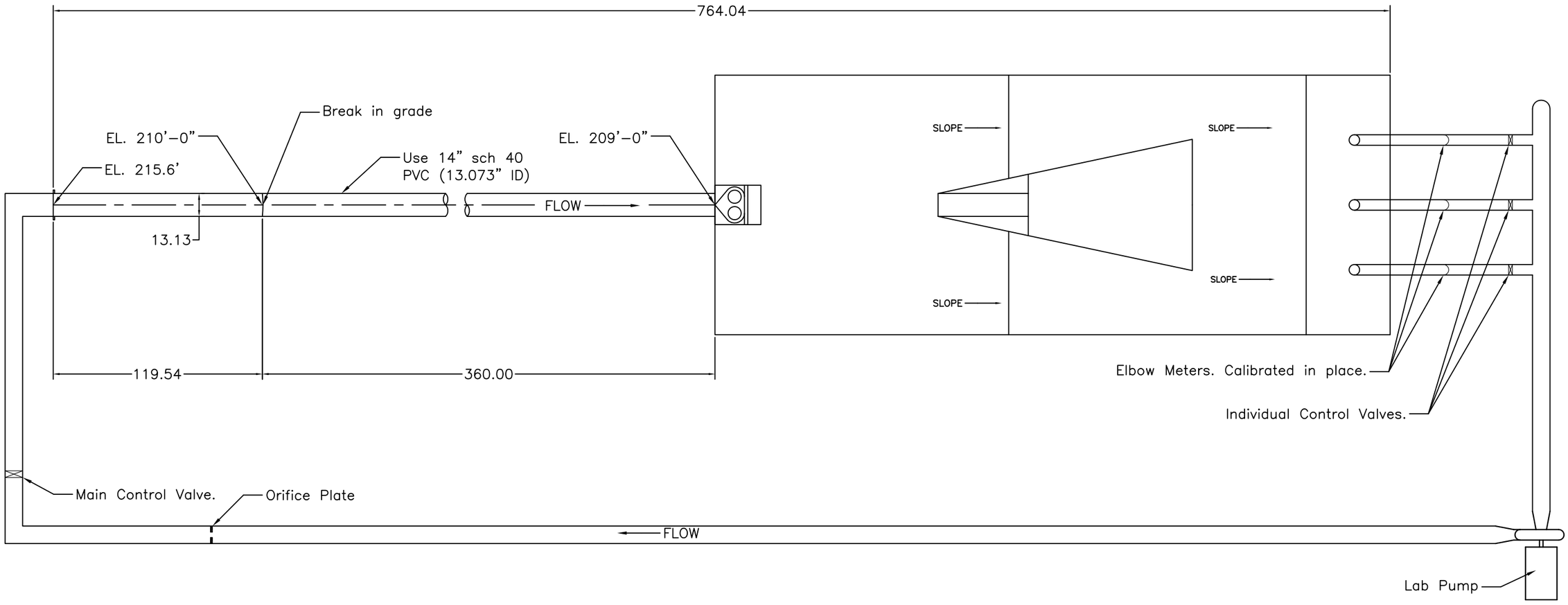


Photo 2-3 Side View of Drop Shafts

Photo 2-4 Looking Upstream (from river) at Outlet Pipe



Model Scale: 1 model inch =6.4 prototype inches (1:6.4)

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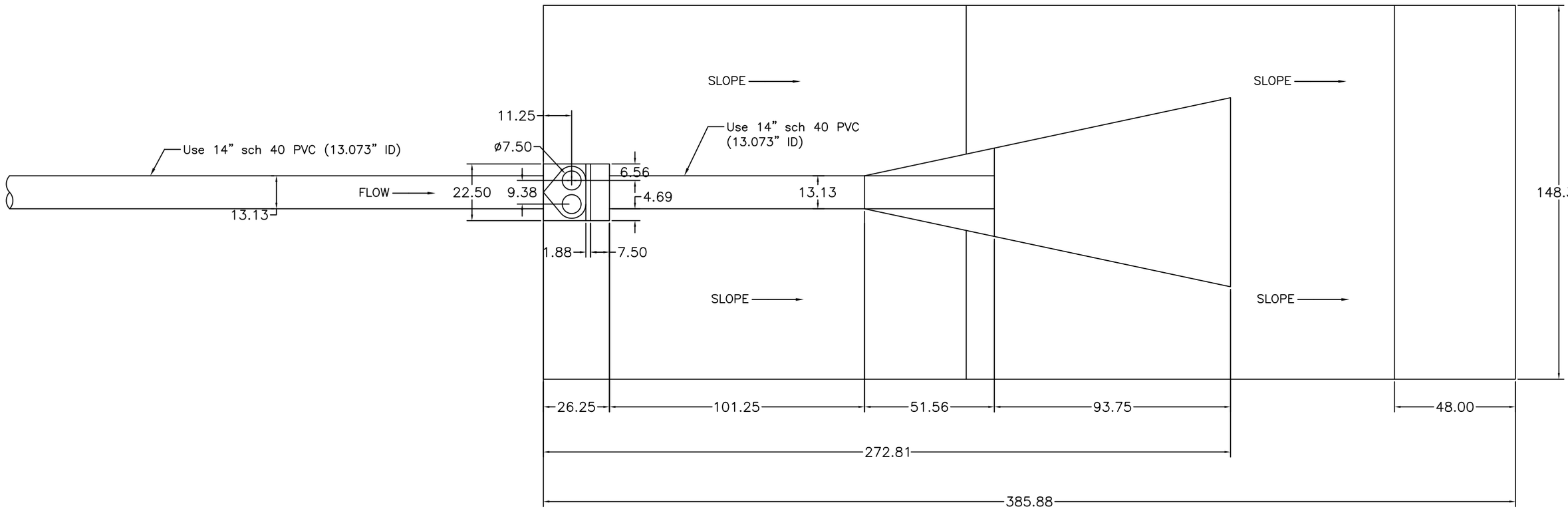
FIGURE 2–1
MODEL OVERVIEW
MEMPHIS TENNESSEE
CDM Smith

Note: 1) All dimensions given in model inches
2) All elevations given in prototype feet
3) Basin construction tolerances ±0.25"
4) Head box construction tolerances ±0.50"



Model Scale: 1 model inch =6.4 prototype inches (1:6.4)

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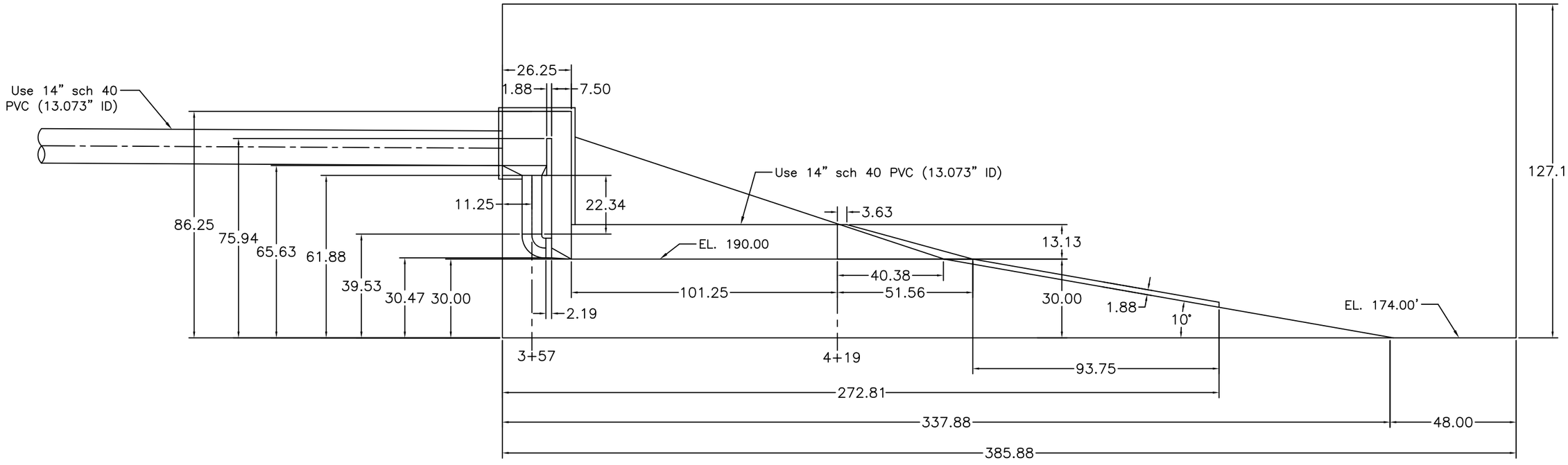
FIGURE 2–2
MODEL LAYOUT DETAILS
MEMPHIS TENNESSEE
CDM Smith



Model Scale: 1 model inch =6.4 prototype inches (1:6.4)

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FIGURE 2–3

MODEL ELEVATION DETAILS

MEMPHIS TENNESSEE
CDM Smith

3.0 TEST DATA

3.1 Existing Field Observations

A site visit was conducted and the outfall was observed in operation at an approximate river El. of 190-ft. Foaming was observed as shown in Photo 3-1.

Photo 3-1 Foam Observed During Field Observations (75 MGD - River Approx. El. 190')

3.2 Baseline Testing – Existing Spillway Design

Tests were first conducted in the model at conditions that were observed during the site visit. The model was operated at 75 MGD and with the river at River El. 190-ft. The model showed similar foam forming at the outfall as observed in the video and Photo 3-1.

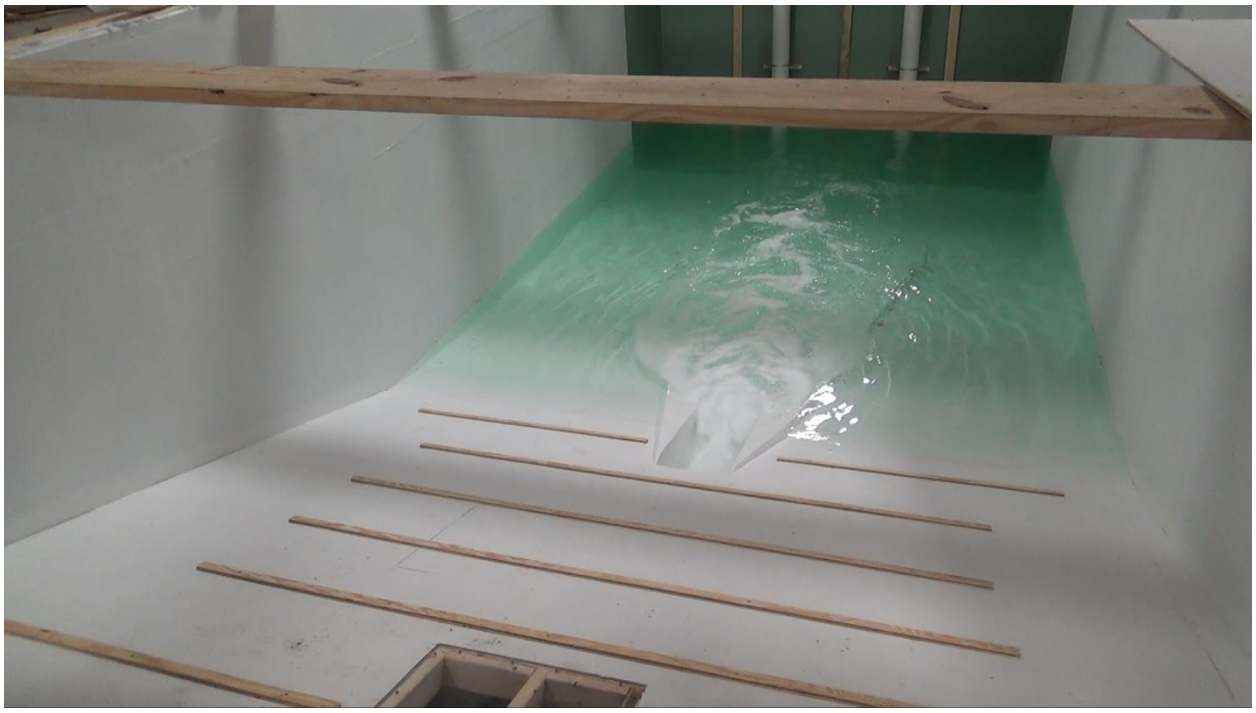


Photo 3-2 Foam Leaving the Outfall at 75 MGD and River at Approx. El. 190-ft

In addition, foaming conditions within the drop box were also similar with significant air entrainment and occasional splashing over the top of the impact weir within the box, as shown in Photo 3-3.

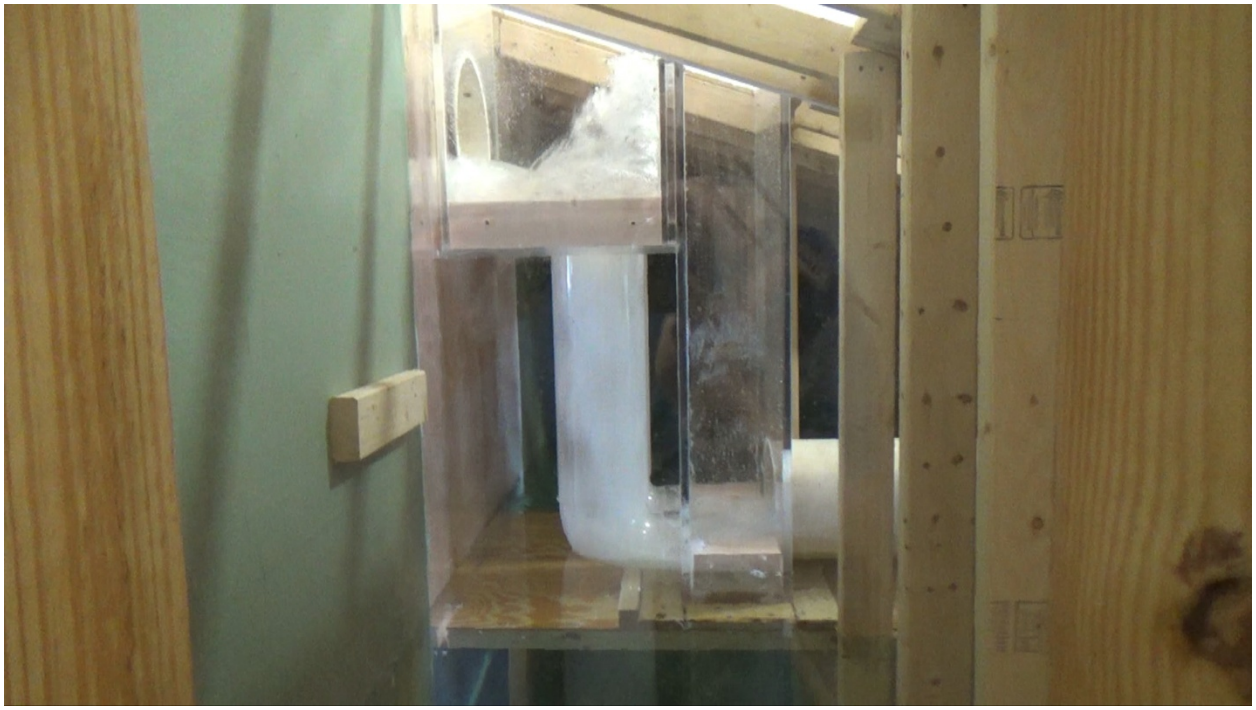


Photo 3-3 Significant Air Entrainment within the Drop Box and Drop Shafts

3.3 Modification Testing – Existing Drop Shafts Replaced With Spillway

Following the initial testing, the model was modified by removing the drop shafts and diverting the flow down a long spillway as shown in Photo 3-4

