

KITSAP COUNTY  
SOUTH CENTRAL FORCE MAIN REPLACEMENT  
Schedule 1  
May 2009

FORMAL BID 2009-122



Volume 1 of 2

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CERTIFICATE PAGE

**Kitsap County South Central Force Main Replacement  
Schedule 1**

The engineering material and data contained in the Plans and Specifications were prepared under the supervision and direction of the undersigned, whose seals as registered professional engineers are affixed below.



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Reed A. Kelly



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Tony Fisher

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**KITSAP COUNTY  
SOUTH CENTRAL FORCE MAIN REPLACEMENT**

**SCHEDULE 1  
FORMAL BID 2009-122**

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**Appendix C: – Storm Water Pollution and Prevention Plan**

**Appendix D: – Owner-Furnished Permits**

**DRAWINGS (BOUND SEPARATELY) – VOLUME 2 OF 2**

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**INVITATION TO BID  
FORMAL BID 2009-122**

**KITSAP COUNTY  
PUBLIC WORKS WASTEWATER DIVISION  
SOUTH CENTRAL FORCE MAIN – SCHEDULE 1**

**BID SUBMISSION DATE & TIME**                      **Thursday, June 4, 2009 @ 2:00pm**  
**Purchasing Office**  
**614 Division Street MS 20**  
**Port Orchard, Washington 98366**

**BID OPENING TIME & LOCATION**                      **Thursday, June 4, 2009 @ 2:30pm**  
**Fourth Floor Port Madison Conference Room,**  
**Room #416**  
**Kitsap County Administration Building**  
**619 Division Street**  
**Port Orchard, Washington 98366**

**PRE-BID MEETING**    **Tuesday May 26, 2009 @ 2:30 pm**  
**Kitsap County**  
**Central Kitsap Co. Waste Water Treatment Plant**  
**12351 Brownsville Highway**  
**Poulsbo, Washington**

**ENGINEERS ESTIMATE:**    **\$2.71 Million**

NOTICE IS HEREBY GIVEN: Sealed bids for the South Central Force Main – Schedule 1 will be received before the time and date indicated above. Bids will be received, publicly opened and read aloud at the locations described above. Instructions for the delivery of bids are contained in the Special Provisions for the Project. Prospective Bidders are hereby notified that they are solely responsible for ensuring timely delivery of their bid to the Kitsap County Purchasing Office on or before the bid submission date and time indicated above.

The principal items or elements of construction include:

- 3,340 feet of 15-inch gravity sewer and appurtenances;
- 290 feet of 8-inch gravity sewer and appurtenances;
- 5,400 feet of 14-inch force main and appurtenances;
- Street restoration
- Lift station surge tank system
- Lift station demolition

A complete set of contract documents (half-size plans and specifications) may be obtained for \$75, non-refundable. Full size drawings are also available for an additional \$30, non-refundable:

Sound Reprographics  
403 Madison North  
Bainbridge Island, WA  
206-780-9678

A pre-bid meeting will be held at the location described above. After the meeting, a tour of the site and facilities will be conducted. This will be the only tour of the site and facilities. While the pre-bid meeting is optional, potential bidders are strongly encouraged to attend the meeting.

Bid documents may be found on the Kitsap County Web site [www.kitsapgov.com/purchasing/bids.htm](http://www.kitsapgov.com/purchasing/bids.htm). Questions regarding the bid process, contract terms and conditions, or how to obtain copies of the bid documents shall be directed to R'Lene J. Orr at 360-337-4410, fax 360-337-4638, or email [rorr@co.kitsap.wa.us](mailto:rorr@co.kitsap.wa.us). Technical questions about the work covered by the bid documents shall be directed to Barbara Zaroff, Project Manager, at (360) 981-1767 or email [bzaroff@co.kitsap.wa.us](mailto:bzaroff@co.kitsap.wa.us).

Kitsap County reserves the right to reject any all bids and to waive informalities or irregularities.

Bids received after the time set for submission of bids will not be considered.

Each bid proposal shall be completely sealed in a separate envelope, properly addressed as stated above, with the name and address of the bidder and the name of the project plainly written on the outside of the envelope. All bids shall be accompanied by:

- County Bid Proposal – as published in Invitation to Bid
- Signed acknowledgment of receipt of all addenda
- Bid Bond, cash, certified check, or cashier's check in an amount equal to five percent (5%) of submitted bid
- Statement of Bidder's Qualifications;
- Non Collusion Affidavit
- Other forms as identified in the Bidder's Checklist

Should the successful bidder fail to enter into such contract and furnish all documents and bonds required within the time frames stated herein, the bid proposal deposit or bond shall be forfeited to Kitsap County.

Bids are likely to be rejected if the lowest, responsible, responsive Bid received exceeds the Engineer's estimate by an unreasonable amount.

Kitsap County hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to the advertisement, Women and Minority Business Enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, sex, or national origin in consideration for an award. Minority Business Enterprises will be required to meet all requirements of law as related to Public Works contracts, including the provision of the Equal Employment Opportunity and Affirmative Action Plan on the basis of any other bidder.

## BID PROCEDURES AND CONDITIONS

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**SECTION 0-01  
BID PROPOSAL**

TO: Kitsap County Board of Commissioners  
614 Division Street  
Port Orchard, WA 98366

Board of Commissioners:

The undersigned bidder agrees, if this bid is accepted, to enter into a contract with the Owner, in the form included in the specifications to perform and furnish the work as specified or indicated in the bidding documents for the bid price and within the bid times indicated in this bid and in accordance with the other terms and conditions of the contract documents.

In submitting this bid, bidder represents, as more fully set forth in the contract, that:

- A. This bid will remain subject to acceptance for 60 days after the day of bid opening;
- B. The owner has the right to reject this bid;
- C. Bidder will sign and submit the contract with the bonds and other documents required by the bidding requirements within 10 days after the date of owner's Notice of Award;
- D. Bidder has examined copies of all the bidding documents;
- E. Bidder has visited the site and become familiar with the general, local and site conditions;
- F. Bidder is familiar with applicable federal, state, and local laws and regulations;
- G. Bidder has correlated the information known to bidder, information and observations obtained from visits to the site, reports and drawings identified in the bidding documents and additional examinations, investigations, explorations, tests, studies, and data with the bidding documents;
- H. Bidder agrees that the work will be substantially complete and final completion in accordance with the Contract Documents.

**Bidder has received the following addenda, receipt of which is hereby acknowledged:**

DATE	NUMBER
_____	_____
_____	_____
_____	_____
_____	_____

**BASIC BID:**

Pursuant to and in compliance with the advertisement for bids and other documents relating thereto, the undersigned Bidder hereby certifies having carefully examined contract documents entitled **Kitsap County South Central Force Main Replacement – Schedule 1** as well as conditions affecting the work, and is familiar with the site; and having made the necessary examinations, here proposes to furnish all LABOR, MATERIALS, equipment, and services necessary to complete the work in STRICT ACCORDANCE with the above named documents for an amount computed upon the basis of the quantity of work actually performed at the Bid prices set forth herein.

**CONTRACT AND BOND:**

If notified of the acceptance of this bid within sixty (60) days of the time set for opening of bids, the undersigned agrees to execute a contract for the above work, for a compensation computed from the above-stated sums, on the Contract Form bound with the specifications and to furnish a bond as required by the specifications on the form bound therein.

**BID GUARANTEE:**

It is agreed that if the undersigned fails to execute said Contract and furnish said Bond within ten (10) days after written notice of award of Contract, then the Bid Guarantee shall be retained by the County as liquidated damages. If this bid is not accepted within sixty (60) days after the time set for the opening of bids, or if the undersigned delivers said Contract and Bond in a timely manner, then the check or cash shall be returned, or the Bid Bond shall become void.

**PROPOSAL:**

The Bidder certifies that the cost of all labor, equipment, plants and materials necessary for proper completion of the work shall be included in the prices for the various bid items. NOTE: UNIT PRICES FOR ALL ITEMS, ALL EXTENSIONS, AND THE TOTAL AMOUNT OF BID MUST BE SHOWN. All prices shall be in legible figures (not words) written in ink or typed. The proposal shall include: a unit price for each item (omitting digits more than four places to the right of the decimal point); an extension for each unit price (omitting digits more than two places to the right of the decimal point); and the total contract price (the sum of all extensions).

Item No.	Ref. Section	Approximate Quantity	Description of Bid Item	Unit Price Dollars & Cents	Amount Dollars & Cents
1.	1-04	1 LS	Final Cleanup and Restoration		
2.	1-05	1 LS	Surveying		
3.	1-05	2 Each	Monument Restoration (Allowance)		
4.	1-09	1 LS	Minor Changes and Additions (Allowance*)	\$100,000.00	\$100,000.00
5.	1-09	1 LS	Mobilization and Demobilization		
6.	1-10	1 LS	Project Temporary Traffic Control		
7.	2-01	1 LS	Clearing, Grubbing, and Stripping		
8.	2-02	1 LS	Removal of Structures and Obstructions		
9.	2-02	1 LS	Pavement Grinding/Removal		
10.	2-02	1 LS	Lift Station 5 Demolition		

SECTION 0-01  
 BID PROPOSAL

11.	2-02	1 LS	Lift Station 34 Demolition		
12.	2-09	210 Ton	Unsuitable Foundation Replacement (Allowance*)		
13.	2-09	5,385 LF	Non-Structural Shoring		
14.	2-09	2,000 S.F.	Structural Shoring (Allowance*)		
15.	4-04	2,180 Ton	Crushed Surfacing Top Course		
16.	4-04	1,990 Ton	Crushed Surfacing Base Course		
17.	5-04	200 Ton	Temporary Asphalt (Allowance*)		
18.	5-04	2,390 Ton	Hot Mix Asphalt		
19.	7-05	13 Each	Type 1 Manhole, 48-Inch		
20.	7-05	21 LF	Type 1 Manhole, 48-Inch, Extra Depth		
21.	7-05	2 Each	Type 1 Cut-In Manhole, 48-Inch		
22.	7-05	5 LF	Type 1 Cut-In Manhole, 48-inch, Extra Depth		
23.	7-05	1 Each	Type 1 Cut-In Manhole, 54-Inch		
24.	7-05	5 LF	Type 1 Cut-In Manhole, 54-Inch, Extra Depth		
25.	7-08	9,300 Ton	Imported Trench (Subsequent) Backfill		
26.	7-08	200 CY	Controlled Density Fill (Allowance*)		
27.	7-08	20 Each	Potholing (Allowance*)		
28.	7-08	525 LF	Dewatering – Well Points or Deep Wells		
29.	7-08	100 CY	Extra Trench Excavation (Allowance*)		

SECTION 0-01  
 BID PROPOSAL

30.	7-10	5,385 LF	14-Inch Diam. HDPE DR 15.5 Sewer Force Main		
31.	7-10	1 LS	Connect to Ex. Sewer Force Main at PS 34		
32.	7-10	1 LS	Connect to Ex. Sewer Force Main at PS 5		
33.	7-10	1 LS	Force Main Modifications at Fairgrounds Road		
34.	7-10	1 LS	Connect to Ex. Sewer at PS 6		
35.	7-10	1 Each	Air Release/Vacuum Station		
36.	7-16	1 LS	Lift Station 34 Surge Tank System		
37.	7-17	1,655 LF	15-Inch Diam. PVC SDR 35 Gravity Sewer Main (Depth to I.E. < 12.0 feet)		
38.	7-17	660 LF	15-Inch Diam. PVC SDR 35 Gravity Sewer Main (Depth to I.E. = 12.0 feet to 16.0 feet)		
39.	7-17	1,065 LF	16 Inch Diam. PVC C905 Gravity Sewer Main (Depth to I.E. > 16.0 feet)		
40.	7-17	161 LF	8-Inch Diam. PVC SDR 35 Gravity Sewer Main (Depth to I.E. < 12.0 feet)		
41.	7-17	112 LF	8-Inch Diam. PVC SDR 35 Gravity Sewer Main (Depth to I.E. = 12.0 feet to 16.0 feet)		
42.	7-17	26 LF	8-Inch Diam. PVC C900 Gravity Sewer Main (Depth to I.E. > 16.0 feet)		
43.	7-17	42 LF	6-Inch Diam. PVC SDR 35 Gravity Sewer Main		
44.	8-01	20 Ton	Top Soil		
45.	8-01	540 LF	Silt Fence		
46.	8-01	1 LS	Temporary Erosion and Sediment Control		

47.	8-01	120 S.Y.	Seed, Fertilizer, and Mulch		
48.	8-22	1 LS	Pavement Striping		
<b>Subtotal of Bid Items</b>					
Sales Tax @ 8.6% of Subtotal**					
<b>TOTAL CONTRACT AMOUNT</b>					

\*Allowance - For the purpose of establishing a common basis for evaluating bids, an arbitrary quantity for this item has been shown on the bid form and does not necessarily represent the quantity that may be necessary for the work. The significant change provisions of Section 1-04.4 of the Standard Specifications shall not apply to this item. Quantities will be determined in the field as work progresses. This item is subject to the review and approval of the Engineer.

\*\*All work identified in the bid schedule is subject to collection of Washington State sales tax on the Contract Price. Bidders should contact the Washington State Department of Revenue for further clarification of sales tax rules. The OWNER will not adjust payment if the Bidder bases a Bid on a misunderstood tax liability.

SIGNATURE

Signed By: \_\_\_\_\_ Date: \_\_\_\_\_

Please Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

Name of Firm: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: (\_\_\_\_) \_\_\_\_\_ Fax: (\_\_\_\_) \_\_\_\_\_

**END OF SECTION 0-01**

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**SECTION 0-02  
BID GUARANTY BOND  
2009-122**

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, \_\_\_\_\_, hereinafter called the Principal, and \_\_\_\_\_, hereinafter called the Surety, are jointly and severally held and firmly bound unto the Kitsap County Department of Public Works, hereinafter called the Obligee, each in the penal sum of five percent (5%) of the total amount of the Bid of the Principal for the work, this sum not to exceed \_\_\_\_\_ dollars (\$\_\_\_\_\_) of lawful money of the United States for the payment thereof unto the Obligee, the Principal, and Surety jointly and severally bind themselves forever firmly by these presents.

WHEREAS, the Principal is herewith submitting its offer for the fulfillment of Obligee's contract for construction of: South Central Force Main Replacement – Schedule 1.

NOW, THEREFORE, the condition of this obligation is such that if the Principal is awarded the contract, and if the Principal, within the time specified in the bid for such contract, enters into, executes, and delivers to the Obligee an agreement in the form provided herein complete with evidences of insurance, and if the Principal within the time specified in the bid gives the Performance and Payment Bond on the form provided herein to the Obligee, then this obligation shall be void; otherwise, the Principal and Surety will pay unto the Obligee the difference in the money between the total amount of the Bid of the Principal and the amount for which the Obligee legally contracts with another party to fulfill the Contract if the latter amount be in excess of the former, but in no event shall the Surety's liability exceed the penal sum hereof.

AND IT IS HEREBY DECLARED AND AGREED that the Surety shall be liable under this obligation as Principal, and that nothing of any kind or nature whatsoever that will not discharge the Principal shall operate as a discharge or a release of liability of the Surety.

IT IS HEREBY FURTHER DECLARED AND AGREED that this obligation shall be binding upon and inure to the benefit of the Principal, the Surety, and the Obligee and their respective heirs, executors, administrators, successors, and assigns.

SIGNED AND SEALED this \_\_\_\_\_ day of \_\_\_\_\_, 2009.

*Contractor's Corporate Seal*

*Surety's Corporate Seal*

\_\_\_\_\_  
Principal

\_\_\_\_\_  
Signature for Principal

\_\_\_\_\_  
Title of Signatory

\_\_\_\_\_  
Surety

\_\_\_\_\_  
Signature for Surety

\_\_\_\_\_  
Title of Signatory

**END OF SECTION 0-02**

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**SECTION 0-03  
SUBCONTRACTORS LIST**

Each Bidder is advised of the requirements of Washington Law, RCW 39.30.060. Pursuant to Title 39 of the Revised Code of Washington, each bidder is required to submit within one hour after the published bid submittal time, the names of the subcontractors with whom the bidder, if awarded the contract, will subcontract for performance of the work of heating, ventilation and air conditioning; plumbing as described in RCW 18.106 and electrical as described in RCW 19.28 or to name itself for the work. The Bidder shall not list more than one subcontractor for each category of work identified, unless subcontractors vary with bid alternates, in which case the bidder must indicate which subcontractor will be used for which alternate. Failure of the bidder to submit the names of such subcontractors or to name itself to perform such work or the naming of two or more subcontractors to perform the same work shall render the bidder's bid non-responsive and, therefore, void.

**List subcontractors appropriately.**

**HEATING, VENTILATION AND AIR CONDITIONING**

Subcontractor Name: \_\_\_\_\_

**PLUMBING**

Subcontractor Name: \_\_\_\_\_

**ELECTRICAL**

Subcontractor Name: \_\_\_\_\_

**OTHER SUBCONTRACTORS** (whose work is equal to or greater than 10% of the bid)  
(Note: This is required by this contract and not RCW 39.30.060)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**[THIS FORM SHALL BE COMPLETED IN FULL AND SUBMITTED WITH THE BID PROPOSAL]**

**END OF SECTION 0-03**

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**SECTION 0-04  
 BIDDER INFORMATION**

Contracting Firm Name:
Number of Years Contractor has been in the construction business under its present firm name:
Present gross dollar amount of work under contract:
Present gross dollar amount of contracts not yet completed:
General type of work performed by firm:

List the five major pieces of equipment to be used on this project:	Owned	Leased	Rented
1.			
2.			
3.			
4.			
5.			

List the name of the Project Manager and Superintendent responsible for this project	# of Years with Firm
Name of Project Manager:	
Name of Superintendent:	

Bank Reference:
Have you changed bonding companies within the last three years?
If so, why? (Optional)

**[THIS FORM SHALL BE COMPLETED IN FULL AND SUBMITTED WITH THE BID PROPOSAL]**



**SUBCONTRACTOR RESPONSIBILITY CHECKLIST**

The following checklist will be used to document that the Bidder meets the mandatory bidder responsibility criteria. Please print a copy of documentation from the appropriate website to be included with the submittal.

<b>General Information</b>	
Project Name: South Central Force Main Replacement – Schedule 1	Project Number: 2009 - 122
Subcontractor's Business Name:	Subcontract Execution Date:
<b>Contractor Registration</b> <a href="https://fortress.wa.gov/lni/bbip/">https://fortress.wa.gov/lni/bbip/</a>	
License Number:	Status: Active: Yes <input type="checkbox"/> No <input type="checkbox"/>
Effective Date (must be effective on or before Subcontract Bid Submittal Deadline):	Expiration Date:
<b>Contractor and Plumber Infraction List</b> <a href="http://www.lni.wa.gov/tradeslicensing.contractors/hirecon/infractions/">http://www.lni.wa.gov/tradeslicensing.contractors/hirecon/infractions/</a>	
Is Subcontractor on Infraction List? Yes <input type="checkbox"/> No <input type="checkbox"/>	
<b>Current UBI Number</b> <a href="http://dor.wa.gov/content/doingbusiness/registermybusiness/brd/">http://dor.wa.gov/content/doingbusiness/registermybusiness/brd/</a>	
UBI Number:	Account Status: Open <input type="checkbox"/> Closed <input type="checkbox"/>
<b>Industrial Insurance Coverage</b> <a href="http://fortress.wa.gov/lni/crpsi/MainMenu.aspx">http://fortress.wa.gov/lni/crpsi/MainMenu.aspx</a>	
Account Number:	Account Current: Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>Employment Security Department Number</b>	
Employment Security Department Number:	
Please provide a copy of latest correspondence containing subcontractor's account number with Employment Security Department. Do not provide document containing personal information such as social security numbers.	
<b>State Excise Tax Registration Number</b> <a href="http://dor.wa.gov/content/doingbusiness/registermybusiness/brd/">http://dor.wa.gov/content/doingbusiness/registermybusiness/brd/</a>	
Tax Registration Number:	Account Status: Open <input type="checkbox"/> Closed <input type="checkbox"/>
<b>Not Disqualified from Bidding</b> <a href="http://www.lni.wa.gov/TradesLicensing/PrevWage/AwardingAgencies/DebattedContractors/default.asp">http://www.lni.wa.gov/TradesLicensing/PrevWage/AwardingAgencies/DebattedContractors/default.asp</a>	
Is the Subcontractor listed on the "Contractors Not Allowed to Bid" list of the Department of Labor and Industries? Yes <input type="checkbox"/> No <input type="checkbox"/>	
<b>Contractor Licenses</b> <a href="https://fortress.wa.gov/lni/bbip/">https://fortress.wa.gov/lni/bbip/</a>	
Electrical: If required by Chapter 19.28 RCW, does the Subcontractor have an Electrical Contractor's License? Yes <input type="checkbox"/> No <input type="checkbox"/>	Elevator: If required by Chapter 70.87 RCW, does the Subcontractor have an Elevator Contractor's License? Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>Checked by:</b>	
Name of Employee:	Date:

**[THIS FORM SHALL BE COMPLETED IN FULL AND SUBMITTED WITH THE BID PROPOSAL]**

**PROJECT REFERENCES**

Using the following form (use additional forms as needed), the Bidder shall describe projects that meet the similar size and scope criteria of Section 1-02.1.

Project Name: \_\_\_\_\_

Project Scope: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Public Agency Name: \_\_\_\_\_

Contact Person: \_\_\_\_\_ Phone No: \_\_\_\_\_

Awarded Contract Amount: \_\_\_\_\_

Final Contract Amount: \_\_\_\_\_

**Bidder Evaluation**

On a scale of 1 to 10 (1 being poor and 10 being excellent), rate your performance on the above named Project

District Use Only		Bidder Self Evaluation
	Quality Control	
	Safety Record	
	Timeliness of Performance	
	Use of Skilled Personnel	
	Management of Subcontractors	
	Availability of and Use of Appropriate Equipment	
	Compliance with Contract Documents	
	Management of Submittals, Change Orders, and Close-out	

**[This form(s) shall be completed in full and submitted within 48 hours of the bid submittal deadline by the two lowest bidders and other bidders as requested by the Contracting Agency.END OF SECTION 0-04]**

**SECTION 0-05  
NON-COLLUSION AFFIDAVIT**

The undersigned, being duly sworn, deposes and says that the person, firm, association, co-partnership or corporation herein named, has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in the preparation and submission of this proposal to Kitsap County for its consideration in the award of the contract.

\_\_\_\_\_  
Legal Name of Bidder

\_\_\_\_\_  
By (Signature)  
Street Address

Sole Proprietorship \_\_\_\_\_  
Partnership \_\_\_\_\_  
Corporation \_\_\_\_\_  
Other \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
City State Zip

\_\_\_\_\_  
Telephone

\_\_\_\_\_  
State of Washington Contractor's Number

STATE OF WASHINGTON)  
COUNTY OF KITSAP) ) SS.

On this day personally appeared before me \_\_\_\_\_ to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that \_\_\_\_\_ signed the same as \_\_\_\_\_ free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this \_\_\_\_\_ day of \_\_\_\_\_, 2009  
\_\_\_\_\_  
Notary Public in and for the State of Washington, residing at

\_\_\_\_\_  
My Commission Expires: \_\_\_\_\_

**[THIS FORM SHALL BE COMPLETED IN FULL AND SUBMITTED WITH THE BID PROPOSAL]**

**END OF SECTION 0-05**

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**SECTION 0-06  
BIDDER'S CHECKLIST**

NOTE: The purpose of this checklist is to serve as a reminder of major items to be addressed in submitting a bid and by the Successful Bidder after notification of award, and is not intended to be all-inclusive. It does not alleviate the Bidder from the responsibility of becoming familiar with all aspects of the Project Manual and proper completion and submission of the Bid.

1. Contract Documents thoroughly read and understood. \_\_\_\_\_
2. Attend prebid conference. \_\_\_\_\_
3. All blank spaces in proposal filled in, preferably in black ink. \_\_\_\_\_
4. Receipt of all addenda acknowledged. \_\_\_\_\_
5. Review of geotechnical information acknowledged. \_\_\_\_\_
6. Bid Form and other documents are signed by authorized officer. \_\_\_\_\_
7. Prices computed and presented correctly. \_\_\_\_\_
8. Subcontractors are named as indicated in the Contract Documents. \_\_\_\_\_
9. The following documents, to be submitted with the bid, completed, signed, and dated as applicable.
  - a. Bid Proposal \_\_\_\_\_
  - b. Bid Guaranty Bond \_\_\_\_\_
  - c. Subcontractors List \_\_\_\_\_
  - d. Bidder Information \_\_\_\_\_
  - e. Noncollusion Affidavit Certificate \_\_\_\_\_
10. Bid documents submitted in sealed envelope and labeled "Bid South Central Force Main Replacement– Schedule 1." \_\_\_\_\_
11. The following documents shall be executed and complied with after the contract is awarded:
  - a. Capital Projects Contract Agreement
  - b. Performance and Payment Bond
  - c. Substantial Completion Certificate

**END OF SECTION 0-14**

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## CONTRACT REQUIREMENTS

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**SECTION 0-07  
CAPITAL PROJECTS CONTRACT AGREEMENT  
KC 2009-122**

This Contract is made and entered into this \_\_\_\_\_ day of \_\_\_\_\_, 2009 between KITSAP COUNTY, with its principal offices at 614 Division Street, Port Orchard, Washington 98366, hereinafter called the Owner, and \_\_\_\_\_, a general Contractor licensed in the State of Washington, with its principal offices located at \_\_\_\_\_, hereinafter the Contractor.

**WITNESSETH:**

WHEREAS, the Owner desires to construct the South Central Force Main Replacement – Schedule 1 Contract and

WHEREAS, the Contractor has been selected by competitive bid as the “lowest responsive bidder” as that term is defined in RCW 43.19.1911:

NOW THEREFORE, the Owner and Contractor mutually agree as follows:

**1. CONTRACT DOCUMENTS**

The Agreement between the parties is expressed in the Contract Documents, which include the Invitation to Bid; the accepted Bid Proposal; the Bid Guaranty Bond; the Subcontractor’s List; the Bidder Information; the Non-Collusion Affidavit; the Performance and Payment Bond; the Special Provisions; the Project Drawings; the Standard Specifications and Standard Plans; the Storm Water Pollution Prevention Plan; the Project Permits; and this Agreement.

