CMW inc.

ARCHITECTURE ENGINEERING INTERIOR DESIGN LANDSCAPE ARCHITECTURE

CONTRACT #1

500,000 GALLON ELEVATED WATER STORAGE TANK, PHASE 12

GRANT COUNTY, KENTUCKY

FOR

BULLOCK PEN WATER DISTRICT

MARCH 2012

STATE OF KENTUCKY
KERRY S. ODLE
12,497
LICENSED PROFESSIONAL ENGINEER
3/28/12

PROJECT MANUAL

Set No.

400 E. Vine St., Suite 400, Lexington, KY 40507 Tel 859.254.6623 Fax 859.259.1877

Addendum Number One

Contract #1 – 500,000 Gallon Elevated Water Storage Tank, Phase 12

For

Bullock Pen Water District
Grant County, Kentucky

May 6, 2012

Architect: CMW, Inc.
400 East Vine
Lexington, Kentucky 40507
(859) 254-6623

TO: ALL PLANHOLDERS OF RECORD

This addendum forms a part of the Contract Documents and modifies the original Contract Documents dated March 2012 as noted below. Failure to include this addendum in your Bid may result in disqualification of the bid. This addendum consists of nine (9) pages (including attachments).

1. DIVISION 0 - BIDDING & CONTRACT DOCUMENTS

A. Section 000860 Stage Wage Rates. Replace the entire section with the attached new State Wage Rates.

End of Addendum Number One

KENTUCKY LABOR CABINET
PREVAILING WAGE DETERMINATION
CURRENT REVISION
LOCALITY NO. 019

Determination No. CR-7-019
Date of Determination: June 5, 2012

PROJECT NO. 041-H-00075-12-7

_____BLDG ___xx____HH

This schedule of the prevailing rate of wages for Locality No. 019, which includes Grant, Owen & Scott Counties, has been determined in accordance with the provisions of KRS 337.505 to 337.550. This determination shall be referred to as Prevailing Wage Determination
No. CR-7-019.

Apprentices shall be permitted to work as such subject to Administrative Regulations adopted by the Executive Director of the Office of Workplace Standards. Copies of these regulations will be furnished upon request to any interested person.

Overtime is to be computed at not less than one and one-half (1 1/2) times the indicated BASE RATE for all hours worked in excess of eight (8) per day, and/or in excess of forty (40) per week. However, KRS 337.540 permits an employee and employer to agree, in writing, that the employee will be compensated at a straight time base rate for hours worked in excess of eight (8) hours in any one workday, but not more than ten (10) hours worked in any one workday, if such written agreement is prior to the over eight (8) hours in a workday actually being worked, or where provided for in a collective bargaining agreement. The fringe benefit rate is to be paid for each hour worked at a straight time rate for all hours worked. Fringe benefit amounts are applicable for all hours worked except when otherwise noted. Welders will receive rate for craft in which welding is incidental.

No laborer, workman or mechanic shall be paid at a rate less than that of the General Laborer except those classified as bona fide apprentices registered with the Kentucky State Apprenticeship Supervisor unless otherwise specified in this schedule of wage rates.

NOTE: The type of construction shall be determined by applying the following definitions.

BUILDING CONSTRUCTION
Building construction is the construction of sheltered enclosures with walk-in access for the purpose of housing persons, machinery, equipment, or supplies. It includes all construction of such structures, the installation of utilities and the installation of equipment, both above and below grade level, as well as incidental grading, utilities and paving.

HIGHWAY CONSTRUCTION
Highway construction includes the construction, alteration or repair of roads, streets, highways, runways, taxiways, alleys, trails, paths, parking areas, and other similar projects not incidental to building or heavy construction. It includes all incidental construction in conjunction with the highway construction project.

HEAVY CONSTRUCTION
Heavy projects are those projects that are not properly classified as either "building" or "highway". For example, dredging projects, water and sewer line projects, dams, flood control projects, sewage treatment plants and facilities, and water treatment plants and facilities are considered heavy.

Michael L. Dixon
COMMISSIONER
KENTUCKY LABOR CABINET

CLASSIFICATIONS		RATE AND FRINGE BENEFITS	
ASBESTOS/INSULATION WORKERS/HEAT & FROST INSULATORS		BASE RATE FRINGE BENEFITS	$28.13 14.64
BOILERMAKERS:		BASE RATE FRINGE BENEFITS	$24.65 12.94
BRICKLAYERS:			
Bricklayers:		BASE RATE FRINGE BENEFITS	$26.11 9.84
Refractory:		BASE RATE FRINGE BENEFITS	$26.61 9.84
CARPENTERS:			
Carpenters:	BUILDING	BASE RATE FRINGE BENEFITS	$21.23 12.40
Piledrivermen	BUILDING	BASE RATE FRINGE BENEFITS	$21.73 12.40
Carpenters:	HEAVY & HIGHWAY	BASE RATE FRINGE BENEFITS	$26.40 13.95
Pildrivermen:	HEAVY & HIGHWAY	BASE RATE FRINGE BENEFITS	$26.65 13.95
Divers:	HEAVY & HIGHWAY	BASE RATE FRINGE BENEFITS	$39.98 13.95
CEMENT MASONS:		BASE RATE FRINGE BENEFITS	$ 17.50 4.95
ELECTRICIANS:		BASE RATE FRINGE BENEFITS	$29.32 14.27
LINEMAN:	HEAVY & HIGHWAY	BASE RATE FRINGE BENEFITS	$30.78 11.33
GROUNDSMAN:	HEAVY & HIGHWAY	BASE RATE FRINGE BENEFITS	$27.52 10.69
EQUIPMENT OPERATOR:	HEAVY & HIGHWAY	BASE RATE FRINGE BENEFITS	$18.23 8.86

CLASSIFICATIONS	RATE AND FRINGE BENEFITS	
ELEVATOR CONSTRUCTORS:	BASE RATE	$29.75
	FRINGE BENEFITS	10.95
GLAZIERS:		
OWEN COUNTY:	BASE RATE	$18.01
	FRINGE BENEFITS	3.88
GRANT & SCOTT COUNTIES:	BASE RATE	$15.45
IRONWORKERS:	BASE RATE	$26.34
	FRINGE BENEFITS	18.84

LABORERS:

BUILDING GROUP 1:
General laborers, asbestos abatement laborer, toxic waste removal laborer, water boys, tool room checker, carpenter tenders, (civil engineer helper, rodman, grade checkers excluding all field work performed by engineering firms), concrete pouring and curing, concrete form stripping and wrecking, hand digging and backfilling of ditches, clearing of right of ways and building sites, wood sheeting and shoring, signalman for concrete bucket and general cleaning, and environmental laborer - nuclear, radiation, toxic and hazardous waste - Level D:

BUILDING	*BASE RATE	$20.01
	FRINGE BENEFITS	10.09

BUILDING GROUP 2:
All air tool operators, air track drills, asphalt rakers, tampers, batchers plant and scale man, chain saw, concrete saw, electric hand grinder, all electric bush and chipping hammers, flagmen, forklift operators, form setter (street or highway), metal form setters, heaters, mesh handlers on walkways, streets and roadways outside building, gunnite laborers, hand spiker, introflax burning rod, joint makers, mason tenders, multi-trade tender, pipe layers, plaster tenders, powderman helpers, power driven Georgia buggies, power posthole diggers, railroad laborers, sandblaster laborers, scow man and deck hand, signal man, sweeper and cleaner machines, vibrator operators, walk behind trenching machines, mortar mixer machines, water pumpmen, and environmental laborers-nuclear, radiation, toxic and hazardous waste - Level C:

BUILDING	*BASE RATE	$20.41
	FRINGE BENEFITS	10.09

BUILDING GROUP 3:
Asphalt Paver Screwman, gunnite nozzleman and gunnite nozzle machine operator, sand blaster nozzleman, concrete or grout pumpman, plaster pumpman:

BUILDING	*BASE RATE	$20.61
	FRINGE BENEFITS	10.09

BUILDING GROUP 4:
Powderman and blaster, and environmental laborer - nuclear, radiation, toxic and hazardous waste - Level B:

BUILDING	*BASE RATE	$20.71
	FRINGE BENEFITS	10.09

BUILDING GROUP 5:
Caisson holes (6 ft. and over) pressure and free air including tools, construction specialist, and environmental laborer-nuclear, radiation, toxic and hazardous waste - Level A:

BUILDING	*BASE RATE	$21.21
	FRINGE BENEFITS	10.09

CLASSIFICATIONS RATE AND FRINGE BENEFITS

LABORERS: BUILDING (Continued)

BUILDING GROUP 6:
Tunnel man and tunnel sand miner, cofferdam (pressure and free air), sand hog or mucker (pressure or free air):

BUILDING	*BASE RATE	$21.51
	FRINGE BENEFITS	10.09

LABORERS ON BUILDING: *Employees handling chemically treated materials which are harmful to the skin shall receive an additional $.25 above base rate. Any employee working on high work such as towers or smoke stacks or any type of work putting the employee 50 feet above the ground or a solid floor shall receive an additional $.50 per hour above the base rate. Any employee working on boilers, kilns, melting tanks, furnaces, or when refractory is done using live fire, drying fires, heatups or any hot work shall receive an additional 25% premium above the base rate.

LABORERS: HEAVY HIGHWAY

HEAVY HIGHWAY GROUP 1:

Aging and curing of concrete (any mode or method); asbestos abatement worker; asphalt plant laborers; asphalt laborers; batch truck dumpers; carpenter tenders; cement mason tenders; cleaning of machines; concrete laborers; demolition laborers; dredging laborers; drill helper; environmental laborer-nuclear, radiation, toxic & hazardous waste-Level D; flagmen; grade checkers; all hand digging and hand back filling; highway marker placers; landscaping laborers; mesh handlers & placers; puddler; railroad laborers; rip-rap & grouters; right of way laborers; sign, guard rail & fence installers (all types); signal men, sound barrier installer; storm and sanitary sewer laborers; swampers; truck spotters & dumpers; wrecking of concrete forms, general cleanup.

HEAVY & HIGHWAY	*BASE RATE	$20.81
	FRINGE BENEFITS	10.85

HEAVY HIGHWAY GROUP 2:

Batter board men (sanitary & storm sewer); brickmason tenders; mortar mixer operator; scaffold builders; burner and welder; bushammers; chain saw operator; concrete saw operators; deckhand scow man; dry cement handlers; environmental laborers-nuclear, radiation, toxic & hazardous waste-Level C; forklift operators for masonry; form setters; green concrete cutting; hand operated grouter and grinder machine operator; jack hammers; lead paint abatement; pavement breakers; paving joint machine; pipe layers-laser operators (non-metallic), plastic pipe fusion; power driven Georgia buggy & wheel barrow; power post hole diggers; precast manhole setters; walk behind tampers; walk behind trenchers; sand blasters; concrete chippers; surface grinders; vibrator operators; wagon drillers

HEAVY & HIGHWAY	*BASE RATE	$21.06
	FRINGE BENEFITS	10.85

HEAVY HIGHWAY GROUP 3:
Asphalt luteman and rakers; gunnite nozzleman; gunnite operators and mixers; grout pump operator; side rail setters; rail paved ditches; screw operators; tunnel laborers (free air) and water blasters.

HEAVY & HIGHWAY	*BASE RATE	$21.11
	FRINGE BENEFITS	10.85

HEAVY HIGHWAY GROUP 4:
Caisson workers (free air)' cement finishers; environmental laborers-nuclear, radiation, toxic & hazardous waste-Levels A & B; miners & drillers (free air); tunnel blasters and tunnel muckers (free air); directional and horizontal boring; air drillers (all types); powder man and blasters; troxler and concrete tester if laborer is utilized.

HEAVY & HIGHWAY	*BASE RATE	$21.71
	FRINGE BENEFITS	10.85

***Signal Person will receive the rate equal to the rate paid the laborer classification for which he or she is signaling.**

CLASSIFICATIONS	RATE AND FRINGE BENEFITS	
MARBLE, TILE & TERRAZZO:		
Finishers:	BASE RATE	$15.42
	FRINGE BENEFITS	5.42
Setters:	BASE RATE	$22.64
	FRINGE BENEFITS	6.10
MILLWRIGHTS:	BASE RATE	$28.21
	FRINGE BENEFITS	15.99

OPERATING ENGINEERS:

BUILDING CLASS A-1:
NCCCO or OECP Certified:
Cableway, Carry Deck Crane, Cherry Picker, Clamshell, Crane, Derrick, Derrick Boat, Dragline, Hoist Engine (2 or more drums), Hydraulic Boom Truck, Hydrocrane, Orangepeel Bucket, Overhead Crane, Piledriver, Rough Terrain Crane, Tower Cranes (French, German and other types), Truck Crane:

BUILDING	BASE RATE	$26.55
	FRINGE BENEFITS	13.00

BUILDING CLASS A:
Auto Patrol, Batcher Plant, Bituminous Paver, Cableway, Central Compressor Plant, Clamshell, Concrete Mixer (21 cu. ft. or over), Concrete Pump, Crane, Crusher Plant, Derrick, Derrick Boat, Ditching and Trenching Machine, Dragline, Dredge Operator, Dredge Engineer, Elevating Grader and all types of Loaders, Forklift (regardless of lift height), Hoe-Type Machine, Hoist (1 drum when used for stack or chimney construction or repair), Hoisting Engine (2 or more drums), Locomotive, Motor Scraper, Carry-all Scoop, Bulldozer, Heavy Duty Welder, Mechanic, Orangepeel Bucket, Piledriver, Power Blade, Motor Grader, Roller (bituminous), Scarifier, Shovel, Tractor Shovel, Truck Crane, Winch Truck, Push Dozer, Highlift, All types of Boom Cats, Core Drill, Hopto, Tow or Push Boat, A-Frame Winch Truck, Concrete Paver, Gradeall, Hoist, Hyster, Pumpcrete, Ross Carrier, Boom, Tail Boom, Rotary Drill, Hydro Hammer, Mucking Machine, Rock Spreader attached to equipment, Scoopmobile, KeCal Loader, Tower Cranes (French, German and other types), Hydrocrane, Backfiller, Gurries, Sub-Grader, Tunnel Mining Machines including Moles, Shields, or similar types of Tunnel Mining Equipment.

BUILDING	BASE RATE	$25.55
	FRINGE BENEFITS	13.00

***Operators on cranes with boom one-hundred fifty feet (150') and over including jib, shall receive seventy-five cents ($.75) above base rate. All cranes with piling leads will receive $.50 above base rate regardless of boom length**

BUILDING CLASS B:
All Air Compressors (over 900 cfm), Bituminous Mixer, Joint Sealing Machine, Concrete Mixer (under 21 cu. ft), Form Grader, Roller (rock), tractor (50 HP and over), Bull Float, Finish Machine, Outboard Motor Boat, Flexplane, Fireman, Boom Type Tamping Machine, Greaser on Grease Facilities servicing Heavy Equipment, Switchman or brakeman, Mechanic Helper, Whirley Oiler, Self-Propelled Compactor, Tractair and Road Widening Trencher and Farm Tractor with Attachments (except backhoe, highlift and endloader), Elevator (regardless of ownership when used for hoisting any building materials), Hoisting Engineer (1 drum or buck hoist), Forklift (when used for masonry construction, Firebrick Masonry Excluded), Well Points, Grout Pump, Throttle-Valve Man, Tugger, Electric Vibrator Compactor and Caisson Drill Helper:

BUILDING	BASE RATE	$22.81
	FRINGE BENEFITS	13.00

CLASSIFICATIONS — RATE AND FRINGE BENEFITS

OPERATING ENGINEERS; (CONTINUED)

BUILDING CLASS C:
Bituminous Distributor, Cement Gun, Conveyor, Mud Jack, Paving Joint Machine, Roller (earth), Tamping Machine, Tractors (under 50 HP), Vibrator, Oiler, Concrete Saw, Burlap and Curing Machine, Truck Crane Oiler, Hydro-Seeder, Power Form handling Equipment, Deckhand Steersman, Hydraulic Post Driver and Drill Helper:

BUILDING	BASE RATE	$22.04
	FRINGE BENEFITS	13.00

OPERATING ENGINEERS:

HEAVY & HIGHWAY CLASS A-1:
NCCCO or OECP Certified:
Crane, dragline, hoist (1 drum when used for stack or chimney construction repair), hoisting engineer (2 or more drums), orangepeel bucket, overhead crane, piledriver, truck crane, tower crane, hydraulic crane:

HEAVY & HIGHWAY	BASE RATE	$27.50
	FRINGE BENEFITS	13.00

HEAVY & HIGHWAY CLASS A:
A-frame Winch Truck, Auto Patrol, Backfiller, Batcher Plant, Bituminous Paver, Bituminous Transfer Machine, all types of Boom Cats, Bulldozer, Cableway, Carry-All Scoop, Carry Deck Crane, Central Compressor Plant Operator, Clamshell, Concrete Mixer (21 cu. Ft. or over), Concert Paver, Truck-mounted Concrete Pump, Core Drills, Crane, Crusher Plant, Derrick, Derrick Boat, Ditching and Trenching Machine, Dragline, Dredge Operator, Dredge Engineer, Earth Movers, Elevating Grader and all types of Loaders, Grade-all, Gurries, Heavy Equipment Robotics Operator/Mechanic, High Lift, Hoe-type machine, Hoist (two or more drums), Hoisting Engine, (two or more drums), Horizontal directional Drill Operator, Hydraulic Boom Truck, Hydrocrane, Hyster, KeCal Loader, Letourneau, Locomotive, Mechanic, Mechanically Operated Laser Screed, Mechanic Welder, Mucking Machine, Motor Scraper, Orangepeel Bucket, Piledriver, Power Blade, Pumpcrete, Push Dozer, Rock Spreader attached to equipment, All rotary Drills, Roller (Bituminous), Scarifier, Scoopmobile, Shovel, Side Boom, Subgrader, Tailboom, Telescoping Type Forklift, Tow or Push Boat, Tower Cranes (French, German, and other types), Tractor Shovel and Truck Crane, Tunnel Mining Machines including Moles, Shields, or similar types of Tunnel Mining Equipment:

HEAVY & HIGHWAY	BASE RATE	$26.50
	FRINGE BENEFITS	13.00

Operators on cranes with booms one hundred fifty feet (150) and over (including job) shall receive one dollar ($1.00) above Class A rate. Combination Rate: All crane operators operating cranes, where the length of the boom in combination with the length of the piling leads equal or exceeds one hundred fifty (150) feet, shall receive one dollar ($1.00) above the Class A rate. Where remote, laser, or CPS controlled equipment is utilized to operate the equipment listed in the wage classifications of this agreement, such work for operating purposes shall be the jurisdiction of the Operating Engineers.

HEAVY & HIGHWAY CLASS B:
All Air Compressors (over 900 cu. Ft. per min), Bituminous Mixer, Boom Type Tamping Machine, Bull Float, Concrete Mixer (under 21 cu. Ft.), Dredge Engineer, Electric Vibrator Compactor/Self-propelled Compactor, Elevator (on drum or back hoist), Elevator (regardless of lift height), Form Grader, Hoist (one drum), Joint Sealing Machine, Mechanic Helper, Outboard Motor Boat, Power Sweeper (riding type), Roller (rock), Ross Carrier, Skid Mounted or Trailer mounted Concrete Pumps, Skid Steer Machine with all attachments, Switchman or Brakeman, Throttle Valve Man, Tract air and Road Widening Trencher, Tractor (50 H.P. or over), Truck Crane Oiler, Tugger, Welding Machine, Well Points, and Whirley Oiler:

HEAVY & HIGHWAY	BASE RATE	$24.08
	FRINGE BENEFITS	13.00

CLASSIFICATIONS		RATE AND FRINGE BENEFITS	

OPERATING ENGINEERS: (CONTINUED)

HEAVY & HIGHWAY CLASS B2:
Greaser on Grease Facilities servicing Heavy Equipment, all off road material handling equipment, including articulating dump trucks:

	HEAVY & HIGHWAY	BASE RATE	$24.46
		FRINGE BENEFITS	13.00

HEAVY & HIGHWAY CLASS C:
Bituminous Distributor, Burlap and Curing Machine, Caison Drill and Core Drill Helper (track or skid mounted), Cement Gun, Concrete Saw, Conveyor, deckhand Oiler, Grout Pump, Hydraulic Post Driver, Hydro Seeder, Mud Jack, Oiler, Paving Joint Machine, Power form handling equipment, Pump, roller (earth), Steerman, Tamping machine, Tractors (under 50 H.P.) and Vibrator:

	HEAVY & HIGHWAY	BASE RATE	$23.82
		FRINGE BENEFITS	13.00

PAINTERS:

Painters:	BUILDING	BASE RATE	$22.85
		FRINGE BENEFITS	7.10
Brush & Roller:	HEAVY & HIGHWAY	BASE RATE	$18.20
		FRINGE BENEFITS	5.08
Drywall Finishers & Plasterers:	HEAVY & HIGHWAY	BASE RATE	$18.45
		FRINGE BENEFITS	5.08

Spray, Sandblast, Power Tools, Waterblast, Steam Cleaning; Brush & Roller of Mastics, Creosotes, Kwinch Koate and Coal Tar Epoxy:

	HEAVY & HIGHWAY	BASE RATE	$19.20
		FRINGE BENEFITS	5.08

Spray of Mastics, Creosotes, Kwinch Koate and Coal Tar Epoxy:

	HEAVY & HIGHWAY	BASE RATE	$20.20
		FRINGE BENEFITS	5.08

SCOTT COUNTY

PLUMBERS & PIPEFITTERS:		BASE RATE	$29.00
		FRINGE BENEFITS	15.31

OWEN & GRANT COUNTIES:

PLUMBER & PIPEFITTERS		BASE RATE	$31.00
		FRINGE BENEFITS	15.31
ROOFERS: (Excluding Metal Roofs)		BASE RATE	$18.90
		FRINGE BENEFITS	6.79
SHEETMETAL WORKERS: (Including Metal Roofs)		BASE RATE	$26.35
		FRINGE BENEFITS	11.07
SPRINKLER FITTERS:		BASE RATE	$29.55
		FRINGE BENEFITS	17.22

CLASSIFICATIONS		RATE AND FRINGE BENEFITS	
PAINTERS: (CONTINUED)			
TRUCK DRIVERS: BUILDING		BASE RATE	$18.31
		FRINGE BENEFITS	*9.24

Truck Drivers performing work on or hauling from a hazardous or toxic waste site, add $4.00 to base.

*TRUCK DRIVER Fringe benefits - Apply to each employee (whose name appears on the payroll that week) who has been employed a minimum of twenty (20) work days within any ninety (90) consecutive day period for that employer.

TRUCK DRIVERS: HEAVY HIGHWAY

Four-wheel service trucks, four-wheel dump trucks, Batch Trucks, Oil Distributors, Asphalt Distributors:

HEAVY & HIGHWAY	BASE RATE	$19.34
	FRINGE BENEFITS	7.02

Tandems:

HEAVY & HIGHWAY	BASE RATE	$19.39
	FRINGE BENEFITS	7.02

Tractor-Trailer; including semi-tractors, pole-trailers, ready-mix trucks; fuel trucks, asphalt-oil spraybar men (see also next line):

HEAVY & HIGHWAY	BASE RATE	$19.44
	FRINGE BENEFITS	7.02

Asphalt-Oil spraybar men when operated from cab, Five-Axle trucks & over:

HEAVY & HIGHWAY	BASE RATE	$19.54
	FRINGE BENEFITS	7.02

Belly Dumps, End Dumps, Articulated Dumps, Low-boys & Heavy Duty Equipment, Truck Mechanics:

HEAVY & HIGHWAY	BASE RATE	$19.81
	FRINGE BENEFITS	7.02

END OF DOCUMENT CR-7-019
June 5, 2012
Page 8 OF 8

Addendum Number Two

Contract #1 – 500,000 Gallon Elevated Water Storage Tank, Phase 12

For

Bullock Pen Water District
Grant County, Kentucky

June 15, 2012

Architect: CMW, Inc.
400 East Vine
Lexington, Kentucky 40507
(859) 254-6623

TO: ALL PLANHOLDERS OF RECORD

This addendum forms a part of the Contract Documents and modifies the original Contract Documents dated March 2012 as noted below. Failure to include this addendum in your Bid may result in disqualification of the bid. This addendum consists of two (2) pages (including attachments).

1. DIVISION 2 – TECHNICAL SPECIFICATIONS

A. Section 02520 Elevated Steel Water Storage Tank

1. Part 5A(2) – Change to read "Maximum height to overflow: 150 feet from top of foundation.
2. Part II A – Add the following: (3) The listed paint manufactures and coating systems list standards and quality for the coating systems. Other brand paints will be considered if they meet the standard of the specified paint.

B. Section 15441 ABOVE GROUND PACKAGED WATER PUMPING SYSTEM

1. Part 3 – Quality Assurance
   Delete sentence F in its entirety.
2. Part 4 G Interior Finish.
   Add to end of paragraph: "FRP wall will be considered on acceptable option."

3. Part 4L SKID
   Concrete will not be required if it can be shown that the base provides adequate structural supports for pumps, motors, piping and all other internal components of the station.

End of Addendum Number Two

PROJECT MANUAL

FOR

CONTRACT #1

500,000 GALLON ELEVATED WATER STORAGE TANK, PHASE 12

GRANT COUNTY, KENTUCKY

FOR

BULLOCK PEN WATER DISTRICT

OWNER:

BULLOCK PEN WATER DISTRICT

MARCH 2012

CMW, INC
400 E. VINE STREET
SUITE 400
LEXINGTON, KENTUCKY 40507

CMW PROJECT NO. 10053.01

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ADVERTISEMENT FOR BIDS

Bullock Pen Water District

Separate sealed BIDS for Contract #1 – 500,000 Gallon Elevated Water Storage Tank and Contract #2 – Grant County Improvements Phase 12, Grant County, will be received by the Owner at the office of Bullock Pen Water District, Crittenden, Kentucky, until 11:00 a.m. EDT on Thursday, June 21, 2012 and then publicly opened and read aloud.

Construction of Contract #1 will consist of construction of a 500,000 gallon elevated water storage tank, a prefabricated pump station including roadways, fencing, piping, valves, hydrants, generator, seeding and all other necessary appurtenances.

Construction of Contract #2 will consist of approximately 6020 LF of 8" PVC water line, 13 gate valves, 5 dry tap connections, 4 fire hydrants, 40 LF bores with steel encasement, 30 LF of open cut with steel encasement, directional bores, 160 LF of 8" HD PE pipe, and all necessary appurtenances.

The CONTRACT DOCUMENTS may be examined at the following locations:

- CMW, Inc., 400 E. Vine Street, Suite 400, Lexington, KY
- Bullock Pen Water District, 1 Farrell Drive, Crittenden, KY
- Associated General Contractors/McCraw Hill/Dodge Plan Room, 950 Contract Street, Suite 100A, Lexington, KY
- Allied Construction Industries, 1010 Yale Avenue, Cincinnati, OH
- Reed Construction Data/ABC Plan Room, 1812 Taylor Avenue, Louisville, KY
- Reed Construction Data/ABC Plan Room, 2020 Liberty Road, Suite 110, Lexington, KY
- F. W. Dodge Plan Room, Grant Baldwin Building, 655 Eden Park Road, Suite 515, Cincinnati, OH 45202

Copies of the CONTRACT DOCUMENTS may be obtained from Lynn Imaging, 328 Old East Vine Street, Lexington, KY 40507, phone 859\255-1021 upon the following non-refundable payment of $50.00 for Contract #1 and $50.00 for Contract #2 for each set.

If bidding documents are requested to be sent by mail, include an additional $14.00 for each set to cover cost of handling and postage. This check shall be made payable to Lynn Imaging.

The Owner reserves the right to waive any informalities or to reject any or all bids.

Each bidder must deposit with his bid, security in the amount, form and subject to the conditions provided in the Information for Bidders.

No bidder may withdraw his bid within 90 days after the actual date of the opening thereof.

Award will be made to the lowest responsive, responsible Bidder unless all bids are rejected.

Each bidder will make positive efforts to use small, minority, woman owned and disadvantaged businesses.

Each bidder must comply with Title VI of the Civil Rights Act of 1964, the Anti-Kickback Act, and Contract Work Hours Standard Act.

Each bidder must comply with the President's Executive Order No. 11246 as amended, which prohibits discrimination in employment regarding race, creed, color, sex or national origin.

Each bidder shall provide a Certification of Prior Work under Executive Order 11246 (Equal Employment Opportunity) as amended.

Each bidder and their subcontractors will comply with 41 CFR 60-4, in regard to Affirmative Action, to insure equal opportunity to females and minorities and will apply the time table and goal set forth in 41 CFR 60-4.

Each bidder will make positive efforts to use small, minority, woman owned and disadvantaged businesses.

This contract is being funded in part with the Kentucky Infrastructure Authority Federal Assisted Drinking Water Revolving Fund Loan.

June 7, 2012
Date

BULLOCK PEN WATER DISTRICT
CRITTENDEN, KENTUCKY

CMW, INC.
400 E. VINE STREET
SUITE 400
LEXINGTON, KENTUCKY

SECTION 00100 - INFORMATION FOR BIDDERS

BIDS will be received by Bullock Pen Water District (herein called the "OWNER") at the office of the Bullock Pen Water District, 1 Farrell Drive, Crittenden, Kentucky, until 11:00 a.m. EDT on Thursday, June 21, 2012, and then publicly opened and read aloud.

Each BID must be submitted in a sealed envelope, addressed to Bullock Pen Water District, 1 Farrell Drive, Crittenden, Kentucky 41311. Each sealed envelope containing a BID must be plainly marked on the outside as BID for Contract #1 - 500,000 Gallon Elevated Water Storage Tank, and the envelope should bear on the outside the name of the BIDDER, his address, his license number, if applicable, and the name of the project for which the BID is submitted. If forwarded by mail, the sealed envelope containing the BID must be enclosed in another envelope addressed to the OWNER at P. O. Box 188, Crittenden, KY 41030.

All BIDS must be made on the required BID form. All blank spaces for BID prices must be filled in, in ink or typewritten, and the BID form must be fully completed and executed when submitted. Only one copy of the BID form is required.

The OWNER may waive any informalities or minor defects or reject any and all BIDS. Any BID may be withdrawn prior to the above scheduled time for the opening of BIDS or authorized postponement thereof. Any BID received after the time and date specified shall not be considered. No BIDDER may withdraw a BID within 90 days after the actual date of the opening thereof. Should there be reasons why the contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the OWNER and the BIDDER.

BIDDERS must satisfy themselves of the accuracy of the estimated quantities in the BID Schedule by examination of the site and a review of the drawings and specifications including ADDENDA. After BIDS have been submitted, the BIDDER shall not assert that there was a misunderstanding concerning the quantities of WORK or of the nature of the WORK to be done.

The OWNER shall provide to BIDDERS prior to BIDDING, all information which is pertinent to, and delineates and describes, the land owned and rights-of-way acquired or to be acquired.

The CONTRACT DOCUMENTS contain the provisions required for the construction of the PROJECT. Information obtained from an officer, agent, or employee of the OWNER or any other person shall not affect the risks or obligations assumed by the CONTRACTOR or relieve the contractor from fulfilling any of the conditions of the contract.

Each BID must be accompanied by a BID bond payable to the OWNER for five percent of the total amount of the BID. As soon as the BID prices have been compared, the OWNER will return the BONDS of all except the three lowest responsible BIDDERS. When the Agreement is executed the bonds of the two remaining unsuccessful BIDDERS will be returned. The BID BOND of the successful BIDDER will be retained until the payment BOND and performance BOND have been executed and approved, after which it will be returned. A certified check may be used in lieu of a BID BOND.

A performance BOND and a payment BOND each in the amount of 100 percent of the CONTRACT PRICE, with a corporate surety approved by the OWNER, will be required for the faithful performance of the contract.

Attorneys-in-fact who sign BID BONDS or payment BONDS and performance BONDS must file with each BOND a certified and effective dated copy of their power of attorney.

The party to whom the contract is awarded will be required to execute the Agreement and obtain the performance BOND and payment BOND within ten (10) calendar days from the date when NOTICE OF AWARD is delivered to the BIDDER. The NOTICE OF AWARD shall be accompanied by the necessary Agreement and BOND forms. In case of failure of the BIDDER to execute the Agreement, the OWNER may consider the BIDDER in default, in which case the BID BOND accompanying the proposal shall become the Property of the OWNER.

The OWNER within ten (10) days of receipt of acceptable performance BOND, payment BOND and Agreement signed by the party to whom the Agreement was awarded shall sign the Agreement and return to such party an executed duplicate of the Agreement. Should the OWNER not execute the Agreement within such period, the BIDDER may by WRITTEN NOTICE withdraw his signed Agreement. Such notice of withdrawal shall be effective upon receipt of the notice by the OWNER.

The NOTICE TO PROCEED shall be issued within ten (10) days of the execution of the Agreement by the OWNER. Should there be reasons why the NOTICE TO PROCEED cannot be issued within such period, the time may be extended by mutual agreement between the OWNER AND CONTRACTOR. If the NOTICE TO PROCEED has not been issued within the ten (10) day period or within the period mutually agreed upon, the CONTRACTOR may terminate the Agreement without further liability on the part of either party.

The OWNER may make such investigations as deemed necessary to determine the ability of the BIDDER to perform the WORK, and the BIDDER shall furnish to the OWNER all such information and data for this purpose as the OWNER may request. The OWNER reserves the right to reject any BID if the evidence submitted by, or investigation of, such BIDDER fails to satisfy the OWNER that such BIDDER is properly qualified to carry out the obligations of the Agreement and to complete the WORK contemplated therein.

A conditional or qualified BID will not be accepted.

Award will be made to the lowest responsive, responsible BIDDER unless all bids are rejected. Determination of responsive bid will be based on bid being delivered before 2:00 p.m. on the day of the bid opening, all items completed on bid form, all addendums (if any) acknowledged on bid form, bid bonds included with bid and "Authentication of Bid and Affidavit of Non-Collusion and and Non-Conflict of Interest" included with bid. The responsibleness of bidder will be determined after evaluation of bid and review of contractor's qualifications, as listed in Section 01010-3.

All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the PROJECT shall apply to the contract throughout.

Each BIDDER is responsible for inspecting the site and for reading and being thoroughly familiar with the CONTRACT DOCUMENTS. The failure or omission of any BIDDER to do any of the foregoing shall in no way relieve any BIDDER from any obligation in respect to his BID.

The low BIDDER shall supply the names and addresses of major material SUPPLIERS and SUBCONTRACTORS when required to do so by the OWNER.

The ENGINEER IS CMW, Inc. The ENGINEER'S address is 400 E. Vine Street, Suite 400, Lexington, KY 40507.

The BIDDER agrees to abide with Title VI of the Civil Rights Act of 1964, the Anti-Kickback Act, and Contract Work Hours Standard Act.

The BIDDER must comply with the President's Executive Order No. 11246 as amended which prohibits discrimination in employment regarding race, creed, color, sex or national origin and must certify compliance of any previous work under President's Executive Order No. 11246 as amended. The contractor/subcontractor will comply with 41 CFR 60-4 in regard to affirmative action, to insure equal opportunity to females and minorities and will apply the timetable and goal set forth in 421 CRF 60-4.

The BIDDER will make positive efforts to use small, minority, woman owned and disadvantaged businesses.

END SECTION

BID

CONTRACT #1
500,000 GALLON ELEVATED WATER STORAGE TANK
GRANT COUNTY
BULLOCK PEN WATER DISTRICT

Proposal of _____ (hereinafter called "BIDDER"), a corporation organized and existing under the laws of the State of _____ doing business as _____*.

To the Bullock Pen Water District (hereinafter called "OWNER").

In compliance with your Advertisement for Bids, BIDDER hereby proposes to perform all WORK for the construction of Contract #1 – 500,000 Gallon Elevated Water Storage Tank, in strict accordance with the CONTRACT DOCUMENTS, within the time set forth therein, and at the prices stated below.

By submission of this BID, the BIDDER certifies, and in the case of a joint BID each party thereto certifies as to its own organization, that this BID has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this BID with any other BIDDER or with any competitor.

Bidder hereby agrees to commence work under this contract on or before a date to be specified in the NOTICE TO PROCEED and to fully complete the base bid within 330 consecutive calendar days. BIDDER further agrees to pay as liquidated damages, the sum of $500 for each consecutive calendar day thereafter as hereinafter provided in Section 15 of the General Conditions.

* Insert "a corporation", "a partnership", or "an individual" as applicable.

BIDDER acknowledges receipt of the following ADDENDUM:

No. _____ Dated _____ No. _____ Dated _____

No. _____ Dated _____ No. _____ Dated _____

BIDDER agrees to perform all the work described in the CONTRACT DOCUMENTS for the following unit prices:

NOTE: (1) BIDS shall include sales tax and all other applicable taxes and fees.

(2) Breakdown of work is for general information. Any work shown on Drawings and/or specified but not listed below shall be included in total base bid. Cost of items of work not specifically described below may be added to related bid item(s) at bidder's discretion.

BID SCHEDULE

Part I. Base Bid

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL AMOUNT
1.	Site Grading Including Entrance	1	LS	$	$
2.	Silt Fencing	1	LF	$	$
3.	Rock Check Dam	2	EA	$	$
4.	18" Reinforced Concrete Pipe	64	LF	$	$
5.	#57 Crushed Stone	80	TON	$	$
6.	#2 Crushed Stone	170	TON	$	$
7.	Piping, Valves, Control Valve, Check Valves, Fire Hydrants, Connection, and Related Appurtenances	1	LS	$	$
8.	500,000 Gallon Elevated Water Storage Tank	1	LS	$	$
9.	Preparation and Painting of Water Storage Tank	1	LS	$	$
10.	Above Ground Prefabricated Pump Station and Building with all Piping Valves, Piping, Electrical Service and Misc. Items as Shown on Drawing	1	EA	$	$

11.	Class III Channel Lining	40	TONS	$	$
12.	Fencing	1	LS	$	$
13.	Seeding Including Erosion Control Blanket	1	LS	$	$
14.	175 KW Generator	1	EA	$	$

TOTAL PART I: BASE BID $_____
(USE FIGURES)

_____
(USE WORDS)

Part II: Alternate Bid

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL AMOUNT
1.	Painting Alternate	1	LS	$	$

TOTAL PART II: ALTERNATE BID $_____
(USE FIGURES)

_____
(USE WORDS)

TOTAL AMOUNTS SHALL BE SHOWN IN BOTH WORDS AND FIGURES. IN CASE OF DISCREPANCIES, THE AMOUNT AS WRITTEN IN WORDS SHALL GOVERN.

The above price shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc., to cover the finished work of the several kinds called for. Changes shall be processed in accordance with the General Conditions.

Determination of low bidder will be based on the lowest and best Total Bid. Award will be made to the lowest responsive, responsible Bidder.

The Bidder agrees that the Owner reserves the right to delete the whole or any part of the project from the Contract.

The Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding.

The Bidder agrees that this bid shall be good and may not be withdrawn for a period of ninety (90) calendar days after the scheduled closing time for receiving bids.

Upon receipt of written notice of the acceptance of this bid, Bidder will execute the formal contract attached within ten (10) days and deliver a surety bond or bonds as required by Article 22 of the General Conditions.

Respectfully submitted:

_____
(Name of Contracting Firm)

BY:_____

TITLE:_____

ADDRESS:_____

_____

DATE:_____

_____
License No. (if applicable)

Seal (If Bid by Corporation)

Attest:_____

END BID FORM

Exhibit F-4
BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned,_____
_____as Principal, and_____
_____
_____as Surety, are hereby held and firmly bound unto_____
as OWNER in the penal sum of_____
_____
for payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.
Signed, this _____day of _____ , 20 ___.
The Condition of the above obligation is such that whereas the Principal has submitted to _____a certain BID, attached hereto and hereby made a part hereof to enter into a contract in writing, for the _____
_____
_____
_____

NOW, THEREFORE,
(a) If said BID shall be rejected, or
(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) and shall furnish a BOND for his faithful performance of said contract, and 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 BID, 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 penal 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 OWNER may accept such BID; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have 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 first set forth above.

_____(L.S.)
Principal

_____
Surety

By:_____

IMPORTANT -- Surety companies executing BONDS must appear on the Treasury Department's most current list (circular 570 as amended) and be authorized to transact business in the state where the project is located.

AUTHENICATION OF BID AND AFFIDAVIT OF NON-COLLUSION AND NON-CONFLICT OF INTEREST

I hereby swear (or affirm) under the penalty for false swearing as provided by KRS 432.170:

1. That I am the bidder (if the bidder is an individual), a partner in the bidder (if the bidder is a partnership), or an officer or employee of the bidding corporation having authority to sign on its behalf (if the bidder is a corporation);

2. That the attached bid has been arrived at by the bidder independently and has been submitted without collusion with, and without any agreement, understanding or planned common course of action with, any other contractor, vendor of materials, supplies, equipment, or services described in the Invitation to Bid, designed to limit independent bidding or competition;

3. That the contents of the bid has not been communicated by the bidder or its employees or agents to any person not an employee or agent of the bidder or its surety on any bond furnished with the bid and will not be communicated to any such person prior to the official opening of the bid;

4. That the bidder is legally entitled to enter into the contracts with the Bullock Pen Water District and is not in violation of any prohibited conflicts of interest;

5. (Applicable to corporations only) That as a foreign corporation we are registered with the Secretary of State, Commonwealth of Kentucky, and authorized to do business in the State of _____ or, that as a domestic corporation we are in good standing with the Secretary of State, Commonwealth of Kentucky _____. (Check the statement applicable.)

6. That this offer is for 90 calendar days from the date this bid is opened. In submitting the above, it is expressly agreed that, upon proper acceptance by the Bullock Pen Water District of any or all items bid above, a contract shall thereby be created with respect to the items accepted.

7. That I have fully informed myself regarding the accuracy of the statements made in this Affidavit.

READ CAREFULLY - SIGN IN SPACE BELOW - FAILURE TO SIGN INVALIDATES BID

Signed by _____

Title_____

Firm_____Telephone No._____

Address_____Area Code_____

_____Date_____

City_____State___Zip

END SECTION

AGREEMENT

THIS AGREEMENT, made this _____ day of _____, 2012, by and between Bullock Pen Water District hereinafter called "OWNER" and _____, doing business as a corporation, hereinafter called "CONTRACTOR".

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

1. The CONTRACTOR will commence and complete the construction of Contract #1 500,000 Gallon Elevated Water Storage Tank, Phase 12, Grant County.

2. The CONTRACTOR will furnish all of the materials, supplies, tools, equipment, labor, and other services necessary for the construction and completion of the PROJECT described herein.

3. The CONTRACTOR will commence the work required by the CONTRACT DOCUMENTS within 10 calendar days after the date of the NOTICE TO PROCEED and will complete the water line within 330 consecutive calendar days unless the period for completion is extended otherwise by the CONTRACT DOCUMENTS.

4. The CONTRACTOR agrees to perform all of the WORK described in the CONTRACT DOCUMENTS and comply with the terms therein for the sum of $_____, or as shown in the BID schedule.

5. The term "CONTRACT DOCUMENTS" means and includes the following:

A. Advertisement

B. Information to Bidders

C. Bid

D. Bid Bond

E. Agreement

F. General Conditions

G. Payment Bond

H. General Conditions

I. Notice to Proceed

J. Change Order

K. Drawings prepared by CMW, Inc. numbered 1.1 through 1.3 dated February 2012.

L. SPECIFICATIONS prepared or issued by CMW, Inc. and dated March, 2012.

ADDENDA:

No. _____, dated_____, 20_____.

_____, dated_____, 20_____.

_____, dated_____, 20_____.

_____, dated_____, 20_____.

6. The OWNER will pay to the CONTRACTOR in the manner and at such times as set forth in the General Conditions such amounts as required by the CONTRACT DOCUMENTS.

7. This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

IN WITNESS WHEREOF, the parties hereto have executed or caused to be executed by their duly authorized official, this Agreement in 6 copies each of which shall be deemed an original on the date first above written.

(SEAL)

ATTEST:

_____

NAME Amy Johnson
(Please Type)

TITLE Office Manager

OWNER:

BULLOCK PEN WATER DISTRICT

BY_____

NAME Bobby Burgess
(Please Type)

TITLE Chairman

AND

(SEAL)

ATTEST:

_____

NAME_____
(Please Type)

TITLE_____

CONTRACTOR:

_____

BY_____

NAME_____
(Please Type)

ADDRESS_____

_____

EMPLOYER IDENTIFICATION NUMBER:

_____

END SECTION

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

_____
(Name of Contractor)

_____
(Address of Contractor)

a , _____ hereinafter called Principal, and
(Corporation, Partnership, or Individual)

_____
(Name of Surety)

_____
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto_____

_____
(Name of Owner)

_____
(Address of Owner)

hereinafter called OWNER, in the penal sum of_____

_____Dollars, ($ _____)

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the day of , 20__, a copy of which is hereto attached and made a part hereof for the construction of:

_____

_____

_____

_____

NOW THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the Surety and during the one year guaranty period, and if he shall satisfy all claims

and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED FURTHER, that the said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____(number) counterparts, each one of which shall be deemed an original, this the _____day of, _____ 20___ .

ATTEST:

_____
Principal

_____
Principal Secretary

By(s)_____

(SEAL)

_____
(Witness as to Principal)

_____
(Address)

_____
(Address)

_____
(Address)

_____
Surety

ATTEST:

_____
Surety Secretary

(SEAL)

_____
(Witness as to Surety)

_____
(Address)

_____

By_____
Attorney-in-Fact

_____
(Address)

_____

NOTE: Date of BOND must not be prior to date of Contract.
If CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and must be authorized to transact business in the state where the PROJECT is located.

Exhibit F-7
PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that

_____
(Name of Contractor)

_____
(Address of Contractor)

a _____, hereinafter called Principal, and
(Corporation, Partnership, or Individual)

_____
(Name of Surety)

_____
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto_____

_____
(Name of Owner)

_____
(Address of Owner)

hereinafter called OWNER, in the penal sum of _____

_____Dollars, ($_____)
in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the_____ day of_____ , 20_____ , a copy of which is hereto attached and made a part hereof for the construction of:_____
_____
_____
_____

NOW THEREFORE, if the Principal shall promptly make payments to all persons, firms, SUBCONTRACTORS, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and all insurance premiums on said WORK, and for all labor, performed in such WORK whether by SUBCONTRACTOR or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED FURTHER, that the said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed thereunder or the SPECIFICATIONS

accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in_____ counterparts, each (Number) one of which shall be deemed an original, this the _____ day of _____ , 20 _____.

ATTEST:

_____
Principal

_____ By _____ (s)
Principal Secretary

(SEAL)

_____ _____
(Witness as to Principal) (Address)

_____ _____
(Address)

_____

ATTEST:

_____
Surety

_____ By _____(s)
Surety Secretary

(SEAL)

_____ By _____
(Witness as to Surety) Attorney-in-Fact

_____ _____
(Address) (Address)

_____ _____

NOTE: Date of BOND must not be prior to date of Contract.
If CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and must be authorized to transact business in the state where the PROJECT is located.

GENERAL CONDITIONS

1. Definitions
2. Additional Instructions and Detail Drawings
3. Schedules, Reports and Records
4. Drawings and Specifications
5. Shop Drawings
6. Materials, Services and Facilities
7. Inspection and Testing
8. Substitutions
9. Patents
10. Surveys, Permits, Regulations
11. Protection of Work, Property, Persons
12. Supervision by Contractor
13. Changes in the Work
14. Changes in the Contract Price
15. Time for Completion and Liquidated Damages
16. Correction of Work
17. Subsurface Conditions
18. Suspension of Work, Termination and Delay
19. Payments to Contractor
20. Acceptance of Final Payment as Release
21. Insurance
22. Contract Security
23. Assignments
24. Indemnification
25. Separate Contracts
26. Subcontracting
27. Engineer's Authority
28. Land and Rights-of-Way
29. Guaranty
30. Arbitration
31. Taxes

1. DEFINITIONS

1.1 Wherever used in the CONTRACT DOCU- MENTS, the following terms shall have the meanings indicated which shall be applicable to both the singular and plural thereof:

1.2 ADDENDA -- Written or graphic instruments is-sued prior to the execution of the Agreement which modify or interpret the CONTRACT DOCUMENTS, DRAWINGS and SPECIFICATIONS, by additions, deletions, clarifications or corrections.

1.3 BID -- The offer or proposal of the BIDDER submitted on the prescribed form setting forth the prices for the WORK to be performed.

1.4 BIDDER -- Any person, firm or corporation submitting a BID for the WORK.

1.5 BONDS -- Bid, Performance, and Payment Bonds and other instruments of security, furnished by the CONTRACTOR and his surety in accordance with the CONTRACT DOCUMENTS.

1.6 CHANGE ORDER -- A written order to the CONTRACTOR authorizing an addition, deletion or revision in the WORK within the general scope of the CONTRACT DOCUMENTS, or authorizing an adjustment in the CONTRACT PRICE or CONTRACT TIME.

1.7 CONTRACT DOCUMENTS -- The contract, including Advertisement For Bids, Information for Bidders, BID, Bid Bond, Agreement, Payment Bond, Performance Bond, NOTICE OF AWARD, NOTICE TO PROCEED, CHANGE ORDER, DRAWINGS, SPECIFICATIONS, and ADDENDA.

1.8 CONTRACT PRICE -- The total monies payable to the CONTRACTOR under the terms and conditions of the CONTRACT DOCUMENTS.

1.9 CONTRACT TIME -- The number of calendar days stated in the CONTRACT DOCUMENTS for the completion of the WORK.

1.10 CONTRACTOR -- The person, firm or corporation with whom the OWNER has executed the Agreement.

1.11 DRAWINGS -- The part of the CONTRACT DOCUMENTS which show the characteristics and scope of the WORK to be performed and which have been prepared or approved by the ENGINEER.

1.12 ENGINEER -- The person, firm or corporation named as such in the CONTRACT DOCUMENTS.

1.13 FIELD ORDER -- A written order effecting a change in the WORK not involving an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, issued by the ENGINEER to the CONTRACTOR during construction.

1.14 NOTICE OF AWARD -- The written notice of the acceptance of the BID from the OWNER to the successful BIDDER.

1.15 NOTICE TO PROCEED -- Written communication issued by the OWNER to the CONTRACTOR authorizing him to proceed with the WORK and establishing the date of commencement of the WORK.

1.16 OWNER -- A public or quasi-public body or authority, corporation, association, partnership, or individual for whom the WORK is to be performed.

1.17 PROJECT -- The undertaking to be performed as provided in the CONTRACT DOCUMENTS.

1.18 RESIDENT PROJECT REPRESENTATIVE – The authorized representative of the OWNER who is assigned to the PROJECT site or any part thereof.

1.19 SHOP DRAWINGS -- All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the CONTRACTOR, a SUBCONTRACTOR, manufacturer, SUPPLIER or distributor, which illustrate how specific portions of the WORK shall be fabricated or installed.

1.20 SPECIFICATIONS -- A part of the CONTRACT DOCUMENTS consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards and workmanship.

1.21 SUBCONTRACTOR -- An individual, firm or corporation having a direct contract with the CONTRACTOR or with any other SUBCONTRACTOR for the performance of a part of the work at the site.

1.22 SUBSTANTIAL COMPLETION -- That date as certified by the ENGINEER when the construction of the PROJECT or a specified part thereof is sufficiently completed, in accordance with the CONTRACT DOCUMENTS, so that the

PROJECT or specified part can be utilized for the purposes for which it is intended.

1.23 SUPPLEMENTAL GENERAL CONDITIONS -- Modifications to General Conditions required by a Federal agency for participation in the PROJECT and approved by the agency in writing prior to inclusion in the CONTRACT DOCUMENTS, or such requirements that may be imposed by applicable state laws.

1.24 SUPPLIER -- Any person or organization who supplies materials or equipment for the WORK, including that fabricated to a special design, but who does not perform labor at the site.

1.25 WORK -- All labor necessary to produce the construction required by the CONTRACT DOCUMENTS, and all materials and equipment incorporated or to be incorporated in the PROJECT.

1.26 WRITTEN NOTICE--Any notice to any party of the Agreement relative to any part of this Agreement in writing and considered delivered and the service thereof completed, when posted by certified or registered mail to the said party at his last given address, or delivered in person to said party or his authorized representative on the WORK.

2. ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS

2.1 The CONTRACTOR may be furnished additional instructions and detail drawings, by the ENGINEER, as necessary to carry out the WORK required by the CONTRACT DOCUMENTS.

2.2 The additional drawings and instruction thus supplied will become a part of the CONTRACT DOCUMENTS. The CONTRACTOR shall carry out the WORK in accordance with the additional detail drawings and instructions.

3. SCHEDULES, REPORTS AND RECORDS

3.1 The CONTRACTOR shall submit to the OWNER such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data where applicable as are required by the CONTRACT DOCUMENTS for the WORK to be performed.

3.2 Prior to the first partial payment estimate the CONTRACTOR shall submit construction progress schedules showing the order in which he proposes to carry on the WORK, including dates at which he will start the various parts of the WORK, estimated date of completion of each part and, as applicable:

3.2.1 The dates at which special detail drawings will be required; and

3.2.2 Respective dates for submission of SHOP DRAWINGS, the beginning of manufacture, the testing and the installation of materials, supplies and equipment.

3.3 The CONTRACTOR shall also submit a schedule of payments that he anticipates he will earn during the course of the WORK.

4. DRAWINGS AND SPECIFICATIONS

4.1 The intent of the DRAWINGS and SPECIFICATIONS is that the CONTRACTOR shall furnish all labor, materials, tools, equipment, and transportation necessary for the proper execution of the WORK in accordance with the CONTRACT DOCUMENTS and all incidental work necessary to complete the PROJECT in an acceptable manner, ready for use, occupancy or operation by the OWNER.

4.2 In case of conflict between the DRAWINGS and SPECIFICATIONS, the SPECIFICATIONS shall govern. Figure dimensions on DRAWINGS shall govern over scale dimensions, and detailed DRAWINGS shall govern over general DRAWINGS.

4.3 Any discrepancies found between the DRAW-INGS and SPECIFICATIONS and site conditions or any inconsistencies or ambiguities in the DRAWINGS or SPECIFICATIONS shall be immediately reported to the ENGINEER, in writing, who shall promptly correct such inconsistencies or ambiguities in writing. WORK done by the CONTRACTOR after his discovery of such discrepancies, inconsistencies or ambiguities shall be done at the CONTRACTOR'S risk.