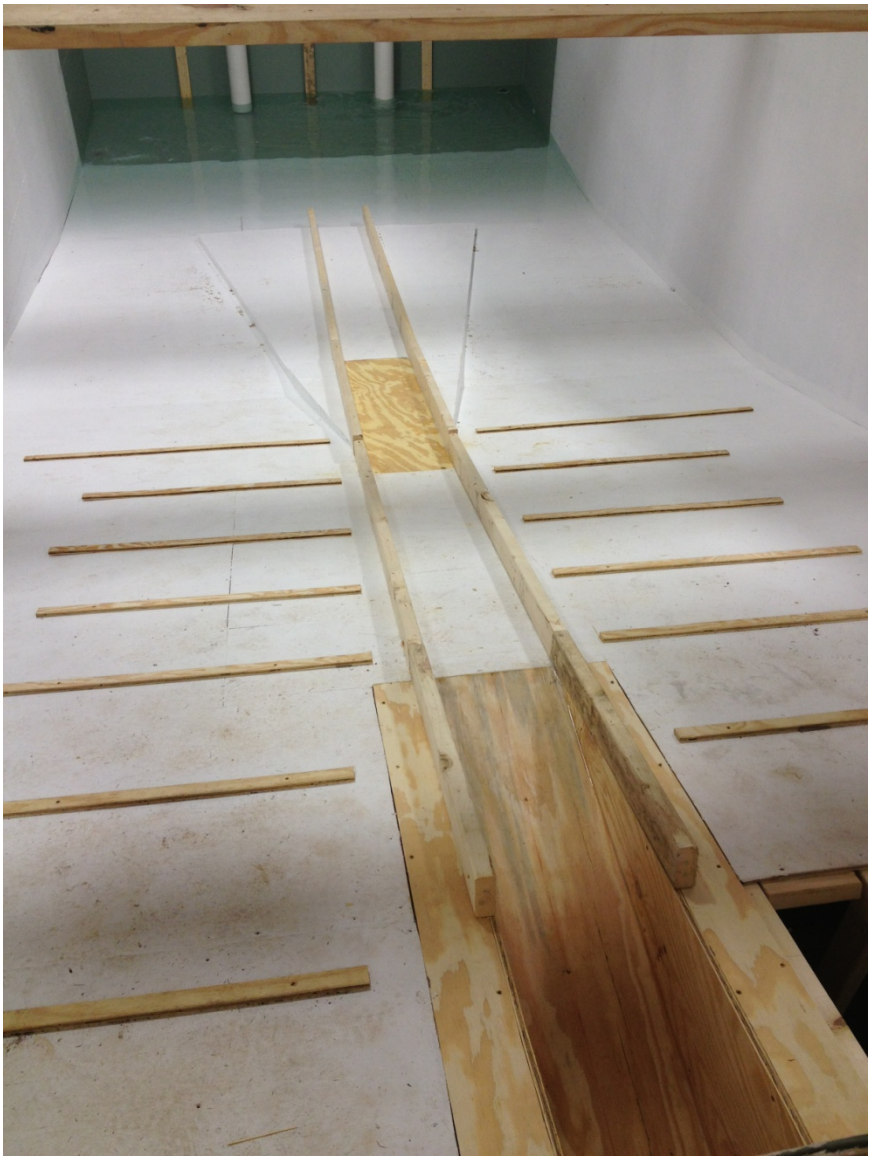


Photo 3-4 Drop Shafts Replaced with Spillway

Testing showed that there was still excessive energy at the bottom of the spillway which results in an air entraining hydraulic jump and excessive foam generation as shown in Photo 3-5.

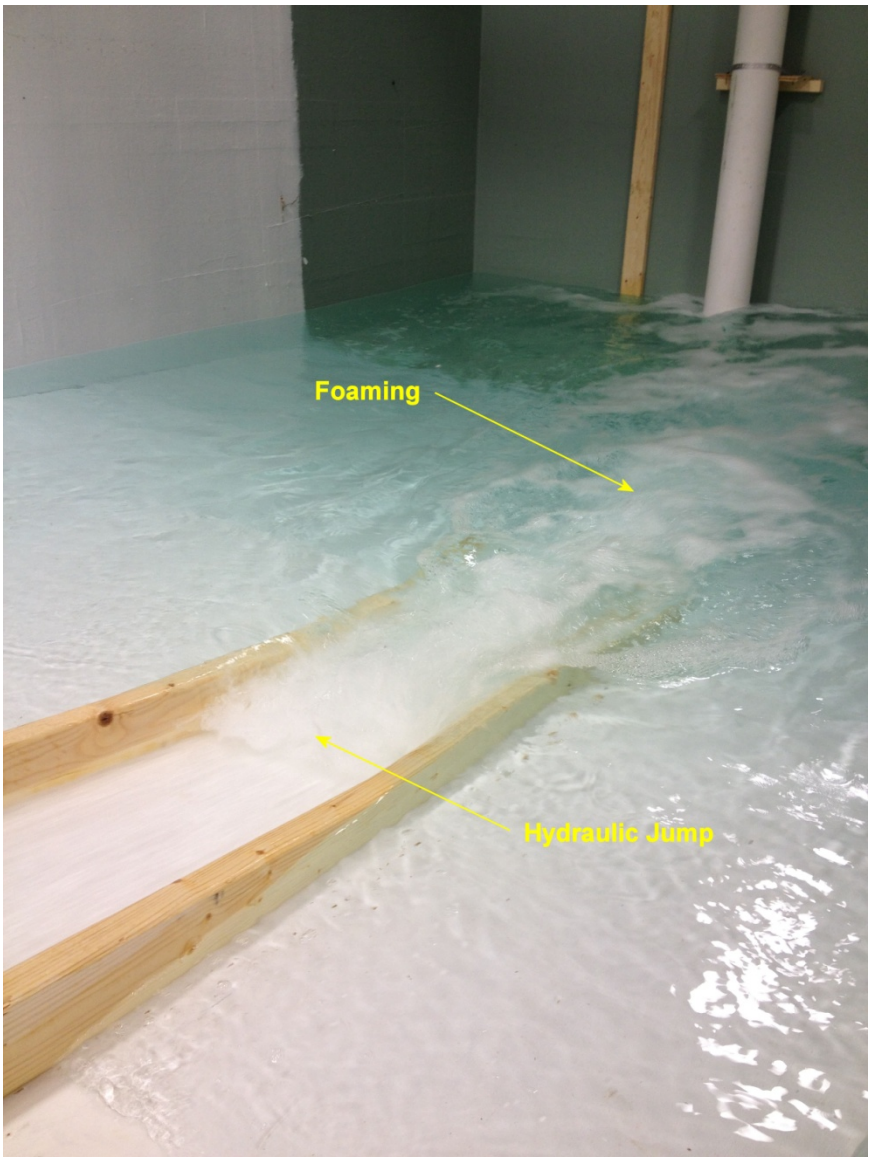


Photo 3-5 Hydraulic Jump and Foaming with Spillway (75 MGD)

3.4 Modification Testing – Vortex Drop Shaft Structure

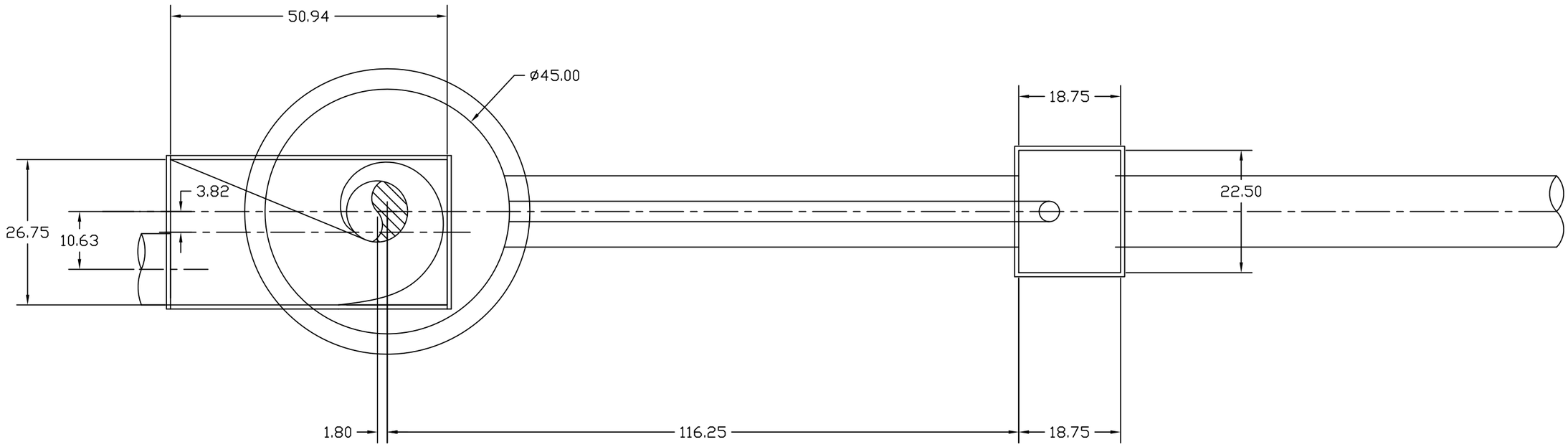
Given the significant turbulence within the existing drop box as well as the necessary energy dissipation required to transition from the treatment plant to the river elevation at low water, it was determined that major structural modifications to the existing drop shafts and outlet pipe would be required. As an alternative, a new structure that would tie into the existing secondary outfall pipe was considered. Previous experience has shown that specially designed vortex drop shaft structures are effective at transitioning flow vertically with minimal air entrainment. These structures work by generating strong vortex action which slowly reduces the size of the core and minimizes the low pressures that entrain air. CEH provided the recommended upper vortex design while CDM Smith provided the design for the lower junction structure which transitioned

to the outlet pipe. A 6-ft diameter drop shaft was chosen based on previous experience with similar flow rates. Photos 3-6 and 3-7 show the vortex drop shaft and Figures 3-1 and 3-2 show the initial model configuration.

Photo 3-6 Vortex Drop Shaft

Photo 3-7 below shows the lower portion of the drop shaft. Flow exits the drop shaft pipe in the "upstream direction" away from the river. The flow then turns 180-degrees around the side of the drop shaft pipe and "steps" up over a ledge before entering the outlet pipe. The intention of the direction changes and step up is to provide time for bubbles to rise and to also direct them towards the surface. After entering the outlet pipe, the flow travels towards the river and enters a vent box which was initially intended to slow down the flow and allow air to vent back to the drop shaft structure. The vent box, initially expected to increase air removal, was later removed as it showed little benefit.

Note: 1) All dimensions given in model inches
2) All elevations given in prototype feet
3) Basin construction tolerances ±0.25"
4) Head box construction tolerances ±0.50"
5) Acrylic intake structures construction tolerances ±0.06
6) Acrylic intake bell location tolerances ±0.13



Model Scale: 1 model inch =6.4 prototype inches (1:6.4)

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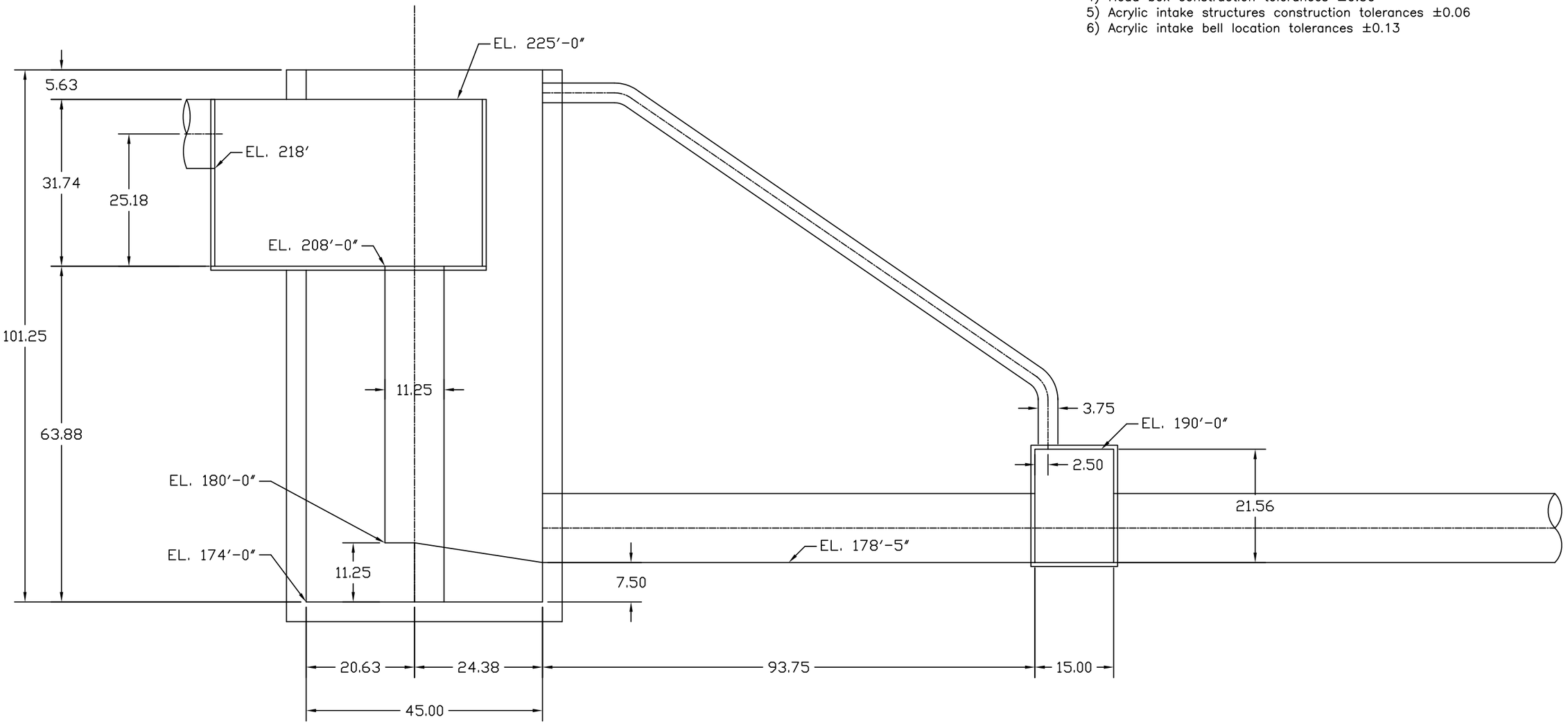
FIGURE 3–1
VORTEX DROPSHAFT PLAN
STILES DROPSHAFT
CDM SMith

Note: 1) All dimensions given in model inches
2) All elevations given in prototype feet
3) Basin construction tolerances ±0.25"
4) Head box construction tolerances ±0.50"
5) Acrylic intake structures construction tolerances ±0.06
6) Acrylic intake bell location tolerances ±0.13