**2. DESCRIPTION OF THE WORK**

This contract provides for the installation of gravity sanitary sewer mains, the replacement of sewer force mains, street restoration within the limits of the pipeline work, demolition and modifications at the County’s Pump Station 34, and demolition of the County’s Pump Station 5 in accordance with the contract documents entitled “South Central Force Main Replacement – Schedule 1.” Contractor agrees to furnish all material, labor, carriage, tools, equipment, apparatus, facilities and anything else necessary to complete the work in a workmanlike manner.

The Contractor shall complete its Work in a timely manner and in general accordance with the agreed schedule submitted by the Contractor and approved by the Owner.

**3. CONTRACT REPRESENTATIVES**

Each party to this Contract shall have a representative. Each party may change its representative upon providing written notice to the other party. These representatives will be:

	<u>Owner’s Representative</u>	<u>Contractor’s Representative</u>
Name of Representative:	Barbara Zaroff, PE	_____
Title:	Project Manager	_____
Mailing Address:	Central Kitsap WWTP	_____
	12351 Brownsville Highway	_____
	Poulsbo, WA 98370	_____
Telephone Number:	360-337-5777, Extension 3663	_____
Fax Number:	360-779-6210	_____
Email Address	<a href="mailto:bzaroff@co.kitsap.wa.us">bzaroff@co.kitsap.wa.us</a>	_____

All instructions, modifications, and changes to the Contract shall be conveyed to the Contractor through the Owner’s Representative. Any work executed upon the direction of any person or entity other than the

Owner's Representative may be considered defective and will be performed without reimbursement for said work to the Contractor. The Owner's Representative shall have the authority to reject any and all nonconforming or defective work under the Project Documents.

**4. CONTRACT AMOUNT**

The Owner hereby agrees to pay the Contractor according to the Contractor's Bid in the amount of \$\_\_\_\_\_ (including accepted alternates and Washington State Sales Tax (WSST)), at the time and manner and upon the conditions provided for in this Contract.

**5. CONTRACT TIME**

Time is of the essence in the performance of this Contract. The Contractor agrees to work promptly and fully complete the work within the limits as described in the Contract Documents. Failure to complete within the allowed time limit as described in Section 1-08.5 of the Special Provisions will subject the Contractor to the payment of liquidated damages as described in Section 1-08.9 of the Standard Specifications.

**6. PREVAILING WAGES**

Contractor shall be responsible for complying with the prevailing wage requirements associated with RCW Chapter 39.12 and WAC 296-127 as further described in Section 1-17.9 of the Standard Specifications and the Special Provisions.

**7. PERFORMANCE AND PAYMENT BOND**

Contractor agrees to provide a Performance and payment Bond as described in Section 1-03.4 of the Standard Specifications as amended by the Special Provisions.

**8. HOLD HARMLESS AND INDEMNIFICATION**

The Contractor shall hold harmless, indemnify and defend the OWNER, ENGINEER, its officers, officials, employees and agents, from and against any and all claims, actions, suits, liability, loss, expenses, damages, and judgments of any nature whatsoever, including, but not limited to, reasonable costs and attorneys' fees in defense thereof, for injury, sickness, disability or death to persons or damage to property or business, caused by or arising out of the performance of the services rendered under this contract by the Contractor, its employees, agents, or subcontractors or anyone for whose acts any of them may be liable. PROVIDED HOWEVER, that the Contractor's obligation hereunder shall not extend to injury, sickness, death or damage caused by or arising out of the sole negligence of the Owner, its officers, officials, employees or agents. PROVIDED FURTHER, that in the event of the concurrent negligence of the parties, the Contractor's obligations hereunder shall apply only to the percentage of fault attributable to the Contractor, its employees, agents, or subcontractors.

In any and all claims against the Owner, Engineer, its officers, officials, employees and agents by any employee of the Contractor, subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation under this Section 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 subcontractor under Worker's Compensation acts, disability benefit acts, or other employee benefit acts, it being clearly agreed and understood by the parties hereto that the Contractor expressly waives any immunity the Contractor might have had under such laws. By executing the Contract, the Contractor acknowledges that the foregoing waiver has been mutually negotiated by the parties and that the provisions of this Section shall be incorporated, as relevant, into any contract the CONTRACTOR makes with any subcontractor or agent performing Work hereunder.

The Contractor's obligations hereunder shall include, but are not limited to, investigating, adjusting and defending all claims alleging loss from action, error or omission, or breach of any common law, statutory or other delegated duty by the Contractor, the Contractor's employees, agents or subcontractors.

**9. INSURANCE**

Contractor agrees to comply with the insurance requirements described in Section 1-07.18 of the Special provisions.

**10. TERMINATION**

This contract may be terminated by the officials or agents of the County authorized to contract for or supervise the execution of such work in accordance with Section 1-08.10 of the Standard Specifications as amended by the Special Provisions.

**11. NON-WAIVER OF RIGHTS**

The parties agree that the excuse or forgiveness of performance, or waiver of any provisions of this Contract does not constitute a waiver of such provisions for future performance, or prejudice the right of the waiving party to enforce any of the provisions of this Contract at a later time.

**12. INDEPENDENT CONTRACTOR**

The Contractor shall perform this Contract as an Independent Contractor and not as an agent, employee or servant of the Owner. The parties agree that the Contractor is not entitled to any benefits or rights enjoyed by employees of the County. Contractor shall comply with all laws regarding workers' compensation.

The Contractor specifically has the right to direct and control Contractor's own activities in providing the agreed services in accordance with the specifications set out in this Contract. Furthermore, the Contractor shall have and maintain complete responsibility and control over all of its subcontractors, employees, agents, and representatives. No subcontractor, employee, agent, or representative of the Contractor shall be or deem to be or act or purport to act as an employee, agent, or representative of the Owner, unless otherwise directed by the terms of this Contract.

The Contractor agrees to immediately remove any of its employees or agents from assignment to perform services under this Contract upon receipt of a written request to do so from the Owner's Representative or designee.

**13. NONDISCRIMINATION**

The Contractor, its assignees, delegates, or subcontractors shall not discriminate against any person in the performance of any of its obligations hereunder on the basis of race, color, creed, religion, national origin, age, sex, marital status, veteran status or the presence of any disability. Implementation of this provision shall be consistent with Initiative 200, Sec. 1 (Effective 12/3/98).

**14. CHOICE OF LAW, JURISDICTION AND VENUE**

Any action at law, suit in equity, or judicial proceeding for the enforcement of this contract or any provisions thereof shall be instituted and maintained only in the court of the State of Washington, County of Kitsap. It is mutually understood and agreed that this contract shall be governed by the laws of the State of Washington, both as to interpretation and performance.

**15. SUCCESSORS AND ASSIGNS**

The Owner, to the extent permitted by law, and the CONTRACTOR each bind themselves, their partners, successors, executors, administrators, and assigns to the other Party to this Contract and to the partners, successors, administrators, and assigns of such other party in respect to all covenants of this Contract.

**16. SEVERABILITY**

If a court of competent jurisdiction holds any part, term or provision of this Contract to be illegal, or invalid in whole or in part, the validity of the remaining provisions shall not be affected, and the parties' rights and obligations shall be construed and enforced as if the Contract did not contain the particular provision held to be invalid.

If it should appear that any provision of this Contract is in conflict with any statutory provision of the United States or the State of Washington, said provision which may conflict therewith shall be deemed

inoperative and null and void insofar as it may be in conflict therewith, and shall be deemed modified to conform to such statutory provision.

**17. ENTIRE AGREEMENT**

The parties agree that this Contract is the complete expression of its terms and conditions. Any oral or written representations or understandings not incorporated in this Contract are specifically excluded.

**18. NOTICES**

Any notices shall be effective if personally served upon the other party or if mailed by registered or certified mail, return receipt requested, to the addresses set out in Section 3. Notice may also be given by facsimile with the original to follow by regular mail. Notice shall be deemed to be given three days following the date of mailing or immediately if personally served. For service by facsimile, service shall be effective upon receipt during working hours. If a facsimile is sent after working hours, it shall be effective at the beginning of the next working day.

This Contract shall take effect this \_\_\_\_\_ day of \_\_\_\_\_, 2009.

CONTRACTOR:

BOARD OF COUNTY COMMISSIONERS  
Kitsap County, Washington

Firm \_\_\_\_\_

\_\_\_\_\_  
Charlotte Garrido, Chair

By \_\_\_\_\_

Signature: \_\_\_\_\_  
(Authorized Representative)

\_\_\_\_\_  
Steve Bauer, Commissioner

Title  
\_\_\_\_\_

\_\_\_\_\_  
Josh Brown, Commissioner

Address: \_\_\_\_\_

Attest:

Contractor Registration No. \_\_\_\_\_

\_\_\_\_\_  
Opal Robertson, Clerk of the Board

Federal Tax ID No. \_\_\_\_\_

**Approved as to form by the Prosecuting Attorneys Office.**

**END OF SECTION 0-07**

**SECTION 0-08  
PERFORMANCE AND PAYMENT BOND**

KNOW ALL MEN BY THESE PRESENTS:

That we, \_\_\_\_\_ the Contractor, herein referred to as Principal and, \_\_\_\_\_ a corporation, organized and legally doing business under and by virtue of the laws of the State of Washington and meeting the requirements of Section 1-03.4 of the Standard Specifications, as Surety, are held and firmly bound and obligated unto the State of Washington, in the full and just sum of \_\_\_\_\_ Dollars, lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors and administrators, successors and assigned, jointly and severally, firmly by these presents.

This bond is executed in pursuance of Chapter 39.08, Revised Code of Washington.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH, that whereas the Principal entered into a certain contract with the Owner, dated the \_\_\_\_\_ day of \_\_\_\_\_, 2009 for the construction of the South Central Force Main Replacement – Schedule 1 Contract, according to the term, conditions, and covenants specified in the Capital Projects Contract Agreement including all of the Contract Documents therein referred to, which are hereby referred to and made a part hereof as fully and completely as though set forth in detail herein.

NOW THEREFORE, if the Principal shall faithfully perform all of the provisions and fulfill all of the undertakings, covenants, terms, conditions, and agreements of said Contract during the period of the original contract and any extensions thereof that may be granted by the Owner, with or without notice to the Surety; and during the life of any guaranty required under the Contract; and shall also well and truly perform and fulfill all of the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said Contract that may hereinafter be made; notice of which modifications to the surety being hereby waived; and furthermore shall pay all laborers, mechanics and subcontractors and material suppliers, and all persons who shall supply such persons or persons with provisions and supplies for the carrying on of such work, shall indemnify and save harmless the Owner from all costs and damage by reason of the Principal's default or failure to do so and shall pay the State of Washington sales and use taxes, and amounts due said State pursuant to Titles 50 and 51 of the revised code of Washington; and shall further indemnify the workmanship of materials entering into any part of the work as defined in the agreement that shall develop or be discovered within one year after the final acceptance of such work, then this obligation shall be null and void; otherwise to remain in full force and effect; provided, that the provisions of this bond shall not apply to any money loaned or advanced to the Principal or to any subcontractor or other person in the performance of any such work.

SECTION 0-08  
PERFORMANCE AND PAYMENT BOND

IN WITNESS WHEREOF, the above bounded parties have executed this instrument under their separate seals this \_\_\_\_\_ day of \_\_\_\_\_, 2009, the name and corporate seal of each corporate party hereto affixed, and these presents duly signed by its undersigned representative pursuant to authority of its governing body.

Principal: \_\_\_\_\_  
*Printed Name*

By: \_\_\_\_\_  
*Signature*

Title: \_\_\_\_\_  
*Printed*



Attest: (if Corporation)

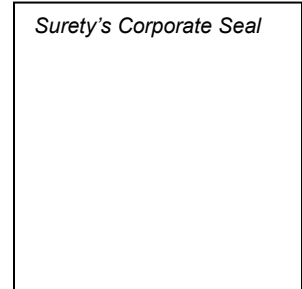
By \_\_\_\_\_

Title: \_\_\_\_\_

Surety: \_\_\_\_\_  
*Printed Name*

By: \_\_\_\_\_  
*Signature*

Title: \_\_\_\_\_  
*Printed*



Name and address of local office/agent of Surety Company is:

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

**END OF SECTION 0-08**

**SECTION 0-09  
SUBSTANTIAL COMPLETION CERTIFICATE**

PROJECT: \_\_\_\_\_ ENGINEER: \_\_\_\_\_  
TO: \_\_\_\_\_ CONTRACTOR: \_\_\_\_\_  
CONTRACT FOR: \_\_\_\_\_  
DATE OF ISSUANCE: \_\_\_\_\_ CONTRACT DATE: \_\_\_\_\_

**PROJECT OR DESIGNATED PORTION SHALL INCLUDE:**

The work performed under this Contract has been reviewed and found to be substantially complete. The Date of Substantial Completion of the Project or portion thereof designated above is hereby established as \_\_\_\_\_, which is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below or in the Contract Documents.

**DEFINITION OF DATE OF SUBSTANTIAL COMPLETION:**

The Date of Substantial Completion of the Work or designated portion thereof is the Date certified by the Engineer and Owner when construction is sufficiently complete, in accordance with the Contract Documents, so the County can occupy or utilize the Work or designated portion thereof for the use for which it is intended, as expressed in the Contract Documents.

A list of items to be completed or corrected, prepared by the Contractor and verified and amended by the Engineer and Owner is attached hereto. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. The date of commencement of warranties for items on the attached list will be the date of final payment unless otherwise agreed to in writing.

**ENGINEER**

\_\_\_\_\_

By: \_\_\_\_\_ Date: \_\_\_\_\_

The Contractor will complete or correct the Work on the list of items attached hereto within \_\_\_\_\_ days from the above Date of Substantial Completion.

**CONTRACTOR**

\_\_\_\_\_

By: \_\_\_\_\_ Date: \_\_\_\_\_

The County accepts the Work or designated portion thereof as substantially complete and will assume full possession thereof on \_\_\_\_\_.

**COUNTY**

\_\_\_\_\_

By: \_\_\_\_\_ Date: \_\_\_\_\_

END OF SECTION 0-09

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SPECIAL PROVISIONS - PART 1

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## **INTRODUCTION TO THE SPECIAL PROVISIONS**

The work on this project shall be accomplished in accordance with the Standard Specifications for Road, Bridge and Municipal Construction, 2008 edition, as issued by the Washington State Department of Transportation (WSDOT) and the American Public Works Association (APWA), Washington State Chapter (hereafter "Standard Specifications"). The Standard Specifications, as modified or supplemented by the Amendments to the Standard Specifications and these Special Provisions, all of which are made a part of the Contract Documents, shall govern all of the Work.

These Special Provisions are made up of both General Special Provisions (GSPs) from various sources, which may have project-specific fill-ins; and project-specific Special Provisions. Each Provision either supplements, modifies, or replaces the comparable Standard Specification, or is a new Provision. The deletion, amendment, alteration, or addition to any subsection or portion of the Standard Specifications is meant to pertain only to that particular portion of the section, and in no way should it be interpreted that the balance of the section does not apply.

The GSPs are labeled under the headers of each GSP, with the date of the GSP and its source, as follows:

(May 18, 2007 APWA GSP)

(August 7, 2006 WSDOT GSP)

Project specific Special Provisions are labeled under the heading of each Special Provision as follows:

(Local Agency SP)

Also incorporated into the Contract Documents by reference are:

1. *Manual on Uniform Traffic Control Devices for Streets and Highways*, currently adopted edition, with Washington State modifications, if any
2. *Standard Plans for Road, Bridge and Municipal Construction, WSDOT/APWA, current edition*

Contractor shall obtain copies of these publications, at Contractor's own expense.

**END OF INTRODUCTION**

## **SECTION 1-01 DEFINITIONS AND TERMS**

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### **1-01.3 Definitions**

*Section 1-01.3 is supplemented with the following:  
(Local Agency SP)*

All references in the Standard Specifications to the terms “State”, “Department of Transportation”, “Washington State Transportation Commission”, “Commission”, “Secretary of Transportation”, “Secretary”, “Headquarters”, and “State Treasurer” shall be revised to read “Contracting Agency”.

All references to “State Materials Laboratory” shall be revised to read “Contracting Agency designated location”.

The venue of all causes of action arising from the advertisement, award, execution, and performance of the contract shall be in the Superior Court of the County where the Contracting Agency’s headquarters are located.

#### **Additive**

A supplemental unit of work or group of bid items, identified separately in the proposal, which may, at the discretion of the Contracting Agency, be awarded in addition to the base bid.

#### **Alternate**

One of two or more units of work or groups of bid items, identified separately in the proposal, from which the Contracting Agency may make a choice between different methods or material of construction for performing the same work.

#### **Application for Payment**

The form accepted by the Engineer which is to be used by the Contractor in requesting progress and final payments and which is to include such supporting documentation as is required by the Contract Documents.

#### **Contract Documents**

See definition for “Contract”.

#### **Contract Drawings**

Contract Drawings or Drawings shall mean the same as the definition provided for the term “Contract Plans” or “Plans.”

#### **Contracting Agency**

The Contracting Agency shall mean Kitsap County, a municipal corporation, acting and existing under the laws of the State of Washington.

#### **Contract Price**

The amount payable to the Contractor under the contract provisions based on the lump sum prices, unit prices, or combination thereof, on the Bidding Schedule, with adjustments made in accordance with the Contract.

#### **Contract Time**

The period of time established by the terms and conditions of the contract within which the work must be physically completed.

#### **Dates**

##### *Bid Opening Date*

The date on which the Contracting Agency publicly opens and reads the bids.

#### *Award Date*

The date of the formal decision of the Contracting Agency to accept the lowest, responsible and responsive bidder for the work.

#### *Contract Execution Date*

The date the Contracting Agency officially binds the agency to the contract.

#### *Notice to Proceed Date*

The date stated in the Notice to Proceed on which the contract time begins.

#### *Substantial Completion Date*

The day the Engineer determines the Contracting Agency has full and unrestricted use and benefit of the facilities, both from the operational and safety standpoint, and only minor incidental work, replacement of temporary substitute facilities, or correction or repair remains for the physical completion of the total contract.

#### *Physical Completion Date*

The day all of the work is physically completed on the project. All documentation required by the contract and required by law does not necessarily need to be furnished by the Contractor by this date.

#### *Final Completion Date*

The day all the work specified in the contract is completed and all the obligations of the Contractor under the contract are fulfilled by the Contractor. All documentation required by the contract and required by law must be furnished by the Contractor before establishment of this date.

#### *Final Acceptance Date*

The date on which the Contracting Agency accepts the work as complete.

### **Invitation to Bid**

The definition is the same as that provided for the term "Call for Bids" or "Notice Inviting Sealed Proposals (Bids)" or "Advertisement for Bids."

### **L eq**

The constant sound level that, in a given situation and time period, conveys the same sound energy as the actual time-varying A-weighted sound. The time period applicable must be specified.

### **Notice of Award**

The written notice from the Contracting Agency to the successful bidder signifying the Contracting Agency's acceptance of the bid.

### **Notice to Proceed**

The written notice from the Contracting Agency or Engineer to the Contractor authorizing and directing the Contractor to proceed with the work and establishing the date on which the contract time begins.

### **Owner**

"Owner" shall have the same meaning as "Contracting Agency."

### **Performance and Payment Bond**

The definition is the same as that provided for the term "Contract Bond." The Contractor will be required to submit a Performance and Payment Bond on the Contract Agency provided form within ten (10) calendar days of receipt of Notice of Award.

### **Periodic Sound**

Sound having the following qualities: the sound level varies repetitively with a period of 1 minute or less; the peak value is more than 5 dBA above the minimum value.

**Project Data**

Samples, certifications, material specifications, installation procedures, catalog data or other materials, equipment, or other information intended to describe items to be furnished by the Contractor for the project and which are identified as required submittals in the Standard Specifications and Special Provisions.

**Quality Assurance**

A program establishing policies, procedures, standards, training, guidelines, testing, and systems necessary to provide quality in the work to meet the project requirements and accepted industry standards.

**Quality Control**

Those activities that provide confidence that materials and workmanship will meet the requirements of the contract to fulfill the project objectives.

**Shop Drawings**

Drawings prepared by the Contractor or his/her suppliers or subcontractors to describe detailed dimensions and materials of items to be furnished for the work. Typical examples are fabricated pipe sections or fittings, reinforcement placement and bending drawings, formwork drawings, and detailed equipment drawings.

**Sound Level**

The sound as measured in decibels by B&K Vibration and Sound Tester Kit manufactured by Bruel & Kjaer Instruments, Inc., Marlborough, MA; a Noise Monitor Model 1565-A manufactured by Genrad, Waltham, MA; or approved equal.

**Sound Level Meter**

A sound level measuring device, either Type I or Type II, as defined by American National Standards Institute Specifications, Section 1.4-1983 (R1997).

**Total Bid Price**

The sum of all bid prices offered by the bidder as set forth in the Bidding Schedule on the Proposal form.

**Traffic**

Both vehicular and non-vehicular traffic, such as pedestrians, bicyclists, wheelchairs, and equestrian traffic.

**Work Directive**

A written directive to the Contractor, recommended by the Engineer, issued on or after the effective date of the Notice to Proceed and signed by the Contracting Agency's Representative, ordering an addition, deletion or revision in the Work, or responding to differing or unforeseen physical conditions under which the Work is to be performed, or to emergencies. A Work Directive may or may not change Contract Price or Contract Time, but is evidence that the parties expect that the change directed or documented by the Work Directive will be incorporated in a subsequently issued Change Order following negotiations of the parties as to its effect, if any, on the Contract Price or Contract Time. Work Directive is also referred to as Field Directive.

END OF SECTION 1-01

## **1-02 BID PROCEDURES AND CONDITIONS**

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### **1-02.1 Prequalification of Bidders**

*Section 1-02.1 is deleted and replaced with the following:  
(Local Agency SP)*

### **1-02.1 Bidder Responsibility Criteria**

It is the intent of the Contracting Agency to award a contract to the low responsible bidder. Before award, the bidder must meet the following bidder responsibility criteria to be considered a responsible bidder. The bidder will be required by the Contracting Agency to submit documentation demonstrating compliance with the criteria. The bidder must:

1. At the time of bid submittal, have a current certificate of registration as a contractor in compliance with Chapter 18.27 RCW;
2. Have a current Washington Unified Business identifier (UBI) number;
3. If applicable, have:
  - a. Industrial insurance coverage for the bidder's employees working in Washington as required in Title 51 RCW;
  - b. A Washington Employment Security Department number as required in Title 50 RCW;
  - c. A Washington Department of Revenue state excise tax registration number as required in Title 82 RCW;
4. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065(3).

### **1-02.1(2) Subcontractor Responsibility**

The Contractor shall include the language of this section in each of its first tier subcontracts, and shall require each of its subcontracts to include the same language of this section in each of their subcontracts, adjusting only as necessary the terms used for the contracting parties. Upon request of the Contracting Agency, the Contractor shall promptly provide documentation to the Contracting Agency demonstrating that the subcontractor meets the subcontractor responsibility criteria below. The requirements of this section apply to all subcontractors regardless of tier.

1. At the time of subcontract bid submittal, have a current certificate of registration as a contractor in compliance with Chapter 18.27 RCW;
2. Have a current Washington Unified Business identifier (UBI) number;
3. If applicable, have:
  - a. Industrial insurance coverage for the subcontractor's employees working in Washington as required in Title 51 RCW;
  - b. A Washington Employment Security Department number as required in Title 50 RCW;
  - c. A Washington Department of Revenue state excise tax registration number as required in Title 82 RCW;
  - d. An electrical contractor license, if required by Chapter 19.28 RCW.
4. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065(3).

### **1-02.1(1) Supplemental Bidder Responsibility Criteria**

In addition to the bidder responsibility criteria above, the Contracting Agency has established:

1. Supplemental bidder responsibility criteria that the bidder must meet;
2. The documentation that must be submitted by the bidder that the Contracting Agency will use to evaluate compliance with the Supplemental Bidder Responsibility Criteria along with the period of time the bidder has to submit such documentation;
3. The deadline for a bidder to appeal a determination that they are not a responsible bidder.

### **1-02.1(1)A Criteria**

The bidder must also meet the following relevant supplemental bidder responsibility criteria applicable to the project:

1. Bidder shall have been in business as an underground pipeline construction contractor under its present name for a minimum of two (2) years;
2. Bidder shall not have been disqualified from entering a construction contract by another governmental agency in the last two (2) years;
3. Bidder shall not have declared bankruptcy or been in receivership in the last seven (7) years;
4. Bidder shall have successfully completed projects of a similar size and scope as required by the Contract Documents for this project. In evaluating whether the project were “successfully completed,” the Contracting Agency may check references for the previous projects and may evaluate the bidder’s performance including but not limited to, the following areas:
  - a. Quality control;
  - b. Safety record;
  - c. Timeliness of performance;
  - d. Use of skilled personnel;
  - e. Management of subcontractors;
  - f. Availability of and use of appropriate equipment;
  - g. Compliance with contract documents;
  - h. Management of submittals process, change orders and closeout.
5. Bidder’s designated project manager and superintendent for this project shall have been successfully completed projects of a similar size and scope as required by the Contract Documents for this project.

For purposes of meeting this criterion, the Contracting Agency has determined that “similar size and scope” means municipal public works projects completed within the last seven (7) years that have involved (Separate projects may be used to demonstrate compliance with Items 1 and 2 below):

1. The installation of at least 3,000 feet of 8-inch or larger sanitary sewer main with at least 500 feet of sanitary sewer mains at depths greater than 15 feet (bidder shall have successfully completed at least three (3) projects of this nature);
2. The installation of at least 3,000 feet of 6-inch or larger diameter HDPE pipe using thermal fusion joining the pipe (bidder shall have successfully completed at least two (2) projects of this nature);
3. A construction cost in excess of \$1,000,000 (bidder shall have successfully completed at least three (3) projects of this nature).

### **1-02.1(1)B Documentation**

As evidence the bidder meets the responsibility criteria above, the two lowest bidders must submit the following documentation to the Contracting Agency within 48 hours of the bid submittal deadline. The Contracting Agency reserves the right to request such documentation from other bidders also. In the event a bidder refuses to provide the requested information, then the Contracting Agency may find the bidder non-responsible.