5. SHOP DRAWINGS

5.1 The CONTRACTOR shall provide SHOP DRAWINGS as may be necessary for the prosecution of the WORK as required by the CONTRACT DOCU-MENTS. The ENGINEER shall promptly review all SHOP DRAWINGS. The ENGINEER'S approval of any SHOP DRAWING shall not release the CONTRACTOR from responsibility for deviations from the CONTRACT DOCUMENTS. The approval of any SHOP DRAWING which substantially deviates from the requirement of the CONTRACT DOCUMENTS shall be evidenced by a CHANGE ORDER.

5.2 When submitted for the ENGINEER'S review, SHOP DRAWINGS shall bear the CONTRACTOR'S certification that he has reviewed, checked and approved the SHOP DRAWINGS and that they are in conformance with the requirements of the CONTRACT DOCUMENTS.

5.3 Portions of the WORK requiring a SHOP DRAWING or sample submission shall not begin until the SHOP DRAWING or submission has been approved by the ENGINEER. A copy of each approved SHOP DRAWING and each approved sample shall be kept in good order by the CONTRACTOR at the site and shall be available to the ENGINEER.

6. MATERIALS, SERVICES AND FACILITIES

6.1 It is understood that, except as otherwise specifically stated in the CONTRACT DOCUMENTS, the CONTRACTOR shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, supervision, temporary construction of any nature, and all other services and facilities of any nature whatsoever necessary to execute, complete, and deliver the WORK within the specified time.

6.2 Materials and equipment shall be so stored as to insure the preservation of their quality and fitness for the WORK.

Stored materials and equipment to be incorporated in the WORK shall be located so as to facilitate prompt inspection.

6.3 Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer.

6.4 Materials, supplies and equipment shall be in accordance with samples submitted by the CON-TRACTOR and approved by the ENGINEER.

6.5 Materials, supplies or equipment to be incorporated into the WORK shall not be purchased by the CONTRACTOR or the SUBCONTRACTOR subject to a chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller.

7. INSPECTION AND TESTING

7.1 All materials and equipment used in the const-ruction of the PROJECT shall be subject to adequate inspection and testing in accordance with generally accepted standards, as required and defined in the CONTRACT DOCUMENTS.

7.2 The OWNER shall provide all inspection and testing services not required by the CONTRACT DOCU-MENTS.

7.3 The CONTRACTOR shall provide at his expense the testing and inspection services required by the CONTRACT DOCUMENTS.

7.4 If the CONTRACT DOCUMENTS, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any WORK to specifically be inspected, tested, or approved by someone other than the CONTRACTOR, the CONTRACTOR will give the ENGINEER timely notice of readiness. The CONTRACTOR will then furnish the ENGINEER the required certificates of inspection, testing or approval.

7.5 Inspections, tests or approvals by the engineer or others shall not relieve the CONTRACTOR from his obligations to perform the WORK in accordance with the requirements of the CONTRACT DOCUMENTS.

7.6 The ENGINEER and his representatives will at all times have access to the WORK. In addition, authorized representatives and agents of any participating Federal or state agency shall be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records. The CONTRACTOR will provide proper facilities for such access and observation of the WORK and also for any inspection, or testing thereof.

7.7 If any WORK is covered contrary to the written instructions of the \ENGINEER it must, if requested by the ENGINEER, be uncovered for his observation and re-placed at the CONTRACTOR'S expense.

7.8 If the ENGINEER considers it necessary or advisable that covered WORK be inspected or tested by others, the CONTRACTOR, at the ENGINEER'S request, will uncover,

expose or otherwise make available for observation, inspection or testing as the ENGINEER may require, that portion of the WORK in question, furnishing all necessary labor, materials, tools. And equipment. If it is found that such WORK is defective, the CONTRACTOR will bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction. If, however, such WORK is not found to be defective, the CONTRACTOR will be allowed an increase in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction and an appropriate CHANGE ORDER shall be issued.

8. SUBSTITUTIONS

8.1 Whenever a material, article or piece of equipment is identified on the DRAWINGS or SPECI-FICATIONS by reference to brand name or catalogue number, it shall be understood that this is referenced for the purpose of defining the performance or other salient requirements and that other products of equal capacities, quality and function shall be considered. The CONTRACTOR may recommend the substitution of a material, article, or piece of equipment of equal substance and function for those referred to in the CONTRACT DOCUMENTS by reference to brand name or catalogue number, and if, in the opinion of the ENGINEER, such material, article, or piece of equipment is of equal substance and function to that specified, the ENGINEER may approve its substitution and use by the CONTRACTOR. Any cost differential shall be deductible from the CONTRACT PRICE and the CONTRACT DOCUMENTS shall be appropriately modified by CHANGE ORDER. The CONTRACTOR warrants that if substitutes are approved, no major changes in the function or general design of the PROJECT will result. Incidental changes or extra component parts required to accommodate the substitute will be made by the CONTRACTOR without a change in the CONTRACT PRICE or CONTRACT TIME.

9. PATENTS

9.1 The CONTRACTOR shall pay all applicable royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and save the OWNER harmless from loss on account thereof, except that the OWNER shall be responsible for any such loss when a particular process, design. or the product of a particular manufacturer or manufacturers is specified, however if the CONTRACTOR has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the ENGINEER.

10. SURVEYS, PERMITS, REGULATIONS

10.1 The OWNER shall furnish all boundary surveys and establish all base lines for locating the principal component parts of the WORK together with a suitable number of bench marks adjacent to the WORK as shown in the CONTRACT DOCUMENTS. From the information provided by the OWNER, unless otherwise specified in the CONTRACT DOCUMENTS, the CON-

TRACTOR shall develop and make all detail surveys needed for construction such as slope stakes, batter boards, stakes for pile locations and other working point s, lines, elevations and cut sheets.

10.2 The CONTRACTOR shall carefully preserve bench marks, reference points and stakes and, in case of willful or careless destruction, he shall be charged with the resulting expense and shall be responsible for any mistakes that may be caused by their unnecessary loss or disturbance.

10.3 Permits and licenses of a temporary nature necessary for the prosecution of the WORK shall be secured and paid for by the CONTRACTOR unless otherwise stated in the SUPPLEMENTAL GENERAL CONDITIONS. Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the OWNER, unless otherwise specified. The CONTRACTOR shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the WORK as drawn and specified. If the CONTRACTOR observes that the CONTRACT DOCUMENTS are at variance therewith, he shall promptly notify the ENGINEER in writing, and any necessary changes shall be adjusted as provided in Section 13, CHANGES IN THE WORK.

11. PROTECTION OF WORK, PROPERTY AND PERSONS

11.1 The CONTRACTOR will be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the WORK. He will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury or loss to all employees on the WORK and other persons who may be affected thereby, all the WORK and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

11.2 The CONTRACTOR will comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction. He will erect and maintain, as required by the conditions and progress of the WORK, all necessary safeguards for safety and protection. He will notify owners of adjacent utilities when prosecution of the
WORK may affect them. The CONTRACTOR will remedy all damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by the CONTRACTOR, any SUBCONTRACTOR or anyone directly or indirectly employed by any of them or anyone for whose acts any of them be liable, except damage or loss attributable to the fault of the CONTRACT DOCUMENTS or to the acts or omissions of the OWNER or the ENGINEER or anyone employed by either of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the CONTRACTOR.

11.3 In emergencies affecting the safety of persons or the WORK or property at the site or adjacent thereto, the CONTRACTOR, without special instruction or authorization from the ENGINEER or OWNER, shall act to prevent threatened damage, injury or loss. He will give the ENGINEER prompt WRITTEN NOTICE of any significant changes in the WORK or deviations from the CONTRACT DOCUMENTS caused thereby, and a CHANGE ORDER shall thereupon be issued covering the changes and deviations involved.

12. SUPERVISION BY CONTRACTOR

12.1 The CONTRACTOR will supervise and direct the WORK. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction. The CONTRACTOR will employ and maintain on the WORK a qualified supervisor or superintendent who shall have been designated in writing by the CONTRACTOR as the CONTRACTOR'S representative at the site. The supervisor shall have full authority to act on behalf of the CONTRACTOR and all communications given to the supervisor shall be as binding as if given to the CONTRACTOR. The supervisor shall be present on the site at all times as required to perform adequate supervision and coordination of the WORK.

13. CHANGES IN THE WORK

13.1 The OWNER may at any time, as the need arises, order changes within the scope of the WORK without invalidating the Agreement. If such changes increase or decrease the amount due under the CONTRACT DOCUMENTS, or in the time required for performance of the WORK, an equitable adjustment shall be authorized by CHANGE ORDER.

13.2 The ENGINEER, also, may at any time, by issuing a FIELD ORDER, make changes in the details of the WORK. The CONTRACTOR shall proceed with the performance of any changes in the WORK so ordered by the ENGINEER unless the CONTRACTOR believes that such FIELD ORDER entitles him to a change in CONTRACT PRICE or TIME, or both, in which event he shall give the ENGINEER WRITTEN NOTICE thereof within seven (7) days after the receipt of the ordered change. Thereafter the CONTRACTOR shall document the basis for the change in CONTRACT PRICE or TIME within thirty (30) days. The CONTRACTOR shall not execute such changes pending the receipt of an executed CHANGE ORDER or further instruction from the OWNER.

14. CHANGES IN CONTRACT PRICE

14.1 The CONTRACT PRICE may be changed only by a CHANGE ORDER. The value of any WORK covered by a CHANGE ORDER or of any claim for increase or decrease in the CONTRACT PRICE shall be determined by one or more of the following methods in the order of precedence listed below:
(a) Unit prices previously approved.
(b) An agreed lump sum.
(c) The actual cost for labor, direct overhead, materials, supplies, equipment, and other services necessary t o complete the work. In addition there shall be added an amount to be agreed upon but not to exceed fifteen (15)

percent of the actual cost of the WORK to cover the cost of general overhead and profit.

15. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

15.1 The date of beginning and the time for completion of the WORK are essential conditions of the CONTRACT DOCUMENTS and the WORK embraced shall be commenced on a date specified in the NOTICE TO PROCEED.

15.2 The CONTRACTOR will proceed with the WORK at such rate of progress to insure full completion within the CONTRACT TIME. It is expressly understood and agreed, by and between the CONTRACTOR and the OWNER, that the CONTRACT TIME for the completion of the WORK described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the WORK.

15.3 If the CONTRACTOR shall fail to complete the WORK within the CONTRACT TIME, or extension of time granted by the OWNER, then the CONTRACTOR will pay to the OWNER the amount for liquidated damages as specified in the BID for each calendar day that the CONTRACTOR shall be in default after the time stipulated in the CONTRACT DOCUMENTS.

15.4 The CONTRACTOR shall not be charged with liquidated damages or any excess cost when the delay in completion of the WORK is due to the following, and the CONTRACTOR has promptly given WRITTEN NOTICE of such delay to the OWNER or ENGINEER.

15.4.1 To any preference, priority or allocation order duly issued by the OWNER.

15.4.2 To unforeseeable causes beyond the control and without the fault or negligence of the CONTRACTOR, including but not restricted to, act s of God, or of the public enemy, acts of the OWNER, acts of another CONTRACTOR in the performance of a contract with the OWNER, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and abnormal and unforeseeable weather: and

15.4.3 To any delays of SUBCONTRACTORS occasioned by any of the causes specified in paragraphs 15.4.1 and 15.4.2 of this article. '

16. CORRECTION OF WORK

16.1 The CONTRACTOR shall promptly remove from the premises all WORK rejected by the ENGINEER for failure to comply with the CONTRACT DOCUMENTS, whether incorporated in the construction or not, and the CONTRACTOR shall promptly replace and reexecute the WORK in accordance with the CONTRACT DOCU-MENTS and without expense to the OWNER and shall bear the expense of making good all WORK of other CONTRACTORS destroyed or damaged by such removal or replacement.

16.2 All removal and replacement WORK shall be done at the CONTRACTOR'S expense. If the CON-TRACTOR. does not take action to remove such rejected WORK within ten

(10) days after receipt of WRITTEN NOTICE, the OWNER may remove such WORK and store the materials at the expense of the CONTRACTOR.

17. SUBSURFACE CONDITIONS

17.1 The CONTRACTOR shall promptly, and before such conditions are disturbed, except in the event of an emergency, notify the OWNER by WRITTEN NOTICE of:

17.1.1 Subsurface or latent physical conditions at the site differing materially from those indicated in the CONTRACT DOCUMENTS: or

17.1.2 Unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in WORK of the character provided for in the CONTRACT DOCUMENTS.

17.2 The OWNER shall promptly investigate the conditions, and if he finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or in the time required for, performance of the WORK, an equitable adjustment shall be made and the CONTRACT DOCUMENTS shall be modified by a CHANGE ORDER. Any claim of the CONTRACTOR for adjustment hereunder shall not be allowed unless he has given the required WRITTEN NOTICE; provided that the OWNER may, if he determines the facts so justify, consider and adjust any such claims asserted before the date of final payment.

18. SUSPENSI ON OF WORK, TERMINATION AND DELAY

18.1 The OWNER may suspend the WORK or any portion thereof for a period of not more than ninety days or such further time as agreed upon by the CONTRACTOR by WRITTEN NOTICE to the CONTRACTOR and the ENGINEER which notice shall fix the date on which WORK shall be resumed. The CONTRACTOR will resume that WORK on the date so fixed. The CONTRACTOR will be allowed an increase in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, directly attributable to any suspension.

18.2 If the CONTRACTOR is adjudged as bankrupt or insolvent, or if he makes a general assignment for the benefit of his creditors, or if a trustee or receiver is appointed for the CONTRACTOR or for any of his property, or if he files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or applicable laws, or if he repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or if he repeatedly fails to make prompt payments to SUBCONTRACTORS or for labor, materials or equipment or if he disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction of the WORK or if he disregards the authority of the ENGINEER, or if he otherwise violates any provision of the CONTRACT DOCUMENTS, then the OWNER may, without prejudice to any other right or remedy and after giving the CONTRACTOR and his surety a minimum of ten (10) days from delivery of a WRITTEN NOTICE, terminate the services of the CONTRACTOR and take

possession of the PROJECT and of all materials, equipment, tools, construction equipment and machinery, thereon owned by the CONTRACTOR, and finish the WORK by whatever method he may deem expedient. In such case the CONTRACTOR shall not be entitled to receive any further payment until the WORK is finished. If the unpaid balance of the CONTRACT PRICE exceeds the direct and indirect costs of completing the PROJECT, including compensation for additional professional services, such excess SHALL BE PAID TO THE CONTRACTOR. If such costs exceed such unpaid balance, the CONTRACTOR will pay the difference to the OWNER. Such costs incurred by the OWNER will be determined by the ENGINEER and incorporated in a CHANGE ORDER.

18.3 Where the CONTRACTOR'S services have been so terminated by the OWNER, said termination shall not affect any right of the OWNER against the CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of monies by the OWNER due the CONTRACTOR will not release the CONTRACTOR from compliance with the CONTRACT DOCUMENTS.

18.4 After ten (10) days from delivery of a WRITTEN NOTICE to the CONTRACTOR and the ENGINEER, the OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the PROJECT and terminate the Contract. In such case, the CONTRACTOR shall be paid for all WORK executed and any expense sustained plus reasonable profit.

18.5 If, through no act or fault of the CONTRACTOR, the WORK is suspended for a period of more than ninety (90) days by the OWNER or under an order of court or other public authority, or the ENGINEER fails to act on any request for payment within thirty (30) days after it is submitted or the OWNER fails to pay the CONTRACTOR substantially the sum approved by the ENGINEER or awarded by arbitrators within thirty (30) days of its approval and presentation, then the CONTRACTOR may, after ten (10) days from delivery of a WRITTEN NOTICE to the OWNER and the ENGINEER, terminate the CONTRACT and recover from the OWNER payment for all WORK executed and all expenses sustained. In addition and in lieu of terminating the CONTRACT, if the ENGINEER has failed to act on a request for payment or if the OWNER has failed to make any payment as aforesaid, the CONTRACTOR may upon ten (10) days written notice to the OWNER and the ENGINEER stop the WORK until he has been paid all amounts then due, in which event and upon resumption of the WORK, CHANGE ORDERS shall be issued for adjusting the CONTRACT PRICE or extending the CONTRACT TIME or both to compensate for the costs and delays attributable to the stoppage of the WORK.

18.6 If the performance of all or any portion of the WORK is suspended, delayed, or interrupted as a result of a failure of the OWNER or ENGINEER to act within the time specified in the CONTRACT DOCUMENTS, or if no time is specified, within a reasonable time, an adjustment in the CONTRACT PRICE or an extension of the

CONTRACT TIME, or both, shall be made by CHANGE ORDER to compensate the CONTRACTOR for the costs and delays necessarily caused by the failure of the OWNER or ENGINEER.

19. PAYMENTS TO CONTRACTOR

19.1 At least ten (10) days before each progress payment falls due (but not more often than once a month), the CONTRACTOR will submit to the ENGINEER a partial payment estimate filled out and signed by the CONTRACTOR covering the WORK performed during the period covered by the partial payment estimate and supported by such data as the ENGINEER may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the WORK but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the OWNER, as will establish the OWNER's title to the material and equipment and protect his interest therein, including applicable insurance. The ENGINEER will, within ten (10) days after receipt of each partial payment estimate, either indicate in writing his approval of payment and present the partial payment estimate to the OWNER, or return the partial payment estimate to the CONTRACTOR indicating in writing his reasons for refusing to approve payment. In the latter case, the CONTRACTOR may make the necessary corrections and resubmit the partial payment estimate. The OWNER will, within ten (10) days of presentation to him of an approved partial payment estimate, pay the CONTRACTOR a progress payment on the basis of the approved partial payment estimate. The OWNER shall retain ten (10) percent of the amount of each payment until final completion and acceptance of all work covered by the CONTRACT DOCUMENTS. The OWNER at any time, however, after fifty (50) percent of the WORK has been completed, if he finds that satisfactory progress is being made, shall reduce retainage to five (5%) percent on the current and remaining estimates. When the WORK is substantially complete (operational or beneficial occupancy), the retained amount may be further reduced below five (5) percent to only that amount necessary to assure completion. On completion and acceptance of a part of the WORK on which the price is stated separately in the CONTRACT DOCUMENTS, payment may be made in full, including retained percentages, less authorized deductions.

19.2 The request for payment may also include an allowance for the cost of such major materials and equipment which are suitably, stored either at or near the site.

19.3 Prior to SUBSTANTIAL COMPLETION, the OWNER, with the approval of the ENGINEER and with the concurrence of the CONTRACTOR, may use any completed or substantially completed portions of the WORK. Such use shall not constitute an acceptance of such portions of the WORK.

19.4 The OWNER shall have the right to enter the premises for the purpose of doing work not covered by the CONTRACT DOCUMENTS. This provision shall not be construed as relieving the CONTRACTOR of the sole

responsibility for the care and protection of the WORK, or the restoration of any damaged WORK except such as may be caused by agents or employees of the OWNER.

19.5 Upon completion and acceptance of the WORK, the ENGINEER shall issue a certificate attached to the final payment request that the WORK has been accepted by him under the conditions of the CONTRACT DOCUMENTS. The entire balance found to be due the CONTRACTOR, including the retained percentages, but except such sums as may be lawfully retained by the OWNER, shall be paid to the CONTRACTOR within thirty (30) days of completion and acceptance of the WORK.

19.6 The CONTRACTOR will indemnify and save the OWNER or the OWNER'S agent s harmless from all claims growing out of the lawful demands of SUBCONTRACTORS, laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of the WORK. The CONTRACTOR shall, at the OWNER'S request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. If the CONTRACTOR fails to do so the OWNER may, after having notified the CONTRACTOR, either pay unpaid bills or withhold from the CONTRACTOR'S unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the CONTRACTOR shall be resumed, in accordance, with the terms of the CONTRACT DOCUMENTS, but in no event shall the provisions of this sentence be construed to impose any obligations upon the OWNER to either the CONTRACTOR, his Surety, or any third party. In paying any unpaid bills of the CONTRACTOR, any payment so made by the OWNER shall be considered as a payment made under the CONTRACT DOCUMENTS by the OWNER to the CONTRACTOR and the OWNER shall not be liable to the CONTRACTOR for any such payments made in good faith.

19.7 If the OWNER fails to make payment thirty (30) days after approval by the ENGINEER, in addition to other remedies available to the CONTRACTOR, there shall be added to each such payment interest at the maximum legal rate commencing on the first day after said payment is due and continuing until the payment is received by the CONTRACTOR.

20. ACCEPTANCE OF FINAL PAYMENT AS RELEASE

20.1 The acceptance by the CONTRACTOR of final payment shall be and shall operate as a release to the OWNER of all claims and all liability to the CONTRACTOR other than claims in stated amounts as may be specifically excepted by the CONTRACTOR for all things done or furnished in connection with this WORK and for every act and neglect of the OWNER and others relating to or arising out of this WORK. Any payment, however, final or otherwise, shall not release the CONTRACTOR or his sureties from any obligations under the CONTRACT

DOCUMENTS or the Performance BOND and Payment BONDS.

21. INSURANCE

21.1 The CONTRACTOR shall purchase and maintain such insurance as will protect him from claims set forth below which may arise out of or result from the CONTRACTOR'S execution of the WORK, whether such execution be by himself or by any SUBCONTRACTOR or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

21.1.1 Claims under workmen's compensation disability benefit and other similar employee benefit acts;

21.1.2 Claims for damages because of bodily injury, occupational sickness or disease, or death of his employees;

21.1.3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than his employees;

21.1.4 Claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the CONTRACTOR, or (2) by any other person; and

21.1.5 Claims for damages because of injury to or destruction of tangible property, including loss of use resulting therefrom.

21.2 Certificates of Insurance acceptable to the OWNER shall be filed with the OWNER prior to commencement of the WORK. These Certificates shall contain a provision that coverages afforded under the policies will not be canceled unless at least fifteen (15) days prior WRITTEN NOTICE has been given to the OWNER.

21.3 The CONTRACTOR shall procure and maintain, at his own expense, during the CONTRACT TIME, liability insurance as hereinafter specified;

21.3.1 CONTRACTOR'S General Public Liability and Property Damage Insurance including vehicle coverage issued to the CONTRACTOR and protecting him from all claims for personal injury, including death, and all claims for destruction of or damage to property, arising out of or in connection with any operations under the CONTRACT DOCUMENTS, whether such operations be by himself or by any SUBCONTRACTOR under him, or anyone directly or indirectly employed by the CONTRACTOR or by a SUBCONTRACTOR under him. Insurance shall be written with a limit of liability of not less than, $500,000 for all damages arising out of bodily injury, including death, at any time resulting therefrom, sustained by any one person in any one accident; and a limit of liability of not less than $500,000 aggregate for any such damages sustained by two or more persons in any one accident. Insurance shall be written with a limit of liability of not less than $200,000 for all property damage sustained by any one person in any one accident; and a limit of liability of not less than $200,000 aggregate for any such damage sustained by two or more persons in any one accident.

21.3.2 The CONTRACTOR shall acquire and maintain, if applicable, Fire and Extended Coverage insurance upon the PROJECT to the full insurable value thereof for the benefit of the OWNER, the CONTRACTOR, and SUBCONTRACTORS as their interest may appear. This provision shall in no way release the CONTRACTOR or CONTRACTOR'S surety from obligations under the CONTRACT DOCUMENTS to fully complete the PROJECT.

21.4 The CONTRACTOR shall procure and maintain at his own expense, during the CONTRACT TIME, in accordance with the provisions of the laws of the state in which the work is performed, Workmen's Compensation Insurance, including occupational disease provisions, for all of his employees at the site of the PROJECT and in case any work is sublet, the CONTRACTOR shall require such SUBCONTRACTOR similarly to provide Workmen's Compensation Insurance, including occupational disease provisions for all of the latter's employees unless such employees are covered by the protection afforded by the CONTRACTOR. In case any class of employees engaged in hazardous work under this contract at the site of the PROJECT is not protected under Workmen's Compensation statute, the CONTRACTOR shall provide, and shall cause each SUBCONTRACTOR to provide, adequate and suitable insurance for the protection of his employees not otherwise protected.

21.5 The CONTRACTOR shall secure, if applicable, "All Risk" type Builder's Risk Insurance for WORK to be performed. Unless specifically authorized by the OWNER, the amount of such insurance shall not be less than the CONTRACT PRICE totaled in the BID. The policy shall cover not less than the losses due to fire, explosion, hail, lightning, vandalism, malicious mischief, wind, collapse, riot, aircraft, and smoke during the CONTRACT TIME, and until the WORK is accepted by the OWNER. The policy shall name as the insured the CONTRACTOR, the ENGINEER, and the OWNER.

22. CONTRACT SECURITY

22.1 The CONTRACTOR shall within ten (10) days after the receipt of the NOTICE OF AWARD furnish the OWNER with a Performance Bond and a Payment Bond in penal sums equal to the amount of the CONTRACT PRICE, conditioned upon the performance by the CONTRACTOR of all undertakings, covenants, terms, conditions and agreements of the CONTRACT DOCUMENTS and upon the prompt payment by the CONTRACTOR to all persons supplying labor and materials in the prosecution of the WORK provided by the CONTRACT DOCUMENTS. Such BONDS shall be executed by the CONTRACTOR and a corporate bonding company licensed to transact such business in the state in which the WORK is to be performed and named on the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Treasury Department Circular Number 570. The expense of these BONDS shall be borne by the CONTRACTOR. If at any time a surety on any such BOND is declared a bankrupt or loses its right to do business in the state in which the WORK is to be performed or is removed from the list of Surety Companies accepted on Federal BONDS, CONTRACTOR shall within

ten (10) days after notice from the OWNER to do so, substitute an acceptable BOND (or BONDS) in such form and sum and signed by such other surety or sureties as may be satisfactory to the OWNER. The premiums on such BOND shall be paid by the CONTRACTOR. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished an acceptable BOND to the OWNER.

23. ASSIGNMENTS

23.1 Neither the CONTRACTOR nor the OWNER shall sell, transfer, assign or otherwise dispose of the Contract or any portion thereof or of his right, title or interest therein, or his obligations thereunder, without written consent of the other party.

24. INDEMNIFICATION

24.1 The CONTRACTOR will indemnify and hold harmless the OWNER and the ENGINEER and their agents and employees from and against all claims, damages, losses and expenses including attorney's fees arising out of or resulting from the performance of the WORK, provided t hat any such claims, damage, loss or expense is attributable to bodily injury, sickness, disease or death or to injury to or destruction of tangible property including the loss of use resulting therefrom; and is caused in whole or in part by any negligent or willful act or omission of the CONTRACTOR, and SUBCONTRACTOR, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.

24.2 In any and all claims against the OWNER or the ENGINEER, or any of their agents or employees, by any employee of the CONTRACTOR, any SUBCONTRACTOR, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the CONTRACTOR or any SUBCONTRACTOR under workmen's compensation acts, disability benefit acts or other employee benefits acts.

24.3 The obligation of the CONTRACTOR under this paragraph shall not extend to the liability of the ENGINEER, his agents or employees arising out of the preparation or approval of maps, DRAWINGS, opinions, reports, surveys, CHANGE ORDERS, designs or SPECIFICATIONS.

25. SEPARATE CONTRACTS

25.1 The OWNER reserves the right to let other contracts in connection with this PROJECT. The CONTRACTOR shall afford other CONTRACTORS reasonable opportunity for the introduction and storage of their materials and the execution of their WORK, and shall properly connect and coordinate his WORK with theirs. If the proper execution or results of any part of the CONTRACTOR'S WORK depends upon the WORK of any other CONTRACTOR, the CONTRACTOR shall inspect and promptly report to the ENGINEER any defects in such WORK that renders it unsuitable for such proper execution and results.

25.2 The OWNER may perform additional WORK related to the PROJECT by himself, or he may let other contracts containing provisions similar to these. The CONTRACTOR will afford the other CONTRACTORS who are parties to such Contracts (or the OWNER, if he is performing the additional WORK himself), reasonable opportunity for the introduction and storage of materials and equipment and the execution of WORK, and shall properly connect and coordinate his WORK with theirs.

25.3 If the performance of additional WORK by other CONTRACTORS or the OWNER is not noted in the CONTRACT DOCUMENTS prior to the execution of the CONTRACT, written notice thereof shall be given to the CONTRACTOR prior to starting any such additional WORK. If the CONTRACTOR believes that the performance of such additional WORK by the OWNER or others involves him in additional expense or entitles him to an extension of the CONTRACT TIME, he may make a claim therefor as provided in Sections 14 and 15.

26. SUBCONTRACTING

26.1 The CONTRACTOR may utilize the services of specialty SUBCONTRACTORS on those parts of the WORK which, under normal contracting practices, are performed by specialty SUBCONTRACTORS.

26.2 The CONTRACTOR shall not award WORK to SUBCONTRACTOR(s), in excess of fifty (50%) percent of the CONTRACT PRICE, without prior written approval of the OWNER.

26.3 The CONTRACTOR shall be fully responsible to the OWNER for the acts and omissions of his SUBCONTRACTORS, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

26.4 The CONTRACTOR shall cause appropriate provisions to be inserted in all subcontracts relative to the WORK to bind SUBCONTRACTORS to the CONTRACTOR by the terms of the CONTRACT DOCUMENTS insofar as applicable to the WORK of SUBCONTRACTORS and to give the CONTRACTOR the same power as regards terminating any subcontract that the OWNER may exercise over the CONTRACTOR under any provision of the CONTRACT DOCUMENTS.

26.5 Nothing contained in this CONTRACT shall create any contractual relation between any SUBCONTRACTOR and the OWNER.

27. ENGINEER'S AUTHORITY

27.1 The ENGINEER shall act as the OWNER'S representative during the construction period. He shall decide questions which may arise as to quality and acceptability of materials furnished and WORK performed. He shall interpret the intent of the CONTRACT DOCUMENTS in a fair and unbiased manner. The ENGINEER will make visits to the site and determine if the WORK is proceeding in accordance with the CONTRACT DOCUMENTS.

27.2 The CONTRACTOR will be held strictly to the intent of the CONTRACT DOCUMENTS in regard to the quality of materials, workmanship and

execution of the WORK. Inspections may be made at the factory or fabrication plant of the source of material supply.
27.3 The ENGINEER will not be responsible for the construction means, controls, techniques, sequences, procedures, or construction safety.

27.4 The ENGINEER shall promptly make decisions relative to interpretation of the CONTRACT DOCUMENTS.

28. LAND AND RIGHTS-OF-WAY

28.1 Prior to issuance of NOTICE TO PROCEED, the OWNER shall obtain all land and rights-of-way necessary for carrying out and for the completion of the WORK to be performed pursuant to the CONTRACT DOCUMENTS unless otherwise mutually agreed.

28.2 The OWNER shall provide to the CONTRACTOR information which delineates and describes the lands owned and rights-of-way acquired.

28.3 The CONTRACTOR shall provide at his own expense and without liability to the OWNER any additional land and access thereto that the CONTRACTOR may desire for temporary construction facilities, or for storage of materials.

29. GUARANTY

29.1 The CONTRACTOR shall guarantee all materials and equipment furnished and WORK performed for a period of one (1) year from the date of SUBSTANTIAL COMPLETI ON. The CONTRACTOR warrants and guarantees for a period of one (1) year from the date of SUBSTANTIAL COMPLETION of the system that the completed system is free from all defects due to faulty materials or workmanship and the CONTRACTOR shall promptly make such corrections as may be necessary by reason of such defects including the repairs of any damage to other parts of the system resulting from such defects. The OWNER will give notice of observed defects with reasonable promptness. In the event that the CONTRACTOR should fail to make such repairs, adjustments, or other WORK that may be made necessary by such defects, the OWNER may do so and charge the CONTRACTOR the cost thereby incurred. The Performance BOND shall remain in full force and effect through the guarantee period.

30. ARBITRATION

30.1 All claims, disputes and other matters in question arising out of, or relating to, the CONTRACT DOCUMENTS or the breach thereof, except for claims which have been waived by the making and acceptance of final payment as provided by Section 20, shall be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association. This agreement to arbitrate shall be specifically enforceable under the prevailing arbitration law. The award rendered by the arbitrators shall be final, and judgment may be entered upon it in any court having jurisdiction thereof.

30.2 Notice of the demand for arbitration shall be filed in writing with the other party to the CONTRACT DOCUMENTS and with the American Arbitration Association, and a copy shall be filed with the ENGINEER. Demand for arbitration shall in no event be made

and any claim, dispute or other matter in question which would be barred by the applicable statute of limitations.

30.3 The CONTRACTOR will carry on the WORK and maintain the progress schedule during any arbitration proceedings, unless otherwise mutually agreed in writing.

31. TAXES

31.1 The CONTRACTOR will pay all sales, consumer, use and other similar taxes required by the law of the place where the WORK is performed.

SUPPLEMENTAL GENERAL CONDITIONS

FOR

CLEAN WATER STATE REVOLVING FUND

DRINKING WATER STATE REVOLVING FUND

(Drinking Water and Wastewater)

Project Name: Contract #1 – 500,000 Gallon Elevated Water Storage Tank, Phase 12

Project Number: 1133

The attached instructions and regulations as listed below shall be incorporated into the Specifications and comprise Special Conditions.

	Attachment No.
SRF Special Provisions	**1**
40 CFR 31.36 (Procurement)-grants only	**2**
KRS Chapter 45A-Kentucky Model Procurement Code-loans only	**3**
Equal Employment Opportunity (EEO) Documents:	
Notice of Requirement for Affirmative Action	**4**
Contract Specifications (Executive Order 11246)	**5**
EEO Goals for Region 4 Economic Areas	**6**
Special Notice #1 - Check List of EEO Documentation	**7**
Employer Information Report EEO-1 (SF 100)	**8**
Labor Standards Provisions for Federally Assisted Construction, EPA Form 5720-4	**9**
Certifications	
Debarment, Suspension and Other Responsibility Matters	**10**
Anti-lobbying	**11**
Region 4 Disadvantaged Business Enterprise (DBE)	**12**
Negotiated Rates as of October 1, 2006	**13**
Bonds and Insurance	**14**
Outlay Management Schedule	**15**
Storm Water General Permit	**16**
Davis Bacon Requirements	**17**
Wage Rate Requirements Under FY 2010 Appropriations	**18**

SRF SPECIAL PROVISIONS

(a) **Line crossings of all roads and streets shall be done in accordance with the Kentucky Transportation Cabinet requirements as may be set forth in the Special Conditions.**

(b) **Construction is to be carried out so as to prevent by-passing of flows during construction unless a schedule has been approved by the State or EPA, whichever is applicable. Siltation and soil erosion must be minimized during construction. All construction projects with surface disturbance of more than 1 acre during the period of construction must have a KPDES Storm Water General Permit. The permit can be found at the following web address: https://dep.gateway.ky.gov/eForms/default.aspx?FormID=7.**

If you have any questions regarding the completion of this form call the Surface Water Permits Branch at (502) 564-3410.

(c) **Restore disturbed areas to original or better condition.**

(d) **Use of Chemicals: All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or of other classification, must show approval of either DOW or EPA. Use of all such chemicals and disposal of residues shall be in conformance with instructions on the manufacturer's label.**

(e) **The construction of the project, including the letting of contracts in connection therewith, shall conform to the applicable requirements of state, territorial, and local laws and ordinances to the extent that such requirements do not conflict with Federal laws and this subchapter.**

(f) **The owner shall provide and maintain competent and adequate supervision and inspection.**

(g) **The Kentucky Infrastructure Authority and Kentucky Division of Water shall have access to the site and the project work at all times.**

(h) **In the event Archaeological materials (arrowheads, stone tools, stone axes, prehistoric and historic pottery, bottles, foundations, Civil War artifacts, and other types of artifacts) are uncovered during the construction of this project, work is to immediately cease at the location and the Kentucky Heritage Council shall be contacted. The telephone number is (502) 564-7005. Construction shall commence at this location until a written release is received from the Kentucky Heritage Council. Failure to report a find could result in legal action.**

(i) **This procurement will be subject to DOW Procurement Guidance including the Davis-Bacon Act.**

(j) **Reasonable care shall be taken during construction to avoid damage to vegetation. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage. Trees which receive damage to branches shall be trimmed of those branches to improve the appearance of the tree. Tree trunks receiving damage from equipment shall be treated with a tree dressing.**

(k) No wastewater bypassing will occur during construction unless a schedule has been approved by the Kentucky Division of Water.

(l) Change orders to the construction contract (if required) must be negotiated pursuant to DOW/KIA Procurement Guidance for Construction and Equipment Contracts.

TITLE 40--PROTECTION OF ENVIRONMENT
CHAPTER I--ENVIRONMENTAL PROTECTION AGENCY

PART 31--UNIFORM ADMINISTRATIVE REQUIREMENTS FOR GRANTS AND COOPERATIVE AGREEMENTS TO STATE AND LOCAL GOVERNMENTS

Subpart C--Post-Award Requirements

Sec. 31.36 Procurement.

(a) States. When procuring property and services under a grant, a State will follow the same policies and procedures it uses for procurements from its non-Federal funds. The State will ensure that every purchase order or other contract includes any clauses required by Federal statutes and executive orders and their implementing regulations. Other grantees and sub-grantees will follow paragraphs (b) through (i) in this section.
(b) Procurement standards. (1) Grantees and sub-grantees will use their own procurement procedures which reflect applicable State and local laws and regulations, provided that the procurements conform to applicable federal law, the standards identified in this section, and if applicable, Sec. 31.38.
(2) Grantees and sub-grantees will maintain a contract administration system which ensures that contractors perform in accordance with the terms, conditions, and specifications of their contracts or purchase orders.
(3) Grantees and sub-grantees will maintain a written code of standards of conduct governing the performance of their employees engaged in the award and administration of contracts. No employee, officer or agent of the grantee or sub-grantee shall participate in selection, or in the award or administration of a contract supported by Federal funds if a conflict of interest, real or apparent, would be involved. Such a conflict would arise when:
(i) The employee, officer or agent,
(ii) Any member o f his immediate family,
(iii) His or her partner, or
(iv) An organization which employs, or is about to employ, any of the above, has a financial or other interest in the firm selected for award. The grantee's or sub-grantee's officers, employees or agents will neither solicit nor accept gratuities, favors or anything of monetary value from contractors, potential contractors, or parties to sub-agreements. Grantee and sub-grantees may set minimum rules where the financial interest is not substantial or the gift is an unsolicited item of nominal intrinsic value. To the extent permitted by State or local law or regulations, such standards or conduct will provide for penalties, sanctions, or other disciplinary actions for violations of such standards by the grantee's and sub-grantee's officers, employees, or agents, or by contractors or their agents. The awarding agency may in regulation provide additional prohibitions relative to real, apparent, or potential conflicts of interest.
(4) Grantee and sub-grantee procedures will provide for a review of proposed procurements to avoid purchase of unnecessary or duplicative items. Consideration should be given to consolidating or breaking out procurements to obtain a more economical purchase. Where appropriate, an analysis will be made of lease versus purchase alternatives, and any other appropriate analysis to determine the most economical approach.
(5) To foster greater economy and efficiency, grantees and sub-grantees are encouraged to enter into State and local intergovernmental agreements for procurement or use of common goods and services.
(6) Grantees and sub-grantees are encouraged to use Federal excess and surplus property in lieu of purchasing new equipment and property whenever such use is feasible and reduces project costs.
(7) Grantees and sub-grantees are encouraged to use value engineering clauses in contracts for construction projects of sufficient size to offer reasonable opportunities for cost reductions.
Value engineering is a systematic and creative analysis of each contract item or task to ensure that its essential function is provided at the overall lower cost.

(8) Grantees and sub-grantees will make awards only to responsible contractors possessing the ability to perform successfully under the terms and conditions of a proposed procurement.
Consideration will be given to such matters as contractor integrity, compliance with public policy, record of past performance, and financial and technical resources.
(9) Grantees and sub-grantees will maintain records sufficient to detail the significant history of a procurement. These records will include, but are not necessarily limited to the following:
rationale for the method of procurement, selection of contract type, contractor selection or rejection, and the basis for the contract price.
(10) Grantees and sub-grantees will use time and material type contracts only--
(i) After a determination that no other contract is suitable, and
(ii) If the contract includes a ceiling price that the contractor exceeds at its own risk.
(11) Grantees and sub-grantees alone will be responsible, in accordance with good administrative practice and sound business judgment, for the settlement of all contractual and administrative issues arising out of procurements. These issues include, but are not limited to source evaluation, protests, disputes, and claims. These standards do not relieve the grantee or sub-grantee of any contractual responsibilities under its contracts. Federal agencies will not substitute their judgment for that of the grantee or sub-grantee unless the matter is primarily a
Federal concern. Violations of law will be referred to the local, State, or Federal authority having proper jurisdiction.
(12) Grantees and sub-grantees will have protest procedures to handle and resolve disputes relating to their procurements and shall in all instances disclose information regarding the protest to the awarding agency. A protestor must exhaust all administrative remedies with the grantee and sub-grantee before pursuing a protest with the Federal agency. Reviews of protests by the Federal agency will be limited to:
(i) Violations of Federal law or regulations and the standards of this section (violations of
State or local law will be under the jurisdiction of State or local authorities) and
(ii) Violations of the grantee's or sub-grantee's protest procedures for failure to review a complaint or protest. Protests received by the Federal agency other than those specified above will be referred to the grantee or sub-grantee.
(c) Competition. (1) All procurement transactions will be conducted in a manner providing full and open competition consistent with the standards of Sec. 31.36. Some of the situations considered to be restrictive of competition include but are not limited to:
(i) Placing unreasonable requirements on firms in order for them to qualify to do business,
(ii) Requiring unnecessary experience and excessive bonding,
(iii) Noncompetitive pricing practices between firms or between affiliated companies,
(iv) Noncompetitive awards to consultants that are on retainer contracts,
(v) Organizational conflicts of interest,
(vi) Specifying only a ``brand name'' product instead of allowing ``an equal'' product to be offered and describing the performance of other relevant requirements of the procurement, and
(vii) Any arbitrary action in the procurement process.
(2) Grantees and sub-grantees will conduct procurements in a manner that prohibits the use of statutorily or administratively imposed in-State or local geographical preferences in the evaluation of bids or proposals, except in those cases where applicable Federal statutes expressly mandate or encourage geographic preference. Nothing in this section preempts State licensing laws. When contracting for architectural and engineering (A/E) services, geographic location may be a selection criteria provided its application leaves an appropriate number of qualified firms, given the nature and size of the project, to compete for the contract.
(3) Grantees will have written selection procedures for procurement transactions. These procedures will ensure that all solicitations:
(i) Incorporate a clear and accurate description of the technical requirements for the material, product, or service to be procured. Such description shall not, in competitive procurements, contain features, which unduly restrict competition. The description may include a statement of the qualitative nature of the material, product or service to be procured, and when necessary, shall set forth those minimum essential characteristics and standards to which it must conform if it is to satisfy its intended use. Detailed product specifications should be avoided if at all possible. When it is impractical or uneconomical to make a clear and accurate description of the technical requirements, a ``brand name or equal'' description may be used

as a means to define the performance or other salient requirements of a procurement. The specific features of the named brand which must be met by offerers shall be clearly stated; and
(ii) Identify all requirements which the offerers must fulfill and all other factors to be used in evaluating bids or proposals.
(4) Grantees and sub-grantees will ensure that all pre-qualified lists of persons, firms, or products which are used in acquiring goods and services are current and include enough qualified sources to ensure maximum open and free competition. Also, grantees and sub-grantees will not preclude potential bidders from qualifying during the solicitation period.
(5) Construction grants awarded under Title II of the Clean Water Act are subject to the following ``Buy American'' requirements in paragraphs (c)(5) (i)-(iii) of this section. Section 215 of the Clean Water Act requires that contractors give preference to the use of domestic material in the construction of EPA-funded treatment works.

(i) Contractors must use domestic construction materials in preference to nondomestic material if it is priced no more than 6 percent higher than the bid or offered price of the nondomestic material, including all costs of delivery to the construction site and any applicable duty, whether or not assessed. The grantee will normally base the computations on prices and costs in effect on the date of opening bids or proposals.

(ii) The award official may waive the Buy American provision based on factors the award official considers relevant, including:

(A) Such use is not in the public interest;

(B) The cost is unreasonable;

(C) The Agency's available resources are not sufficient to implement the provision, subject to the Deputy Administrator's concurrence;

(D) The articles, materials or supplies of the class or kind to be used or the articles, materials or supplies from which they are manufactured are not mined, produced or manufactured in the United States in sufficient and reasonably available commercial quantities or satisfactory quality for the particular project; or

(E) Application of this provision is contrary to multilateral government procurement agreements, subject to the Deputy Administrator's concurrence.

(iii) All bidding documents, subagreements, and, if appropriate, requests for proposals must contain the following ``Buy American'' provision: In accordance with section 215 of the Clean Water Act (33 U.S.C. 1251 et seq.) and implementing EPA regulations, the contractor agrees that preference will be given to domestic construction materials by the contractor, subcontractors, materialmen and suppliers in the performance of this subagreement.
(d) Methods of procurement to be followed--(1) Procurement by small purchase procedures. Small purchase procedures are those relatively simple and informal procurement methods for securing services, supplies, or other properties that do not cost more than the simplified acquisition threshold fixed at 41 U.S.C. 403(11) (currently set at $100,000). If small purchase procedures are used, price or rate quotations shall be obtained from an adequate number of qualified sources.
(2) Procurement by sealed bids (formal advertising). Bids are publicly solicited and a firm-fixed-price contract (lump sum or unit price) is awarded to the responsible bidder whose bid, conforming with all the material terms and conditions of the invitation for bids, is the lowest in price. The sealed bid method is the preferred method for procuring construction, if the conditions in 31.36(d)(2)(i) apply.
(i) In order for sealed bidding to be feasible, the following conditions should be present:
(A) A complete, adequate, and realistic specification or purchase description is available;
(B) Two or more responsible bidders are willing and able to compete effectively and for the business; and
(C) The procurement lends itself to a firm fixed price contract and the selection of the successful bidder can be made principally on the basis of price.
(ii) If sealed bids are used, the following requirements apply:
(A) The invitation for bids will be publicly advertised and bids shall be solicited from an adequate number of known suppliers, providing them sufficient time prior to the date set for opening the bids;
(B) The invitation for bids, which will include any specifications and pertinent attachments, shall define the items or services in order for the bidder to properly respond;

(C) All bids will be publicly opened at the time and place prescribed in the invitation for bids;
(D) A firm fixed-price contract award will be made in writing to the lowest responsive and responsible bidder. Where specified in bidding documents, factors such as discounts, transportation cost, and life cycle costs shall be considered in determining which bid is lowest. Payment discounts will only be used to determine the low bid when prior experience indicates that such discounts are usually taken advantage of; and
(E) Any or all bids may be rejected if there is a sound documented reason.
(3) Procurement by competitive proposals. The technique of competitive proposals is normally conducted with more than one source submitting an offer, and either a fixed-price or cost-reimbursement type contract is awarded. It is generally used when conditions are not appropriate for the use of sealed bids. If this method is used, the following requirements apply:
(i) Requests for proposals will be publicized and identify all evaluation factors and their relative importance. Any response to publicized requests for proposals shall be honored to the maximum extent practical;
(ii) Proposals will be solicited from an adequate number of qualified sources;
(iii) Grantees and sub-grantees will have a method for conducting technical evaluations of the proposals received and for selecting awardees;
(iv) Awards will be made to the responsible firm whose proposal is most advantageous to the program, with price and other factors considered; and
(v) Grantees and sub-grantees may use competitive proposal procedures for qualifications-based procurement of architectural/engineering (A/E) professional services whereby competitors' qualifications are evaluated and the most qualified competitor is selected, subject to negotiation of fair and reasonable compensation. The method, where price is not used as a selection factor, can only be used in procurement of A/E professional services. It cannot be used to purchase other types of services though A/E firms are a potential source to perform the proposed effort.
(4) Procurement by noncompetitive proposals is procurement through solicitation of a proposal from only one source, or after solicitation of a number of sources, competition is determined inadequate.
(i) Procurement by noncompetitive proposals may be used only when the award of a contract is infeasible under small purchase procedures, sealed bids or competitive proposals and one of the following circumstances applies:
(A) The item is available only from a single source;
(B) The public exigency or emergency for the requirement will not permit a delay resulting from competitive solicitation;
(C) The awarding agency authorizes noncompetitive proposals; or
(D) After solicitation of a number of sources, competition is determined inadequate.
(ii) Cost analysis, i.e., verifying the proposed cost data, the projections of the data, and the evaluation of the specific elements of costs and profits, is required.
(iii) Grantees and sub-grantees may be required to submit the proposed procurement to the awarding agency for pre-award review in accordance with paragraph (g) of this section.
(e) Contracting with small and minority firms, women's business enterprise and labor surplus area firms.
(1) The grantee and sub-grantee will take all necessary affirmative steps to assure that minority firms, women's business enterprises, and labor surplus area firms are used when possible.
(2) Affirmative steps shall include:
(i) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
(ii) Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
(iii) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority business, and women's business enterprises;
(iv) Establishing delivery schedule s, where the requirement permits, which encourage participation by small and minority business, and women's business enterprises;
(v) Using the services and assistance of the Small Business Administration, and the Minority Business Development Agency of the Department of Commerce; and
(vi) Requiring the prime contractor, if subcontracts are to be let, to take the affirmative steps listed in paragraphs (e)(2) (i) through (v) of this section.
(f) Contract cost and price.

(1) Grantees and sub-grantees must perform a cost or price analysis in connection with every procurement action including contract modifications. The method and degree of analysis is dependent on the facts surrounding the particular procurement situation, but as a starting point, grantees must make independent estimates before receiving bids or proposals. A cost analysis must be performed when the offerer is required to submit the elements of his estimated cost, e.g., under professional, consulting, and architectural engineering services contracts. A cost analysis will be necessary when adequate price competition is lacking, and for sole source procurements, including contract modifications or change orders, unless price reasonableness can be established on the basis of a catalog or market price of a commercial product sold in substantial quantities to the general public or based on prices set by law or regulation. A price analysis will be used in all other instances to determine the reasonableness of the proposed contract price.
(2) Grantees and sub-grantees will negotiate profit as a separate element of the price for each contract in which there is no price competition and in all cases where cost analysis is performed.
To establish a fair and reasonable profit, consideration will be given to the complexity of the work to be performed, the risk borne by the contractor, the contractor's investment, the amount of subcontracting, the quality of its record of past performance, and industry profit rates in the surrounding geographical area for similar work.
(3) Costs or prices based on estimated costs for contracts under grants will be allowable only to the extent that costs incurred or cost estimates included in negotiated prices are consistent with Federal cost principles (see Sec. 31.22). Grantees may reference their own cost principles that comply with the applicable Federal cost principles.
(4) The cost plus a percentage of cost and percentage of construction cost methods of contracting shall not be used.
(g) Awarding agency review.
(1) Grantees and sub-grantees must make available, upon request of the awarding agency, technical specifications on proposed procurements where the awarding agency believes such review is needed to ensure that the item and/or service specified is the one being proposed for purchase. This review generally will take place prior to the time the specification is incorporated into a solicitation document. However, if the grantee or sub-grantee desires to have the review accomplished after a solicitation has been developed, the awarding agency may still review the specifications, with such review usually limited to the technical aspects of the proposed purchase.
(2) Grantees and sub-grantees must on request make available for awarding agency pre-award review procurement documents, such as requests for proposals or invitations for bids, independent cost estimates, etc. when:
(i) A grantee's or sub-grantee's procurement procedures or operation fails to comply with the procurement standards in this section; or
(ii) The procurement is expected to exceed the simplified acquisition threshold and is to be awarded without competition or only one bid or offer is received in response to a solicitation; or
(iii) The procurement, which is expected to exceed the simplified acquisition threshold, specifies a ``brand name'' product; or
(iv) The proposed award is more than the simplified acquisition threshold and is to be awarded to other than the apparent low bidder under a sealed bid procurement; or
(v) A proposed contract modification changes the scope of a contract or increases the contract amount by more than the simplified acquisition threshold.
(3) A grantee or sub-grantee will be exempt from the pre-award review in paragraph (g)(2) of this section if the awarding agency determines that its procurement systems comply with the standards of this section.
(i) A grantee or sub-grantee may request that its procurement system be reviewed by the awarding agency to determine whether its system meets these standards in order for its system to be certified. Generally, these reviews shall occur where there is a continuous high-dollar funding, and third-party contracts are awarded on a regular basis.
(ii) A grantee or sub-grantee may self-certify its procurement system. Such self-certification shall not limit the awarding agency's right to survey the system. Under a self-certification procedure, awarding agencies may wish to rely on written assurances from the grantee or sub-grantee that it is complying with these standards. A grantee or sub-grantee will cite specific procedures, regulations, standards, etc., as being in compliance with these requirements and have its system available for review.

(h) Bonding requirements. For construction or facility improvement contracts or subcontracts exceeding the simplified acquisition threshold, the awarding agency may accept the bonding policy and requirements of the grantee or sub-grantee provided the awarding agency has made a determination that the awarding agency's interest is adequately protected. If such a determination has not been made, the minimum requirements shall be as follows:
(1) A minimum bid guarantee from each bidder equivalent to five percent of the bid price. The ``bid guarantee" shall consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of his bid, execute such contractual documents as may be required within the time specified.
(2) A performance bond on the part of the contractor for 100 percent of the contract price. A "performance bond" is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract.
(3) A payment bond on the part of the contractor for 100 percent of the contract price. A "payment bond" is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of the work provided for in the contract.
(i) Contract provisions. A grantee's and sub-grantee's contracts must contain provisions in paragraph (i) of this section. Federal agencies are permitted to require changes, remedies, changed conditions, access and records retention, suspension of work, and other clauses approved by the Office of Federal Procurement Policy.
(1) Administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as may be appropriate.
(Contracts more than the simplified acquisition threshold)
(2) Termination for cause and for convenience by the grantee or sub-grantee including the manner by which it will be effected and the basis for settlement. (All contracts in excess of $10,000)
(3) Compliance with Executive Order 11246 of September 24, 1965, entitled ``Equal Employment Opportunity," as amended by Executive Order 11375 of October 13, 1967, and as supplemented in Department of Labor regulations (41 CFR chapter 60). (All construction contracts awarded in excess of $10,000 by grantees and their contractors or sub-grantees)
(4) Compliance with the Copeland ``Anti-Kickback" Act (18 U.S.C. 874) as supplemented in Department of Labor regulations (29 CFR part 3). (All contracts and sub-grants for construction or repair)
(5) Compliance with the Davis-Bacon Act (40 U.S.C. 276a to 276a-7) as supplemented by Department of Labor regulations (29 CFR part 5). (Construction contracts in excess of $2000 awarded by grantees and sub-grantees when required by Federal grant program legislation)
(6) Compliance with Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330) as supplemented by Department of Labor regulations (29 CFR part 5).
(Construction contracts awarded by grantees and sub-grantees in excess of $2000, and in excess of $2500 for other contracts which involve the employment of mechanics or laborers)
(7) Notice of awarding agency requirements and regulations pertaining to reporting.
(8) Notice of awarding agency requirements and regulations pertaining to patent rights with respect to any discovery or invention which arises or is developed in the course of or under such contract.
(9) Awarding agency requirements and regulations pertaining to copyrights and rights in data.
(10) Access by the grantee, the sub-grantee, the Federal grantor agency, the Comptroller General of the United States, or any of their duly authorized representatives to any books, documents, papers, and records of the contractor which are directly pertinent to that specific contract for the purpose of making audit, examination, excerpts, and transcriptions.
(11) Retention of all required records for three years after grantees or sub-grantees make final payments and all other pending matters are closed.
(12) Compliance with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1857(h)), section 508 of the Clean Water Act (33 U.S.C.
1368), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR part 15).
(Contracts, subcontracts, and sub-grants of amounts in excess of $100,000)
(13) Mandatory standards and policies relating to energy efficiency which are contained in the State energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub. L. 94-163, 89 Stat. 871).
(j) Payment to consultants.