Model Scale: 1 model inch =6.4 prototype inches (1:6.4)

FIGURE 3-2
VORTEX DROPSHAFT ELEVATION
STILES DROPSHAFT
CDM Smith

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DRAWING SCALE:	DRAWN: K. Davy	DATE: 11/18/2013	PROJECT NO:
1:20	FILE NO: elevation	CHECKED:	

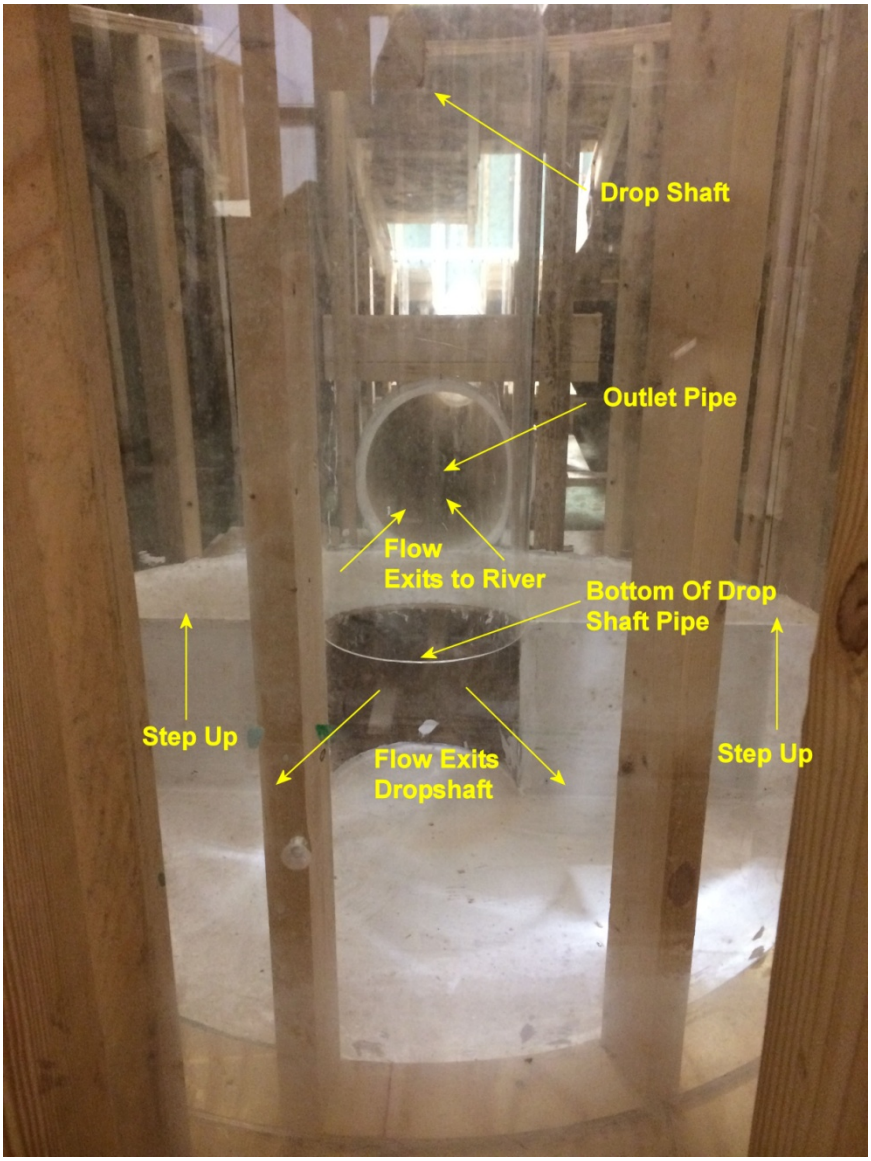


Photo 3-7 Lower Vortex Drop Shaft Chamber - Looking Towards River / Outlet Pipe

Initial tests showed that the vortex drop shaft structure performed well at 75 MGD and at 150 MGD. The photos below show well developed vortex cores and no choking. However, the converging flare between the inlet pipe and the drop-shaft chamber was excessive and resulted in "pillowing" against the side wall and just before the chamber. This appeared to reduce the intensity of the vortex and should be optimized.

Photo 3-8 Vortex Drop Shaft at 75 MGD

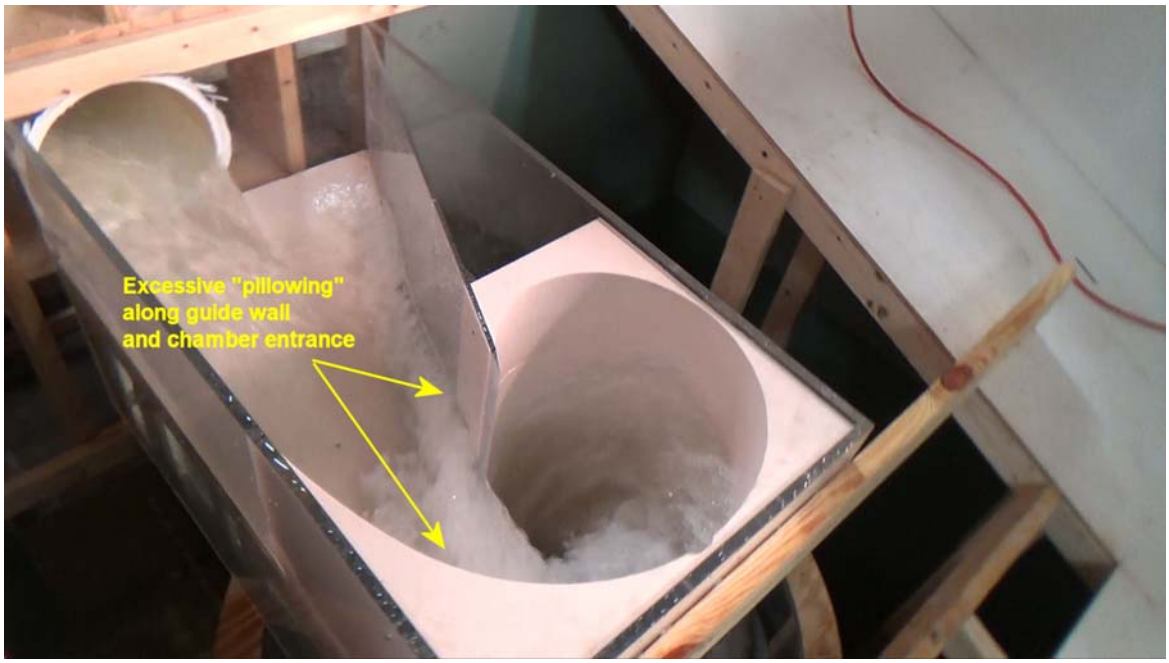


Photo 3-9 Vortex at 150 MGD

Although the vortex drop shaft performed well, some air was still entrained and could be seen exiting the vent box as shown below in Photo 3-10.

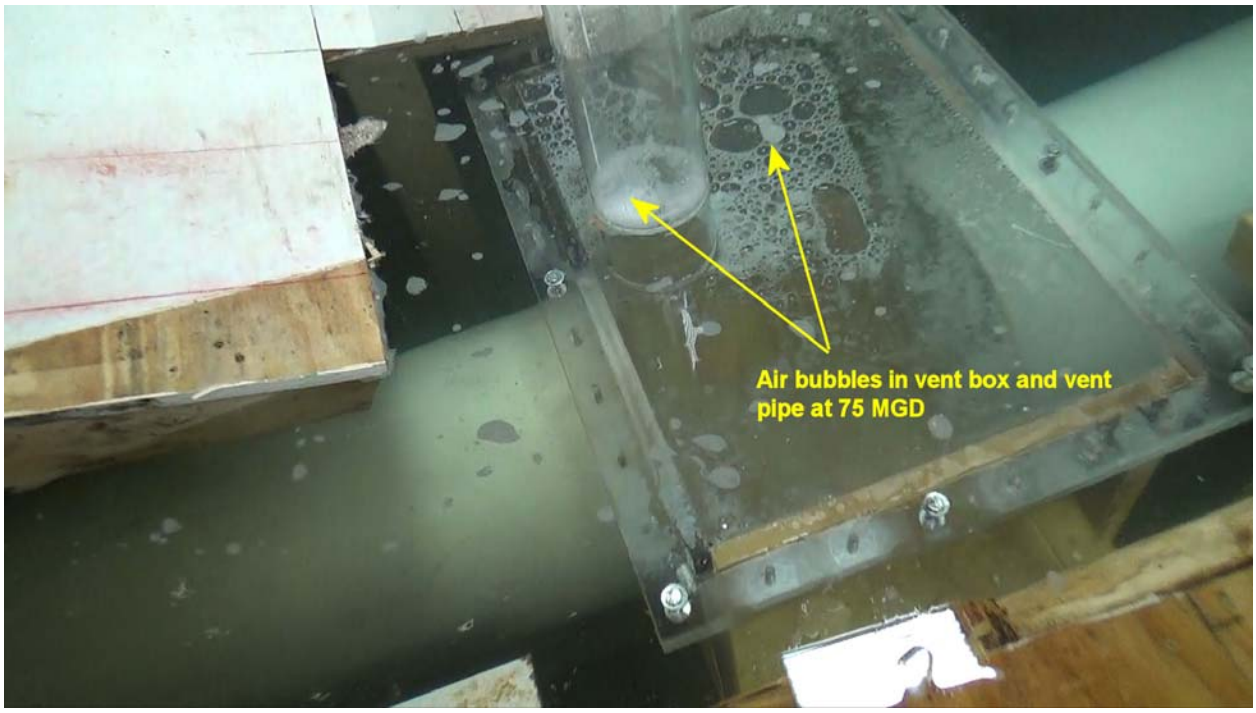


Photo 3-10 Air in Vent Box 75 MGD

Air was also observed exiting the outlet pipe, but at a much lower amount and intensity than existing conditions. The bubbles can be seen on the surface in Photo 3-11 below.

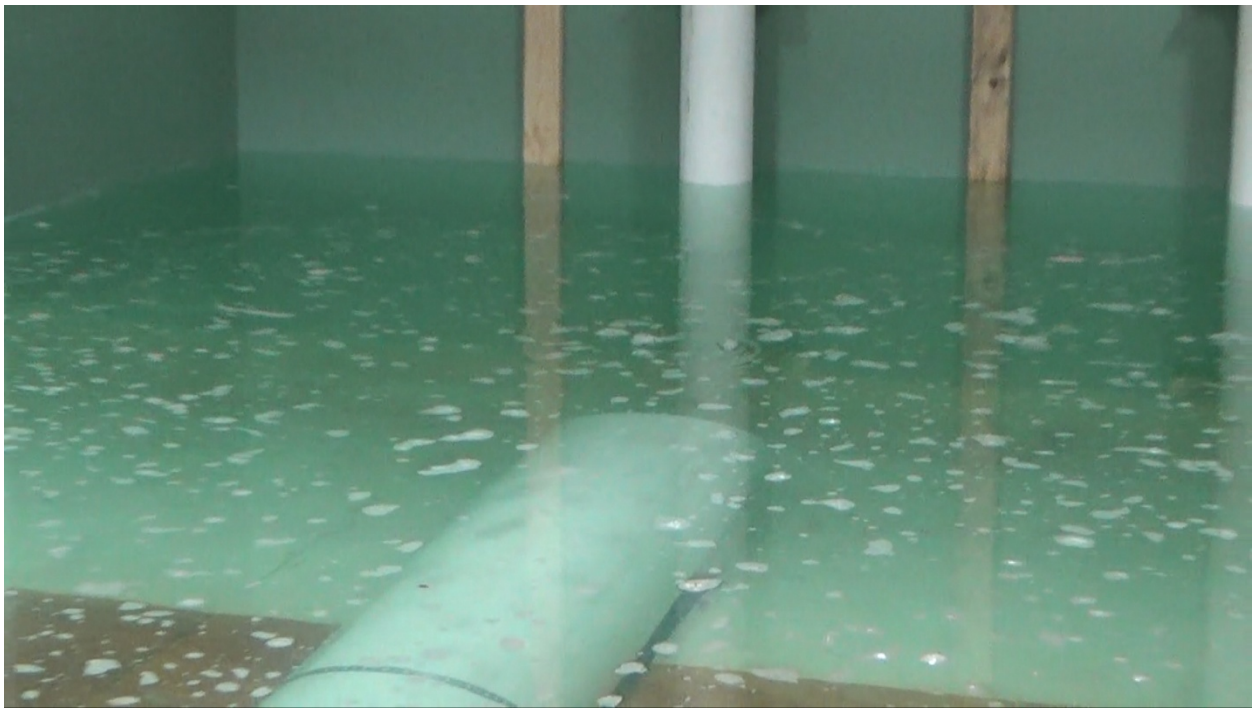


Photo 3-11 Air Bubbles on Surface at 75 MGD

3.5 Modification Testing – Optimized Upper Vortex Chamber

To maximize the capacity of the vortex drop shaft and to ensure that air entrainment was minimized, the guide wall angle was optimized. A straight wall was most effective as shown below but did not appear to have any impact on air entrainment.

Photo 3-12 "Pillowing" at 175 MGD

Photo 3-13 Optimized Guide Wall at 175 MGD

3.6 Modification Testing – Additional Vent Shaft

To remove the remaining air, an additional vent pipe was installed as shown in Photo 3-14.

Photo 3-14 Additional Vent Downstream of Vent Box

Testing showed that even at 75 MGD, air still traveled to the outlet. These bubbles appeared to be very small bubbles that simply need more time to rise to the surface.

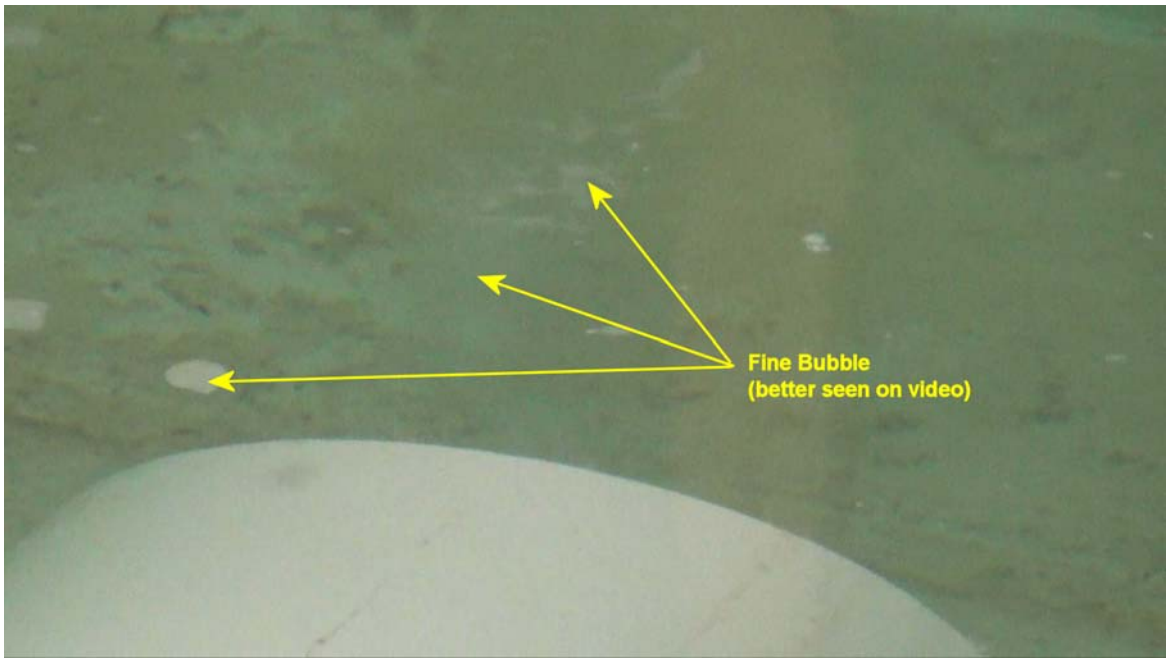


Photo 3-15 Bubbles Still Present with Vent Downstream of Vent Box

3.7 Modification Testing Vent Box Modification

In order to ensure the transitions between the outlet and vent box were not preventing the small bubbles from rising to the surface, the vent box was removed entirely as shown below.