1. Project owner’s name and contact information for the project owner’s representative;
2. Awarded contract amount;
3. Final contract amount;
4. A description of the scope of the project and how the project is similar to this project;
5. The bidder’s assessment of its performance on each project for each of the performance areas described in Item 4a through 4h above

The basis for evaluation of Bidder compliance with these supplemental criteria shall be any documents or facts obtained by the Contracting Agency (whether from the Bidder or third parties) which any reasonable owner would rely on for determining such compliance, including but not limited to: (i) financial, historical, or operational data from the Bidder; (ii) information obtained directly by the Contracting Agency from owners for whom the Bidder has worked, or other public agencies or private enterprises; and (iii) any additional information obtained by the Contracting Agency which is believed to be relevant to the matter.

**1-02.1(1)C Appeals**

If the Contracting Agency determines the bidder does not meet the bidder responsibility above and is therefore not a responsible bidder, the Contracting Agency shall notify the bidder in writing with the reasons for its determination. If the bidder disagrees with this determination, it may appeal the determination within 24 hours of receipt of the Contracting Agency’s determination by presenting additional information to the Contracting Agency. The Contracting Agency will consider the additional information before issuing its final determination. If the final determination affirms that that bidder is not responsible, the Contracting Agency will not execute a contract with any other bidder until two (2) business days after the bidder determined to be not responsible has received the final determination.

**1-02.1(1)D Other Conditions**

The other Divisions of these Special Provisions may contain qualifications for select aspects of the work. While the Contractor will be required to conform to those additional qualifications, they are not criteria that will be evaluated as a condition for determining if the bidder is responsible.

If two or more prospective bidders desire to bid jointly as a Joint Venture on a single contract, each must be deemed qualified, as provided above, and they must also include with the bid proposal packet an agreement to Joint Venture. The Joint Venture is then treated as a new firm and qualified as such. However, this Joint Venture and any of its members are subject to the conditions as stated elsewhere within these specifications. Any agreement to Joint Venture required to be filed shall be signed by each of the bidders and must specify each individual who is authorized to execute proposals, contracts, bond and other documents on behalf of the Joint Venture. If any of the bidders is a corporation, the agreement must be accompanied by a resolution of the corporation authorizing such Joint Venture agreement and designating the officer(s) authorized to sign such Joint Venture agreement or contract on behalf of such corporation.

**1-02.2 Plans and Specifications**

*Section 1-02.2 is deleted and replaced with the following:  
(Local Agency SP)*

Information as to where Bid Documents can be obtained or reviewed will be found in the Call for Bids (Invitation to Bid) for the work.

After award of the contract, plans and specifications will be issued to the Contractor at no cost as detailed below:

To Prime Contractor	No. of Sets	Basis of Distribution
Reduced plans (11" x 17")	5	Furnished automatically upon award.
Large plans (e.g., 22" x 34")	2	Furnished automatically upon award.
Contract Provisions	5	Furnished automatically upon award.

Additional copies of the Contract Plans and Contract Provisions may be purchased by the Contractor by payment of the cost of reproduction.

**1-02.4(2) Subsurface Information**

*Section 1-02.4(2) is deleted and replaced with the following:  
(Local Agency SP)*

The Contracting Agency has made limited subsurface investigations and those reports of explorations and tests of subsurface conditions at or contiguous to the site that the Engineer used in preparing the Contract Documents are available for review.

The Contractor may rely upon the general accuracy of the technical data (borings logs, soil tests) contained in such reports, but such reports are not part of the Contract Documents.

Except for such reliance on such technical data, the Contractor may not rely upon or make any claim against the Contracting Agency or Engineer with respect to:

1. The completeness of such reports for Contractor's purposes, including, but not limited to any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
2. Other data, interpretations, opinions, and information contained in such reports; or
3. Any Contractor interpretation of, or conclusion, drawn from such technical data or any such other data, interpretations, opinions, or information.

The Contracting Agency and Engineer specifically makes no representations, guarantees, or warranties that the moisture conditions, water table, soils or proportion of soils will not vary from those found during the investigation or between specific borings.

No claim of the Contractor, under this clause, shall be allowed unless the Contractor complied with the provisions of Section 1-09.11.

#### **1-02.5 Proposal Forms**

*Section 1-02.5 is deleted and replaced with the following:  
(October 1, 2005 APWA GSP)*

At the request of a bidder, the Contracting Agency will provide a proposal form for any project on which the bidder is eligible to bid.

The proposal form will identify the project and its location and describe the work. It will also list estimated quantities, units of measurement, the items of work, and the materials to be furnished at the unit bid prices. The bidder shall complete spaces on the proposal form that call for, but are not limited to, unit prices; extensions; summations; the total bid amount; signatures; date; and, where applicable, retail sales taxes and acknowledgment of addenda; the bidder's name, address, telephone number, and signature; the bidder's D/M/WBE commitment, if applicable; a State of Washington Contractor's Registration Number; and a Business License Number, if applicable. Bids shall be completed by typing or shall be printed in ink by hand, preferably in black ink. The required certifications are included as part of the proposal form.

The Contracting Agency reserves the right to arrange the proposal forms with alternates and additives, if such be to the advantage of the Contracting Agency. The bidder shall bid on all alternates and additives set forth in the proposal forms unless otherwise specified.

Any correction to a bid made by interlineation, alteration, or erasure, shall be initialed by the signer of the bid. The bidder shall make no stipulation on the Bid Form, nor qualify the bid in any manner.

A bid by a corporation shall be executed in the corporate name, by the president or a vice president (or other corporate officer accompanied by evidence of authority to sign).

A bid by a partnership shall be executed in the partnership name, and signed by a partner. A copy of the partnership agreement shall be submitted with the Bid Form if any D/M/WBE requirements are to be satisfied through such an agreement.

A bid by a joint venture shall be executed in the joint venture name and signed by a member of the joint venture. A copy of the joint venture agreement shall be submitted with the Bid Form if any D/W/MBE requirements are to be satisfied through such an agreement.

#### **1-02.6 Preparation of Proposal**

*The second paragraph of Section 1-02.6 is supplemented with the following:  
(October 10, 2008 APWA GSP)*

4. If a minimum bid amount has been established for any item, the unit or lump sum price must equal or exceed the minimum amount stated.

#### **1-02.7 Bid Deposit**

*Section 1-02.7 is supplemented with the following:  
(Local Agency SP)*

Bid bonds shall contain the following:

1. Contracting Agency-assigned number for the project;
2. Name of the project;
3. The Contracting Agency named as obligee;
4. The amount of the bid bond stated either as a dollar figure or as a percentage which represents five percent of the maximum bid amount that could be awarded;
5. Signature of the bidder's officer empowered to sign official statements. The signature of the person authorized to submit the bid should agree with the signature on the bond, and the title of the person must accompany the said signature;
6. The signature of the surety's officer empowered to sign the bond and the power of attorney.

Bid bonds shall be issued by a surety company licensed to do business in the State of Washington. Bidder shall use the bond form included in the Contract Provisions.

#### **1-02.9 Delivery of Proposal**

*The first paragraph of Section 1-02.9 is revised to read as follows:  
(October 1, 2005 APWA GSP)*

Each proposal shall be submitted in a sealed envelope, with the Project Name and Project Number as stated in the Advertisement for Bids clearly marked on the outside of the envelope, or as otherwise stated in the Bid Documents, to ensure proper handling and delivery.

#### **1-02.10 Withdrawal or Revision of Proposal**

*Section 1-02.10 is supplemented with the following:  
(Local Agency SP)*

No oral, fax, telephone, or telegraphic proposals or modifications will be considered or accepted.

#### **1-02.13 Irregular Proposals**

*Item 1 in Section 1-02.13 is revised to read as follows:  
(March 25, 2009 APWA GSP)*

1. A proposal will be considered irregular and will be rejected if:
  - a. The bidder is not prequalified when so required;
  - b. The authorized proposal form furnished by the Contracting Agency is not used or is altered;
  - c. The completed proposal form contains any unauthorized additions, deletions, alternate bids, or conditions;
  - d. The bidder adds provisions reserving the right to reject or accept the award, or enter into the contract;
  - e. A price per unit cannot be determined from the bid proposal;
  - f. The proposal form is not properly executed;

- g. The bidder fails to submit or properly complete a subcontractor list, if applicable, as required in Section 1 02.6.
- h. The bidder fails to submit or properly complete a Disadvantaged, Minority or Women's Business Enterprise Certification, if applicable, as required in Section 1-02.6;
- i. The bid proposal does not constitute a definite and unqualified offer to meet the material terms of the bid invitation, or
- j. More than one proposal is submitted for the same project from a Bidder under the same or different names.

**1-02.14 Disqualification of Bidders**

*Section 1-02.14 is deleted and replaced with the following:  
(Local Agency SP)*

A Bidder will be deemed not responsible if:

1. The Bidder does not meet the mandatory bidder responsibility criteria in RCW 39.04.350(1), as amended; or
2. Evidence of collusion exists with any other Bidder or potential Bidder. Participants in collusion will be restricted from submitting further bids; or
3. The Bidder, in the opinion of the Contracting Agency, is not qualified for the work or to the full extent of the bid, or to the extent that the bid exceeds the authorized prequalification amount as may have been determined by a prequalification of the Bidder; or
4. An unsatisfactory performance record exists based on past or current Contracting Agency work or for work done for others, as judged from the standpoint of conduct of the work; workmanship; or progress; affirmative action; equal employment opportunity practices; termination for cause; or Disadvantaged Business Enterprise, Minority Business Enterprise, or Women's Business Enterprise utilization; or
5. There is uncompleted work (Contracting Agency or otherwise) which in the opinion of the Contracting Agency might hinder or prevent the prompt completion of the work bid upon; or
6. The Bidder failed to settle bills for labor or materials on past or current contracts, unless there are extenuating circumstances acceptable to the Contracting Agency; or
7. The Bidder has failed to complete a written public contract or has been convicted of a crime arising from a previous public contract, unless there are extenuating circumstances acceptable to the Contracting Agency; or
8. The Bidder is unable, financially or otherwise, to perform the work, in the opinion of the Contracting Agency; or
9. There are any other reasons deemed proper by the Contracting Agency; or
10. The Bidder fails to meet the Project-specific supplemental bidder responsibility criteria listed in Section 1-02.1.

**1-02.15 Pre Award Information**

*Section 1-02.15 is revised to read as follows:  
(October 1, 2005 APWA GSP)*

Before awarding any contract, the Contracting Agency may require one or more of these items or actions of the apparent lowest responsible bidder:

1. A complete statement of the origin, composition, and manufacture of any or all materials to be used,
2. Samples of these materials for quality and fitness tests,

3. A progress schedule (in a form the Contracting Agency requires) showing the order of and time required for the various phases of the work,
4. A breakdown of costs assigned to any bid item,
5. Attendance at a conference with the Engineer or representatives of the Engineer,
6. Obtain, and furnish a copy of, a business license to do business in the city or county where the work is located.
7. A copy of State of Washington Contractor's Registration, or
8. Any other information or action taken that is deemed necessary to ensure that the bidder is the lowest responsible bidder.

#### **1-02.16 Addenda**

*Section 1-02.16 is added as the following:  
(Local Agency SP)*

Where appropriate, responses to questions, inquiries or requests for additional information or for substitution of proposed material will be issued in the form of Addenda, and copies of each addendum will be issued to all prospective bidders of record. Additionally, addenda are on file at the Kitsap County Purchasing Office. During the bidding period, prospective bidders will be advised by Addendum of additions to, deletions from or changes in the requirements of the contract documents. Kitsap County will not be responsible for the authenticity or correctness of oral interpretations of contract documents or for information obtained in any other manner than through the media of Addenda. Bidders shall acknowledge receipt of Addendum in their bid proposals and each Addendum shall be considered a part of the Contract Documents. Failure to acknowledge receipt of any Addenda issued will invalidate a proposal as incomplete.

Should a bidder find discrepancies in, or omissions from, the drawings or specifications, or should the bidder be in doubt as to their meaning, the bidder shall at once notify the Contracting Agency. If appropriate, the Contracting Agency will send a written instruction to all bidders in the form of an Addendum. Neither the Contracting Agency nor the Engineer may be held responsible for any oral instruction. Questions received by the Contracting Agency less than seventy-two (72) hours before bids close may not be answered. All addenda issued prior to the time of bid closing are incorporated into the contract.

Should a bidder have a Request for Clarification or find discrepancies, ambiguities or omissions in the drawings or specifications, or should a bidder be in doubt as to their meaning, bidder should notify Barbara Zaroff, Project Manager, at (360) 981-1767 or email [bzaroff@co.kitsap.wa.us](mailto:bzaroff@co.kitsap.wa.us).

Interpretations, corrections and changes of the Bidding documents will be made by addendum only through the Kitsap County Purchasing Office. Interpretations, corrections and changes in the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon them.

Any variances to the contract documents shall not be accepted unless agreed to by the County in writing. Substitutions will not be considered until after award of contract.

**END OF SECTION 1-02**

## **SECTION 1-03 AWARD AND EXECUTION OF CONTRACT**

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### **1-03.1 Consideration of Bids**

*The first paragraph of Section 1-03.1 is revised to read as follows:  
(January 23, 2006 APWA GSP)*

After opening and reading proposals, the Contracting Agency will check them for correctness of extensions of the prices per unit and the total price. If a discrepancy exists between the price per unit and the extended amount of any bid item, the price per unit will control. If a minimum bid amount has been established for any item and the bidder's unit or lump sum price is less than the minimum specified amount, the Contracting Agency will unilaterally revise the unit or lump sum price, to the minimum specified amount and recalculate the extension. The total of extensions, corrected where necessary, including sales taxes where applicable and such additives and/or alternates as selected by the Contracting Agency, will be used by the Contracting Agency for award purposes and to fix the Awarded Contract Price amount and the amount of the contract bond.

### **1-03.2 Award of Contract**

*Section 1-03.2 is supplemented with the following:  
(Local Agency SP)*

The County shall have the right to accept alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the low bidder on the basis of the sum of the Base Bid and any Alternate's accepted.

### **1-03.3 Execution of Contract**

*Section 1-03.3 is revised to read as follows:  
(October 1, 2005 APWA GSP)*

Copies of the Contract Provisions, including the unsigned Form of Contract, will be available for signature by the successful bidder on the first business day following award. The number of copies to be executed by the Contractor will be determined by the Contracting Agency.

Within ten (10) calendar days after the award date, the successful bidder shall return the signed Contracting Agency-prepared contract, an insurance certification as required by Section 1-07.18, and a satisfactory bond as required by law and Section 1-03.4. Before execution of the contract by the Contracting Agency, the successful bidder shall provide any pre-award information the Contracting Agency may require under Section 1-02.15.

Until the Contracting Agency executes a contract, no proposal shall bind the Contracting Agency nor shall any work begin within the project limits or within Contracting Agency-furnished sites. The Contractor shall bear all risks for any work begun outside such areas and for any materials ordered before the contract is executed by the Contracting Agency.

If the bidder experiences circumstances beyond their control that prevents return of the contract documents within the calendar days after the award date stated above, the Contracting Agency may grant up to a maximum of ten (10) additional calendar days for return of the documents, provided the Contracting Agency deems the circumstances warrant it.

### **1-03.4 Contract Bond**

*The first paragraph of Section 1-03.4 is revised to read as follows:  
(October 1, 2005 APWA GSP)*

The successful bidder shall provide an executed contract bond for the full contract amount. This contract bond shall:

1. Be on a Contracting Agency-furnished form;
2. Be signed by an approved surety (or sureties) that:

- a. Is registered with the Washington State Insurance Commissioner, and
  - b. Appears on the current Authorized Insurance List in the State of Washington published by the Office of the Insurance Commissioner,
3. Be conditioned upon the faithful performance of the contract by the Contractor within the prescribed time;
  4. Guarantee that the surety shall indemnify, defend, and protect the Contracting Agency against any claim of direct or indirect loss resulting from the failure:
    - a. Of the Contractor (or any of the employees, subcontractors, or lower tier subcontractors of the Contractor) to faithfully perform the contract, or
    - b. Of the Contractor (or the subcontractors or lower tier subcontractors of the Contractor) to pay all laborers, mechanics, subcontractors, lower tier subcontractors, material person, or any other person who provides supplies or provisions for carrying out the work;
  5. Be accompanied by a power of attorney for the Surety's officer empowered to sign the bond; and
  6. Be signed by an officer of the Contractor empowered to sign official statements (sole proprietor or partner). If the Contractor is a corporation, the bond must be signed by the president or vice-president, unless accompanied by written proof of the authority of the individual signing the bond to bind the corporation (i.e., corporate resolution, power of attorney or a letter to such effect by the president or vice-president).

**END OF SECTION 1-03**

## **SECTION 1-04 SCOPE OF THE WORK**

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### **1-04.2 Coordination of Contract Documents, Plans, Special Provisions, Specifications, and Addenda**

The second paragraph of Section 1-04.2 is revised to read as follows:  
October 1, 2005 APWA GSP)

Any inconsistency in the parts of the contract shall be resolved by following this order of precedence (e.g., 1 presiding over 2, 2 over 3, 3 over 4, and so forth):

1. Addenda,
2. Proposal Form,
3. Special Provisions, including APWA General Special Provisions, if they are included,
4. Contract Plans,
5. Amendments to the Standard Specifications,
6. WSDOT Standard Specifications for Road, Bridge and Municipal Construction,
7. Contracting Agency's Standard Plans (if any), and
8. WSDOT Standard Plans for Road, Bridge, and Municipal Construction.

### **1-04.4 Changes**

*The seventh paragraph of Section 1-04.4 is revised to read as follows:  
(Local Agency SP)*

The Contractor shall proceed with the Work upon Receiving:

1. A written change order approved by the Engineer, or
2. A work directive from the Project Engineer before actually receiving the written change order.

#### **1-04.4(2) Work Directive (New Section)**

*Section 1-04.4(2) is added as the following:  
(Local Agency SP)*

Where situations involve changes in the Work that might delay the Project, if not processed expeditiously, the changed work shall be initiated through use of a Work Directive. The Work Directive is not a Change Order, but only a directive issued by the Engineer to proceed with work that may be included in a subsequent Change Order.

The Engineer initiates the form. The form includes the project name, number, contract number, and Contractor name. A reason for the change and a description of the desired Work shall be included in sufficient detail to fully describe the required Work and necessity for the change. A method of payment and estimated cost shall be included along with any modifications to the Contract Time.

Once the Engineer has completed and signed the form, copies of the form and any supporting design criteria, sketches, modified drawings, or specifications attached to the form will be sent to the Contracting Agency's representative for approval. Once authorized by the Contracting Agency's representative, the Work Directive will be forwarded to the Contractor for signature and returned to the Engineer. The Contractor shall then perform the work described in the work directive.

As Work directed by the Work Directive progresses, Contractor shall submit to the Engineer any documentation required by the Work Directive on the day that work is performed for inclusion in a subsequent Change Order. Documentation may include records of force account work, material invoices, as-built data or quality control documentation.

#### **1-04.6 Variation in Estimated Quantities**

*The first paragraph of Section 1-04.6 is deleted and replaced with the following:  
(Local Agency SP)*

For certain items, quantities have been entered into the Proposal only to provide a common proposal for bidders. Actual quantities will be determined in the field as the work progresses, and will be paid at the original unit bid price, regardless of final quantity. These bid items, identified by the term "allowance" in their title, shall not be subject to the provisions of 1-04.6 of the Standard Specifications.

For all other items, payment to the Contractor will be made only for the actual quantities of work performed and accepted in conformance with the contract. When the accepted quantity of work performed under a unit item varies from the original proposal quantity, payment will be at the unit contract price for all work unless the total accepted quantity of any contract item, adjusted to exclude added or deleted amounts included in change orders accepted by both parties, increases or decreases by more than 25 percent from the original proposal quantity, and if the total extended bid price for that item at time of award is equal to or greater than 10 percent of the total contract price at time of award. In that case, payment for contract work may be adjusted as described herein:

#### **1-04.11 Final Cleanup**

*Section 1-04.11 is deleted and replaced with the following:  
(Local Agency SP)*

#### **1-04.11 Cleanup**

The Contractor shall be responsible for ongoing and final cleaning of the project site. The Contractor shall continually, from the first day of work on the project to the last, include in his operations sufficient personnel, equipment, and materials specifically assigned to cleanup all areas which are affected or disturbed by the work operations.

#### **1-04.11(1) Daily Cleanup**

The Contractor shall cause all disturbed areas to be cleaned of all debris and excess construction materials, to be temporarily or permanently graded and finished to smooth lines and grades, to be maintained free of dust, to control surface runoff such that there is no soil erosion or contaminated runoff onto adjacent areas or drainages, and to not have any detrimental impacts. All such cleanup shall be conducted to the satisfaction of the Contracting Agency.

The Contractor shall clean all roadways, streets, sidewalks, and other facilities of all material and debris that are dropped or otherwise deposited thereon as a result of the Contractor's operations. All such areas shall be cleaned at the conclusion of each day's operations and at such other times as ordered by the Contracting Agency.

In addition, the Contractor shall use water for dust control on paved, surfaced, or unimproved streets or roadways as may be required to prevent inconvenience to the public. The Contractor shall also use water, if necessary, to remove mud and other debris from streets and roadways.

If the roadways and facilities are not properly or promptly cleaned and the conditions so warrant, as determined by Contracting Agency, the Contractor shall provide facilities to remove soil from truck or other equipment tires or between dual wheels or outside of truck beds before trucks or equipment may be allowed to travel over streets.

Contractor shall protect the generator, control, and all other electrical equipment in Pump Station 34 from dust and damage at all times during the work. If any equipment in the pump station not slated for replacement is damaged by the Contractor's operations, the Contractor shall be responsible for the repair/replacement of said equipment. The Contracting Agency reserves the right to complete these repairs using its maintenance crews.

#### **1-04.11(2) Final Cleanup**

The Contractor shall perform final cleanup of the project site to the satisfaction of the Contracting Agency after completion of all work and prior to Final Acceptance. Such cleanup shall include, but not be limited

to, removal of all rubbish, surplus materials, construction materials, equipment, and debris. Oversize rock, stumps, brush, and other extraneous materials shall be removed from the project site and disposed of in a lawful manner.

Roadway surfaces shall be thoroughly broom cleaned and washed to remove all material or debris which was deposited on the surfaces.

The Contractor shall not remove temporary warning, regulatory or guide signs until directed to do so by the Contracting Agency.

**1-04.11(3) Final Cleanup and Restoration Measurement and Payment**

No unit of measurement shall apply to the lump sum price for final cleanup and restoration.

Payment shall be made in accordance with Section 1-04.1 for the following bid items:

Final Cleanup and Restoration	Per Lump Sum
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Payment for "Final Cleanup and Restoration" shall include the cleanup and restoration of all paved and unpaved surfaces and areas disturbed by the construction including but not limited to, finish grading, replacing topsoil, replacement of shrubbery, fences, signs, and other landscaping features and improvements in public right of way and in easements, and all other work necessary to restore the areas disturbed by construction to conditions equal to, or better than that existed prior to construction. Top soiling, seeding, fertilizing, and mulching of the Lift Station 5 site shall be covered under the bid items Top Soil and Seed, Fertilizer and Mulch.

**1-04.11(3) Corrective Action**

Any violation of the above requirements, as determined by the Contracting Agency, will be sufficient grounds for the Contracting Agency to order the cleanup work to be performed by others. The costs for such corrective action shall be deducted from any monies due or to become due to the Contractor.

**1-04.12 Temporary Facilities (New Section)**

*Section 1-04.12 is added as the following:  
(Local Agency SP)*

The Contractor shall furnish for the duration of the project a temporary field trailer for his use within a one-half mile radius of the project site. Temporary facility installation shall meet the construction safety requirements of OSHA, State, and other governing agencies and the noise limitations shall meet the requirements in Section 1-07.5(6) in the Special Provisions. Contractor shall be responsible for providing telephones, fax machines, and copier if necessary and shall pay for installation and monthly service charges for all utilities, including telephone, copying and FAX machines. Provide and pay for equipment service contracts for all furnished equipment.

Upon completion of the work, and subject to approval of the Engineer, the Contractor shall completely remove all temporary facilities. Temporary utilities shall be removed to the temporary service connection point, and capped or terminated.

All disturbed surfaces shall be restored to the condition which existed prior to installation of temporary facilities or utilities. All roadway surfaces or other improvements which have been damaged by construction activities shall be repaired or replaced by the Contractor, as directed.

**1-04.12(1) Space Allocation**

On-site space is limited. Available space will be allocated by the Engineer. Arrangements for additional space required for Contractor's staging and storage of materials and equipment (in addition to that allocated), shall be made for locations off site as described below.

Due to the limited space available outside project limits (and within the existing right of way and temporary construction easements), the Contractor shall make the necessary arrangements with nearby property owner(s) in order to establish an area for the temporary facilities and storing of equipment and materials. A few vacant lots are located adjacent to the project site. All costs associated with third

parties arrangements shall be considered incidental to the construction and shall be included in the costs of other items of work involved in the project.

**1-04.12(2) Contractor's Work Area**

Limit operations and storage of equipment and materials to the areas designated on the Plans and by the Engineer. Maintain the area during construction. Proceed with the work in an orderly manner, maintaining the construction site free of debris and unnecessary equipment or materials. Store materials on pallets or racks, off the ground, and store in a manner to allow access for inspection.

**1-04.12(3) Engineer/Owner Facilities**

The Contracting Agency/Engineer will require a separate space within the Contractor's on-site construction office/trailer throughout the contract period. Space shall not be less than 10 feet by 10 feet. Provide office with suitable heat, ventilation/air conditioning, lights, and electrical outlets.

Furnish with the two standard chairs, a layout table, and a wastebasket. Equipment shall be less than 3 years old, in good working condition and reliable. Equipment that is not in good working condition or reliable shall be immediately replaced.

Arrange and pay for cleaning of office, and emptying and cleaning of temporary sanitary facilities on a weekly basis.

Contracting Agency will provide computer and software for use by Contracting Agency's inspectors.

All costs for providing these facilities shall be considered incidental to the Contract and included in other bid items. No separate payment shall be made.

**1-04.12(4) Temporary Water for Construction and Testing**

Contractor shall be responsible for obtaining a source of temporary water for construction and testing and potable water required by construction personnel. Provide water from off-site sources as necessary. Contractor shall determine availability and make arrangements, and pay all costs, with the local utility for temporary construction water, including metering equipment.