(1) EPA will limit its participation in the salary rate (excluding overhead) paid to individual consultants retained by grantees or by a grantee's contractors or subcontractors to the maximum daily rate for a GS-18. (Grantees may, however, pay consultants more than this amount). This limitation applies to consultation services of designated individuals with specialized skills who are paid at a daily or hourly rate. This rate does not include transportation and subsistence costs for travel performed; grantees will pay these in accordance with their normal travel reimbursement practices. (Pub. L. 99-591).
(2) Sub-agreements with firms for services which are awarded using the procurement requirements in this part are not affected by this limitation.
(k) Use of the same architect or engineer during construction.
(1) If the grantee is satisfied with the qualifications and performance of the architect or engineer who provided any or all of the facilities planning or design services for a waste-water treatment works project and wishes to retain that firm or individual during construction of the project, it may do so without further public notice and evaluation of qualifications, provided:
(i) The grantee received a facilities planning (Step 1) or design grant (Step 2), and selected the architect or engineer in accordance with EPA's procurement regulations in effect when EPA awarded the grant; or
(ii) The award official approves noncompetitive procurement under Sec. 31.36(d)(4) for reasons other than simply using the same individual or firm that provided facilities planning or design services for the project; or
(iii) The grantee attests that:
(A) The initial request for proposals clearly stated the possibility that the firm or individual selected could be awarded a sub-agreement for services during construction; and
(B) The firm or individual was selected for facilities planning or design services in accordance with procedures specified in this section.
(C) No employee, officer or agent of the grantee, any member of their immediate families, or their partners have financial or other interest in the firm selected for award; and
(D) None of the grantee's officers, employees or agents solicited or accepted gratuities, favors or anything of monetary value from contractors or other parties to sub-agreements.
(2) However, if the grantee uses the procedures in paragraph (k)(1) of this section to retain an architect or engineer, any Step 3 sub-agreements between the architect or engineer and the grantee must meet all of the other procurement provisions in Sec. 31.36.

[53 FR 8068 and 8087, Mar. 11, 1988, and amended at 53 FR 8075, Mar. 11, 1988; 60 FR 19639, 19644, Apr. 19, 1995; 66 FR 3794, Jan. 16, 2001]

KRS Chapter 45A
Kentucky Model Procurement Code

45A.075 Methods of awarding state contracts.

Except as otherwise authorized by law, all state contracts shall be awarded by:
(1) Competitive sealed bidding, pursuant to KRS 45A.080; or
(2) Competitive negotiation, pursuant to KRS 45A.085 and 45A.090 or 45A.180; or
(3) Noncompetitive negotiation, pursuant to KRS 45A.095; or
(4) Small purchase procedures, pursuant to KRS 45A.100.
Effective: June 24, 2003
History: Amended 2003 Ky. Acts ch. 98, sec. 4, effective June 24, 2003. -- Created 1978 Ky. Acts ch. 110, sec. 16, effective January 1, 1979.

45A.080 Competitive sealed bidding.

(1) Contracts exceeding the amount provided by KRS 45A.100 shall be awarded by competitive sealed bidding unless it is determined in writing that this method is not practicable. Factors to be considered in determining whether competitive sealed bidding is not practicable shall include:
(a) Whether specifications can be prepared that permit award on the basis of best value; and
(b) The available sources, the time and place of performance, and other relevant circumstances as are appropriate for the use of competitive sealed bidding.
(2) The invitation for bids shall state that awards shall be made on the basis of best value. In any contract which is awarded under an invitation to bid which requires delivery by a specified date and imposes a penalty for late delivery, if the delivery is late, the contractor shall be given the opportunity to present evidence that the cause of the delay was beyond his control. If it is the opinion of the purchasing officer that there is sufficient justification for delayed delivery, the purchasing officer may adjust or waive any penalty that is provided for in the contract.
(3) Adequate public notice of the invitation for bids shall be given a sufficient time prior to the date set forth for the opening of bids. The notice may include posting on the Internet or publication in a newspaper or newspapers of general circulation in the state as determined by the secretary of the Finance and Administration Cabinet not less than seven (7) days before the date set for the opening of the bids. The provisions of this subsection shall also apply to price contracts and purchase contracts of state institutions of higher education.
(4) Bids shall be opened publicly at the time and place designated in the invitation for bids. At the time the bids are opened, the purchasing agency shall announce the agency's engineer's estimate, if applicable, and make it a part of the agency records pertaining to the letting of any contract for which bids were received. Each bid, together with the name of the bidder and the agency's engineer's estimate, shall be recorded and be open to public inspection. Electronic bid opening and posting of the required information for public viewing shall satisfy the requirements of this subsection.
(5) The contract shall be awarded by written notice to the responsive and responsible bidder whose bid offers the best value.
(6) Correction or withdrawal of bids shall be allowed only to the extent permitted by regulations issued by the secretary.
Effective: July 14, 2000
History: Amended 2000 Ky. Acts ch. 509, sec. 1, effective July 14, 2000. – Amended 1998 Ky. Acts ch. 120, sec. 10, effective July 15, 1998. -- Amended 1997 (1st Extra. Sess.) Ky. Acts ch. 4, sec. 27, effective May 30, 1997. -- Amended 1996 Ky.Acts ch. 60, sec. 2, effective July 15, 1996. -- Amended 1994 Ky. Acts ch. 278, sec. 1, effective July 15, 1994. -- Amended 1982 Ky. Acts ch. 282, sec. 1, effective July 15, 1982. -- Amended 1979 (1st Extra. Sess.) Ky. Acts ch. 9, sec. 1, effective February 10, 1979. -- Created 1978 Ky. Acts ch. 110, sec. 17, effective January 1, 1979.

45A.085 Competitive negotiation.
(1) When, under administrative regulations promulgated by the secretary or under KRS 45A.180, the purchasing officer determines in writing that the use of competitive sealed bidding is not practicable, and except as provided in KRS 45A.095 and 45A.100, a contract may be awarded by competitive negotiation.
(2) Adequate public notice of the request for proposals shall be given in the same manner and circumstances as provided in KRS 45A.080(3).
(3) Contracts other than contracts for projects utilizing an alternative project delivery method under KRS 45A.180 may be competitively negotiated when it is determined in writing by the purchasing officer that the bids received by competitive sealed bidding either are unreasonable as to all or part of the requirements, or were not independently reached in open competition, and for which each competitive bidder has been notified of the intention to negotiate and is given reasonable opportunity to negotiate.
(4) Contracts for projects utilizing an alternative project delivery method shall be processed in accordance with KRS 45A.180.
(5) The request for proposals shall indicate the relative importance of price and other evaluation factors.
(6) Award shall be made to the responsible offerer whose proposal is determined in writing to be the most advantageous to the Commonwealth, taking into consideration price and the evaluation factors set forth in the request for proposals.
(7) Written or oral discussions shall be conducted with all responsible offerers who submit proposals determined in writing to be reasonably susceptible of being selected for award. Discussions shall not disclose any information derived from proposals submitted by competing offerers. Discussions need not be conducted:
(a) With respect to prices, where the prices are fixed by law or administrative regulation, except that consideration shall be given to competitive terms and conditions;
(b) Where time of delivery or performance will not permit discussions; or
(c) Where it can be clearly demonstrated and documented from the existence of adequate competition or prior experience with the particular supply, service, or construction item, that acceptance of an initial offer without discussion would result in fair and reasonable best value procurement, and the request for proposals notifies all offerers of the possibility that award may be made on the basis of the initial offers.
Effective: June 24, 2003
History: Amended 2003 Ky. Acts ch. 98, sec. 5, effective June 24, 2003. – Amended 1997 (1st Extra. Sess.) Ky. Acts ch. 4, sec. 28, effective May 30, 1997. – Amended 1979 (1st Extra. Sess.) Ky. Acts ch. 9, sec. 2, effective February 10, 1979. -- Created 1978 Ky. Acts ch. 110, sec. 18, effective January 1, 1979.

45A.090 Negotiation after competitive sealed bidding when all bids exceed available funds.
(1) In the event that all bids submitted pursuant to competitive sealed bidding under KRS 45A.080 result in bid prices in excess of the funds available for the purchase, and the chief purchasing officer determines in writing:
(a) That there are no additional funds available from any source so as to permit an award to the responsive and responsible bidder whose bid offers the best value; and
(b) The best interest of the state will not permit the delay attendant to a resolicitation under revised specifications, or for revised quantities, under competitive sealed bidding as provided in KRS 45A.080, then a negotiated award may be made as set forth in subsections (2) or (3) of this section.
(2) Where there is more than one (1) bidder, competitive negotiations pursuant to KRS 45A.085(3) shall be conducted with the three (3) (two (2) if there are only two (2)) bidders determined in writing to be the most responsive and responsible bidders, based on criteria contained in the bid invitation. Such competitive negotiations shall be conducted under the following restrictions:

(a) If discussions pertaining to the revision of the specifications or quantities are held with any potential offerer, all other potential offerers shall be afforded an opportunity to take part in such discussions; and
(b) A request for proposals, based upon revised specifications or quantities, shall be issued as promptly as possible, shall provide for an expeditious response to the revised requirements, and shall be awarded upon the basis of best value.
(3) Where, after competitive sealed bidding, it is determined in writing that there is only one (1) responsive and responsible bidder, a noncompetitive negotiated award may be made with such bidder in accordance with KRS 45A.095.
Effective: June 24, 2003
History: Amended 2003 Ky. Acts ch. 98, sec. 6, effective June 24, 2003. – Amended 1997 (1st Extra. Sess.) Ky. Acts ch. 4, sec. 29, effective May 30, 1997. – Created 1978 Ky. Acts ch. 110, sec. 19, effective January 1, 1979.

45A.095 Noncompetitive negotiation.
(1) A contract may be made by noncompetitive negotiation only for sole source purchases, or when competition is not feasible, as determined by the purchasing officer in writing prior to award, under administrative regulations promulgated by the secretary of the Finance and Administration Cabinet or the governing boards of universities operating under KRS Chapter 164A, or when emergency conditions exist. Sole source is a situation in which there is only one (1) known capable supplier of a commodity or service, occasioned by the unique nature of the requirement, the supplier, or market conditions. Insofar as it is practical, no less than three (3) suppliers shall be solicited to submit written or oral quotations whenever it is determined that competitive sealed bidding is not feasible. Award shall be made to the supplier offering the best value. The names of the suppliers submitting quotations and the date and amount of each quotation shall be placed in the procurement file and maintained as a public record. Competitive bids may not be required:
(a) For contractual services where no competition exists, such as telephone service, electrical energy, and other public utility services;
(b) Where rates are fixed by law or ordinance;
(c) For library books;
(d) For commercial items that are purchased for resale;
(e) For interests in real property;
(f) For visiting speakers, professors, expert witnesses, and performing artists;
(g) For personal service contracts executed pursuant to KRS 45A.690 to 45A.725; and
(h) For agricultural products in accordance with KRS 45A.645.
(2) The chief procurement officer, the head of a using agency, or a person authorized in writing as the designee of either officer may make or authorize others to make emergency procurements when an emergency condition exists.
(3) An emergency condition is a situation which creates a threat or impending threat to public health, welfare, or safety such as may arise by reason of fires, floods, tornadoes, other natural or man-caused disasters, epidemics, riots, enemy attack, sabotage, explosion, power failure, energy shortages, transportation emergencies, equipment failures, state or federal legislative mandates, or similar events. The existence of the emergency condition creates an immediate and serious need for services, construction, or items of tangible personal property that cannot be met through normal procurement methods and the lack of which would seriously threaten the functioning of government, the preservation or protection of property, or the health or safety of any person.
(4) The Finance and Administration Cabinet may negotiate directly for the purchase of contractual services, supplies, materials, or equipment in bona fide emergencies regardless of estimated costs. The existence of the emergency shall be fully explained, in writing, by the head of the agency for which the purchase is to be made. The explanation shall be approved by the

secretary of the Finance and Administration Cabinet and shall include the name of the vendor receiving the contract along with any other price quotations and a written determination for selection of the vendor receiving the contract. This information shall be filed with the record of all such purchases and made available to the public. Where practical, standard specifications shall be followed in making emergency purchases. In any event, every effort should be made to effect a competitively established price for purchases made by the state.

Effective: July 15, 2002

History: Amended 2002 Ky. Acts ch. 344, sec. 9, effective July 15, 2002. – Amended 1997 (1st Extra. Sess.) Ky. Acts ch. 4, sec. 30, effective May 30, 1997. – Amended 1990 Ky. Acts ch. 496, sec. 4, effective July 13, 1990. -- Created 1978 Ky. Acts ch. 110, sec. 20, effective January 1, 1979.

45A.100 Small purchases.

(1) Procurements may be made in accordance with small purchase administrative regulations promulgated by the secretary of the Finance and Administration Cabinet, pursuant to KRS Chapter 13A, as follows:

(a) Up to ten thousand dollars ($10,000) per project for construction and one thousand dollars ($1,000) for purchases by any state governmental body, except for those state administrative bodies specified in paragraph (b) of this subsection; and

(b) Up to forty thousand dollars ($40,000) per project for construction or purchases by the Finance and Administration Cabinet, state institutions of higher education, and the legislative branch of government.

(2) Procurement requirements shall not be artificially divided so as to constitute a small purchase under this section. At least every two (2) years, the secretary shall review the prevailing costs of labor and materials and may make recommendations to the next regular session of the General Assembly for the revision of the then current maximum small purchase amount as justified by intervening changes in the cost of labor and materials.

(3) The secretary of the Finance and Administration Cabinet may grant to any state agency with a justifiable need a delegation of small purchasing authority, which exceeds the agency's small purchase limit, provided in subsection (1) of this section.

Delegations of small purchasing authority shall be granted or revoked by the secretary of the Finance and Administration Cabinet, in accordance with administrative regulations promulgated by the cabinet pursuant to KRS Chapter 13A. These administrative regulations shall establish, at a minimum, the criteria for granting and revoking delegations of small purchasing authority, including the requesting agency's past compliance with purchasing regulations, the level of training of the agency's purchasing staff, and the extent to which the agency utilizes the Kentucky Automated Purchasing System. The administrative regulations may permit the secretary of the Finance and Administration Cabinet to delegate small purchase procurements up to the maximum amount specified in subsection (1)(b) of this section.

Effective: July 15, 2002

History: Amended 2002 Ky. Acts ch. 320, sec. 2, effective July 15, 2002. – Amended 2000 Ky. Acts ch. 225, sec. 1, effective July 14, 2000. -- Amended 1996 Ky. Acts ch. 60, sec. 1, effective July 15, 1996. -- Amended 1994 Ky. Acts ch. 323, sec. 1, effective July 15, 1994. -- Amended 1990 Ky. Acts ch. 496, sec. 5, effective July 13, 1990. -- Amended 1986 Ky. Acts ch. 384, sec. 1, effective July 15, 1986. -- Amended 1984 Ky. Acts ch. 384, sec. 1, effective July 13, 1984. -- Amended 1982 Ky. Acts ch. 282, sec. 2, effective July 15, 1982. -- Amended 1980 Ky. Acts ch. 242, sec. 1, effective July 15, 1980; and ch. 250, sec. 19, effective April 9, 1980.-- Created 1978 Ky. Acts ch. 110, sec. 21, effective January 1, 1979.

Attachment Number 4

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)

The following excerpts are from 45 FR 65984 (October 3, 1980):

The minority and female goals apply to Federal and federally assisted construction contractors and subcontractors which have covered contracts. The goals are expressed as a percentage of the total hours worked by such a covered or subcontractor's entire onsite construction workforce, which is working on any construction site within a relevant area. The goal applies to each construction craft and trade in the contractor's entire workforce in the relevant area including those employees working on private non-federally involved projects.

Until further notice, the following goals for minority utilization in each construction craft and trade shall be included in all Federal or federally assisted construction contracts and subcontracts in excess of $10,000 to be performed in the respective geographic area. The goals are applicable to each nonexempt contractor's total onsite construction workforce, regardless of whether or not part of that workforce is performing work on a Federal, federally assisted or non-federally related project, contract or subcontract.

Construction contractors which are participating in an approved Hometown Plan (see 41 CFR 60-4.5) are required to comply with the goals of the Hometown Plan with regard to construction work they perform in the area covered by the Hometown Plan. With regard to all their other covered construction work, such contractors are required to comply as follows:

Goals for female participation in each trade.....6.9%
Goals for minority participation in each trade.....Insert goals for each year
(see Attachment Number 6)

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or Federally assisted) performed in the covered area.

The following excerpts are from 45 FR 65977 (October 3, 1980):

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

4. As used in this Notice, and in the contract resulting from this solicitation, the covered area is (insert description of the geographical areas where the contract is to be performed giving the state, country, and city, if any).

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)

EEO Specifications

Following is the standard language, which must be incorporated into all solicitations for offers and bids on all Federal and Federally assisted construction contracts or subcontracts in excess of $10,000 to be performed in designated geographical areas:

1. As used in these specifications:
   (a) Covered Area means the geographical area described in the solicitation from which this contract resulted.

   (b) Director means Director, Office of Federal Contract Compliance Program, United States Department of Labor, or any person to whom the Director delegates authority;

   (c) Employer identification number means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

   (d) Minority includes:

   (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

   (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

   (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

   (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take a good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7-a through p of these specifications. The goals set forth in the solicitation from which this contract resulted

are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative action to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative actions steps at least as extensively as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organizations responses.

c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligation.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources complied under 7-b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with

all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, lay-off, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foreman, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations, which assist in fulfilling one or more of their affirmative actions obligations (7 a through p). The efforts of a contractor association, joint contractor-union, contractor-community, of other similar group of which the contractor is a member and participant may be asserted as fulfilling any one or more of its obligations under 7 a through p of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce

participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example: even though the Contractor has achieved its goal for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables for affirmative action standards to discriminate against any person because of race, color, religion, sex or national origin.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation, if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

EEO Goals for Economic Areas in Region 4

Source: Appendix B-80 in 45 FR 65984 (October 3, 1980)

Kentucky:

056 Paducah, KY:
- Non-SMSA Counties — 5.2
  - IL Hardin; IL Massac; IL Pope; KY Ballard; KY Caldwell; KY Calloway. KY Carlisle; KY Crittenden; KY Fulton; KY Graves; KY Hickman; KY Livingston; KY Lyon. KY McCracken; KY Marshall.

057 Louisville, KY:
- SMSA Counties:
  - 4520 Louisville, KY-IN — 11.2
    - IN Clark; IN Floyd; KY Bullift; KY Jefferson; KY Oldham.
- Non-SMSA Counties — 9.6
  - IN Crawford; IN Harrison; IN Jefferson; IN Orange; IN Scott; IN Washington; KY Breckinridge; KY Grayson; KY Hardin; KY Hart; KY Henry; KY Larue; KY Marion; KY Meade; KY Nelson; KY Shelby; KY Spencer; KY Trimble; KY Washington.

058 Lexington, KY
- SMSA Counties
  - 4280 Lexington-Fayette, KY — 10.8
    - KY Bourbon; KY Clark; KY Fayette; KY Jessamine; KY Scott; KY Woodford.
- Non-SMSA Counties — 7.0
  - KY Adair KY Anderson; KY Bath; KY Boyle; KY Breathitt; KY Casey; KY Clay; KY Estill; KY Franklin- KY Garrard; KY Green; KY Harrison- KY Jackson; KY Knott; KY Lee; KY Leslie; KY Letcher; KY Lincoln; KY Madison; KY Magoffin; KY Menifee; KY Mercer; KY Montgomery; KY Morgan. KY Nicholas; KY Owsley; KY Perry; KY Powell; KY Pulaski; KY Rockcastle; KY Russell; KY Taylor; KY Wolfe.

Attachment Number 7

CHECK LIST OF EEO DOCUMENTATION FOR BIDDERS ON GRANT/LOAN CONSTRUCTION (Required by Executive Order 11246 as amended)

The low, responsive responsible bidder must forward the following items, in duplicate, to the owner no later than ten (10) days after bid opening. The owner shall have one (1) copy available for inspection by the Office of Federal Contracts Compliance within 14 days after the bid opening. The web site for the OFCC is http://www.dol.gov/esa/ofcp_org.htm.

1. Project Number. Project Location. Type of Construction.

2. Proof of registration with the Joint Reporting Commission. (See Attachment Number 8.)

3. Copy of Affirmative Action Plan of contractor. Indicate company official responsible for EEO.

4. List of current construction contracts, with dollar amount. List contracting Federal Agency, if applicable.

5. Statistics concerning company percent workforce, permanent and temporary, by sex, race, trade, handicapped, and age. 40 CFR Part 7.

6. List of employment sources for project in question. If union sources are utilized, indicate percentage of minority membership within the union crafts.

7. Anticipated employment needs for this project, by sex, race and trade, with estimate of minority participation in specific trades.

8. List of subcontractors (name, address and telephone) with dollar amount and duration of subcontract. Subcontractor contracts over $10,000 must submit items 1- 8. The following information must be provided for all supplier contracts regardless of contract size: name of company, contact person, address, telephone number, dollar value of the contract, and a list of the materials to be supplied to the prime contractor.

9. List of any subcontract work yet to be committed with estimate of dollar amount and duration of contract.

10. Contract Price. Duration of prime contract.

11. DBE Documents - See special instructions regarding use of Minority, and Women Owned, and Small Businesses.

Attachment Number 8

Employer Information Report EEO-1

Under the direction of the US Equal Employment Opportunity Commission, the Joint Reporting Committee is responsible for the full-length, multi-phase processing of employment statistics collected on the Employer Information Report EEO-1. This report, also termed Standard Form 100, details the sex and race/ ethnic composition of an employer's work force by job category.

The Employer Information EEO-1 survey is conducted annually under the authority of Public Law 88-352, Title VII of the Civil Rights Act of 1964, as amended by the Equal Employment Opportunity Act of 1972. All employers with 15 or more employees are covered by Public Law 88-352 and are required to keep employment records as specified by Commission regulations. Based on the number of employees and federal contract activities, certain large employers are required to file an EEO-1 Report on an annual basis.

The EEO-1 Report must be filed by:

(A) All private employers who are: (1) subject to Title VII of the Civil Rights Act of 1964 (as amended by the Equal Employment Opportunity Act of 1972) with 100 or more employees EXCLUDING State and local governments, primary and secondary school systems, institutions of higher education, Indian tribes and tax-exempt private memberships clubs other than labor organizations; OR (2)subject to Title VII who have fewer than 100 employees if the company is owned or affiliated with another company, or there is centralized ownership, control or management (such as central control of personnel policies and labor relations) so that the group legally constitutes a single enterprise and the entire enterprise employs a total of 100 or more employees.

(B) All federal contractors (private employers), who:(1) are not exempt as provided for by 41 CFR 60-1.5, (2) have 50 or more employees, and (a) are prime contractors or first-tier subcontractors, and have a contract, subcontract, or purchase order amounting to $50,000 or more; or (b) serve as depository of Government funds in any amount, or (c) is a financial institution which is an issuing an paying agent for U.S. Savings Bonds and Notes.

Only those establishments located in the District of Columbia and the 50 states are required to submit the EEO-1 Report. No Reports should be filed for establishments in Puerto Rico, the Virgin Islands or other American Protectorates.

When filing for the EEO-1 Rep ort for the first time, go to the web site at: http://www.mimdms.com/jrc.html and select "Filing for the first time" from the box labeled INFORMATION. File out the electronic questionnaire to enter your company into Joint Reporting Committee (JRC) system. One you have completed the registration process, you will be contacted on how to proceed with the EEO-1 Report. If you have previously registered with the JRC, follow their instructions to update your information.

Labor Standards Provisions for Federally Assisted Construction

Labor standards provisions applicable to contracts covering federally financed and assisted construction (29 CFR 5.5, Contract Provisions and Related Matters) that apply to EPA Special Appropriations Projects grants are:

(a)(4)(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.

(a)(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.

(a)(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 U.S. Environmental Protection Agency may by appropriate instructions require, 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.

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

(b) Contractor Work Hours and Safety Standards Act. The Administrator, EPA shall cause or require the contracting officer to insert the following clauses set forth in paragraph (b)(1),(2),(3), and (4) of this section in full in any contract 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 *Section 5.5(a) of this title. 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 work week in which he or she is employed on such work to 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 (b) (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 unliquidated 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 (b)(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 (b)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The U.S. Environmental Protection Agency shall upon its own action or upon written request of an authorized representative of the Department of Labor 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 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 (b)(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 (b)(1) through (4) of this section.

(c) In addition to the clauses contained in paragraph (b), in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in section 5.1, the Administrator of EPA shall cause or require the contracting officer to 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 worked, deductions made, and actual wages paid. Further, the Administrator of EPA shall cause or require the contracting officer to insert in any such contract a clause providing that 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 U.S. Environmental Protection Agency and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job. (Approved by the Office of Management and Budget under OMB control numbers 1215-0140 and 1215-0017.)

CERTIFICATIONS

Debarred Firms

All prime Construction Contractors shall certify that Subcontractors have not and will not be awarded to any firm that is currently on the EPA Master List of Debarred, Suspended and Voluntarily Excluded Persons in accordance with the provisions of 40 CFR 32.500(c). Debarment action is taken against a firm for noncompliance with Federal Law.

All bidders shall complete the attached certification (Attachment Number 10) and submit to the owner with the bid proposal.

Anti-lobbying Certification

All prime Construction Contractors must certify (Attachment Number 11) that no appropriated funds were or will be expended for the purpose of lobbying the Executive or Legislative Branches of the Federal Government or Federal Agency concerning this contract (contract in excess of $100,000). If the Contractor has made or agreed to make payment to influence any member of Congress in regard to award of this contract, a Disclosure Form must be completed and submitted to the owner with the bid proposal.

All prime Contractors must require all Subcontractors to submit the certification, which must also be submitted to the owner.

CERTIFICATION REGARDING DEBARMENT, SUSPENSION AND OTHER RESPONSIBILITY 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 judgment 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 statutes 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 (1)(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.

Attachment Number 11

CERTIFICATION REGARDING LOBBYING
Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract,
grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, ``Disclosure Form to Report Lobbying,'' in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

_____
TYPED NAME & TITLE OF AUTHORIZED REPRESENTATIVE

_____
SIGNATURE OF AUTHORIZED REPRESENTATIVE DATE

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

Attachment Number 12

EPA DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

EPA's Disadvantaged Business Enterprise Program rule applies to contract procurement actions funded in part by EPA assistance agreements awarded after May 27, 2008. The rule is found at Federal regulation Title 40, Part 33. Specific responsibilities are highlighted below.

Grant recipient responsibilities:

- Conduct an Availability Analysis and negotiate fair share objectives with EPA (§ 33.411), or adopt the fair share objectives of the oversight state agency revolving loan fund for comparable infrastructure. (§ 33.405(b)(3)).

- Include the Appendix A term and condition in each contract with a primary contractor (§ 3.106). The term and condition is included in the EPA Region 4 contract specifications insert *FEDERAL REQUIREMENTS AND CONTRACT PROVISIONS FOR SPECIAL APPROPRIATION ACT PROJECTS US ENVIRONMENTAL PROTECTION AGENCY, Region III, June 2008.*

- Employ the six Good Faith Efforts during prime contractor procurement (§ 33.301).

- Require prime contractor to comply with the following prime contractor requirements of Title 40 Part 33:

  - To employ the six Good Faith Efforts steps in paragraphs (a) through (e) of § 33.301 if the prime contractor awards subcontracts (§ 33.301(f)).

  - To provide EPA form 6100-2 – *DBE Subcontractor Participation Form* to all DBE subcontractors (§ 33.302(e)).

  - To submit EPA forms 6100-3 – *DBE Program Subcontractor Performance Form* and 6100-4 – *DBE Program Subcontractor Utilization Form* with bid package or proposal. (§ 33.302 (f) and (g)).

  - To pay its subcontractor for satisfactory performance no more than 30 days from the prime contractor's receipt of payment from the recipient (§ 33.302(a)).

  - To notify recipient in writing by its prime contractor prior to any termination of a DBE subcontractor for convenience by the prime contractor (§ 33.302(b)).

  - To employ the six good faith efforts described in § 33.301 if soliciting a replacement subcontractor after a DBE subcontractor fails to complete work under the subcontract for any reason. (§ 33.302(c)).

  - To employ the six good faith efforts described in § 33.301 even if the prime contractor has achieved its fair share objectives under subpart D of Part 33. (§33.302(d)).

- Semiannually complete and submit to Charles Hayes, EPA Region 4 DBE Coordinator EPA form 5700-52A summarizing DBE participation achieved during the previous six months (§ 33.502).

- Maintain records documenting its compliance with the requirements of Title 40 Part 33, including documentation of its, and its prime contractors', good faith efforts (§ 33.501(a)).

Prime Contractor Responsibilities:

- Employ the six Good Faith Efforts steps in paragraphs (a) through (e) of § 33.301 if the prime contractor awards subcontracts (§ 33.301(f)).

- Provide EPA form number 6100-2 – *DBE Program Subcontractor Participation Form* and form number 6100-3 – *DBE Program Subcontractor Performance Form* to each DBE subcontractor prior to opening of the contractor's bid or proposal (§ 33.302(e) and (f)).

- Complete EPA form number 6100-4 – *DBE Program Subcontractor Utilization Form* (§ 33.302(g).

- Submit to recipient with it bid package or proposal the completed EPA form number 6100-4, plus an EPA form number 6100-3 for each DBE subcontractor used in the contractor's bid or proposal (§ 33.302(f) and (g)).

- Pay subcontractors for satisfactory performance no more than 30 days from the prime contractor's receipt of payment from the recipient (§ 33.302(a)).

- Notify the recipient in writing prior to prime contractor termination of a DBE subcontractor for convenience (§ 33.302(b)).

- Employ the six good faith efforts described in § 33.301 if soliciting a replacement subcontractor after a DBE subcontractor fails to complete work under the subcontract for any reason. (§ 33.302(c)).

- Employ the six good faith efforts described in § 33.301 even if the prime contractor has achieved its fair share objectives under subpart D of Part 33. (§33.302(d)).

- Semiannually inform recipient of DBE participation achieved (§ 33.502).

- Maintain records documenting its compliance with the requirements of Title 40 Part 33, including documentation of its, and its prime contractors', good faith efforts (§ 33.501(a)).

Subcontractor Responsibilities:

- May submit EPA form 6100-2 – *DBE Subcontractor Participation Form* to Charles Hayes, EPA Region 4 DBE Coordinator (§ 33.302(e)).

- Must complete EPA form 6100-3 – *DBE Program Subcontractor Performance Form*, and submit it to the prime contractor soliciting services from the subcontractor prior to the opening of bids for the prime contract.

SPAP Requirements:

Form	Requirement	Provided By:	Completed By:	Submitted To:
EPA Form 6100-2	Grant Recipients required to have prime contractors provide form to Subcontractors	Prime Contractors	DBE Subcontractors	EPA Region 4 DBE Coordinator Charles Hayes
EPA Form 6100-3	Grant Recipients required to have prime contractors provide form to Subcontractors	Prime Contractors	DBE Subcontractors	Grant Recipients as part of a bid or proposal package
EPA Form 6100-4	Grant Recipients required to have prime contractors complete the form	Grant Recipients	Prime Contractors	Grant Recipients as part of a bid or proposal package

SRF Requirements:

Form	Requirement	Provided By:	Completed By:	Submitted To:
EPA Form 6100-2	Recipients required to have prime contractors provide form to Subcontractors	Prime Contractors	DBE Subcontractors	DOW Project Administrator
EPA Form 6100-3	Recipients required to have prime contractors provide form to Subcontractors	Prime Contractors	DBE Subcontractors	Dow Project Administrator w/ ATA Package
EPA Form 6100-4	Recipients required to have prime contractors complete the form	Recipients	Prime Contractors	DOW Project Administrator w/ ATA Package
Pay Request DBE Form	Recipients required to have prime contractors complete the form	Recipients	Prime Contractors	DOW Project Administrator w/ EACH PAYMENT

DISADVANTAGED ENTERPRISE PARTICIPATION POLICY

PROJECT NAME: _____ **BID DATE:** _____

1. Name, address and telephone number of contact person on all DBE matters:

   Prime Contractor's Name: _____
   Contact Person: _____
   Address: _____
   Phone: _____
   Cell Phone: _____
   Email: _____
   Total Contract Amount:
   _____

5. Total dollar amount/percent of contract of MBE participation:

   _____

6. Total dollar amount/percent of contract of WBE participation:

   _____

7. Certifications* for each subcontractor enclosed: ☐ Yes ☐ No
8. Subcontracts or letters of intent signed by both parties enclosed: ☐ Yes ☐ No
9. **List of MBE Subcontractors:**
   Name: _____
   Contact Person: _____
   Address: _____
   Phone: _____
   Cell Phone: _____
   Email: _____
   Type of Contract: _____
   Work to be Done: _____
   Amount: _____

10. **List of WBE Subcontractors:**
    Name: _____
    Contact Person: _____
    Address: _____
    Phone: _____
    Cell Phone: _____
    Email: _____
    Type of Contract: _____
    Work to be Done: _____
    Amount: _____

Attach Additional Sheets, If Necessary
*Self-certification: Self certification of MBE/WBE/DBE firms will NOT be accepted as a valid form of certification of MBE/WBE/DBE status.

Information concerning the efforts for obtaining subcontractor(s)

11. Information to be submitted by the bidder concerning good faith efforts taken

a. Advertisements, etc.: List each publication in which an announcement or notification was placed and attach the tear sheet of each announcement from each publication

Name of publication: _____

Address: _____

Dates of advertisement: _____

Specific subcontract areas announced: _____

b. List each DBE construction firm or supplier to which a letter of solicitation was sent or with whom negotiations were held.

Company name and phone number: _____

Area of Work Expertise: _____

Date of any follow-up call and person spoke to: _____

c. Copies of returned envelopes.

d. Copies of faxes sent.

e. Copies of certified mail return receipts.

f. Copies of letters or e-mails from solicited firms declining offer.

g. Copy of bidders list (see sheet below):

BIDDER'S LIST FORM

OWNER _____ **LOAN NO:**_____

PROJECT TITLE_____ **BID DATE:**_____

Instructions:

1. This list must include all firms that bid or quote on prime or subcontracts under EPA assisted projects (i.e. SRF Projects), included both MBE/WBE's and non MBE/WBE's
2. SRF loan participants must keep the Bidder's List until the project period for the identified loan has ended and no funds are remaining.
3. This list must be submitted to DOW in the ATA Package. Contract Award Approval cannot be given until this form has been received by SRF.
4. The following information must be obtained from all prime and sub-contractor's. Please complete the form below:

ENTITY'S NAME	MAILING ADDRESS	CONTACT PERSON	PHONE#	E-MAIL ADDRESS	M/WBE?

Attachment Number 13

REGION 4
DISADVANTAGED BUSINESS ENTERPRISE (DBE) NEGOTIATED RATES
(Subject to change - refer to grant award for specific fair share objectives)

KENTUCKY	
SRF Construction:	0.70% MBE and 7.60% WBE
(both programs)	
Equipment:	1.20% MBE and 1.10% WBE
Services:	1.20% MBE and 16.30% WBE
Supplies:*	3.70% MBE and 4.60% WBE

BONDS AND INSURANCE

The minimum requirements shall be as follows:

Bonding requirements for contracts of $100,000 or less are contained in 40 CFR 31.36(h).

Bond requirements for contracts in excess of $100,000 are:

- Bid guarantee equivalent to five percent of the bid price. The bid guarantee shall consist of a firm commitment such as a certified check or bid bond submitted with the bid;
- Performance bond equal to 100 percent of the contract price, and
- Payment bond equal to 100 percent of the contract price. Bonds must be obtained from companies holding Certificates of Authority as acceptable sureties, issued by the U.S. Treasury.

Insurance requirements are contained in the General Conditions of the contract. In addition to the other required insurance, the owner or the contractor, as appropriate, must acquire any flood insurance made available by the Federal Emergency Management Agency as required by 44 CFR Parts 59-79, if construction will take place in a flood hazard area identified by the Federal Emergency Management Agency. The owners requirements on Flood Insurance are contained in the Special Conditions Section of the Contracts Documents.

Attachment No. 15

OUTLAY MANAGEMENT

The contractor must provide a contract progress schedule of percentage of work in place and costs against time; and a schedule of projected payments (cumulative) for construction and for the architectural/ engineering contract when the contract is awarded. The payment schedule must be submitted, in a format similar to the attached sample, to the owner for forwarding to the State when the contract is awarded, and whenever actual payments on a project vary beyond -5 percent and +10 percent from the schedule, as determined by the grantee.

Contractor will be required to review each of these contract schedules during the month of June and to submit revised schedules, as necessary, no later that July 1st of each year.

THIS FORMAT IS A SAMPLE ONLY.

CONSTRUCTION AND OUTLAY SCHEDULE

Project No.: _____

Applicant: _____

Contract Identification: _____

Description of Contract: _____

_____

(INSTRUCTIONS FOR USE ON REVERSE SIDE)

SCHEDULE I - CONSTRUCTION SCHEDULE

Date for Advertisement: _____
Date for Opening Bids: _____
Pre-Construction Conference Date: _____
Date of Contract Award: _____
Contract Period: _____ days Projected Contract Completion Date: _____
Total Eligible Contract Amount: _____
Work Order Date: _____
Start Construction Date: _____
Contract Completed: _____

_____

SCHEDULE II - CUMULATIVE OUTLAY SCHEDULE (55% EPA Share) - Projection only for quarters that remain in the fiscal year (FY) plus cumulative annual amount for the next FY.

Cum EPA Amount thru 1st Qtr. Oct./Dec.: $ _____
Cum EPA Amount thru 2nd Qtr. Jan./Mar.: $ _____
Cum EPA Amount thru 3rd Qtr. Apr./June: $ _____
Cum EPA Amount thru 4th Qtr. July/Sept.: $ _____
Cum EPA Amount for Next Fiscal Year: $ _____

INSTRUCTIONS (Construction and Outlay Schedules)

To insure timely achievement of the grant objectives the owner (grantee) must provide EPA with a grants activities schedule, contract construction schedules and corresponding payment outlay schedules for the grant and each contract under the grant. One copy of information similar to that showing the Construction and Outlay Schedule Form will be submitted for the grant schedule with the grant acceptance. A separate form will accompany each contract at time of contract award.

A. The grant activities schedule shall depict the period from grant award through grant closeout and cover all major milestone date. The grant activities schedule shall include Schedule I information items as well as other appropriate items necessary to monitor the grant. Schedule II shall be filled out to estimate the cumulative (all construction and architectural/engineering contracts) payment schedule to be requested by the grantee from EPA during the grant period, and whenever actual outlays vary beyond -5% and +10% from the schedule.

B. Individual contractor's construction schedules for each contract will be submitted to support the grant activities schedule. The Schedule I shall be submitted prior to date of advertisement of each contract and Schedule II along with the contractor's construction schedule shall be submitted seven (7) calendar days prior to the dates of the pre-construction conference. The contractor's construction schedule shall depict the contractor's plan for completing all contract requirements and show work placement in dollars versus contract time. Schedule II shall depict the contract payment outlay by month or quarter. The contract schedule will be coordinated with all parties at the pre-construction conference.

The grants activities schedule, contractor construction schedules, will be the basis for monitoring progress towards completion of the project. The schedules shall be maintained at the available for inspection and updated at least monthly. The schedules shall be revised to incorporate approved change orders as they occur.

All of the schedules will be submitted to the State Division of Water.

Attachment No. 16

NOTICE OF INTENT

All construction projects with surface disturbance of more than 1 acre during the period of construction must have a KPDES Storm Water General Permit. The permit can be found at the following web address: **https://dep.gateway.ky.gov/eForms/default.aspx?FormID=7.**

If you have any questions regarding the completion of this form call the Surface Water Permits Branch, at (502) 564-3410.

DAVIS BACON REQUIREMENTS

Federal Davis-Bacon rates are applicable for these funds. This determination applies only to the loan portion of this project. Please contact the other funding sources, if applicable, for their requirements pertaining to federal wage rates. You must contact the Kentucky Labor Cabinet for determination of applicable state wages.

(a) The Agency head shall cause or require the contracting officer to 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 public building or public work, or building or work 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, the following clauses (or any modifications thereof to meet the particular needs of the agency, Provided, That such modifications are first approved by the Department of Labor):
(1) Minimum wages. (i) All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), 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.
(ii)(A) The contracting officer 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 contracting officer shall approve 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 contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will

approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer 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 contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt 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 (write in name of Federal Agency or the loan or grant recipient) shall upon its own action or upon written request of 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 (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), 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 (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). 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 (write in name of appropriate federal agency) if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to the (write in name of agency). The payrolls submitted 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 weekly transmittals. 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 (write in name of appropriate federal agency) if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit them to the applicant, sponsor, or owner, as the case may be, for transmission to the (write in name of agency), 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 sponsoring government agency (or the applicant, sponsor, or owner).

(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 (write the name of the agency) 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 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 (write in the name of the Federal agency) may by appropriate instructions require, 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 the contracting agency, 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.
(b) Contract Work Hours and Safety Standards Act. The Agency Head shall cause or require the contracting officer to insert the following clauses set forth in paragraphs (b)(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 §5.5(a) or4.6 of part 4 of this title. 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 conract 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 (b)(1) of this section the contractor and any subcontractor responsible therefor 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 (b)(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 (b)(1) of this section.
(3) Withholding for unpaid wages and liquidated damages. The (write in the name of the Federal agency or the loan or grant recipient) shall upon its own action or upon written request of an authorized representative of the Department of Labor 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 (b)(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 (b)(1) through (4) of this section.
(c) In addition to the clauses contained in paragraph (b), in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in §5.1, the Agency Head shall cause or require the contracting officer to 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 Agency Head shall cause or require the contracting officer to insert in any such contract a clause providing that 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.

5. Compliance Verification

(a). The subrecipient shadll periodically interview, a sufficient number of employees entitled to DB prevailing wages (covered employees) to verify that contractors or subcontractors are paying the appropriate wage rates. As provided in 29 CFR 5.6(a)(6), all interviews must be conducted in confidence. The subrecipient must use Standard Form 1445 or equivalent documentation to memorialize the interviews. Copies of the SF 1445 are available from EPA on request.
(b) The subrecipient shall establish and follow an interview schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, the subrecipient should conduct interviews with a representative group of covered employees within two weeks of each contractor or subcontractor's submission of its initial weekly payroll data and two weeks prior to the estimated completion date for the contract or subcontract. Subrecipients must conduct more frequent interviews if the initial interviews or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. Subrecipients shall immediately conduct necessary interviews in response to an alleged violation of the prevailing wage requirements. All interviews shall be conducted in confidence.
(c). The subrecipient shall conduct spot checks of a representative sample of weekly payroll data to verify that contractors or subcontractors are paying the appropriate wage rates. The subrecipient shall establish and follow a spot check schedule based on an assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, if practicable, the subrecipient should spot check payroll data within two weeks of each contractor or subcontractor's submission of its initial payroll data and two weeks prior to the completion date of the contract or subcontract. Subrecipients must conduct more frequent spot checks if the initial spot check or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. In addition, during the examinations the subrecipient shall verify evidence of fringe benefit plans and payments there under by contractors and subcontractors who claim credit for fringe benefit contributions.
(d). The subrecipient shall periodically review contractors and subcontractors use of apprentices and trainees to verify registration and certification with respect to apprenticeship and training programs approved by either the U.S Department of Labor or a state, as appropriate, and that contractors and subcontractors are not using disproportionate numbers of, laborers, trainees and apprentices. These reviews shall be conducted in accordance with the schedules for spot checks and interviews described in Item 5(b) and (c) above.
(e) Subrecipients must immediately report potential violations of the DB prevailing wage requirements to the EPA DB contact listed above and to the appropriate DOL Wage and Hour District Office listed at http://www.dol.gov/esa/contacts/whd/america2.htm.

WAGE RATE REQUIREMENTS UNDER FY2010 APPROPRIATEIONS

CWSRF: The recipient agrees to include in all agreements to provide assistance for the construction of treatment works carried out in whole or in part with such assistance made available by a State water pollution control revolving fund as authorized by title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.), or with such assistance made available under section 205(m) of that Act (33 U.S.C. 1285(m)), or both, a term and condition requiring compliance with the requirements of section 513 of that Act (33 U.S.C. 1372) in all procurement contracts and sub-grants, and require that loan recipients, procurement contractors and sub-grantees include such a term and condition in subcontracts and other lower tiered transactions. All contracts and subcontracts for the construction of treatment works carried out in whole or in part with assistance made available as stated herein shall insert in full in any contract in excess of $2,000 the contract clauses as set forth below entitled "Wage Rate Requirements Under FY 2010 Appropriations." This term and condition applies to all agreements to provide assistance under the authorities referenced herein, whether in the form of a loan, bond purchase, grant, or any other vehicle to provide financing for a project, where such agreements are executed on or after October 30, 2009 and before October 1, 2010.

DWSRF: The recipient agrees to include in all agreements to provide assistance for any construction project carried out in whole or in part with such assistance made available by a drinking water treatment revolving loan fund as authorized by section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j-12), a term and condition requiring compliance with the requirements of section 1450(e) of the Safe Drinking Water Act (42 U.S.C.300j-9(e)) in all procurement contracts and sub-grants, and require that loan recipients, procurement contractors and sub-grantees include such a term and condition in subcontracts and other lower tiered transactions All contracts and subcontracts for any construction project carried out in whole or in part with assistance made available as stated herein shall insert in full in any contract in excess of $2,000 the contract clauses as set forth below entitled "Wage Rate Requirements Under FY 2010 Appropriations." This term and condition applies to all agreements to provide assistance under the authorities referenced herein, whether in the form of a loan, bond purchase, grant, or any other vehicle to provide financing for a project, where such agreements are executed on or after October 30, 2009 and before October 1, 2010.

Wage Rate Requirements Under FY 2010 Appropriations

Preamble

With respect to the Clean Water and Safe Drinking Water State revolving Funds, EPA provides capitalization grants to each State which in turn provides subgrants or loans to eligible entities within the State. Typically, the subrecipients are municipal or other local governmental entities that manage the funds. For these types of recipients, the provisions set forth under Roman Numeral I, below, shall apply. Although EPA and the State remain responsible for ensuring subrecipients' compliance with the wage rate requirements set forth herein, those subrecipients shall have the primary responsibility to maintain payroll records as described in Section 3(ii)(A), below and for compliance as described in Section I-5.

Occasionally, the subrecipient may be a private for profit or not for profit entity. For these types of recipients, the provisions set forth in Roman Numeral II, below, shall apply. Although EPA and the State remain responsible for ensuring subrecipients' compliance with the wage rate requirements set forth herein, those subrecipients shall have the primary responsibility to maintain payroll records as described in Section II-3(ii)(A), below and for compliance as described in Section II-5.

I. Requirements under FY 2010 Appropriations For Subrecipients That Are Governmental Entities:

The following terms and conditions specify how recipients will assist EPA in meeting its DB responsibilities when DB applies to EPA awards of financial assistance under the FY 2010 Appropriations with respect to State recipients and subrecipients that are governmental entities. If a subrecipient has questions regarding when DB applies, obtaining the correct DB wage determinations, DB provisions, or compliance monitoring, it may contact the State recipient. If a State recipient needs guidance, the recipient may contact **Dorothy L. Rayfield, Chief, Grants, Finance and Cost Recovery Branch, Regional EPA DB contact at (404) 562-9278 or Rayfield.Dorothy@epa.gov** for guidance. The recipient or subrecipient may also obtain additional guidance from DOL's web site at http://www.dol.gov/esa/whd/recovery/

1. Applicability of the Davis- Bacon (DB) prevailing wage requirements.

   Under the FY 2010 Appropriation, Davis-Bacon prevailing wage requirements apply to the construction, alteration, and repair of treatment works carried out in whole or in part with assistance made available by a State water pollution control revolving fund and to any construction project carried out in whole or in part by assistance made available by a drinking water treatment revolving loan fund. If a subrecipient encounters a unique situation at a site that presents uncertainties regarding DB applicability, the subrecipient must discuss the situation with the recipient State before authorizing work on that site.

2. Obtaining Wage Determinations.

(a) Subrecipients shall obtain the wage determination for the locality in which a covered activity subject to DB will take place prior to issuing requests for bids, proposals, quotes or other methods for soliciting contracts (solicitation) for activities subject to DB. These wage determinations shall be incorporated into solicitations and any subsequent contracts. Prime contracts must contain a provision requiring that subcontractors follow the wage determination incorporated into the prime contract.

(i) While the solicitation remains open, the subrecipient shall monitor www.wdol.gov weekly to ensure that the wage determination contained in the solicitation remains current. The subrecipients shall amend the solicitation if DOL issues a modification more than 10 days prior to the closing date (i.e. bid opening) for the solicitation. If DOL modifies or supersedes the applicable wage determination less than 10 days prior to the closing date, the subrecipients may request a finding from the State recipient that there is not a reasonable time to notify interested contractors of the modification of the wage determination. The State recipient will provide a report of its findings to the subrecipient.

(ii) If the subrecipient does not award the contract within 90 days of the closure of the solicitation, any modifications or supersedes DOL makes to the wage determination contained in the solicitation shall be effective unless the State recipient, at the request of the subrecipient, obtains an extension of the 90 day period from DOL pursuant to 29 CFR 1.6(c)(3)(iv). The subrecipient shall monitor www.wdol.gov on a weekly basis if it does not award the contract within 90 days of closure of the solicitation to ensure that wage determinations contained in the solicitation remain current.

(b) If the subrecipient carries out activity subject to DB by issuing a task order, work assignment or similar instrument to an existing contractor (ordering instrument) rather than by publishing a solicitation, the subrecipient shall insert the appropriate DOL wage determination from www.wdol.gov into the ordering instrument.

(c) Subrecipients shall review all subcontracts subject to DB entered into by prime contractors to verify that the prime contractor has required its subcontractors to include the applicable wage determinations.

(d) As provided in 29 CFR 1.6(f), DOL may issue a revised wage determination applicable to a subrecipient's contract after the award of a contract or the issuance of an ordering instrument if DOL determines that the subrecipient has failed to incorporate a wage determination or has used a wage determination that clearly does not apply to the contract or ordering instrument. If this occurs, the subrecipient shall either terminate the contract or ordering instrument and issue a revised solicitation or ordering instrument or incorporate DOL's wage determination retroactive to the beginning of the contract or ordering instrument by change order. The subrecipient's contractor must be compensated for any increases in wages resulting from the use of DOL's revised wage determination.

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 that 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.

5. Compliance Verification

(a) The subrecipient shall periodically interview a sufficient number of employees entitled to DB prevailing wages (covered employees) to verify that contractors or subcontractors are paying the appropriate wage rates. As provided in 29 CFR 5.6(a)(6), all interviews must be conducted in confidence. The subrecipient must use Standard Form 1445 (SF 1445) or equivalent documentation to memorialize the interviews. Copies of the SF 1445 are available from EPA on request.

(b) The subrecipient shall establish and follow an interview schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, the subrecipient should conduct interviews with a representative group of covered employees within two weeks of each contractor or subcontractor's submission of its initial weekly payroll data and two weeks prior to the estimated completion date for the contract or subcontract. Subrecipients must conduct more frequent interviews if the initial interviews or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB . Subrecipients shall immediately conduct necessary interviews in response to an alleged violation of the prevailing wage requirements. All interviews shall be conducted in confidence.

(c) The subrecipient shall periodically conduct spot checks of a representative sample of weekly payroll data to verify that contractors or subcontractors are paying the appropriate wage rates. The subrecipient shall establish and follow a spot check schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, if practicable, the subrecipient should spot check payroll

data within two weeks of each contractor or subcontractor's submission of its initial payroll data and two weeks prior to the completion date the contract or subcontract . Subrecipients must conduct more frequent spot checks if the initial spot check or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. In addition, during the examinations the subrecipient shall verify evidence of fringe benefit plans and payments thereunder by contractors and subcontractors who claim credit for fringe benefit contributions.

(d) The subrecipient shall periodically review contractors and subcontractor's use of apprentices and trainees to verify registration and certification with respect to apprenticeship and training programs approved by either the U.S Department of Labor or a state, as appropriate, and that contractors and subcontractors are not using disproportionate numbers of, laborers, trainees and apprentices. These reviews shall be conducted in accordance with the schedules for spot checks and interviews described in Item 5(b) and (c) above.

(e) Subrecipients must immediately report potential violations of the DB prevailing wage requirements to the EPA DB contact listed above and to the appropriate DOL Wage and Hour District Office listed at http://www.dol.gov/esa/contacts/whd/america2.htm.