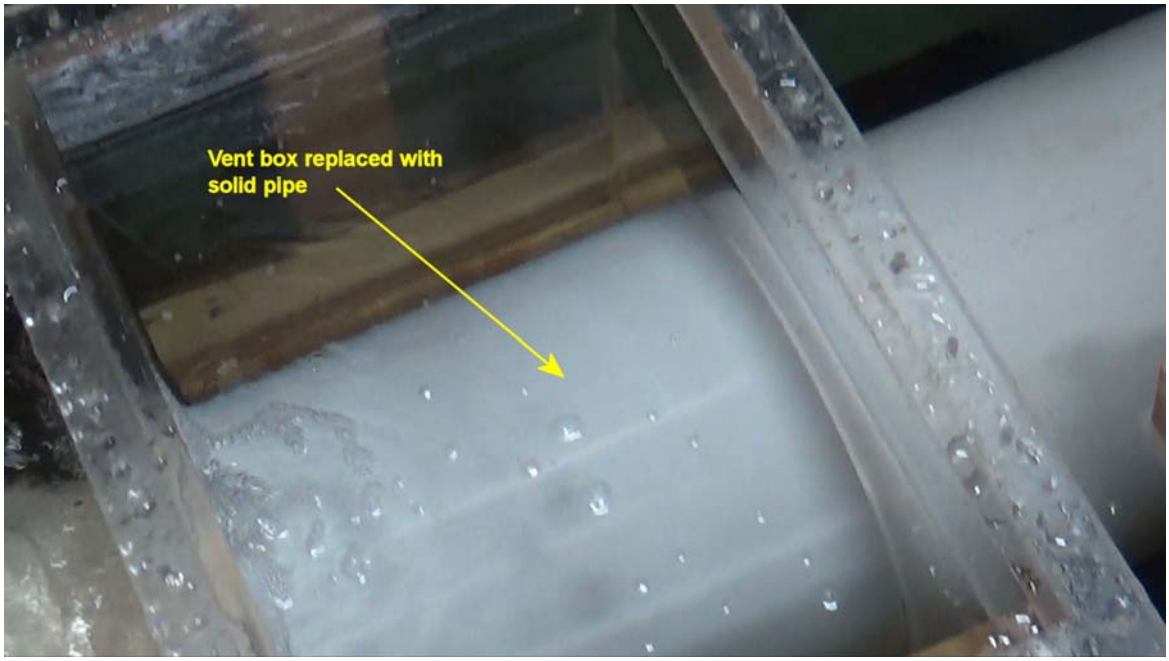


Photo 3-16 Vent Box replaced with Solid Pipe

Even with the vent box removed, air was still traveling downstream as shown below.

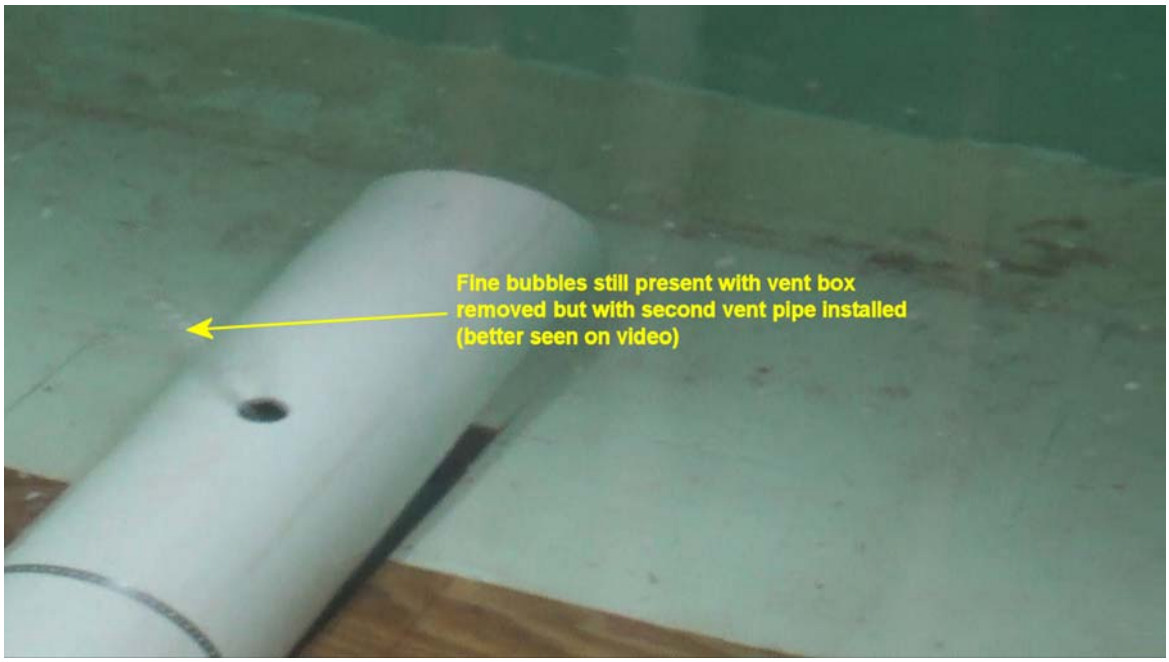


Photo 3-17 Vent Box Removed but Bubbles Still Present (even with second vent)

3.8 Modification Testing – Additional Vents and "Crown Plate"

Installation of the second vent pipe and removal of the vent box resulted in no change in the amount of air, suggesting the vent box was not needed. A second downstream vent was added.

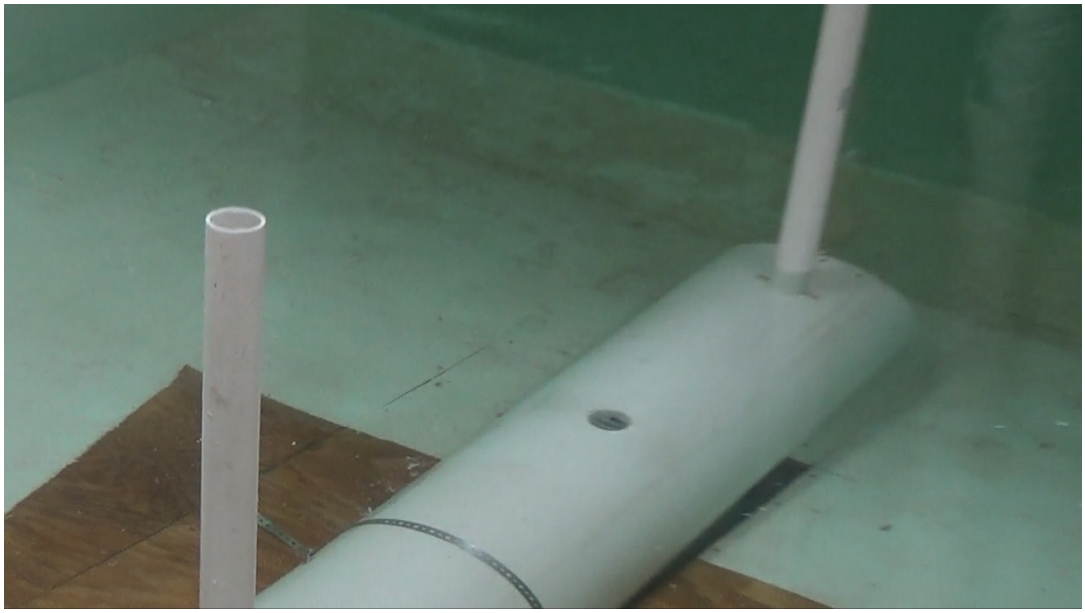


Photo 3-18 Multiple Downstream Vents (three total between drops shaft and river)

To provide additional conservatism, a 12-inch crown plate was installed on the end of the discharge pipe blocking the upper 12-inches. This will help trap air allowing a vent located just upstream of the pipe outlet to vent the air. This was effective as shown by the foam exiting the vents below in Photo 3-19 and only very small amounts of air entering the river.

Photo 3-19 Downstream Vents and Crown Plate Covering Top 12-in of Pipe Exit

3.9 Verification Testing

The final configuration consisted of the vortex drop shaft structure, original vent box removed, three vents between the drop shaft structure and the river (final vent within 1-ft of the pipe exit) and a crown plate that extends down and blocks the top 12-inches of the pipe exit. Conditions in the drop shaft and at the pipe exit are shown below for a range of operating conditions.

Photo 3-20 Well Developed Vortex (230 MGD at River El. 178.6-ft)

Photo 3-21 No Air Exiting the Outlet Pipe (230 MGD at River El. 178.6-ft)

Photo 3-22 No Air Low Flow / Low River (58 MGD at River El. 178.6-ft)

Photo 3-23 Well Developed Vortex (230 MGD at River El. 185.6-ft)

Photo 3-24 Foam but No Air Exiting the Outlet Pipe (230 MGD at River El. 185.6-ft)

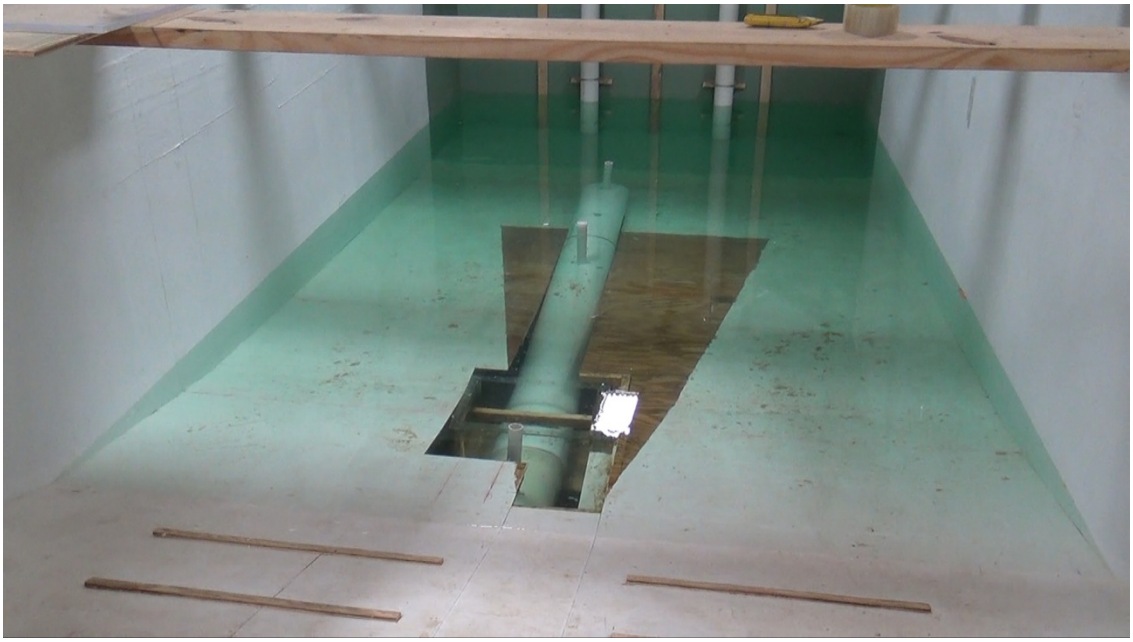


Photo 3-25 No Air Low Flow / Low River (230 MGD at River El. 191-ft)

Photo 3-26 230 MGD with River Level at Top of Vortex Drop Shaft Pipe

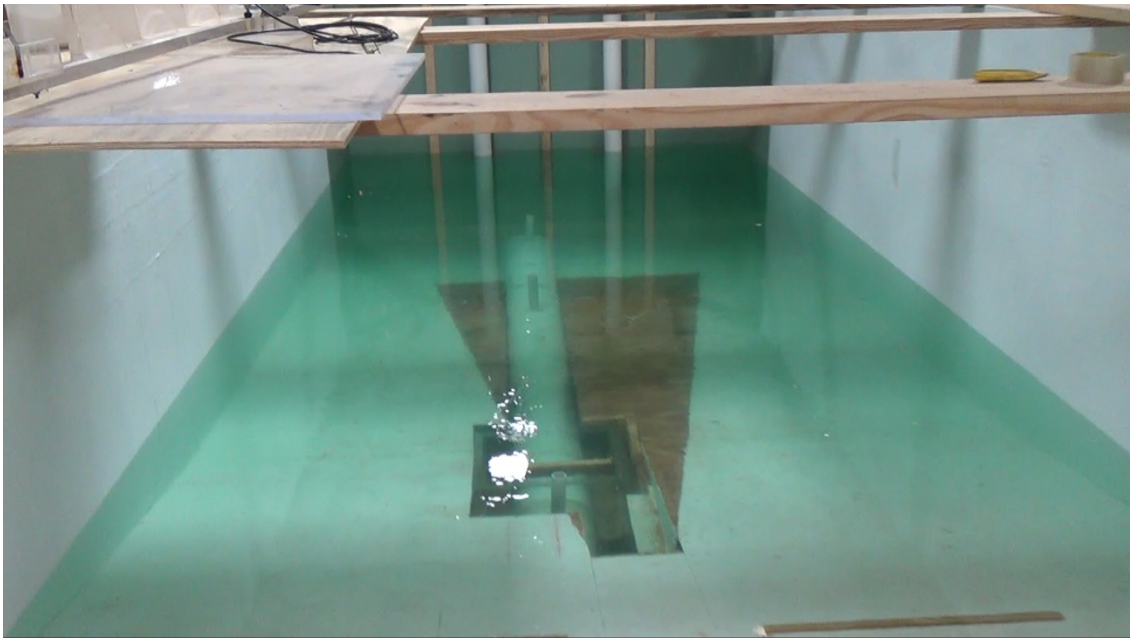
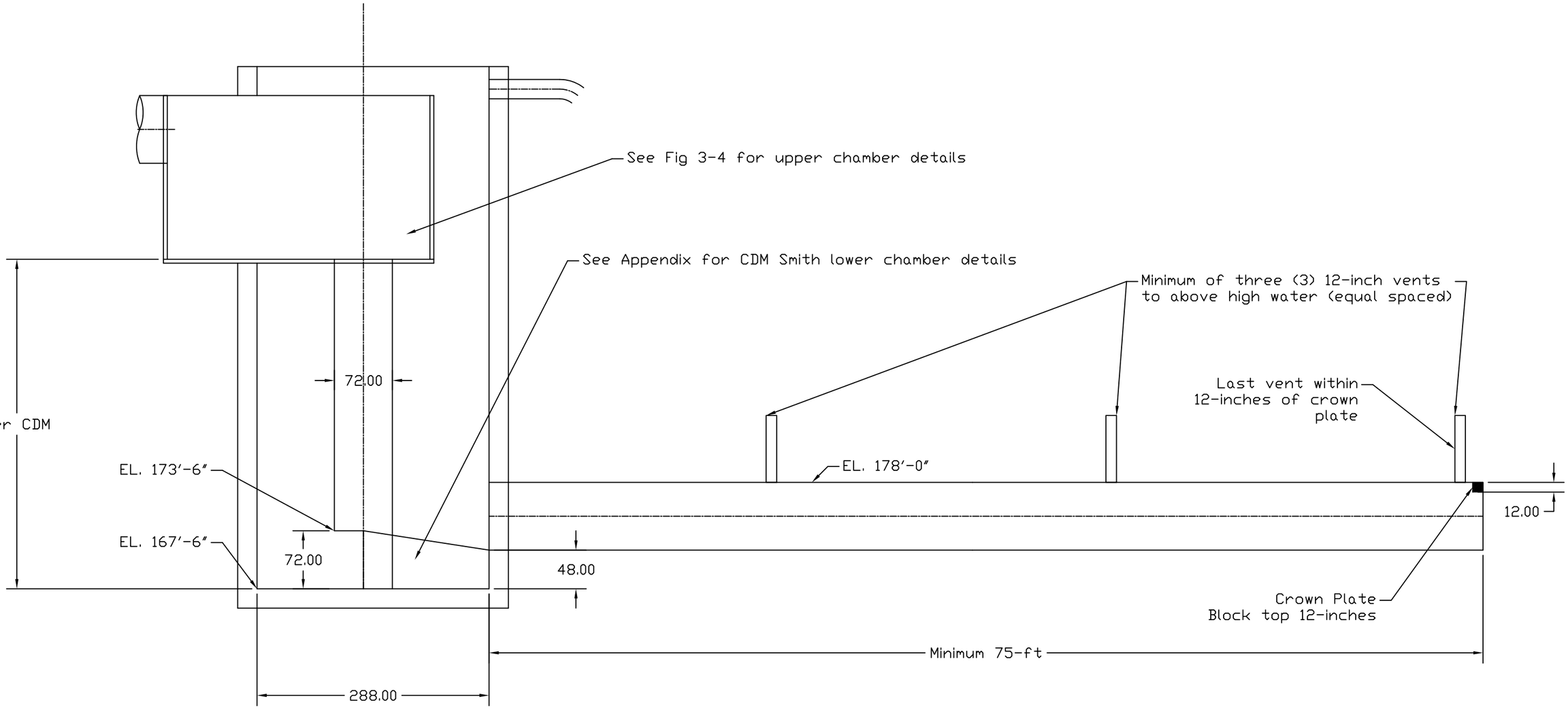