**1-04.12(5) Temporary Electric Power**

Verify existing electric service and provide temporary electric power, if required, for use during construction. Electric power should be available at or near the site. The Contractor shall determine the type and amount available and make arrangements with the local utility for obtaining temporary electric power service, including metering equipment. The Contractor shall provide temporary lighting at least to meet all applicable safety requirements to allow erection, application or installation of materials and equipment, and observation or inspection of the Work. Meet safety requirements of OSHA, State and other governing agencies for electrical installations. Facilities for providing temporary electric power shall meet all noise pollution requirements of Section 1-07.5(5) in the Special Provisions.

The Contractor shall provide all electrical power required for construction, testing, general and security lighting, and all other purposes whether supplied through temporary or permanent facilities.

**1-04.12(6) Sanitary Facilities**

The Contractor shall provide suitable chemical toilets or water closets at appropriate locations within the site of the work in compliance with the requirements of Section 1-07.4 of the Standard Specifications. At the end of the job such toilets shall be removed completely.

**1-04.12(7) Temporary Telephone Service**

Furnish onsite telephone service, including fax, during the period of construction of the Contract. Verify existing service and make all arrangements with the local telephone utility for providing service as required. Provide service to the construction trailer(s).

**1.04.12(8) Site Access and Parking**

All vehicles shall be parked in such a manner so as to not encroach on public right-of-way or be a traffic hazard. Ready access to and through the site by emergency vehicles shall be maintained at all times.

The Contractor shall be responsible for control of parking by all of the Contractor's and subcontractor's work force to assure compliance. The Contractor shall anticipate that there may not be sufficient parking space for all of the work force in the project area. If this is the case, Contractor shall arrange for carpooling and/or off-site parking and shuttle service, as necessary.

**1.04.12(9) Fences and Barriers**

The Contractor shall provide temporary six-foot-high chain link fencing and gates as necessary to secure work site, staging and storage areas and existing facilities from unauthorized access.

Safety barriers, fencing, barricades and steel plates shall be installed and maintained by the Contractor as required by the permitting agency and applicable safety regulations to protect the public and prevent access to excavations by unauthorized persons. The Contractor shall be solely responsible for site safety and protection of the public.

**1.04.12(10) Removal**

Upon completion of the work, and subject to approval of the Engineer, the Contractor shall completely remove all temporary facilities. Temporary utilities shall be removed to the temporary service connection point, and capped or terminated.

All disturbed surfaces shall be restored to the condition which existed prior to installation of temporary facilities or utilities. All roadway surfaces or other improvements which have been damaged by construction activities shall be repaired or replaced by the Contractor, as directed.

**END OF SECTION 1-04**

## **SECTION 1-05 CONTROL OF WORK**

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### **1-05.2 Authority of Assistants and Inspectors**

*Section 1-05.2 is supplemented with the following:  
(Local Agency SP)*

The Contracting Agency or the Contracting Agency's Representative shall have the right to inspect and obtain copies of all written licenses, permits, or approvals issued by any governmental entity or agency to the Contractor, its delegates, or subcontractors, which are applicable to the performance of this Contract, and to inspect all Work and Materials for conformity with the Contract terms. The Contractor shall be responsible for ensuring the Work and materials conform to the Contract terms even if the Contracting Agency or the Contracting Agency's Representative conducts any inspection of the same.

### **1-05.4 Conformity With and Deviations from Plans and Stakes**

*Section 105.4 is supplemented with the following:  
(Local Agency SP)*

#### **1-05.4(1) Owner-Furnished Reference Points (New Section)**

The Contracting Agency has established survey control for construction purposes. This survey control information is provided on the drawings.

The Contractor shall protect and preserve survey control points. If these points are disturbed by the Contractor, the Contractor shall pay all costs associated for re-establishment. The Contractor shall have the work performed by Contractor's surveyor. Delays resulting from the destruction and re-establishment of survey control points shall not constitute the basis for additional compensation or extensions to the Contract Time.

#### **1-05.4(2) Contractor-Furnished Surveying (New Section)**

The Contractor shall provide all necessary construction surveys to complete the Work as required by the Contract Documents. The Contractor shall use competent and experienced survey personnel, and suitable equipment necessary for establishing, checking, and maintaining points, lines and grades. Contractor shall employ or retain a registered Washington Land Surveyor to perform and/or oversee and direct construction surveys, as well as surveys to verify/document location and elevation of all completed facilities for record drawings. Minor surveying, such as grade staking may be performed by the Contractor's personnel with approval of the Engineer.

#### **1-05.4(3) Survey Submittals (New Section)**

Contractor shall submit the qualifications and resume(s) of the proposed survey firm and surveyor(s) along with a description of the survey efforts to be performed.

#### **1-05.4(4) Survey Records (New Section)**

Field books shall be hard-back field books, such as K&E 82-0056 or similar. The Contractor shall maintain on-site a copy of all field surveying records prepared by surveyor. These records shall be available for review by the Engineer upon request. At the conclusion of the work, the Contractor shall provide the Contracting Agency with a copy of the surveying records.

#### **1-05.4(5) Resurveys (New Section)**

Any claim by the Contractor for extra compensation by reason of alterations or reconstruction work allegedly due to error in Contracting Agency-Furnished survey control, will not be allowed unless the original control points still exist and are proven to be incorrect, or unless other satisfactory substantiating evidence to prove the error is furnished to the Engineer.

#### **1-05.4(6) Construction Photographs or Video (New Section)**

Prior to and after construction, the Contractor shall provide still photos, or alternatively, audio color video of project area and adjacent site conditions. Filming plan shall be coordinated with the Contracting

Agency's Representative. Wide angle and zoom/telephoto lenses shall be used as appropriate for the situations. Filming shall be done at reasonable intervals along the project so sufficient detail and coverage of the area is provided (approximately every 200 feet, intersections, staging areas, pump station sites, etc). Filming shall be done from differing directions or angles to sufficiently show/depict the project area's conditions.

Photographs shall be done by a qualified commercial professional photographer. Photos shall be a minimum 35 mm film size taken with a high-quality digital camera, with minimum 8-mega-pixel resolution.

Photographs shall be 3-inch by 5-inch color matte prints mounted on 8-1/2" by 11" cardstock, enclosed within plastic film folders, or other approved mounting. Pictures shall be logically arranged and bound in a 3-ring D binder. Photographs shall also be provided on CDs. Pictures shall have the date, location, description, direction of filming and other pertinent reference information (e.g., streets, creeks, buildings, structures or other readily identifiable features noted) on or below each image. Submit sample for review and approval in advance of producing bound document.

Video shall be done by qualified commercial professional photographer. Video equipment shall be a high quality digital recorder. The video shall contain an audio track which narrates the progression of the video through the project area/site. Recording shall display index counter, date and time of recording.

The pre-construction photos or video shall be performed prior to commencement of the work and after initial staking of the project and construction limits. Post construction photos shall be taken at final completion of the work. Post construction filming locations shall be similar to preconstruction filming locations.

To properly capture and cover the project and adjacent area, the photographer shall be prepared to take and submit up to the following number of photographic prints:

Category	Number of Photographs
Pre-construction	100
Post-construction	100

Submit 1 copy of photographs and CDs to the Engineer.

**1-05.4(7) Existing Markers and Monuments**

Contractor shall take necessary precautions to locate and protect existing markers, property corners, monuments, section corners, subdivision corners, plat markers, bench marks, and all other reference points that may be affected by construction. All markers that may be disturbed by construction shall be identified, referenced, and replaced if disturbed in accordance with recognized surveying practices. Property corners, fences and other indications of property lines shall be referenced by the Contractor prior to construction and reset after completion of the construction operations in accordance with recognized survey practices.

Contractor shall not knowingly remove or disturb any such marker before a licensed land surveyor can reference such marker. Contractor shall be responsible for providing said survey services and shall be responsible for all costs for replacing markers and recording of surveys. Contractor will not be entitled to any delay costs for referencing an existing marker.

In the event that any of these items are not replaced by the Contractor, they shall be replaced by Engineer and the cost of this work shall be billed to the Contractor by the Contracting Agency.

**1-05.4(8) Re-establishment of Existing Markers and Monuments**

If a marker or monument must be disturbed, Contractor shall follow these steps in accordance with recognized survey practices:

1. Survey work associated with WAC 332-120 shall be performed for the removal and resetting of monuments.
2. Before Contractor disturbs monument(s), surveyor shall establish reference points to perpetuate the position of the monument(s) and an Application For Permit to Remove or Destroy a Survey Monument shall be filed with the Department of Natural Resources (DNR) as set forth in WAC 332-120, for all existing monuments that subject to being disturbed, prior to construction of improvements.
3. Once a permit has been authorized by DNR, the Contractor may excavate monument(s).
4. The Contractor shall provide replacement monuments in accordance with the WSDOT Standard Plan Drawing A-10.30-00 entitled "Monument Case and Cover".
5. The Contractor shall set replacement monument, case, and cover in position.
6. Surveyor shall verify the position and punch mark the brass cap.
7. Surveyor shall file Completion Report for Monument Removal and Destruction with the Department of Natural Resources upon completion of monument replacement.

The Contractor shall be responsible for removal and resetting of markers and monuments.

**1-05.4(9) Measurement and Payment**

No unit of measurement shall apply to the lump sum price for Surveying. Monument Restoration shall be measured per each monument that is disturbed and must be restored and is subject to the conditions of Section 1-04.6.

Payment shall be made in accordance with Section 1-04.1 for the following Bid items:

Surveying	Per Lump Sum
Monument Restoration (Allowance)	Per Each

Payment for "Surveying" shall include all required survey efforts required to locate and construct the improvements utilizing existing reference/control points shown on the Drawings and located in the field.

Payment for "Monument Restoration" shall cover the restoration of a disturbed monument to its proper location as shown on the Drawings, including excavation, foundation, monument base, monument case and cover, monument, backfilling, and surface restoration.

**1-05.5 Project Record Drawings (New Section)**

*Section 1-05.5 is added as the following:  
(Local Agency SP)*

The Contractor shall maintain two sets of drawings and specifications for the Contract on site during the construction. The Contractor's superintendent or authorized representative shall update the documents with record information on a daily basis. Record information shall include, but not be limited to, the final location of all new materials incorporated into the work and all existing improvements encountered such as water lines, underground power, telephone, and gas lines with dimensions, depths, nature of composition, and locations shown so as to be able to identify and locate the improvement in the field from the Control Centerline Stationing or other permanent structure which is to remain. Record information shall be legible and accurately marked to indicate modifications in the completed work that differ from the design information shown on the Contract Plans. Revisions shall be indicated in red pen or pencil, and shall be neat and understandable.

The record drawings shall be made accessible to the Engineer at all times and one set shall be submitted to the Engineer monthly along with the Contractor's request for progress payments. Failure to supply the record drawings each month or failure of the record drawings to reflect the above information in a clear and concise manner shall be basis for withholding the Contractor's Progress Payments until such time as they are completed to the satisfaction of the Engineer. Upon completion of review of the drawings, the Engineer shall either return the set of record drawings to the Contractor for continued use or may provide

a new, unused set of documents for the Contractor's use. Upon completion of all the work and prior to final acceptance, one or both of the sets of record drawings and specifications shall be delivered to the Engineer along with a copy of all supporting information. The location and elevation, including invert elevations of all completed facilities shall be verified by the Contractor's Surveyor.

The Contract price shall be full compensation for all labor, materials, tools and equipment necessary to maintain and update records, and to furnish such along with all support information to the Engineer each month and at the end of the project.

#### **1-05.7 Removal of Defective and Unauthorized Work**

*Section 1-05.7 is supplemented with the following:  
(October 1, 2005 APWA GSP)*

If the Contractor fails to remedy defective or unauthorized work within the time specified in a written notice from the Engineer, or fails to perform any part of the work required by the Contract Documents, the Engineer may correct and remedy such work as may be identified in the written notice, with Contracting Agency forces or by such other means as the Contracting Agency may deem necessary.

If the Contractor fails to comply with a written order to remedy what the Engineer determines to be an emergency situation, the Engineer may have the defective and unauthorized work corrected immediately, have the rejected work removed and replaced, or have work the Contractor refuses to perform completed by using Contracting Agency or other forces. An emergency situation is any situation when, in the opinion of the Engineer, a delay in its remedy could be potentially unsafe, or might cause serious risk of loss or damage to the public.

Direct or indirect costs incurred by the Contracting Agency attributable to correcting and remedying defective or unauthorized work, or work the Contractor failed or refused to perform, shall be paid by the Contractor. Payment will be deducted by the Engineer from monies due, or to become due, the Contractor. Such direct and indirect costs shall include in particular, but without limitation, compensation for additional professional services required, and costs for repair and replacement of work of others destroyed or damaged by correction, removal, or replacement of the Contractor's unauthorized work.

No adjustment in contract time or compensation will be allowed because of the delay in the performance of the work attributable to the exercise of the Contracting Agency's rights provided by this Section.

The rights exercised under the provisions of this section shall not diminish the Contracting Agency's right to pursue any other avenue for additional remedy or damages with respect to the Contractor's failure to perform the work as required.

#### **1-05.8 Coordination with Owner and Adjacent Homes**

*Section 1-05.8 is added as the following:  
(Local Agency SP)*

Access to homes and business must be maintained at all times. To maintain access to homes and businesses during the contract, the contractor shall observe the following restrictions:

1. Post signs and notify homes and businesses at least five (5) working days ahead any construction that may impact their access.
2. Provide alternate access as required to affected homes and businesses.
3. Provide a Traffic Control Plan prior to construction as described in Section 1-10..

Maintaining access to homes and businesses shall be considered incidental to the Contract and included in other bid items. No separate payment shall be made.

#### **1-05.10 Guarantees**

*Section 1-05.10 is deleted and replaced with the following:  
(Local Agency SP)*

In addition to any special warranties provided elsewhere in the Project Documents, the Contractor warrants to the Contracting Agency that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Project Documents, and that the Work will conform to the requirements of the Project Documents as described herein. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective and may be rejected. The Contractor's warranty excludes remedy for damage caused by abuse, improper or insufficient maintenance, or improper operation. If required by the Contracting Agency's Representative or Contracting Agency, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment provided.

Neither final acceptance by the Contracting Agency nor partial and final payment nor any provision in the Contract Documents shall relieve the Contractor of responsibility for faulty materials or workmanship.

If, prior to the expiration of one year after the date of final acceptance of all work or such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents, any work (including materials and equipment) that is found to be defective or not in compliance with the Contract Documents, the Contractor shall promptly, without cost to Contracting Agency, either correct such work, or, if it has been rejected by Contracting Agency, remove and replace it with acceptable work. If the Contractor does not promptly comply with the notification issued by the Contracting Agency for correction of defective and/or non complying work, the Contracting Agency may have the Work corrected or removed and replaced and all direct and indirect costs of such removal and replacement, including costs of all professional services, shall be paid by Contractor as provided for herein.

Actual or alleged knowledge by the Contracting Agency, Engineer and/or inspector(s), prior to acceptance of all work by the Contracting Agency, of defects or deficiencies in the Work shall not, in any way, affect or diminish the guarantee by the Contractor. The guarantee shall apply to all elements and parts of the Work, regardless of knowledge by the Contracting Agency, Engineer and inspector(s) of defects or deficiencies and regardless of failure of the Contracting Agency, Engineer and/or inspector(s) to inform the Contractor of known or suspected defects or deficiencies prior to final acceptance of the Work by the Contracting Agency.

All subcontractor's, manufacturers', and suppliers' warranties and guarantees, express or implied, for any part of the Work, materials and equipment shall be deemed obtained and shall be enforced by the Contractor for the benefit of the Contracting Agency without the necessity of formal transfer or assignment thereof. Warranties and guarantees by subcontractors, manufacturers, and suppliers shall begin on and extend for one year after the date of final acceptance by the Contracting Agency of all work.

All work (including materials and equipment) repaired or replaced in accordance with this Section shall be guaranteed for a period of one year after the date of acceptance by the Contracting Agency of the repair/replacement work.

Nothing contained in these provisions shall defeat or impair the right of persons furnishing materials or labor to recover under any bond given by the Contractor for their protection, or any rights under any law permitting such persons to look to funds due the Contractor in the hands of the Contracting Agency.

These guarantee provisions shall be inserted in all subcontracts and material contracts, and notice of these provisions shall be given to all persons furnishing materials for the Work when no formal contract is entered into for such materials.

#### **1-05.11 Final Inspection**

*Section 1-05.11 is deleted and replaced with the following:  
(Local Agency SP)*

#### **1-05.11 Facility Startup, Testing and Training**

Contractor shall provide complete startup and testing/commissioning to ensure that equipment and mechanical, electrical, controls and special controls and instrumentation systems are properly installed and function, operate, and perform as intended and required.

A qualified test engineer shall inspect and assist the Contractor in the adjustment, start-up, testing and trouble shooting of equipment/systems after installation. Contractor shall submit the qualifications and resume(s) of the proposed test engineer along with a description of the testing efforts to be performed. The test engineer shall review the work, test, verify, and document proper operation, function and performance of mechanical, electrical and control equipment and systems. Test engineer shall be an individual or firm that specializes in the testing, start-up, trouble shooting (commissioning) of pumping, treatment and other complex mechanical and electrical and control systems. Test engineer shall have a minimum of ten (10) years of relevant commissioning experience.

All mechanical and electrical equipment shall be tested by the Contractor to the satisfaction of the Engineer before any system is put into operation. Testing procedures shall be designed to duplicate as nearly as possible all conditions of operations and shall be carefully selected to ensure that the equipment is not damaged. Tests shall be as specified herein and shall be made to determine whether the equipment has been properly assembled, aligned and connected. Any changes, adjustments or replacements required to make the equipment operate as required shall be carried out by the Contractor or a qualified technician of the seller or equipment representative as part of the work.

Before startup, the Contractor shall properly lubricate all bearings and other items which normally require lubrication and fill each gear case and oil reservoir to the proper operating level, using the equipment manufacturer's supplied lubricant. If any equipment or system does not operate properly, the Contractor shall immediately replace or repair components until it operates properly. When the equipment start-up is complete, the Contractor shall submit a start-up and testing report to the Engineer.

Copies of field test reports shall be signed by the Contractor and provided to the Engineer along with the testing report.

Initial start up and testing or commissioning services shall include a minimum of one (1) 8-hour day(s).

System Startup and Testing General Requirements shall include the following:

1. Following initial start up and testing, the entire system shall be required to undergo a 10-day startup period in the presence of the Contracting Agency and Engineer. Any equipment failing or malfunctioning during this 10-day period shall be repaired or replaced, and when it is once again operational, shall be required to undergo a full 10-day startup period. Acceptance of the work and equipment will occur only after successful completion of the 10-day startup period.
2. The Contractor will supervise and be responsible for the proper maintenance and care of the equipment during the startup period and a succeeding 10-day period after successful startup.
3. When a motor, pump, valve, meter, instrument, or other item of equipment does not operate properly, adjustments shall be made by an experienced technical representative of the manufacturer.
4. If adjustments fail to correct the operation of a piece of equipment, remove and replace it with a suitable replacement that meets the operating requirements.

All components shall be calibrated by the Contractor after completion of installation. Components that cannot be properly calibrated or are found to exceed the specified range or accuracy shall be removed and replaced.

Contractor is responsible for determining that all equipment and all systems are functioning properly by start-up time. Prior to startup, the Contractor shall furnish documentation that the equipment provided is installed and is functioning in compliance with the manufacturer's recommended specification and instructions.

The Contractor shall anticipate that the Contracting Agency may delay acceptance of all work under the Contract if, in the judgment of the Contracting Agency, malfunctions or failures in operation of the system repeatedly occur after startup. The Contractor shall not be entitled to an extension of time or to any claim for damages because of hindrances, delays, or complications caused by or resulting from delay by the Contracting Agency in accepting the work because of malfunctions or failures in operation of the system.

Immediately prior to final acceptance, Contractor shall make a final check of all lubrication requirements and leave all equipment properly lubricated, ready for Contracting Agency's use.

The Contractor shall demonstrate to the Contracting Agency's personnel, the proper manner of maintaining the equipment, making adjustments, and maintaining the system. Work performed by the manufacturer's representative required for startup will not be considered as operator training even if the operators are present and witnessing the adjustments. Equipment startup will be completed before the required on-the-job operator training begins. Operator training services shall include a minimum of two (2) 8-hour days.

#### **1-05.11(1) Substantial Completion**

When the Contractor considers the work to be substantially complete, the Contractor shall so notify the Engineer and request the Engineer establish the Substantial Completion Date. The Contractor's request shall list the specific items of work that remain to be completed in order to reach physical completion. The Engineer will schedule an inspection of the work with the Contractor to determine the status of completion. The Engineer may also establish the Substantial Completion Date unilaterally.

If the Engineer concurs with the Contractor that the work is substantially complete and ready for its intended use, the Engineer, by written notice to the Contractor, will set the Substantial Completion Date. If, after this inspection the Engineer does not consider the work substantially complete and ready for its intended use, the Engineer will, by written notice, so notify the Contractor giving the reasons therefore.

Upon receipt of written notice concurring in or denying substantial completion, whichever is applicable, the Contractor shall pursue vigorously, diligently and without unauthorized interruption, the work necessary to reach Substantial and Physical Completion. The Contractor shall provide the Engineer with a revised schedule indicating when the Contractor expects to reach substantial and physical completion of the work.

The above process shall be repeated until the Engineer establishes the Substantial Completion Date and the Contractor considers the work physically complete and ready for final inspection.

#### **1-05.11(2) Final Inspection and Physical Completion**

When the Contractor considers the work physically complete and ready for final inspection, the Contractor by written notice, shall request the Engineer to schedule a final inspection. The Engineer will set a date for final inspection. The Engineer and the Contractor will then make a final inspection and the Engineer will notify the Contractor in writing of all particulars in which the final inspection reveals the work incomplete or unacceptable. The Contractor shall immediately take such corrective measures as are necessary to remedy the listed deficiencies. Corrective work shall be pursued vigorously, diligently, and without interruption until physical completion of the listed deficiencies. This process will continue until the Engineer is satisfied the listed deficiencies have been corrected.

If action to correct the listed deficiencies is not initiated within 7 days after receipt of the written notice listing the deficiencies, the Engineer may, upon written notice to the Contractor, take whatever steps are necessary to correct those deficiencies pursuant to Section 1-05.7.

The Contractor will not be allowed an extension of contract time because of a delay in the performance of the work attributable to the exercise of the Engineer's right hereunder.

Upon correction of all deficiencies, the Engineer will notify the Contractor and the Contracting Agency, in writing, of the date upon which the work was considered physically complete. That date shall constitute the Physical Completion Date of the contract, but shall not imply acceptance of the work or that all the obligations of the Contractor under the contract have been fulfilled.

#### **1-05.11(3) Operational Testing**

It is the intent of the Contracting Agency to have at the Substantial Completion Date a complete and operable system. Therefore, when the work involves the installation of process, mechanical and electrical systems, the Contractor will be required to operate and test these systems for a period of time prior to the Substantial Completion Date. Process and mechanical equipment, electrical controls, meters, or other devices and equipment to be tested during this period, shall be tested under the observation of the

Contracting Agency or Engineer. Where such operational testing is required, the systems shall be tested under operating conditions for a reasonable period of time, but no less than the number of days stipulated, to assure their proper operation and function prior to establishing the Substantial Completion Date. During and following the test period, the Contractor shall correct any items of workmanship, materials, or equipment which do not meet the requirements of the Contract Documents, prove faulty, or that are not in first class operating condition. Equipment that repeatedly breaks down or fails to operate or perform properly during this operational testing period will be cause to extend the testing period. The Substantial Completion Date will not be established until the necessary corrections and tests have been completed to the satisfaction of the Contracting Agency.

The costs for equipment, labor, materials, supplies, power, gas, water, and everything else needed to successfully complete operational testing shall be included in the unit contract prices related to the system being tested, unless specifically set forth otherwise in the proposal.

Operational and test periods shall not affect a manufacturer's guaranties or warranties furnished under the terms of the contract.

#### **1-05.12 Final Acceptance**

*The first paragraph of Section 1-05.12 is deleted and replaced with the following:  
(Local Agency SP)*

The Contractor must perform all the obligations under the contract before a completion date and final acceptance can occur. Failure of the Contractor to perform all the obligations under the contract shall not bar the Contracting Agency from unilaterally accepting the contract as provided in Section 1-09.9. The Contracting Agency, or a duly authorized representative, accepts the completed contract and the items of work shown in the Comparison of Quantities by signature of the Notice of Completion and Acceptance. The date of that signature constitutes the acceptance date. Progress estimates or payments shall not be construed as acceptance of any work under the contract.

#### **1-05.13 Superintendents, Labor and Equipment of Contractor**

*The seventh paragraph of Section 1-05.13 is revised to read as follows:  
(March 25, 2009 APWA GSP)*

Whenever the Contracting Agency evaluates the Contractor's qualifications pursuant to Section 1-02.14, it will take these performance reports into account.

#### **1-05.14 Cooperation with Other Contractors**

*Section 1-05.14 is supplemented with the following:  
(Local Agency SP)*

Nothing in the contract shall be interpreted as granting to the Contractor exclusive occupancy of the project area. The Contractor must ascertain to his own satisfaction the scope of the project and the nature of any other contracts that have been or may be awarded by the Contracting Agency in the construction of the project, or to the end that the Contractor may perform this contract in the light of such other contracts.

The Contractor shall not cause any unnecessary hindrance or delay to any others working on the project. If the performance of any contract for the project is likely to be interfered with by the simultaneous performance of some other contract or contracts, the Engineer will decide which Contractor shall cease work temporarily and which Contractor shall continue, or whether the work under the contracts can be coordinated so that the contractors may proceed simultaneously. On all questions concerning conflicting interest of contractors performing related work, the decision of the Engineer shall be binding upon all contractors concerned and the Contracting Agency, the Engineer, the Contracting Agency's Representative, and their consultants shall not be responsible for any damages suffered or extra costs incurred by the Contractor resulting directly or indirectly from the award or performance or attempted performance of any other contract or contracts on the project or caused by a decision or omission of the Engineer respecting the order of precedence in the performance of the contracts.

If, through acts of neglect on the part of the Contractor, any others suffer loss or damage on the Work, the Contractor agrees to settle with such others by agreement or arbitration, if such others will so settle. If such others shall assert any claim against the Contracting Agency, the Engineer, the Contracting Agency's Representative, or their consultants on account of any damage alleged to have been so sustained, the Contracting Agency shall notify the Contractor, who shall hold harmless, indemnify, and defend the Contracting Agency, Engineer, the Contracting Agency's Representative, and their consultants, and each of their directors, officers, employees, and agents against any such claim, including all attorney's fees and any other costs incurred by the indemnified parties relative to any such claim.