II. Requirements under FY 2010 Appropriations Act For Subrecipients That Are Not Governmental Entities

The following terms and conditions specify how recipients will assist EPA in meeting its DB responsibilities when DB applies to EPA awards of financial assistance under the FY2010 Appropriations Act with respect to subrecipients that are not governmental entities. If a subrecipient has questions regarding when DB applies, obtaining the correct DB wage determinations, DB provisions, or compliance monitoring, it may contact the State recipient for guidance. If a State recipient needs guidance, the recipient may contact **Dorothy L. Rayfield, Chief, Grants, Finance and Cost Recovery Branch, Regional EPA DB contact at (404) 562-9278 or Rayfield.Dorothy@epa.gov** for guidance. The recipient or subrecipient may also obtain additional guidance from DOL's web site at http://www.dol.gov/esa/whd/recovery/

Under these terms and conditions, the subrecipient must submit its proposed DB wage determinations to the State recipient for approval prior to including the wage determination in any solicitation, contract task orders, work assignments, or similar instruments to existing contractors.

1._ Applicability of the Davis- Bacon (DB) prevailing wage requirements.

Under the FY 2010 Appropriation, Davis-Bacon prevailing wage requirements apply to the construction, alteration, and repair of treatment works carried out in whole or in part with assistance made available by a State water pollution control revolving fund and to any construction project carried out in whole or in part by assistance made available by a drinking water treatment revolving loan fund. If a subrecipient encounters a unique situation at a site that presents uncertainties regarding DB applicability, the subrecipient must discuss the situation with the recipient State before authorizing work on that site.

2. Obtaining Wage Determinations.

(a) Subrecipients must obtain proposed wage determinations for specific localities at www.wdol.gov. After the Subrecipient obtains its proposed wage determination, it must submit the wage determination to (insert contact information for State recipient DB point of contact for wage determination) for approval prior to inserting the wage determination into a solicitation, contract or issuing task orders, work assignments or similar instruments to existing contractors (ordering instruments unless subsequently directed otherwise by the State recipient Award Official.

(b) Subrecipients shall obtain the wage determination for the locality in which a covered activity subject to DB will take place prior to issuing requests for bids, proposals, quotes or other methods for soliciting contracts (solicitation) for activities subject to DB. These wage determinations shall be incorporated into solicitations and any subsequent contracts. Prime contracts must contain a provision requiring that subcontractors follow the wage determination incorporated into the prime contract.

(i) While the solicitation remains open, the subrecipient shall monitor www.wdol.gov. on a weekly basis to ensure that the wage determination contained in the solicitation remains current. The subrecipients shall amend the solicitation if DOL issues a modification more than 10 days prior to the closing date (i.e. bid opening) for the solicitation. If DOL modifies or supersedes the applicable wage determination less than 10 days prior to the closing date, the subrecipients may request a finding from the State recipient that there is not a reasonable time to notify interested contractors of the modification of the wage determination. The State recipient will provide a report of its findings to the subrecipient.

(ii) If the subrecipient does not award the contract within 90 days of the closure of the solicitation, any modifications or supersedes DOL makes to the wage determination contained in the solicitation shall be effective unless the State recipient, at the request of the subrecipient, obtains an extension of the 90 day period from DOL pursuant to 29 CFR 1.6(c)(3)(iv). The subrecipient shall monitor www.wdol.gov on a weekly basis if it does not award the contract within 90 days of closure of the solicitation to ensure that wage determinations contained in the solicitation remain current.

(c) If the subrecipient carries out activity subject to DB by issuing a task order, work assignment or similar instrument to an existing contractor (ordering instrument) rather than by publishing a solicitation, the subrecipient shall insert the appropriate DOL wage determination from www.wdol.gov into the ordering instrument.

(c) Subrecipients shall review all subcontracts subject to DB entered into by prime contractors to verify that the prime contractor has required its subcontractors to include the applicable wage determinations.

(d) As provided in 29 CFR 1.6(f), DOL may issue a revised wage determination applicable to a subrecipient's contract after the award of a contract or the issuance of an ordering instrument if DOL determines that the subrecipient has failed to incorporate a wage determination or has used a wage determination that clearly does not apply to the contract or ordering instrument. If this occurs, the subrecipient shall either terminate the contract or ordering instrument and issue a revised solicitation or ordering instrument or incorporate DOL's wage determination retroactive to the beginning of the contract or ordering instrument by change order. The subrecipient's

contractor must be compensated for any increases in wages resulting from the use of DOL's revised wage determination.

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 report, 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 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 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 (b)(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 (b)(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 (b)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The subrecipient shall upon the request of the EPA Award Official or an authorized representative of the Department of Labor, 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 (b)(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 (b)(1) through (4) of this section.

(c) 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 that 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.

5. Compliance Verification

(a). The subrecipient shall periodically interview a sufficient number of employees entitled to DB prevailing wages (covered employees) to verify that contractors or subcontractors are paying the appropriate wage rates. As provided in 29 CFR 5.6(a)(6), all interviews must be conducted in confidence. The subrecipient must use Standard Form 1445 (SF 1445) or equivalent documentation to memorialize the interviews. Copies of the SF 1445 are available from EPA on request.

(b) The subrecipient shall establish and follow an interview schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, the subrecipient should conduct interviews with a representative group of covered employees within two weeks of each contractor or subcontractor's submission of its initial weekly payroll data and two weeks prior to the estimated completion date for the contract or subcontract. Subrecipients must conduct more frequent interviews if the initial interviews or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. Subrecipients shall immediately conduct necessary interviews in response to an alleged violation of the prevailing wage requirements. All interviews shall be conducted in confidence.

(c). The subrecipient shall periodically conduct spot checks of a representative sample of weekly payroll data to verify that contractors or subcontractors are paying the appropriate wage rates. The subrecipient shall establish and follow a spot check schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, if practicable the subrecipient should spot check payroll data within two weeks of each contractor or subcontractor's submission of its initial payroll data and two weeks prior to the completion date the contract or subcontract. Subrecipients must conduct more frequent spot checks if the initial spot check or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB . In addition, during the examinations the subrecipient shall verify evidence of fringe benefit plans and payments thereunder by contractors and subcontractors who claim credit for fringe benefit contributions.

(d). The subrecipient shall periodically review contractors and subcontractors use of apprentices and trainees to verify registration and certification with respect to apprenticeship and training programs approved by either the U.S Department of Labor or a state, as appropriate, and that contractors and subcontractors are not using disproportionate numbers of, laborers, trainees and apprentices. These reviews shall be conducted in accordance with the schedules for spot checks and interviews described in Item 5(b) and (c) above.

(e) Subrecipients must immediately report potential violations of the DB prevailing wage requirements to the EPA DB contact listed above and to the appropriate DOL Wage and Hour District Office listed at http://www.dol.gov/esa/contacts/whd/america2.htm.

General Decision Number: KY120112 06/01/2012 KY112

Superseded General Decision Number: KY20100197

State: Kentucky

Construction Type: Heavy
Including Water and Sewer Line Construction

Counties: Gallatin, Grant and Pendleton Counties in Kentucky.

HEAVY CONSTRUCTION PROJECTS (including sewer/water construction).

Modification Number	Publication Date
0	01/06/2012
1	04/13/2012
2	06/01/2012

CARP0549-002 04/01/2010

GALLATIN COUNTY

	Rates	Fringes
CARPENTER (Including Form Work)	$ 21.34	12.17

CARP0698-003 05/01/2011

GRANT AND PENDLETON COUNTIES

	Rates	Fringes
CARPENTER (Including Form Work)	$ 25.74	12.69

ELEC0212-007 05/31/2011

	Rates	Fringes
ELECTRICIAN	$ 26.11	14.94

ENGI0018-024 05/01/2010

PENDLETON COUNTY

	Rates	Fringes
POWER EQUIPMENT OPERATOR:		
Backhoe/Trackhoe/Excavator	$ 29.49	12.25
Bobcat/Skid Loader & Forklift (All other types)	$ 28.33	12.25
Bulldozer & Loader (Front End)	$ 29.37	12.25
Crane	$ 29.49	12.25
Masonry Forklift & Roller	$ 27.15	12.25
Oiler	$ 21.69	12.25

ENGI0181-006 07/01/2011

GALLATIN AND GRANT COUNTIES

	Rates	Fringes
POWER EQUIPMENT OPERATOR:		
Backhoe/Excavator/Trackhoe, Bulldozer & Loader (Front End)	$ 26.50	13.00
Bobcat/Skid Loader & Forklift	$ 24.08	13.00
Crane	$ 27.50	13.00
Oiler & Roller	$ 23.82	13.00

Operators on cranes with booms one hundred fifty feet (150) and over (including jib) shall receive one dollar ($1.00) above rate

All crane operators operating cranes where the lenth of the boom in combination with the length of the piling leads equal or exceeds one hundred fifty (150) feet, shall receive one dollar ($1.00) above the rate.

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* IRON0044-016 06/01/2012

	Rates	Fringes
IRONWORKER, STRUCTURAL	$ 24.80	18.10

IRON0372-017 01/01/2012

	Rates	Fringes
IRONWORKER, REINFORCING	$ 26.50	17.55

LABO0189-034 07/01/2011

	Rates	Fringes
LABORER		
Common or General	$ 20.81	10.85

PLAS0132-013 07/01/2011

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 22.25	10.90

PLUM0392-008 09/01/2011

	Rates	Fringes
PLUMBER	$ 29.30	15.74

SUKY2010-146 09/14/2010

	Rates	Fringes

LABORER: Pipelayer.....$ 17.51 6.89

TEAM0089-004 03/27/2011

GRANT AND PENDLETON COUNTIES

	Rates	Fringes
TRUCK DRIVER (Dump Truck).....	$ 19.56	7.30+A

A: $246.70 per week

TEAM0100-003 03/27/2011

GALLATIN COUNTY

	Rates	Fringes
TRUCK DRIVER (Dump Truck).....	$ 19.56	7.30+A

A: $246.70 per week

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 rate.

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 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

Steven L. Beshear
Governor

Daniel Mongiardo
Lieutenant Governor

KENTUCKY LABOR CABINET
DEPARTMENT OF WORKPLACE STANDARDS
DIVISION OF EMPLOYMENT STANDARDS, APPRENTICESHIP & MEDIATION
1047 US Hwy 127 S - Suite 4
Frankfort, Kentucky 40601
Phone: (502) 564-3534
Fax (502) 564-2248
www.labor.ky.gov

Mark S. Brown
Secretary

Michael L. Dixon
Commissioner

March 13, 2012

KERRY ODLE
CMW INC
400 E VINE ST
LEXINGTON KY 40507

Re: BULLOCK PEN WATER DISTRICT, GRANT CO IMPROV PH 14 CONTRACT 1 & 2

Advertising Date as Shown on Notification: April 11, 2012

Dear KERRY ODLE:

This office is in receipt of your written notification on the above project as required by KRS 337.510 (1).

I am enclosing a copy of the current prevailing wage determination number CR 6-019, dated May 5, 2011 for GRANT County. This schedule of wages shall be attached to and made a part of the specifications for the work, printed on the bidding blanks, and made a part of the contract for the construction of the public works between the public authority and the successful bidder or bidders.

The determination number assigned to this project is based upon the advertising date contained in your notification. There may be modifications to this wage determination prior to the advertising date indicated. In addition, if the contract is not awarded within 90 days of this advertising date or if the advertising date is modified, a different set of prevailing rates of wages may be applicable. It will be the responsibility of the public authority to contact this office and verify the correct schedule of the prevailing rates of wages for use on the project. Your project number is as follows: 041-H-00075-11-6, Heavy/Highway

Sincerely,

Michael L. Dixon
Commissioner

ERRATUM

Refer to the Locality Number and Determination Number listed below published by the Kentucky Labor Cabinet, Division of Employment Standards, Apprenticeship and Mediation dated May 23, 2011.

Locality Number 019 – Grant, Owen & Scott Counties

Determination Number CR 6-019

DELETE:

ASBESTOS/INSULATION WORKERS/HEAT & FROST INSULATORS	BASE RATE	$28.03
	FRINGE BENEFITS	14.14

INSERT:

ASBESTOS/INSULATION WORKERS/HEAT & FROST INSULATORS	BASE RATE	$28.03
	FRINGE BENEFITS	12.39

Michael L. Dixon, Commissioner
Department of Workplace Standards
Kentucky Labor Cabinet
Frankfort, KY 40601

This 23RD day of May, 2011.

KENTUCKY LABOR CABINET
PREVAILING WAGE DETERMINATION
CURRENT REVISION
LOCALITY NO. 019

Determination No. CR-6-019
Date of Determination: May 5, 2011

PROJECT 041-H-00075-11-6 HEAVY/HIGHWAY

BULLOCK PEN WATER DISTRICT
GRANT CO IMPROVEMENTS PH 14 CONTRACT 1 & 2

This schedule of the prevailing rate of wages for Locality No. 019, which includes Grant, Owen & Scott Counties, has been determined in accordance with the provisions of KRS 337.505 to 337.550. This determination shall be referred to as Prevailing Wage Determination
No. CR-6-019.

Apprentices shall be permitted to work as such subject to Administrative Regulations adopted by the Executive Director of the Office of Workplace Standards. Copies of these regulations will be furnished upon request to any interested person.

Overtime is to be computed at not less than one and one-half (1 1/2) times the indicated BASE RATE for all hours worked in excess of eight (8) per day, and/or in excess of forty (40) per week. However, KRS 337.540 permits an employee and employer to agree, in writing, that the employee will be compensated at a straight time base rate for hours worked in excess of eight (8) hours in any one workday, but not more than ten (10) hours worked in any one workday, if such written agreement is prior to the over eight (8) hours in a workday actually being worked, or where provided for in a collective bargaining agreement. The fringe benefit rate is to be paid for each hour worked at a straight time rate for all hours worked. Fringe benefit amounts are applicable for all hours worked except when otherwise noted. Welders will receive rate for craft in which welding is incidental.

No laborer, workman or mechanic shall be paid at a rate less than that of the General Laborer except those classified as bona fide apprentices registered with the Kentucky State Apprenticeship Supervisor unless otherwise specified in this schedule of wage rates.

NOTE: The type of construction shall be determined by applying the following definitions.

BUILDING CONSTRUCTION
Building construction is the construction of sheltered enclosures with walk-in access for the purpose of housing persons, machinery, equipment, or supplies. It includes all construction of such structures, the installation of utilities and the installation of equipment, both above and below grade level, as well as incidental grading, utilities and paving.

HIGHWAY CONSTRUCTION
Highway construction includes the construction, alteration or repair of roads, streets, highways, runways, taxiways, alleys, trails, paths, parking areas, and other similar projects not incidental to building or heavy construction. It includes all incidental construction in conjunction with the highway construction project.

HEAVY CONSTRUCTION
Heavy projects are those projects that are not properly classified as either "building" or "highway". For example, dredging projects, water and sewer line projects, dams, flood control projects, sewage treatment plants and facilities, and water treatment plants and facilities are considered heavy.

Michael L. Dixon
COMMISSIONER
KENTUCKY LABOR CABINET

~~**ASBESTOS/INSULATION WORKERS/HEAT & FROST INSULATORS**~~		~~BASE RATE~~	~~$28.03~~
		~~FRINGE BENEFITS~~	~~14.14~~
BOILERMAKERS:		BASE RATE	$24.65
		FRINGE BENEFITS	12.94
BRICKLAYERS:			
Bricklayers:		BASE RATE	$26.11
		FRINGE BENEFITS	9.84
Refractory:		BASE RATE	$26.61
		FRINGE BENEFITS	9.84
CARPENTERS:			
Carpenters:	BUILDING	BASE RATE	$20.38
		FRINGE BENEFITS	11.00
Piledrivermen	BUILDING	BASE RATE	$20.88
		FRINGE BENEFITS	11.00
Carpenters:	HEAVY & HIGHWAY	BASE RATE	$25.05
		FRINGE BENEFITS	11.30
Pildrivermen:	HEAVY & HIGHWAY	BASE RATE	$25.30
		FRINGE BENEFITS	11.30
Divers:	HEAVY & HIGHWAY	BASE RATE	$37.95
		FRINGE BENEFITS	11.30
CEMENT MASONS:		BASE RATE	$ 17.50
		FRINGE BENEFITS	4.95
ELECTRICIANS:		BASE RATE	$29.27
		FRINGE BENEFITS	13.08
LINEMAN:	HEAVY & HIGHWAY	BASE RATE	$30.09
		FRINGE BENEFITS	10.94
GROUNDSMAN:	HEAVY & HIGHWAY	BASE RATE	$17.79
		FRINGE BENEFITS	8.51
EQUIPMENT OPERATOR:	HEAVY & HIGHWAY	BASE RATE	$26.90
		FRINGE BENEFITS	10.31
ELEVATOR CONSTRUCTORS:		BASE RATE	$29.75
		FRINGE BENEFITS	10.95

CLASSIFICATIONS BASE RATES AND FRINGE BENEFITS

GLAZIERS:

OWEN COUNTY:	BASE RATE	$18.01
	FRINGE BENEFITS	3.88
GRANT & SCOTT COUNTIES:	BASE RATE	$15.45

IRONWORKERS:	BASE RATE	$24.99
	FRINGE BENEFITS	**18.22**

LABORERS / BUILDING:

BUILDING GROUP 1: General laborers, asbestos abatement laborer, toxic waste removal laborer, water boys, tool room checker, carpenter tenders, (civil engineer helper, rodman, grade checkers excluding all field work performed by engineering firms), concrete pouring and curing, concrete form stripping and wrecking, hand digging and backfilling of ditches, clearing of right of ways and building sites, wood sheeting and shoring, signalman for concrete bucket and general cleaning, and environmental laborer - nuclear, radiation, toxic and hazardous waste - Level D:

	BUILDING	*BASE RATE	$20.86
		FRINGE BENEFITS	8.59

BUILDING GROUP 2: All air tool operators, air track drills, asphalt rakers, tampers, batchers plant and scale man, chain saw, concrete saw, electric hand grinder, all electric bush and chipping hammers, flagmen, forklift operators, form setter (street or highway), metal form setters, heaters, mesh handlers on walkways, streets and roadways outside building, gunnite laborers, hand spiker, introflax burning rod, joint makers, mason tenders, multi-trade tender, pipe layers, plaster tenders, powderman helpers, power driven Georgia buggies, power posthole diggers, railroad laborers, sandblaster laborers, scow man and deck hand, signal man, sweeper and cleaner machines, vibrator operators, walk behind trenching machines, mortar mixer machines, water pumpmen, and environmental laborers-nuclear, radiation, toxic and hazardous waste - Level C:

	BUILDING	*BASE RATE	$21.26
		FRINGE BENEFITS	8.59

BUILDING GROUP 3: Asphalt Paver Screwman, gunnite nozzleman and gunnite nozzle machine operator, sand blaster nozzleman, concrete or grout pumpman, plaster pumpman:

	BUILDING	*BASE RATE	$21.46
		FRINGE BENEFITS	8.59

BUILDING GROUP 4: Powderman and blaster, and environmental laborer - nuclear, radiation, toxic and hazardous waste - Level B:

	BUILDING	*BASE RATE	$21.56
		FRINGE BENEFITS	8.59

BUILDING GROUP 5: Caisson holes (6 ft. and over) pressure and free air including tools, construction specialist, and environmental laborer-nuclear, radiation, toxic and hazardous waste - Level A:

	BUILDING	*BASE RATE	$22.06
		FRINGE BENEFITS	8.59

BUILDING GROUP 6: Tunnel man and tunnel sand miner, cofferdam (pressure and free air), sand hog or mucker (pressure or free air):

	BUILDING	*BASE RATE	$22.36
		FRINGE BENEFITS	8.59

LABORERS ON BUILDING: *Employees handling chemically treated materials which are harmful to the skin shall receive an additional $.25 above base rate. Any employee working on high work such as towers or smoke stacks or any type of work putting the employee 50 feet above the ground or a solid floor shall receive an additional $.50 per hour above the base rate. Any employee working on boilers, kilns, melting tanks, furnaces, or when refractory is done using live fire, drying fires, heatups or any hot work shall receive an additional 25% premium above the base rate.

LABORERS / HEAVY HIGHWAY:

HEAVY HIGHWAY GROUP 1: Aging and curing of concrete (any mode or method); asbestos abatement worker; asphalt plant laborers; asphalt laborers; batch truck dumpers; carpenter tenders; cement mason tenders; cleaning of machines; concrete laborers; demolition laborers; dredging laborers; drill helper; environmental laborer-nuclear, radiation, toxic & hazardous waste-Level D; flagmen; grade checkers; all hand digging and hand back filling; highway marker placers; landscaping laborers; mesh handlers & placers; puddler; railroad laborers; rip-rap & grouters; right of way laborers; sign, guard rail & fence installers (all types); signal men, sound barrier installer; storm and sanitary sewer laborers; swampers; truck spotters & dumpers; wrecking of concrete forms; general cleanup.

HEAVY & HIGHWAY	*BASE RATE	$20.36
	FRINGE BENEFITS	9.90

HEAVY HIGHWAY GROUP 2: Batter board men (sanitary & storm sewer); brickmason tenders; mortar mixer operator; scaffold builders; burner and welder; bushammers; chain saw operator; concrete saw operators; deckhand scow man; dry cement handlers; environmental laborers-nuclear, radiation, toxic & hazardous waste-Level C; forklift operators for masonry; form setters; green concrete cutting; hand operated grouter and grinder machine operator; jack hammers; lead paint abatement; pavement breakers; paving joint machine; pipe layers-laser operators (non-metallic); plastic pipe fusion; power driven Georgia buggy & wheel barrow; power post hole diggers; precast manhole setters; walk behind tampers; walk behind trenchers; sand blasters; concrete chippers; surface grinders; vibrator operators; wagon drillers

HEAVY & HIGHWAY	*BASE RATE	$20.61
	FRINGE BENEFITS	9.90

HEAVY HIGHWAY GROUP 3: Asphalt luteman and rakers; gunnite nozzleman; gunnite operators and mixers; grout pump operator; side rail setters; rail paved ditches; screw operators; tunnel laborers (free air) and water blasters.

HEAVY & HIGHWAY	*BASE RATE	$20.66
	FRINGE BENEFITS	9.90

HEAVY HIGHWAY GROUP 4: Caisson workers (free air)' cement finishers; environmental laborers-nuclear, radiation, toxic & hazardous waste-Levels A & B; miners & drillers (free air); tunnel blasters and tunnel muckers (free air); directional and horizontal boring; air drillers (all types); powder man and blasters; troxler and concrete tester if laborer is utilized.

HEAVY & HIGHWAY	*BASE RATE	$21.26
	FRINGE BENEFITS	9.90

***Signal Person will receive the rate equal to the rate paid the laborer classification for which he or she is signaling.**

MARBLE, TILE & TERRAZZO:

Finishers:	BASE RATE	$15.42
	FRINGE BENEFITS	5.42
Setters:	BASE RATE	$22.64
	FRINGE BENEFITS	6.10

MILLWRIGHTS:	BASE RATE	$28.21
	FRINGE BENEFITS	15.99

OPERATING ENGINEERS / BUILDING:

BUILDING CLASS A: Auto Patrol, Batcher Plant, Bituminous Paver, Cableway, Central Compressor Plant, Clamshell, Concrete Mixer (21 cu. ft. or over), Concrete Pump, Crane, Crusher Plant, Derrick, Derrick Boat, Ditching and Trenching Machine, Dragline, Dredge Operator, Dredge Engineer, Elevating Grader and all types of Loaders, Forklift (regardless of lift height), Hoe-Type Machine, Hoist (1 drum when used for stack or chimney construction or repair), Hoisting Engine (2 or more drums), Locomotive, Motor Scraper, Carry-all Scoop, Bulldozer, Heavy Duty Welder, Mechanic, Orangepeel Bucket, Piledriver, Power Blade, Motor Grader, Roller (bituminous), Scarifier, Shovel, Tractor Shovel, Truck Crane, Winch Truck, Push Dozer, Highlift, All types of Boom Cats, Core Drill, Hopto, Tow or Push Boat, A-Frame Winch Truck, Concrete Paver, Gradeall, Hoist, Hyster, Pumpcrete, Ross Carrier, Boom, Tail Boom, Rotary Drill, Hydro Hammer, Mucking Machine, Rock Spreader attached to equipment, Scoopmobile, KeCal Loader, Tower Cranes (French, German and other types), Hydrocrane, Backfiller, Gurries, Sub-Grader, Tunnel Mining Machines including Moles, Shields, or similar types of Tunnel Mining Equipment:

BUILDING	BASE RATE	$19.95
	FRINGE BENEFITS	8.40

***Operators on cranes with boom one-hundred fifty feet (150') and over including jib, shall receive seventy-five cents ($.75) above base rate. All cranes with piling leads will receive $.50 above base rate regardless of boom length**

BUILDING CLASS B: All Air Compressors (over 900 cfm), Bituminous Mixer, Joint Sealing Machine, Concrete Mixer (under 21 cu. ft), Form Grader, Roller (rock), tractor (50 HP and over), Bull Float, Finish Machine, Outboard Motor Boat, Flexplane, Fireman, Boom Type Tamping Machine, Greaser on Grease Facilities servicing Heavy Equipment, Switchman or brakeman, Mechanic Helper, Whirley Oiler, Self-Propelled Compactor, Tractair and Road Widening Trencher and Farm Tractor with Attachments (except backhoe, highlift and endloader), Elevator (regardless of ownership when used for hoisting any building materials), Hoisting Engineer (1 drum or buck hoist), Forklift (when used for masonry construction, Firebrick Masonry Excluded), Well Points, Grout Pump, Throttle-Valve Man, Tugger, Electric Vibrator Compactor and Caisson Drill Helper:

BUILDING	BASE RATE	$17.21
	FRINGE BENEFITS	8.40

BUILDING CLASS C: Bituminous Distributor, Cement Gun, Conveyor, Mud Jack, Paving Joint Machine, Roller (earth), Tamping Machine, Tractors (under 50 HP), Vibrator, Oiler, Concrete Saw, Burlap and Curing Machine, Truck Crane Oiler, Hydro-Seeder, Power Form handling Equipment, Deckhand Steersman, Hydraulic Post Driver and Drill Helper:

BUILDING	BASE RATE	$16.44
	FRINGE BENEFITS	8.40

OPERATING ENGINEERS / HEAVY & HIGHWAY:

HEAVY & HIGHWAY CLASS A: A-frame Winch Truck, Auto Patrol, Backfiller, Batcher Plant, Bituminous Paver, Bituminous Transfer Machine, all types of Boom Cats, Bulldozer, Cableway, Carry-All Scoop, Carry Deck Crane, Central Compressor Plant Operator, Clamshell, Concrete Mixer (21 cu. Ft. or over), Concert Paver, Truck-mounted Concrete Pump, Core Drills, Crane, Crusher Plant, Derrick, Derrick Boat, Ditching and Trenching Machine, Dragline, Dredge Operator, Dredge Engineer, Earth Movers, Elevating Grader and all types of Loaders, Grade-all, Gurries, Heavy Equipment Robotics Operator/Mechanic, High Lift, Hoe-type machine, Hoist (two or more drums), Hoisting Engine, (two or more drums), Horizontal directional Drill Operator, Hydraulic Boom Truck, Hydrocrane, Hyster, KeCal Loader, Letourneau, Locomotive, Mechanic, Mechanically Operated Laser Screed, Mechanic Welder, Mucking Machine, Motor Scraper, Orangepeel Bucket, Piledriver, Power Blade, Pumpcrete, Push Dozer, Rock Spreader attached to equipment, All rotary Drills, Roller (Bituminous), Scarifier, Scoopmobile, Shovel, Side Boom, Subgrader, Tailboom, Telescoping Type Forklift, Tow or Push Boat, Tower Cranes (French, German, and other types), Tractor Shovel and Truck Crane, Tunnel Mining Machines including Moles, Shields, or similar types of Tunnel Mining Equipment:

HEAVY & HIGHWAY	BASE RATE	$22.95
	FRINGE BENEFITS	11.90

OPERATING ENGINEERS / HEAVY & HIGHWAY: CONTINUED

Operators on cranes with booms one hundred fifty feet (150) and over (including job) shall receive one dollar ($1.00) above Class A rate. Combination Rate: All crane operators operating cranes, where the length of the boom in combination with the length of the piling leads equal or exceeds one hundred fifty (150) feet, shall receive one dollar ($1.00) above the Class A rate. Where remote, laser, or CPS controlled equipment is utilized to operate the equipment listed in the wage classifications of this agreement, such work for operating purposes shall be the jurisdiction of the Operating Engineers.

HEAVY & HIGHWAY CLASS B: All Air Compressors (over 900 cu. Ft. per min), Bituminous Mixer, Boom Type Tamping Machine, Bull Float, Concrete Mixer (under 21 cu. Ft.), Dredge Engineer, Electric Vibrator Compactor/Self-propelled Compactor, Elevator (on drum or back hoist), Elevator (regardless of lift height), Form Grader, Hoist (one drum), Joint Sealing Machine, Mechanic Helper, Outboard Motor Boat, Power Sweeper (riding type), Roller (rock), Ross Carrier, Skid Mounted or Trailer mounted Concrete Pumps, Skid Steer Machine with all attachments, Switchman or Brakeman, Throttle Valve Man, Tract air and Road Widening Trencher, Tractor (50 H.P. or over), Truck Crane Oiler, Tugger, Welding Machine, Well Points, and Whirley Oiler:

	HEAVY & HIGHWAY	BASE RATE	$20.53
		FRINGE BENEFITS	11.90

HEAVY & HIGHWAY CLASS B2: Greaser on Grease Facilities servicing Heavy Equipment, all off road material handling equipment, including articulating dump trucks:

	HEAVY & HIGHWAY	BASE RATE	$20.91
		FRINGE BENEFITS	11.90

HEAVY & HIGHWAY CLASS C: Bituminous Distributor, Burlap and Curing Machine, Caison Drill and Core Drill Helper (track or skid mounted), Cement Gun, Concrete Saw, Conveyor, deckhand Oiler, Grout Pump, Hydraulic Post Driver, Hydro Seeder, Mud Jack, Oiler, Paving Joint Machine, Power form handling equipment, Pump, roller (earth), Steerman, Tamping machine, Tractors (under 50 H.P.) and Vibrator:

	HEAVY & HIGHWAY	BASE RATE	$20.27
		FRINGE BENEFITS	11.90

PAINTERS:

Painters:	BUILDING	BASE RATE	$22.85
		FRINGE BENEFITS	7.10
Brush & Roller:	HEAVY & HIGHWAY	BASE RATE	$18.20
		FRINGE BENEFITS	5.08
Drywall Finishers & Plasterers:	HEAVY & HIGHWAY	BASE RATE	$18.45
		FRINGE BENEFITS	5.08

Spray, Sandblast, Power Tools, Waterblast, Steam Cleaning; Brush & Roller of Mastics, Creosotes, Kwinch Koate and Coal Tar Epoxy:

	HEAVY & HIGHWAY	BASE RATE	$19.20
		FRINGE BENEFITS	5.08

Spray of Mastics, Creosotes, Kwinch Koate and Coal Tar Epoxy:

	HEAVY & HIGHWAY	BASE RATE	$20.20
		FRINGE BENEFITS	5.08

PLUMBERS & PIPEFITTERS:
SCOTT COUNTY

BASE RATE	$28.20
FRINGE BENEFITS	14.86

PLUMBERS & PIPEFITTERS:
OWEN & GRANT COUNTIES:

BASE RATE	$30.20
FRINGE BENEFITS	14.86

ROOFERS: (Excluding Metal Roofs)

BASE RATE	$18.90
FRINGE BENEFITS	6.79

SHEETMETAL WORKERS: (Including Metal Roofs)

BASE RATE	$26.35
FRINGE BENEFITS11.07	

SPRINKLER FITTERS:

BASE RATE	$29.00
FRINGE BENEFITS	16.75

TRUCK DRIVERS / BUILDING

BASE RATE	$18.31
FRINGE BENEFITS	*9.24

Truck Drivers performing work on or hauling from a hazardous or toxic waste site, add $4.00 to base.

*TRUCK DRIVER Fringe benefits - Apply to each employee (whose name appears on the payroll that week) who has been employed a minimum of twenty (20) work days within any ninety (90) consecutive day period for that employer.

TRUCK DRIVERS / HEAVY HIGHWAY:

Four-wheel service trucks, four-wheel dump trucks, Batch Trucks, Oil Distributors, Asphalt Distributors:

HEAVY & HIGHWAY	BASE RATE	$19.34
	FRINGE BENEFITS	7.02

Tandems:	HEAVY & HIGHWAY	BASE RATE	$19.39
		FRINGE BENEFITS	7.02

Tractor-Trailer; including semi-tractors, pole-trailers, ready-mix trucks; fuel trucks, asphalt-oil spraybar men (see also next line):

HEAVY & HIGHWAY	BASE RATE	$19.44
	FRINGE BENEFITS	7.02

Asphalt-Oil spraybar men when operated from cab, Five-Axle trucks & over:

HEAVY & HIGHWAY	BASE RATE	$19.54
	FRINGE BENEFITS	7.02

Belly Dumps, End Dumps, Articulated Dumps, Low-boys & Heavy Duty Equipment,Truck Mechanics:

HEAVY & HIGHWAY	BASE RATE	$19.81
	FRINGE BENEFITS	7.02

END OF DOCUMENT
CR-6-019
May 5, 2011

U.S. EPA, Office of Grants and Debarment

Tip Sheet for Registering with the Central Contractor Registration (CCR)

What is CCR?

- The CCR is a government-wide registry for organizations that seek to do business with the federal government. The CCR collects, validates, stores and disseminates data to support a variety of federal initiatives.
- **Already registered?** An organization may check if it is already registered by logging onto www.ccr.gov, clicking on "Search CCR," and providing the organization's DUNS number.
- **Need to register?** If an organization is not registered, it may register online at www.ccr.gov.
  CCR has developed a user guide at http://www.ccr.gov/doc/CCRUsersGuide.pdf and a handbook at http://www.ccr.gov/Handbook.aspx to assist with the process. These publications include details on the information that will need to be gathered to complete the CCR registration process.

How long should CCR Registration take?

- If an organization already has an Employer Identification Number (EIN) or Taxpayer Identification Number (TIN), it should allow a minimum of 48 hours to complete the entire CCR registration.
- If an organization does not have an EIN or TIN, it should allow two weeks for obtaining information from IRS when requesting the EIN or TIN via phone or Internet. The delay is due to security information that is mailed to the organization.

When an organization registers with the CCR, it must provide:

- **DUNS number.** The Data Universal Numbering System (DUNS) Number is a unique nine-character identification number provided by D&B. Organizations may call D&B at 1-866-705-5711 or access the website http://fedgov.dnb.com/webform if they do not have a DUNS Number. The process to request a DUNS Number via phone takes about 10 minutes and is free of charge. Internet requests are fulfilled within 24 hours. Once a DUNS Number has been issued, it will be available for use in CCR within 24 hours.
- **U.S. Federal TIN.** The Tax Identification Number (TIN) is the nine-digit number which is either an Employer Identification Number (EIN) assigned by the Internal Revenue Service (IRS) or Social Security Number (SSN) assigned by the Social Security Administration (SSA). If an organization does not have a TIN/EIN, contact the IRS at 1-866-255-0654.
- **CCR Point of Contact (CCR POC).** This individual is responsible for maintaining the accuracy and timeliness of the information in the CCR registry for the organization.
- **Electronic Business Point of Contact (EB POC).** This individual will have sole authority to designate the staff member(s) who may represent the organization to federal business systems. The same individual may serve as both the CCR POC and as the EB POC.
- **Marketing Partner ID (MPIN).** During registration, organizations will be asked to designate a special password called an MPIN. Record and protect passwords.

Tip Sheet for Registering with the Central Contractor Registration (CCR)

Important Notes:

- **CCR registration must be updated or renewed at least once a year or it will expire.** CCR will alert the CCR POC when it is time for renewal.

- **Organizations must ensure that all information contained in each database, the D&B DUNS, IRS and CCR databases, matches exactly.** For example: if an organization's address is 123 First Street in one database – entering 123 1st St. in another database will significantly delay the CCR registration process.

- **CCR uses data from the D&B DUNS number record for each CCR registrant's name and address.** If, upon review, an organization finds that any name or address information in their CCR registration needs to be updated, it will have to go back to D&B, which in turn will send the modified data to CCR where the CCR POC will have to accept it. An update will add a minimum of 2 days to the CCR registration process.

- **CCR also verifies with the IRS the Tax Identification Number (also known as the TIN or EIN) that each organization provides during the registration process.** Because of this, it may take CCR 2 or 3 days after receipt of an organization's information, with a D&B-validated name and address, to finalize a CCR registration.

- After the CCR registration is complete, CCR will e-mail a confirmation to the CCR POC.

Davis Bacon Quarterly Compliance – Contractor

Please fill out one form for each contract awarded and submit to the KIA loan recipient. This information is required for compliance of the Davis Bacon provisions of the Clean Water SRF or Drinking Water SRF funded projects. This form should be submitted to the Prime Contractor no later than 5th day of each calendar quarter.

Borrower Name:	
WX / SX Number:	
KIA Loan Number:	
Project Name:	
Federal Wage decision # and modification # used in contract:	
Effective Date of Wage Decision used in contract:	
Contract Amount:	
Contractor Name:	
Contractor Address:	
Contract Actual Start / Anticipated End Date	

Questions regarding Davis Bacon determination:

	Yes or No
Was the appropriate wage rate paid to all workers from the first day on which work was performed?	
Have all weekly payroll information reports with a Statement of Compliance (in the form of WH-347) been submitted to the Borrower?	
Is the appropriate signage and notification of federal wage rates posted at the construction site?	
Are all sub-contracts in compliance?	

I certify the correct wage decision is being applied to the above noted project.

_____ _____

Signature of Authorized Official of Contractor Date

_____

Title of Authorized Official

- ***The prime contractor must keep a complete set of all of the payrolls for every contractor (including subcontractors) for at least 3 years after completion of the project.***
- ***Every contractor (including every subcontractor) must keep a complete set of their own payrolls and other basic records such as time cards, tax records, and evidence of fringe benefit payments, for a Davis Bacon project for at least 3 years after the project is complete.***

PLEASE NOTE: KIA will use a combination of funding (CWSRF/DWSRF funds and non-CWSRF/DWSRF funds) to finance projects. Both federal Davis Bacon prevailing wages and the Commonwealth of Kentucky prevailing wages apply to this project. Payment of the wage and fringe benefits that are most beneficial to the employees are required.

Davis Bacon Quarterly Compliance – Sub-Contractor

Please fill out one form for each contract awarded and should be submitted to the Prime Contractor. This information is required for compliance of the Davis Bacon provisions of the Clean Water SRF or Drinking Water SRF funded projects. This form should be submitted to the Prime Contractor no later than 5th day of each calendar quarter.

Borrower Name:	
WX / SX Number:	
KIA Loan Number:	
Project Name:	
Federal Wage decision # and modification # used in contract:	
Effective Date of Wage Decision used in contract:	
Contract Amount:	
Prime Contractor Name:	
Contractor Address:	
Sub-Contractor Name:	
Sub-Contractor Address:	
Sub-Contract Actual Start / Anticipated End Date	

Questions regarding Davis Bacon determination:

	Yes or No
Was the appropriate wage rate paid to all workers from the first day on which work was performed?	
Have all weekly payroll information reports with a Statement of Compliance (in the form of WH-347) been submitted to the Borrower or Prime Contractor?	
Is the appropriate signage and notification of federal wage rates posted at the construction site?	

I certify the correct wage decision is being applied to the above noted project.

_____ _____

Signature of Authorized Official of Sub-Contractor Date

_____

Title of Authorized Official

- ***Every contractor (including every subcontractor) must keep a complete set of their own payrolls and other basic records such as time cards, tax records, and evidence of fringe benefit payments, for a Davis Bacon project for at least 3 years after the project is complete.***

PLEASE NOTE: KIA will use a combination of funding (CWSRF/DWSRF funds and non-CWSRF/DWSRF funds) to finance projects. Both federal Davis Bacon prevailing wages and the Commonwealth of Kentucky prevailing wages apply to this project. Payment of the wage and fringe benefits that are most beneficial to the employees are required.

Kentucky Infrastructure Authority
1024 Capital Center Drive – Suite 340
Frankfort, KY 40601
www.kia.ky.gov

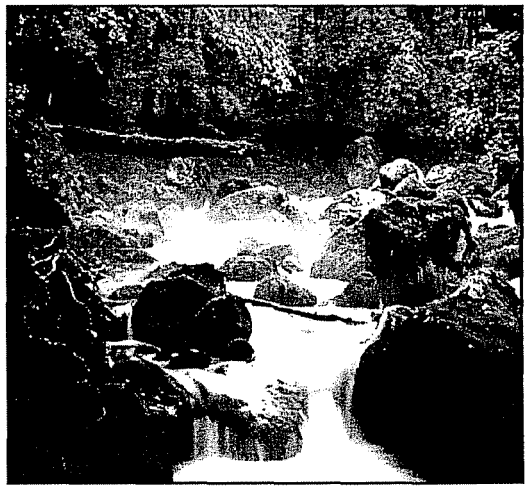
Kentucky Division of Water
200 Fair Oaks Lane – 4th Floor
Frankfort, KY 40601
www.water.ky.gov

A SUMMARY OF THE NEW EPA DBE RULE AND ITS IMPACT ON SRF LOAN PARTICIPANTS

The Environmental Protection Agency's (EPA) new Disadvantaged Business Enterprise (DBE) rule became effective on May 27, 2008. This rule sets forth an EPA program that serves the compelling government interest of remedying past and current racial discrimination through agency-wide procurement objectives. It revises and replaces EPA's Minority and Women Business Enterprise (MBE/WBE) Program. Because the State Revolving Fund (SRF) Loan Program funding is provided by EPA, the new DBE rule requirements apply to all SRF funded projects. It is designed to increase the participation of DBE's in procurements funded by EPA assistance agreements. The key substantive changes that the new EPA DBE rule makes to the MBE/WBE program involve the following: certification of minority & women owned businesses, the six good faith efforts, contract administration requirements, negotiation of fair share goals, recordkeeping & reporting requirements and new requirements for Tribal and insular area fair share negotiations.

* **Certification of MBE/WBE:** In order to be counted as a MBE/WBE under the new EPA DBE rule MBE/WBEs must be certified by a federal agency (e.g., EPA, Small Business Administration, Department of Transportation) or by a State, locality, Indian Tribe, or independent private organization that meets the certification requirements of the new EPA DBE rule. In addition, individuals claiming economic disadvantaged status must have an initial and continued personal net worth of less than $750,000.

Q: Where can MBE/WBEs get certified in the State of Kentucky?



A: MBE/WBEs can get certified with the Kentucky Transportation Cabinet (KTC). KTC's certification process meets the requirements of the new EPA DBE rule. The website is http://transportation.ky.gov/OBOD/. Please identify on the application that you are seeking certification under the new EPA DBE rule. If you have any questions regarding the KTC website or certification process contact the KTC Certification Coordinator Melvin Bynes at 1-800-928-3079.

Q: If my firm is currently on the Kentucky Transportation Cabinet's list of certified DBEs do I need to get recertified?

A: No, you do not need to get re-certified. KTC's certification process meets the requirements of the new EPA DBE rule.

Q: Are there entities that KTC cannot certify? If so, where can those entities go for certification under the new EPA DBE rule?

A: There are entities that KTC cannot certify. Those entities are: a) Disabled American-owned firms, b) non – profit organizations (private and voluntary organizations controlled by individuals who are socially and economically disadvantaged), and c) those entities who exceed the size standards that are specific to DOT certification process under 49 CFR Part 26. These entities should seek certification through EPA's DBE certification program. The entity may apply to EPA's Office of Small Business Programs (EPA OSBP) for certification as an MBE/WBE. The website is http://www.epa.gov/osbp/grants.htm. For questions regarding certification by EPA, please contact Kimberly Patrick, EPA Office of Small Business Programs, at 202-566-2605 or email Patrick.kimberly@epa.gov. Direct general questions regarding the new EPA DBE rule to Charles Hayes, Region 4 MBE/WBE Coordinator, phone number is (404) 562-8377 and email hayes.charles@epa.gov.

Q: Can I self-certify as an MBE/WBE through my attorney?

A: No. Therefore, if you want to bid on SRF projects then you will need to get certified through KTC or the EPA in order to be counted as a MBE/WBE under the new EPA DBE rule. Noncertified MBE/WBEs may be used by loan recipients for their procurement needs but those firms cannot be counted toward their MBE/WBE accomplishments. Under the new EPA DBE rule entities can no longer self-certify.

Q: How do I obtain certification as an MBE/WBE?

A: Under the new DBE program, in order to be counted as an MBE or WBE under an EPA financial assistance agreement, an entity will have to be certified as such. The EPA will require an MBE/WBE to first seek certification by a federal agency (such as the U.S. Small Business Administration, the U.S. Department of Transportation) or by a State, local, or independent private organization provided their criteria match those of the Small Business Act and SBA's applicable Business Development Program regulations. The EPA will only consider certifying firms that cannot get certified by one of these entities. An EPA DBE certification would only be accepted by the EPA.

Q: Where can I find a list of MBE/WBEs who have been certified and meet the requirements under the new EPA DBE rule?

A: The KTC DBE directory can be accessed at: http://transportation.ky.gov/OBOD/ which is located under the heading Disadvantaged Business Enterprise Directories. Those entities that were certified through EPA are posted on the EPA Office of Small Business Program's (OSBP) website. The website is: http://www.epa.gov/osbp/grants.htm.

Q: Can individuals having a personal net worth of $750,000 or more get certified as a DBE under the new EPA rule?

A: No. An individual claiming economic disadvantaged status must have an initial and continued personal net worth of less than $750,000.

Q: How can I find out more information about certification and the new EPA DBE rule in general?

A: You are encouraged to read the fact sheets located at http://www.epa.gov/osbp/grants.htm.

To view the Federal Register showing the DBE rule from the EPA, see Vol. 73, No. 59, pages 15904 - 15922 at http://www.epa.gov/osdbu/pdfs/dbe/final%20dbe%20rule.pdf

*** Contract Administration:** The new EPA DBE rule adds additional contract administration requirements that are intended to protect DBE subcontractors. Some of the requirements include provisions intended to ensure that subcontractors receive prompt payment from prime contractors (30 day payment provision). Loan recipients must be notified of DBE subcontractor terminations and prime contractors are required to make good faith efforts if the prime contractor chooses to hire another subcontractor. The rule requires that 3 new forms be filled out by the prime contractor and subcontractor if there are DBE subcontractors involved in a procurement.

The loan recipient must ensure that each contract awarded contains the term and condition set forth below:

"Term and Condition: The contractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The contractor shall carry out applicable requirements of 40 CFR Part 33 in the award and administration of contracts awarded under EPA financial assistance agreements. Failure by the contractor to carry out these requirements is a material breach of this contract which may result in the termination of this contract or other legally available remedies."

Another new requirement is that loan recipients are now required to create and maintain a bidders list. The list must include all firms that bid or quote on prime contracts or subcontracts, including MBE/WBEs and non MBE/WBEs. The bidders list must be kept until the project period for the identified loan has ended. The project period is defined as the timeframe that the loan recipient receives SRF funding. The following information must be obtained from all prime and subcontractors: 1) entity's name with point of contact; 2) entity's mailing address, telephone number, and e-mail address; 3) the procurement on which the entity bid or quoted, and when; and 4) entity's status as an MBE/WBE or non-MBE/WBE.

Q: What is the purpose of the bidders list? And, as a loan recipient must I maintain it? Do I need to also provide a copy to SRF?

A: The purpose of the bidders list is to provide the loan recipient and SRF with a more accurate database of the universe of MBE/WBE and non MBE/WBE prime and subcontractors. The bidders list is intended to be a list of all firms that are participating, or attempting to participate, on EPA assisted contracts. The list must include all firms that bid on prime contracts, or bid or quote on subcontracts under EPA assisted projects, including both MBE/WBEs and non MBE/WBEs. As a loan recipient you must maintain the list. You will also provide SRF a copy of the bidders list when you submit your post-bid documentation to the Kentucky Division of Water's SRF & SPAP Section.

* **Reporting Requirements:** Loan participants, who close loans after the signing of the 2009 EPA Capitalization Grant, will be required to submit their MBE/WBE participation reports on a **semiannual basis** to the **Kentucky Division of Water's SRF & SPAP Section**. All loan participants who closed loans prior to the signing of the 2009 EPA Capitalization Grant will continue to report on a quarterly basis. Only certified MBE/WBE will be counted towards MBE/WBE participation.

Q: What are the Six Good Faith Efforts?

A: The good faith efforts are activities by an SRF loan recipient and its prime contractor to increase DBE awareness of procurement opportunities through race/gender neutral efforts. EPA combined the "Six Positive Efforts" (found at 40 CFR Part 31) with the "Six Affirmative Steps" (found at 40 CFR Part 30) and renamed them the six "good faith efforts" (found at 40 CFR Part 33). The substance of the efforts has not changed.

The Six Good Faith Efforts as defined by the EPA are as follows:

- 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.
- 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.
- 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.
- Encourage contracting with a consortium of DBEs when a contract is too large for one of these firms to handle individually.
- Use the services and assistance of the SBA and the Minority Business Development Agency of the Department of Commerce.
- If the prime contractor awards subcontracts, require the prime contractor to take the steps in paragraphs (a) through (e) of this section.

Q: What are the three new forms and where can I go to get a copy of the new forms?

A: The forms can be obtained at http://www.epa.gov/osbp.grants.htm under "Forms".

The three new forms are:

* EPA Form 6100-2 - DBE Program Subcontractor Participation Form. 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.

* EPA Form 6100-3 - DBE Program Subcontractor Performance Form. 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.

* EPA Form 6100-4 – DBE Program Subcontractor Utilization Form. This form captures the prime's intended use of an identified DBE subcontractor, and the estimated dollar amount of the subcontract.

Form	Requirement	Provided By:	Completed By:	Submitted To:
EPA Form 6100-2	Recipients required to have prime contractors provide form to Subcontractors	Prime Contractors	DBE Subcontractors	EPA DBE Coordinator
EPA Form 6100-3	Recipients required to have prime contractors provide form to Subcontractors	Prime Contractors	DBE Subcontractors	Recipients as part of a bid or proposal package
EPA Form 6100-4	Recipients required to have prime contractors complete the form	Recipients	Prime Contractors	Recipients as part of a bid or proposal package

* Filled out by DBE subcontractor. * Submitted any time during project.

OMB Control No: 2090-0030
Approved: 05/01/2008
Approval Expires: 01/31/2011

Environmental
Protection Agency

Disadvantaged Business Enterprise Program
DBE Subcontractor Participation Form

NAME OF SUBCONTRACTOR[1]	PROJECT NAME
ADDRESS	CONTRACT NO.
TELEPHONE NO.	EMAIL ADDRESS
PRIME CONTRACTOR NAME	

Please use the space below to report any concerns regarding the above EPA-funded project (e.g., reason for termination by prime contractor, late payment, etc.).

CONTRACT ITEM NO.	ITEM OF WORK OR DESCRIPTION OF SERVICES RECEIVED FROM THE PRIME CONTRACTOR	AMOUNT SUBCONTRACTOR WAS PAID BY PRIME CONTRACTOR

Subcontractor Signature _____ Title/Date _____

[1]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.

* Filled out by DBE subcontractor. * Submitted any time during project.

OMB Control No: 2090-0030
Approved: 05/01/2008
Approval Expires: 01/31/2011

Environmental
Protection Agency

Disadvantaged Business Enterprise Program
DBE Subcontractor Participation Form

The public reporting and recordkeeping burden for this collection of information is estimated to average fifteen (15) minutes. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed EPA DBE Subcontractor Participation Form to this address.

* Filled out by DBE subcontractors. * Submitted after opening bids.

OMB Control No: 2090-0030
Approved: 05/01/2008
Approval Expires: 01/31/2011

Environmental Protection Agency

Disadvantaged Business Enterprise Program
DBE Subcontractor Performance Form

NAME OF SUBCONTRACTOR[1]	PROJECT NAME
ADDRESS	BID/PROPOSAL NO.
TELEPHONE NO.	E-MAIL ADDRESS
PRIME CONTRACTOR NAME	

CONTRACT ITEM NO.	ITEM OF WORK OR DESCRIPTION OF SERVICES BID TO PRIME	PRICE OF WORK SUBMITTED TO PRIME CONTRACTOR

Currently certified as an MBE or WBE under EPA's DBE Program? _____ Yes _____ No

_____ _____
Signature of Prime Contractor Date

_____ _____
Print Name Title

_____ _____
Signature of Subcontractor Date

_____ _____
Print Name Title

[1]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.

* Filled out by DBE subcontractors. * Submitted after opening bids.

OMB Control No: 2090-0030
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Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed EPA DBE Subcontractor Performance Form to this address.

* Filled out by prime contractor.

* Submitted after opening bids.

OMB Control No: 2090-0030
Approved: 05/01/2008
Approval Expires: 01/31/2011

Environmental Protection Agency

Disadvantaged Business Enterprise Program
DBE Subcontractor Utilization Form

BID/PROPOSAL NO.	PROJECT NAME
NAME OF PRIME BIDDER/PROPOSER	E-MAIL ADDRESS
ADDRESS	
TELEPHONE NO.	FAX NO.

The following subcontractors[1] will be used on this project:

COMPANY NAME, ADDRESS, PHONE NUMBER, AND E-MAIL ADDRESS	TYPE OF WORK TO BE PERFORMED	ESTIMATED DOLLAR AMOUNT	CURRENTLY CERTIFIED AS AN MBE OR WBE?

I certify under penalty of perjury that the forgoing statements are true and correct. 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).

Signature of Prime Contractor _____ Date _____

Print Name _____ Title _____

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.

SECTION 01010 - SPECIAL CONDITIONS

1. RELATED DOCUMENTS

General Provisions of Contract, General and Supplementary Conditions apply to this section.

2. DESCRIPTION OF WORK

Provide labor, materials, equipment and services necessary for proper and complete construction of this contract for the Bullock Pen Water District.

3. CONTRACTOR'S QUALIFICATIONS

At the request of the Owner, each bidder shall submit, in writing, the following information:

A. Name and address of principal owner of contracting company.

B. Net worth statement.

C. A list of all similar work performed within the past five (5) years with name and address of Engineer on each project.

4. CONTRACTOR'S SUPERINTENDENT

Contractor shall keep on his work, at all times during its progress, a competent superintendent satisfactory to Engineer. The Superintendent shall not be changed, except with consent of Engineer, unless he proves to be unsatisfactory to Contractor and ceases to be in his employ. Superintendent shall represent Contractor in his absence and all directives given to him shall be binding as if given to Contractor.

5. INTENT

The intent of these Specifications is to require a high level of quality in materials and workmanship resulting in timely completion of all Work in an orderly sequence and manner without inconvenience to the Owner, adjacent property owners or the public.