Photo 3-27 Calm Outlet / No Air (230 MGD - River at Top of Vortex Drop Shaft)

Figures 3-3 and 3-4 show the optimized drop shaft as tested. It should be noted that the vertical distance between the upper drop shaft chamber and the lower outlet pipe can vary based on the final design without impacting performance. However, enough horizontal distance is needed to allow for air to rise to the top of the pipe. Approximately 75-ft of pipe between the vortex drop haft and the river was simulated in the model and still required the crown plate suggesting 75-feet should be a minimum distance.

Note: 1) All dimensions given in prototype inches
2) All elevations given in prototype feet



Model Scale: 1 model inch =6.4 prototype inches (1:6.4)

NO.	DATE:	REVISION	DRAWN:	CHK. BY:

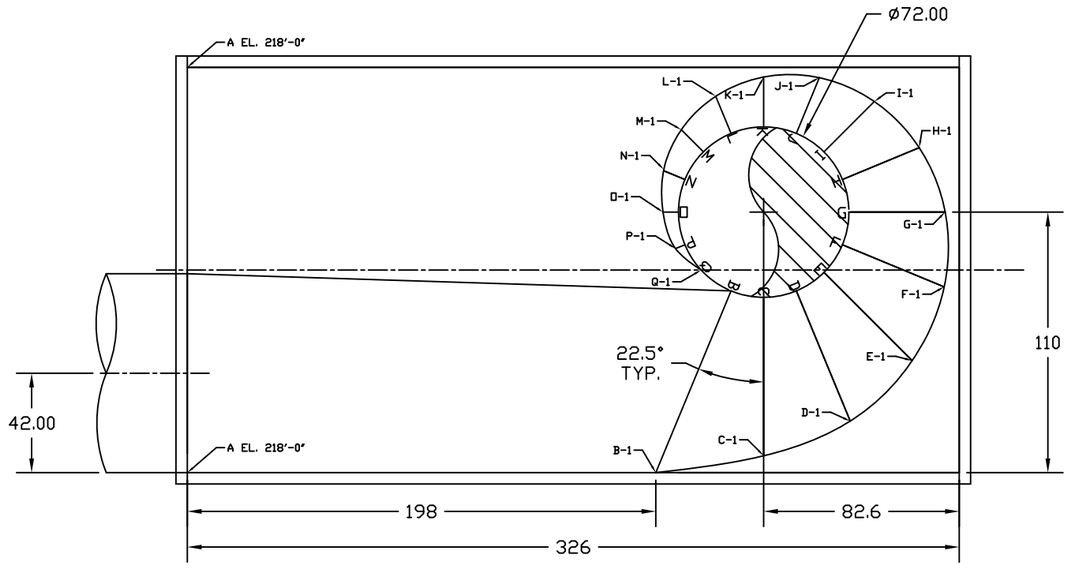
DRAWING SCALE:	DRAWN: K. Davy	DATE: 11/18/2013	PROJECT NO:
1:20	FILE NO: elevation	CHECKED:	

FIGURE 3–3
VORTEX DROPSHAFT ELEVATION
STILES DROPSHAFT
CDM Smith

Note: 1) All dimensions given in prototype inches
2) All elevations given in prototype feet
3) Reference El. is Invert of Inlet Pipe (El. 218–ft)

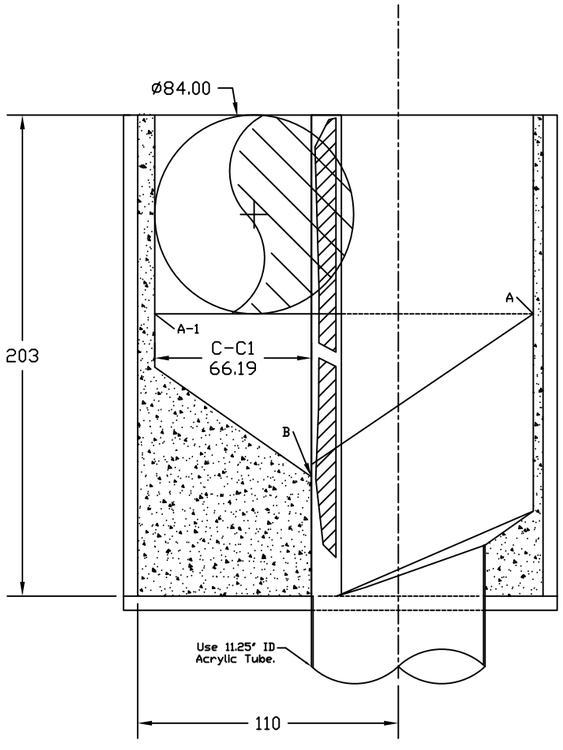
ELEVATIONS (FEET)

A	218.00	A-1	218.00
B	212.57	B-1	217.38
C	212.27	C-1	216.13
D	211.97	D-1	215.40
E	211.67	E-1	214.70
F	211.37	F-1	214.04
G	211.07	G-1	213.40
H	210.77	H-1	212.78
I	210.47	I-1	212.18
J	210.17	J-1	211.61
K	209.87	K-1	211.05
L	209.57	L-1	210.52
M	209.27	M-1	210.00
N	208.97	N-1	209.49
O	208.67	O-1	209.00
P	208.36	P-1	208.53
Q	208.00	Q-1	208.00



Horizontal Distances

A to A-1	26.75
B to B-1	12.99
C to C-1	10.34
D to D-1	9.30
E to E-1	8.23
F to F-1	7.26
G to G-1	6.35
H to H-1	5.48
I to I-1	4.69
J to J-1	3.98
K to K-1	3.29
L to L-1	2.65
M to M-1	2.07
N to N-1	1.53
O to O-1	1.02
P to P-1	0.67
Q to Q-1	0.00



Model Scale: 1 model inch =6.4 prototype inches (1:6.4)

NO.	DATE:	REVISION	DRAWN:	CHK. BY:

DRAWING SCALE:	DRAWN: K. Davy	DATE: 11/18/2013	PROJECT NO:
1:10	FILE NO: Dropbox	CHECKED:	

FIGURE 3–4
MODEL DROPBOX DETAILS
STILES DROPSHAFT
CDM SMITH

4.0 CONCLUSIONS & RECOMMENDATIONS

4.1 Conclusions

Initial tests conducted at 75 MGD indicated the presence of a large amount of turbulence within the drop structure which trapped significant amounts of air which led to foaming issues. Conditions in the model closely matched those of the actual structure based on observations of the prototype structure operating in the field. The discharge structure was then modified from a vertical drop to a free-surface sloping spillway. These tests also showed foaming and air entrainment due to the large vertical distance the flow must transition from between the drop-box and the low river elevation.

Additional testing of a new discharge configuration was also conducted. The model was revised to simulate a single pipe vortex drop-shaft structure. This testing showed significantly less air reaching the river, even at maximum flows and low river levels. However, some air was observed, and given that air does not scale conservatively in a physical model additional modifications were evaluated. These tests demonstrated that the original vent box was not necessary and that several (minimum of 3) simple crown vents were more effective. A 12-inch crown plate was installed at the discharge pipe outlet. This crown plate should be attached to the end of the pipe and will block the top 12-inches of the discharge pipe. The intention of the crown plate is to trap any remaining air that has reached the surface. A vent located within 12-inches from the end of the discharge pipe will provide a means for this air to escape.

The vertical separation (drop shaft length) between the upper and lower drop chambers can vary based on final construction locations etc., and should not have a significant impact. Testing showed that the drop-shaft structure could pass 230 MGD at all water levels up to where the level starts to get higher than the invert of the upper chamber (entrance to the drop shaft). At levels higher than this, the intake will begin to become submerged and the capacity will be reduced. At this level and all levels down to river EL. 178.5-ft, no air was observed leaving the discharge pipe. However, given that air does not scale in the physical model, there is the possibility that some air may remain entrained and exit the pipe at high flow rates. However, the amount will be significantly less than presently exits. The longer the distance between the drop shaft and the outlet pipe exit the more likely that air will be removed. A total of 75-ft of pipe between the vortex drop shaft and the river was simulated and still required a crown plate, suggesting that this should be the minimum distance.

4.2 Recommendations

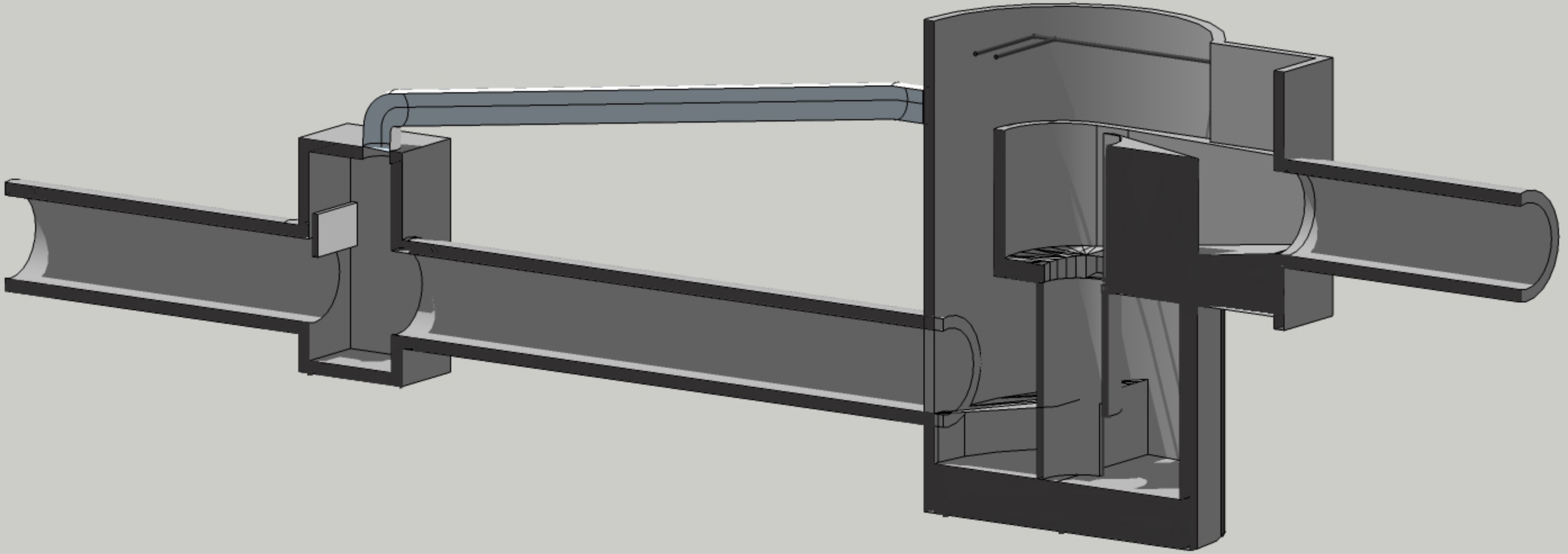
It is recommended that a vortex drop-shaft structure be installed within the existing secondary outfall system and that the primary outfall be converted to the secondary system or abandoned. As much distance as possible between the drop shaft and discharge pipe outlet as possible should be included (at least 75-ft and ideally more). A crown plate should be installed at the outlet of the discharge pipe that blocks the top 12-inches of the pipe. A minimum of three (3) 12-inch vents should be installed on the crown of the discharge pipe with the downstream vent located within