The Contractor shall coordinate his work with other contractors and utility companies which may have facilities in the project area and cooperate with them. He shall also coordinate his activities with the Contracting Agency; and no water or sewer mains, individual water or sewer services, street, or private driveways may be closed off without a minimum five (5) working days notice to the Contracting Agency and the private property owner. Should the property owner or the Contracting Agency have adequate reason, as determined by the Engineer, to avoid access or water or sewer service shutoff at the scheduled time, the Contractor shall reschedule his work to meet the new condition.

Final grading to subgrade and subgrade preparation in those areas disturbed by the utilities companies shall be the responsibility of the Contractor and considered incidental to the street construction and no additional compensation will be paid.

The Contractor shall cooperate with the utility companies and/or their subcontractors and so conduct his operations that the necessary construction of their facilities can be accomplished to the mutual satisfaction of the Contracting Agency and the utility companies.

The Contractor shall cooperate in the coordination of separate activities in a manner that will provide the least interference with public agencies, property owners, other contractors and utility companies working in the area, and in the interfacing and connection of the separate elements of the overall project work.

The Contracting Agency, utility companies and others may be working within the project areas while the work is in progress. If so, the Contractor shall schedule the work in conjunction with these other organizations to minimize mutual interference.

The Contractor shall maintain overall coordination for the execution of the work. Based on the Construction Schedule prepared in accordance with these Specifications, the Contractor shall obtain from each subcontractor a similar schedule and shall be responsible for all parties maintaining these schedules or for coordinating required modifications.

#### **1-05.15 Method of Serving Notices**

*The second paragraph of Section 1-05.15 is revised to read as follows:  
(March 25, 2009 APWA GSP)*

All correspondence from the Contractor shall be directed to the Project Engineer. All correspondence from the Contractor constituting any notification, notice of protest, notice of dispute, or other correspondence constituting notification required to be furnished under the Contract, must be in paper format, hand delivered or sent via mail delivery service to the Project Engineer's office. Electronic copies such as e-mails or electronically delivered copies of correspondence will not constitute such notice and will not comply with the requirements of the Contract.

#### **1-05.16 Water and Power**

*Section 1-05.16 is added as the following:  
(Local Agency SP)*

The Contractor shall make necessary arrangements, and shall bear the costs for power, water, and other utility services necessary for the performance of the work, unless the contract includes power, water and other utility services as a pay item.

#### **1-05.17 Oral Agreements**

*Section 1-05.17 is added as the following:  
(October 1, 2005 AWWA GSP)*

No oral agreement or conversation with any officer, agent, or employee of the Contracting Agency, either before or after execution of the contract, shall affect or modify any of the terms or obligations contained in any of the documents comprising the contract. Such oral agreement or conversation shall be considered as unofficial information and in no way binding upon the Contracting Agency, unless subsequently put in writing and signed by the Contracting Agency.

**END OF SECTION 1-05**

## **SECTION 1-06 CONTROL OF MATERIAL**

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### **1-06.1 Approval of Materials Prior to Use**

*Section 1-06.1 deleted, including its sub-sections and replaced with the following:  
(Local Agency SP)*

All equipment, materials, and articles incorporated into the permanent work:

1. Shall be new, unless the Special Provisions permit otherwise;
2. Shall meet the requirements of the contract documents and be reviewed by the Engineer prior to use;
3. May be inspected or tested at any time during their preparation and use; and
4. Shall not be used in the work if they become unfit even after being previously approved.

The Contractor shall assemble and submit to the Contracting Agency, Project Data and Shop Drawings as required by the Standard Specifications and Special Provisions. The Contractor shall prepare and update on at least a monthly basis a submittal control document that indicates the status of all submittals. The status report shall be initially developed to identify all shop drawing and submittal data to be assembled and submitted by Contractor for Engineer's review.

The Contractor is cautioned that equipment and materials for which submittals are required, and which are constructed, installed, or incorporated prior to Engineer's review is at Contractor's risk. Such equipment or materials may be rejected by the Contracting Agency, and if rejected, shall be removed and replaced by the Contractor if so ordered by the Engineer.

#### **1-06.1(1) Contractor Responsibility for Submittals**

The Contract Drawings were developed to provide a general description of the work. These drawings do not and are not intended to provide all the details of each and every element of the work. The Contractor shall be responsible for, and prepare (or have prepared), all shop and working drawings required to supplement the Contract Drawings to establish the necessary details for construction.

Supplemental shop and working drawings shall be prepared by the Contractor as required by these Special Provisions. Supplemental shop and working drawings shall include, but not be limited to: metal fabrication plans and details, erection plans and details, masonry layout plans and details, reinforcing steel plans and details, shoring plans and details, concrete formwork plans and details, equipment installation plans and details, piping layout and support plans and details. The Contractor shall be fully and completely responsible for the accuracy of the dimensions and details of the supplemental shop and working drawings, including those prepared by subcontractors, suppliers, and detailers and for full and complete conformity with the defined and implied intent of the Contract Documents. The Contractor shall check all shop drawings to make sure they conform with the Contract Documents, and in the case of resubmittals, that all review comments have been addressed prior to transmittal.

The Contractor shall coordinate between suppliers to verify that equipment, mechanical, electrical, structural elements, and other parts of the work correctly interface. The Contractor shall check and verify field dimensions of new and existing work as needed to ensure that shop drawings and other submittals are correctly dimensioned. The Contractor's shop drawings and submittals that have been carelessly or improperly prepared and clearly not reviewed by the Contractor will be returned unreviewed.

The Contractor shall prepare and timely transmit submittals so as not to delay the construction schedule. The Contractor is responsible for the timeliness of submittals prepared by his suppliers and subcontractors. The Contractor shall anticipate the time required for review and possible resubmittals, and shall include reasonable amounts of time for preparation, distribution and review of submittals in the construction schedule. The Contracting Agency and Engineer shall process submittals expeditiously and endeavor to complete reviews as quickly as possible, but is under no obligation to waive procedures or expedite processing because of untimely submittals by the Contractor.

By approving and submitting shop drawings, product data and samples, the Contractor represents that he/she has determined and verified all materials, field measurements, and field construction criteria related thereto, and that he/she has checked and coordinated the information contained within such submittals with the requirements of the work and Contract Documents, including with associated subcontractors, and is fully satisfied that they conform to the Contract Documents.

The Contract Price shall include the cost of furnishing all shop drawings, product data and samples, and the Contractor will be allowed no extra compensation for such drawings, product data or samples.

#### **1-06.1(2) Limitations of Engineer's Submittal Reviews**

Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

Engineer's review and approval of required Shop Drawings or Samples shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of section 1-06.1(4) of the Special Provisions, and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of section 1-06.1(3) of the Special Provisions.

Engineer's check and review of Shop Drawings and Samples, Standard Specifications and descriptive literature submitted by Contractor will be only for general conformance with design concept, except as otherwise provided, and shall not be construed as:

1. Permitting any departure from the Contract Requirements;
2. Relieving the Contractor of the responsibility for any error in details, dimensions or otherwise that may exist in such submittals;
3. Constituting a blanket approval of dimensions, quantities, or details of the material or equipment shown; or
4. Approving departures from additional details or instructions previously furnished by Engineer. Such check or review shall not relieve Contractor of the full responsibility of meeting all of the requirements of the Contract Documents.

#### **1-06.1(3) Submittal Procedures and Requirements**

The Contractor shall transmit each submittal to the Engineer using a transmittal form provided by the Engineer. The transmittal form shall be signed by the Contractor, certifying that the contents of the submittal have been checked by the Contractor for conformance with the requirements of the Contract Documents. Submittals will not be reviewed unless accompanied by a signed transmittal form.

Before submitting each Shop Drawing or Sample, Contractor shall have determined and verified:

1. all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
2. the suitability of all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;
3. all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto; and

4. shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

A separate form shall be used for a given specification section. That is, only an item or items that pertain to a given section shall be listed. Different items within a given section shall be listed.

All submittals shall be transmitted to the Engineer via the Contractor. Submittals direct from subcontractors or suppliers will not be accepted. Any communications which may occur between the Engineer and subcontractors and suppliers shall not be construed as binding on the Engineer, Contracting Agency or Contractor unless formalized in accordance with procedures set forth in the Contract Documents.

Each submittal shall be numbered consecutively, i.e. 1, 2, 3, etc. Assign resubmittals the same number as the original with a suffix of a sequential letter to denote it as a resubmittal. For example, the first resubmittal of submittal 25 would be 25A. Include only those items previously issued under the original submittal in resubmittals. Do not combine new submittals with resubmittals.

Where contents of submitted literature from manufacturers includes data not pertinent to the submittal, the Contractor shall clearly indicate which portion of the contents is being submitted for the Engineer's review.

The Contractor shall submit to the Engineer seven (7) copies of the project data, plus a scanned electronic copy of the submittal in .pdf file format. The project data must be submitted in accordance with the instructions or the submittal may be returned without review, and the Contractor shall not be entitled to any increase in Contract time therefor. The Engineer will, upon completion of the review, return three (3) copies of the transmittal form and the project data to the Contractor.

Engineer's review will be completed within fourteen (14) days after receipt by Engineer of each submittal in proper sequence and will be returned to Contractor with one of the following markings:

1. "No Exceptions" indicates submittal has been reviewed and appears to be in conformance with requirements of the Contract Documents.
2. "Make Corrections Noted" indicates submittal appears to be in conformance with requirements of the Contract Documents. Contractor shall incorporate the corrections noted. No resubmittal is required.
3. "Revise-Resubmit" indicates submittal does not appear to be in conformance with the Contract Documents. Engineer's comments will be noted on the submittal or in a separate letter. Contractor shall recheck, make necessary revisions, and resubmit.
4. "Reference" or "For Information Only" indicates submittal gives general information incidental to, but not required for, review or approval by the Engineer.
5. "Submittal Not Required-No Action Taken" indicates that the submittal is not called for by the Contract Documents and that no action was taken by Engineer on the gratuitous submittal.

The Contractor shall submit to the Contracting Agency, to demonstrate compliance with applicable safety and environmental regulations, copies of any safety and accident prevention or pollution control and/or environmental monitoring plans applicable to the project and required of the Contractor by law, as well as any on-site safety program measures applicable to the Contracting Agency or its agents or members of the public visiting the work area. When such documents require approval by a government agency, the Contractor shall also furnish evidence of approval. These submittals are informational and any comment or lack of comment by the Contracting Agency or Engineer thereon shall not be construed as either approval or disapproval of these documents, which shall be a matter for agencies having jurisdiction.

#### **1-06.1(4) Submittal Variations**

With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawing's or Sample Submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation; otherwise Contractor will not be relieved of the responsibility of executing the

Work in accordance with the Contract Documents, even though such Shop Drawings or Samples have been otherwise reviewed.

The Contractor shall direct specific attention, in writing, to each deviation from the Contract Documents and state any trades, dimension, functions or other aspects of the work that will be affected by the proposed change. It is understood that any deviation, if no exception is made by the Engineer to such deviation, will be made at no additional cost to the Contracting Agency and there will be no extension of the contract time for such deviation. The Contractor is responsible for the design of any construction changes resulting from any such deviation, for dimensions which shall be confirmed and coordinated at the job site, for fabrication processes and techniques of construction, for coordination of the work with that of all trades and for a complete installation which will function as intended and originally specified.

If a Shop Drawing or Sample, as submitted, indicates a variation from the Contract Requirements as set forth in the Contract Documents and Engineer finds same to be in the interest of Contracting Agency and to be so minor as not to involve a change in the Contract Price or time for performance, Engineer may approve the Shop Drawings or Samples; provided however, such departure is slight in nature and does not affect the design concept of the Work.

Where variations involve proposed substitutions, see Special Provision 1-06.7 Substitutions.

#### **1-06.1(5) Resubmittals**

Contractor shall make corrections required by Engineer and shall return corrected copies in accordance with procedures described in Special Provision 1-06.1(3). Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

It is expected that not more than one resubmittal of any submittal will be required to satisfactorily revise an original submittal. Charges for extra work incurred by Contracting Agency to review resubmittals after the first resubmittal, including but not limited to work by Engineer and Engineer's Consultants, may be deducted by Contracting Agency from amounts payable to Contractor.

#### **1-06.4 Handling and Storing Materials**

*Section 1-06.4 is supplemented with the following:  
(Local Agency SP)*

##### **1-06.4(1) Pipe**

Pipe and appurtenances shall be handled, stored, and installed as recommended by the manufacturer. Pipes with soft coatings such as coal tar enamel, paint, or the like shall be stored to protect the coating from physical damage or other deterioration and shall only be handled with padded, wide slings. Pipes shipped with interior bracing shall have the bracing removed only when recommended by the pipe manufacturer.

##### **1-06.4(2) Equipment and Devices**

All equipment shall be adequately and effectively protected against damage from moisture, dust, handling, or other causes during transport from manufacturer's premises to the site. Each item or package shall be clearly marked with the number unique to the specification reference covering the item.

Stiffeners shall be used where necessary to maintain shapes and to give rigidity. Parts of equipment shall be delivered in assembled or sub-assembled units where possible.

All equipment items and valves with an assigned equipment number in this Project Manual shall have affixed to them in a prominent location, a label or tag displaying the assigned equipment number. Equipment item and valves lacking a number shall have a similar tag providing a unique description of the item. Markers shall be of stainless steel or aluminum, affixed to the item with stainless steel fasteners, or as otherwise approved by the Engineer. Plastic labels will not be acceptable.

During the interval between delivery and installation, all equipment shall be stored in enclosed, weathertight licensed commercial warehouses. Environmental controls such as heaters or protective encapsulation shall be provided to ensure against condensation and moisture damage. In the event prolonged (more than 90 days) storage is required for any item of rotative equipment, the Contractor shall

institute a preventive maintenance program that shall include grease protection of bare metal surfaces, periodic indexing of rotating parts, renewal of grease in bearings, and any procedures recommended by the manufacturer. The Contractor shall maintain adequate records to demonstrate full compliance with these requirements. All equipment shall be available for inspection by the Engineer.

After installation, all equipment shall be protected from damage, including but not limited to moisture, dust, abrasive particles, debris, and dirt generated by the placement, chipping, sandblasting, cutting, finishing, and grinding of new or existing concrete, terrazzo, and metal; and the fumes, particulate matter, and splatter from welding, brazing, and painting of new and existing piping and equipment. The Contractor is advised that as a minimum, vacuum cleaning, blowers with filters, protective shielding, and other dust-suppression methods will be required at all times to adequately protect all equipment. During concreting, including finishing, all equipment that may be affected by cement dust must be completely covered. During painting operations, all grease fittings and similar openings shall be covered to prevent the entry of paint. Electrical switch gear, unit substation, and motor load centers shall not be installed until all concrete work and sandblasting in those areas have been completed and accepted.

#### **1-06.4(3) Delivery of Material or Equipment**

The Contracting Agency's or Engineer's personnel or representatives of the Contracting Agency or Engineer will not accept materials or equipment deliveries for the Contractor.

#### **1-06.7 Substitutions (New Section)**

*Section 1-06.7 is added as the following:  
(Local Agency SP)*

Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review.

#### **"Or Equal Items"**

"Or Equal" Items: If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if, in the exercise of reasonable judgment Engineer determines:

1. the proposed item is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
2. the proposed item will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
3. operation and maintenance costs and requirements are reasonably similar; and
4. the proposed item has a proven record of performance and comparable availability of service and parts.

Contractor shall also certify that, if approved and incorporated into the Work:

1. no increase in cost to the Contracting Agency or increase in Contract Times will result, and
2. the proposed item will conform to the detailed requirements of the item named in the Contract Documents.

If requested by the Engineer, Contractor shall furnish additional information for the Engineer's review and consideration. Insufficient or inadequate information to substantiate and or equal determination by the Engineer will be grounds for rejection.

## Substitute Items

If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, it will be considered a proposed substitute item. Contractor shall submit sufficient information as provided below to allow Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefore. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

The requirements for review by Engineer will be as set forth herein and as Engineer may decide is appropriate under the circumstances. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

1. shall certify that the proposed substitute item will:
  - a. perform adequately the functions and achieve the results called for by the general design,
  - b. be similar in substance to that specified, and
  - c. be suited to the same use as that specified;
2. will state:
  - a. the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time;
  - b. whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Contracting Agency for other work on the Project) to adapt the design to the proposed substitute item; and
  - c. whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
3. will identify:
  - a. all variations of the proposed substitute item from that specified;
  - b. available engineering, sales, maintenance, repair, and replacement services; and
  - c. schedule impacts and changes to the construction schedule
4. and shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change,

Contractor shall supply three (3) copies of data substantiating compliance of proposed product or supplier with Contract Documents on all requests for approval of change of any product or manufacturer. Each copy shall include:

1. detailed description of the proposed change, including:
  - a. product identification, including manufacturer's name and address;
  - b. manufacturer's identification, including manufacturer's name and address;
  - c. samples of proposed products;
  - d. name, address, and telephone number of contact persons for similar projects on which product was used and date of installation; and
  - e. drawings indicating and vertical details of all architectural, structural, mechanical and electrical elements of proposed change.
2. itemized comparison of proposed substitution with product or supplier specified;

3. relation to separate subcontracts and trades;
4. cost data on proposed substitution in comparison with product or supplier specified; and
5. operation and maintenance requirements and costs;

Requests for change of product or design shall include certification by the Contractor that:

1. The Contractor has personally investigated the proposed product or design deviation and has determined that it is equal or superior in all respects to that specified;
2. The Contractor will provide the same guarantee for product or design deviation as for product or design specified; and
3. The Contractor will coordinate installation of accepted product or design deviation into work, making such changes as may be required for work to be complete in all respects.

Requests for change of products will not be considered if:

1. They are indicated or implied on project data submittals without a formal request having been submitted; and/or
2. Acceptance will require substantial revision to the Contract Documents.

### **Substitute Construction Methods or Procedures**

If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those required for substitute items.

### **Engineer's Evaluation**

Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made. Engineer may require Contractor to furnish additional data about the proposed substitute item, method or procedure. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by either a Change Order or an approved Shop Drawing. Engineer will advise Contractor in writing of any negative determination. The Engineer may elect to reject any or all requests for deviation at his sole discretion without cause or justification. The Contractor shall immediately proceed with the Work in accordance with the Contract Documents upon notification of rejection of any request for deviation.

### **Special Guarantee**

Contracting Agency may require Contractor to furnish, at Contractor's expense, a special performance guarantee or other surety with respect to any substitute, change in construction methods or procedures, or change in design.

### **Engineer's Cost Reimbursement**

Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute item so proposed or submitted by Contractor, Contractor shall reimburse Contracting Agency for the charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Contracting Agency for the charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Contracting Agency) resulting from the acceptance of each proposed substitute.

### **Contractor's Expense**

Contractor shall provide all data in support of any proposed substitute or "or equal" at Contractor's expense. The Contractor shall be responsible for and assume all costs of all elements involving implementing and completing approved deviations including, but not limited to, coordination, confirming dimensions at the job site, design, preparation of plans, procurement of materials and equipment,

fabrication, construction, installation and instigation of service. If, in the opinion of the Engineer, the completed improvements of each deviation do not fulfill, provide and meet the defined and implied intent of the Contract Documents, the Contractor shall provide the labor, materials, and equipment required to modify the Work to the satisfaction of the Engineer.

The Contractor shall be responsible for modifications to electrical, structural, mechanical, or other aspects of the work or design as required to install or incorporate materials or equipment selected by the Contractor.

Regardless of the method of specification or selection, any product which is installed or incorporated into the work without prior approval of the Engineer may not be accepted by the Contracting Agency.

When material or equipment is specified by performance requirement or reference to specifications, standards, or publications of organizations, the Contractor shall select material or equipment which the Contractor considers to comply with the specified reference standard. The Contractor shall submit a request for approval of the selected product in accordance with these Special Provisions.

### **1-06.8 Testing and Quality Control (New Section)**

*Section 1-06.8 is added as the following:  
(Local Agency SP)*

#### **Contracting Agency-Furnished Testing**

The Contracting Agency will retain a qualified independent testing laboratory to perform the laboratory and field tests listed below:

1. Testing of backfill materials (e.g., sieve analysis, sand equivalent)
2. Moisture-density relationships of backfill materials
3. In-place soil density of trench backfill
4. In-place soil density of structure backfill
5. In-place soil density of paving subbase and structural section, including asphalt concrete
6. Concrete slump and compressive strength on field placed cement concrete

The Contractor shall fully cooperate with Contracting Agency-Furnished Testing. Contractor shall provide Engineer timely notice on the readiness of work for required inspections, tests or approvals. The Contractor shall provide access to the work for testing personnel. Where testing is to be performed in a potentially unsafe or confined work area, the Contractor shall stop work and provide all required safety measures to assure the safety of testing personnel.

The Contracting Agency will provide one copy of test results to the Contractor as soon as they are available. The Contractor shall anticipate that extensive laboratory and/or field testing will be performed by the laboratory retained by the Contracting Agency.

The Contractor shall anticipate that such testing may hinder, delay, or complicate execution of the work. The Contractor shall not be entitled to an extension of Contract Time or to any claim for damages because of hindrances, delays, or complications caused by or resulting from laboratory and/or field testing performed by the Contracting Agency.

The Contractor shall fully cooperate with the testing services company. The Contractor shall provide access to the work for testing personnel. Where testing is to be performed in a potentially unsafe or confined work area, the Contractor shall stop work and provide all required safety measures to assure the safety of testing personnel.

#### **Correction of Defective Work**

If test or operational results indicate that the work performed, or materials or equipment furnished, by the Contractor does not comply with the Contract Documents, the Contractor shall immediately take all necessary measures to correct the defective work, and/or replace defective materials or equipment. Depending on the situation, an independent testing firm may be retained to test the corrected work to

determine if the corrections are satisfactory. All costs that are incurred by the Contracting Agency and Engineer as a result of the defective work, materials or equipment, including retesting, shall be borne by the Contractor and will be deducted from progress payments.

### **Special Inspection**

Special inspection by certified inspectors and a certified testing lab may be required on the following, but not limited to:

1. Structural steel
2. Structure concrete reinforcement and concrete
3. Masonry
4. Structure excavation/fill
5. Anchor bolts

The Contractor shall coordinate and fully cooperate with required special inspections or testing. The Contractor shall provide access to the work for inspection or testing personnel. Where inspection or testing is to be performed in a potentially unsafe or confined work area, the Contractor shall stop work and provide all required safety measures to assure the safety of inspection or testing personnel. The Contractor will be responsible for the costs of any special inspections. Contractor shall furnish Engineer copies of all agency inspection reports or approvals.

**END OF SECTION 1-06**

## **SECTION 1-07 LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC**

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### **1-07.1 Laws to be Observed**

*Section 1-07.1 is supplemented with the following:  
(October 1, 2005 APWA GSP)*

In cases of conflict between different safety regulations, the more stringent regulation shall apply.

The Washington State Department of Labor and Industries shall be the sole and paramount administrative agency responsible for the administration of the provisions of the Washington Industrial Safety and Health Act of 1973 (WISHA).

The Contractor shall maintain at the project site office, or other well known place at the project site, all articles necessary for providing first aid to the injured. The Contractor shall establish, publish, and make known to all employees, procedures for ensuring immediate removal to a hospital, or doctor's care, persons, including employees, who may have been injured on the project site. Employees should not be permitted to work on the project site before the Contractor has established and made known procedures for removal of injured persons to a hospital or a doctor's care.

The Contractor shall have sole responsibility for the safety, efficiency, and adequacy of the Contractor's plant, appliances, and methods, and for any damage or injury resulting from their failure, or improper maintenance, use, or operation. The Contractor shall be solely and completely responsible for the conditions of the project site, including safety for all persons and property in the performance of the work. This requirement shall apply continuously, and not be limited to normal working hours. The required or implied duty of the Engineer to conduct construction review of the Contractor's performance does not, and shall not, be intended to include review and adequacy of the Contractor's safety measures in, on, or near the project site.

### **1-07.2 State Taxes**

*Section 1-07.2 is deleted, including its sub-sections, and replace it with the following:  
(October 1, 2005 APWA GSP):*

#### **1-07.2 State Sales Tax**

##### **1-07.2(1) General**

The Washington State Department of Revenue has issued special rules on the State sales tax. Sections 1-07.2(1) through 1-07.2(4) are meant to clarify those rules. The Contractor should contact the Washington State Department of Revenue for answers to questions in this area. The Contracting Agency will not adjust its payment if the Contractor bases a bid on a misunderstood tax liability.

The Contractor shall include all Contractor-paid taxes in the unit bid prices or other contract amounts. In some cases, however, state retail sales tax will not be included. Section 1-07.2(3) describes this exception.

The Contracting Agency will pay the retained percentage only if the Contractor has obtained from the Washington State Department of Revenue a certificate showing that all contract-related taxes have been paid (RCW 60.28.050). The Contracting Agency may deduct from its payments to the Contractor any amount the Contractor may owe the Washington State Department of Revenue, whether the amount owed relates to this contract or not. Any amount so deducted will be paid into the proper State fund.

##### **1-07.2(2) State Sales Tax — Rule 171**

WAC 458-20-171, and its related rules, apply to building, repairing, or improving streets, roads, etc., which are owned by a municipal corporation, or political subdivision of the state, or by the United States, and which are used primarily for foot or vehicular traffic. This includes storm or combined sewer systems within and included as a part of the street or road drainage system and power lines when such are part of the roadway lighting system. For work performed in such cases, the Contractor shall include Washington State Retail Sales Taxes in the various unit bid item prices, or other contract amounts, including those

that the Contractor pays on the purchase of the materials, equipment, or supplies used or consumed in doing the work.

**1-07.2(3) State Sales Tax — Rule 170**

WAC 458-20-170, and its related rules, apply to the constructing and repairing of new or existing buildings, or other structures, upon real property. This includes, but is not limited to, the construction of streets, roads, highways, etc., owned by the state of Washington; water mains and their appurtenances; sanitary sewers and sewage disposal systems unless such sewers and disposal systems are within, and a part of, a street or road drainage system; telephone, telegraph, electrical power distribution lines, or other conduits or lines in or above streets or roads, unless such power lines become a part of a street or road lighting system; and installing or attaching of any article of tangible personal property in or to real property, whether or not such personal property becomes a part of the realty by virtue of installation.