6. WORK REASONABLY INFERRED BUT NOT PARTICULARLY DELINEATED OR SPECIFIED

A. Contractor shall make a thorough examination of site and study all drawings and specifications and all conditions relating to work, and if any materials or labor are evidently necessary for proper and complete execution of work which are not specifically mentioned and included in drawings and specifications, although reasonably inferred therefrom, unless eliminated by special mention, or if any error or inconsistency appears therein, or in the event of any doubts arising as to the true intent and meaning of drawings or specifications, he shall report it to Engineer at least five (5) days in advance of date set for receiving bids. If appropriate, Engineer will then issue an addendum containing the proper information to all Contractors not later than three (3) days prior to the date set for opening of bids.

B. If Contractor fails to make such report and Engineer is not otherwise advised of such doubtful matters, Contractor is hereby made responsible for furnishing all necessary labor and material reasonably inferred for any additional work involved in correction of apparent errors or inconsistencies and in executing the true intent and meaning of drawings and specifications as interrupted by Engineer, and all such labor and material shall be provided at Contractor's expense and under no circumstances will any such labor and material be allowed as extra cost.

7. QUALITY OF MATERIALS, EQUIPMENT AND WORKMANSHIP

A. Unless otherwise specified, all materials shall be new and both workmanship and materials shall be of good quality. Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

B. Approval of manufacturer's shop drawings of materials and equipment shall not mean final acceptance, but they shall be subject to inspection and test on delivery and installation. Contractor shall repair, replace, or adjust any materials or equipment found defective or not operating properly due to improper materials, workmanship, and adjustment for a period of one year after completion and acceptance of work.

C. Contractor shall at all times enforce strict discipline and good order among his employees, and shall not employ anyone not skilled in the work assigned to him.

8. TRADE NAMES

Whenever manufactured products, devices or materials are specified under a particular trade name or name of manufacturer, it shall be understood that the specifications are open to other manufacturers whether or not the clause "or approved equal" is included. Other products comparable in type, quality, utility and price are acceptable if approved by Engineer and Owner. The burden of proof of equality shall rest with Contractor. Owner shall be the sole judge of equality and reserves the right to require the product or material specified by name and furnished at no increase in contract amount. If "no substitution" is included with the brand name, only the specified items will be accepted.

9. MANUFACTURER'S EQUIPMENT - SHOP DRAWINGS

A. Various items of equipment indicated on Drawings have been indicated schematically only; actual details of each item of equipment shall be verified in shop drawings submitted to Engineer for approval. Data shown on shop drawings shall be complete with respect to dimensions, design criteria, materials of construction, wiring diagrams and component parts, and all details to enable Engineer to review the information as required. At the time of submission, the manufacturer shall in writing, call Engineer's attention to any deviations that shop drawings may have from requirements of Engineer's specifications, or deviation in dimension or equipment weight which might affect structural design or stability. Engineer's approval of shop drawings shall not relieve Contractor from responsibility for compliance with requirements of specifications. Engineer shall not be held responsible for omission or deletion of any components of manufacturer's equipment. Equipment manufacturer shall be responsible for all components of equipment and shall

guarantee that equipment will perform and operate satisfactorily in accordance with requirements set forth in these specifications.

B. Contractor shall furnish six (6) copies of all shop drawings to Engineer for review. No equipment or materials shall be ordered prior to Engineer's written approval of shop drawings.

10. EXISTING UTILITIES

A. Before proceeding with work, Contractor shall verify location of, and possible interference with, existing utilities, arrange for necessary suspension of service, and make arrangements to locate and avoid interference with all utilities.

B. Contractor shall protect all utility lines which are to remain in service.

C. Special precautions shall be taken by Contractor to avoid damage to existing overhead and underground utilities owned and operated by Owner or by public or private utility companies.

D. With particular respect to existing underground utilities, the available information concerning their location has been indicated on Drawings. While it is believed that the locations shown are reasonably correct, neither Engineer nor Owner can guarantee accuracy of adequacy of this information.

E. Before proceeding with work, Contractor shall confer with all public or private companies, agencies, or departments that own and operate utilities in vicinity of construction. The purpose of the conference, or conferences, shall be to notify said companies, agencies, or departments of proposed construction schedule, verify location of, and possible interference with, existing utilities that are indicated on Drawings, arrange for necessary suspension of service, and make arrangements to locate and avoid interference with all utilities (including house connections) that are not indicated on Drawings. Engineer and Owner have no objection to Contractor arranging for said utility companies, agencies, or departments to locate and uncover their own utilities; however, Contractor shall bear entire responsibility for and cost of locating and avoiding or repairing damage to any and all existing utilities.

F. Contractor shall be diligent in his efforts and use every possible means to locate existing utilities. Any claims for unavoidable damage, based on improper or unknown locations, will be thoroughly examined in light of Contractor's efforts to locate said utilities or obstructions prior to beginning construction.

G. For General Utility Information call:

B.U.D. (Before You Dig)
811

11. DAMAGE TO EXISTING UTILITIES

A. Contractor shall be responsible for any and all damage done to existing utilities.
B. Damage done to existing utilities shall be repaired promptly, to satisfaction of utility company, at no cost to Owner.

12. PUBLIC AND PRIVATE HIGHWAYS AND STREETS

A. Contractor shall ascertain and obey all State and County road load limits in order to prevent damage to pavements resulting from his operation.

B. Public Convenience and Safety

(1) Contractor shall, at all times, conduct work in such manner as to insure minimum obstruction to public travel. Convenience of general public and of residents along and adjacent to area of work shall be provided for in a satisfactory manner, consistent with operation and local conditions and as directed by the Engineer.

(2) Flagmen shall be used at any time that work of any kind is being performed on any portion of roadway pavement, shoulder or ditch or when equipment or employees are working on any portion of pavement, shoulder or ditch.

(3) "Construction" signs shall be placed immediately adjacent to work, in conspicuous positions at such locations as traffic demands. Signs shall conform to requirements of Manual on Uniform Traffic Control Devices (MUTCD) published by U.S. Department of Transportation, Federal Highway Administration, latest edition. The manual is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. At any time that streets are required to be closed, Contractor shall notify law enforcement agencies, fire departments, and parties operating emergency vehicles before streets are closed and again as soon as it is reopened. Access to fire hydrants and other fire extinguishing equipment shall be provided and maintained at all times.

(4) Trenches shall be backfilled at end of each day's work as directed by Engineer. Trenches left open shall be adequately protected with suitable flashing barricades, in compliance with MUTCD and as approved by Engineer. All trenches are required to be backfilled at end of work week. No trenches shall remain open over a weekend. Contractor shall place and maintain DGA on streets and in trenches in construction area when directed by Engineer to maintain roads in safe and traversable condition. Placement of DGA and maintenance of traffic in construction area is considered incidental to construction and will not be paid for separately.

13. WORK ON PRIVATE PROPERTY

A. In connection with work performed on "private property" (property other than public rights-of-way), Contractor shall confine equipment, storage of materials, and operation of his workmen to limits indicated on plans, or to lands and rights-of-way provided for the project by Owner, and shall take every precaution to avoid damage to private property owners' buildings, grounds and facilities.

B. Fences, hedges, shrubs, etc. within construction limits, shall be carefully removed, preserved, and replaced after construction on the private property is completed. Private property owners' facilities, and grounds, shall be restored to as good or better condition than found, as quickly as possible, at Contractor's expense.

C. Large trees or other facilities within construction limits that cannot be preserved and replaced shall be removed by Contractor with the approval of the Engineer. Such trees and facilities, however, may be indicated on Drawings. Contractor shall be solely and entirely responsible for any damage to trees or facilities whether indicated on Drawings or not.

D. Foundations, adjacent to excavations made below bottoms of the foundations, shall be supported by shoring, bracing, and underpinning as required as long as excavations remain open, and Contractor shall be responsible for any damage to foundations.

14. BLASTING

A. All blasting operations shall be conducted in strict accordance with Kentucky Revised Statutes 351.320 to 351.340 and 351.340, effective October 6, 1972, and subsequent revisions, which shall be deemed to be included in these specifications the same as though herein written out in full. Contractor shall also comply with applicable municipal ordinances, Federal safety regulations and Section 9 of the Manual of Accident Prevention in Construction published by the Associated General Contractors of America, Inc. All explosives shall be stored in conformity with said ordinances, laws and safety regulations. No blasting shall be done within any other underground utility lines, except with light charges of explosives. Any damage done by blasting is the responsibility of the Contractor and shall be promptly and satisfactorily repaired by him.

B. If directed by Engineer, all shots shall be covered with heavy timber or steel blasting mats to prevent flying material. Unless otherwise specified or directed, delay caps shall be used to reduce earth vibrations and noise.

C. All blasting shall be supervised and performed by qualified personnel.

15. CLEAN-UP

A. Clean-up shall be performed on a daily basis. All debris shall be removed from site regularly. The site shall be kept in a neat condition, ready for subsequent operations.

B. If Contractor fails to perform proper or adequate cleanup behind pipe laying operations, Engineer may recommend to Owner that an additional amount of retainage, not to exceed ten (10) percent, be withheld from payment(s) due Contractor.

16. PRECONSTRUCTION CONFERENCE

A. Following signing of Contract Documents and prior to actual beginning of construction, a Pre-Construction Conference will be held. Contractor, Contractor's Superintendent, and major subcontractors, shall be present to discuss the Construction Schedule, Contractor's Plan of Operation, Engineer's authority, Resident Inspector's authority, procedures for monthly progress reviews and payments, and other relevant questions. Preconstruction conference will be scheduled by Engineer within ten (10) calendar days following date of signing of Agreement.

B. Unless otherwise instructed by Engineer, Contractor shall prepare and submit five (5) copies of his proposed Construction Schedule for review at Preconstruction Conference.

(1) Construction Schedule shall be in a line-item/bar chart format showing anticipated starts, durations and completion of all major items, operations or disciplines or work.

17. TEMPORARY TOILETS, UTILITIES, STORAGE, ETC.

A. Contractor shall be responsible for providing suitable temporary toilets for use by all workmen.

B. Contractor shall be responsible for providing suitable sources of potable water for all operations required for completion of work.

C. Contractor can use any of the lot owned by Bullock Pen Water District for on-site areas for storage of materials and equipment, etc. All areas disturbed shall be graded and seeded.

D. Costs for any and all items covered under this paragraph shall be at Contractor's expense.

18. SECURITY

A. Contractor shall be responsible for protection of his materials, equipment and work during period of Contract. Damage done to construction stakes or to material, equipment, or to completed work shall be replaced or repaired to Engineer's satisfaction and at no additional cost to Owner.

B. Contractor shall be responsible for protection of adjacent public and private property affected by work performed under this Contract, and shall make all necessary and appropriate arrangements with adjacent property owners and with Engineer for such protection prior to commencing work. Damage done to adjacent property resulting

from Contractor's operations, or loss suffered by owners of adjacent property, shall be repaired or otherwise compensated by Contractor to satisfaction of Engineer and the affected owner of adjacent property at no additional cost to Owner.

19. LAYING OUT WORK

A. Center of tank will be staked. A benchmark will be set near the tank site as shown on plans.

B. Contractor will be responsible for all construction staking and shall furnish all materials required for staking. Contractor's personnel engaged in staking work shall be capable of performing duties set out herein.

20. MEASUREMENTS

A. Contractor and each subcontractor shall be responsible for verification of all measurements at site before ordering materials or doing work. No extra charge or compensation shall be allowed due to differences between actual dimensions found in the field and dimensions indicated on Bid Form or on Drawings.

B. Contractor shall be prepared to guarantee to each of his subcontractors dimensions which he may require for layout and fitting of his work to surrounding work.

21. RECORD DOCUMENTS

Contractor shall maintain in good condition at project site one (1) set of prints of all Contract Drawings, upon which Contractor's Representative will record periodically as required the actual location and conditions of construction, if different than shown or indicated on Drawings. Approval of final payment is contingent in part, upon receipt of record drawings by Engineer.

22. PARTIAL PAYMENT SCHEDULE

A. Partial Payment Estimate forms will be furnished by Engineer at Preconstruction Conference. Contractor shall prepare monthly Payment Request Forms, as described in General Conditions.

B. Contractor shall attend monthly Progress Meetings, scheduled by Engineer, for purpose of reviewing Contractor's Request for Payment and other matters pertaining to performance of work. If directed by Engineer, Contractor shall arrange for his subcontractors to be present at Progress Meetings.

C. Payments Withheld

(1) Engineer may withhold or, on account or subsequently discovered evidence, nullify the whole or part of any certificate to such extent as may be necessary to protect Owner from loss on account of:

a. Defective work not remedied.

b. Claims filed or reasonable evidence indicating probable filing of claims.

c. Failure of the contractor to make payments properly to subcontractors or for material or labor.

d. A reasonable doubt that the contract can be completed for the balance then unpaid.

e. Damage to another Contractor.

f. Performance of work in violation of the terms of the contract.

D. Where work on unit price items is substantially complete but lacks clean-up and/or corrections order by Engineer, amounts shall be deducted from unit prices in payment certificates to amply cover such clean-up and corrections. When the above clean-up and/or corrections are made, payment shall be made for amounts withheld.

23. USE OF PREMISES AND REMOVAL OF DEBRIS

Contractor shall, at his own expense:

A. Take every precaution against injuries to persons or damage to property;

B. Store his apparatus, materials, supplies and equipment in such orderly fashion at site of work as will not unduly interfere with progress of his work or work of any other contractors or subcontractors;

C. Place upon the work or any part thereof only such loads as are consistent with the safety of that portion of the work;

D. Clean up daily all refuse, rubbish, scrap materials, and debris caused by his operations, to the end that at all times the site of work shall present a neat, orderly and workmanlike appearance.

E. Before final inspection, remove all surplus materials, falsework, temporary structures, including foundations thereof, all debris resulting from his operation, and put the site in a neat, orderly condition;

F. Effect all cutting, fitting or patching of his work required to make same conform to intent of Plans and Specifications and, except with consent of Engineer, no cut or otherwise alter the work of any other Contractor.

24. FIELD CHANGES

Engineer may issue written "Changes" which interpret Contract Documents without change in contract price or contract time, and Contractor shall carry out such field orders promptly.

25. GENERAL GUARANTY

The Contractor shall guarantee all materials and equipment furnished and work performed for a period of one (1) year from date of substantial completion. Contractor warrants and guarantees for a period of one (1) year from date of substantial completion of system that

completed system is free from all defects due to faulty materials or workmanship and Contractor shall promptly make such corrections as may be necessary by reason of such defects including repairs or damage of other parts of system resulting from such defects. Owner will give notice of observed defects with reasonable promptness. In the event that Contractor should fail to make such repairs, adjustments, or other work that may be made necessary by such defects, the Owner may do so and charge Contractor the cost thereby incurred. The Performance Bond shall remain in full force and effect through the guarantee period.

26. SPECIFICATIONS BY REFERENCE

A. Whenever the term "Standard Specifications" is used, it shall mean "Standard Specifications for Road and Bridge Construction" of the Kentucky Transportation Cabinet, Department of Highways, Edition of 1998. Items described by reference to "Standard Specifications" shall comply with "Standard Specifications" as if they were printed herein.

B. Copies of "Standard Specifications" may be obtained from: Transportation Cabinet, Department of Administration, Division of Management Services, State Office Building, Frankfort, Kentucky 40622.

27. CHANGE ORDERS

A. Change Orders shall be negotiated between the Engineer and Contractor. No work on Change Order shall proceed until change or has been approved by all parties.

B. Change Orders must comply with DOW Procurement Guidance for Construction and Equipment Contracts.

C. Cost, pricing and certification for Change Orders exceeding $25,000 must comply with DOW Procurement Guidance for Construction and Equipment Contracts.

28. SAFETY STANDARDS

Contractor shall be in compliance with OSHA (P.L. 91-596) and the Contract Work Hours and Safety Standards Act (P.L. 91-54).

29. CUTTING OF TREES

Trees greater than six inches in diameter at breast height shall only be cut between October 15 and March 31. In cases where six inch diameter at breast height trees have to be cut from April 1 to October 15, a biologist will be required to evaluate the site and certify no Indiana bats are present.

END SECTION

CONTRACT #1 - 500,000 GALLON ELEVATED WATER STORAGE TANK

BULLOCK PEN WATER DISTRICT

DIVISION 2 – TECHNICAL SPECIFICATIONS

SECTION 02235 - SILTATION CONTROL

1. RELATED DOCUMENTS

General provisions of Contract, General and Supplementary General Conditions, and General Requirements apply to this Section.

2. DESCRIPTION OF WORK

A. Provide labor, material, equipment and services necessary for proper and complete siltation control.

B. This work shall consist of temporary control measures as ordered by Engineer during life of contract to control siltation through use of erosion control methods; and coordinating these measures with permanent erosion control features specified elsewhere in contract to extent practicable to assure effective and continuous erosion control throughout construction and postconstruction period.

C. Intent of this specification is to protect quality of water through prevention, control, and abatement of siltation resulting from construction project.

D. Contractor shall exercise every reasonable precaution at all times to prevent siltation of all streams. He shall conduct and schedule his operations so as to avoid or minimize muddying or siltation of all streams. No partially completed item of work shall be left in a manner that will contribute to erosion during period in which work on item is suspended.

3. QUALITY ASSURANCE

A. Progress Requirements

(1) All silt fences and rock check dams shall be installed before any construction is started.

(2) Both permanent and temporary erosion control measures shall be progressively coordinated with construction operations throughout duration of project.

(3) As areas of erodible earth material are exposed to elements of erosion, every effort should be made to stabilize and protect areas as quickly as possible, and as directed. Upon failure of Contractor to coordinate erosion control measures with construction operations in a manner to effectively control erosion and to prevent water pollution, Engineer may suspend Contractor's operations and withhold monies due Contractor on current estimates until such time that all aspects of work are coordinated in an acceptable manner.

(4) Contractor must be familiar with and adhere to the K.P.D.E.S. General Permit for Storm Water Discharges.

B. Payment

(1) Temporary erosion and pollution control measures which are required per bid item 2 and 3, which are ordered by Engineer or shown on plans, shall be performed by Contractor at his own expense.

(2) If required, Engineer shall direct temporary seeding operations. Temporary seeding will be considered part of the seeding bid item.

4. CONSTRUCTION

A. Prevention of Pollution

(1) Construction operations shall not be performed in stream channels except in those areas where creek crossings are indicated on Drawings or where necessary for temporary or permanent structure.

(2) Material removed from excavation shall not be deposited in streams, stream channels, other areas subject to flooding, or other locations where it may be washed away by high stream flows or fast runoff. Soil stockpiles should be located in areas contained by silt fence.

(3) Fuels, oils, bitumens, calcium chloride, or other harmful materials shall not be placed where they may be carried into a stream or underground waters at any time.

(4) Duration of exposure of uncompleted construction shall be as short as practicable. All backfilled trenches shall be permanently vegetated progressively with construction.

(5) Contractor shall exercise every reasonable effort to prevent grass or brush fires that will expose areas of soil to erosion. Areas exposed to erosion by fire resulting from Contractor's operations shall be seeded and protected at no cost to Owner.

(6) Lands and waters outside limits of construction, shall not be disturbed, except as may be found necessary and as permitted. Before final acceptance of work, all such disturbed areas, including abandoned haul roads, storage areas and plant sites, shall be reshaped to conform to adjacent ground and shall be revegetated by Contractor at his expense.

B. Best Management Practices

(1) The erosion control plan (EPSC) effectively controls erosion from disturbed soils and wash water. However no plan can be made that details all possible control measures throughout construction. The Contractor is to provide adequate funds in their base bid to comply with the requirements of the BPWD and the Kentucky Division of Water (KDOW).

(2) Contractor is to take immediate action to clean up spills of illicit material and must maintain oil and grease absorbing materials on-site. Contractor is to deposit rubbish, trash garbage, litter, etc. in sealed containers. Contractor is to control dust from the site. Concrete trucks must wash out on-site such that the wash water is discharged to a sediment trapping device.

(3) If the disturbed area is greater than or equal to 1 acre, the Contractor must secure the K.P.D.E.S. notification of coverage prior to beginning construction activities. The K.P.D.E.S. notice of intent (NOI) must be submitted at least seven (7) days prior to beginning construction activities if the KDOW online e-permitting web site is utilized. The NOI must be submitted thirty (30) days prior to beginning construction activities if a paper copy if sent to the KDOW.

(4) Contractor to keep a signed and sealed erosion control plan on-site, and make it available to inspectors from the BPWD and the KDOW.

(5) Contractor (at their own expense) is to amend the EPSC plan as necessary. All necessary modifications to the EPSC plan must be completed before the next storm event whenever possible and no later than seven (7) calendar days after discovering the need for modification. Contractor is to clearly mark all changes that are made, the location of fueling stations, maintenance and cleaning areas, loading areas, and locations where materials are exposed to precipitation on the EPSC plan.

(6) Contractor is to immediately contain and clean up any illicit spills. Contractor is to mark the location of any major spill or leak on the EPSC plan. When major spills enter a waterway or storm sewer, contact BPWD or KDOW.

(7) Erosion control measures, discharge locations, vehicle exits, disturbed areas, and storage areas much be inspected by qualified personnel employed by the Contractor. The inspections must be done at least once every seven (7) calendar days and within 24 hours after any storm event equal to 1/2 inch or greater. Reports of the inspections must be kept on-site and made available to inspectors from the BPWD and the KDOW.

C. Temporary Control Measures

(1) Engineer may limit surface area of erodible earth material exposed by trenching and backfilling operations, and may direct Contractor to provide immediate permanent or temporary pollution control measures to prevent contamination of adjacent streams.

(2) Temporary pollution control measures shall be coordinated with permanent erosion control features to extent deemed practicable by Engineer to assure effective and continuous erosion control throughout construction and post-construction periods.

(3) Temporary erosion control measures shall be used at any time during life of project when directed to prevent soil erosion and pollution of streams.

(4) Erosion control features installed by Contractor shall be acceptably maintained by him.

(5) Temporary silt fence is to be installed as specified in the Drawings.

(6) Temporary rock check dams are to be installed as specified in the Drawings.

(7) Construction exit is to be installed as specified in the Drawings.

(8) Permanent rip rap protection is to be installed as specified in the Drawings.

(9) Erosion control blankets are to be installed on all slopes steeper than 3:1 as specified in the Drawings meeting the Erosion Control Technology Council Specifications as outlined in Section 4.5.3 of the Kentucky Technical Specifications for BMPs.

D. Stream Crossings

(1) All stream crossings shall be constructed perpendicular to the stream.

(2) Silt fence will be placed on each side of stream to be crossed to prevent siltation and erosion.

(3) Stream crossing site shall be regraded and reseeded within 14 days after disturbance.

(4) No excavated material shall be placed in stream bed during construction.

(5) Stream crossings shall be done at periods of low flow.

5. CLEAN-UP

At completion of project, when site has stabilized in conformance with the K.P.D.E.S. regulations and when approved by Engineer, all temporary erosion control materials (silt fences, rock check dams, etc.) shall be removed from the site and properly disposed of.

END SECTION

SECTION 02300 - EXCAVATING AND GRADING

1. RELATED DOCUMENT

General provisions of Contract, General and Supplemental General Conditions, and General Requirements apply to this Section.

2. DESCRIPTION OF WORK

Provide labor, material, equipment and services necessary for proper and complete site excavation and embankment for tank site and roadway.

3. CLASSIFICATION OF EXCAVATION

All excavation shall be considered as unclassified.

4. SITE PREPARATION

Prior to commencing construction operations, make all provisions necessary to assure protection of all existing improvements, both public and private. Protect trees, shrubs, plantings, and grassed areas and make provisions for maintaining public travel in an acceptable manner.

5. EXCAVATION

A. Use of Excavated Materials

(1) All suitable material removed from excavation shall be disposed of off-site or used on the tank site.

(2) Remove all soft or spongy material and dispose of as directed. Such materials shall not be used in construction of grade.

(3) All rocks and boulders, when directed, shall be placed in embankments, provided embankments are of sufficient depth to provide 12 inches or more soil cover over such rocks or boulders. Such rock and boulders shall not be placed under foundation when embankment is constructed principally of soils.

B. Excavation

(1) Where rock is encountered in excavation, it shall be removed to a depth below required grade as indicated on Drawings or as staked, with no points of rock projecting above such depth. Final surface of rock shall be left so that complete drainage will be provided, and no water will be pocketed at any point. Refill over this surface shall be made of selected materials and shall contain no stone or spalls larger than 4 inches, except when otherwise provided on Drawings for rock roadbed. All refill shall be replaced in layers not exceeding 12 inches in depth, loose measurement, and compacted.

(2) Excavated sections, whether it consists of existing material or refill material, shall be compacted. When material in place does not contain sufficient moisture to obtain proper compaction, area shall be thoroughly scarified and broken to a minimum depth of 6 inches, moisture content increased as directed, and roadbed compacted. Unsuitable material, when encountered at subgrade elevation, shall be removed to such depths as indicted on Drawings or as directed and disposed of as directed. No additional payment will be made for scarifying or manipulation necessary to increase or decrease moisture content as this is considered incidental to work.

6. EMBANKMENT

A. Description. Form embankments with materials to conform to lines, grades, and cross section specified. Material shall be obtained on excavation site.

B. Materials. Only acceptable materials from approved sources shall be used in embankment formation. No frozen material, stumps, logs, roots, or other perishable materials shall be placed in any embankment. No stone or masonry fragment greater than 4 inches in any dimension shall be placed within 12 inches of finished subgrade elevation.

C. Construction Requirements

(1) Embankment foundations shall be compacted as directed.

(2) When indicated on Drawings or when directed, remove unsuitable materials encountered in embankment areas prior to placement of embankment material thereon. Removed materials shall be wasted, stockpiled, or otherwise disposed of as directed.

D. Embankment Formation

(1) Form embankments constructed of earth, weathered rock, blasted rock, or similar materials by distributing materials in successive uniform horizontal layers not exceeding 12 inches in thickness, loose depth, to full width of cross section. However, layers less than 12 inches in loose thickness will be required when necessary to obtain specified density. Compact each layer.

(2) Shape upper surface of embankment to provide complete drainage of surface water at all times. Forming of ruts shall not be permitted.

(3) In embankments that are constructed principally of unweathered limestone or durable mudstone, layer thickness shall not exceed 3 feet; maximum dimensions of boulders or large rocks placed in embankment shall be 3 feet vertically and approximately 4.5 feet horizontally. Rock having any dimensions greater than 2 feet shall be kept at least 2 feet below subgrade elevation. Rock shall not be dumped into final position, but shall be distributed by blading or dozing in a manner that will ensure proper placement in embankment so that voids, pockets, and bridging will be reduced to a minimum. Slopes shall conform substantially with

requirements of Drawings. Rock embankment shall not be constructed to an elevation higher than 12 inches below subgrade elevation. Remainder of embankment shall be constructed with selected material placed in uniform layers not exceeding 12 inches loose thickness and compacted as specified for embankments. Rolling will not be required in construction of rock embankment.

(4) In areas where layers of rock and shale or soil are encountered and embankments are constructed of a mixture of rock and soil, material shall be placed, manipulated and compacted in layers not exceeding 12 inches in thickness; however, when thickness of rock exceeds 12 inches, thickness of embankment layers may be increased as necessary due to nature of material and as approved by Engineer. In no case shall layer thickness exceed 3 feet. Mixture shall not be dumped into final position but shall be distributed by blading or dozing in a manner that will ensure proper placement in embankment so that voids, pockets, and bridging will be reduced to a minimum. Mixture shall then be compacted with suitable compaction equipment. When directed, material shall be wetted to aid compaction.

7. COMPACTION

A. Embankment

(1) Upon completion of stripping topsoil from embankment areas, exposed soil shall be proof -rolled. Areas of unstable soil shall be undercut and replaced with suitable soil, or shall be stabilized with broken pieces of limestone.

(2) Compact embankment to a density of at least 95 percent of maximum density as determined by ASTM D-698.

(3) During compaction, embankment material which does not contain sufficient moisture to obtain proper compaction shall be wetted and thoroughly mixed as deemed necessary. Embankment material containing an excess of moisture shall be allowed to dry before being compacted. Manipulation of wet material to speed drying will be permitted.

(4) To avoid uneven compaction, hauling equipment shall traverse, as much as possible, full width of cross section. Each layer shall be compacted as required before material for next layer is deposited.

8. TOPSOIL

A. Topsoil shall be salvaged from within limits of grading and stored in stockpiles.

B. Do not mix subsoil or other material with topsoil.

C. Locate stockpiles at approved locations. Contractor may elect to spread topsoil directly on areas designated to receive topsoil, without stockpiling, provided that seeding and protection operations are ready to begin.

D. Topsoil shall not be spread until grading and shaping of area to receive topsoil has been completed, and seeding and protection operations are ready to begin. Stockpiled material shall be spread to a uniform depth of 8 inches minimum over such areas and lightly compacted. Areas designated to receive topsoil will normally include, but are not limited to cut slopes no steeper than 3:1 and all other areas to be seeded. After topsoil has been spread and compacted, areas upon which it was stockpiled shall be neatly dressed.

E. After topsoil is spread, area covered shall be prepared for seeding in accordance with procedures specified in other sections.

9. DISPOSAL OF UNSUITABLE MATERIALS

Excavated materials which are unsuitable for fill or backfilling shall be removed from site of operations as soon as excavated. All excavated materials so removed shall be disposed of, at no additional cost to owner. Disposal shall be at locations on site designated by Engineer, and in a manner acceptable to Engineer. All such material shall be spread neatly, to drain, and seeded, fertilized and mulched.

10. DITCHES

Ditches shall be constructed in locations as shown on the plans or as directed by the Engineer in accordance with the typical details.

END SECTION

SECTION 02510 - WATER MAINS

1. RELATED DOCUMENTS

General Provisions of Contract, General, Supplemental and Special Conditions, and General Requirements apply to this Section.

2. DESCRIPTION OF WORK

Provide labor, material, equipment and services necessary for proper and complete installation of water pipe, valves and valve boxes, fire hydrants, blow-off hydrants, air releases, meters, road bores, creek crossings and miscellaneous appurtenances.

3. MATERIALS

A. Polyvinyl Chloride Pipe (PVC)

(1) Standard Polyvinyl Chloride Pipe

a. Polyvinyl Chloride Pipe shall conform to ASTM Specification D-2241, latest revision. Pipe shall be pressure rated Class 250 (SDR 17). Pipe material shall conform to latest revisions of ASTM D-1784 (PVC pipe compounds), ASTM D-2241 (PVC plastic pipe, SDR), and ASTM D-2672 (Bell-End PVC pipe).

b. Joints for PVC pipe shall conform to latest revision of ASTM D-3139, (joints for plastic pressure pipes using flexible elastomeric seals). Joints shall be bells that consist of an integral wall section with a locked-in, solid cross section elastomeric ring which meets requirements of ASTM F-477. Bell sections shall be at least as hydrostatically strong as pipe wall.

c. Fittings shall be ductile iron, mechanical joint, Class 250, conforming to AWWA specifications C110 for short body cast iron fittings. Fittings shall be tar-coated outside and shall receive standard cement lining with bituminous seal coat on inside as specified for ductile iron pipe.

d. Joints for ductile iron fittings shall be of push-type, conforming to AWWA C111 (ANSI A21.11). Bells for push-on type joints shall have an annular recess in pipe socket to accommodate a single rubber gasket. Plain ends shall be suitably beveled to permit easy entry into bell. Basket and annular recess of socket shall be so designed and shaped that gasket is locked in place against displacement as joint is assembled.

(2) C-900 Polyvinyl Chloride Pipe

a. Polyvinyl Chloride Pipe shall conform to AWWA Specifications C-900, pressure rated Class 200 (SDR 14).

b. Fitting shall be cast iron Mechanical Joint Class 250 conforming to AWWA Specification C-110 for short body cast iron fittings. Fittings shall be tar-coated outside, and shall receive the standard cement lining with bituminous seal coat on the inside.

c. Joints shall be of push-on type conforming the AWWA Specifications for C-900 water mains.

d. AWWA Specification C-900 pressure rated Class 150 (SRR 18) can be used and is considered an equal to ASTM Specification Class 250 pipe.

(3) All 90° bends and other fittings that require trust blocks shall be ductile iron (or approved equal) with transition gaskets to accommodate outside diameter of PVC pipe.

(4) Lubrication for rubber connected joints and fittings shall be water soluble, non-toxic, non-objectionable in taste and odor and have no deteriorating effect on PVC or gaskets and shall be supplied by pipe manufacturer.

(5) All PVC pipe and fittings shall bear National Sanitation Foundation (NSF) approved seal for potable water.

(6) Grip rings (mega lug style or allgrip #3600) shall be used in joining PVC pipe to ductile iron fittings, valves, etc. Grip rings will be required only on bends, tees or end of lines.

B. Gate Valves and Boxes

(1) All gate valves shall be of double disc, parallel seat type or resilient seated type, iron body, non-rising stem, fully bronze mounted with O-ring seals. Valves shall be of standard manufacture and of highest quality both as to materials and workmanship and shall conform to latest revisions of AWWA Specification C-500. Valves shall have a rated working pressure of 250 psi, with standard mechanical joint, A-2380-23 as manufactured by Mueller Co., Darling, Smith, Kennedy, or approved equal.

(2) Gate valves for buried service shall be furnished with mechanical joint end connections, unless otherwise indicated on Drawings. End connections shall be suitable to receive ductile iron, or PVC.

(3) Gate valves for inside service shall be handwheel operated, double disc, parallel seat type, iron body, fully bronze mounted with O-ring stem seals, flanged faced and drilled to match ASA Class 125.

(4) All gate valves shall have name or monogram of manufacturer, year valve casting was made, size of valve, and working pressure cast on the body of valve.

(5) Gate valves set with valve boxes shall be provided with a 2" square operating nut and shall be opened by turning to left (counterclockwise); gate valves set in vaults or pits shall be furnished with handwheels.

(6) Gate valves shall be installed in a vertical position with 6" PVC pipe serving as a valve box. A ductile iron lid shall be furnished being marked "WATER". They shall be set vertically and properly adjusted so that cover will be in the same plane as finished surface of ground, street, or sidewalk.

(7) Valve boxes shall be accurately centered over valve operating nut, and backfill thoroughly tamped about them. Valve box bases shall not rest on valves but shall be supported on crushed stone fill. They shall be set vertically and properly cut and/or adjusted so that tops of boxes will be at grade in any paving, walk or road surface, and two to three inches above ground in grass plots, fields, woods or other open terrain. Valve boxes shall be as manufactured by Mueller, M & H Valve Company, Darling, Russell Pipe and Foundry, or approved equal.

(8) A pre-cast 24" diameter concrete valve pad by 4 inches thick shall be furnished around valve boxes. A blue stake shall be installed to mark all valve locations.

(9) Tracer wire shall be run outside of valve box and then laid inside the top of the box below the cap.

C. Fire Hydrants

(1) Contractor shall furnish and install dry head type fire hydrants where indicated on Drawings or as directed by Engineer. Hydrants shall conform in all respects to requirements of AWWA C502-73. Hydrant barrel shall have safety breakage feature above the ground line. All hydrants shall have mechanical joint shoe connection with the fire hydrant having, two 2- ½" discharge nozzles and one 4-1/2" pumper nozzle and having caps fitted with cap chains. Connection threads and operating nuts shall conform to National Standard Specification as adopted by National Board of Fire Underwriters.

(2) Operating nut shall be 1- ½", and shall open left (counterclockwise). Main valve shall have 5-1/4" full opening for 6" hydrants, and be of the compression type opening against water pressure so that valve remains closed should the barrel be broken off.

(3) Hydrant shall be fully bronze mounted. Main valve shall have a threaded bronze seat ring assembly of such design that it is easily removable by unscrewing from a threaded bronze drain ring. Bronze drain ring shall have multiple ports providing positive automatic drainage as the main valve is opened or closed.

(4) Drainage waterways shall be completely bronze to prevent rust or corrosion.

(5) Operating stem shall be equipped with anti-friction thrust bearing to reduce operating torque and assure easy opening. Stop shall be provided to limit a stem travel. Stem threads shall be enclosed in a permanently sealed lubricant reservoir protected from weather and the waterway with O-ring seals.

(6) Hydrants shall be designed for 200 psi working pressure and shop tested to 300 psi pressure with main valve both opened and closed. Under test the valve shall not leak, the automatic drain shall function and there shall be no leakage into the bonnet.

(7) Hydrants shall be set plumb with not less than three cubic feet of crushed stone and backed with at least one cubic foot of Class "C" concrete or equivalent. Hydrants shall be attached to water main by an anchor tee, gate valve and 36" ductile iron anchor coupling. All piping from water main to hydrant shall be ductile iron. All piping from water main to hydrant shall be ductile iron.

(8) Hydrants shall be installed with a vertical distance from the center of the pumper nozzle to the ground of 16 to 18". Gradelok by Assured Flows, Inc. shall be installed between the gate valve and hydrant when the 16 to 18" clearance cannot be obtained with finish grade. All fire hydrants shall be provided with a shut-off valve in the hydrant lateral as indicated on Drawings. Inlet cover depth shall be minimum 36".

(9) Fire hydrants shall be Centurion Model A423 with 5-1/4" opening for 6" hydrants.

(10) Hydrants shall be painted with one (1) coat of No. 2472 Safety Red (Porter Paint or approved equal.) All cleaning, priming and painting shall be in accordance with paint manufacturers recommendations

(11) Pay item for fire hydrant shall include all material from the main water to hydrant including tee, valve, hydrant, piping, grip rings, grade lock, gravel, concrete blocks, meter box and lid and etc.

(12) Hydrants shall have bags placed over them until they are in operation.

D. Marking Tape

(1) Tape shall consist of a solid aluminum foil coil encased in a protective plastic jacket. The materials and ink color shall not change when exposed to the alkalis, acids and other destructive chemical variances commonly found in soil. The foil coil shall be visible to ensure continuity. Tape shall be a minimum width of 2 inches and colored blue with the word "water" marked on the tape. The minimum thickness shall be 5.5 mil with a minimum tensile strength of 4000 psi. Tape shall in installed a minimum of one foot above the top of the pipe".

(2) Marking tape shall be considered incidental to the water line and no additional payment will be made for the marking tape.

E. Tracer Wire

(1) A No. 12 coated copper wire shall be installed parallel to all nonmetallic pipe.

(2) Tracer wire shall be installed to ground level for all valves and hydrants as shown on typical details.

(3) Tracer wire shall be run outside valve box to top of valve box then over top of valve box with 4 feet of tracer wire in the valve box.

(4) When gate valves or hydrants not within 800 feet, cast iron boxes will be installed with prefab hole for the tracer wire.

(5) All service lines running under road will have tracer wire with 4 feet inside meter box.

F. Tapping Sleeves and Valves

(1) Tapping sleeves for connections to existing water lines shall be of the mechanical joint type suitable for working pressures comparable to the pipe class being tapped and shall be 3490 MJ Power Seal (fully gasketed) depending on pipe thickness or approved equal.

(2) Tapping valves shall be of mechanical joint type suitable for working pressures of 250 psi and shall be Mueller No. H-902020 or approved equal.

(3) All wet taps will be done by Bullock Pen Water District with materials provided by Contractor. Contractor shall excavate pits for the wet tap.

(4) One week notice on wet taps shall be given.

G. Check Valve

(1) Check valve shall be a weight and lever type and conform to the latest revision of AWWA Specification C-500. Valves shall have a rated working pressure of 200 psi with standard mechanical joint and shall be CLA-VAL Model 81-02 or approved equal.

H. Electronic Control Valve

(1) Each valve shall have the name of the Manufacturer, diameter and direction of flow cast on the body.

(2) The valves shall provide immediate response, accurate control, smooth driptight closure without pressure surge hazards.

(3) Flanged connections shall meet one of the following standards:

-ANSI B16.1, Class 125 or 250.
-ISO/DIN/BS 4504, Class 10 or 16 or 25.
-BS 10, Class D.
-JIS B2212 or B2213 or B2214.
Threaded connections shall be to BSP/NPT standards.

(4) All valves shall be iron certified ANSI/NSF Standard 61 for drinking water system components. These valves may be used by private and public water utilities to automatically control system pressures, flows, and levels. This series meets the legislation, regulations, or policies citing ANSI/NSF compliance that exists in 43 states.

(5) Before being installed, the valves shall be flushed and cleaned of any dirt.

(6) The valve shall open and close in response to electrical (pulse) output from telemetry system.

(7) Control valve shall be CLA-Val Model 736-01, or approved equal.

4. SHOP DRAWINGS

Contractor shall furnish to Engineer for approval, six (6) sets of shop drawings, catalog cuts and certifications for all materials used in construction of water lines. Contractor shall not order material or equipment until approval is given by Engineer.

5. EXCAVATION FOR TRENCHES

A. Except as otherwise noted or directed by Engineer, trenches in which water lines are to be laid shall be excavated in open cut to depths as indicated on Drawings. In general, this shall be interpreted to mean that machine excavation in earth shall not extend below an elevation permitting lower quadrant of pipe to be bedded in undisturbed ground, and excavation in rock shall extend below invert elevation a distance to accommodate a layer of bedding material as specified elsewhere in this section.

B. When excavated material is placed on paved roads, the contractor shall clean road with power broom at the end of each days work or as directed by the Engineer.

C. When excavated material is placed on gravel or dirt roads, the contractor shall place crushed stone to the same thickness of the road prior to construction as determined by the Engineer.

D. If foundation is good firm earth and machine excavation has been accomplished as set out hereinbefore, remainder of material shall be excavated by hand and earth pared or molded to give full support to lower quadrant of barrel of each pipe. Where bell and spigot pipe are involved, bell holes shall be excavated during this latter operation to prevent bells from being supported on undisturbed earth. If for any reason machine excavation in earth is carried below an elevation that will permit type of bedding specified, then a layer of granular material shall be placed so that lower quadrant of pipe will be securely bedded in granular fill.

E. If foundation is rock and excavation has been undercut as set out hereinbefore, a bed of No. 9 crushed stone or tamped earth shall be placed to provide continuous support for lower quadrant of pipe. No extra payment will be made for this No. 9 crushed stone.

F. Trenches shall be a minimum width of 12" plus to diameter of the pipe to provide free working space on each side of pipe and to permit proper backfilling around pipe, but unless specifically authorized by Engineer, trenches shall in no case be excavated or permitted to become wider than 2'-0" plus nominal diameter of pipe at level of or below top of pipe. If trench does become wider than 2' plus nominal diameter of pipe at level of or below top of pipe, special precautions may be necessary such as providing compacted, granular fill up to top of pipe or providing pipe with additional crushing strength as determined by Engineer after taking into account actual trench loads that may result and strength of pipe being used; Contractor shall bear the cost of such special precautions as are necessary. Trenches cut in roads and streets shall not exceed a maximum width of 3'-6" plus nominal diameter of pipe at level of road or street surface.

G. Unless specifically directed otherwise by Engineer, not more than 1000 feet of trench shall be opened ahead of pipe laying work of any one crew, and not more than 1000 feet of open ditch shall be left behind pipe laying work of any one crew. Watchmen or barricades, lanterns and other such signs and signals as may be necessary to warn public of dangers in connection with open trenches, excavations and other obstructions, shall be provided by and at expense of Contractor.

H. Pipe laying operation shall be continuous from beginning to end with no gaps allowed in the line unless approved by the Engineer.

6. REMOVAL OF WATER

Contractor, at his own expense, shall provide adequate facilities for promptly and continuously removing water from all excavation.

7. UNAUTHORIZED EXCAVATION

Whenever excavation is carried beyond or below required lines and grades, except as, and where authorized by Engineer, Contractor, at his own expense, shall refill said excavated space with suitable material in a manner approved by Engineer.

8. LAYING DEPTHS FOR WATER MAINS

In general, water mains shall be laid with a minimum cover of 36", unless otherwise indicated on Drawings or directed by Engineer.

9. PIPE BEDDING

A. Foundation for pipes laid in trenches shall be prepared so that entire load of backfill on top of pipe will be carried uniformly on barrel of pipe. Pipe bells shall not carry any load of backfill.

B. In trenches where solid rock is removed from trench bottom, pipe shall be bedded on six (6)" thickness of No. 9 crushed stone. No extra payment will be made for rock excavation or No. 9 crushed stone.

C. When wet, mucky, yielding or otherwise unsuitable material is located below proposed pipe bedding elevation, such material shall be removed and replaced with No. 9 crushed stone. In such case, payment will be made per ton of "Extra Crushed Stone Bedding" actually placed in trench to replace unsuitable material excavated. Unsuitable material shall be removed and replaced with crushed stone at direction of Engineer.

10. PIPE LAYING

A. All pipe shall be laid with ends abutting and true to lines indicated on Drawings or as directed by Engineer. Pipe shall be fitted and matched so that it will provide a smooth and uniform invert and be centered in the trench. All pipe shall be laid uphill when grade exceeds five percent.

B. Fittings and special attachments for water main shall be provided and laid as pipe is laid and where directed by Engineer or as indicated on Drawings.

C. Before each piece of pipe is lowered into trench, it shall be thoroughly swabbed out to insure its being clean. Any piece of pipe or fitting which is known to be defective shall not be laid or placed in trench. If defective pipe or fittings shall be discovered after pipe is laid, it shall be removed and replaced with a satisfactory pipe or fitting without additional charge. In case a length of pipe is cut to fit in a line, it shall be so cut as to leave a smooth end at right angles to longitudinal axis of pipe.

D. Jointing shall be accomplished in accordance with the manufacturer's recommendations.

E. Interior of pipe shall be cleaned of dirt, jointing materials, and superfluous materials of every description. When laying pipe is stopped for any reason, exposed end of pipe shall be closed with a plug fitted into pipe bell so as to exclude earth or other material and precautions taken to prevent floatation of pipe by runoff into trench.

F. No backfilling (except for securing pipe in place) over pipe will be allowed until Engineer has had an opportunity to make an inspection of joints, alignment and grade in section laid, but such inspection shall not relieve Contractor of further liability in case of defective joints, misalignment caused by backfilling and other such deficiencies that are noted later.

G. Anchorage of Bends, Tees, Plugs, Hydrants and Valves

(1) At all tees, plugs, caps and bends of 11-1/4° and greater, and at reducers or in fittings where changes in pipe diameter occur, movement shall be prevented by using suitable harness, thrust blocks or ballasts. Hydrants and valves shall be provided with similar protection. Thrust blocks and supports shall be as indicated on Drawings, with sufficient volumes of concrete being provided; however, care shall be taken to leave weep holes unobstructed and allow for future tightening of all nearby joints. Unless otherwise directed by Engineer, thrust blocks shall be placed so that pipe and fitting joints will be accessible for repair.

(2) Bridles, harness or pipe ballasting shall meet with approval of Engineer. Steel rods and clamps shall be galvanized or otherwise rust-proofed.

(3) No extra pay shall be allowed for work on proper anchorage of pipe, fittings or other appurtenances; such items shall be included in unit price bid for supported item.

H. In cold weather, extra caution shall be used in handling and laying PVC pipe.

I. No more pipe then can be used in one week shall be strung out in advance.

11. BACKFILLING PIPELINE TRENCHES

A. Backfilling pipeline trenches shall be accomplished in accordance with methods outlined hereinafter, and as indicated on Drawings. In all cases, walking or working on the completed pipelines, except as may be necessary in tamping or backfilling, will not be permitted until trench has been backfilled to a point one (1) foot above top of pipe. Filling of trench shall be carried on simultaneously on both sides of the pipe in such a manner that completed pipeline will not be disturbed and injurious side pressures do not occur.

The methods of backfilling shall be as follows:

Method A - Areas Not Subject to Vehicular Traffic

The lower part of the trench up to a point one (1) foot above the top of the pipe shall be hand placed backfilled with earth free from rock, acceptable to the Engineer, or with crushed stone when a condition exists as mentioned in Paragraph B, this article. In the remainder of the trench, the backfill material shall be reasonably free from large rock (over one-half cubic foot in volume) and may be shoveled into the trench without compacting and heaped over whenever, in the opinion of the Engineer, this method of backfilling may be used without inconvenience to the public. The backfilling of earth material or crushed stone under this method is NOT a separate pay item.

Method B - All Existing Gravel Streets, Roads and Drives
(Open Cut Method)

(1) Trench shall be backfilled with DGA. Backfill shall be placed full depth in trench to bottom of surfacing material.

(2) No extra payment will be made for crushed stone or backfilling.

Method C - All Existing Asphalt or Concrete Paved Drives.

(1) All existing paved driveways shall be free bored unless indicated otherwise on plans.

B. In areas where large quantities of rock are excavated, and the available excavated earth in the immediate vicinity is insufficient for placing the required amount of

backfill over the top of pipe as set forth in Method A this article, then the Contractor must either haul in earth or order crushed stone aggregate for backfilling over the top of the pipe. Neither the hauling in and placing of earth nor the ordering and placing of crushed stone aggregate to fulfill the backfill requirements set forth in the aforesaid Method A is considered a pay item.

C. When directed by the Engineer, the Contractor shall add water to the backfill material or dry out the material when needed to attain a condition near optimum moisture content for a maximum density of the material when it is tamped. The Contractor shall obtain a compaction of the backfill of at least 90 percent of standard (ASTM D-698) Proctor density where mechanical tamping of backfill is required.

12. CONCRETE ENCASEMENT

Concrete encasement shall be placed where shown on contract drawings, or as directed by Engineer. Concrete shall be Class 3500 psi and shall be mixed sufficiently wet to permit it to flow under pipe to form a continuous bed. In tamping concrete, care shall be taken not to disturb grade or line of pipe or injure joints. Concrete placed outside specified limits or without authorization from Engineer will not be subject to payment.

13. CLEAN-UP

Contractor shall remove all debris and surplus construction materials resulting from his work on a daily basis. Contractor shall grade ground along each side of pipe trench in a uniform and neat manner leaving construction area in a shape as near as possible to original ground line. If cleanup is not performed daily, Engineer will shut down project and/or suspend payments.

14. CONNECTION TO EXISTING SYSTEM

(1) Unless otherwise directed by the Water District, Contractor shall make dry taps connection to the new water main to the existing water system. The Contractor must notify the Water District when the connection is to be made so that representatives of the Water District may operate existing valves and witness the connection. A minimum notice of 48 hours must be given.

(2) All wet tap connections will be done by water district. A trench 1 foot below pipe, 6 feet long and 4 feet wide shall be excavated by contractor. All materials required for wet tap shall be provided by contractor.

15. SEEDING, FERTILIZING AND MULCHING

Trenches in areas that are not paved shall be prepared for seeding. Materials and methods for seeding, fertilizing and mulching are described elsewhere in these specifications.

16. RESTORATION

A. In general, contractor shall be responsible for proper care and maintenance of all existing structures, both above and below surface, which are encountered during

progress of work. No structures of any kind shall be removed without consent of Engineer.

B. Contractor shall care for and maintain all pipes and services for gas, sewer, telephone or electricity where same are encountered in prosecution of work. In event any such services for water, gas, electricity, sewer or telephone are disturbed, damaged or destroyed, Contractor shall arrange with owner of such service, or facility, for its replacement and restoration at Contractor's expense.

17. TESTING

A. Water mains, services and all appurtenances, shall be tested to 50 psi over the operating pressure of the pipe. The operating pressure will be considered the pressure that would come from connecting to the Boone County Water Association at Highway 42. Defective joints of pipe shall be cut out and replaced as directed by Engineer. Cracked or defective pipe fittings, valves or hydrants disclosed in pressure test shall be replaced by Contractor with sound material, and test shall be repeated until test results are satisfactory to Engineer.

B. Contractor shall maintain required pressure for six hours and shall measure the amount of water necessary to maintain this pressure for this length of time. The amount of water used to maintain pressure shall not exceed five gallons per 24 hours per mile of pipe per inch nominal diameter of the pipe.

C. All leaks shall be repaired whenever or wherever there is evidence of a leak. Water used by Contractor shall be paid for by Contractor at the rate of $3.00 per 1,000 gallons.

D. All fittings, meters, equipment, tools and other material required for testing shall be provided by Contractor, and remain property of Contractor at completion of project.

18. DISINFECTION OF WATER LINES

A. New potable water lines shall not be placed in service, either temporarily or permanently, until they have been thoroughly disinfected in accordance with the following requirements and to the satisfaction of Engineer.

B. After testing, granular chlorine (HTH) or equal shall be introduced into the section of the line begin disinfected sufficient to insure a chlorine dosage of at least 50 ppm in the main. A chart will be supplied by water district on minimum amount of chlorine to use. While the solution is being applied, the water should be allowed to escape at the ends of the line until tests indicate that a dosage of at least 50 ppm has been obtained throughout the pipe. Open and close all valves and cocks while chlorinating agent is in the piping system. The chlorinated water shall be allowed to remain in the pipe for 24 hours, after which a residual of at least 25 ppm shall be obtained. The disinfection shall be repeated until 25 ppm is obtained, after which time the main shall be thoroughly flushed until the residual chlorine content is not greater than 1.0 ppm. Contractor shall have testing equipment for testing chlorine content. Chlorinated water resulting from disinfection of water line shall be disposed in a manner which will not violate 401 KAR 5:031.

C. Following disinfection of the line, bacteriological samples shall be collected and analyzed in accordance with the requirements of Kentucky Department for Natural Resources and Environmental Protection. Samples shall be taken at connection points to existing lines, at 1 mile intervals, and at dead ends without omitting any branch lines. When the samples have been approved, the new line then may be connected to the system. Cost of collecting and analyzing samples shall be paid by Contractor.

END SECTION

SECTION 02520 - ELEVATED STEEL WATER STORAGE TANK

1. RELATED DOCUMENTS

General provisions of Contract and General, Supplemental and Special Conditions apply to this Section.

2. DESCRIPTION OF WORK

A. Furnish all materials, tools, equipment, labor, services and incidentals necessary for manufacture, delivery, erection, disinfection and painting an elevated steel, all-welded construction, water storage tank. Tank is to be complete with all accessories specified herein and is to be erected on foundations to be designed and constructed by tank contractor. Tank shall have a minimum storage capacity of 500,000 gallons.

B. Bidder is to submit with proposal a preliminary design sketch showing sizes of supporting and bracing members, plate thickness and dimensions of tank, including grading and foundation footing plans for structures on which he is bidding. These preliminary sketches shall state cubic yards of concrete and weights of steel required for installation.

3. QUALITY ASSURANCE

A. Payment for water tank contract will be by individual sums listed on bid form and shall include tank, fence, foundations, piping, valves, painting, finish grading, seeding, fertilizing, accessories and all related appurtenances as specified and/or indicated on Drawings.