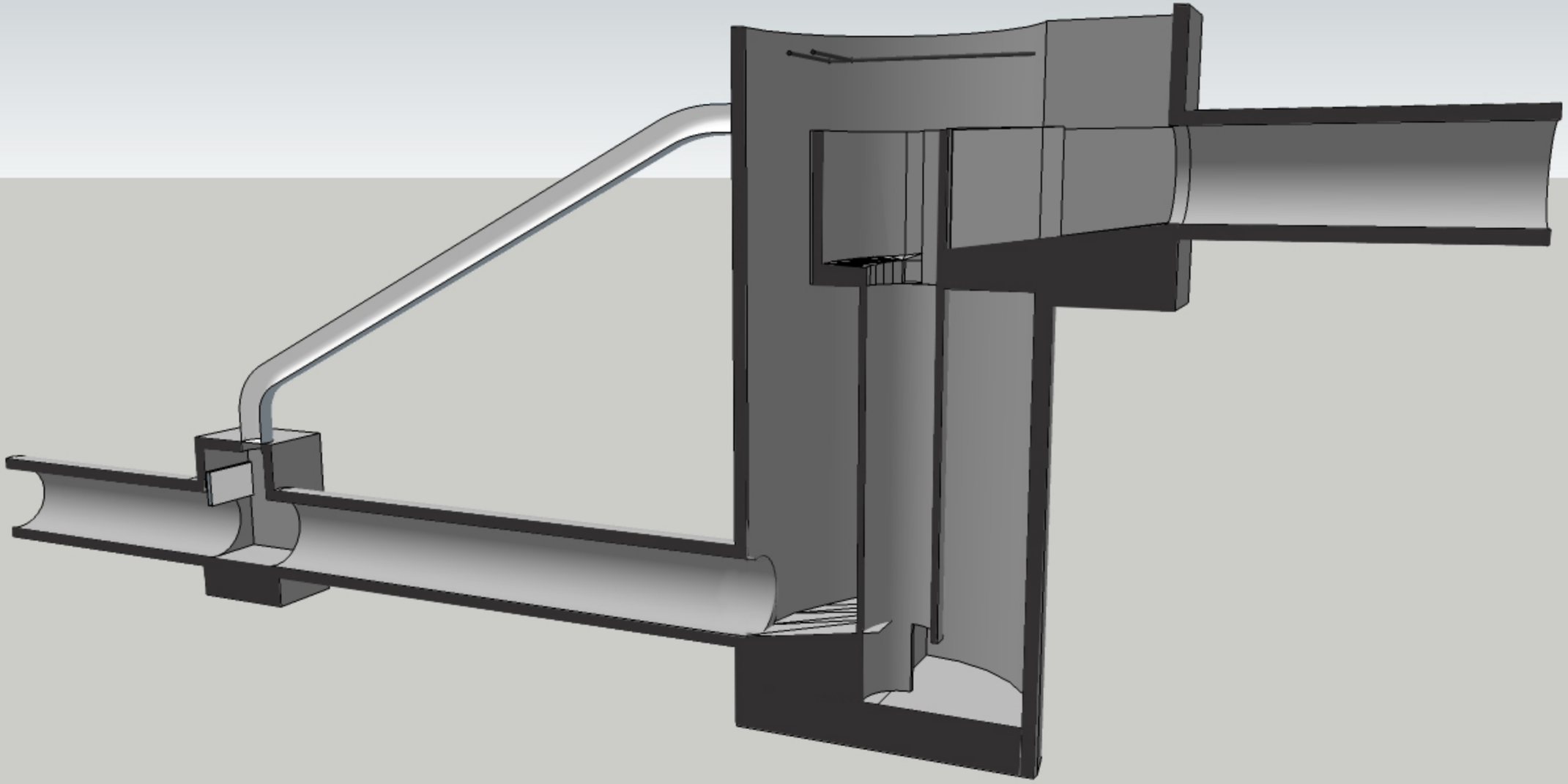
12-inches of the pipe outlet. The remaining two should be evenly spaced between the downstream vent and the drop shaft structure.

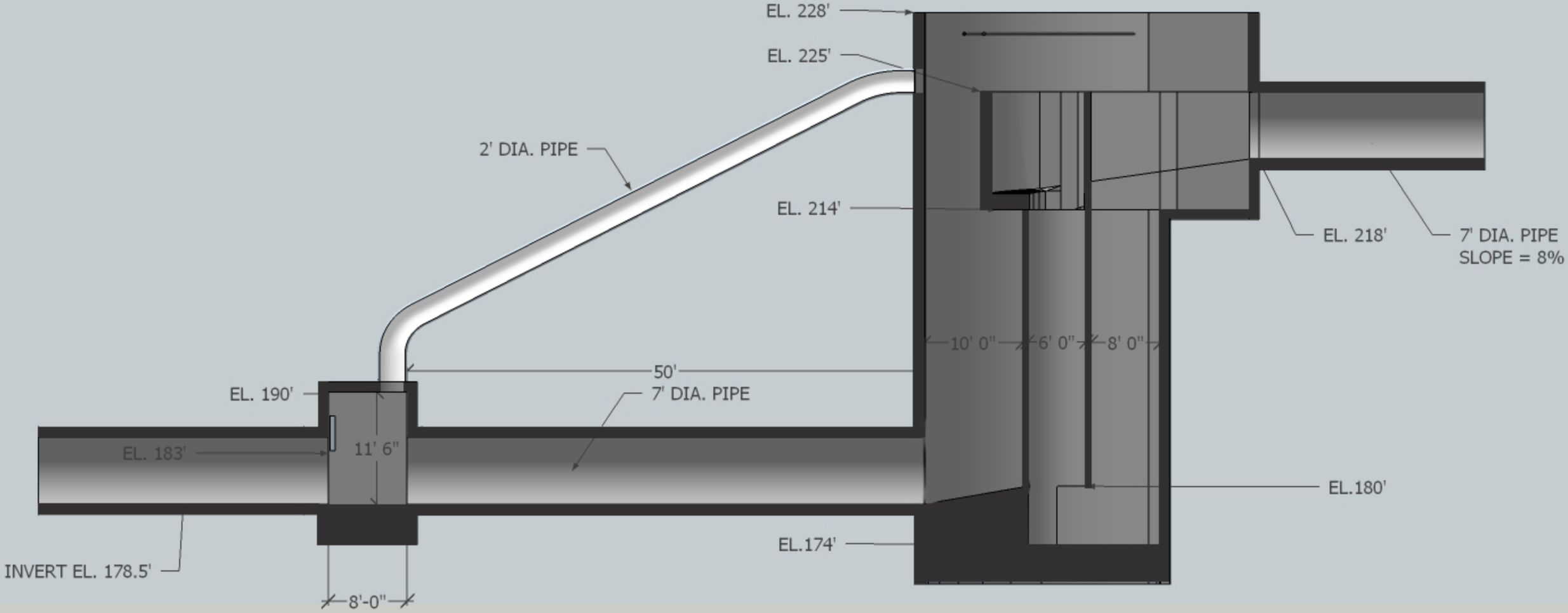
5.0 APPENDIX

The following appendix contains the CDM Smith drawings used to construct the lower vortex drops shaft discharge chamber.

NOTE: ELEVATIONS HAVE AND MAY VARY AGAIN

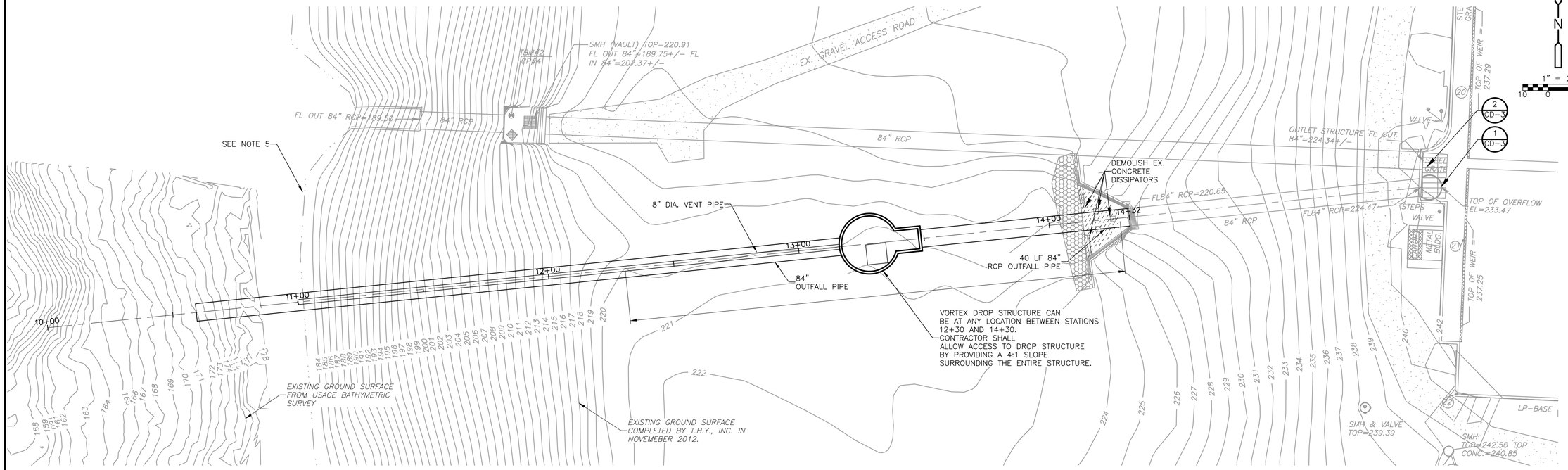




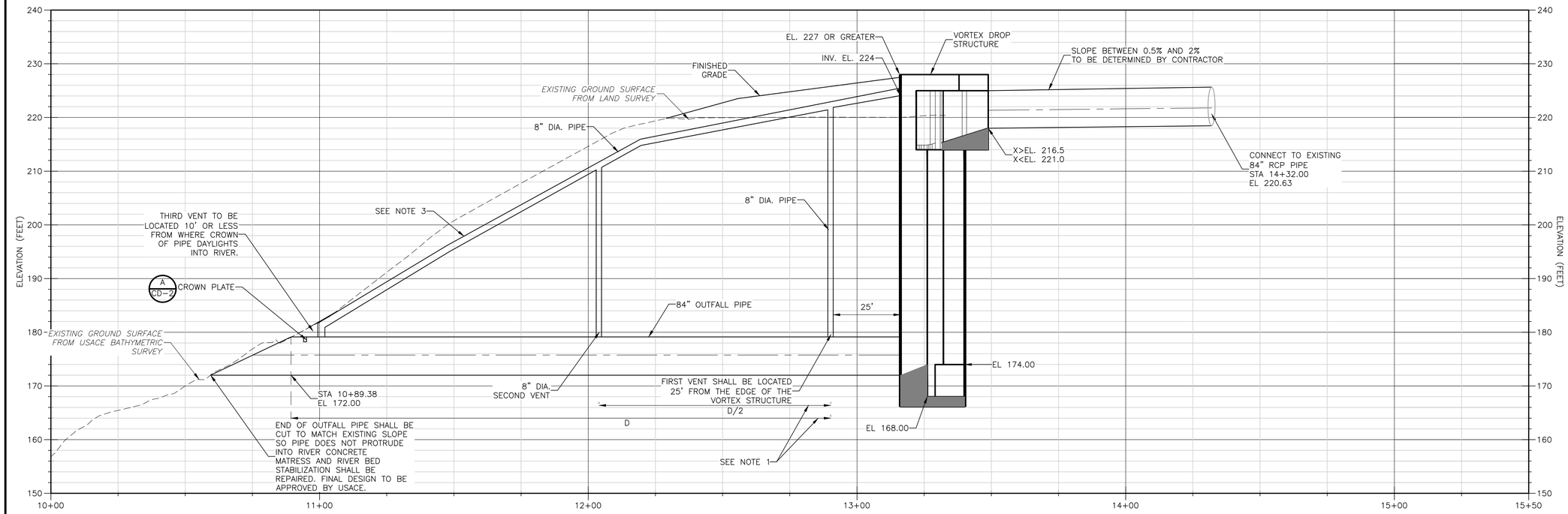

EL. 228'
EL. 225'
2' DIA. PIPE
EL. 214'
EL. 218'
7' DIA. PIPE
SLOPE = 8%
10' 0"
6' 0"
8' 0"
50'
EL. 190'
7' DIA. PIPE
EL. 183'
11' 6"
EL.180'
EL.174'
INVERT EL. 178.5'
8'-0"

Appendix C

Preliminary Design Drawings



PLAN
1"–20'



PROFILE
HORIZ. 1"–20'
VERT. 1"–10'

NOTES:

1. DIMENSION "D" IS THE DISTANCE FROM THE CENTERLINE OF THE 1ST VENT TO THE END OF THE PIPE. THIS DISTANCE WILL BE DETERMINED ULTIMATELY BY VORTEX DROP STRUCTURE LOCATION.

2. INVERT IS DENOTED AS X BECAUSE IT IS UNKNOWN AND DEPENDENT ON WHERE THE VORTEX DROP STRUCTURE IS INSTALLED. X WILL BE LIMITED TO BEING BETWEEN ELEVATIONS 216.5 TO 221 FEET.

3. VENT PIPING SHALL BE INSTALLED WITH A MINIMUM OF 3' OF COVER AND SLOPE OF PIPING SHALL BE A MINIMUM OF 5%.

4. FINISH GRADE SHALL BE NO STEEPER THAN 4:1 AROUND DROP STRUCTURE AND FILL CAN BE USED TO PROVIDE REQUIRED COVER OF VENT PIPING.

5. NO SURVEY INFORMATION WAS TAKEN BETWEEN ELEVATIONS 178–184 FEET. ALL ELEVATIONS ARE REFERRED TO NORTH AMERICAN VERTICAL DATUM OF 1988 AND BEARINGS ARE REFERENCED TO THE TENNESSEE STATE COORDINATE SYSTEM (NAD83).

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: C. SANDERS
DRAWN BY: C. SCOTT
SHEET CHK'D BY: C. ALLABEN
CROSS CHK'D BY: C. SANDERS
APPROVED BY: C. SANDERS
DATE: FEBRUARY 2014

CDM Smith
Parkview Towers, 210 25th Avenue North, Suite 1102
Nashville, TN 37203
Tel: (615) 320-3161