For work performed in such cases, the Contractor shall collect from the Contracting Agency, retail sales tax on the full contract price. The Contracting Agency will automatically add this sales tax to each payment to the Contractor. For this reason, the Contractor shall not include the retail sales tax in the unit bid item prices, or in any other contract amount subject to Rule 170, with the following exception.

Exception: The Contracting Agency will not add in sales tax for a payment the Contractor or a subcontractor makes on the purchase or rental of tools, machinery, equipment, or consumable supplies not integrated into the project. Such sales taxes shall be included in the unit bid item prices or in any other contract amount.

**1-07.2(4) Services**

The Contractor shall not collect retail sales tax from the Contracting Agency on any contract wholly for professional or other services (as defined in Washington State Department of Revenue Rules 138 and 244).

**1-07.5(5) Noise Restrictions (New Section)**

*Section 1-07.5(5) is added as the following:  
(Local Agency SP)*

The Contractor shall control and reduce noise to the extent possible at all times during the work and do not exceed the noise requirements stated in this section.

Noise generated by equipment is limited to 55 dba during the day (7am – 10pm) and 45 dba at night (10pm – 7am) at property lines.

Equipment maintenance may be done between the identified allowable working hours on weekdays only, provided that noise is restricted to a sound level that is considered acceptable as determined by the Engineer. Maintenance requiring equipment operation, such as might occur during engine repair, will not be allowed after 7:30 p.m.

In addition to local regulations, conduct all work using appropriate construction methods. Furnish and install acoustical barriers such that no sound emanating from the process or any related tool or equipment exceeds 55 decibels when measured at the property line. Periodic sounds such as backup beepers cannot exceed the minimum +2 -3 dBA required by state law.

Sounds created by impact types of construction equipment, including but not limited to pile drivers, jackhammers, sandblasting tools, or by other types of equipment or devices that create impulse noise or impact noise or are used as impact equipment as measured 50 feet from the equipment, may exceed the maximum permissible sound levels in any 1-hour period between the hours of 8:00 a.m. and 5:00 p.m. on weekdays, but in no event to exceed the following:

1. L eq 90 decibels continuously
2. L eq 93 decibels for 30 minutes
3. L eq 96 decibels for 15 minutes
4. L eq 99 decibels for 7½ minutes

Sound levels in excess of L eq 99 decibels are prohibited unless authorized by variance.

When sound levels are exceeded, the offending operation must be stopped immediately. No extension of time is allowed for excessive sound that causes a failure to perform the work according to the Contract.

#### **1-07.6 Permits and Licenses**

*Section 1-07.6 is deleted and replaced with the following:  
(Local Agency SP)*

##### **1-07.6(1) Owner-Furnished Permits**

The Contracting Agency is responsible for obtaining the following permits:

1. Department of Ecology NPDES and State Waste Discharge General Permit for Storm Water Discharges Associated with Construction Activities.
2. State Environment Protection Act Environmental Checklist

Copies of these Contracting Agency-Furnished permits are appended, will be issued in an addendum or will be provided to the Contractor following issuance by the appropriate regulatory or permitting entities.

The Contractor shall comply with all conditions and requirements of the Contracting Agency-Furnished Permits. The Contractor shall provide access to the project by regulatory officials for determination of compliance. The Contractor shall anticipate that compliance with the permits and any necessary corrective action may result in delay or hindrance of the Contractor's prosecution of the work. The Contractor shall not be entitled to any additional compensation or extension of Contract Time for delays or additional work resulting from compliance with Contracting Agency-Furnished Permits.

##### **1-07.6(2) Contractor-Furnished Permits**

The Contractor shall apply for, and pay all costs associated with all other required permits not listed as Contracting Agency-Furnished Permits in section 1-07.6(1) above. Failure of the Contractor to identify and obtain all required permits shall not relieve the Contractor of the responsibility of compliance with all applicable regulatory requirements.

The Contractor shall comply with all conditions and requirements of the Contractor-Furnished Permits. The Contractor shall provide safe access to the project by regulatory officials for determination of compliance. The Contractor shall anticipate that compliance with the permits and any necessary corrective action may result in delay or hindrance of the Contractor's prosecution of the work. The Contractor shall not be entitled to any additional compensation or extension of Contract Time for delays or additional work resulting from compliance with Contractor-Furnished Permits.

The Contractor shall furnish all bonds and insurance required by the controlling agencies, and shall, if requested, pay for any inspection and testing.

The Contractor shall furnish the Engineer with one copy of each permit issued for borrow, filling, or wasting material required for or generated by the contract work. The Contractor shall notify the Engineer in writing of the location of all borrow, filling, and waste sites regardless of whether a permit is required.

All costs incurred by the Contractor in procuring permits and complying with stipulations in the permits and approvals shall be incidental to and included in the various items of work in the project; and no additional compensation will be made.

Anticipated Contractor-Furnished Permits for Schedule 1 include:

1. Encroachment/ROW/Roadway Permit
2. Demolition/Building Permit
3. Electrical Permit

##### **1-07.6(3) Business and Contracting Licenses**

At a minimum, the Contractor and his subcontractors shall have the following licenses and shall submit proof of such licensing to the Contracting Agency upon request:

1. Kitsap County Business License
2. Washington State Contractor License

**1-07.9(1) General**

*Section 1-07.9(1) is supplemented with the following:  
(Local Agency SP)*

Prevailing Wage rates that apply to this Contract will be the latest as published by the Washington State Department of Labor and Industries, available from:

State of Washington, Department of Labor and Industries  
Employment Standards Division  
General Administration Building  
Olympia, Washington 98504  
Contact: (360) 753-6317

The current prevailing wage rates at the time of bid advertisement may be found in Appendix A.

The Contractor shall require all subcontractors to complete Affidavits of Wages Paid and to make the proper filing of same. Payment by the CONTRACTOR or Subcontractor of any fees shall be considered incidental to the construction and all costs shall be included in other pay items of the project.

**1-07.13(1) General**

*Section 1-07.13(1) is supplemented with the following:  
(Local Agency SP)*

The Contracting Agency reserves the right to use and/or occupy any portion of the project or it's improvements which have been completed sufficiently to permit use and occupancy and such use shall not be construed as an acceptance of the work or any part thereof, and any claims which the Contracting Agency may have against the Contractor shall not be deemed to have been waived by such use and/or occupancy.

**1-07.14 Responsibility for Damage**

*Section 1-07.14 is supplemented with the following:  
(Local Agency SP)*

The Contractor shall protect, defend, indemnify, and save harmless the Contracting Agency, its officers, officials, employees, and agents, from any and all claims, demands, suits, penalties, losses, damages, judgments, or costs of any kind whatsoever (hereinafter "claims"), arising out of or in any way resulting from the Contractor's officers, employees, agents, and/or subcontractors of all tiers, acts or omissions, performance or failure to perform this Contract, to the maximum extent permitted by law or as defined by RCW 4.24.115, now enacted or as hereinafter amended.

The Contractor's obligations under this section shall include, but not be limited to:

1. The duty to promptly accept tender of defense and provide defense to the Contracting Agency at the Contractor's own expense.
2. The duty to indemnify and defend the Contracting Agency from any claim, demand, and/or cause of action brought by or on behalf of any of its employees, or agents. The foregoing duty is specifically and expressly intended to constitute a waiver of the Contractor's immunity under Washington's Industrial Insurance Act, RCW Title 51, as respects the Contracting Agency with a full and complete indemnity and defense of claims made by the Contractor's employees. The parties acknowledge that these provisions were mutually negotiated and agreed upon by them.
3. To the maximum extent permitted by law, the Contractor shall indemnify and defend the Contracting Agency from and be liable for all damages and injury which shall be caused to owners of property on or in the vicinity of the work or which shall occur to any person or persons or property whatsoever arising out of the performance of this Contract, whether or not such injury

or damage is caused by negligence of the Contractor or caused by the inherent nature of the work specified.

The Contracting Agency may, in its sole discretion, withhold amounts sufficient to pay the amount of any claim for injury, and/or pay any claim for injury of which the Contracting Agency may have knowledge, regardless of the formalities of notice of such claim, arising out of the performance of this Contract.

An amount withheld will be held until the Contractor secures a written release from the claimant, obtains a court decision that such claim is without merit, or satisfies any judgment on such claim. In addition, the Contractor shall reimburse and otherwise be liable for claims costs incurred by the Contracting Agency, including, without limitation, costs for claims adjusting services, attorneys, engineering, and administration.

In the event the Contracting Agency incurs any judgment, award, and/or costs arising, including attorneys' fees, from enforcing the provisions of this provision, all such fees, expenses, and costs shall be recoverable from the Contractor.

### **1-07.15 Temporary Water Pollution/Erosion Control**

*Section 1-07.15 is supplemented with the following:  
(Local Agency SP)*

The Contractor shall submit bi-weekly updates of the temporary water pollution/erosion control plan. These updates shall include, but are not limited to, sketches showing location of control facilities such as straw bales, silt fences, and areas to be covered at end of shift. These updates shall be submitted to the Engineer for review every other Wednesday unless otherwise directed by the Engineer. The Engineer will review the updated plan and provide comments to Contractor.

As set forth in Section 1-07.14 as amended in the Special Provisions, the Contractor shall be responsible throughout the life of the project to take all necessary precautions to prevent pollution, erosion, siltation, and related damage to property caused by any water leaving work areas, including borrow and stockpile areas. All silt shall be contained within the construction area. Required temporary water pollution control measures shall be in accordance with the requirements of Section 8-01 as amended in the Special Provisions.

The Contractor shall pay all fines and citations charged to the Contracting Agency for discharging silty water from the site during the life of the project. In addition, the Contractor shall pay all costs for repair to property damaged (onsite and offsite) by water discharged from work areas used in this Contract.

Construction and maintenance of erosion control measures shall be performed according to the Contract Documents and applicable permits. Other or additional temporary water pollution/erosion control measures may be required at the discretion of the Engineer. Costs for temporary water pollution/erosion control shall be in accordance with that specified in Sections 2-13, 7-08, and 8-01 as amended in the Special Provisions.

The Contractor shall meet all federal, state and local pollution control regulations for all work performed under this contract. No lime, wet concrete, petroleum products, silts, organic material or other deleterious materials are allowed to fall, flow, leach or otherwise enter public waters.

The Contractor shall observe all statutes, ordinances and regulations pertaining to the prevention of environmental pollution and the preservation of public natural resources. All such statutes, ordinances, regulations or portions thereof pertaining to work under this contract are hereby incorporated with and made part of this contract.

The Contractor shall be aware of these provisions and coordinate with the specific controlling agencies.

The Contractor shall furnish all bonds and insurance required by the controlling agencies and shall, if requested, pay for any inspections and testing accomplished or furnished by them.

### **1-07.15(1) Spill Prevention, Control, and Countermeasures Plan**

*Section 1-07.15(1) is supplemented with the following:  
(Local Agency SP)*

The Contracting Agency has prepared a SPCC and included such in Appendix C. Contractor shall be responsible for complying with, maintaining, and updating this plan as necessary as work progresses. All costs associated with this work shall be included in the bid item for Temporary Erosion and Sediment Control.

#### **1-07.16(1) Private/Public Property**

*Section 1-07.16(1) is supplemented with the following:  
(Local Agency SP)*

The Contractor shall restore all roads and streets in which the surface is removed, broken or damaged, or in which the ground has caved or settled, due to hauling of materials, equipment and/or supplies and installation of the improvements covered by this contract, to the original grade and crown section unless otherwise indicated. Match the existing surfacing for depth, materials and surface finish, including striping and pavement markings, except as otherwise specified.

At all times during work, the Contractor shall keep the premises clean and orderly, and upon completion of the work, repair all damage caused by equipment and leave the project free from all rubbish and excess material of any kind.

The Contractor shall reconstruct all curbs, driveways, sidewalks and similar structures and utilities, which are broken or damaged during construction. Reconstruct with the same kind of material with the same finish, and in not less than the same dimensions as the original work. Remove and replace the entire portions between joints or scores and not merely by refinishing the damaged part. Match the appearance of the existing improvements as nearly as possible.

The Contractor shall be fully responsible for the prevention of damage to the City's, County's or State's roads. Prior to beginning construction, the Contractor shall obtain any and all licenses or permits required for the travel on, and work within, the Road Right-of-Way.

Paved areas including adjacent or haul route streets shall be maintained for the duration of the Contract. Street sweeping shall be performed as required and at the direction of the Engineer using a self-propelled vehicle outfitted with rotating brushes and a filtered vacuum system to collect sediment, dust, and debris from paved road surfaces. The vehicle shall store street sweepings internally. Collected street sweepings shall be disposed of by approved disposal method(s) in accordance with the Contract. The Contractor shall provide a wheel wash, if necessary, to prevent tracking of mud and dirt onto paved roads. Wheel wash water shall not be discharged to any storm drain or stream. Thoroughly clean all spilled dirt, gravel, or other material caused by the construction activities from all roads and streets at the end of each day.

The Contractor shall at all times maintain the integrity of the existing pavement, shoulder, culverts, and roadside ditches. If the existing pavement or shoulder is removed, broken, or damaged as a result of the construction of the improvements covered by this Contract, the Contractor shall restore the damaged area to the original grade and crown sections in accordance with the Standard Specifications. New surfacing shall match the existing surfacing for depth, materials and surface finish, including striping and pavement markings. Restore all culverts equal to existing.

Vehicles leaving the site shall be cleaned and loads secured to prevent the deposition of muds, silts, sands and construction materials on roads or highways. Any such degradation of roads or highways shall be corrected by the end of each working day so that the road is in a clean state. Tracked vehicles shall be constrained to paved or unpaved areas that will be restored.

#### **1-07.16(2) Vegetation Protection and Restoration**

*Section 1-07.16(2) is supplemented with the following:  
(Local Agency SP)*

Restore all cultivated area and easements, which are disturbed or damaged by actions of the Contractor to their original condition. Where pipe trenches are constructed in easements, the entire easement shall be regraded and restored.

Remove ornamental trees and shrubbery with earth surrounding the roots wrapped in burlap, and replant in their original positions, or, as an alternative, replace with equal material.

For lawn areas, cut sod, roll and replace after the excavation has been properly compacted or, as an alternative, cover the excavated area with top soil to the depth of the original top soil and reseed, water and maintain as directed. The Contractor shall notify the owner of any private property prior to construction upon his premises.

The materials storage areas shall be regraded and seeded at the conclusion of the project. Any damage to fences, walks, curbs, driveways, etc. shall be handled in accordance with the applicable sections of these specifications.

#### **1-07.16(6) Interfering Structures (New Section)**

*Section 1-07.16(6) is added as the following:  
(Local Agency SP)*

The Contractor shall take necessary precautions to prevent damage to existing structures whether on the surface, aboveground, or underground. An attempt has been made to show major structures on the Drawings. The completeness and accuracy of information shown however, cannot be guaranteed. Protect underground and aboveground existing structures from damage, whether or not they lie within the limits of the easements obtained by the Contracting Agency. Where such existing fences, gates, barns, sheds, buildings, or any other structure must be removed in order to properly carry out the construction, or are damaged during construction, restore to their original condition to the satisfaction of the property owner involved at the Contractor's own expense. Notify the Engineer of any damaged underground structure, and make repairs or replacements before backfilling.

If existing structures are encountered which prevent the construction, and which are not properly shown on the Drawings, notify the Engineer before continuing with the construction in order that the Engineer may make such field revisions as necessary to avoid conflict with the existing structures. It is expected that minor relocations of the work will be necessary during the progress of construction. If the Contractor fails to notify the Engineer when an existing structure is encountered, and proceeds with construction despite this interference, the Contractor shall do so at the Contractor's own risk and expense.

#### **1-07.17 Utilities and Similar Facilities**

*Section 1-07.17 is supplemented with the following:  
(Local Agency SP)*

The information shown or indicated in the Contract Documents with respect to existing underground facilities at or contiguous to the site is based on available information obtained without necessarily uncovering, measuring or other verification. The depth of existing utilities, if indicated, may only be an approximation. Additional utilities may be encountered and the actual locations of the utilities indicated on the Plans may vary from the locations indicated. The information is provided for the convenience of the Contractor only, and no responsibility is assumed by either the Contracting Agency or the Engineer for its accuracy or completeness. The Contractor shall have full responsibility for reviewing and checking utility information, locating all underground facilities, and coordinating work with the owners of such underground facilities. The Contractor shall take the necessary precautionary measures to protect the existing utilities and structures indicated and any other utilities or structures which may be encountered during construction and shall be responsible for the repair of any damage thereto resulting from the work if:

1. The utility owner has field located and marked its facilities and the actual location of any portion of the utility is within two feet horizontally either side of said location mark; or
2. The utility system is visible or has become visible or can be reasonably assumed to exist at the location due to visible evidence prior to the damage; or
3. The Contractor failed to provide the required notification to the utility owner of the damage to the utility; or
4. The actual location or depth is different or other than that indicated on the Plans.

Existing underground utilities, whether public or private, which are damaged by the Contractor, will be repaired by the utility owner or as directed by the utility owner.

All existing utilities shall be maintained in continuous operation and properly protected during the Contractor's operations, unless the Contractor receives written approval from the utility owner for interruption of service. In addition, all work by the Contractor adjacent to, or in the vicinity of, existing utilities shall be performed in accordance with the requirements of the utility owners. The Contractor shall pay all permit, inspection, and other fees levied by the utility owners. Where the Contractor's operations could damage or inconvenience other utility systems or services, the operations shall be suspended until all arrangements necessary for the protection or relocation of these utilities and services have been made by the Contractor. Notify all utility offices, which are affected by the construction operation at least 48 hours in advance. Under no circumstances expose any utility without first obtaining permission from the appropriate agency. Once permission has been granted, locate, expose, and provide temporary support for all existing underground utilities.

The Contractor shall anticipate that service lines between utility systems and private residences will be encountered. Service lines are not shown on the Plans and may not be field located by the utility. The Contractor shall determine the actual location and protect from damage all service lines. If any utilities or service lines are damaged by the construction operations, Contractor shall promptly notify the proper authority and begin or cause the repair as required by the utility so that the utility or service is back in service as promptly as possible. In no case shall interruption of any water, sewer, or other utility service be allowed to exist outside working hours unless prior approval is granted.

In the event the Contractor encounters water service lines that interfere with trenching, the Contractor may, by obtaining prior approval of the property owner, Water Department and the Engineer, cut the service, dig through, and restore the service with similar and equal materials at the Contractor's sole expense. In the event the Contractor encounters water service lines that interfere with new improvements, the Contractor shall notify the Engineer.

Some existing utility poles, lines, piping and/or appurtenances may need to be held in place, removed or relocated as part of this project. If said work is required, the Contractor shall coordinate and schedule all such work with the respective utilities so that the Contractor's work and schedule are not impacted. Public and private utilities, or their contractors, will furnish all work necessary to hold, adjust, relocate, replace, or construct their facilities unless otherwise provided for in the Plans or these Special Provisions. Such work, if required, will be done during the prosecution of the work for this project. The Contractor's attention is directed to the fact that significant lead times may potentially be required to coordinate and schedule with the utility companies to perform the work. The Contracting Agency has notified and initiated preliminary coordination with each utility company of this project.

Removal, relocation, and adjustment of existing utilities where shown on the Plans or where it could reasonably be foreseen to accommodate the work by the Contractor shall be ordered and paid for by the Contractor. If or when utility conflicts occur, the Contractor shall continue construction on other aspects of the project. Any change to the operation necessary to work around the conflicts shall be incidental to the various bid items of the contract and no further compensation will be made.

The Contractor shall anticipate that the owners of existing utilities may choose to modify and/or improve the existing systems at the time that the Contractor is working. The Contractor shall perform any and all work required to accommodate concurrent work by the owners of existing utilities. The Contractor shall coordinate his activities with those of the utility owners to enable both activities to proceed without delay.

The Contractor shall call the Utilities Underground Locate Center (One Call Center) at (800) 424 5555 for field location, not less than two or more than ten business days before the scheduled date for commencement of excavation which may affect underground utility facilities. Notice shall be provided individually to those owners who are not members of the one-number locator service and are known to or suspected of having underground facilities within the area of proposed excavation.

The Contractor shall anticipate work may be hindered or delayed by

1. the removal, relocation and adjustment of any utility;
2. maintenance operations of existing utility systems; or

3. the requirements of the owners of existing utility systems.

The Contractor shall not be entitled to an extension of time or to any claim for damages because of hindrances or delays caused by these activities.

The following addresses and telephone numbers of utility companies known or suspected of having facilities within the project limits and other pertinent contacts are supplied for the Contractor's convenience:

**Puget Sound Energy**

10885 NE 4th St.  
P.O. Box 97034  
Bellevue, WA 98009  
(888) 225-5773  
Victor Ibarra

**Comcast**

1225 Sylvan Way  
Bremerton, WA 98310  
(360) 377-8528, Office  
(877) 824-2288, Service  
(800) 424-5555, Buried Cable Location

**Qwest**

611 6th Street, Basement  
Bremerton, WA 98337  
(360) 478-4426  
Royce Klein

**Convergence Technologies, Inc**

245 4th Street, Suite 207.  
Bremerton, WA 98337  
(360) 405-1231  
John Stockwell

**City of Bremerton Public Works**

3027 Olympus Drive  
Bremerton, WA 98310  
(360) 473-5315  
(360) 473-5018, Fax

**Cascade Natural Gas**

PO Box 539  
Bremerton, WA 98337  
(360) 271-0071  
Clint Matthews

**Kitsap County Public Works**

(206) 368-5440

**1-07.18 Public Liability and Property Damage Insurance**

*Section 1-07.18 is deleted and replaced with the following:  
(Local Agency SP):*

**1-07.18 Insurance**

**1-07.18(1) General Requirements**

The Contractor shall obtain the insurance described in this section from insurers approved by the Washington State Insurance Commissioner pursuant to RCW Title 48. The insurance must be provided by an insurer with a rating of A-: VII or higher in the A.M. Best's Key Rating Guide, and be licensed to do business in the state of Washington (or issued as a surplus line by a Washington Surplus lines broker). Excess and umbrella coverage used to meet the requirements for limits of liability or gaps in coverage need not be placed with insurers or re-insurers licensed in the State of Washington. The Contracting Agency reserves the right to approve or reject the insurance provided, based on the insurer (including financial condition), terms and coverage, the Certificate of Insurance, and/or endorsements.

The Contractor's insurance shall apply separately to each insured against whom a claim is made or suit is brought, except with respect to the limits of the insurer's liability.

The insurance limited mandated for any insurance coverage required by this Contract are not intended to be an indication of exposure nor are they limitations on indemnification.

The Contractor shall keep this insurance in force during the term of the contract and for thirty (30) days after the Physical Completion date, unless otherwise indicated. Certificates, policies, and endorsements expiring before completion of services shall be promptly replaced as well as the verification sent to the Contracting Agency.

If any insurance policy is written on a claims made form, its retroactive date, and that of all subsequent renewals, shall be no later than the effective date of this Contract. The policy shall state that coverage is

claims made, and state the retroactive date. Claims-made form coverage shall be maintained by the Contractor for a minimum of 36 months following the Final Completion or earlier termination of this contract, and the Contractor shall annually provide the Contracting Agency with proof of renewal. If renewal of the claims made form of coverage becomes unavailable, or economically prohibitive, the Contractor shall purchase an extended reporting period ("tail") or execute another form of guarantee acceptable to the Contracting Agency to assure financial responsibility for liability for services performed.

The insurance policies shall contain a "cross liability" provision.

The Contractor's and all subcontractors' insurance coverage shall be primary and non-contributory insurance as respects the Contracting Agency's insurance, self-insurance, or insurance pool coverage.

All insurance policies and Certificates of Insurance shall provide that the underlying insurance contract will not be canceled, allowed to expire, or be materially reduced in coverage except upon a minimum of 30 days prior written notice to the Contracting Agency. Any certificate or endorsement limiting or negating the insurer's obligation to notify the Contracting Agency of cancellation or changes shall be altered so as to not negate the intent of this provision.

Written notice of any cancellations or changes in coverage shall be mailed to the Contracting Agency at the following address:

Attn: Risk Manager  
Department of Administrative Services  
614 Division Street  
Port Orchard, Washington 98366

Upon request, the Contractor shall forward to the Contracting Agency a full and certified copy of the insurance policy(s).

The Contractor shall not begin work under the contract until the required insurance has been obtained and approved by the Contracting Agency.

Failure on the part of the Contractor to maintain the insurance as required shall constitute a material breach of contract, upon which the Contracting Agency may, after giving five business days notice to the Contractor to correct the breach, immediately terminate the contract or, at its discretion, procure or renew such insurance and pay any and all premiums in connection therewith, with any sums so expended to be repaid to the Contracting Agency on demand, or at the sole discretion of the Contracting Agency, offset against funds due the Contractor from the Contracting Agency.

All costs for insurance shall be incidental to and included in the unit or lump sum prices of the contract and no additional payment will be made.

**1-07.18(2) Additional Insured**

All insurance policies, with the exception of Professional Liability and Workers Compensation, shall name the following listed entities as additional insured(s) with respect to performance of services:

1. The Contracting Agency and its officers, elected officials, employees, agents, and volunteers;
2. The Contracting Agency's consultant, BHC Consultants;
3. BHC Subconsultants:
  - a. Shannon & Wilson
  - b. AES Consultants, Inc.
  - c. Fehr & Peers
  - d. Follett Engineering

The above-listed entities shall be additional insureds for the full available limits of liability maintained by the Contractor, whether primary, excess, contingent or otherwise, irrespective of whether such limits maintained by the Contractor are greater than those required by this Contract, and irrespective of whether

the Certificate of Insurance provided by the Contractor pursuant to 1-07.18(3) describes limits lower than those maintained by the Contractor.

A failure to comply with reporting provisions of the policies shall not affect coverage provided to the above listed entities.

#### **1-07.18(3) Subcontractors**

The Contractor shall include all subcontractors as insureds under its policies or shall furnish separate certificates and endorsements for each subcontractor. All coverage for subcontractors shall be subject to all of the requirements stated herein. Upon request of the Contracting Agency, the Contractor shall provide evidence of such insurance.