B. Payments will be made per construction cost breakdown as approved by Engineer.

4. GOVERNING SPECIFICATIONS

A. Materials, design, welding, shop fabrication, erection, testing and inspection of water storage tank shall conform to latest edition of American Water Works Association D 100-96 on latest edition and American Welding Society except as hereinafter stipulated.

B. Materials shall conform to the following:

Material	
Steel Plate	ASTM A283 GR. C; ASTM A36
Structural Steel	ASTM A36; ASTM A53 GR. B
Brace/Riser Rods:	ASTM A36
Wing & Clevis Plates	ASTM A572-50
Riser Rod & Strut Clips	ASTM A572-50
Ladder Rungs:	ASTM A706

Riser Rod Bolts:	ASTM A325
Bolts (U.N.O.)	ASTM A307
Grout:	EUCO N-S Grout

C. The following design parameters shall apply and the structures shall safely withstand the following loads acting separately or in combination:

(1) Weight structure

(2) Weight of water in tank

(3) Wind stresses incurred by blowing at a minimum rate of 100 MPH from any direction.

(4) Seismic Class D, User Group III, per AWWA D 100, Importance Factor 1.5, User
Group III.

(5) Snowload minimum of 25 PSF as specified in AWWA D 100.

D. Requirements of American Concrete Institute (ACI) 301, Specifications for Structural Concrete for Buildings, are applicable to concrete work.

5. ELEVATED WATER STORAGE TANK

A. Tank

(1) Capacity 500,000 gallons above low capacity level.

(2) Minimum height to overflow: 154 feet from top of foundation.

(3) All portions of the tank including the roof shall be of watertight construction and all material on contact with water shall have a minimum thickness of ¼".

B. Tower

The tank shall be supported on a suitable tower of structural tabular columns thoroughly braced by the tie rods and struts to provide for maximum wind loading.

C. Riser

The diameter of the steel riser shall be not less than 3 feet. Minimum thickness shall be ¼" and it shall be designed to carry all loads required by AWWA D 100. It shall be equipped with an elliptical manhole not less than 12 x 16 inches and located approximately 3 feet above the bottom of the riser.

6. INLET AND DISCHARGE PIPE AND BASE ELBOW

A. Inlet and discharge pipe shall be 12" steel or ductile iron.

B. Base elbow shall be standard flanged, cast iron type with suitable rubber gaskets or glands and cast iron bolts. Elbow shall be adequately supported by concrete pad. Coordinate installation of base elbow with water line construction.

7. ACCESSORIES

A. Balcony

Tank shall be equipped with balcony not less than 24 inches wide with handrail not less than 42 inches high. Floor of balcony shall be designed for a minimum vertical load of 1000 pounds assumed to be applied to any point. Floor shall be perforated for drainage. Handrail shall be capable of withstanding a 300 pound load applied laterally at top rail.

B. Ladders

(1) Fixed ladder which extends up one column a point 10 feet above ground to the balcony.

(2) Steel ladder from balcony to roof hatch.

(3) Fixed inside tank ladder from roof hatch to inside bottom of tank.

(4) Each ladder shall be equipped with an OSHA approved safety climbing device.

(5) Contractor shall furnish to Owner appropriate belt and clamp for use with climbing device.

C. Roof Hatch

A roof hatch shall be placed near outside tank roof ladder and shall be provided with a hinged cover and a hasp for locking. Opening shall have clear dimension of at least 24 inches in both directions. Opening shall have curb 4 inches in height, and cover shall overlap curb at least 2 inches.

D. A vent shall be provided at apex of roof and shall be of adequate size to safely vent tank during periods of maximum filling or withdrawal without using overflow pipe as a vent. Vent shall be constructed so as to prevent ingress or birds of small animals.

E. A 12" steel overflow pipe shall be provided which extends from high water level to headwall. End of pipe at headwall shall be screened to prevent ingress of foreign object or small animals.

F. Liquid Level Float Gauge: A float type level indicator, which shall be unaffected by high winds, shall be mounted so as to be readable from ground level. Float gauge shall be positioned as directed by Engineer.

8. FOUNDATIONS

Contractor shall design foundations for maximum bearing values for as listed in Geotechnical Report attached to this Section of the Specifications and indicated on Drawings. Foundation anchoring system shall resist overturning of tower structure from 100 miles per hour wind loads.

9. DETAILED DESIGN DRAWINGS

Contractor shall submit six (6) copies of detailed design and shop drawings of tank, foundation, and accessories to Engineer for approval. No fabrication shall be done prior to Engineer's approval.

10. WRITTEN REPORT (WELDING)

A. Written Report: At the conclusion of the work, the contractor shall submit, a written report prepared by the contractor's qualified personnel certifying that the work was inspected as set forth herein. The report shall include the following:

(1) A statement regarding the welder's credentials.

(2) A summary of inspection of radiographs and sectional segments and also inspection by air carbon and gouging, if used.

(3) Identification of unacceptable radiographs and sectional segments and a statement of the action taken to rectify unsatisfactory welds.

(4) The contractor's records of welders.

B. After acceptance of the structure, the radiographs or sectional segments, or both, shall become the property of the purchaser, unless otherwise agreed on.

C. Equipment. The contractor shall provide the required equipment and labor to take the radiographs or to remove the test segments.

D. Welder's Credentials

Before any welding is performed, the contractor's inspector shall make certain that the welders or welding operators have their credentials for acceptance or they shall be tested, after which welding may proceed.

E. All welds in top of tank shall be seal welded.

11. CLEANING AND COATING

A. Reference Standard

(1) Except where otherwise specified, coating products and application shall meet the requirements of American Water Works Association Standard D-102-97 latest edition.

(2) SSPC or NACE surface preparation standards shall be on-site clearly visible to all workmen.

(3) A copy of project specifications shall be on job site at all times for workmen.

B. Quality

(1) Coating products listed in this specification provide an example of the type and quality of material required. Alternate products may be considered. Contractor shall submit in writing detailed explanation for requesting product change, along with pricing of product. If product is accepted any and all savings shall revert back to owner. Contractor shall bear any and all costs associated with evaluation of product by consultant, which may include but not limited to research, and testing by independent laboratories for product performance, and equality of those specified.

(2) Only approved thinners from coatings manufacture shall be used at all times. Any and all spills shall be reported to the Owner immediately at the time of incidence. Contractor shall bear responsibility, as well as all costs associated with cleanup and removal of any contaminated area (s).

(3) All coatings related to work shall be performed only by competent blasters and painters. If workmen exhibit lack of experience they may not be allowed to work on project. Consultant has final determination of workmen & foreman assigned to project.

C. Submittals:

Submit the following:

(1) Coating manufacturer's certificate for each coating proposed for use attesting that the coatings meet the specifications in this Section and are proper for the proposed application.

(2) Copy of manufacturer's technical information for coatings used on project. Shipping list with batch numbers for all coatings and thinners as well as shelf life delivered to site. MSDS sheets for all products on site shall be on site at all times.

(3) *A list of all coatings and thinners to be used shall be submitted to Consultant and Inspector prior to any filed application, the listed is required to contain all product batch numbers. Field application of coatings will not be allowed without list.

(4) Color chart for Engineer's selection of colors.

D. Product Delivery, Storage, and Handling

(1) The Contractor shall be responsible for the delivery, storage, and handling of coating products.

(2) Deliver all materials to the job site in original, new and unopened packages and containers bearing manufacturer's name and label.

a. Name of material
b. Manufactures stock number and date of manufacture
c. Manufactures name
d. Contents by volume
e. Thinning instructions
f. Application instructions
g. Color name and number

E. Storage of Materials:

(1) Store only acceptable project materials on project site

(2) Store according to manufactures recommendation

(3) Comply with all State and Federal health and fire hazard regulations.

(4) MSDS sheets shall be in a bound set on job-site at all times, available to emergency personnel if required.

F. Environmental Requirements for application of coatings:

(1) Apply paints only when temperature of surfaces to be painted and surrounding air temps are between 55 and 90 degrees Fahrenheit unless otherwise permitted by paint manufactures printed instructions.

(2) Application of coatings will not be permitted in snow, rain, fog, mist or when the relative humidity exceeds 85%; or when the surface temp of substrate is less than 5 degrees Fahrenheit above the dew point; or to damp or wet surfaces.

(3) Painting will not be allowed during periods of inclement weather.

(4) The CONTRACTOR at all times shall provide adequate illumination in areas where painting operations are in progress. **Lighting shall be OSHA approved and explosion proof**.

G. Shop Surface Preparation:

(1) Prior to surface preparation, all surfaces shall be cleaned or all oil and grease in accordance with SSPC-SP 1 Solvent Cleaning. All interior and exterior surfaces shall be sand blasted to remove all dust, rust and scale, as well as all other foreign matter and shall result in a surface preparation equal to that of SSPC-SP 10 Near White Blast Cleaned Surface. Surface profile shall be 1.5 - 2.5 mils.

(2) Following surface preparation, all interior and exterior surfaces shall receive one coat of primer as hereinafter specified. The primer shall be applied in accordance with the recommendations of the manufacturer and not more than eight hours after surface preparation.

H. Field Cleaning: After erection and prior to painting, all interior and exterior surfaces shall be cleaned of all grease, oil, dirt, dust, rust, chalk residue, weld flux and spatter, and all other foreign matter or contaminants. All field welded edges and joints, as well as all abraded areas, shall be Near White Blasted in accordance with SSPC-SP 10.

I. Field Painting: After the tank is completely erected, any abraded spots and all field-welded areas shall be cleaned as specified in the paragraph above. Field application of the coatings to a field sandblasted area shall be done the same day that the cleaning operation is carried out. Surfaces not coated the same day as surface preparation operations shall be re-blasted prior to application of the prime coat. All field-sandblasted areas shall be primed and the entire interior and exterior of the tank shall be finish painted as hereinafter specified.

J. Tank Interior:

(1) Rust-Oleum Industrial

a. Rust-Oleum W 9200 Primer to a DFT of 5.0-8.0 Mils **Red**

b. Intermediate coat of Rust-Oleum W 9293 Total DFT 5.0-8.0 Mils **Marlin Blue**

c. Finish coat of Rust-Oleum W 9293 Total DFT 5.0-8.0 Mils **White**

d. All weld seams shall receive an additional roll coat to a DFT of 5.0-8.0 Mils **prior to finish application** **Red**

e. Total DFT shall not be less than 15 Mils not including the weld seams which shall be a minimum of 5 mils greater.

(2) Tnemec Co

a. Prime Coat: 1 coat of Tnemec Series 20-1255 to a DFT of 3.0-5.0 mils **Red**

b. Intermediate Coat: 1 coat of Tnemec Series 20-1255 to a DFT of 3.0-5.0 mils **Beige**

c. Finish Coat: 1 Coat of Tnemec Series WH02 to a DFT of 4.0-6.0 mils **Tank White**

d. All weld seams shall receive an additional roll coat to a DFT of 5.0 mils **prior to finish application** **Red**

e. Total DFT shall not be less than 10 Mils not including the weld seams which shall be a minimum of 5 mils greater.

K. Tank Exterior:

(1) Rust-Oleum Industrial

a. Rust-Oleum 9380 to a DFT of 3-5 mils **Buff**

b. Rust-Oleum 9370 to a DFT of 3-5 mils **Gray**

c. Rust-Oleum 9400 to a DFT of 2-3 mils **Tnemec color match to 26BL Clear Sky**

d. DFT shall not be less than 10 mils

(2) Tnemec Co

a. Tnemec Series 69 to a D.F.T. of 3.0-5.0 mils. **Beige**

b. Tnemec Series 69 to a D.F.T. on 3.0-5.0 mils. **Red**

c. Tnemec Series 73/74 to a D.F.T. of 3.0-5.0 mils. **26 BL Clear Sky**

d. DFT of the exterior 9 mils.

(3) Exterior color: OWNER will determine them. The DFT specified shall be obtained additional coats shall be applied at the contractors expense, to achieve the specified DFT.

L. Surface Preparation

(1) In all cases, surfaces shall be primed and or treated, as specified the same day they are prepared. A prepared surface, which becomes corroded or contaminated, shall be re-prepared before painting at no additional cost to the OWNER.

(2) Dust from cleaning operations shall be properly removed by dry methods such as vacuuming or dry air blast, while not reducing the quality of the cleaned surface.

(3) CONTRACTOR shall have on the job at all times at least one (1) copy of the latest SSPC pictorial standards, which shall be followed.

(4) For ferrous metals, surface preparation shall consist of one or more of the methods contained in the methods supplied.

(5) Abrasives utilized for blasting operations shall contain less than 0.01% free silica during and following blasting operations. Contractor is responsible for all cleanup and removal of blasting media following operations, as well as total removal from Owners' site. Media shall be profiled and documentation submitted to Consultant prior to media leaving site.

(6) Abrasive shall be of the correct size to create the desired profile from the coatings manufactures data sheet.

M. Equipment and Procedures

(1) At least 10 days prior to commencing field painting, the CONTRACTOR shall submit to CONSULTANT for review and acceptance a list of major items of equipment and procedures he proposes for painting.

(2) The CONTRACTORS procedure for painting shall include the chronological sequence of operations.

(3) Equipment list shall include make and capacity of compressor, make and capacity of abrasive blasting and spraying equipment.

(4) Compressor shall be capable of delivering a minimum of 100 psi at the nozzle, at maximum working height of tank during blasting operations.

(5) Effective oil and water separators, and an air drier shall be used in all lines serving spray painting and abrasive blasting operations to remove oil and moisture from the compressed air.

N. Mixing of Coatings:

Owner shall designate an area where all coatings shall be stored and mixed only. All mixing shall be done over a double tarped area. *Any and all spills shall be reported to the Owner immediately at the time of incidence. Contractor shall bear*

responsibility, as well as all costs associated with cleanup and removal of any contaminated area (s).

O. Painting

(1) Skilled, experienced painters on properly prepared surfaces shall do all painting. All surfaces, which are not to be coated, shall be protected.

(2) The CONTRACTOR shall be responsible for the compatibility of all paints used in work.

P. Ventilation

(1) Ventilation is essential to remove vapors during application and curing of coatings.

(2) Ventilation shall be exhausted from lowest portion of tank with top openings kept clear.

(3) During coating applications the capacity of the ventilating fans shall be at least 400 cfm per gallon of coating applied per hour.

(4) The ventilation requirements are to ensure proper curing of the applied coatings and are not to be taken as requirements to insure worker safety.

(5) Following the application of the final interior coating the tank shall be force ventilated by mechanical means from the lowest possible point for a minimum of 48 hours, ventilation shall be such that it creates a total turn over on the interior of the tank a least once per hour.

Q. Quality Assurance

A. Manufacture: Provide products manufacturered by the following:

(1) Rust-Oleum Industrial.

(2) Tnemec.

B. Alternate products may be considered, Contractor shall submit in writing detailed explanation for requesting product change, along with pricing of product. If product is accepted any and all savings shall revert back to Owner. Contractor shall bear any and all costs associated with evaluation of product by consultant, which may include but not limited to research, and testing by independent laboratories for product performance, and equality of those specified.

C. Only approved thinners from coatings manufacture shall be used at all times. Any and all spills shall be report to the Owner immediately at the time of incidence. Contractor shall bear responsibility, as well as all costs associated with cleanup and removal of any contaminated area (s).

R. Inspectors

(1) Engineer and/or an outside inspection service representing the Engineer will make inspections shown in the Article. Additional inspections will be made if required. It shall be the responsibility of the Contractor to request an inspection by at least 48 hours prior to the inspection day. Should the Engineer be summoned to inspect a completed phase of construction and find the work incomplete and, therefore, not ready for inspection, the Contractor shall bear the cost of inspection. It is not the intent to charge the Contractor for an inspection if discrepancies are found in the completed phase of construction as long as the discrepancies do not necessitate additional inspection trips. The contractor shall not proceed until the engineer inspection has been performed. The engineer will inspect:

a. The degree of surface preparation for cleanliness and profile.

b. Visual inspection of each coat for complete coverage and coating defects and measurements of the dry film thickness.

c. Final inspection of the complete coating system for coating defects and total dry film thickness.

d. Holiday testing for film discontinuities in the complete interior coating system.

(2) Contractor shall furnish a low voltage wet sponge holiday detector for checking film continuity. The Contractor shall also furnish a dry film thickness gauge and calibration shims for checking coating dry film thickness. The dry film thickness gauge used by the Engineer will be furnished by the Engineer.

(3) The Contractor shall provide safe access to the tank for the engineers inspection.

(4) After all coating work has been completed; at this time, the total required mil thickness, lack of "holidays", and aesthetic acceptability will be checked by the Engineer.

S. Sign

Lettering, as indicated on Drawings, shall be painted on one side of tank in Black Roman block letter. Submit shop drawings indicating size, style, spacing and placement of painted letter. Color shall be Tnemec AB05 black or approved equal. Letters shall be a minimum of 36 inches in height.

T. Warranty:

Contractor shall provide a two- (2) year minimum warranty on all aspects of work performed on project. A Third Party firm shall conduct warranty inspection. Any deficiencies shall be corrected at no cost to the Owner; all costs for repair shall be incurred by the Contractor and shall include the use of outside inspection personnel to verify to Owner that repair work has been completed as needed.

12. ALTERNATE COATINGS SYSTEM

A. Exterior Surface Preparation: Prior to surface preparation, all surfaces shall be cleaned of all oil and grease in accordance with SSPC-SP 1 Solvent Cleaning. All exterior surfaces shall be abrasive blasted to remove all dust, rust and scale, as well as all other foreign matter and shall result in a surface preparation equal to that of SSPC-SP 10 Near White Blast Cleaned Surface. Surface profile shall be angular and a minimum of 2.0 mils.

B. Interior (Wet) Surface Preparation: Prior to surface preparation, all surfaces shall be cleaned of all oil and grease in accordance with SSPC-SP1 Solvent Cleaning. All interior surfaces shall be abrasive blasted to remove all dust, rust, and sale, as well as all other foreign matter and shall result in a surface preparation equal to that of SSPC-SP 10 Near White Blast Cleaned Surface. Surface profile shall be angular and a minimum of 2.0 miles.

C. Coating System: Following surface preparation, all interior and exterior surfaces shall be coated as hereinafter specified. The primer shall be applied in accordance with the recommendations of the manufacturer and not more than eight hours after surface preparation.

(1) INTERIOR (Wet) SURFACES – AWWA D102-06 Inside System #5.

a. Prime: All interior surfaces shall receive one full prime coat of Tnemec Series 91H20 Hydro-Zinc or 94H20 Hydro-Zinc applied at a rate to achieve 2.5 – 3.5 mils DFT.

b. Seam Treatment: Following prime coat, all weld seams, ladders, sharp edges, and any other difficult to coat areas shall receive one coat of Tnemec Series N140-1255 Pota-Pox Plus applied, ***by brush***, at a rate to achieve 2.0 – 4.0 mils DFT.

c. Finish: After 48 hour cure of the stripe coat on weld seams, all interior surfaces shall receive one full finish coat of Tnemec Series FC22 Epoxoline applied at a rate to achieve 20.0 – 25.0 mils DFT.

d. The interior wet coating systems shall have a total dry film thickness of not less than 25.0 mils DFT.

(2) EXTERIOR SURFACES – AWWA D102-06 Outside System #4:

a. Prime: All exterior surfaces that have been cleaned in accordance with the paragraph above shall receive one coat of Tnemec Series 91 H20 Hydro-Zinc or 94H20 Hydro-Zinc applied at a rate to achieve 2.5 – 3.5 mils DFT.

b. First intermediate – Epoxy: After field touch up of shop primer, apply one coat of Tnemec Series N140-44BR applied at a rate to achieve 2.0 – 3.0 mils DFT.

c. Second Intermediate – Urethane: After proper curing of the epoxy, all exterior surfaces shall receive an intermediate coat of Tnemec Series 1075 Endura-Shield II Applied at at rate to achieve 2.0 – 3.0 mils DFT.

d. Finish: Following the intermediate urethane coat, all exterior surfaces shall receive one full finish coat of Tnemec Series 700 HydroFlon applied at a rate to achieve 2.0- 3.0 mils DFT.

e. Lettering: Lettering and / or logos shall be located in accordance with the drawings and shall be applied using Tnemec Series 700 HydroFlon applied at a rate to achieve 2.0 – 3.0 dry mils per coat.

f. THE THICKNESS COATING SYSTEM SHALL HAVE A MINIMUM DRY FILM THICKNESS OF 8.5 DRY MILS.

(3) ADDITIONAL WARRANTY

a. Paint manufacturer shall provide a 15 year warranty on the paint system.

b. Contractor shall meet all requirements to obtain the 15 year warranty.

c. Payment for painting of alternate system shall not be made until the manufacturer warranty is provided.

13. TESTING AND STERILIZATION

A. After curing at least the minimum number of days required by the paint manufacture, the CONTRACTOR shall wash the Head tank interior with an adequate volume of water to thoroughly wet all the interior surfaces including those above the high water level. All water will be removed and disposed of in accordance with approved regulations.

B. It is the CONTRACTORS responsibility after washing and curing to completely disinfect the interior portion of the tank, AWWA C652 Method 2 **ONLY.** If acceptable to KY Division of Water, then method 1 or 3 shall be used at no additional expense to owner. The Owner shall take and send water samples to the laboratory, but shall assume no responsibility for the sampling technique or the care of the samples. The stored tank water shall comply with Current STATE, USEPA, and AWWA standards for organic, inorganic, and biological contaminants as influenced by the operations of the CONTRACTOR.

C. No separate payment will be made for sterilizing and testing the tank or for laboratory work.

D. All water for testing and sterilization shall be furnished by Owner.

14. EXCAVATION

A. Contractor shall include all excavation and grading required to accomplish the project, in base bid. No adjustment in contract price will be made for necessary excavation and grading of any type.

B. If the scope of work indicated on Drawings or listed in specifications is changed by Engineer, then and only then will unit prices furnished with bid be used to determine adjustment to contract price.

15. CHAIN LINK FENCING

A. Fencing

(1) Fabric shall be galvanized steel chain link 72" high, No. 9 gauge wire woven in a 2" mesh. Selvages shall be barbed. Fabric shall conform to ASTM 491-63T in its entirety. Minimum coating weight shall be 0.40 oz. per sq. ft.

(2) Barb wire shall consist of three lines of galvanized steel barbed wire which is to be of the 4-point pattern composed of two strands of 12-1/2 gauge line wires with 14 gauge aluminum barbs spaced on approximately 5" centers. Minimum weights of coating shall be 0.30 oz. per sq. ft. of wire surface.

(3) Barb wire arms: Intermediate post tops shall be of pressed steel or malleable iron base. Base shall include pressed steel extension farms to accommodate 3-barb style. Three-barb style shall extend at a 45 degree angle. Barb wire arms shall support a minimum of 400 lbs. vertical dead load from top of arm.

(4) Chain link fabric shall be securely fastened to all terminal posts using 3/16" x ¾" tension bars and heavy 12 gauge tension bands. There shall be one band for each foot in the height of the fence. The fabric shall be fastened to all intermediate posts with 9 gauge tie wires, spacing not to exceed 14" apart. Fabric shall be tied to top rail with 9 gauge tie wires, spacing not to exceed 24".

B. Framework

(1) All posts and other appurtenances used in the construction of this fence shall be hot dipped galvanized with a minimum of 1.8 oz. per sq. ft. of surface.

(2) Intermediate posts shall be 2-1/2" O.D. nominal weight 3.65 per lineal foot.

(3) All end, corner, and pull posts shall be 3" O.D. nominal weight pipe, nominal weight 5.79 lbs. per lineal foot.

(4) Posts for swing gates shall be standard weight pipe of 4" O.D. St. 5.79 lbs. PLS.

(5) Evenly spaced posts in the line of fence no further apart than 10'-0" on center.

(6) Top rails shall be 1-5/8" O. D. standard weight pipe wt 2.27 per lineal foot, provided with couplings approximately every 20-'0". Couplings are to be outside sleeve type.

(7) Brace pipe shall be same as top rail and extend from terminal post to first adjacent line post. Braces shall be furnished to fasten to posts by heavy sand cast aluminum or malleable fittings, then securely trussed from line post to base of terminal post with a 3/8" truss rod and tightener. Brace pipe is required only in heights of 6'-0" and higher.

C. Gates: Gate frames shall be 1-5/8" O.D. standard weight pipe, wt. 2.72 per lineal foot. Gates shall be fabricated using welded construction. Gates must be properly braced to eliminate any possible sagging condition.

(1) Gate Fillers: Frames shall be filled with same specification of fabric as is used in line of fence.

(2) Hinges: Hinges shall be a ball and socket offset type allowing gates to swing parallel with line of fence; shall be of malleable iron or forging, and shall have hot dipped galvanized finish.

(3) Double Latch: Double latch shall be drop bar type securely bolted to gate frame and shall engage in a heavy malleable iron gate stop.

D. Installation

(1) Installation shall be made in a workmanlike manner by skilled mechanics experienced in erection of this type of fence. Erect fence on line and to grade designated. Set all posts in concrete foundations in ground to a minimum depth of 48". Diameter of foundation shall be a minimum of 9", except for gate posts on which minimum diameter shall be three times the outside diameter of gate post. Foundation shall be 1-2-4 mixture of concrete. All foundations shall extend approximately 2" above grade and shall slope away from post to provide for proper drainage.

(2) Fabric and barb wire shall be stretched to proper tension between terminal posts and securely fastened to the framework members as covered in previous sections. Bottom of fabric shall be held as uniformly as is practicable to finished grade.

16. GUARANTEE

(SEE ALSO GENERAL CONDITIONS). Tank contractor shall guarantee workmanship and materials (including piping and foundation) entering into his portion of work for a period of one two (2) year from date of substantial completion. In case leakage or other defects appear within the one-year period, he shall promptly make required repairs at his own expense upon written notice by Owner that such defects have been found. Leakage through side walks shall be defined as the appearance of free liquid showing

stream flow in the exterior surface, the source of which is from the inside of the tank. A first warranty inspection will be scheduled prior to two (2) years after date of substantial completion.

17. SUBSURFACE INVESTIGATION

Information from Geotechnical Investigation is attached hereto. If contractor desires to have further positive subsurface information, he shall obtain it at his own expense.

END SECTION

GEOTECHNICAL EXPLORATION

500,000 GALLON

ELEVATED WATER TANK

BULLOCK PEN WATER DISTRICT

GRANT COUNTY, KENTUCKY

Prepared for: **CMW Inc.**

Thelen Project No.: **111026E**

THELEN ASSOCIATES, INC.

Geotechnical • Testing Engineers

• 1398 Cox Avenue, Erlanger, Kentucky 41018-1002 / 859-746-9400 / Fax 859-746-9408

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February 20, 2012

CMW Inc.
400 East Vine Street
Suite 400
Lexington, Kentucky 40507

Attn: Mr. Kerry Odle, P.E.

Re: Geotechnical Exploration
500,000 Gallon
Elevated Water Tank
Bullock Pen Water District
Grant County, Kentucky

Ladies and Gentlemen:

Presented in this report are the results of a geotechnical exploration made for the proposed 500,000 gallon elevated water tank to be constructed for the Bullock Pen Water District on Lebanon Road (Kentucky Highway 491) in Grant County, Kentucky. Our services were authorized by Mr. Kerry Odle, P.E., the Principal Engineer with CMW Inc., on November 28, 2011 and were performed in accordance with the scope outlined in our Proposal-Agreement K211311, dated November 25, 2011.

1.0 SCOPE

The main purpose of this exploration was to determine the general subsurface profile in the area of the proposed tank and to relate the engineering properties of the soils and bedrock, that is, their classification, strength and compressibility characteristics, to the proposed tank foundation design and to site development. The geotechnical work included test borings, laboratory testing, engineering analyses, and preparation of this report.

2.0 PROJECT CHARACTERISTICS

For the purposes of this report, Lebanon Road extends in a north-south direction. The tank site is located approximately 75 to 90 feet west of Lebanon Road, about 1700 feet north of the Hopewell Road intersection and about 2000 feet south of the Violet Road intersection in Crittenden, Grant County, Kentucky. We have reviewed the aerial site plan and the USGS topographic area map provided by CMW Inc., along with the Proposed Boring Locations plan prepared by CMW Inc., drawing dated December 2011 and the Enlarged Tank & Pump Plan and Tank Details drawing, dated May, 2011 and prepared by CMW Inc.

It is our understanding that the proposed elevated water tank will have a capacity of 500,000 gallons. According to the typical tank detail, the elevated water tank will be supported by six (6) legs and a center column with a tank bowl diameter of 56 feet. The loading on each of the columns and the center riser were not available as of the date of this report. A final grading plan was not available as of the date of this report, but the site grading is anticipated to be very minimal.

3.0 SUBSURFACE EXPLORATION

The field work phase of this exploration was carried out on January 5, 2012. Three (3) test borings were drilled at the locations shown on the Boring Plan, Drawing 111026E-1, in the Appendix to this report. The test boring locations were staked in the field by CMW Inc. The test boring locations and ground surface elevations were staked and surveyed in the field by CMW Inc. The Proposed Boring Location Plan, dated December 2011 and prepared by CMW Inc., was used as a base map for our Boring Plan.

The test borings were made with a track-mounted drill rig advancing continuous flight augers. Standard split-spoon and thin-walled Shelby tube sampling was accomplished ahead of the augers at predetermined intervals. Bedrock sampling was accomplished by coring in Test Boring 2 using an NXM size core barrel. Observations for groundwater were made in the borings during drilling, at the completion of drilling and after the completion of drilling.

As each test boring was advanced, the Drilling Technician kept a log of the subsurface profile noting the soil and bedrock types and stratifications, groundwater, penetration test results, and other pertinent data. Representative portions of the split spoon samples were placed and labeled in glass jars. The ends of the Shelby tubes were capped and taped to preserve the in situ moisture contents and densities of the undisturbed samples. Rock core samples were placed in labeled cardboard core boxes.

4.0 LABORATORY REVIEW AND TESTING

The samples from the test borings were examined and visually classified in the laboratory by the Project Geotechnical Engineer. Representative samples were selected for moisture content determinations, Atterberg limits tests, and unconfined compression tests. The results of these tests are included in the Tabulation of Laboratory Tests in the Appendix along with the unconfined compression test forms.

Final test boring logs were prepared by the Project Geotechnical Engineer on the basis of the visual classification in the laboratory, the laboratory test results and the field logs kept by the Drilling Technician. Copies of the final test boring logs are included in the Appendix with a Soil Classification Sheet which describes the terms and symbols used on the boring logs.

The dashed lines on the test boring logs indicate an approximate change in soil or bedrock strata as estimated between samples. A solid line indicates that a change in strata occurred within a sample where a more precise measurement could be made. The transitions between soil and bedrock types may be abrupt or gradual.

5.0 SITE CONDITIONS

The proposed tank site is bounded on the east by Lebanon Road (KY Highway 491), on the north and west by wooded property, and on the south by woods and an open field. There is an overhead power line located about 20 to 40 feet west of and nearly parallel with the western property line. The ground surface within the proposed tank site slopes moderately downward to the north/northwest with the gradient ranging from

approximately 4 to 7 Horizontal to 1 Vertical (4 to 7H:1V). The proposed tank site was originally wooded and has since been cleared of trees.

6.0 SUBSURFACE CONDITIONS

The test borings indicate that the ground surface is underlain by 6 inches to 1 foot of medium stiff native silty clay, followed by 6.0 to 8.5 feet of stiff or very stiff silty clay or clay colluvium, and then the interbedded shale and limestone bedrock. The depth to the surface of the interbedded shale and limestone bedrock ranged from 7.0 to 9.5 feet below the existing ground surface.

Native Overburden Soil

All of the test borings encountered a 1.0-foot thick zone of medium stiff native silty clay at the ground surface and stiff to very stiff clay or silty clay colluvium. Colluvium is a transported soil that has been deposited on the slopes of hillsides from weathering and degradation of the shale and limestone bedrock and movement down the slope to form talus deposits on the hillside. Colluvium is often characterized by a dense clayey matrix with randomly oriented shale fragments, limestone fragments and limestone floaters. The colluvium was described as brown or mottled brown, with occasional traces of gray in color and stiff or very stiff in consistency with and without iron oxide stains, hairlike roots and shale fragments. The standard penetration test resistance values (N-values) ranged from 7 to 9 blows per foot (bpf) in the medium stiff surface layer and 11 to 19 bpf in the stiff or very stiff colluvium.

Three (3) moisture contents of the silty clay colluvium were 17.5, 20.2, and 23.0 percent. One (1) sample of the silty clay colluvium classified as a CL soil according to the Unified Soil Classification System (USCS) with a liquid limit of 47 percent, a plastic limit of 26 percent and a plasticity index of 21 percent.

Three (3) moisture contents of the plastic clay were 20.3, 25.7, and 26.7 percent. One (1) sample of the plastic clay classified as a CH soil according to the USCS with a liquid limit of 50 percent, a plastic limit of 27 percent and a plasticity index of 23 percent. One (1) undisturbed sample of the plastic clay had an unconfined compressive strength of

1,800 pound per square foot (psf) and a natural dry density of 95.4 pounds per cubic foot (pcf).

Bedrock

A bedrock formation consisting of a system of interbedded shale and limestone layers was encountered below the native colluvium. Bedrock in the area of the project site is typically characterized in three basic zones, depending upon the degree of weathering of the shale. It is noted that each zone of the bedrock may or may not locally be encountered.

The uppermost zone is a highly weathered zone wherein the shale is brown in color and has almost weathered to a clay, yet the bedding planes can still be seen. The highly weathered zone of bedrock was also noted to have clay layers. The highly weathered zone was encountered in all of the test borings at depths ranging from 7.0 to 9.5 feet. The highly weathered zone of bedrock was 5.0 feet thick in Test Borings 1 and 2 where it was penetrated. The highly weathered zone was at least 7.0 feet thick in Test Boring 3, when the boring was terminated at a depth of 14.0 feet. Five (5) moisture contents of the shale portion from the highly weathered zone were 11.0, 14.8, 16.2, 24.5 and 26.0 percent. The recovered samples with the two (2) highest moisture contents were noted to also have clay layers.

In the intermediate zone, the shale is olive brown and tougher than the shale in the highly weathered zone. This zone was only encountered in Test Boring 1 below a depth of 12.0 feet. The weathered zone was at least 2.0 feet thick in Test Boring 1, when the boring was terminated at a depth of 14.0 feet. One (1) moisture content of the shale portion from this zone was 14.1 percent.

The parent bedrock consists of unweathered gray shale and interbedded limestone. The upper boundary of this zone was only encountered in Test Boring 2 below a depth of 14.5 feet. The unweathered bedrock was cored in Test Boring 2, which indicated that the limestone beds within the bedrock ranged in thickness from ¼ to 5¼ inches. The bedrock was described as extremely weak shale and thin to medium bedded medium

strong to strong limestone. The cored bedrock was found to have limestone percentages ranging between 39 and 61 percent. The Rock Quality Designations [RQD] of the cored bedrock ranged from 39 to 88 percent. Test Boring 2 was terminated in the unweathered zone at a depth of 23.5 feet.

Four (4) moisture contents of the shale portion from the unweathered zone were 5.7, 6.0, 8.6 and 26.3 percent. The highest moisture content was performed on a piece of the shale that had softened. An unconfined compression test was performed on a sample of the drier shale, which yielded an unconfined compressive strength of 9,300 psf, which had a natural dry density of 142.2 pcf.

The limestone layers within all three zones of bedrock are relatively unweathered and very hard in comparison to the shale portion of the bedrock. The Geologic Map of the Walton Quadrangle indicates that the bedrock formation near the ground surface at the project site is from the Ordovician Aged Fairview Formation. The Fairview Formation ranges from about 50 to 65 percent limestone generally in beds less than 8 inches thick and rarely as much as 18 inches thick that are irregular to evenly layered and common lenticular in shape.

7.0 GROUNDWATER CONDITIONS

Test Borings 1 and 3 were noted to be dry during and upon completion of drilling. Test Boring 2 was noted to be dry during drilling and because water was introduced to the hole as part of the rock coring process, groundwater was noted at a depth of 9.0 feet upon completion of drilling. The test borings were backfilled prior to leaving the site, therefore, long-term water level readings could not be made. Based upon our experience, periodic groundwater seepage can occur at the native soil/bedrock interface and along limestone layers within the bedrock.

8.0 CONCLUSIONS AND RECOMMENDATIONS

8.1 General

Based upon the test borings, a visual examination of the samples, the laboratory tests, our understanding of the proposed construction, and our experience as Consulting Soil

and Foundation Engineers in Kentucky, we have reached the following conclusions and make the following recommendations.

The conclusions and recommendations of this report have been derived by relating the general principles of the discipline of geotechnical engineering to the proposed construction outlined by the Project Characteristics section of this report. Because changes in surface, subsurface, climatic and economic conditions can occur with time and location, we recommend for our mutual interest that the use of this report be restricted to this specific project.

Our understanding of the proposed design and construction is based on the documents provided to us at the time this report was prepared and which are referenced in the Projects Characteristics section of this report. We recommend that our office be retained to review the final design documents, plans, and specifications to assess any impact, changes, additions or revisions in these documents may have on the conclusions and recommendations of this geotechnical report. Any changes or modifications which are made in the field during the construction phase which alter site grading, structure locations, infrastructure or other related site work should also be reviewed by our office prior to the implementations.

If conditions are encountered in the field during construction which vary from the facts of this report, we recommend that our office be contacted immediately to review the changed conditions in the field and make appropriate recommendations.

The scope of our services did not include any environmental assessment or investigation for the presence or absence of wetlands or hazardous or toxic materials in the soil, bedrock, surface water, groundwater or air, on or below or around this site.

We have performed the test borings and laboratory tests for our evaluation of the site conditions and for the formulation of the conclusions and recommendations of this report. We assume no responsibility for the interpretation or extrapolation of the data by others.

The earthwork recommendations of this report presume that the earthwork will be monitored continuously by an Engineering Technician under the direction of a Kentucky-Licensed Geotechnical Engineer. We recommend that the Owner contract these services directly with Thelen Associates, Inc.

It is our opinion that the site is suitable for the proposed water tank provided that the recommendations contained herein are implemented. Recommendations for design and construction of the proposed elevated water tank and for site development are contained in the following paragraphs.

8.2 Tank Foundations

1. It is our opinion that the proposed 500,000-gallon elevated tank may be supported on spread footings consisting of one column pad per tank leg and one column pad for the central riser. Due to the heavy loads, the spread footings will most likely need to bear in the interbedded shale and limestone bedrock and can be proportioned for the allowable bearing pressures listed in the following table. The allowable bearing pressures listed in the following table are based on full dead and full live load.

Bearing Material	Depth of Penetration	Allowable Bearing Pressure (psf)
Brown Highly Weathered Shale and Limestone Bedrock with Clay Layers	6 inches	5,000
Olive Brown Weathered Shale and Limestone Bedrock	6 inches	8,000
Unweathered Gray Shale and Limestone Bedrock	6 inches	20,000

2. We recommend that efforts be made to maintain the moisture content of the bearing soils. A "lean" concrete mud mat (minimum 500 pounds per square inch

at 28 days) should be placed over the bearing soils if the excavations must remain open for an extended period of time.

3. All exterior footing bottoms should be placed at least 30 inches below the proposed finish exterior grades for frost protection. It is recommended that the bottoms of all footings not be supported higher than a relationship of 2 horizontal to 1 vertical upward from the invert of any paralleling or nearly paralleling existing or proposed utility trenches.

4. We recommend that footing excavations be made to neat lines and grades so that concrete can be placed directly against the banks of excavations without forming. It is also important that good surface drainage be maintained during and after construction to prevent water from ponding in and around footing excavations. Loose soil, debris, excess surface water, and/or soils disturbed by exposure should be removed from the bearing surface prior to concrete placement.

5. It is recommended that all footing excavations be reviewed by our Project Geotechnical Engineer or his/her representative prior to placing concrete to determine that the bearing soils and surfaces are consistent with the recommendations contained herein.

8.3 Site Preparation and Earthwork

6. We recommend that any cut or fill areas be stripped of vegetation and topsoil. The vegetation should be wasted off site and the topsoil (if encountered) may be used for yard grading, as needed.

7. After general site stripping, all surfaces upon which fill, or any proposed pavement, will be placed should be proofrolled with a heavily loaded piece of equipment under the review of the Project Geotechnical Engineer or his/her representative. Any soft or yielding soils detected during the proofroll should be undercut to firm non-yielding soils. The base of all undercut and approved

proofrolled surfaces should then be compacted to at least 95 percent of the standard Proctor maximum dry density, ASTM D698, prior to filling.

8. We recommend that all new fill soils consist of on-site clean clay soils relatively free of topsoil, vegetation, trash, construction debris, frozen materials, particles over 6 inches in maximum thickness, or other deleterious materials. The new fill should be placed on the prepared surfaces in shallow horizontal layers, 6 to 8 inches in loose thickness. The fill should be compacted to at least 95 percent of the maximum dry density determined by the standard Proctor moisture-density test, ASTM D698, in any proposed fill areas. The moisture content of the fill at the time of compaction should be maintained within 2 percent below to 3 percent above the optimum moisture content. We recommend that the subgrade soils within the top 8 inches beneath the proposed pavement areas be moisture-conditioned to within 2 percent of the optimum moisture content and compacted to at least 100 percent of the standard Proctor maximum dry density (ASTM D698) immediately prior to the pavement construction so that the subgrades are moist and well-compacted at that time.

9. It is our opinion that the on-site native clayey soils and shales should be suitable for reuse as new compacted and tested fill, provided they are moisture-conditioned to within the criteria listed above. The shale can be used provided that it is pulverized to a soil-like consistency. The limestone floaters should be segregated from shallow fill depths. Under no circumstances should limestone layers thicker than 6 inches be incorporated into the new compacted fills. It is noted that some of the clay soils at the site have relatively high in situ moisture contents and will require some aerating and drying to reduce their moisture contents to near optimum to obtain the recommended degree of compaction.

10. It is advisable that the earthwork operations involving the on-site soils be carried out during a dry season and that a sufficient gradient be maintained at the ground surface to prevent ponding of surface water. The on-site soils, consisting basically of low to moderately plastic clay soils and shale, are

susceptible to softening and possible shrink/swell considerations during and following periods of precipitation. Experience has found that the optimum season of the year for earthwork in the northern portion of Kentucky is during the months of May through October because of the historically more favorable weather conditions during that period.

8.4 Excavations

11. For foundation and utility excavations, it is anticipated that conventional rubber-tired and track-mounted equipment will be able to readily excavate the clayey overburden soils at this site. The bedrock, however, will be much more difficult to excavate and generally necessitates conventional track-mounted equipment, particularly in narrow utility trenches or small foundation excavations. Bedrock excavation at the site can become taxing if larger percentages of limestone are encountered or occasional thick layers of limestone are encountered. Our judgment is that it will require rock teeth and/or a pneumatic hoe hammer to loosen the limestone from the bottom and side walls of the excavations in order for it to be able to be excavated with a track-mounted hoe in these cases. The degree of difficulty will increase with the depth of penetration into the bedrock, and in particular where the unweathered gray shale and limestone is encountered.

12. All clay and shale used as trench backfill should be moisture-conditioned to within 2 percent below to 3 percent above optimum moisture content for compaction, and then placed in shallow level layers, 6 to 8 inches thick, with each layer compacted to densities not less than 95 percent, ASTM D698. Granular backfill should be placed in shallow level layers, 4 to 6 inches thick, and compacted to at least 75 percent relative density as per ASTM D4253 and D4254. Under no conditions should any backfill be flushed in an attempt to obtain compaction.

13. The Contractor should be responsible for the stability and safety of all excavations and should exercise all necessary cautions to shore, slope or

otherwise maintain stable excavations to protect workers. All excavations should be made and maintained in accordance with all federal, state and local regulations.

8.5 Erosion

14. We recommend that site grades be set to promote drainage away from the proposed tank and any proposed parking or drive areas.

15. During construction, straw bales and/or silt fences should be staked across areas of concentrated run-off to minimize the amount of soil carried from the construction site. Scarified areas should be seeded and strawed, paved, sodded, or otherwise protected from erosion as soon as possible after final grading is completed.

16. If any portions of construction are undertaken during the winter or spring months of the year, we recommend that no fill, concrete or pavement be placed over frozen or saturated soils.

8.6 Seismicity

All commercial building project plans and specifications are required to meet the provisions of the current Kentucky Building Code, referred to as KBC 2007. KBC 2007 has adopted the earthquake having a 2 percent probability of exceedance (POE) in any 50-year period as the basis for seismic design. Earlier codes had used the earthquake having a 10 percent POE in any 50-year period as the basis for seismic design. Another KBC 2007 requirement is that local site geology, including overburden soils above the bedrock, be factored into the determination of seismic parameters to be used in structural design.

17. We have assumed an Occupancy Category of IV for the proposed 500,000-gallon elevated water tank. We recommend that the Project Structural Engineer verify this information. The proposed water tank will be supported on spread footings bearing in at least the highly weathered zone of the bedrock. Based on

our assessment of the site conditions, it is our opinion that the following seismic parameters will be applicable to the proposed water tank.

Category/ Parameter	Designation/ Value	Notes
Occupancy Category	IV	Assumed value, to be confirmed by the Owner, Architect, and Structural Engineer (see the 2006 IBC Table 1604.5)
S_S	0.192 g	Lat. 38.785°N/Long. -84.61°W County: Grant
S_1	0.080 g	
Site Class	B	Per the 2006 IBC Table 1613.5.2
F_a	1.0	Per the 2006 IBC Table 1613.5.3(1)
F_v	1.0	Per the 2006 IBC Table 1613.5.3(2)
S_{MS}	0.192 g	Per the 2006 IBC Equation 16-37
S_{M1}	0.080 g	Per the 2006 IBC Equation 16-38
S_{DS}	0.128 g	Per the 2006 IBC Equation 16-39
S_{D1}	0.053 g	Per the 2006 IBC Equation 16-40
Seismic Design Category	A	Per the 2006 IBC Tables 1613.5.6(1) and 1613.5.6(2) (To be determined by the Project Structural Engineer)

18. According to the KBC 2007 "Seismic Design Category is permitted to be determined from Table 1613.5.6(1) when Items 1 through 4 of Section 1613.5.6.1 apply. These items involve the fundamental period of the structure, T_a, in each of the two orthogonal directions. The Project Structural Engineer will need to determine the Seismic Design Category based on these criteria.

19. Some special foundation and building design criteria in Chapters 16 through 18 of the KBC may be applicable. We recommend that a Kentucky-Licensed Structural Engineer be involved in the interpretation and the implementation of the applicable design criteria.

9.0 CLOSURE

We are enclosing with this report a reprint of "Important Information About Your Geotechnical Engineering Report" published by ASFE, Professional Firms Practicing in the Geosciences, which our firm would like to introduce to you at this time.

We appreciate the opportunity to provide our consulting services to you for the proposed water tank. Should you have any questions regarding this report, please do not hesitate to contact us. We look forward to following through with you on this project by providing the necessary construction review and testing services.

Respectfully submitted,
THELEN ASSOCIATES, INC.

Michelle E. Casto, P.E.
Staff Geotechnical Engineer

Donald B. Thelen, P.E.
Principal Geotechnical Engineer

MEC/DBT:mec
111026E

Copies submitted: 1 – Client
1 – Bullock Pen Water District

APPENDIX

ASFE Report Information

Tabulation of Laboratory Tests

Unconfined Compressive Strength Test Forms

Boring Plan, Drawing 111026E-1

Test Boring Logs

Soil Classification Sheet

Rock Classification Sheet

Important Information about Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely on Your ASFE-Member Geotechnical Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.