CITY OF MEMPHIS

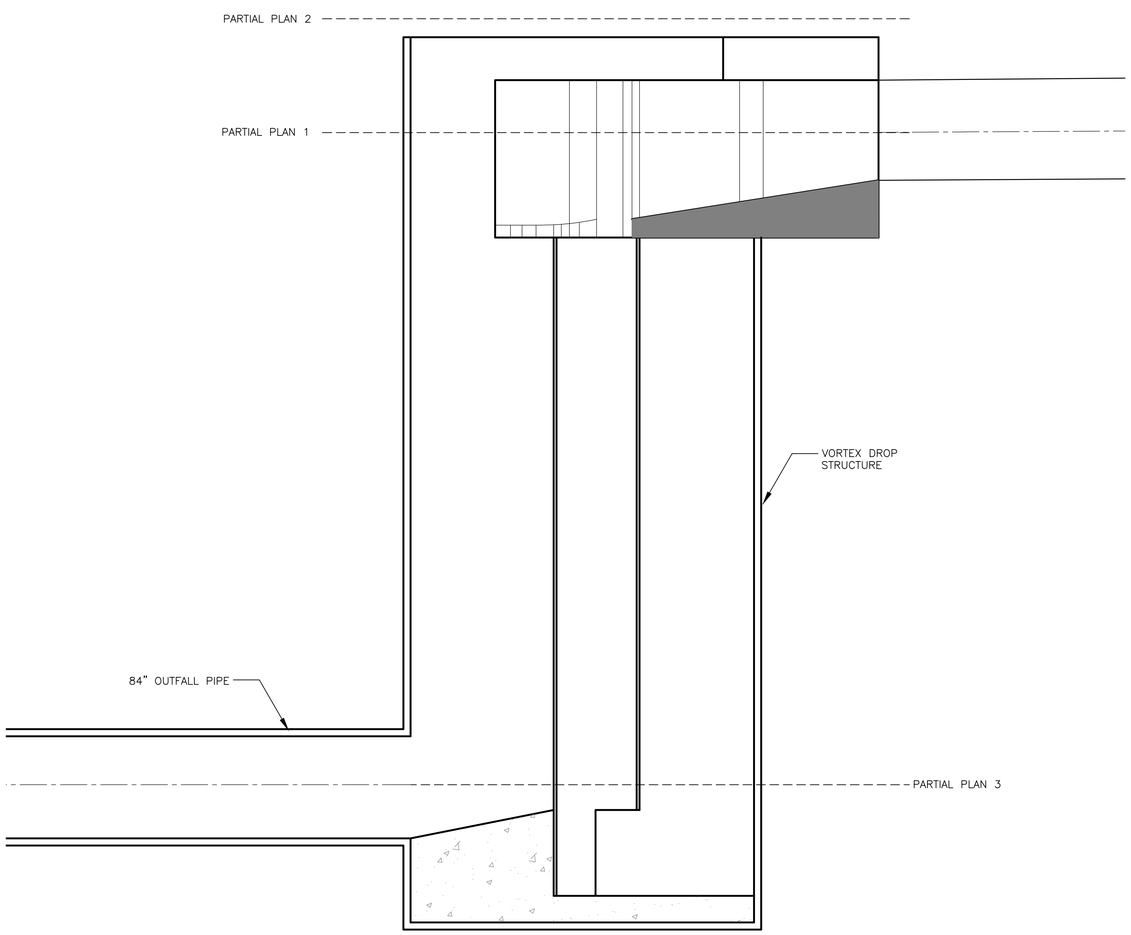
OUTFALL IMPROVEMENTS

84" OUTFALL PIPELINE
PLAN /PROFILE

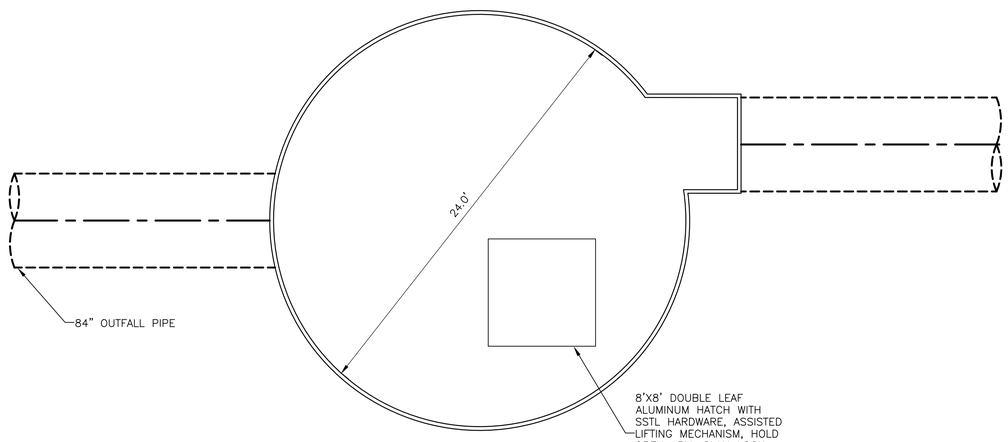
PROJECT NO. 6016–94827
FILE NAME: C001PLPR.DWG

SHEET NO.
C-1

PRELIMINARY DESIGN



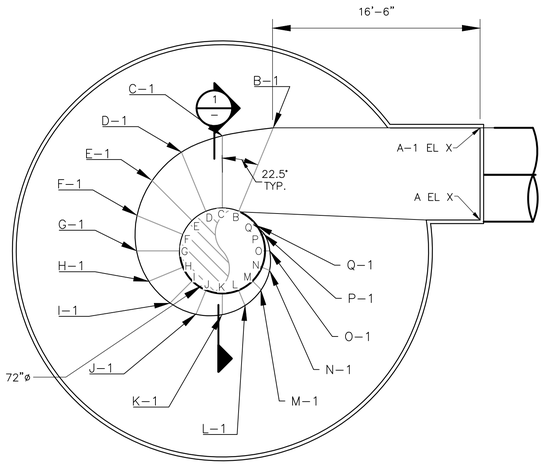
VORTEX DROP STRUCTURE ELEVATION



PARTIAL PLAN 1

PLAN

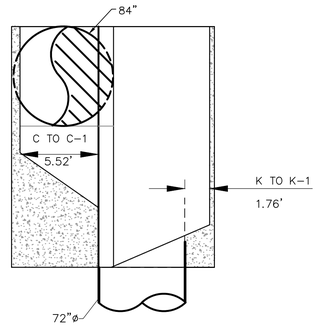
NTS



PARTIAL PLAN 2

PLAN

NTS



SECTION 1 –

NTS

VORTEX DROP STRUCTURE INVERT ELEVATIONS (FEET)			
LOCATION	ELEVATION	LOCATION	ELEVATION
A	X	A-1	X
B	X-5.43'	B-1	X-0.62'
C	X-5.73'	C-1	X-1.87'
D	X-6.03'	D-1	X-2.60'
E	X-6.33'	E-1	X-3.30'
F	X-6.63'	F-1	X-3.96'
G	X-6.93'	G-1	X-4.60'
H	X-7.23'	H-1	X-5.22'
I	X-7.53'	I-1	X-5.82'
J	X-7.83'	J-1	X-6.39'
K	X-8.13'	K-1	X-6.95'
L	X-8.43'	L-1	X-7.48'
M	X-8.73'	M-1	X-8.00'
N	X-9.03'	N-1	X-8.51'
O	X-9.33'	O-1	X-9.00'
P	X-9.64'	P-1	X-9.47'
Q	X-10.00'	Q-1	X-10.00'

VORTEX DROP STRUCTURE HORIZONTAL DISTANCES (FEET)	
LOCATION	LENGTH
A TO A-1	7.50'
B TO B-1	6.93'
C TO C-1	5.52'
D TO D-1	4.96'
E TO E-1	4.39'
F TO F-1	3.87'
G TO G-1	3.39'
H TO H-1	2.93'
I TO I-1	2.50'
J TO J-1	2.12'
K TO K-1	1.76'
L TO L-1	1.41'
M TO M-1	1.10'
N TO N-1	0.82'
O TO O-1	0.54'
P TO P-1	0.36'
Q TO Q-1	0.00'

NOTES:

1. LOCATIONS A AND A-1 ARE AT THE ENTRANCE TO THE VORTEX DROP STRUCTURE.
2. ELEVATIONS OF X IS DEPENDENT ON WHERE THE VORTEX DROP STRUCTURE IS INSTALLED BY CONTRACTOR. X WILL BE LIMITED TO BEING AT OR BETWEEN ELEVATIONS 216.5 TO 221 FEET.
3. FIELD FORMING OF CONCRETE IS REQUIRED FOR ALL SECTIONS. SECTION A TO A-1 AND SECTION B TO B-1 TO PROVIDE A SMOOTH TRANSITION. TOLERANCES FOR FORMING AS INDICATED IN TABLE IS ±0.05 FEET.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: C. SANDERS
DRAWN BY: C. SCOTT
SHEET CHK'D BY: C. ALLABEN
CROSS CHK'D BY: C. SANDERS
APPROVED BY: C. SANDERS
DATE: FEBRUARY 2014

CDM Smith
Parkview Towers, 210 25th Avenue North, Suite 1102
Nashville, TN 37203
Tel: (615) 320-3161

CITY OF MEMPHIS

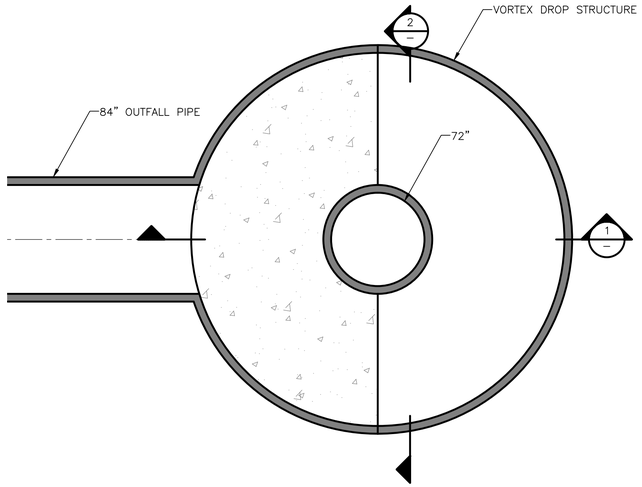
OUTFALL IMPROVEMENTS

VORTEX DROP STRUCTURE AND PLANT EFFLUENT LINE MODIFICATION DETAIL PLAN AND SECTION

PROJECT NO. 6016-94827
FILE NAME: CD01STDL.DWG

SHEET NO.
CD-1

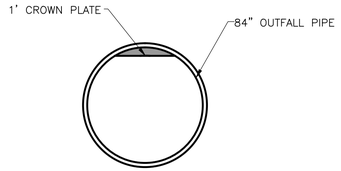
PRELIMINARY DESIGN



PARTIAL PLAN 3

PLAN

NTS



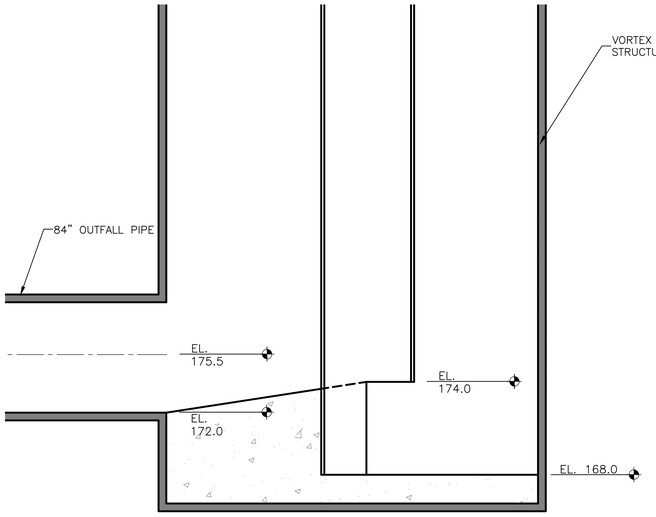
CROWN PLATE

DETAIL A / C-1

NTS

NOTE:

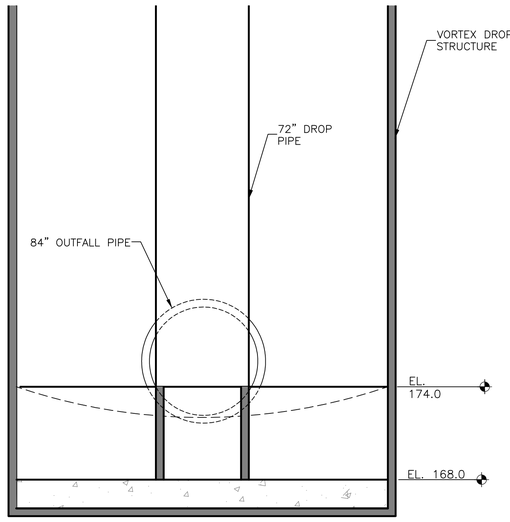
1. CROWN PLATE TO BE LOCATED BETWEEN THIRD VENT AND WHERE THE OUTFALL PIPE DAYLIGHTS INTO THE RIVER.



VORTEX DROP STRUCTURE

SECTION 1 / –

NTS



VORTEX DROP STRUCTURE

SECTION 2 / –

NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: C. SANDERS
DRAWN BY: C. SCOTT
SHEET CHK'D BY: C. ALLABEN
CROSS CHK'D BY: C. SANDERS
APPROVED BY: C. SANDERS
DATE: FEBRUARY 2014

CDM Smith
Parkview Towers, 210 25th Avenue North, Suite 1102
Nashville, TN 37203
Tel: (615) 320-3161

CITY OF MEMPHIS

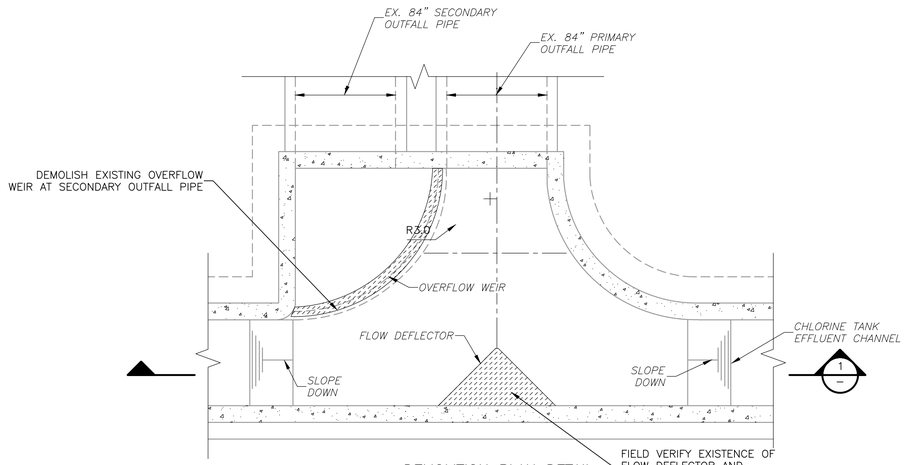
OUTFALL IMPROVEMENTS

VORTEX DROP STRUCTURE AND PLANT EFFLUENT LINE MODIFICATION DETAIL PLAN AND SECTION

PROJECT NO. 6016-94827
FILE NAME: CD02STDL.DWG

SHEET NO.
CD-2

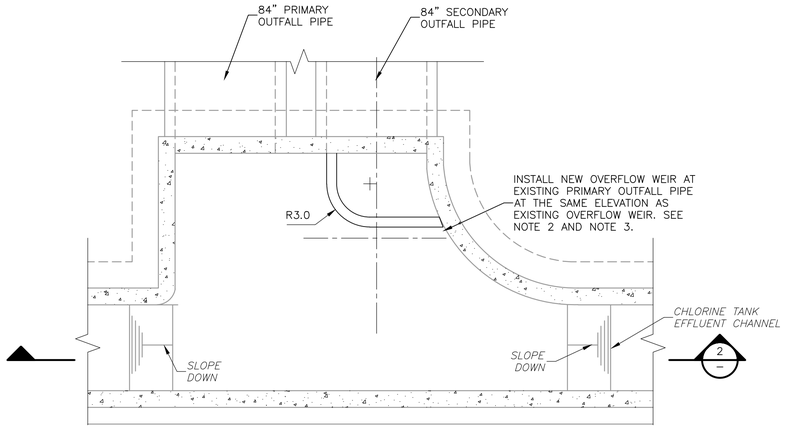
PRELIMINARY DESIGN



DEMOLITION PLAN DETAIL

PLAN

1"=5'



PLANT EFFLUENT LINE MODIFICATION DETAIL

PLAN

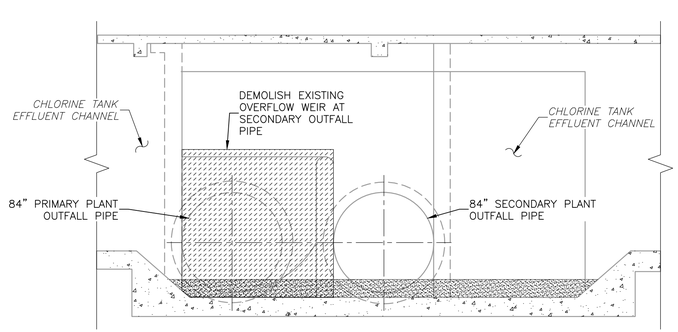
1"=5'

NOTE:

1. EXISTING PRIMARY OUTFALL WILL BECOME SECONDARY OUTFALL AND EXISTING SECONDARY OUTFALL WILL BECOME PRIMARY OUTFALL WITH THE DEMOLITION OF EXISTING WEIR AND INSTALLATION OF NEW WEIR.