#### **1-07.18(4) Evidence of Insurance**

The Contractor shall deliver to the Contracting Agency a properly executed Certificate(s) of Insurance and/or signed policy endorsements for each policy of insurance meeting the requirements set forth herein when the Contractor delivers the signed Contract for the work. The certificate and endorsements must conform to the following requirements:

1. An ACORD certificate or a form determined by the Contracting Agency to be equivalent.
2. Copies of all endorsements naming Contracting Agency and all other entities listed in Section 1-07.18(2) as Additional Insured(s), showing the policy number. The Contractor may submit a copy of any blanket additional insured clause from its policies instead of a separate endorsement. A statement of additional insured status on an ACORD Certificate of Insurance shall not satisfy this requirement.
3. Any other amendatory endorsements to show the coverage required herein.
4. Certificates of Insurance shall show the Certificate Holder as Kitsap County and include c/o of the Office or Department issuing the Contract. The address of the Certificate Holder shall be shown as the current address of the Office or Department.

#### **1-07.18(5) Coverages and Limits**

The insurance shall provide the minimum coverages and limits set forth below. Providing coverage in these stated minimum limits shall not be construed to relieve the Contractor from liability in excess of such limits. All deductibles and self-insured retentions must be disclosed and are subject to approval by the Contracting Agency. The cost of any claim payments falling within the deductible shall be the responsibility of the Contractor.

#### **1-07.18(5)A Commercial General Liability**

Contractor shall maintain a policy of Commercial General Liability Insurance, including:

1. Per project aggregate
2. Premises/Operations Liability
3. Products/Completed Operations – for a period of one year following final acceptance of the work.
4. Personal/Bodily/Advertising Injury
5. Property damage
6. Contractual Liability
7. Independent Contractors Liability
8. Stop Gap / Employers' Liability
9. Explosion, Collapse, or Underground Property Damage (XCU)
10. Blasting (only required when the Contractor's work under this Contract includes exposures to which this specified coverage responds)

Such policy must provide the following minimum limits:

\$2,000,000	Each Occurrence
\$5,000,000	General Aggregate
\$2,000,000	Products & Completed Operations Aggregate
\$2,000,000	Personal, Bodily, & Advertising Injury, each offence

Stop Gap / Employers' Liability

\$1,000,000	Each Accident
\$1,000,000	Disease - Policy Limit
\$1,000,000	Disease - Each Employee

The Commercial General Liability coverage shall not exclude any activity to be performed in fulfillment of this Contract and shall contain no special limitations on the scope of protection afforded any additional insured(s). Specialized forms specific to the industry of the Contractor will be deemed equivalent provided coverage is no more restrictive than would be provided under a standard Commercial General Liability policy, including contractual liability coverage. Coverage shall include liability arising out of activities performed by or on behalf of the Contractor; products and completed operations of the Contractor; or premises owned, leased, or used by the Contractor.

**1-07.18(5)B Automobile Liability**

Automobile Liability for owned, non-owned, hired, and leased vehicles, with an MCS 90 endorsement and a CA 9948 endorsement attached if "pollutants" are to be transported. Such policy(ies) must provide the following minimum limit:

\$1,000,000	combined single limit for Bodily Injury and Property Damage
\$2,000,000	aggregate limit

**1-07.18(5)C Workers' Compensation**

The Contractor shall comply with Workers' Compensation coverage as required by the Industrial Insurance laws of the state of Washington. Contractor shall also maintain Employees Liability Coverage with a limit of not less than \$1 million. Contractor shall provide evidence of all coverage to the Contracting Agency.

Contractor shall request that their Washington State Department of Labor and Industries, Workers Compensation Representative send written verification to Kitsap County, within ten (10) calendar days after the effective date of the Contract, that the Contractor is currently paying Workers Compensation.

**1-07.18(5)D All Risk Builder's Risk**

Contractor shall purchase and maintain Builders Risk insurance covering interests of the Contracting Agency, the Contractor, and Subcontractors in the work. Builders Risk insurance shall be on a all-risk policy form and shall insure against the perils of fire and extended coverage and physical loss or damage including flood, earthquake, theft, vandalism, malicious mischief and collapse. The Builders Risk insurance shall include coverage for false work, temporary buildings, debris removal including demolition occasioned by enforcement of any applicable legal requirements, and damage to materials in transit or stored off-site. Such insurance shall cover "soft costs" including but not limited to design costs, licensing fees, and architect's and engineer's fees. Builders Risk insurance shall be written in the amount of the completed value of the project, including all Change Orders for the Work with no coinsurance provisions.

The Builders Risk insurance covering the work shall have a deductible of \$5,000 for each occurrence, which will be the responsibility of the Contractor. Higher deductibles for flood, earthquake and all other perils may be accepted by the Contracting Agency upon written request by the Contractor and written acceptance by the Contracting Agency. Any increased deductibles accepted by the Contracting Agency will remain the responsibility of the Contractor.

The Builders Risk insurance shall be maintained until final acceptance of the work by the Contracting Agency.

The Contractor and the Contracting Agency waive all subrogation rights against each other, any of Subcontractors, agents and employees, each of the other, A/E and A/E subconsultants, and separate contractors described in Section 1-05.2, if any, for damages caused by fire or other perils to the extent covered by Builders Risk insurance or other property insurance applicable to the work, except such rights as they have to proceeds of such insurance held by the Contracting Agency as fiduciary. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

**1-07.18(5)E Excess or Umbrella Liability**

The Contractor shall provide Excess or Umbrella Liability coverage at limits of 1 million per occurrence and annual aggregate. This excess or umbrella liability coverage shall apply, at a minimum, to both the Commercial General and Auto insurance policy coverage.

This requirement may be satisfied instead through the Contractor's primary Commercial General and Automobile Liability coverage, or any combination thereof.

**1-07.18(5)F Pollution Liability**

The Contractor shall provide a Pollution Liability policy, providing coverage for claims involving bodily injury, property damage (including loss of use of tangible property that has not been physically injured), cleanup costs, remediation, disposal or other handling of pollutants, including costs and expenses incurred in the investigation, defense, or settlement of claims arising out of:

1. Contractor's operations related to this project; and/or
2. Remediation, abatement, repair, maintenance or other work with lead-based paint or materials containing asbestos; and/or
3. Transportation of hazardous materials away from any site related to this project.

Such Pollution Liability policy shall provide the following minimum coverage:

\$1,000,000 each loss and annual aggregate

**1-07.18(5)G Professional Liability**

The Contractor and/or its Subcontractor and/or its design consultant providing construction management, value engineering, or any other design-related non-construction professional services shall provide evidence of Professional Liability insurance covering professional errors and omissions. Such policy must provide the following minimum limits:

\$1,000,000 per Claim

If the scope of such design-related professional services includes work related to pollution conditions, the Professional Liability insurance shall include Pollution Liability coverage.

If insurance is on a claims made form, its retroactive date, and that of all subsequent renewals, shall be no later than the effective date of this Contract.

**1-07.18(6) Additional Insurance Provisions (New Section)**

All policies of insurance shall include a clause or endorsement providing that coverage will not be cancelled without 30 days written notice to named insureds as well as to the Contracting Agency.

In the event general liability insurance is provided on a claims-made policy, the retroactive date of such policy shall not be later than the date of the Notice to Proceed or the Effective Date of the Contract, whichever is earlier. For construction periods extending beyond the expiration date of an initial claims-made policy, the retroactive date of all subsequent claims-made policies shall not be later than the date of the Notice-to-Proceed.

### **1-07.23 Public Convenience and Safety**

*Section 1-07.23 is supplemented with the following:  
(Local Agency SP)*

The Contractor shall be responsible to notify, in writing, local fire, school, law enforcement authorities, or other affected persons as directed by the Engineer, not less than ten (10) working days prior to construction operations that will deviate and/or delay traffic from the existing traffic pattern, so that these agencies may reroute emergency or other vehicles as necessary. Contractor shall also coordinate with Kitsap Transit to provide a temporary bus stop along Fairgrounds Road during the portion of work that impacts the existing bus stop.

The Contractor shall at all times conduct the work as to insure the least possible obstruction to traffic and inconvenience to the general public and the residents in the vicinity of the work, and to insure the protection of persons and property. No road or street shall be closed to the public except with the permission of the Engineer and proper governmental authority. Fire hydrants on or adjacent to the work shall be kept accessible to fire fighting equipment at all times. Temporary provisions shall be made by the Contractor to insure the use of sidewalks and private and public driveways, and the proper functioning of all gutters, sewer inlets, drainage ditches and culverts, irrigation ditches and natural water courses. Access must be maintained for foot and bus traffic to nearby schools.

The Contracting Agency and controlling public authorities shall be notified at least 24 hours in advance of any actions by the Contractor which may affect the functions of the police or fire departments, school system, or water and sewer districts.

The Contractor shall conduct the work, and take preventative measures, such that dust in the project area shall not become objectionable to the adjacent property owners. Should the Contracting Agency determine the Contractor is not fulfilling this obligation, the Contracting Agency reserves the right to take such action as may be necessary and to charge the Contractor of any costs that may be incurred in such remedial action.

All work shall be conducted with due regard for the safety of the public. Open trenches shall be completely backfilled or covered prior to the stop of work each day and provided with barricades of a type that can be seen at a reasonable distance, and at night they shall be distinctly indicated by adequately placed lights. Safety instructions received from the Engineer, Controlling Agency, or the Contracting Agency shall be observed, but the following of such instructions shall in no way relieve the Contractor of his responsibility or liability should any accident or loss occur as the result of the construction operations. Flaggers shall be provided by the Contractor as required to direct traffic.

It shall be the Contractor's responsibility to see that all requirements of the Federal William-Stieger Occupational Safety and Health Act as well as the State of Washington Industrial Safety and Health Act, are observed and enforced to protect all the workmen on the project as well as the general public.

Complaints received by the Contracting Agency concerning public inconvenience or safety hazards will be referred to the Contractor for immediate corrective action. In addition to normal work hours, corrective actions may need to be taken on Saturdays, Sundays, holidays, and at times other than normal work hours.

#### **1-07.23(1) Construction under Traffic**

*The second paragraph of Section 1-07.23(1) is revised to read as follows:  
(Local Agency SP)*

To disrupt public traffic as little as possible, the Contractor shall permit traffic to pass through the work with the least possible inconvenience or delay. The Contractor shall maintain existing roads, streets, sidewalks, and paths within the project limits, keeping them open, and in good, clean, safe condition at all times. If there is need to temporarily block access, such blockages shall be coordinated with Contracting Agency, the affected property owners and Engineer. Deficiencies caused by the Contractor's operations shall be repaired at the Contractor's expense. Deficiencies not caused by the Contractor's operations shall be repaired by the Contractor when directed by the Engineer, at the Contracting Agency's expense. The Contractor shall also maintain roads, streets, sidewalks, and paths adjacent to the project limits when

affected by the Contractor's operations. Snow and ice control will be performed by the Contracting Agency on all projects. Cleanup of snow and ice control debris will be at the Contracting Agency's expense. The Contractor shall perform the following:

1. Remove or repair any condition resulting from the work that might impede traffic or create a hazard.
2. Keep existing traffic signal and highway lighting systems in operation as the work proceeds. (The Contracting Agency will continue the route maintenance on such system.)
3. Maintain the striping on the roadway. The Contractor shall be responsible for scheduling when to renew striping, subject to the approval of the Engineer. When the scope of the project does not require work on the roadway, the Contracting Agency will be responsible for maintaining the striping.
4. Maintain existing permanent signing. Repair of signs will be at the Contracting Agency's expense, except those damaged due to the Contractor's operations.
5. Keep drainage structures clean to allow for free flow of water. Cleaning of existing drainage structures will be at the Contracting Agency's expense when approved by the Engineer, except when flow is impaired due to the Contractor's operations.

#### **1-07.23(2) Construction and Maintenance of Detours**

*The first paragraph of Section 1-07.23(2) is revised to read as follows:  
(October 1, 2005 APWA GSP)*

Unless otherwise approved, the Contractor shall maintain two-way traffic during construction. The Contractor shall build, maintain in a safe condition, keep open to traffic, and remove when no longer needed:

1. Detours and detour bridges that will accommodate traffic diverted from the roadway, bridge, sidewalk, or path during construction,
2. Detour crossings of intersecting highway, and
3. Temporary approaches.

#### **1-07.24 Rights of Way**

*Section 1-07.23 is deleted replaced with the following  
(Local Agency SP)*

Street right of way lines, limits of easements, and limits of construction permits are indicated on the Plans. The Contractor's construction activities shall be confined within these limits, unless arrangements for use of private property are made by Contractor.

Generally, the Contracting Agency will have obtained, prior to bid opening, all rights of way and easements, both permanent and temporary, necessary for carrying out the work. Exceptions to this are noted in the Bid Documents or will be brought to the Contractor's attention by a duly issued Addendum.

Whenever any of the work is accomplished on or through property other than public right of way, the Contractor shall meet and fulfill all covenants and stipulations of any easement agreement obtained by the Contracting Agency from the owner of the private property. Copies of the easement agreements may be included in the Contract Provisions or made available to the Contractor as soon as practical after they have been obtained by the Engineer.

Whenever easements or rights of entry have not been acquired prior to advertising, these areas are so noted on the Plans. The Contractor shall not proceed with any portion of the work in areas where right of way, easements or rights of entry have not been acquired until the Engineer certifies to the Contractor that the right of way or easement is available or that the right of entry has been received. If the Contractor is delayed due to acts of omission on the part of the Contracting Agency in obtaining easements, rights of entry or right of way, the Contractor will be entitled to an extension of time. The Contractor agrees that such delay shall not be a breach of contract.

Each property owner shall be given 48 hours notice prior to entry by the Contractor. This includes entry onto easements and private property where private improvements must be adjusted.

The Contractor shall be responsible for providing, without expense or liability to the Contracting Agency, any additional land and access thereto that the Contractor may desire for temporary construction facilities, storage of materials, or other Contractor needs. However, before using any private property, whether adjoining the work or not, the Contractor shall file with the Engineer a written permission of the private property owner, and, upon vacating the premises, a written release from the property owner of each property disturbed or otherwise interfered with by reasons of construction pursued under this contract. The statement shall be signed by the private property owner, or proper authority acting for the owner of the private property affected, stating that permission has been granted to use the property and all necessary permits have been obtained or, in the case of a release, that the restoration of the property has been satisfactorily accomplished. The statement shall include the parcel number, address, and date of signature. Written releases must be filed with the Engineer before the Completion Date will be established.

Before final payment will be authorized by the Engineer, the Contractor will be required to furnish the Contracting Agency with written releases from property owners or public agencies where side agreements or special easements have been made by the Contractor or where the Contractor's operations, for any reason, have not kept within the construction right-of-way obtained by the Contracting Agency.

#### **1-07.28 Haul Route Restrictions (New Section)**

*Section 1-07.28 is added as the following:  
(Local Agency SP)*

The Contractor shall contact all governing control agencies who have jurisdiction over proposed routes that will be used for the delivery and removal of materials for the project prior to bid. The Contractor shall follow the requirement(s) of the controlling agency and shall include the cost of complying with any such requirements in the applicable unit price per or lump sum bid item. No separate or additional payment will be made for regulatory agencies request for vehicle routing.

The Contractor shall submit a traffic control plan to all appropriate controlling agencies for hauling of import materials and excavation materials. The Contractor shall amend and abide by comments on the approved traffic control plan.

Road closures (if allowed) shall be posted at least one week prior to the start of construction.

All roads shall be open to vehicular traffic all evenings and nights after the completion of each day's construction activity. Steel plates, temporary fill, barricades and other measures shall be used to make disturbed roads safe and passable.

**END OF SECTION 1-07**

## **SECTION 1-08 PROSECUTION AND PROGRESS**

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### **1-08.0 Preliminary Matters**

*Section 1-08.0 and its subsections are added as the following:  
(Local Agency SP)*

#### **1-08.0(1) Preconstruction Conference**

Prior to the Contractor beginning the work, a preconstruction conference will be held between the Contractor, Contracting Agency, Engineer and such other interested parties as may be invited. The purpose of the preconstruction conference will be:

1. To review the initial progress schedule;
2. To establish a working understanding among the various parties associated or affected by the work;
3. To establish and review procedures for progress payment, notifications, approvals, submittals, etc.;
4. To establish normal working hours for the work;
5. To review safety standards and traffic control; and
6. To discuss such other related items as may be pertinent to the work.

The Contractor shall prepare and submit at the preconstruction conference the following:

1. A breakdown/schedule of values for all lump sum items;
2. A preliminary schedule of shop drawings and submittals;
3. A list of material sources for approval if applicable.

#### **1-08.0(2) Hours of Work**

Except in the case of emergency or unless otherwise approved by the Contracting Agency, the normal straight time working hours for the contract shall be any consecutive 8-hour period between 7:00 a.m. and 6:00 p.m. of a working day with a maximum 1-hour lunch break and a 5-day work week. The normal straight time 8-hour working period for the contract shall be established at the preconstruction conference or prior to the Contractor commencing the work.

If a Contractor desires to perform work on holidays, Saturdays, Sundays, or before 7:00 a.m. or after 6:00 p.m. on any day, the Contractor shall apply in writing to the Engineer for permission to work such times. Permission to work longer than an 8-hour period between 7:00 a.m. and 6:00 p.m. is not required. Such requests shall be submitted to the Engineer no later than 72 hours prior to the day for which the Contractor is requesting permission to work.

Permission to work between the hours of 10:00 p.m. and 7:00 a.m. during weekdays and between the hours of 10:00 p.m. and 9:00 a.m. on weekends or holidays may also be subject to noise control requirements. Approval to continue work during these hours may be revoked at any time the Contractor exceeds the Contracting Agency's noise control regulations or complaints are received from the public or adjoining property owners regarding the noise from the Contractor's operations. The Contractor shall have no claim for damages or delays should such permission be revoked for these reasons.

Permission to work Saturdays, Sundays, holidays or other than the agreed upon normal straight time working hours Monday through Friday may be given subject to certain other conditions set forth by the Contracting Agency or Engineer. These conditions may include but are not limited to: requiring the Engineer or such assistants as the Engineer may deem necessary to be present during the work; requiring the Contractor to reimburse the Contracting Agency for the costs in excess of straight-time costs for Contracting Agency employees who worked during such times, on non Federal aid projects; considering the work performed on Saturdays, Sundays, and holidays as working days with regards to the contract time; and considering multiple work shifts as multiple working days with respect to contract time

even though the multiple shifts occur in a single 24-hour period. Assistants may include, but are not limited to, survey crews; personnel from the Contracting Agency's material testing lab; inspectors; and other Contracting Agency employees when in the opinion of the Engineer, such work necessitates their presence.

### **1-08.0(3) Reimbursement for Overtime Work of Contracting Agency Employees**

Where the Contractor elects to work on a Saturday, Sunday, or holiday, or longer than an 8-hour work shift on a regular working day, as defined in the Standard Specifications, such work shall be considered as overtime work. On all such overtime work an inspector will be present, and possibly others may be required at the discretion of the Engineer. In such case, the Contracting Agency may deduct from amounts due or to become due to the Contractor for the costs in excess of the straight-time costs for employees of the Contracting Agency required to work overtime hours.

The Contractor by these specifications does hereby authorize the Engineer to deduct such costs from the amount due or to become due to the Contractor.

### **1-08.3 Progress Schedule**

*Section 1-08.3(1) is supplemented with the following:  
(Local Agency SP)*

Contractor shall solicit input on manufacturing and delivery times from significant equipment and material suppliers and subcontractors. Once the preliminary schedule is accepted by the Engineer, all subcontractors shall be made aware and sign off on the schedule. This will be done and documented early on at a weekly construction meeting.

To accommodate the desired information and the required schedule updates, use of a computer scheduling program is required. The Contractor's attention is directed to the format/content of the schedule of values. Given appropriate consolidation and expansion, this list shall serve as a starting point. The project schedule shall be in sufficient detail that progress of the Work can be evaluated accurately at any time during the performance of the contract.

The Contractor shall employ a person or firm with at least ten years of construction and scheduling experience who is qualified to prepare detailed construction schedules. Evidence of construction experience and successful scheduling (i.e., work completed on schedule) on at least three (3) projects in the last five years shall be provided. Provide schedules and contact information for each of the projects. Contractor shall provide Engineer with resume and other pertinent information on the proposed scheduler. If the Engineer determines that the qualifications are not met, a different scheduler shall be provided that meets the qualifications.

The schedule shall begin with the date of issuance of the Notice to Proceed and conclude with the date of the final completion. Float or slack time within the schedule is not for the exclusive use or benefit of either the Contracting Agency or Contractor, but rather, is a jointly owned, expiring project resource available to both parties as needed to meet the completion date(s).

The project schedule shall be updated monthly. Processing of pay requests will be contingent upon receipt of updated schedules.

In addition to the project schedule, the Contractor shall submit a written two week outlook activity schedule to the Engineer at the weekly progress meetings. The activity schedule shall indicate the Contractor's proposed activities for the forthcoming two weeks. Submittal of the weekly schedule does not relieve the Contractor of the requirement to submit and update the project schedule as required herein.

Time is of the essence on this project. Therefore, should schedule slippage occur, the Contractor is required to take appropriate measures to get the project back onto the approved schedule. The Contractor will not be allowed to continually let the schedule slip. Contractor shall adjust his forces, equipment and work schedules as may be necessary to get the project back on schedule to ensure completion of the work within the prescribed contract time. Contractor shall provided a plan of action and execute it accordingly to the satisfaction of the Engineer. Failure to do so will result in delay of progress payment(s) and/or a reduction in progress payment(s).

### **1-08.3(2)A Type A Progress Schedule**

*Section 1-08.3(2)A is revised to read as follows:  
(Local Agency SP)*

Not Used.

### **1-08.3(2)B Type B Progress Schedule**

*The first paragraph of and the first sentence of the second paragraph of Section 1-08.3(2)B are revised to read as follows:  
(Local Agency SP)*

The Contractor shall submit a preliminary Type B Progress Schedule depicting the entire project prior to the preconstruction conference. The preliminary Type B Progress Schedule shall comply with all of these requirements and the requirements of Section 1-08.3(1).

The Contractor shall submit four (4) copies of the revised Type B Progress Schedule depicting the entire project no later than 14-calendar days after the preconstruction conference. Contractor shall address the Engineer's comments on the schedule as necessary and appropriate.

### **1-08.3(2)C Construction Sequencing and Constraints (New Section)**

*Section 1-08.3(2)C is added as the following:  
(Local Agency SP)*

Continuous operation of the Contracting Agency's facilities is of critical importance. The Contractor shall schedule and conduct activities to enable existing facilities to operate continuously, unless otherwise specified. The Contractor shall not proceed with work affecting a facility's operation without obtaining Contracting Agency's and Engineer's advance approval of the need for, and duration of, such work.

Where existing facilities are to be modified during the course of work, the Contractor shall obtain Engineer's review of submittals for temporary shutdown, demolition, modification, corrections between new and existing work, and other related work and shall conform to other Contract conditions as applicable.

The Contractor shall be responsible for developing the sequence of the work and for ensuring that current operations are not interrupted or compromised.

Prior to starting the work, confer with the Engineer and Contracting Agency's representative to develop a work schedule which will permit facilities to function normally as practical. It may be necessary to do certain parts of the construction work outside normal working hours in order to avoid undesirable conditions. The Contractor shall do this work at such times and at no additional cost to the Contracting Agency. Do not make connections between existing facilities and new work until all necessary inspection and tests have been completed on the new work and it is found to conform in all respects to the requirements of the Contract Documents.

Connection to existing services or utilities, or other work that requires temporary shutdown of any existing operations or utilities shall be planned in detail with appropriate scheduling of the work and coordinated with the Contracting Agency or Engineer. The approved schedule for shutdown or restart shall be indicated on the Contractor's Progress Schedule, and advance notice shall be given in order that the Contracting Agency or Engineer may witness the shutdown, tie-in, and startup.

The Contracting Agency and Engineer consider the Contractor's schedule and construction sequencing to be paramount to ensure that the work is properly planned, coordinated, executed such that the Contracting Agency's needs are maintained. Pump Station's 5, 6 and 34 are currently and continuously receiving and pumping sewage, and those functions shall not be interrupted except as specified herein or as specifically allowed by Contracting Agency. It is imperative and incumbent upon the Contractor to properly coordinate and execute the work to avoid interference with normal operations. As indicated above, work during low flow periods (between the hours of 12 am and 5 am) and sewer bypassing will be required to effect some of the work, but such work is to be minimized to the extent possible through proper sequencing and execution of the work. To accomplish this end, certain work and/or equipment is on the critical path and will need to be installed at certain points in the work. This section specifies some,

but not necessarily all, constraints and feasible work sequence for the performance of, or scheduling of, work to ensure uninterrupted and uncompromised operation of the pump station. Regardless, the Contractor shall ultimately be responsible for ensuring operations are not interrupted or compromised.

The work steps or sequence and requirements that will generally be required to implement the improvements following the necessary preconstruction work are shown on the Drawings. Some work may be done simultaneously while other work has to be done sequentially.

### **1-08.3(2)E Weekly Progress Meetings (New Section)**

*Section 1-08.3(2)E is added as the following:  
Local Agency SP)*

To enable orderly review during progress of the work, and to provide for systematic discussion of problems, the Engineer will conduct weekly progress meetings with the Contractor throughout the construction period. The purpose of the meetings will be to review the progress of the Work, maintain coordination of efforts, discuss changes in scheduling and resolve other problems that may develop.

#### **Agenda Items**

To the maximum extent practicable, advise the Engineer at least 24 hours in advance of project meetings regarding items to be added to the agenda.

#### **Minutes**

The Engineer will compile a summary of the discussion of each project meeting and will furnish copies to the Contracting Agency and Contractor. Recipients of copies may make and distribute copies as they deem necessary.

#### **Attendance**

These meetings shall be conducted by the Engineer and shall be attended by the Contractor's superintendent and representatives of utilities and/or others that are active or critical in the planning or execution of the pending work. The Contractor may invite subcontractors, materials or equipment suppliers, and others to attend certain project meetings in which their aspect of the work is involved.

#### **Meeting Schedule and Location**

Progress meetings will be held weekly. Engineer and Contractor will establish a mutually acceptable day for meetings. Meetings will be held in the onsite office or other mutually agreeable location.