ASFE

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IIGER06085.0MRP

THELEN ASSOCIATES, INC.
1398 COX AVENUE
ERLANGER, KENTUCKY 41018-1002

GEOTECHNICAL EXPLORATION
500,000 GALLON ELEVATED TANK
BULLOCK PEN WATER DISTRICT
GRANT COUNTY, KENTUCKY
111026E

TABULATION OF LABORATORY TESTS

Boring Number	Sample Number	Depth, ft.		Moisture Content, %	Atterberg Limits, %			Natural Dry Density, pcf	Unconfined Compressive Strength, psf	USCS Classification
		From	To		LL	PL	PI			
1	2	2.5	4.0	20.3						
	3	5.0	6.5	17.5						
	4	7.5	9.0	11.0						
	5	10.0	11.5	24.6						
	6	12.5	14.0	14.1						
2	PT-2	3.7	4.2	26.7	50	27	23	95.4	1,850	CH
	3	5.0	6.5	25.0						
	4	7.5	9.0	25.7						
	6	12.5	14.0	26.0						
	RC-9A	16.2	16.3	23.6						
	RC-9B	16.4	16.5	5.7						
	RC-10A	21.6	21.9	8.6						
	RC-10B	22.1	22.5	6.0				142.2	9,300	
3	2	2.5	4.0	23.0						
	3	5.0	6.5	20.2	47	26	21			CL
	4	7.5	9.0	16.2						
	5	10.0	11.5	14.8						

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UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : CMW, Inc.
PROJECT NO.: 111026E
PROJECT: Geotechnical Exploration, 500.000 Gallon Elevated Tank, Bullock Pen WD
LOCATION: Grant County, Kentucky

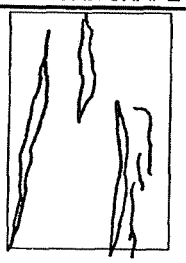
DATE: 2/9/2012

BORING NO.: 2 2 DEPTH (ft.): 3.7-4.2
SAMPLE DESCRIPTION: Brown moist medium stiff CLAY, trace iron oxide stains with shale fragments (colluvium)

SAMPLE OBTAINED BY: Shelby Tube CONDITION: Undisturbed

NATURAL UNIT WEIGHT	
AVERAGE DIAMETER (in.):	2.86
HEIGHT (in.):	5.64
HEIGHT TO DIAMETER RATIO:	1.97
AVERAGE AREA (sq. ft.):	0.0447
VOLUME (cu. ft.):	0.0210
WET WEIGHT (lbs.):	2.54
DRY WEIGHT (lbs.):	2.01
DRY DENSITY (pcf):	**95.4**

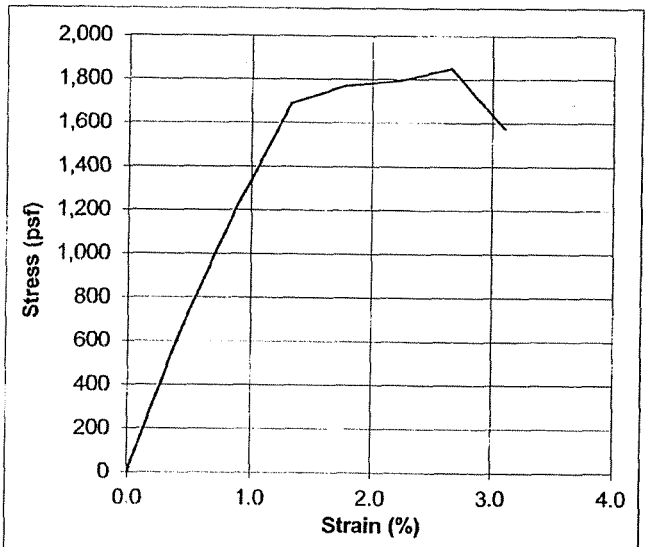
FAILURE SHAPE



WATER CONTENT AFTER SHEAR	
CAN NUMBER:	KP-3
WET WEIGHT + CAN (lbs.):	3.47
DRY WEIGHT + CAN (lbs.):	2.94
WEIGHT WATER (lbs.):	0.53
WEIGHT CAN (lbs.):	0.93
WEIGHT SOLID (lbs.):	2.00
MOISTURE (%):	**26.7**

PROVING RING NO.: QC200

DEFORM DIAL (0.001 in.)	LOAD DIAL (0.001 in.)	LOAD (lbs.)	STRAIN (%)	CORR. AREA ($ft.^2$)	STRESS (psf)
0	0	0.0	0.0	0.0447	0
25	30	30.1	0.4	0.0449	670
50	55	54.8	0.9	0.0451	1,214
75	77	76.6	1.3	0.0453	1,689
100	81	80.6	1.8	0.0455	1,770
125	82	82.0	2.2	0.0458	1,792
150	85	85.0	2.7	0.0460	1,849
175	73	72.7	3.1	0.0462	1,575



AVERAGE RATE OF STRAIN TO FAILURE (%/min.)	**1.0**
STRAIN AT FAILURE (%)	**2.7**
UNCONFINED COMPRESSIVE STRENGTH (psf)	**1,850**
SHEAR STRENGTH (psf)	**925**

REMARKS :

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UNCONFINED COMPRESSIVE STRENGTH OF INTACT ROCK CORE, ASTM - D2938
UNIT WEIGHT AND NATURAL MOISTURE

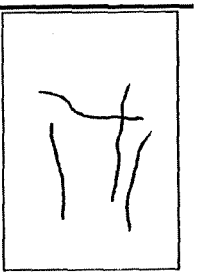
CLIENT : CMW, Inc.
DATE: 2/16/2012
PROJECT NO.: 111026E
PROJECT: Geotechnical Exploration, 500,000 Gallon Elevated Tank, Bullock Pen WD
LOCATION: Grant County, Kentucky

BORING NO.: 2 SAMPLE NO.: RC-10B DEPTH (ft.): 22.1-22.5
SAMPLE DESCRIPTION: Gray moist extremely weak SHALE (bedrock)
BEDROCK FORMATION: Fairview Formation
SAMPLE OBTAINED BY: Rock Core CONDITION: Undisturbed LOAD DIRECTION 90° TO LITHOLOGY

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.):	1.96
HEIGHT (in.):	4.47
HEIGHT TO DIAMETER RATIO:	2.28
AVERAGE AREA (sq. ft.):	0.0210
VOLUME (cu. ft.):	0.0078
WET WEIGHT (lbs.):	1.18
DRY WEIGHT (lbs.):	1.11
DRY DENSITY (pcf):	**142.2**

FAILURE SHAPE



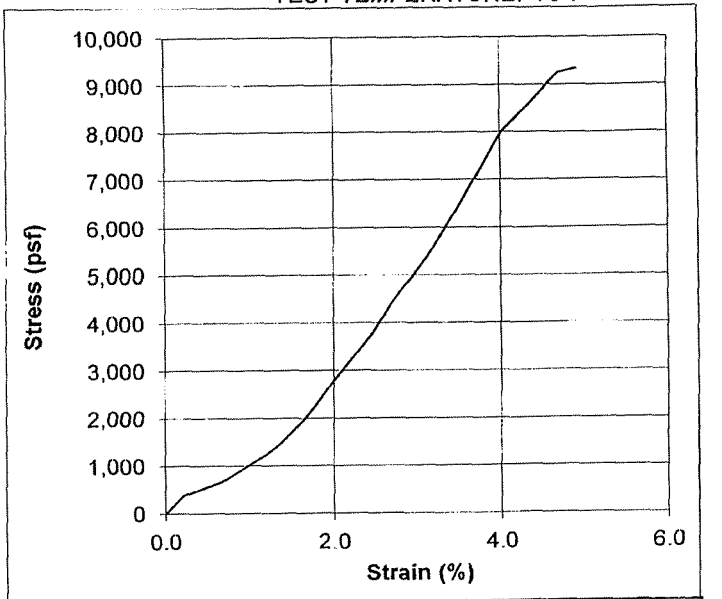
WATER CONTENT AFTER SHEAR

CAN NUMBER:	G6
WET WEIGHT + CAN (lbs.):	2.08
DRY WEIGHT + CAN (lbs.):	2.01
WEIGHT WATER (lbs.):	0.07
WEIGHT CAN (lbs.):	0.90
WEIGHT SOLID (lbs.):	1.11
MOISTURE (%):	**6.0**

PROVING RING NO.: QC200

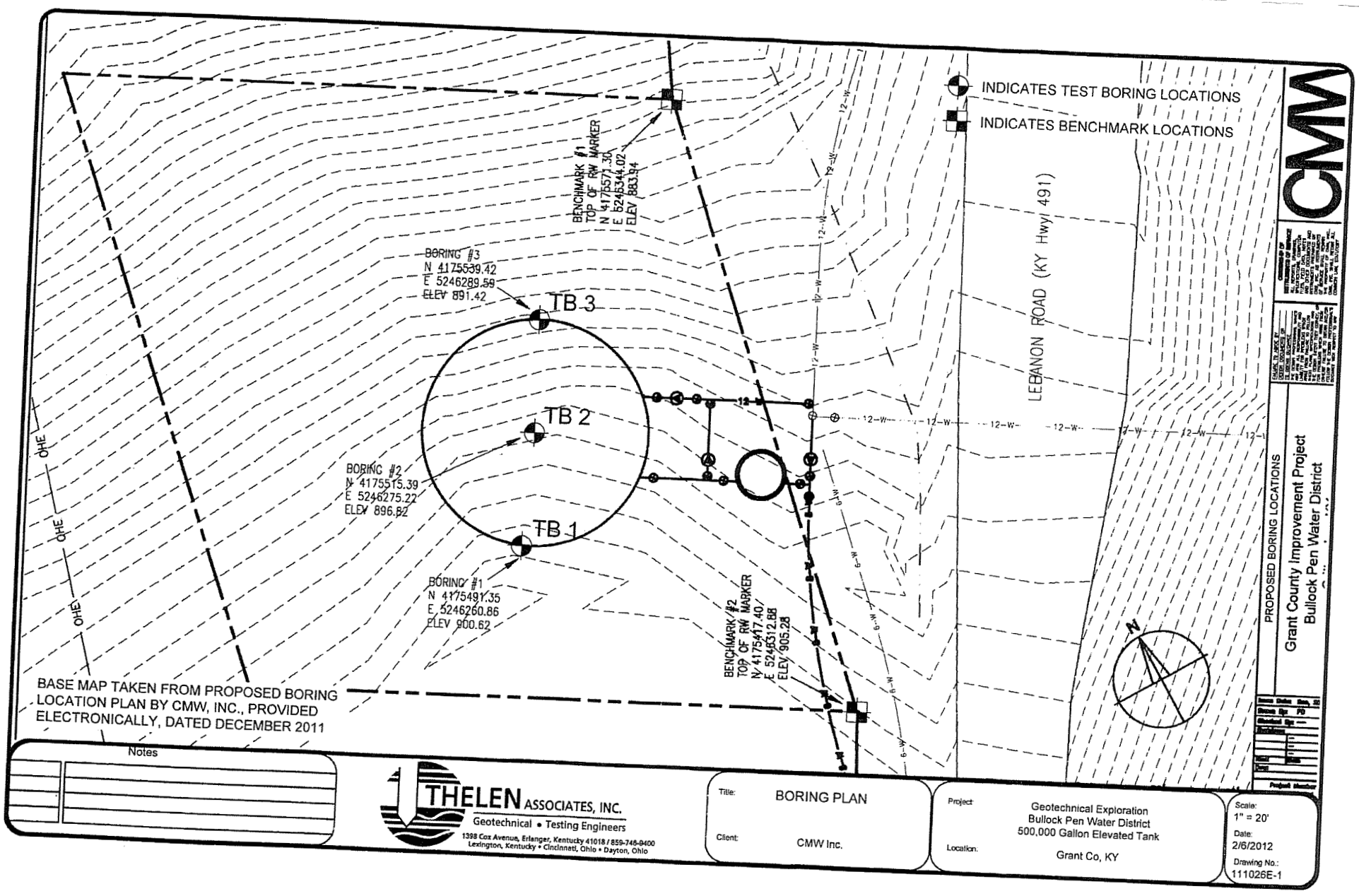
DEFORM DIAL (0.001 in.)	LOAD DIAL (0.001 in.)	LOAD (lbs.)	STRAIN (%)	STRESS (psf)
0	0	0	0.0	0
10	8	8	0.2	381
20	11	11	0.4	524
30	14	14	0.7	667
40	19	19	0.9	905
50	24	24	1.1	1,143
60	30	30	1.3	1,429
70	38	38	1.6	1,810
80	48	48	1.8	2,286
90	59	59	2.0	2,810
100	69	69	2.2	3,286
110	79	79	2.5	3,763
120	92	92	2.7	4,382
140	113	113	3.1	5,382
160	140	140	3.6	6,668
180	168	168	4.0	8,002
200	185	185	4.5	8,811
210	194	194	4.7	9,240
220	196	196	4.9	9,335

TEST TEMPERATURE: 70°F



AVERAGE RATE OF STRAIN TO FAILURE (%/min.)	**1.3**
STRAIN AT FAILURE (%)	**4.9**
UNCONFINED COMPRESSIVE STRENGTH (ksf)	**9.3**
SHEAR STRENGTH (ksf)	**4.7**

REMARKS :


INDICATES TEST BORING LOCATIONS
INDICATES BENCHMARK LOCATIONS
LEBANON ROAD (KY Hwy 491)
BENCHMARK #1
TOP OF RW MARKER
N 4175571.30
E 5246344.02
ELEV 883.94
BORING #3
N 4175539.42
E 5246289.59
ELEV 891.42
TB 3
TB 2
TB 1
BORING #2
N 4175515.39
E 5246275.22
ELEV 896.82
BORING #1
N 4175491.35
E 5246260.86
ELEV 900.62
BENCHMARK #2
TOP OF RW MARKER
N 4175417.40
E 5246312.88
ELEV 905.28
OHE
OHE
OHE
12-W
N
BASE MAP TAKEN FROM PROPOSED BORING LOCATION PLAN BY CMW, INC., PROVIDED ELECTRONICALLY, DATED DECEMBER 2011
PROPOSED BORING LOCATIONS
Grant County Improvement Project
Bullock Pen Water District
Notes
THELEN ASSOCIATES, INC.
Geotechnical • Testing Engineers
1398 Cox Avenue, Erlanger, Kentucky 41018 / 859-746-9400
Lexington, Kentucky • Cincinnati, Ohio • Dayton, Ohio
Title: BORING PLAN
Client: CMW Inc.
Project: Geotechnical Exploration
Bullock Pen Water District
500,000 Gallon Elevated Tank
Location: Grant Co, KY
Scale: 1" = 20'
Date: 2/6/2012
Drawing No.: 111026E-1

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LOG OF TEST BORING

CLIENT: CMW Inc. BORING # 1

PROJECT: Geotechnical Exploration, 500,000 Gallon Elevated Tank, Bullock Pen Water District, Grant Co., JOB # 111026E

LOCATION OF BORING: As shown on Boring Plan, Drawing 111026E-1 /Kentucky

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH feet	DEPTH SCALE feet	SAMPLE Cond	Blows/6"	No.	Type	Rec. inches
900.6	SURFACE	0.0						
899.6	Brown moist medium stiff SILTY CLAY, trace topsoil and roots.	1.0		I	3-4-5	1A 1B	DS	18
898.6	Brown moist stiff to very stiff SILTY CLAY, trace hairlike roots and iron oxide stains.	2.0		I	5-6-8	2	DS	18
896.1	Brown moist very stiff CLAY with iron oxide stains.	4.5	5	I	3-5-8	3	DS	18
893.6	Mottled brown moist very stiff SILTY CLAY with shale fragments, trace iron oxide stains (colluvium).	7.0		I	10-18-12	4	DS	18
888.6	Interbedded brown to olive brown moist extremely weak highly weathered SHALE and gray medium strong to strong LIMESTONE with clay layers (bedrock).	12.0	10	I	4-6-6	5	DS	18
886.6	Interbedded olive brown to gray moist extremely weak weathered SHALE and gray medium strong to strong LIMESTONE (bedrock).	14.0	15	I	21-50-50	6	DS	18
	Bottom of test boring at 14.0 feet.		20					
			25					

Datum	MSL	Hammer Wt.	140 lbs.	Hole Diameter	8 in.	Foreman	LW / BD-1
Surf. Elev.	900.6 ft.	Hammer Drop	30 in.	Rock Core Dia.	-- in.	Engineer	MEC
Date Started	1/5/12	Pipe Size	O.D. 2 in.	Boring Method	3-1/4" HSA	Date Completed	1/5/12

SAMPLE CONDITIONS
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED None ft.
AT COMPLETION Dry ft.
AFTER -- hrs. -- ft.
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

STANDARD PENETRATION TEST - DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

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LOG OF TEST BORING

CLIENT: CMW Inc.

PROJECT: Geotechnical Exploration, 500,000 Gallon Elevated Tank, Bullock Pen Water District, Grant Co., BORING # 2

LOCATION OF BORING: As shown on Boring Plan, Drawing 111026E-1 JOB # 111026E /Kentucky

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH feet	DEPTH SCALE feet	SAMPLE Cond	Blows/6"	No.	Type	Rec. inches
896.8	SURFACE	0.0						
895.8	Brown moist medium stiff SILTY CLAY with topsoil and roots.	1.0		I	2-3-4	1A 1B	DS	18
894.8	Brown moist stiff SILTY CLAY, trace roots and iron oxide stains.	2.0 3.0		U		2	PT	24/24
893.8	Mottled brown moist very stiff SILTY CLAY with iron oxide stains and shale fragments (colluvium).		5	I	5-5-6	3	DS	18
887.3	Brown moist very stiff CLAY with shale fragments and iron oxide stains (colluvium) (CH).	9.5		I	5-6-8	4	DS	18
884.8	Interbedded brown, trace gray moist extremely weak highly weathered SHALE and gray medium strong to strong LIMESTONE (bedrock).	12.0	10	U		5	PT	22/24
882.3	Interbedded brown to olive brown moist extremely weak highly weathered SHALE and gray medium strong to strong LIMESTONE with clay layers (bedrock).	14.5 15.5	15	I	5-7-9	6	DS	18
881.3	Interbedded gray moist extremely weak SHALE and gray medium strong to strong LIMESTONE (bedrock).	18.5		I	50/2"	7	DS	2
878.3	Gray, trace brown moist extremely weak SHALE and thin to medium bedded, light gray medium strong to strong marled LIMESTONE. The limestone is 39 percent and in beds ranging from 3/4 to 5 1/4 inches thick. Fairview Formation. [RQD= 39 percent] (bedrock).		20			8	RC	36/36
873.3	Gray moist extremely weak SHALE and thin to medium bedded, light gray medium strong to strong LIMESTONE. Limestone is 61 percent and in beds ranging from 1/4 to 5 1/4 inches. Fairview Formation [RQD= 88 percent] (bedrock).	23.5	25			9	RC	60/60
	Bottom of test boring at 23.5 feet. *Note: Water was added at a depth of 15.5 feet during the coring process.							

Datum MSL Hammer Wt. 140 lbs. Hole Diameter 8 in. Foreman LW / BD-1

Surf. Elev. 896.8 ft Hammer Drop 30 in. Rock Core Dia. 1-7/8 in. Engineer MEC

Date Started 1/5/12 Pipe Size O.D. 2 in. Boring Method 3-1/4" HSA Date Completed 1/5/12

SAMPLE CONDITIONS
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED Core at 15.5 ft.
AT COMPLETION 9.0 ft.
AFTER -- hrs. -- ft.
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

STANDARD PENETRATION TEST - DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

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LOG OF TEST BORING

CLIENT: CMW Inc. BORING # 3

PROJECT: Geotechnical Exploration, 500,000 Gallon Elevated Tank, Bullock Pen Water District, Grant Co., JOB # 111026E

LOCATION OF BORING: As shown on Boring Plan, Drawing 111026E-1 /Kentucky

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH feet	DEPTH SCALE feet	SAMPLE Cond	Blows/6"	No.	Type	Rec. inches
891.4	SURFACE	0.5						
890.9	Brown moist medium stiff SILTY CLAY, trace topsoil, roots and iron oxide stains.	2.0		I	3-4-5	1A 1B	DS	18
889.4	Brown moist stiff SILTY CLAY, trace iron oxide stains and roots.	4.5		I	3-5-6	2	DS	18
886.9	Brown moist very stiff SILTY CLAY, trace roots and iron oxide stains.	7.0	5	I	6-8-11	3	DS	18
884.4	Mottled brown, trace gray moist very stiff SILTY CLAY with shale fragments and iron oxide stains (colluvium) (CL).			I	10-22-23	4	DS	18
879.4	Interbedded brown moist extremely weak highly weathered SHALE and gray medium strong to strong LIMESTONE (bedrock).	12.0	10	I	22-15-8	5	DS	18
877.4	Interbedded brown, trace gray moist extremely weak highly weathered SHALE and gray medium strong to strong LIMESTONE (bedrock).	14.0		I	30-22-50	6	DS	18
	Bottom of test boring at 14.0 feet.		15 20 25					

Datum	MSL	Hammer Wt.	140 lbs.	Hole Diameter	8 in.	Foreman	LW / BD-1
Surf. Elev.	891.4 ft.	Hammer Drop	30 in.	Rock Core Dia.	-- in.	Engineer	MEC
Date Started	1/5/12	Pipe Size	O.D. 2 in.	Boring Method	3-1/4" HSA	Date Completed	1/5/12

SAMPLE CONDITIONS
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED None ft.
AT COMPLETION Dry ft.
AFTER -- hrs. -- ft.
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

STANDARD PENETRATION TEST - DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

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SOIL CLASSIFICATION SHEET

NON COHESIVE SOILS
(Silt, Sand, Gravel and Combinations)

Density

Very Loose	- 5 blows/ft. or less
Loose	- 6 to 10 blows/ft.
Medium Dense	- 11 to 30 blows/ft.
Dense	- 31 to 50 blows/ft.
Very Dense	- 51 blows/ft. or more

Relative Properties

Descriptive Term	Percent
Trace	1 – 10
Little	11 – 20
Some	21 – 35
And	36 – 50

Particle Size Identification

Boulders	- 8 inch diameter or more	
Cobbles	- 3 to 8 inch diameter	
Gravel	- Coarse	- 3/4 to 3 inches
	- Fine	- 3/16 to 3/4 inches
Sand	- Coarse	- 2mm to 5mm (dia. of pencil lead)
	- Medium	- 0.45mm to 2mm (dia. of broom straw)
	- Fine	- 0.075mm to 0.45mm (dia. of human hair)
Silt		- 0.005mm to 0.075mm (Cannot see particles)

COHESIVE SOILS
(Clay, Silt and Combinations)

Consistency	Field Identification	Unconfined Compressive Strength (tons/sq. ft.)
Very Soft	Easily penetrated several inches by fist	Less than 0.25
Soft	Easily penetrated several inches by thumb	0.25 – 0.5
Medium Stiff	Can be penetrated several inches by thumb with moderate effort	0.5 – 1.0
Stiff	Readily indented by thumb but penetrated only with great effort	1.0 – 2.0
Very Stiff	Readily indented by thumbnail	2.0 – 4.0
Hard	Indented with difficulty by thumbnail	Over 4.0

Classification on logs are made by visual inspection.

Standard Penetration Test – Driving a 2.0" O.D., 1 3/8" I.D., sampler a distance of 1.0 foot into undisturbed soil with a 140 pound hammer free falling a distance of 30 inches. It is customary to drive the spoon 6 inches to seat into undisturbed soil, then perform the test. The number of hammer blows for seating the spoon and making the tests are recorded for each 6 inches of penetration on the drill log (Example – 6/8/9). The standard penetration test results can be obtained by adding the last two figures (i.e. 8+9=17 blows/ft.). Refusal is defined as greater than 50 blows for 6 inches or less penetration.

Strata Changes – In the column "Soil Descriptions" on the drill log, the horizontal lines represent strata changes. A solid line (————) represents an actually observed change; a dashed line (— — — —) represents an estimated change.

Groundwater observations were made at the times indicated. Porosity of soil strata, weather conditions, site topography, etc., may cause changes in the water levels indicated on the logs.

THELEN ASSOCIATES, INC.
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ROCK CLASSIFICATION SHEET

ROCK WEATHERING

Descriptions	Field Identification
Unweathered	No visible sign of rock material weathering, perhaps slight discoloration on major discontinuity surfaces.
Weathered	Discoloration indicates weathering of rock material and discontinuity surfaces. All the rock material may be discolored by weathering and may be somewhat weaker externally than in its fresh condition.
Highly Weathered	Less than half of the rock material is decomposed and/or disintegrated to a soil. Fresh or discolored rock is present either as a discontinuous framework or as corestones.
Residual Soil	All rock material is decomposed and/or disintegrated to soil. The original mass structure is still largely intact with bedding planes visible, and the soil has not been significantly transported.

ROCK STRENGTH

Descriptions	Field Identification	Uniaxial Compressive Strength (psi)
Extremely Weak	Indented by thumbnail	40-150
Very Weak	Crumbles under firm blows with point of geological hammer, can be peeled by a pocket knife.	150-700
Weak	Can be peeled by a pocket knife with difficulty, shallow indentations made by firm blow with point of geological hammer.	700-4,000
Medium Strong	Cannot be scraped or peeled with a pocket knife, specimen can be fractured with a single blow of a geological hammer.	4,000-7,000
Strong	Specimen requires more than one blow of a geological hammer to fracture.	7,000-15,000
Very Strong	Specimen requires many blows with a geological hammer to fracture.	15,000-36,000
Extremely Strong	Specimen can only be chipped with geological hammer.	>36,000

BEDDING

Descriptive Term	Bed Thickness
Massive	> 4 ft.
Thick	2 to 4 ft.
Medium	2 in. to 2 ft.
Thin	< 2 in.

SECTION 02630 - STORM DRAINAGE

1. RELATED DOCUMENTS

General Provisions of Contract, General and Supplemental Conditions and General Requirements apply to this Section.

2. DESCRIPTION OF WORK

Provide labor, material, equipment and services necessary for proper and complete storm drainage system.

3. QUALITY ASSURANCE

A. Method of Payment:

(1) Payment shall include all earth and rock trenching, removing water, bedding, furnishing and laying pipe, backfilling, construction of appurtenances, and all other work necessary to provide complete working storm drainage system. Payment for extra depth excavation and adjustment for changes in grades are described elsewhere in this Section.

(2) Pipe will be measured in linear feet for each type, class and size acceptably incorporated in work.

4. MATERIALS

A. Reinforced Concrete Pipe

(1) Pipe shall be reinforced concrete pipe conforming to ASTM C76-68, latest revision, Class III, Wall Section "B".

(2) Joints for rigid pipe shall be made with any of the following: (a) mortar; (b) bituminous mastic joint sealing compound; (c) flexible plastic gaskets; (d) rubber gaskets. Only one type of jointing material shall be used throughout the project.

a. Mortar Joints: Mixture shall be one part Portland Cement and 2 parts sand. Quantity of water in mixture shall be sufficient to produce a stiff, workable mortar, but shall not exceed 5 - 1/2 gallons of water per sack of cement. Ends of pipe shall be thoroughly cleaned and wetted before joints are made. Stiff mortar shall then be placed in lower half of bell or groove section which has been laid. Mortar shall then be applied to upper half of spigot or tongue of pipe being laid. Spigot or tongue shall then be inserted in bell or groove of pipe already laid, joint being pulled tight, with care being taken to see that inner surfaces of abutting sections are flush and even. After a section of pipe is laid, and before succeeding section is laid, lower portion of hub or preceding section shall be smooth joint between abutting sections. Remainder of joint shall then be filled flush with mortar.

Inside of joint shall then be finished and wiped smooth around full circumference. After initial set, motor shall be protected from air and sun with a thoroughly wetted earth or burlap cover.

b. Bituminous Mastic Joints. Bituminous mastic jointing compound shall be applied to ends of pipe sections on site immediately prior to placement and in same manner as in use of mortar except that jointing surfaces shall be precoated or primed with a primer recommended by manufacturer or with an approved emulsified asphalt. A slight excess of sealer shall be applied so when joints are completely meshed, a bead of sealer compound will be extruded from joint on inside and outside of pipe. Excess material shall then be removed so as to form a smooth, flush joint.

c. Flexible Plastic Gaskets. Primer, rate and method of primer application, width and method of application of flexible plastic gaskets shall all be in accordance with recommendations of manufacturer of flexible plastic gaskets. Contractor shall provide Engineer with manufacturer's literature which describes installation procedures.

d. Rubber Gaskets: Joints in section to be joined shall be of a design and manufacture in accordance with applicable requirements of AASHTO M 198. Cement and lubrication used to facilitate jointing conduit shall be that recommended by manufacturer of rubber gaskets. Rubber gaskets shall be installed in such a manner to snugly fit in beveled surface of tongue and groove ends of section so as to form a flexible watertight seal under all conditions of service.

B. Storm Drain Headwalls and Wingwalls

Headwalls shall be constructed where and as indicated on Drawings. Concrete shall be Class A, as described elsewhere in these specifications.

5. CONSTRUCTION

A. Trenching for storm drains shall be as described in Section "EXCAVATION, EMBANKMENT AND GRADING".

B. No unit shall be laid until proposed location has been approved by Engineer.

C. Unstable foundation material.

(1) When unstable foundation is encountered at grade established, unstable material shall be removed and replaced with suitable material to width and depth and in manner that will provide uniform and firm foundation.

(2) Accepted quantities of refill crushed stone placed in trench to replace authorized removal of unstable material will be paid for at contract unit price per ton for refill crushed stone.

D. In all operations such as placing pipe, jointing, bedding, backfilling, and embankment construction, care shall be exercised; and it shall be Contractor's responsibility to assure that pipes are not damaged during unloading or placement on bed, during compaction of backfill, by movement of excessively heavy equipment over fill, or by any other forces that may cause damage. Pipe which is not in true alignment and grade or which shows undue settlement after laying, or is otherwise damaged, shall be removed and replaced without extra compensation.

E. Pipe shall be placed beginning at outlet end of culvert with pipe being laid upgrade. Pipe having marks designating top and bottom shall be laid so designating mark is no more than 5 degrees from vertical plane throughout longitudinal axis of pipe.

6. BEDDING AND BACKFILL

A. Bedding

(1) Pipe shall be laid with bottom quadrant of barrel of pipe on original earth or No. 9 crushed stone.

(2) Pipe shall not be laid on solid rock. Provide 6 inch thick bed of No. 9 crushed stone in rock subgrade.

(3) Prepare cuts in earth subgrade or in crushed stone bedding for pipe bells.

B. Open cut

Backfilling of excavated trenches in open cut shall be commenced as soon as possible after storm pipe is laid and jointing and alignment are approved but not until authorized by ENGINEER.

C. Proposed Paved Surface

(1) Backfill in trenches within limits of paved or graveled surfaces and shoulders shall be No. 9 crushed stone. No.9 size crushed stone shall be as specified by "Standard Specifications". Stone shall be provided by CONTRACTOR subject to approval of ENGINEER. Final twelve (12) inches below pavement subgrade shall be DGA.

(2) Compaction of No.9 crushed stone shall be to a density of no less than 84 percent of solid volume. Density determination will be based on oven-dry, bulk specific gravity, Kentucky Method Test No. KM 64-607.

D. Grassed Areas

(1) Trenches outside limits of existing or proposed paved surfaces and shoulders shall be earth and rock, taken from trench, free of organic materials, and placed as indicated on drawings and as described below.

(2) Only finely divided earth, free from debris and organic materials, and stones less than 1-1/2 inch size, hand placed, shall be used as a backfill material up to 6 inches above top of pipe.

(3) After the above specified backfill is hand placed, rock may be used in backfill in pieces no larger than 18 inches in any dimension and to an extent not greater than one-half of backfill materials used. Larger rock fill will be allowed in wide trenches where side slopes are low enough to prevent rock from dropping over pipe line. If additional earth is required, it must be obtained and placed by contractor. Filling with rock and earth shall proceed simultaneously, in order that all voids in rock may be filled with earth. Above the hand placed backfill, machine backfilling may be employed without tamping, provided caution is used in quantity per dump and in uniformity of level of backfilling. Backfill material must be uniformly ridged over trench and excess hauled away, with no excavated rock over 1-1/2 inch diameter or pockets of crushed rock or gravel in top 6 inches of backfill. Ridged backfill shall be confined to width of trench and not allowed to overlap onto firm original earth, and its height shall not be in excess of needs for replacement of settlement of backfill. All excess rock including crushed rock or gravel from construction shall be removed. Streets shall be broomed to remove all earth and loose rock immediately following backfilling.

(4) In case of pipe crossings, at an angle of 45 degree or greater, and around manholes in and adjacent to streets, highways, railroads, sidewalks and driveways around all valve and meter boxes, backfill shall be machine compacted.

(5) Top twelve (12) inches of trench in shoulders and grassed areas shall be topsoil, placed and graded for seeding.

7. DRAINAGE

Contractor shall make provisions for handling all flows in existing creeks, ditches, sewers and trenches by pipes, flumes or other approved methods at all times when his operations would, in any way, interfere with natural functioning of said creeks, ditches, sewers and drains. Contractor shall at all times during construction provide and maintain sufficient equipment for disposal of all water which enters open cut trenches, to render trenches firm and dry, until structures to be built therein are completed.

8. SETTLEMENT OF TRENCHES

Contractor shall be responsible for trench settlement which occurs in trenches within one year from date of substantial completion.

9. DISPOSAL OF UNSUITABLE MATERIALS

Excavated materials which are either surplus and not required or are unsuitable for backfilling shall be removed from site of operations as soon as excavated. All excavated materials so removed shall be disposed of, at no additional cost to Owner. Disposal shall be at locations as shown on the drawings and in a manner acceptable to Engineer. All such material shall be spread neatly, to drain, and seeded, fertilized, and mulched.

END SECTION

SECTION 02920 - SEEDING, FERTILIZING AND MULCHING

1. RELATED DOCUMENTS

General provisions of Contract, and General, Supplemental, and Special Conditions apply to this Section.

2. DESCRIPTION OF WORK

Provide labor, material, equipment and services necessary for proper and complete seeding and mulching.

3. QUALITY ASSURANCE

A. The intent of these Specifications is to require the Contractor to provide, in all areas to be seeded, fertilized and mulched, a smooth uniform turf of the grasses specified free from bare spots, eroded areas, weeds or other deficiencies. Acceptance by the Engineer is conditional upon compliance with this intent after the initial growing season.

4. MATERIALS

A. Mulch shall be a high quality small-grain straw or a hydraulically applied wood-cellulose fiber mulch approved by Engineer.

B. Commercial fertilizer shall be a complete fertilizer, uniform in composition, dry and free flowing. Fertilizer which becomes caked or otherwise damaged making it unsuitable for use will not be accepted.

C. Lime shall be agricultural limestone containing not less than 85% of total carbonates and shall be grounds to a fineness that 50% will pass through a 100-mesh sieve and 80% will pass through a 20-mesh sieve. Coarser material will be acceptable provided that specified rates of application are increased proportionally on basis of quantities passing 100-mesh sieve.

D. Seed Mixture – Permanent Seeding

(1) Lawn Seed shall be guaranteed by dealer and distributed as follows:

40% Kentucky Bluegrass
40% Fine Leaf Fescue
20% Annual Ryegrass

Seed mixture shall be sown at rate of 5 pounds per 1000 square feet.

E. Seed Mixture – Temporary Seeding

(1) March 1 to October 31

a.	Oats	3 lbs. per 1000 sq. ft.
b.	Perennial Ryegrass	1 lb. per 1000 sq. ft.
c.	Tall Fescue	1 lb. per 1000 sq. ft.

d.	Wheat	3 lbs. per 1000 sq. ft.
e.	Annual Rye	3 lbs. per 1000 sq. ft.

(2) November 1 to February 28

a.	Annual Rye	3 lbs. per 1000 sq. ft.
b.	Wheat	3 lbs. per 1000 sq. ft.
c.	Perennial Ryegrass	1 lb. per 1000 sq. ft.
d.	Tall Fescue	1 lb. per 1000 sq. ft.

5. SOIL IMPROVEMENTS

Fertilizer shall be applied to all seeded areas as follows:

A. Agricultural limestone - 75 pounds per 1000 square feet.

B. Fertilizer - 20 pounds, 10-10-10 fertilizer per 1,000 square feet.

C. Application

(1) Limestone shall be thoroughly mixed into topsoil as far ahead of seeding as will not interfere with other grading operations.

(2) Fertilizer shall be applied to areas being prepared for seeding and shall be mixed lightly in top few inches of topsoil.

6. SEEDING AND MULCHING

A. Seeding

(1) Immediately before seed is sown, loosen soil to a depth of 3 inches by rotary tools, discs, harrows, or other approved methods. Engineer may reduce depth to which soil is loosened on steep slopes or places inaccessible to mechanical equipment.

(2) Remove all large or unsightly clods or stones, and other foreign material brought to surface and repair all gullies, washes, or disturbed areas before seed is applied.

(3) Seed shall be broadcast either by hand or by approved sowing equipment at rate specified.

(4) Do not perform seeding during high winds that would prevent uniform distribution of seed.

B. Mulching

(1) All seeded areas indicated or directed by Engineer shall be mulched with straw to depth of approximately 1-1/2 inches. Mulching shall follow seeding operation not later than 48 hours.

7. EROSION CONTROL BLANKET

Erosion Control Blankets ECBs are designed to cover germinating seed and provide a protective matrix that helps anchor seed to the underlying soil. This requires complete, uniform contact with the soil, solid stapling, and attention to topslope anchoring, overlaps, and other installation details, as noted below.

A. Site Preparation

(1) Grade and shape area of installation.
(2) Remove all rocks, roots, clods, vegetative, or other obstructions so that the installed blankets or mats will have direct contact with the soil.
(3) Prepare seedbed by loosening 2-3 inches of topsoil above final grade.
(4) Incorporate amendments, such as lime and fertilizer, into soil according to soil test and the seeding plan, then seed the area.

B. Seeding

(1) Seed the area before installing blanket for erosion control and revegetation. When seeding before blanket installation, reseed all check slots and other areas disturbed during installation.

C. Anchoring

U-Shaped wire staples, metal geotextiles stake pins, or triangular wooden stakes can be used to anchor ECBs to the ground surface. Wire staples should be a minimum of 11 gauge. Metal stake pins should be 3/16 inch diameter steel with a 1.5 steel washer at the head of the pin. Wire staples and metal stakes should be driven flush to the soil surface. All anchors should be 6-8 inches long and have sufficient ground penetration to resist pullout. Longer anchors might be required for loose soils.

D. Installation on Slopes

(1) Begin at the top of the slope and anchor the blanket in a 6 inch deep by 6 inch wide trench. Backfill trench and tamp earth firmly.

a. Unroll blanket downslope in the direction of the waterflow.

b. The edges of adjacent parallel rolls must be overlapped at least 3 inches and be stapled through the overlapped area at least every 3 feet on slopes less than 4H:1V and every 2 feet on steeper slopes.

c. When blankets must be spliced, place uphill blanket end over downhill blanket (shingle style) with 6-inch overlap. Staple through overlapped area, approximately 12 inches apart.

d. Lay blankets and mats loosely and maintain direct contact with the soil-do not stretch. Ensure good, consistent, direct soil contact.

e. ECBs must be stapled sufficiently to anchor the blanket and maintain contact with the soil. Staples must be placed down the center and staggered with the staples placed along the edges. Steep slopes (1H:1V to 2H:1V) require at least two staples per square yard. Moderate slopes (2H:1V to 3H:1H) require 1-2 staples per square yard (1 staple 3 every feet on center). Flatter slopes require one staple per square yard.

f. Cut longitudinal channel anchor slots 4 inches deep and 4 inches wide along each side of the installation to bury edges of matting. These anchors slots will mark the upper elevation of the ECB or TRM along the channel side slopes, and should be above the 10 year, 24-hour peak flow line. Whenever possible extend the ECB or TRM 1 foot or more above the crest of channel side slopes.

g. Beginning at the downstream end and in the center of the channel, place the initial end of the first roll in the anchor trench and secure with fastening devices at 1-foot intervals. Note: Matting will initially be upside down in anchor trench.

h. In the same manner, position adjacent rolls in the anchor trench, overlapping the preceding roll a minimum of 6-8 inches.

i. Secure these initial ends of mats with anchors at 1-foot intervals, backfill and compact soil.

j. Unroll the center strip of matting upstream. Stop at the next check slot or terminal anchor trench.

k. Unroll adjacent mats upstream in similar fashion, maintaining a 3-inch overlap.

l. Fold and secure all rolls of matting snugly into all transverse check slots. Lay the mat in the bottom of the slot then fold back against itself. Anchor through both layers of mat at 1-foot intervals, then backfill and compact the soil. Continue rolling all mats widths upstream to the next check slot or terminal anchor trench.

m. Alternate method for noncritical installations: place two rows of anchors on 6-inch centers at 25-30 feet intervals in lieu of excavated check slots. Shingle-lap the spliced ends by a minimum of 1 foot with the upstream mat on top (to prevent uplifting by water) or begin new rolls in a check slot. Anchor the overlapped area by placing two rows of anchors, 1 foot apart on 1-foot intervals.

n. Place the edges of outside mats in previously excavated longitudinal slots, anchor them using the prescribed staple pattern, then backfill and compact the soil.

o. Anchor, fill, and compact the upstream end of the mat in a 12-inch by 6-inch terminal trench.

p. Secure the mat to the ground using U-shaped wire staples, geotextiles pins, or wooden stakes.

q. Spread and lightly rake one-half to three-quarter inch of fine topsoil into the mat apertures to completely fill the mat thickness. Use the backside of a rake or other flat implement. Spread topsoil using lightweight loader, backhoe, or other power equipment. Avoid making sharp turns with the equipment.

r. Do not drive tracked or heavy equipment over the mat. Avoid any traffic over the matting if loose or wet solid conditions exists.

s. Use shovels, rakes or brooms for fine grading and touch up. Smooth out soil filling, just exposing the top netting of matrix.

8. PLANTING SEASON

Spring seeding season for permanent seeding shall be between February 15 and April 15. Fall seeding season for permanent seeding shall be between August 1 and October 20. Seeding seasons may be extended only at direction of Engineer.

9. CLEAN-UP

Soil, peat or similar material which has been brought onto paved areas within or outside construction limit by hauling operations or otherwise shall be removed promptly, keeping these areas clean at all times. Upon completion of seeding, all excess soil, stones and debris which have not previously been cleaned up shall be removed from site or disposed of as directed by Engineer. All lawn areas shall be prepared for final inspection.

10. MAINTENANCE

Maintenance shall begin immediately following last operation of seeding and shall continue until lawn is formally accepted. Maintenance shall include sufficient watering, weeding, cultivating, mulching, regular mowing of seeded areas, and removal of dead materials.

11. INSPECTION FOR ACCEPTANCE

Inspection of work of this section to determine completion, exclusive of possible replacement of seed, will be made by Engineer upon written notice requesting such inspection submitted at least ten (10) days prior to anticipated date of inspection and provided that an 80% minimum coverage per square foot for all seeded lawn areas has been established. Contractor shall guarantee, at the time of this inspection, that the seeded areas will be in compliance with the intent of this Specification described herein. This guarantee shall apply to all permanent seeding performed in conjunction with project, regardless of type protection used or season in which seeding is performed.

12. GUARANTEE

A. When seeding does not meet guarantee requirements at time of inspection, Contractor will be advised of amount and location of corrective work deemed necessary. Additional work required may include preparation of a new seedbed, refertilizing, reseeding, remulching, or any erosion control items that are required. Contractor shall perform all corrective work as soon as favorable working conditions occur after being advised of corrective work required. Corrective work and materials required to fulfill guarantee requirements will not be paid for, except as hereinafter provided for unavoidable damage.

B. When unavoidable damage occurs after date project is declared complete and before inspection previously described, then payment will be made at original contract unit prices for additional seeding and protection work ordered by Engineer. Unavoidable damage may result from slides, vehicular traffic, fires, and deluges. Failure of seed to sprout and grow will not be considered unavoidable damage.

C. From time seeding and protection work begins until date project is declared complete, keep all seeded areas in good condition at all times. Damage to seeded areas or to mulch materials shall be promptly repaired as directed. All work and

materials necessary to protect, maintain, and restore seeded areas during life of contract shall be performed at no additional cost to Owner, except additional work caused by changes in project authorized by Engineer.

D. When it becomes necessary to disturb previously seeded areas at direction of Engineer, payment for a reasonable amount of additional work, as determined by Engineer, will be made at original contract unit price. No payment will be made for additional work due to changes made for benefit of Contractor, nor will payment be made for corrective work required because Contractor has failed to properly coordinate his entire erosion control schedule thus causing previously seeded areas to be disturbed by operations that could have been performed prior to seeding.

END SECTION

SECTION 03300 - CAST-IN-PLACE CONCRETE

1. RELATED DOCUMENTS

General Provisions of Contract, General, Supplemental and Special Conditions, and General Requirements apply to this Section.

2. DESCRIPTION OF WORK

Provide labor, transportation, materials, tools, equipment and appliances necessary for proper and complete installation of all concrete work.

3. MATERIALS

A. General

All materials used in the work shall be stored and handled in such a manner as will prevent deterioration or intrusion of foreign matter. Material which has deteriorated or has been damaged shall be immediately and completely removed for premises. All material shall comply with requirements of standards of American Society for Testing and Materials.

B. Manufactured Materials

Manufactured materials such as cement, shall be delivered and stored in original packages, plainly marked with brand and maker's name. Material in broken containers or in packages showing water marks or other evidence of damage will be rejected. Unless otherwise noted, all materials used in concrete work shall be as specified below:

(1) Portland Cement---Type I or Type III - ASTM C-150.

(2) Aggregates----------ASTM C-33.

a. Fine aggregates shall consist of natural sand having clean, hard, uncoated particles and free form injurious amounts of soft friable, thin, elongated or laminated pieces. Aggregates shall not absorb more than 3% moisture by weight. Maximum size of pieces shall be 3/4".

(3) Air Entraining Agent----------ASTM C-33.

(4) Water shall be clean and free from deleterious amounts of acids, alkalis or organic materials.

C. Metal Reinforcement: All reinforcing shall be ASTM A-615, with a minimum yield of 60,000 psi.

D. Concrete Curing and Hardening Compound shall be Sonneborne "Kure-N-Seal" or equal.

E. Anti-spalling compound shall be Sonneborne "Pitt-Loc" or equal.

F. Expansion joint material shall be premoulded filler as manufactured by Homasote Co. (Homex 300); Dayton SUre-Grip (G-30) or equal.

4. CONCRETE - QUALITY

A. Ready-mixed concrete complying with these Specifications and conforming to ASTM designation C-94, Strength Method shall be used.

B. Type Concrete

Min. Compressive Strength at 28 days----------3,500 psi
Slump----------3-5 inches
Air Content----------4%

C. Use of admixtures is prohibited except where written consent is given by Engineer.

D. Ready mix design shall be submitted to Engineer for approval prior to ordering concrete for project.

5. REINFORCING

A. Detailing, fabrication and placing shall conform to American Concrete Institute "Manual of Standard Practice for Detailing Reinforced Structures" (ACI-315).

6. CONVEYING AND DEPOSITING CONCRETE

Procedures shall be in accordance with American Concrete Institute Standard "Recommended Practice for Measuring, Mixing and Placing Concrete." (ACI-614).

7. CURING

Concrete shall be maintained in a moist condition for seven (7) days after placing. Curing shall begin immediately after completion of final finishing operation.

8. COLD WEATHER REQUIREMENTS

Procedures shall be in accordance with American Concrete Institute "Recommended Practice for Winter Concreting" (ACI-604). Section "Minimum Requirements for Job Taking Maximum Risk" shall not be considered a part of this Specification.

9. FINISHING

A. Slabs

(1) Under no circumstances shall dry cement or a mixture of dry cement and sand be sprinkled directly on surface to absorb moisture or to stiffen mix.

(2) Finish for floor slabs shall be as follows:

Surface of slab shall be struck off true to elevations called for, and all surface water, laitance and dirt removed. After allowing the concrete to dry out from 20-30 minutes, depending on weather conditions, the surfaces shall be brought to final grade with a wood float. Surfaces shall be tested with a straight edge to detect high and low spots which shall be eliminated. After concrete has hardened sufficiently to prevent excess fine material from working to surface, surface shall be steel troweled to a smooth hard finish, impervious and free from imperfections, pits and other irregularities, and true to a maximum tolerance of 1/8" in six (6) feet.

10. CRUSHED ROCK FILL

Install a 4" crushed rock fill under all floor slabs on earth. Rock shall be clean crushed limestone, graded form 3/4" to 1-1/2" in diameter, spread evenly, tamped solid and brought to the proper elevation for the reception of the concrete slab, placed only after approval of graded and properly compacted subsurface.

11. INSPECTION

A. Concrete shall not be placed over pipes and conduits until such work has been tested, inspected and approved.

B. All concrete placed in violation of these provisions shall be subject to rejection.

12. NOTIFYING OTHER TRADES

Notify plumbing and Electrical Contractors and all other Contractors, at proper time to install all pipes, conduits, anchors or other equipment coming under their respective contracts in form work.

13. TESTING CONCRETE

A. Slump Test

At least one slump test shall be made before first concrete pour, at start of pouring any concrete at each 5 cubic yards deposited during one operation. These shall be made for the same samples as those taken for cylinder tests, and records of same kept therewith. Test shall be made according to ASTM Designation (C-143), and as required under ASTM Designation C-94 for ready-mixed concrete. Mix designed for a slump test of 2" and not more than 4", except in cases where thin sections would indicate in the opinion of the Engineer that a wetter mix is more desirable. The Contractor shall furnish necessary equipment for the slump test.

B. Cylinder Test

(1) At the start of concreting, the Contractor shall make from a single batch a set of four (4) cylinders per ASTM Designation C-31. Two shall be tested at 7 days and two at 28 days, per ASTM Designation C-39.

(2) At each time when twenty or more cubic yards of concrete are placed during one operation, and when the sum of smaller deposits of concrete equal thirty cubic yards since previous tests, and at any change in mix, four (4) cylinder tests will be required, two tested at 7 days and two at 28 days, per ASTM Designation C-39. In case of C-94 and C-172 shall be added. Class "A" concrete samples shall show a compressive strength of not less than 3500 lbs. per square inch in 28 days.

(3) The Contractor shall furnish all equipment for sampling and curing on the job, and shall bear the cost of laboratory curing and testing.

END SECTION

SECTION 15441 - ABOVEGROUND PACKAGED WATER PUMPING STATION

1. RELATED DOCUMENTS

General Provisions of Contract and General, Supplemental and Special Conditions, and General Requirements apply to this Section.

2. SCOPE OF WORK

A. The contractor shall furnish all material and provide all labor for construction and installation of a factory built, above ground water booster pumping stations, with all the necessary piping, controls and appurtenances as shown on the plans and as specified herein. The station shall be complete with all necessary equipment installed in a prefabricated building.

B. The manufacturer of this equipment shall be one recognized and established in the design and production of water booster pumping stations. The booster station manufacturer shall maintain regular production facilities at their place of business. These facilities shall be open for inspection by a representative of the owner at any time during construction and testing of this equipment.

C. Where an "Or Approved Equal" clause is provided on the plans and/or in the specifications, it is intended that the approved equal or alternate material or equipment be approved in writing by the Engineer.

3. QUALITY ASSURANCE

A. The equipment and materials covered by these specifications are intended to be standard equipment of proven reliability and as manufactured by reputable manufacturers having experience in the production of such equipment. The equipment furnished shall be designed, constructed and installed in accordance with the best practices and methods and shall operate satisfactorily when installed as shown on the contract drawings and operated in accordance with the manufacturer's recommendations.

B. The manufacturer of the selected equipment shall be regularly engaged in the manufacture, assembly, construction, start-up and maintenance of water distribution equipment of the type required for this project.

C. The manufacturer shall have at least ten years of successful experience in providing stations of the type, design, function and quality as required for this project.

D. The pump station manufacturer shall be required to affix an Underwriters Laboratories (UL) label attesting to it's compliance with the UL-QCZJ standard for packaged pumping systems.

E. The station manufacturer shall provide warrant the station against defects in quality and workmanship for a period of at least one year from the date of owner acceptance, but not to exceed eighteen months from the original ship date.

F. The station manufacturer shall have quality management and environmental policies in place and they shall be ISO 9000:2000 and ISO 140001:2004 certified.

4. MODULAR ENCLOSURE

A. CODES AND STANDARDS

The structure design and manufacture shall, as a minimum, conform to ASCE (American Society of Civil Engineers) current edition of "Minimum Design Loads for Buildings and Other Structures" and to the MBMA (Metal Building Manufacturers Association) "Recommended Design Practices Manual." Building shall be manufactured and built to satisfy current editions of the International Building Code (IBC), and the National Electrical Code (NEC). The building manufacturer shall be responsible for obtaining any State Industrial Building Commission Approvals and Third Party Inspections if required by the State of Kentucky.

B. LOADING

The building shall be designed to support the following loads:
Roof Load - 50 PSF (40# live and 10# dead)
Ceiling Dead Load - 10 PSF
Wall Load - 110 mph wind, plus wall mounted equipment.
Seismic Zone: Per UBC for site location.

C. MATERIALS

The materials shall be new, unused, and fabricated in a workmanlike manner in a factory environment. Only non-combustible materials shall be used in the construction of the building. Hot rolled steel to meet as a minimum standard ASTM – A36, and all galvanized steel to meet as a minimum standard ASTM A -653.

D. PERIMETER ANGLE SYSTEM

Building base shall have a hot rolled steel angle framework, welded, primed and painted, with minimum deflection of L/240. Base shall be pre-drilled for anchoring to the structural steel base.

E. FRAMEWORK

The building shall have a complete, internal, self-supporting, structural steel frame which does not rely on the exterior panels or roof cover panels for its structural strength or framing. The building framework shall include 8 to 16 gauge, cold-formed, galvanized steel structural members. Building framework to have a flush wall, post and beam format with girts and purlins, and full trusses on both end walls which easily allows for future expansion and/or modifications. Wall and ceiling structural support system are to be designed to provide load carrying capability for anticipated equipment loads using 16 gauge galvanized steel hat channels behind liner panel for reinforcement as needed, with locations shown on approval drawings. Roof to have 8 to 14 gauge solid web hot rolled steel trusses. Building systems which are self-framing or utilized pre-manufactured, cam-locking panels are not acceptable.

F. DOORS AND MISCELANEOUS HARDWARE

Doors shall at a minimum comply with Steel Door Institute directive SDI-100. Doors to be constructed of no less than 18-gauge steel faced leafs with stiffeners and 16 gauge door frames. Doors and frames to be hot-dipped galvanized to ASTM designations A924 and A653, then factory primed and painted with epoxy enamel to match the building or the trim. Door to have insulated core. There shall be a 48" X 72" single man door provided at a minimum or as indicated on the drawings. Door hinges shall be NRP stainless steel ball bearing hinges, minimum of three (3) per door. Keyed, low profile rim device type panic interior openers, with cylinder lock entry and thumb latch exterior trim, by Von Duprin or equal shall be provided. A door closer with hold open arm shall be provided. A threshold, weather-stripping and sweeps shall be provided for each door as manufactured by Reese or equal. A drip cap shall be provided for each door, extending 3" past door edge. Gutters shall be provided of 26ga galvanized steel. They shall be mounted over eave trim on each side of the building. Both eave walls shall be provided with 1 down spout with necessary elbows. A rain canopy shall be supplied and mounted by the installing contractor above the door. Minimum dimensions shall be 8' x 4' and shall be made from 14 ga. Galvannealled metal. A one ton capacity crane entirely supported by the ceiling trusses and building frame with trim matching interior liner panel shall be provided. Bridge cranes requiring additional supports will be considered unacceptable.

G. INTERIOR FINISH

The building's interior walls and ceiling shall be lined with flush-fit 22 gauge, roll-formed liner panels, with concealed fasteners and a baked-on White polyester finish over G-90 galvanized substrate. The building interior shall feature a complete matching trim system including base, jamb, header, and ceiling trim. Liner to be reinforced with 14 gauge hat channels mounted vertically as needed for heavy wall mounted items. No wood shall be used in the construction of the interior wall.

H. INSULATION

Exterior walls shall have a minimum of 3.5", fiberglass bat insulation and a vapor barrier. The ceiling shall have a minimum of 6" insulation and a vapor barrier. In addition to the insulation in the walls and ceiling, an additional 1" fiber-glass insulation blanket shall be installed over the entire building framework and under the exterior wall and roof panels, as a thermal break. The insulation system shall provide a minimum of R-19 in the walls, R-21 above the ceiling.

I. ROOF SYSTEM

A gabled roof pitched 1 inch in 12 or greater with a covering of overlapping, 26 gauge, "Multi-Rib" ribbed steel panels with a baked-on Kynar 500, PVDF resin-based finish over a galvalume substrate, in manufacturer's standard colors shall be provided. Overlapping roof panels shall be installed with appropriate self-tapping fasteners with integral gaskets. A roof with a pitch of less than 1 inch in 12 shall have a roof covering of mechanically-seamed, 24 gauge, Standing-Seam Roofing, with a minimum seam height of 2". Standing seam roof panels shall be of Galvalume

steel, with a baked-on Kynar 500, PVDF resin-based coating and shall have no visible fasteners on main run. Roof to include a matching, die-formed ridge cap, and a fully supported 3" overhang. Properly sized attic space ventilation shall be provided.

J. EXTERIOR WALLS

The exterior walls shall be 26 gauge "Multi-Rib" ribbed steel panels with a PVDF resin-based finish over a galvalume substrate in manufacturer's standard colors. Exterior siding panels to be overlapped and installed with appropriate self-tapping fasteners with integral gaskets, and shall be removable without any disturbance to interior panels. Butted seams are not allowed. All openings in walls are to be structurally framed, sleeved, trimmed, and provided with external drip caps. Repair or replacement of exterior panels must be able to be done entirely from outside.

K. EXTERIOR TRIM

The exterior trim package shall include stepped or boxed eave, rake, fascia, base, corner, jamb, and header trim in, 26 gauge Galvalume material with owner's choice of standard KYNAR colors.

L. SKID

The pump station shall be built on a concrete filled, structural steel base. The base shall provide adequate structural supports for the pumps, motors, piping and all other internal components of the station. The concrete shall be furnished with a slip resistant, broom swept finish. Where suction and discharge piping pass through the structural steel base, removable panels that provide access to pipe flanges and flange bolts shall be provided.

M. FLOOR DRAIN

The station shall have a floor drain as shown on the drawings. See site plans for continuation of drain.

5. PUMPING STATION REQUIREMENTS

A. The booster pump station is to provide boosted pressure in a distribution system with storage tank. Two pumps are provided in each station with an alternator to designate pump starting sequence, and alternate the designation after each pumping cycle. When pumps are off, check valves in the discharge lines shall maintain pressure in the system. The pump is started and stopped by a telemetry system connected to the water storage tank.

B. Pumping units provided under this section shall be supplied by one manufacturer.

C. Each pumping unit shall be provided with a stainless steel nameplate which shall contain the following information:

1. Manufacturer's name, address, and telephone number.
2. Model number.

3. Serial number.
4. Head, capacity and rpm at rated condition.
5. Motor horsepower, rpm and frame size.

D. Pumping units within each type of service shall be identified in every respect with all parts being interchangeable.

E. Pump rotating assemblies shall be balanced in accordance with the requirements of ANSI S2.19, G6.3.

F. Vibration, when measured at the pump bearing housing shall not exceed the limitations specified by the Hydraulic Institute Standards.

6. HYDRAULIC DESIGN CRITERIA

A. Rated Condition:

1. Capacity= 410 US gpm
2. Head in Feet= 195 ft
3. Minimum Efficiency= 83%
4. Maximum NPSHr= 13 ft

B. Secondary

1. Capacity= 460 US gpm
2. Head in Feet= 185 ft
3. Minimum Efficiency= 82%
4. Maximum NPSHr= 14 ft

C. Operating Characteristic

1. Shut-off Head= 241 ft
2. Maximum Brake Horsepower= 30 hp
3. Maximum Operating Speed= 3600 rpm

7. DETAILS OF CONSTRUCTION

A. Pump Casing

1. Pump casing shall be of close grain cast iron type ASTM 48, class 40, designed for heavy-duty service. The casing shall be horizontally split, single volute type of the back pull-out design with the suction and discharge flanges cast integrally with the lower half in order that the upper part may be removed for inspection of the rotating element without disturbing pipe connections. Removal of the rotating assembly shall require a vertical lift of not more than 6". The joint between halves of the casing shall be heavily flanged and bolted, and provided with dowel pins to insure accurate alignment.

2. The upper half-casing flange shall have tapped holes for jackscrews. The interior shall be smooth and free from surface defects.

3. Thickness, diameter and drilling dimensions of suction flanges shall be Class 125 ANSI standard. Discharge flanges shall be Class 125 ANSI Standard. Suction and discharge connections shall be displaced 180 degrees with centerlines concentric on the same horizontal plane. Pump casings shall have a minimum 4" suction and a 3" discharge connections. Casings shall be drilled and tapped for priming, guage, and drain connections. Suitable lifting lugs or eyebolts shall be provided.

4. The bottom of the volute shall be drilled to accept a standard 125-lb. pipe flange arrangement, which shall allow the use of common pipe and flanges or fabricated base plate to support the pump at any desired elevation without elaborate fabrication of support structures.