2. NEW SECONDARY OVERFLOW WEIR WILL FACILITATE A SMOOTH FLOW TRANSITION FROM THE CHLORINE TANK EFFLUENT TO THE NEW PRIMARY OUTFALL PIPE.

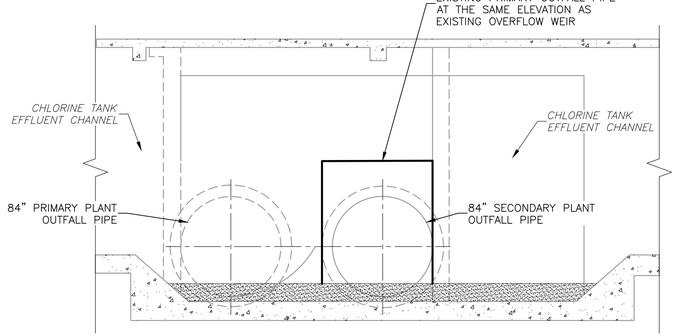
3. THE NEW OVERFLOW WEIR TO THE SECONDARY EFFLUENT CHANNEL WILL HAVE A WEIR LENGTH NOT LESS THAN THAT OF THE EXISTING WEIR SLATED FOR DEMOLITION.



DEMOLITION SECTION

SECTION 1

1"=5'



PLANT EFFLUENT LINE MODIFICATION SECTION

SECTION 2

1"=5'

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: C. SANDERS
DRAWN BY: C. SCOTT
SHEET CHK'D BY: C. ALLABEN
CROSS CHK'D BY: C. SANDERS
APPROVED BY: C. SANDERS
DATE: FEBRUARY 2014

CDM Smith
Parkview Towers, 210 25th Avenue North, Suite 1102
Nashville, TN 37203
Tel: (615) 320-3161

CITY OF MEMPHIS

OUTFALL IMPROVEMENTS

VORTEX DROP STRUCTURE AND PLANT EFFLUENT LINE MODIFICATION DETAIL PLAN AND SECTION

PROJECT NO. 6016-94827
FILE NAME: CD03STDL.DWG

SHEET NO.
CD-3

PRELIMINARY DESIGN

Appendix D

Geotechnical Investigation Results

Legend

Approx. boring location

Source: Terracon GIS database

Project Manager: MCC	Project No. A8135003	Terracon Consulting Engineers & Scientists	Boring Location Diagram
Drawn by: SV	Scale: NTS	7876 Stage Hills Boulevard, Ste 105	Stiles WWTP Outfall Modifications
Checked by: MCC	File Name:	Bartlett, TN 38133	2303 North Second Street
Approved by:	Date: 08Apr2013		Memphis, TN

Exhibit A-1

CHEMICAL LABORATORY TEST REPORT

Project Number: A8135003
Service Date: 03/21/13
Report Date: 03/21/13
Task:

Terracon
750 Pilot Road, Suite F
Las Vegas, Nevada 89119
(702) 597-9393

Client

Terracon Nashville, TN

Project

Stiles WWTP Outfall Modification

Sample Submitted By: Terracon **Date Received:** 3/20/2013 Lab No.: 13-0090
Analyzed By: Kurt D. Ergun

Results of Resistivity Analysis

Sample Number	5 & 6	10 & 11
Sample Location	B-2	B-4
Sample Depth (ft.)	18.5-20.0	43.5-45.0
pH Analysis, AWWA 4500 H	7.55	8.25
Water Soluble Sulfate (SO4), AWWA 4500 E (mg/kg)	39	44
Chlorides, AWWA 3500 Cl B, (mg/kg)	25	25
Resistivity, ASTM G-57, (ohm-cm)	5723	8051

Services:
Terracon Rep:
Reported To:
Contractor:

Reviewed By: Kurt D. Ergun
Chemist

BORING LOG NO. B-1

PROJECT: Stiles WWTP Outfall Modifications

CLIENT: CDM Smith, Inc. Franklin, TN

SITE: 2303 North Second Street Memphis, TN

GRAPHIC LOG	LOCATION See Exhibit A-1 DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY TORVANE/HP (psf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
	Hand Augered to 5 feet; No Samples 5.0							
	POORLY GRADED SAND, brown to grayish-brown, very stiff to stiff	5						
		10			6-13-15 N=28		12	
		15			4-9-9 N=18		19	
	very silty from 15 to 20 feet 20.0	20			4-6-7 N=13		31	
	LEAN CLAY, grayish-brown				1-1-3 N=4	2500 (HP)	32	
	very silty from 25 to 30 feet 30.0	25	▽					
	WELL GRADED TO POORLY GRADED SAND, brown to grayish-brown, medium dense to dense	30			2-2-2 N=4		42	
		35			5-10-16 N=26		19	
		40	▽		11-11-10 N=21		27	
		45			11-13-21 N=34		17	

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Borings grouted to 2' above water level then backfilled with soil cuttings to surface.

Notes:

WATER LEVEL OBSERVATIONS

▽ *28.5' While Drilling*

▽ *38' +24 & +48 hours*

Terracon
7876 Stage Hills Blvd., Suite 105
Bartlett, Tennessee

Boring Started: 2/19/2013 | Boring Completed: 2/20/2013

Drill Rig: CME 550X | Driller: J. Crawford

Project No.: A8135003 | Exhibit: A-3

BORING LOG NO. B-1

PROJECT: Stiles WWTP Outfall Modifications

CLIENT: CDM Smith, Inc. Franklin, TN

SITE: 2303 North Second Street Memphis, TN

GRAPHIC LOG	LOCATION See Exhibit A-1 / DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY TORVANE/HP (psf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
	WELL GRADED TO POORLY GRADED SAND, brown to grayish-brown, medium dense to dense *(continued)*							
		50		X	10-15-23 N=38		18	
		55		X	13-23-24 N=47		19	
		60		X	8-15-23 N=38		18	
		65		X	12-21-30 N=51		18	
	70.0	70		X	13-20-26 N=46		17	
	SAND, trace gravel, brown to grayish-brown							
		75		X	13-22-26 N=48		16	
	80.0	80		X	20-26-22 N=48		17	
	POORLY GRADED SAND, grayish-brown							
	85.0	85		X	22-31-30 N=61		20	
	Boring Terminated at 85 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Borings grouted to 2' above water level then backfilled with soil cuttings to surface.

Notes:

WATER LEVEL OBSERVATIONS

- *28.5' While Drilling*
- *38' +24 & +48 hours*

Terracon
7876 Stage Hills Blvd., Suite 105
Bartlett, Tennessee

Boring Started: 2/19/2013 | Boring Completed: 2/20/2013

Drill Rig: CME 550X | Driller: J. Crawford

Project No.: A8135003 | Exhibit: A-3

BORING LOG NO. B-2

PROJECT: Stiles WWTP Outfall Modifications

CLIENT: CDM Smith, Inc. Franklin, TN

SITE: 2303 North Second Street Memphis, TN

LOCATION See Exhibit A-1

DEPTH	GRAPHIC LOG		WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY TORVANE/HP (psf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
		LEAN CLAY, brown to grayish-brown, medium stiff to stiff						
		trace roots in upper 3 feet						
5					1-6-5 N=11	5000 (HP)	29	45-21-24
					1-1-2 N=3	3500 (HP)	29	
10					1-1-2 N=3		24	
15					1-1-1 N=2	2500 (HP)	38	45-24-21
18.0								
20.0		**POORLY GRADED SAND**, brown, loose			2-7-8 N=15		22	
20		**LEAN CLAY**, trace silt, gray	▽					
25					3-1-1 N=2		34	
28.0								
30.0		**CLAYEY SAND**, grayish-brown, loose			3-5-5 N=10		24	
30		**WELL GRADED TO POORLY GRADED SAND**, brown to grayish-brown, medium dense to dense						
35		trace gravel from 35 to 45 feet			5-8-8 N=16		21	
40					7-14-16 N=30		20	
45					7-20-23 N=43		18	

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Borings grouted to 2' above water level then backfilled with soil cuttings to surface.

Notes:

WATER LEVEL OBSERVATIONS

▽ *23' +24 hours*

Terracon
7876 Stage Hills Blvd., Suite 105
Bartlett, Tennessee

Boring Started: 2/19/2013 | Boring Completed: 2/20/2013

Drill Rig: CME 550X | Driller: J. Crawford

Project No.: A8135003 | Exhibit: A-4

BORING LOG NO. B-2

PROJECT: Stiles WWTP Outfall Modifications

CLIENT: CDM Smith, Inc. Franklin, TN

SITE: 2303 North Second Street Memphis, TN

GRAPHIC LOG	LOCATION See Exhibit A-1 / DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY TORVANE/HP (psf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
	WELL GRADED TO POORLY GRADED SAND, brown to grayish-brown, medium dense to dense *(continued)*							
		50		X	7-19-20 N=39		18	
		55		X	7-6-10 N=16		18	
		60		X	6-9-10 N=19		15	
	65.0	65		X	18-26-30 N=56		18	
	Boring Terminated at 65 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Borings grouted to 2' above water level then backfilled with soil cuttings to surface.

Notes:

WATER LEVEL OBSERVATIONS

▽ *23' +24 hours*

Terracon
7876 Stage Hills Blvd., Suite 105
Bartlett, Tennessee

Boring Started: 2/19/2013 | Boring Completed: 2/20/2013

Drill Rig: CME 550X | Driller: J. Crawford

Project No.: A8135003 | Exhibit: A-4

BORING LOG NO. B-3

PROJECT: Stiles WWTP Outfall Modifications

CLIENT: CDM Smith, Inc. Franklin, TN

SITE: 2303 North Second Street Memphis, TN

LOCATION See Exhibit A-1

DEPTH	GRAPHIC LOG		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY TORVANE/HP (psf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
		POORLY GRADED SAND, grayish-brown, loose							
5.0			5		X	3-4-4 N=8		22	
		LEAN CLAY, silty, grayish-brown, medium stiff			X	3-4-1 N=5		30	
10.0			10		X	1-1-1 N=2		36	
		LEAN CLAY/FAT CLAY, grayish-brown, soft			X	1-1-2 N=3	2500 (HP)	30	
15.0			15						
		CLAYEY SAND, grayish-brown, very loose			X	5-6-4 N=10		26	
20.0			20						
		WELL GRADED TO POORLY GRADED SAND, brown to grayish-brown, loose to medium dense		▽	X	5-11-15 N=26		21	
		probable clayey sand from 25 to 30 feet	25						
			30		X	7-15-17 N=32		17	
			35		X	4-12-14 N=26		17	
			40		X	6-10-13 N=23		21	
			45		X	8-24-26 N=50		17	

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Borings grouted to 2' above water level then backfilled with soil cuttings to surface.

Notes:

WATER LEVEL OBSERVATIONS

▽ *23.5' While Drilling*

▽ *23' +16 hours*

Terracon
7876 Stage Hills Blvd., Suite 105
Bartlett, Tennessee

Boring Started: 2/20/2013 | Boring Completed: 2/20/2013

Drill Rig: CME 550X | Driller: J. Crawford

Project No.: A8135003 | Exhibit: A-5

BORING LOG NO. B-3

PROJECT: Stiles WWTP Outfall Modifications

CLIENT: CDM Smith, Inc. Franklin, TN

SITE: 2303 North Second Street Memphis, TN

GRAPHIC LOG	LOCATION See Exhibit A-1 / DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY TORVANE/HP (psf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
	WELL GRADED TO POORLY GRADED SAND, brown to grayish-brown, loose to medium dense *(continued)*							
		50		X	11-22-23 N=45		21	
		55		X	11-14-19 N=33		19	
	trace gravel at 60 feet	60		X	7-9-10 N=19		16	
	with gravel at 65 feet							
	65.0	65		X	11-12-21 N=33		18	
	Boring Terminated at 65 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Borings grouted to 2' above water level then backfilled with soil cuttings to surface.

Notes:

WATER LEVEL OBSERVATIONS

▽ *23.5' While Drilling*

▽ *23' +16 hours*

Terracon
7876 Stage Hills Blvd., Suite 105
Bartlett, Tennessee

Boring Started: 2/20/2013 | Boring Completed: 2/20/2013

Drill Rig: CME 550X | Driller: J. Crawford

Project No.: A8135003 | Exhibit: A-5

BORING LOG NO. B-4

PROJECT: Stiles WWTP Outfall Modifications

CLIENT: CDM Smith, Inc. Franklin, TN

SITE: 2303 North Second Street Memphis, TN

LOCATION See Exhibit A-1

DEPTH	GRAPHIC LOG	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY TORVANE/HP (psf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
	LEAN CLAY, brown to grayish-brown, stiff to very soft						
5			X	1-7-9 N=16		35	
			X	1-1-1 N=2		37	29-18-11
			X	1-1-1 N=2		38	
10			■				
			X	1-1-1 N=2		43	
15							
20.0			X	1-2-1 N=3	1500 (HP)	43	40-23-17
	CLAYEY SAND, grayish-brown, medium dense	▽	■				
25.0			X	3-3-8 N=11		29	
25	**WELL GRADED TO POORLY GRADED SAND**, brown to grayish-brown						
30			X	12-16-14 N=30		15	
35			X	5-6-12 N=18		28	
40			X	11-20-18 N=38		19	
45			X	11-22-24 N=46		19	

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Borings grouted to 2' above water level then backfilled with soil cuttings to surface.

Notes:

WATER LEVEL OBSERVATIONS

▽ *23' While Drilling*

Terracon
7876 Stage Hills Blvd., Suite 105
Bartlett, Tennessee

Boring Started: 2/21/2013 | Boring Completed: 2/21/2013

Drill Rig: CME 550X | Driller: J. Crawford

Project No.: A8135003 | Exhibit: A-6

BORING LOG NO. B-4

PROJECT: Stiles WWTP Outfall Modifications

CLIENT: CDM Smith, Inc. Franklin, TN

SITE: 2303 North Second Street Memphis, TN

GRAPHIC LOG	LOCATION See Exhibit A-1 DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY TORVANE/HP (psf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
	WELL GRADED TO POORLY GRADED SAND, brown to grayish-brown *(continued)*							
		50		X	18-24-24 N=48		21	
	with gravel from 53 to 65 feet	55		X	11-9-10 N=19		18	
		60		X	8-15-15 N=30		15	
	65.0	65		X	10-10-17 N=27		15	
	Boring Terminated at 65 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Borings grouted to 2' above water level then backfilled with soil cuttings to surface.

Notes:

WATER LEVEL OBSERVATIONS

▽ *23' While Drilling*

Terracon
7876 Stage Hills Blvd., Suite 105
Bartlett, Tennessee

Boring Started: 2/21/2013 | Boring Completed: 2/21/2013

Drill Rig: CME 550X | Driller: J. Crawford

Project No.: A8135003 | Exhibit: A-6