B. Impeller

1. Impeller shall be of single suction enclosed type made entirely of ASTM B148-954, cast bronze finished smooth all over and of ample strength and stiffness for maintaining the maximum capacity of the unit.

2. It shall be statically and dynamically balanced and shall be keyed to the shaft and securely held in axial position on the shaft by means of an impeller nut.

3. Balance holes on the back side of the impeller shall be provided to reduce thrust with the hydraulic balancing of pressures.

C. Wear Rings

1. The volute and volute cover shall be fitted with a replaceable wear ring of ASTM B505-927 bronze, positioned in the volute and locked against rotation.

D. Pump / Motor Shaft

1. The shaft shall be of AISI 1045 alloy steel.

2. The shaft shall be accurately machined over its entire length. The first critical speed of the rotating assembly shall occur at not less than 150% of the rated speed.

3. The shaft shall be protected by an ASTM B148-954 bronze shaft sleeve which shall be keyed to the shaft with a stainless steel key and shall be sealed with an o-ring to prevent leakage between the shaft and shaft sleeve.

E. Stuffing Boxes – Mechanically Sealed

1. Stuffing boxes shall be provided with mechanical shaft seals.

2. Stuffing boxes shall accept packing or mechanical seals without modification to the stuffing box.

3. Mechanical seals shall be furnished with a carbon seal ring, ceramic mating ring, Viton elastomers and 316 stainless steel metal parts.

4. Mechanical seals shall be rated for 250 PSIG pressure. The elastomers shall be rated for temperatures ranging from -20 degrees F to 400 degrees F.

5. Pump shaft sleeves shall be furnished with a pre-machined groove designed to accept a setting ring, which shall eliminate the need for, set collars or stop collars. Seals requiring stop or set collars with setscrews are not acceptable.

6. The rotating seal ring shall be provided with a 360 degree rubber encasement to provide drive for the seal face without the need for metal drive notches which may cause face distortion or notch wear. The seal rings shall be permanently fixed in place and full flatness maintained by a precision crimp in the outer seal case.

7. The mechanical seal shall be a convoluted design which permits free movements providing constant adjustment for shaft endplay and seal face wear. Positive face contact with the stationary seat shall be maintained at all times.

8. To ensure positive sealing by free movement of the seal head, the seal shall feature a hex style outer shell and drive band which shall absorb start-up and running torque and shall eliminate in stress on the diaphragm. Metal components shall freely engage and shall not be subject to lock down due to friction wear.

9. The stuffing box shall have a removable gland, which shall permit inspection of the mechanical seal faces. The gland shall be provided with a 1/4 NPT flush water connection.

F. Motors

1. The pump shall be driven by a JP shaft, close-coupled pump motor.

2. Motors shall be (ODP) squirrel cage Premium Efficiency, induction motors rated for 460 volt, 3 phase, 60 hertz electricity.

3. Motors shall be furnished with class F insulation, however, they shall be limited to a class B temperature rise at rated load.

4. Motors shall be furnished with a 1.15 service factor.

G. Base Plate

The pump shall be provided with a heavy duty fabricated steel base plate with at a minimum of 4 – anchor bolt locations. Anchor bolts to be provided by installing contractor.

8. FACTORY TESTING

A. Each pump shall undergo a certified hydrostatic test at 150% of the pressure developed at shut-off head.

B. Certified performance tests shall be performed on each unit utilizing its specified drive. Motor efficiency data from nameplate shall be utilized for efficiency calculations unless certified motor test is required.

C. All tests shall be performed in accordance with the Hydraulic Institute Test Standards for Centrifugal Pumps – 1.6 (1988).

D. Six evenly spaced test points shall be taken and shall include conditions at shut-off (zero flow) and the operating points specified herein. Preliminary test data must be submitted to the Owner seven days prior to the actual test date.

E. The Engineer and/or a representative of the Owner shall be given sufficient notice of the testing dates and shall have the opportunity to witness these tests.

9. WARRANTY

A. The manufacturer of the pumping units shall provide a written warranty covering the entire pumping unit.

B. The warranty shall be in effect for a period of one year after final acceptance or 18 months after the original ship date, whichever expires first.

10. INTERNAL PIPING

A. All internal transmission piping and fittings shall conform to the following schedule for black, seamless steel pipe and will be manufactured in accordance with the dimensional tolerances and material specifications of AWWA C-200-75 for steel pipe and steel butt weld fittings.

(1) Size 10 inch and below - Schedule 40.

(2) Size 12 inch and above - Standard Weight (.375" Wall).

B. The piping configuration shown is for illustrative purposes, however, the piping sizes below are the minimum allowable:

(1)	Discharge Header	8"
(2)	Suction Header	6"
(3)	Pump Suction Piping & Valves	6"
(4)	Pump Discharge Piping & Valves	6"

11. PUMP CONTROLLER

The pump motors shall be controlled by (2) two wall mounted variable speed pump controllers to maintain constant pressure, constant flow or level control. The pump controller shall include smooth acceleration and deceleration to prevent water hammer. Pressure transducers shall be included to monitor discharge pressure as to consume only as much energy as the system demands. The pump controller shall be field programmable to meet system demands within the limits of the pump specifications. The pump controller shall include phase loss protection, phase imbalance, over-voltage, under-voltage, over-current, excessive motor temperature and single phase to three phase conversion up to and including 10 hp. Mercoid low suction pressure switches for each pump controllers shall be G & L Aquavor AVII or approved equal.

12. WATER METER/STRAINER

One (1) 6" Sensus #W-1000DRS Turbo Meter with strainer or approved equal.

13. GATE VALVES

A. The isolating valves used throughout the building will be of the resilient seated type rated for 250 pounds. The body of each isolating valve will be constructed of cast

iron ASTM-126 and be equipped with a minimum of four (4) alignment holes with which to pass mating flange studs so as to assure proper alignment within the piping system.

B. Valve sized six (6) inches and smaller shall be equipped with lever operator and 10 degree increment throttling plate. Valve sized eight (8) inches and larger shall be equipped with a weatherproof, heavy duty, gear operator complete with a position indicator. Valves shall be as manufactured by Crane, Keystone or equal.

14. COMPRESSION COUPLINGS

A. Each pump suction and discharge run shall include a compression type, flexible coupling to prevent binding of the pump, pump suction or control valve. Each coupling shall consist of two (2) follower rings, a flared middle ring with end flares generous enough to provide adequate gasket seat areas, two (2) resilient rubber gaskets and steel bolts. The coupling when installed shall provide a permanent, leak-proof, flexible installation.

B. In lieu of a compression coupling, a restrained, removable flange such as Uni-Flange or a Victaulic coupling may be used to relieve strain on the valve on a pump or control valve. The flanged coupling adapter will be of the same manufacturer as the compression couplings used elsewhere in the building capsule and shall be a regular product of that manufacturer. Flanged coupling adapters shall be complete on the flanged end with an integral rubber flange gasket, 125 pound flange and on the open end with a triangular section rubber follower gasket and follower ring. Bolts for the flanged coupling adapter will be individual to the FCA and be supplied with the FCA. All bolts and nuts supplied with this station shall be Grade 8 with zinc chromate finish.

15. PRESSURE GAUGES

A. All pressure gauges within the booster pumping station shall have 4-1/2" minimum diameter faces. The case shall be black, cast aluminum, flanged back type with close type ring, clear glass face and oil filled. The gauge connections shall be at the bottom of the gauge and will be 1/4" N.P.T.

The gauge internal construction shall include phosphor bronze bourdon tube with a brass movement, bronze brushed independently mounted. Pressure gauge range and scale graduations shall be in feet of water and psi as follows:

(1) Inlet Pressure - 0 to 100 psi, 10 psi figure intervals, with graduating marks every 1 psi, plate mounted with sensing from common header. Two (2) required with one showing strainer inlet and the second gauge to show strainer outlet pressure.

(2) Outlet Pressure - 0 to 200 psi, 10 psi figure intervals, with graduating marks every 2 psi, plate mounted with sensing from common header.

B. Each pressure gauge shall be equipped with petcocks, bleed valves and piping where the gauges are not subject to the continuous pressures of the water system.

C. Each assembly shall be mounted with a pressure gauge and pressure switch. The gauge and switch shall be so plumbed that a blow-off valve may be used to relieve pressure in the gauge and switch for purposes of checking a calibrating. Sensing point for each assembly shall be after each pump's suction diffuser outlet.

16. TELEMETRY CONTROL INTERFACE PANEL

A. It will be the responsibility of the station manufacturer to provide the following as an adjunct to the Owner supplied telemetry equipment.

1. Two (2) 1" telemetry entrance conduit complete to telemetry panel ((1) for Discrete type signals & (1) for Analog signals).
2. Size 12" x 12" NEMA 12 telemetry interface panel (or size as required).
3. Separate 120-volt single-phase power circuit in conduit to the telemetry interface panel.
4. Telemetry control circuits made up and in conduit from main control panel to telemetry interface panel terminal strip.
5. Metal framing channel to mount telemetry equipment.

B. The Interface panel will include terminals for interfacing or connecting the telemetry RTU to the Pump Station Control panel supplied by the pump station manufacturer or contractor to include:

1. Pump #1 CALL/Enable
2.
1. Pump #2 CALL/Enable
2.
1. Pump #1 (VFD) Running
2.
1. Pump #2 (VFD) Running
2.
3. Pump #1 (VFD) Fail
4.
5. Pump #2 (VFD) Fail
6.
7. Pump #1 (VFD) Control Speed (4-20mA TRU to Pump Controls)
8.
9.
10. Pump #2 (VFD) Control Speed (4-20 from RTU to Pump Controls)
11.
12. Pump #1 (VFD) Speed Report Back (4-20mA from Pump Controls to RTU)
13.
14. Pump #2 (VFD) Speed Report Back (4-20mA from Pump Controls to RTU
15.
16. Fill Valve CALL/Enable
17.

18. Fill Valve Open
19.
20. Fill Valve Closed
21.
22. Low Suction Cut-Out from Pump Controls

17. EXHAUST FAN

A thermostatically controlled exhaust fan and motorized intake capable of 870 cfm of free air exhaust shall be factory installed in the modular building equal to a Grainger 2C713-1.

18. INTAKE LOUVER

The intake louver shall be a 16" Motorized louver intake equal to Grainder 4C560-Z.

19. ELECTRICAL APPARATUS - DESIGN, ASSEMBLY AND TEST

A. The electrical apparatus and control panel design, assembly, and installation, and the integration of component parts will be the responsibility of the booster pump station manufacturer. All electrical work and instrumentation shall be in accordance with the Plans.

B. The control panel shall be factory tested to operate in accordance with the Plans and Specifications. The manufacturer shall supply documentation of the test results.

C. The manufacturer shall be an Underwriters Laboratories listed manufacturer and the control panel shall be a UL label of Industrial Control Panels.

20. ELECTRICAL CONTROL PANEL

A. The electrical control panel shall consist of all equipment associated with motor control and motor starting, including the equipment used to protect the electrical facilities. All circuit breakers, motor starters, time delay relays and control relays shall be as specified in the plans and shall be incorporated in a NEMA 12 control panel. The incoming electrical service provided for this station will be nominally 230 volt, 3 phase delta, 60 cycle, 4 wire.

B. Circuit breakers shall be installed utilizing standard panel board busing on the line side. Loop wiring of breakers will not be acceptable. This requirement shall be clearly indicated on the shop drawings.

C. Neutral and ground lugs shall include one lug for each circuit plus 20 spare lugs. Only one wire shall be allowed per terminal.

D. Provide mini power-zone 120/240V single phase transformer with load center distribution for pump house electrical devices specified herein and external circuit connections indicated on plan. Minimum 10KVA with primary and secondary overcurrent protection.

21. ELECTRICAL APPARATUS - DEVICES

A. Three (3) solid state time delay relays shall be provided to perform the following functions:

(1) Low Suction Timer

(2) Electric Check Valve Circuit (Pump 1 & 2)

(3) 24 Hour 96 per for Emergency Station Operator

B. Each solid state time delay shall have a range of 0 to 5 minutes. The timers shall be constructed to use a standard octal eight pin plug-in base. All timer wiring shall be made to the plug-in base so that timers can be interchanged or replaced without disturbing timer wiring. The timer will be complete with a light emitting diode (LED) which will be on during the time cycle and off at the end of timing. Low suction timers shall be dual functional, allowing for delay before shut down and delay before re start.

C. Hand-off-automatic switches shall be used and be located on the main control panel door and control the following circuits:

(1) Pump #1

(2) Pump #2

(3) Exhaust Fan & Intake Louver

(4) Timer/Pressure Switch Selector Switch

D. Indicating lights to indicate equipment operation shall be oil tight, with a full voltage pilot light. Indicating lights shall be provided in the colors and functions as follows:

(1) Red - Low Suction Pressure

(2) Green - Pump #1 in Operation

(3) Green - Pump #2 in Operation

(4) Blue - Timer Mode of Operation

(5) Red Valve 1 Fail

(6) Red Valve 2 Fail

E. A running time meter shall be supplied with each pump to show the number of hours of operation. Meters shall be enclosed in dust and moisture proof molded plastic case, flush mounted on the main control panel. Meter dials shall register in hours and tenths of hours to 9999.9 hours before repeating. Meters shall be suitable for operating from a 115 volt, 60 hertz supply.

F. Nameplates shall be furnished on all panel front mounted switches and lights. Name tags shall also indicate proper nomenclature of control panel internal parts.

G. The control panel door shall include a plastic pocket on the interior to hold one (1) copy of the panel wiring diagram. The wiring diagram shall be corrected "as-built" copy and contain individual wire numbers, circuit breaker numbers, switch designations and control function explanations.

H. Also included in control panel shall be a phase loss/voltage unbalance relay.

22. WIRING AND LIGHTING

A. It shall be the responsibility of the installing electrician to furnish and install the correct size service wires from the service pole outside of the building to the connection terminals inside the power or control panel designated for that purpose. No splice will be allowed in the service wires. It shall also be the responsibility of the installing electrician to furnish and install, if required, any exterior disconnects or other switching mechanisms. Contractor shall furnish and install service pole, and arrange with Utility Company for service and meter installation.

B. Rigid conduit, sized to adequately accept the inbound service connectors, shall be installed from the main power or control panel through the building side sheet and terminate in a threaded coupling exterior to the building. The service entrance conduit connection shall be plugged for shipment.

C. All wiring within the building and outside of the control panel or panels shall be run in conduit except for the neoprene covered flexible conduit and fittings properly used to connect pump drivers, fan motors, solenoid valves, limit switches, etc., where flexible connections are best utilized. Such accessories as the sump pump and dehumidifier, when furnished by the original manufacturer with a UL approved rubber cord and plug, may be plugged into polarized receptacles designated for that purpose. All internal equipment conduit and wire will meet or exceed the conduit, wiring schedule and electrical codes set forth as follows:

(1) SERVICE ENTRANCE - Rigid, heavy wall, steel conduit with threaded watertight connections adequately sized to handle the type, number and size of the incoming service conductors - in compliance with Article 346 of the National Electrical Code.

(2) FLEXIBLE CONNECTIONS - Where flexible conduit connections are necessary the conduit used shall be liquid-tight flexible metal conduit having an outer non-metallic, sunlight resistant jacket over an inner flexible metal core, sized to handle the type, number and size of equipment conductors to be carried - in compliance with Article 351 of the National Electrical Code.

(3) MOTOR CIRCUIT CONDUCTORS - Sized for load. All branch circuit conductors supplying a single motor of one (1) horsepower or more shall have an capacity of not less than 125 percent of the motor full load current rating, type THHN, as set forth in Article 310 and 430-B of the National Electrical Code, Schedule 310-13 for flame retardant, heat resistant thermoplastic, copper conductors in a nylon or equivalent outer covering.

(4) CONTROL AND ACCESSORY WIRING - Sized for load, type MTW/AWM (Machine tool wire/appliance wiring material) as set forth in Article 310 and 670 of the National Electrical Code, Schedule 310-13 and NFPA Standard 79 for flame retardant, moisture, heat and oil resistant thermoplastic, copper conductors in compliance with NMTBA and as listed by Underwriters' Laboratories (AWM), except where accessories are furnished with a manufacturer supplied UL approved rubber cord and plug.

(5) BUILDING CONDUIT: Rigid, heavy wall, Schedule 40 PVC with solvent weld moisture-proof connections adequately sized to handle the typed number and size of equipment conductors to be carried - in compliance with Article 347 of the National Electrical Code and NEMA TC-2, Federal WC-1094A and UL-651 Underwriters Laboratory Specifications.

(6) The lighting shall be a three (3) tube, 40 watt per tube, rapid start, "OSHA" approved enclosed and gasketed fluorescent light fixture installed within the building. The light fixture shall be located directly over the main control panel and be of 48 inch minimum length. The light switch shall be manual and shall be located in the entrance, conveniently adjacent to the door. The fixture shall be Holophane 7200-4 or equal. Provide one exterior light over entry door, 70W HPS with photocell control.

(7) Four (4) duplex, grounding type, three (3) wire, polarized convenience receptacles shall be furnished about the periphery of the building enclosure. One (1) duplex receptacle shall be adjacent to the main control panel. The equipment ground wire from each equipment ground post of the polarized receptacles shall be affixed at the main control panel terminal board solely designated for that purpose and separate from the neutral buss.

23. OUTSIDE ELECTRICAL SERVICE

A. Connection of electrical service to pumping station shall be as specified herein.

(1) Service pole shall be fully treated, southern yellow pine roofed 15 degrees one way and gained before treatment.

(2) Weatherproof switch and meter socket shall be fastened to rustproof channels that are banded to pole with rustproof bands.

(3) Service entrance fitting at pole shall be cast aluminum with stainless steel screws.

(4) Conduit and conduit fittings shall be heavy, threaded, galvanized steel. Fittings shall have neoprene gaskets for covers. Conduit shall be fastened to service pole with two-hole heavy galvanized straps with rust proof lag screws-minimum spacing on 5 foot centers.

(5) Control wire extensions shall be made as indicated on Drawings. Components shall be Nema 4.

(6) Insulating bushings of heavy fiber reinforced type shall be employed on all conduit terminations.

(7) All screws and fasteners are to be rustproof, double hot dipped galvanized, monel metal or stainless steel.

(8) Fuses shall be Bussman "Low-Peak", or approved equal.

(9) All electrical work shall be inspected and approved by an electrical inspector. Three (3) copies of certificates of approval by electrical inspector shall be furnished to Engineer and a label of acceptance must be glued inside door of disconnect before final acceptance.

24. DEHUMIDIFIER

A packaged dehumidifier with a sealed refrigeration type compressor rated at 1/5 horsepower, 4.7 full load amps and 430 watts shall be wall mounted within the building in such a manner that the condensate shall discharge to the sump through tubing provided for that purpose. The dehumidifier shall operate on a 120 volt, single phase A.C. power source and be provided with a safety protected power cord of UL approved 3 wire construction with 3 spade plug. The dehumidifier shall be capable of removing twenty-five (25) pints of water in twenty-four (24) hours when the room temperature is 80 degrees fahrenheit and at 60% relative humidity. (AHAM Standard DH-1) The dehumidifier shall be actuated by a dial-controlled adjustable humidistat which will automatically cycle the unit at pre-selected moisture levels. The humidistat shall also have "Off" and "Continuous Run" positions. The dehumidifier shall be listed by Underwriters Laboratories.

25. HEATER

A. The building will be provided with an electric heater. The heater will have a rating of 4,000 watts, 13,640 BTU/HR output when operating on a 240 volt, single phase A.C. power source. The heater will be equipped with a 600 rpm low speed axial vane blower designed to deliver 175 cfm of down flow air and be driven by a four (4) pole motor. The heating element shall be of the sealed tubular type with large parallel steel fins for quick heat transfer. The heater will be complete with a thermal overload cut off and a built in thermostat calibrated to provide a range of 55 degrees fahrenheit to 85 degrees fahrenheit.

B. The heater shall be wall mounted, hard wired and complete with an individual 240 volt circuit, protected by a 2 pole, 15 amp circuit breaker. The heater will be listed with Underwriters Laboratories, NEMA Standard 3-9-1967, HE2-2-02 Type I.

26. FACTORY TEST

A. Before shipment, the station shall be tested at the factory at simulated field conditions to assure that the unit meets the specified design and to check for leaks and excessive vibration, for correct operation of the automatic control system, and of all auxiliary equipment.

B. Amperage and voltage readings shall be taken for the pump motors to insure that the motors are operating within the nameplate limitations. The station and piping shall be tested in the factory for leaks in the weld seams and joints. All leaks shall be repaired before shipment.

C. Certifications of the leak testing and paint thickness shall be submitted to the Engineer. Paint thickness shall be measured with a dry mil gauge.

27. SHOP DRAWINGS

A. The Contractor shall submit the required shop drawings to the Engineer for approval.

B. Each set of shop drawings shall include, but not be limited to the following:

(1) Drawings showing dimensions of all steel units.

(2) Control details and electrical schematic diagrams.

(3) Performance data including, when applicable, pump curves, and motor data, etc.

(4) All other information necessary to enable the Engineer to determine whether the proposed equipment meets the requirements.

28. INSTALLATION AND OPERATING INSTRUCTIONS

A. Five (5) copies of a manual, containing installation instructions, operating and maintenance instructions, wiring diagrams, parts lists and, where applicable, test data and curves shall be provided by the station manufacturer.

B. Installation of the station shall be done in accordance with the written instructions provided in the manual as specified.

C. The station manufacturer shall provide the service of a factory-trained representative for a maximum period of one (1) day to start up the station and to instruct the Owner's operating personnel in the operation and maintenance of the equipment provided.

D. A complete service report shall be made out and signed by the factory service representative and a representative of either the owner or project engineer.

29. WARRANTY

A. The manufacturer shall warrant his product to be free from defects in workmanship for a period of one (1) year from the date of acceptance of the booster pump station.

B. Warranties and guarantees by the suppliers of various components in lieu of a single source responsibility by the pump station manufacturer shall not be accepted. The station manufacturer shall be solely responsible for the warranty. In the event a component fails to perform as specified or is proven defective in service during the warranty period, excluding items of supply normally extended during operation, the manufacturer shall provide a replacement part without cost to the Owner.

END SECTION

SECTION 263213 - ENGINE GENERATORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes packaged engine-generator sets for emergency power supply with the following features:

1. Diesel engine.
2. Unit-mounted cooling system.
3. Unit-mounted control and monitoring.
4. Performance requirements for sensitive loads.
5. Outdoor enclosure.

B. Related Sections include the following:

1. Section 263600 "Transfer Switches" for transfer switches including sensors and relays to initiate automatic-starting and -stopping signals for engine-generator sets.

1.3 DEFINITIONS

A. Operational Bandwidth: The total variation from the lowest to highest value of a parameter over the range of conditions indicated, expressed as a percentage of the nominal value of the parameter.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of packaged engine generator indicated. Include rated capacities, operating characteristics, and furnished specialties and accessories. In addition, include the following:

1. Thermal damage curve for generator.
2. Time-current characteristic curves for generator protective device.

B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

1. Dimensioned outline plan and elevation drawings of engine-generator set and other components specified.
2. Design Calculations: Signed and sealed by a qualified professional engineer. Calculate requirements for selecting vibration isolators and seismic restraints and for designing vibration isolation bases.
3. Vibration Isolation Base Details: Signed and sealed by a qualified professional engineer. Detail fabrication, including anchorages and attachments to structure and to supported equipment. Include base weights.
4. Wiring Diagrams: Power, signal, and control wiring.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For installer and manufacturer.

B. Source quality-control test reports.

1. Certified summary of prototype-unit test report.
2. Certified Test Reports: For components and accessories that are equivalent, but not identical, to those tested on prototype unit.
3. Certified Summary of Performance Tests: Certify compliance with specified requirement to meet performance criteria for sensitive loads.
4. Report of factory test on units to be shipped for this Project, showing evidence of compliance with specified requirements.
5. Report of sound generation.
6. Report of exhaust emissions showing compliance with applicable regulations.
7. Certified Torsional Vibration Compatibility: Comply with NFPA 110.

C. Field quality-control test reports.

D. Warranty: Special warranty specified in this Section.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For packaged engine generators to include in emergency, operation, and maintenance manuals. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:

1. List of tools and replacement items recommended to be stored at Project for ready access. Include part and drawing numbers, current unit prices, and source of supply.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.

1. Maintenance Proximity: Not more than four hours' normal travel time from Installer's place of business to Project site.

2. Engineering Responsibility: Preparation of data for vibration isolators and seismic restraints of engine skid mounts, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.

B. Manufacturer Qualifications: A qualified manufacturer. Maintain, within 200 miles (321 km) of Project site, a service center capable of providing training, parts, and emergency maintenance repairs.

C. Source Limitations: Obtain packaged generator sets and auxiliary components through one source from a single manufacturer.

D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

E. Comply with ASME B15.1.

F. Comply with NFPA 37.

G. Comply with NFPA 70.

H. Comply with NFPA 110 requirements for Level 2 emergency power supply system.

I. Comply with UL 2200.

J. Engine Exhaust Emissions: Comply with applicable state and local government requirements.

K. Noise Emission: Comply with applicable state and local government requirements for maximum noise level at adjacent property boundaries due to sound emitted by generator set including engine, engine exhaust, engine cooling-air intake and discharge, and other components of installation.

1.8 PROJECT CONDITIONS

A. Environmental Conditions: Engine-generator system shall withstand the following environmental conditions without mechanical or electrical damage or degradation of performance capability:

1. Ambient Temperature: Minus 15 to plus 40 deg C.
2. Relative Humidity: 0 to 95 percent.
3. Altitude: Sea level to 1000 feet (300 m).

1.9 COORDINATION

A. Coordinate size and location of concrete bases for package engine generators. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified with concrete.

B. Coordinate size and location of roof curbs, equipment supports, and roof penetrations for remote radiators. These items are specified in Section 077200 "Roof Accessories."

1.10 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Fuses: One for every 10 of each type and rating, but no fewer than one of each.
2. Indicator Lamps: Two for every six of each type used, but no fewer than two of each.
3. Filters: One set each of lubricating oil, fuel, and combustion-air filters

1.11 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of packaged engine generators and associated auxiliary components that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

1.12 MAINTENANCE SERVICE

A. Initial Maintenance Service: Beginning at Substantial Completion, provide 12 months' full maintenance by skilled employees of manufacturer's designated service organization. Include quarterly exercising to check for proper starting, load transfer, and running under load. Include routine preventive maintenance as recommended by manufacturer and adjusting as required for proper operation. Provide parts and supplies same as those used in the manufacture and installation of original equipment.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Caterpillar; Engine Div.
2. Generac Power Systems, Inc.
3. Kohler Co.; Generator Division.
4. Onan/Cummins Power Generation; Industrial Business Group.

2.2 ENGINE-GENERATOR SET

A. Factory-assembled and -tested, engine-generator set.

B. Mounting Frame: Maintain alignment of mounted components without depending on concrete foundation; and have lifting attachments.

1. Rigging Diagram: Inscribed on metal plate permanently attached to mounting frame to indicate location and lifting capacity of each lifting attachment and generator-set center of gravity.

C. Capacities and Characteristics:

1. Power Output Ratings: Nominal ratings as indicated, with capacity as required to operate as a unit as evidenced by records of prototype testing.
2. Output Connections: Three-phase, four wire.
3. Nameplates: For each major system component to identify manufacturer's name and address, and model and serial number of component.

D. Generator-Set Performance:

1. Steady-State Voltage Operational Bandwidth: 3 percent of rated output voltage from no load to full load.
2. Transient Voltage Performance: Not more than 20 percent variation for 50 percent step-load increase or decrease. Voltage shall recover and remain within the steady-state operating band within three seconds.
3. Steady-State Frequency Operational Bandwidth: 0.5 percent of rated frequency from no load to full load.
4. Steady-State Frequency Stability: When system is operating at any constant load within the rated load, there shall be no random speed variations outside the steady-state operational band and no hunting or surging of speed.
5. Transient Frequency Performance: Less than 5 percent variation for 50 percent step-load increase or decrease. Frequency shall recover and remain within the steady-state operating band within five seconds.
6. Output Waveform: At no load, harmonic content measured line to line or line to neutral shall not exceed 5 percent total and 3 percent for single harmonics. Telephone influence factor, determined according to NEMA MG 1, shall not exceed 50 percent.
7. Sustained Short-Circuit Current: For a 3-phase, bolted short circuit at system output terminals, system shall supply a minimum of 250 percent of rated full-load current for not less than 10 seconds and then clear the fault automatically, without damage to generator system components.

E. Generator-Set Performance for Sensitive Loads:

1. Oversizing generator compared with the rated power output of the engine is permissible to meet specified performance.

a. Nameplate Data for Oversized Generator: Show ratings required by the Contract Documents rather than ratings that would normally be applied to generator size installed.

2. Steady-State Voltage Operational Bandwidth: 1 percent of rated output voltage from no load to full load.

3. Transient Voltage Performance: Not more than 10 percent variation for 50 percent step-load increase or decrease. Voltage shall recover and remain within the steady-state operating band within 0.5 second.
4. Steady-State Frequency Operational Bandwidth: Plus or minus 0.25 percent of rated frequency from no load to full load.
5. Steady-State Frequency Stability: When system is operating at any constant load within the rated load, there shall be no random speed variations outside the steady-state operational band and no hunting or surging of speed.
6. Transient Frequency Performance: Less than 2-Hz variation for 50 percent step-load increase or decrease. Frequency shall recover and remain within the steady-state operating band within three seconds.
7. Output Waveform: At no load, harmonic content measured line to neutral shall not exceed 2 percent total with no slot ripple. Telephone influence factor, determined according to NEMA MG 1, shall not exceed 50 percent.
8. Sustained Short-Circuit Current: For a 3-phase, bolted short circuit at system output terminals, system shall supply a minimum of 300 percent of rated full-load current for not less than 10 seconds and then clear the fault automatically, without damage to winding insulation or other generator system components.
9. Excitation System: Performance shall be unaffected by voltage distortion caused by nonlinear load.

    a. Provide permanent magnet excitation for power source to voltage regulator.

2.3 ENGINE

A. Fuel: Fuel oil, Grade DF-2.

B. Rated Engine Speed: 1800 rpm.

C. Maximum Piston Speed for Four-Cycle Engines: 2250 fpm (11.4 m/s).

D. Lubrication System: The following items are mounted on engine or skid:

1. Filter and Strainer: Rated to remove 90 percent of particles 5 micrometers and smaller while passing full flow.
2. Thermostatic Control Valve: Control flow in system to maintain optimum oil temperature. Unit shall be capable of full flow and is designed to be fail-safe.
3. Crankcase Drain: Arranged for complete gravity drainage to an easily removable container with no disassembly and without use of pumps, siphons, special tools, or appliances.

E. Engine Fuel System:

1. Main Fuel Pump: Mounted on engine. Pump ensures adequate primary fuel flow under starting and load conditions.
2. Relief-Bypass Valve: Automatically regulates pressure in fuel line and returns excess fuel to source.

F. Coolant Jacket Heater: Electric-immersion type, factory installed in coolant jacket system. Comply with NFPA 110 requirements for Level 1 equipment for heater capacity.

G. Governor: Adjustable electronic isochronous, with speed sensing. Maintain a +/- 6 RPM steady state frequency variation from steady state no load to steady state full load..

H. Cooling System: Closed loop, liquid cooled, with radiator factory mounted on engine-generator-set mounting frame and integral engine-driven coolant pump.

1. Coolant: Solution of 50 percent ethylene-glycol-based antifreeze and 50 percent water, with anticorrosion additives as recommended by engine manufacturer.
2. Size of Radiator: Adequate to contain expansion of total system coolant from cold start to 110 percent load condition.
3. Temperature Control: Self-contained, thermostatic-control valve modulates coolant flow automatically to maintain optimum constant coolant temperature as recommended by engine manufacturer.
4. Coolant Hose: Flexible assembly with inside surface of nonporous rubber and outer covering of aging-, ultraviolet-, and abrasion-resistant fabric.

a. Rating: 50-psig (345-kPa) maximum working pressure with coolant at 180 deg F (82 deg C), and noncollapsible under vacuum.
b. End Fittings: Flanges or steel pipe nipples with clamps to suit piping and equipment connections.

I. Muffler/Silencer: Critical type, sized as recommended by engine manufacturer and selected with exhaust piping system to not exceed engine manufacturer's engine backpressure requirements.

1. Minimum sound attenuation of 25 dB at 500 Hz.
2. Sound level measured at a distance of 10 feet (3 m) from exhaust discharge after installation is complete shall be 85 dBA or less.

J. Air-Intake Filter: Standard-duty, engine-mounted air cleaner with replaceable dry-filter element and "blocked filter" indicator.

K. Starting System: 12-V electric, with negative ground.

1. Components: Sized so they will not be damaged during a full engine-cranking cycle with ambient temperature at maximum specified in Part 1 "Project Conditions" Article.
2. Cranking Motor: Heavy-duty unit that automatically engages and releases from engine flywheel without binding.
3. Cranking Cycle: As required by NFPA 110 for system level specified.
4. Battery: Adequate capacity within ambient temperature range specified in Part 1 "Project Conditions" Article to provide specified cranking cycle at least three times without recharging.
5. Battery Cable: Size as recommended by engine manufacturer for cable length indicated. Include required interconnecting conductors and connection accessories.

6. Battery Compartment: Factory fabricated of metal with acid-resistant finish and thermal insulation. Thermostatically controlled heater shall be arranged to maintain battery above 10 deg C regardless of external ambient temperature within range specified in Part 1 "Project Conditions" Article. Include accessories required to support and fasten batteries in place.
7. Battery-Charging Alternator: Factory mounted on engine with solid-state voltage regulation and 35-A minimum continuous rating.
8. Battery Charger: Current-limiting, automatic-equalizing and float-charging type. Unit shall comply with UL 1236 and include the following features:

    a. Operation: Equalizing-charging rate of 10 A shall be initiated automatically after battery has lost charge until an adjustable equalizing voltage is achieved at battery terminals. Unit shall then be automatically switched to a lower float-charging mode and shall continue to operate in that mode until battery is discharged again.
    b. Automatic Temperature Compensation: Adjust float and equalize voltages for variations in ambient temperature from minus 40 deg C to plus 60 deg C to prevent overcharging at high temperatures and undercharging at low temperatures.
    c. Automatic Voltage Regulation: Maintain constant output voltage regardless of input voltage variations up to plus or minus 10 percent.
    d. Ammeter and Voltmeter: Flush mounted in door. Meters shall indicate charging rates.
    e. Safety Functions: Sense abnormally low battery voltage and close contacts providing low battery voltage indication on control and monitoring panel. Sense high battery voltage and loss of ac input or dc output of battery charger. Either condition shall close contacts that provide a battery-charger malfunction indication at system control and monitoring panel.
    f. Enclosure and Mounting: NEMA 250, Type 1, wall-mounted cabinet.

2.4 FUEL OIL STORAGE

A. Comply with NFPA 30.

B. Base-Mounted Fuel Oil Tank: Factory installed and piped, complying with UL 142 fuel oil tank. Features include the following:

1. Tank level indicator.
2. Capacity: Fuel for 24 hours' continuous operation at 100 percent rated power output.
3. Vandal-resistant fill cap.
4. Containment Provisions: Comply with requirements of authorities having jurisdiction. Double wall with 1105 capacity rupture basin meeting U.L. 142 standards. Locking fuel cap, low level alarm contacts and fuel tank rupture alarm.

2.5 CONTROL AND MONITORING

A. Automatic Starting System Sequence of Operation: When mode-selector switch on the control and monitoring panel is in the automatic position, remote-control contacts in one or more separate automatic transfer switches initiate starting and stopping of generator set. When mode-selector switch is switched to the on position, generator set starts. The off position of same switch initiates generator-set shutdown. When generator set is running, specified system or equipment failures or derangements automatically shut down generator set and initiate alarms. Operation of a remote emergency-stop switch also shuts down generator set.

B. Configuration: Operating and safety indications, protective devices, basic system controls, and engine gages shall be grouped in a common control and monitoring panel mounted on the generator set. Mounting method shall isolate the control panel from generator-set vibration.

C. Indicating and Protective Devices and Controls: As required by NFPA 110 for Level 2 system, and the following:

1. AC voltmeter.
2. AC ammeter.
3. AC frequency meter.
4. DC voltmeter (alternator battery charging).
5. Engine-coolant temperature gage.
6. Engine lubricating-oil pressure gage.
7. Running-time meter.
8. Ammeter-voltmeter, phase-selector switch(es).
9. Generator-voltage adjusting rheostat.
10. Generator overload.

D. Indicating and Protective Devices and Controls:

1. AC voltmeter.
2. AC ammeter.
3. AC frequency meter.
4. DC voltmeter (alternator battery charging).
5. Engine-coolant temperature gage.
6. Engine lubricating-oil pressure gage.
7. Running-time meter.
8. Ammeter-voltmeter, phase-selector switch(es).
9. Generator-voltage adjusting rheostat.
10. Start-stop switch.
11. Overspeed shutdown device.
12. Coolant high-temperature shutdown device.
13. Coolant low-level shutdown device.
14. Oil low-pressure shutdown device.
15. Generator overload.

E. Supporting Items: Include sensors, transducers, terminals, relays, and other devices and include wiring required to support specified items. Locate sensors and other supporting items on engine or generator, unless otherwise indicated.

F. Common Remote Audible Alarm: Comply with NFPA 110 requirements for Level 1 systems. Include necessary contacts and terminals in control and monitoring panel.

1. Overcrank shutdown.
2. Coolant low-temperature alarm.
3. Control switch not in auto position.
4. Battery-charger malfunction alarm.
5. Battery low-voltage alarm.

G. Common Remote Audible Alarm: Signal the occurrence of any events listed below without differentiating between event types. Connect so that after an alarm is silenced, clearing of initiating condition will reactivate alarm until silencing switch is reset.

1. Engine high-temperature shutdown.
2. Lube-oil, low-pressure shutdown.
3. Overspeed shutdown.
4. Remote emergency-stop shutdown.
5. Engine high-temperature prealarm.
6. Lube-oil, low-pressure prealarm.
7. Fuel tank, low-fuel level.
8. Low coolant level.

H. Remote Emergency-Stop Switch: Flush; wall mounted, unless otherwise indicated; and labeled. Push button shall be protected from accidental operation.

2.6 GENERATOR OVERCURRENT AND FAULT PROTECTION

A. Generator Circuit Breake(s)r: Molded-case, electronic-trip type; 100 percent rated; complying with UL 489. Two required as indicated on plan:

1. Tripping Characteristics: Adjustable long-time and short-time delay and instantaneous.
2. Trip Settings: Selected to coordinate with generator thermal damage curve.
3. Shunt Trip: Connected to trip breaker when generator set is shut down by other protective devices.
4. Mounting: Adjacent to or integrated with control and monitoring panel.

2.7 GENERATOR, EXCITER, AND VOLTAGE REGULATOR

A. Comply with NEMA MG 1.

B. Drive: Generator shaft shall be directly connected to engine shaft. Exciter shall be rotated integrally with generator rotor.

C. Electrical Insulation: Class H or Class F.

D. Stator-Winding Leads: Brought out to terminal box to permit future reconnection for other voltages if required.

E. Construction shall prevent mechanical, electrical, and thermal damage due to vibration, overspeed up to 125 percent of rating, and heat during operation at 110 percent of rated capacity.

F. Enclosure: Dripproof.

G. Instrument Transformers: Mounted within generator enclosure.

H. Voltage Regulator: Solid-state type, separate from exciter, providing performance as specified.

1. Adjusting rheostat on control and monitoring panel shall provide plus or minus 5 percent adjustment of output-voltage operating band.

I. Strip Heater: Thermostatically controlled unit arranged to maintain stator windings above dew point.

J. Windings: Two-thirds pitch stator winding and fully linked amortisseur winding.

2.8 OUTDOOR GENERATOR-SET ENCLOSURE

A. Description: Vandal-resistant, weatherproof steel housing, wind resistant up to 100 mph (160 km/h). Multiple panels shall be lockable and provide adequate access to components requiring maintenance. Panels shall be removable by one person without tools. Instruments and control shall be mounted within enclosure.
1. Structural Design and Anchorage: Comply with ASCE 7 for wind loads.
2. Louvers: Equipped with bird screen and filter arranged to permit air circulation when engine is not running while excluding exterior dust, birds, and rodents.
3. Hinged Doors: With padlocking provisions.
4. Ventilation: Louvers equipped with bird screen and filter arranged to permit air circulation while excluding exterior dust, birds, and rodents.
5. Muffler Location: Within enclosure.

B. Engine Cooling Airflow through Enclosure: Maintain temperature rise of system components within required limits when unit operates at 110 percent of rated load for 2 hours with ambient temperature at top of range specified in system service conditions.

1. Louvers: Fixed-engine, cooling-air inlet and discharge. Storm-proof and drainable louvers prevent entry of rain and snow.

2.9 VIBRATION ISOLATION DEVICES

A. Elastomeric Isolator Pads: Oil- and water-resistant elastomer or natural rubber, arranged in single or multiple layers, molded with a nonslip pattern and galvanized-steel baseplates of sufficient stiffness for uniform loading over pad area, and factory cut to sizes that match requirements of supported equipment.

1. Material: Standard neoprene.

2. Durometer Rating: 30

3. Number of Layers: One.

2.10 FINISHES

A. Indoor and Outdoor Enclosures and Components: Manufacturer's standard finish over corrosion-resistant pretreatment and compatible primer.

2.11 SOURCE QUALITY CONTROL

A. Prototype Testing: Factory test engine-generator set using same engine model, constructed of identical or equivalent components and equipped with identical or equivalent accessories.

1. Tests: Comply with NFPA 110, Level 1 Energy Converters and with IEEE 115.

B. Project-Specific Equipment Tests: Before shipment, factory test engine-generator set and other system components and accessories manufactured specifically for this Project. Perform tests at rated load and power factor. Include the following tests:

1. Test components and accessories furnished with installed unit that are not identical to those on tested prototype to demonstrate compatibility and reliability.
2. Full load run.
3. Maximum power.
4. Voltage regulation.
5. Transient and steady-state governing.
6. Single-step load pickup.
7. Safety shutdown.
8. Report factory test results within 10 days of completion of test.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas, equipment bases, and conditions, with Installer present, for compliance with requirements for installation and other conditions affecting packaged engine-generator performance.

B. Examine roughing-in of piping systems and electrical connections. Verify actual locations of connections before packaged engine-generator installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with packaged engine-generator manufacturers' written installation and alignment instructions and with NFPA 110.

B. Install packaged engine generator to provide access, without removing connections or accessories, for periodic maintenance.

C. Install packaged engine generator with elastomeric isolator pads having a minimum deflection of 1 inch (25 mm) on 4-inch- (100-mm-) high concrete base. Secure sets to anchor bolts installed in concrete bases. Concrete base construction is specified in Section 260548 "Vibration and Seismic Controls for Electrical Systems."

D. Electrical Wiring: Install electrical devices furnished by equipment manufacturers but not specified to be factory mounted.

3.3 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections. Report results in writing.

B. Tests and Inspections:

1. Perform tests recommended by manufacturer and each electrical test and visual and mechanical inspection (except those indicated to be optional) for "AC Generators and for Emergency Systems" specified in NETA Acceptance Testing Specification. Certify compliance with test parameters.
2. NFPA 110 Acceptance Tests: Perform tests required by NFPA 110 that are additional to those specified here including, but not limited to, single-step full-load pickup test.
3. Battery Tests: Equalize charging of battery cells according to manufacturer's written instructions. Record individual cell voltages.

    a. Measure charging voltage and voltages between available battery terminals for full-charging and float-charging conditions. Check electrolyte level and specific gravity under both conditions.
    b. Test for contact integrity of all connectors. Perform an integrity load test and a capacity load test for the battery.
    c. Verify acceptance of charge for each element of the battery after discharge.
    d. Verify that measurements are within manufacturer's specifications.

4. Battery-Charger Tests: Verify specified rates of charge for both equalizing and float-charging conditions.
5. System Integrity Tests: Methodically verify proper installation, connection, and integrity of each element of engine-generator system before and during system operation. Check for air, exhaust, and fluid leaks.

6. Voltage and Frequency Transient Stability Tests: Use recording oscilloscope to measure voltage and frequency transients for 50 and 100 percent step-load increases and decreases, and verify that performance is as specified.
7. Harmonic-Content Tests: Measure harmonic content of output voltage under 25 percent and at 100 percent of rated linear load. Verify that harmonic content is within specified limits.

C. Coordinate tests with tests for transfer switches and run them concurrently.

D. Test instruments shall have been calibrated within the last 12 months, traceable to standards of NIST, and adequate for making positive observation of test results. Make calibration records available for examination on request.

E. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.

F. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.

G. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

H. Remove and replace malfunctioning units and retest as specified above.

I. Retest: Correct deficiencies identified by tests and observations and retest until specified requirements are met.

J. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation resistances, time delays, and other values and observations. Attach a label or tag to each tested component indicating satisfactory completion of tests.

3.4 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain packaged engine generators. Refer to Section 017900 "Demonstration and Training."

END OF SECTION 263213

SECTION 263600 - TRANSFER SWITCHES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes transfer switches rated 600 V and less, including the following:

1. Automatic transfer switches.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include rated capacities, weights, operating characteristics, furnished specialties, and accessories.

B. Shop Drawings: Dimensioned plans, elevations, sections, and details showing minimum clearances, conductor entry provisions, gutter space, installed features and devices, and material lists for each switch specified.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For manufacturer.

B. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For each type of product to include in emergency, operation, and maintenance manuals. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:

1. Features and operating sequences, both automatic and manual.
2. List of all factory settings of relays; provide relay-setting and calibration instructions, including software, where applicable.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Maintain a service center capable of providing training, parts, and emergency maintenance repairs within a response period of less than eight hours from time of notification.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Comply with NEMA ICS 1.

D. Comply with NFPA 70.

E. Comply with NFPA 110.

F. Comply with UL 1008 unless requirements of these Specifications are stricter.

PART 2 - PRODUCTS

2.1 MANUFACTURED UNITS

A. Contactor Transfer Switches:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Caterpillar; Engine Div.
   b. Emerson; ASCO Power Technologies, LP.
   c. Generac Power Systems, Inc.
   d. GE Zenith Controls.
   e. Kohler Power Systems; Generator Division.
   f. Onan/Cummins Power Generation; Industrial Business Group.
   g. Russelectric, Inc.

2.2 GENERAL TRANSFER-SWITCH PRODUCT REQUIREMENTS

A. Indicated Current Ratings: Apply as defined in UL 1008 for continuous loading and total system transfer, including tungsten filament lamp loads not exceeding 30 percent of switch ampere rating, unless otherwise indicated.

B. Tested Fault-Current Closing and Withstand Ratings: Adequate for duty imposed by protective devices at installation locations in Project under the fault conditions indicated, based on testing according to UL 1008.

C. Solid-State Controls: Repetitive accuracy of all settings shall be plus or minus 2 percent or better over an operating temperature range of minus 20 to plus 70 deg C.

D. Resistance to Damage by Voltage Transients: Components shall meet or exceed voltage-surge withstand capability requirements when tested according to IEEE C62.41. Components shall meet or exceed voltage-impulse withstand test of NEMA ICS 1.

E. Electrical Operation: Accomplish by a nonfused, momentarily energized solenoid or electric-motor-operated mechanism, mechanically and electrically interlocked in both directions.

F. Switch Characteristics: Designed for continuous-duty repetitive transfer of full-rated current between active power sources.

1. Limitation: Switches using molded-case switches or circuit breakers or insulated-case circuit-breaker components are not acceptable.
2. Switch Action: Double throw; mechanically held in both directions.
3. Contacts: Silver composition or silver alloy for load-current switching. Conventional automatic transfer-switch units, rated 225 A and higher, shall have separate arcing contacts.

G. Neutral Terminal: Solid and fully rated, unless otherwise indicated.

H. Heater: Equip switches exposed to outdoor temperatures and humidity, and other units indicated, with an internal heater. Provide thermostat within enclosure to control heater.

I. Factory Wiring: Train and bundle factory wiring and label, consistent with Shop Drawings, either by color-code or by numbered or lettered wire and cable tape markers at terminations. Color-coding and wire and cable tape markers are specified in Section 260553 "Identification for Electrical Systems."

1. Designated Terminals: Pressure type, suitable for types and sizes of field wiring indicated.
2. Power-Terminal Arrangement and Field-Wiring Space: Suitable for top, side, or bottom entrance of feeder conductors as indicated.
3. Control Wiring: Equipped with lugs suitable for connection to terminal strips.

J. Enclosures: General-purpose NEMA 250, Type 3R, complying with NEMA ICS 6 and UL 508, unless otherwise indicated.

2.3 AUTOMATIC TRANSFER SWITCHES

A. Comply with Level 1 equipment according to NFPA 110.

B. Switching Arrangement: Double-throw type, incapable of pauses or intermediate position stops during normal functioning, unless otherwise indicated.

C. Manual Switch Operation: Unloaded. Control circuit automatically disconnects from electrical operator during manual operation.

D. Signal-Before-Transfer Contacts: A set of normally open/normally closed dry contacts operates in advance of retransfer to normal source. Interval is adjustable from 1 to 30 seconds.

E. Digital Communication Interface: Matched to capability of remote annunciator or annunciator and control panel.

F. In-Phase Monitor: Factory-wired, internal relay controls transfer so it occurs only when the two sources are synchronized in phase. Relay compares phase relationship and frequency difference between normal and emergency sources and initiates transfer when both sources are within 15 electrical degrees, and only if transfer can be completed within 60 electrical degrees. Transfer is initiated only if both sources are within 2 Hz of nominal frequency and 70 percent or more of nominal voltage.

G. Automatic Transfer-Switch Features:

1. Undervoltage Sensing for Each Phase of Normal Source: Sense low phase-to-ground voltage on each phase. Pickup voltage shall be adjustable from 85 to 100 percent of nominal, and dropout voltage is adjustable from 75 to 98 percent of pickup value. Factory set for pickup at 90 percent and dropout at 85 percent.
2. Adjustable Time Delay: For override of normal-source voltage sensing to delay transfer and engine start signals. Adjustable from zero to six seconds, and factory set for one second.
3. Voltage/Frequency Lockout Relay: Prevent premature transfer to generator. Pickup voltage shall be adjustable from 85 to 100 percent of nominal. Factory set for pickup at 90 percent. Pickup frequency shall be adjustable from 90 to 100 percent of nominal. Factory set for pickup at 95 percent.
4. Time Delay for Retransfer to Normal Source: Adjustable from 0 to 30 minutes, and factory set for 10 minutes to automatically defeat delay on loss of voltage or sustained undervoltage of emergency source, provided normal supply has been restored.
5. Test Switch: Simulate normal-source failure.
6. Switch-Position Pilot Lights: Indicate source to which load is connected.
7. Source-Available Indicating Lights: Supervise sources via transfer-switch normal- and emergency-source sensing circuits.

    a. Normal Power Supervision: Green light with nameplate engraved "Normal Source Available."
    b. Emergency Power Supervision: Red light with nameplate engraved "Emergency Source Available."

8. Unassigned Auxiliary Contacts: Two normally open, single-pole, double-throw contacts for each switch position, rated 10 A at 240-V ac.
9. Transfer Override Switch: Overrides automatic retransfer control so automatic transfer switch will remain connected to emergency power source regardless of condition of normal source. Pilot light indicates override status.
10. Engine Starting Contacts: One isolated and normally closed, and one isolated and normally open; rated 10 A at 32-V dc minimum.
11. Engine Shutdown Contacts: Time delay adjustable from zero to five minutes, and factory set for five minutes. Contacts shall initiate shutdown at remote engine-generator controls after retransfer of load to normal source.

12. Engine-Generator Exerciser: Solid-state, programmable-time switch starts engine generator and transfers load to it from normal source for a preset time, then retransfers and shuts down engine after a preset cool-down period. Initiates exercise cycle at preset intervals adjustable from 7 to 30 days. Running periods are adjustable from 10 to 30 minutes. Factory settings are for 7-day exercise cycle, 20-minute running period, and 5-minute cool-down period. Exerciser features include the following:

    a. Exerciser Transfer Selector Switch: Permits selection of exercise with and without load transfer.
    b. Push-button programming control with digital display of settings.
    c. Integral battery operation of time switch when normal control power is not available.

2.4 SOURCE QUALITY CONTROL

A. Factory test and inspect components, assembled switches, and associated equipment. Ensure proper operation. Check transfer time and voltage, frequency, and time-delay settings for compliance with specified requirements. Perform dielectric strength test complying with NEMA ICS 1.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Set field-adjustable intervals and delays, relays, and engine exerciser clock.

3.2 CONNECTIONS

A. Wiring to Remote Components: Match type and number of cables and conductors to control and communication requirements of transfer switches as recommended by manufacturer. Increase raceway sizes at no additional cost to Owner if necessary to accommodate required wiring.

B. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."

C. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

3.3 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

1. After installing equipment and after electrical circuitry has been energized, test for compliance with requirements.
2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
3. Measure insulation resistance phase-to-phase and phase-to-ground with insulation-resistance tester. Include external annunciation and control circuits. Use test voltages and procedure recommended by manufacturer. Comply with manufacturer's specified minimum resistance.

    a. Check for electrical continuity of circuits and for short circuits.
    b. Inspect for physical damage, proper installation and connection, and integrity of barriers, covers, and safety features.
    c. Verify that manual transfer warnings are properly placed.
    d. Perform manual transfer operation.

4. After energizing circuits, demonstrate interlocking sequence and operational function for each switch at least three times.

    a. Simulate power failures of normal source to automatic transfer switches and of emergency source with normal source available.
    b. Simulate loss of phase-to-ground voltage for each phase of normal source.
    c. Verify time-delay settings.
    d. Verify pickup and dropout voltages by data readout or inspection of control settings.
    e. Test bypass/isolation unit functional modes and related automatic transfer-switch operations.
    f. Verify proper sequence and correct timing of automatic engine starting, transfer time delay, retransfer time delay on restoration of normal power, and engine cool-down and shutdown.

B. Coordinate tests with tests of generator and run them concurrently.

C. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation and contact resistances and time delays. Attach a label or tag to each tested component indicating satisfactory completion of tests.

D. Remove and replace malfunctioning units and retest as specified above.

E. Prepare test and inspection reports.

3.4 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain transfer switches and related equipment

B. Coordinate this training with that for generator equipment.

END OF SECTION 263600