#### **Agenda**

A minimum agenda for these meetings is as follows:

1. Review, and revise as necessary, minutes of previous meetings and status of previously identified action items.
2. Review progress of the work since last meeting, including status of submittals for review.
3. Discuss any problems or deficiencies with the work and necessary corrective action.
4. Discuss scheduling of any required Special Inspections or tests associated with work to be completed.
5. Review status of equipment and materials fabrication/shipments.
6. Identify problems that impede planned progress, or which impact operations of existing facilities.
7. Compare status of completion to detailed schedule and identify any behind-schedule activities. Discuss corrective measures and procedures to regain planned schedule.
8. Review temporary water pollution/erosion control.
9. Review outstanding contract change issues.

10. Review design modifications and documentation for change orders. Discuss any cost or schedule impacts.
11. Verify Contractor's record drawings are current.
12. Review progress payment.

Unless published minutes are challenged in writing prior to the next regularly scheduled progress meeting, they will be accepted as properly stating the discussions and decisions of the meeting.

Persons challenging published minutes shall reproduce and distribute copies of the challenge to all indicated recipients of the particular set of minutes.

Challenge to minutes shall be settled as priority portion of "old business" at the next regularly scheduled meeting.

#### **1-08.3(4) Measurement**

*Section 1-08.3(4) is deleted and replaced with the following:  
(Local Agency SP)*

No measurement will be made for Type B schedule.

#### **1-08.3(5) Payment**

*Section 1-08.3(5) is deleted and replaced with the following:  
(Local Agency SP)*

No separate payment will be made for Type B schedule. This work is considered incidental to the construction and its costs shall be included in other items of work.

#### **1-08.4 Prosecution of Work**

*Section 1-08.4 is revised to read as follows:  
(October 1, 2005 APWA GSP)*

#### **1-08.4 Notice to Proceed and Prosecution of the Work**

Notice to Proceed will be given after the contract has been executed and the contract bond and evidence of insurance have been approved and filed by the Contracting Agency. The Contractor shall not commence with the work until the Notice to Proceed has been given by the Engineer. The Contractor shall commence construction activities on the project site within ten days of the Notice to Proceed Date, unless otherwise approved in writing. The Contractor shall diligently pursue the work to the physical completion date within the time specified in the contract. Voluntary shutdown or slowing of operations by the Contractor shall not relieve the Contractor of the responsibility to complete the work within the time(s) specified in the contract.

#### **1-08.5 Time for Completion**

*The third and fourth paragraphs of Section 1-08.5 are revised to read as follows:  
(Local Agency SP)*

Contract time shall begin on the working day identified in the Notice to Proceed.

Each working day shall be charged to the contract as it occurs, until the contract work is physically complete. If substantial completion has been granted and all the authorized working days have been used, charging of working days will cease. Each week the Engineer will provide the Contractor a statement that shows the number of working days: (1) charged to the contract the week before; (2) specified for the physical completion of the contract; and (3) remaining for the physical completion of the contract. The statement will also show the nonworking days and any partial or whole day the Engineer declares as unworkable. Within 10 calendar days after the date of each statement, the Contractor shall file a written protest of any alleged discrepancies in it. To be considered by the Engineer, the protest shall be in sufficient detail to enable the Engineer to ascertain the basis and amount of time disputed. By not filing such detailed protest in that period, the Contractor shall be deemed as having accepted the statement as correct. If the Contractor elects to work 10 hours a day and 4 days a week (a 4-10

schedule) and the fifth day of the week in which a 4-10 shift is worked would ordinarily be charged as a working day then the fifth day of that week will be charged as a working day whether or not the Contractor works on that day.

*The sixth paragraph of Section 1-08.5 is revised to read as follows:  
(Local Agency SP)*

The Engineer will give the Contractor written notice of the completion date of the contract after all the Contractor's obligations under the contract have been performed by the Contractor. The following events must occur before the Completion Date can be established:

1. The physical work on the project must be complete; and
2. The Contractor must furnish all documentation required by the contract and required by law, to allow the Contracting Agency to process final acceptance of the contract. The following documents must be received by the Project Engineer prior to establishing a completion date:
  - a. Final Contract Voucher Certification
  - b. Property owner releases per Section 1-07.24

*Section 1-08.5 is supplemented with the following:  
(Local Agency SP)*

The Work shall be physically completed within 135 working days from the Notice to Proceed Date. The Contractor is cautioned that part of the work in this Contract may be performed only during certain periods of time (e.g., connections to the existing sanitary sewer system) and favorable weather conditions, and as such, the Contractor shall plan and execute the work accordingly.

#### **1-08.7 Maintenance during Suspension**

*The second paragraph of Section 1-08.7 is revised to read as follows:  
(October 1, 2005 APWA GSP)*

At no expense to the Contracting Agency, the Contractor shall provide through the construction area a safe, smooth, and unobstructed roadway, sidewalk, and path for public use during suspension (as required in Section 1-07.23 or the Special Provisions). This may include a temporary road or detour.

#### **1-08.9 Liquidated Damages**

*The fourth paragraph of Section 1-08.9 is deleted and replaced with the following:  
(Local Agency SP)*

When the Contract Work has progressed to the extent that the Engineer has determined the Contract Work is substantially complete, the Engineer will notify the Contractor in writing of the Substantial Completion Date. For overruns in contract time occurring after the substantial completion date, liquidated damages shall be assessed at five hundred (\$500) per day until physical completion is achieved. When the Contract Work is physically complete, the Engineer will notify the Contractor in writing of the Physically Completion Date. For overruns in contract time occurring after physical completion date, actual damages will be assessed based on the direct engineering, Contracting Agency, and other related costs assignable to the project that are incurred by the Contracting Agency until the Contractor has fulfilled all the obligations under the Contract and submitted all documentation required by the Contract and the law and the Engineer establishes the Final Completion Date. Contracting Agency may offset these costs against any payment due Contractor.

#### **1-08.10 Termination of Contract**

*Section 1-08.10 is supplemented with the following:  
(Local Agency SP)*

In the event that funding for this project is withdrawn, reduced or limited in any way after the effective date of this Contract, the Contracting Agency may summarily terminate this Contract notwithstanding any other termination provision of this Contract. Termination under this paragraph shall be effective upon the date

specified in the written notice of termination sent by the CONTRACTING AGENCY to the Contractor. After the effective date, no charges incurred under this Contract are allowable.

**END OF SECTION 1-08**

**SECTION 1-09 MEASUREMENT AND PAYMENT**

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**1-09.1 Measurement of Quantities**

*Section 1-09.1 is revised with the following:  
(Local Agency SP)*

Delete the paragraph beginning “Linear Foot...” and replace with the following:

Linear foot - Linear feet shall be measured along the pipe alignment and shall include the length through the elbows, tees, and fittings. The number of the linear feet will be measured from the center of manhole to the center of manhole and to the pay limits as shown on the Drawings. No adjustments will be made in the length for the slope, uneven contours, overlap of materials, repairs or wasted material.

**1-09.2(1) General Requirements for Weighing Equipment**

*Section 1-09.2(1) is supplemented with the following:  
(Local Agency SP)*

The Contractor shall notify the Engineer not less than one working day prior to delivering materials which are measured and paid for by weight on the project. Certified weights must be issued at the source.

The Contractor shall provide a licensed public weighmaster. The licensed weighmaster shall issue weight tickets to the truck driver for acceptance of the material on the project by the Engineer. No materials measured and paid for by weight will be accepted without certified weight tickets from a platform scale in accordance with Section 1-09.2(3).

Truck loads must conform to legal load limits. In case of overload, the difference between overload and maximum legal load will not be paid for. If there are repeated instances of overloading, the proper enforcement authorities will be notified.

**1-09.2(2) Specific Requirements for Batching Scales**

*Section 1-09.2(2) is deleted and replaced with the following:  
(Local Agency SP)*

Not used.

**1-09.6 Force Account**

*Section 1-09.6 is supplemented with the following:  
(Local Agency SP)*

The Contracting Agency has estimated and included in the Proposal, a dollar amounts for the Bid item “Minor Changes and Additions” s (also referenced as Force Account), only to provide a common proposal for Bidders. The dollar amount is to become a part of Contractor's total bid. However, the Contracting Agency does not warrant expressly or by implication that the actual amount of work will correspond with the estimate. Payment will be made on the basis of the amount of work actually authorized by Engineer through Work Change Directives.

A complete list including name, labor classification and weighted wage rate of all personnel to be performing “Minor Changes and Additions” work shall be given to the Engineer before “Minor Changes and Additions” work starts. A list including all pertinent information, such as equipment name and model, year, engine size, bucket size, capacity, etc., for all equipment to be used for performance of “Minor Changes and Additions” work shall also be furnished to the Engineer prior to beginning “Minor Changes and Additions” work.

This item is reserved as a construction contingency or for “Minor Changes and Additions” which may occur during the course of the work. This budget will facilitate minor additional work without the need for a contract amendment and is subject to the conditions of Section 1-04.6. The Engineer will still prepare a work change directive and the Contractor will still prepare cost proposals for work that is agreed to be out of scope. The County’s approval will be obtained prior to authorization of such work as well.

Minor Changes and Additions (Allowance)	Per Lump Sum
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**1-09.7 Mobilization**

*Section 1-09.7 is supplemented with the following:  
(Local Agency SP)*

No separate unit of measurement shall apply to the lump sum item of Mobilization and Demobilization.

Payment shall be made in accordance with Section 1-04.1 for the following Bid items:

Mobilization and Demobilization	Per Lump Sum
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Payment for "Mobilization and Demobilization" shall including move in of personnel and equipment; set up of all temporary offices, facilities and utilities; provision of parking facilities for personnel working on the project; preparation of the Contractor staging area; and all other pre-construction expenses and costs for preparatory work and operations performed by the Contractor. The bid item for Mobilization and Demobilization shall also include all demobilization costs, including removal of equipment, excess materials, trailer and general cleanup.

**1-09.9 Payments**

*The first paragraph of Section 1-09.9 is revised with the following:  
(October 10, 2008 APWA GSP)*

The basis of payment will be the actual quantities of Work performed according to the Contract and as specified for payment. For items Bid as lump sum, with a bid price of more than or equal to \$20,000, the Contractor shall submit a breakdown of their lump sum price in sufficient detail for the Project Engineer to determine the value of the Work performed on a monthly basis. Lump sum breakdowns shall be provided to the Project Engineer no later than the date of the preconstruction conference.

*The third paragraph of Section 1-09.9 is deleted and replace with the following:  
(October 10, 2008 APWA GSP)*

Progress payments for completed work and material on hand will be based upon progress estimates prepared by the Engineer. A progress estimate cutoff date will be established at the preconstruction conference.

The initial progress estimate will be made not later than 30 days after the Contractor commences the work, and successive progress estimates will be made every month thereafter until the Completion Date. Progress estimates made during progress of the work are tentative, and made only for the purpose of determining progress payment. The progress estimates are subject to change at any time prior to the calculation of the Final Payment.

The value of the progress estimate will be the sum of the following:

1. Unit Price Items in the Bid Form — the approximate quantity of acceptable units of work completed multiplied by the unit price.
2. Lump Sum Items in the Bid Form — partial payment for lump sum Bid items will be a percentage of the price in the Proposal based on the Engineer's determination of the amount of Work performed, with consideration given to, but not exclusively based on, the Contractor's lump sum breakdown for that item.
3. Materials on Hand — 100 percent of invoiced cost of material delivered to Job site or other storage area approved by the Engineer.
4. Change Orders — entitlement for approved extra cost or completed extra work as determined by the Engineer.

Progress payments will be made in accordance with the progress estimate less:

1. Retainage per Section 1-09.9(1);
2. The amount of Progress Payments previously made; and

3. Funds withheld by the Contracting Agency for disbursement in accordance with the Contract Documents.

Progress payments for work performed shall not be evidence of acceptable performance or an admission by the Contracting Agency that any work has been satisfactorily completed. The determination of payments under the contract will be final in accordance with Section 1 05.1.

Payments will be made by warrants, issued by the Contracting Agency's fiscal officer, against the appropriate fund source for the project. Payments received on account of work performed by a subcontractor are subject to the provisions of RCW 39.04.250.

### **1-09.9(2) Contracting Agency's Right to Withhold and Disburse Monies Due (New Section)**

*Section 1-09.9(2) is added as the following:  
(Local Agency SP)*

In addition to monies retained pursuant to RCW 60.28 and subject to RCW 39.04.250, RCW 39.12, and RCW 39.76, the Contractor authorizes the Engineer to withhold progress payments due or deduct an amount from any payment or payments due the Contractor which, in the Engineer's opinion, may be necessary to cover the Contracting Agency's costs for or to remedy the following situations:

1. Work not in accordance with the Contract Documents;
2. Defective work or equipment cost or liability that may occur to Contracting Agency as a result of Contractor's, Subcontractors or Suppliers failure to perform;
3. Damage to another contractor when there is evidence thereof and a claim has been filed;
4. Where the Contractor has not paid fees or charges to public authorities or municipalities which the Contractor is obligated to pay;
5. Utilizing material, tested and inspected by the Engineer, for purposes not connected with the Work (See Section 1-05.6);
6. Landscape damage assessments (See Section 1-07.16);
7. For overtime work performed by the Engineer or Contracting Agency personnel (See Section 1-08.1(4).
8. Liquidated damages associated with exceeding the Contract Time (See Section 1-08.9 Liquidated Damage); or
9. Failure of the Contractor to perform any of the Contractor's other obligations under the contract, including but not limited to:
  - a. Failure of the Contractor to protect survey stakes, markers, etc., or to provide adequate survey work as required by Section 1-05.5.
  - b. Failure of the Contractor to correct defective or unauthorized equipment or work (Section 1-05.8).
  - c. Failure of the Contractor to furnish a Manufacture's Certificate of Compliance in lieu of material testing and inspection as required by Section 1-06.3.
  - d. Failure to submit Intent to Pay Prevailing Wage forms, or correct underpayment to employees of the Contractor or subcontractor of any tier as required by Section 1-07.9.
  - e. Failure of the Contractor to pay worker's benefits (Title 50 and Title 51 RCW) as required by Section 1-07.10.
  - f. Failure of the Contractor to submit and obtain approval of a progress schedule per Section 1-08.3.

Lack of construction progress based upon the Engineer's review of the Contractor's approved progress schedule which indicates the Work will not be completed within the Contract Time may also be a basis for withholding progress payments due or to deduct an amount from any payment or payments due the

Contractor. The amount withheld under this subparagraph will be based upon the liquidated damages amount per day set forth in Contract Documents multiplied by the number of working days the Contractor's approved progress schedule, in the opinion of the Engineer, indicates the Contract may exceed the Contract Time.

The Contractor authorizes the Contracting Agency to act as agent for the Contractor disbursing such funds as have been withheld pursuant to this section to a party or parties who are entitled to payment. Disbursement of such funds, if the Contracting Agency elects to do so, will be made only after giving the Contractor fifteen (15) calendar days prior written notice of the Contracting Agency's intent to do so, and if prior to the expiration of the 15-calendar day period, no legal action has commenced to resolve the validity of the claims, and the Contractor has not protested such disbursement.

A proper accounting of all funds disbursed on behalf of the Contractor in accordance with this section will be made. A payment made pursuant to this section shall be considered as payment under the terms and conditions of the Contract. The Contracting Agency shall not be liable to the Contractor for such payment made in good faith.

If legal action is instituted to determine the validity of the claims prior to expiration of the 15-day period mentioned above, the Engineer will hold the funds until determination of the action or written settlement agreement of the parties.

**1-09.13(3)A Administration of Arbitration**

*The third paragraph of Section 1-09.13(3)A is revised to read as follows:  
(October 1, 2005 APWA GSP)*

The Contracting Agency and the Contractor mutually agree to be bound by the decision of the arbitrator, and judgment upon the award rendered by the arbitrator may be entered in the Superior Court of the county in which the Contracting Agency's headquarters are located. The decision of the arbitrator and the specific basis for the decision shall be in writing. The arbitrator shall use the contract as a basis for decisions.

**END OF SECTION 1-09**

## **SECTION 1-10 TEMPORARY TRAFFIC CONTROL**

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### **1-10.1(2) Description**

*The third paragraph of Section 1-10.1(2) is revised to read as follows:  
(Local Agency SP)*

The Contractor shall provide signs and other traffic control devices not otherwise specified as being furnished by the Contracting Agency. The Contractor shall erect and maintain all construction signs, warning signs, detour signs, and other traffic control devices necessary to warn and protect the public at all times from injury or damage as a result of the Contractor's operations which may occur on highways, roads, streets, sidewalks, or paths. No work shall be done on or adjacent to any traveled way until all necessary signs and traffic control devices are in place.

### **1-10.2(1)A Traffic Control Management**

*The fifth item of the first paragraph of Section 1-10.2(1)A is revised to read as follows:  
(Local Agency SP)*

5. Coordinating the project's activities (such as ramp closures, road closures, and lane closures) with appropriate police, fire control agencies, city, or county engineering, medical emergency agencies, school districts, and transit companies at least ten (10) working days prior to beginning the work.

### **1-10.2(2) Traffic Control Plans**

*Section 1-10.2(2) is deleted and replaced with the following:  
(Local Agency SP)*

The traffic control plans included in the Contract Drawings are conceptual plans only. The Contractor shall submit detailed Traffic Control Plans showing the proposed method(s) of handling traffic. The plan(s) shall be in accordance with the established standards for plan development as shown in the Manual on Uniform Traffic Control Devices (MUTCD), Part VI. All signs, flaggers, and other traffic control devices required for the project are to be shown on the traffic control plan except for emergency situations. The Contractor's governing agency-approved traffic control plan(s) shall be submitted to the Engineer at least ten (10) calendar days in advance of the time the signs and other traffic control devices will be required, and shall be updated and resubmitted to the Engineer whenever significant changes in traffic control methods are necessary. The Contractor shall be solely responsible for submitting any proposed traffic control plan, obtaining the controlling agency's approval, and providing copies of the approved traffic control plan to the Engineer.

The plan shall include:

1. Drawings showing vehicular routing during each phase of the work, including permanent and temporary routing of traffic on all roadways.
2. Drawings showing the location of barricades, lighting, signing, and any other vehicular traffic control devices anticipated to be used during each phase of the work.
3. Anticipated traffic blockages resulting from construction activities.
4. Anticipated locations where temporary pipes, cables, or hoses will be placed across or parallel to roadways. Drawing details of ramps over utilities or shallow burial placement and protection cover.
5. Projected volumes of truck traffic over designated truck haul routes

### **1-10.3(2)F Public Convenience and Safety (New Section)**

*Section 1-10.3(2)F is added as the following:  
(Local Agency SP)*

The Contractor shall conduct all operations with the least possible obstruction and inconvenience to the local public. The Contractor shall have under construction no greater length or amount of work than can be prosecuted properly with due regards to the rights of the public. To the extent possible, the Contractor shall finish each section before beginning work on the next.

To disrupt local access traffic as little as possible, the Contractor shall:

1. Permit local access traffic to pass through the work with the least possible inconvenience or delay.
2. Maintain existing roads and streets that lie next to or inside the project limits, keeping them open and in good, safe condition at all times.
3. Remove or repair any condition resulting from the work that might impede traffic or create a hazard, and
4. Keep existing traffic signal and highway lighting systems in operation as the work proceeds. (The Contracting Agency will continue the routing maintenance on such systems).
5. Provide provisions for access by school buses and emergency vehicles.

To protect the rights of abutting property owners, the Contractor shall:

1. Conduct the construction so that the least inconvenience as possible is caused to abutting property owners.
2. Maintain ready access to driveways, houses, and buildings along the line of work. Should it be necessary to close an individual driveway for purposes of construction, the Contractor shall present an access plan to limit the driveway closure to less than 24-hours. Within 48-hours of the construction impeding the driveway, a drivable gravel surface shall be placed and compacted.
3. Provide ready access to Pump Stations 5, 6, and 34 for maintenance by Kitsap County
4. Provide temporary approaches to crossing or intersecting roads and keep these approaches in good condition, and
5. Provide another access before closing an existing one whenever the Contract calls for removing and replacing an abutting owner's access.

The Contractor shall be responsible for providing adequate safeguards, safety devices, protective equipment, and any other needed actions to protect property in connection with the performance of the work covered by the Contract. The Contractor shall perform any measures or actions the Engineer may deem necessary to protect the public and property. The responsibility and expense to provide this protection shall be the Contractor's except that which is to be furnished by the Contracting Agency as specified in other sections of the Specifications.

Emergency traffic such as police, fire, and disaster units shall be provided access through the work site and to public and private properties at all times. The Contractor shall coordinate and perform all work in accordance with the requirements of police, fire, and other emergency services agencies.

The Contractor shall coordinate and perform all work in accordance with the requirements of all public transit and school bus service which may be operating in the project area. Safe and convenient access to the bus zones shall be provided and maintained at all times by the Contractor. The Contractor shall be liable for any damages which may result from failure to provide reasonable access or coordination.

The Contractor shall perform the work and provide access to enable solid waste pickup by solid waste collection firms at their regularly scheduled times.

### **1-10.3(2)G Construction and Maintenance of Detours (New Section)**

*Section 1-10.3(2)G is added as the following:  
(Local Agency SP)*

Streets shall be closed to traffic only upon specific approval of the jurisdictional agency. Prior to the closure of any streets or roads, the Contractor shall prepare a written plan for detouring of traffic and shall submit such plan to the jurisdictional agency for approval. Details shall be in accordance with the requirements of the latest edition of the Manual on Uniform Traffic Control Devices for Streets and Highways and such additional requirements as may be imposed by the Contracting Agency or other jurisdictional agency. Contractor is hereby informed that proposed road closures require approval by the County Council, which may take 4 to 6 weeks to process and will require specific time frames for the proposed closures. Contractor shall submit his/her traffic control plan as an early submittal at the Preconstruction Conference.

All detours, both inside and outside of the work area as required by the Contractor's operations, shall be the sole responsibility of the contractor. The design, construction and maintenance of detours and all temporary facilities required for detours shall be the sole responsibility of the Contractor

**1-10.5 Payment**

*Section 1-10.5 and its subsections are deleted and replaced with the following:  
(Local Agency SP)*

No unit of measurement shall apply to the lump sum price for Project Temporary Traffic Control.

Payment will be made in accordance with Section 1-04.1 for the following Bid items:

Project Temporary Traffic Control	Per Lump Sum
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Payment for "Project Temporary Traffic Control" shall include the provision of temporary traffic control for the project as required for traffic safety and minimize traffic disruptions and public inconvenience.

Progress payments will be made as follows:

1. When the Contractor's traffic control plan has been approved by the Engineer, 10 percent of the amount bid for the item will be paid.
2. When the initial construction signs and temporary traffic control devices are set up, 20 percent of the amount bid for the item will be paid.
3. Payment for the remaining 70 percent of the amount bid for the item will be paid on a prorated basis in accordance with the progress as determined by the Engineer.

**END SECTION 1-10**

## **SECTION 1-11 OPERATION AND MAINTENANCE DATA (NEW SECTION)**

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*Section 1-11 and its subsections are added as the following:  
(Local Agency SP)*

### **1-11.1 Schedule of O&M Data Required**

The Contractor shall arrange for, and pay all costs associated with the services of the manufacturer's representative and/or others to provide and prepare operation and maintenance data for the system and/or equipment listed below:

1. Valves
2. Air Release/Vacuum Valves
3. Flow Meters
4. Surge Tank System
5. Odor Control Equipment

### **1-11.2 Initial Submittal**

The Contractor shall submit two (2) copies of the initial submittal to the Engineer for review. The initial submittal shall be received by the Engineer at least twenty (20) Working Days prior to placement of the system and/or equipment in operation. The initial submittal may be delivered in multiple parts to the Engineer, but shall be complete for each item specified above.

Each initial submittal shall be bound in a three-ring binder or pressboard report cover. The binder shall be organized in a consistent format with tabbed dividers for each item. All information shall be specifically for the installed components. Data sheets which cover multiple equipment or list options shall be marked to indicate the installed equipment, including provided options. All other equipment or options shall be crossed out. Each item in the submittal shall include, but not be limited to the following information:

1. Fly sheet indicating: Contracting Agency's name; description of equipment; manufacturer's name, address, and telephone number; and local supplier/ representative's name, address, and telephone number.
2. Detailed index indicating submittal contents, with major headings related to tabbed dividers.
3. Assembly drawings
4. Parts list and/or bill of materials
5. Wiring diagrams
6. Lubrication instructions, including type and frequency
7. Preventative and periodic maintenance summary
8. Operating instructions
9. Overhaul and parts replacement instructions
10. Source for parts
11. Testing and troubleshooting procedures
12. Performance curves
13. Factory test data
14. List of recommended spare parts
15. List of expendable parts (i.e., air or oil filters)
16. Warranty

The Engineer will review the initial submittal and return it to the Contractor for incorporation of review comments.

### **1-11.3 Final Submittal**

After the Contractor has addressed the Engineer's comments on the initial submittals, the Contractor shall assemble all components into an integrated document. The final submittals shall be bound in vinyl covered, three-ring binders. The integrated document shall consist of as many volumes as necessary to contain the data. Each volume shall include, but not be limited to, the following:

1. The front cover and binding edge shall have typed labels identifying the project, Contracting Agency, and volume number;
2. Detailed index indicating the contents of the volume by major headings; and
3. Oversize (larger than 11"x17") prints shall be inserted in bound-in Kraft or Kevlar envelopes, placed at the end of the applicable area or subarea.

The Contractor shall submit one (1) copy of the integrated document to the Engineer within ten (10) Working Days after Substantial Completion of the work. The Engineer will review the integrated document. If the integrated document does not meet the requirements of this Section, the Engineer will return the copy to the Contractor for corrections. The submittal process shall be repeated until the integrated document is acceptable. The Contractor shall then submit four (4) additional copies of the accepted, integrated operation and maintenance document to the Contracting Agency. The Contractor shall anticipate that Final Acceptance may be delayed by the Contracting Agency if the integrated document is not acceptable to the Engineer.

### **1-11.4 Measurement and Payment**

No separate measure or payment shall be made for furnishing the operations and maintenance data. This work shall be considered incidental to construction.

**END OF SECTION 1-11**

**SECTION 2-01 CLEARING, GRUBBING AND ROADSIDE CLEANUP**

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**2-01.1 Description**

*Section 2-01.1 is supplemented with the following:  
(Local Agency SP)*

The Contractor shall clear, grub, and strip as necessary to prepare the project area for construction. The Contractor shall confine clearing, grubbing and stripping within the project's limits. "Stripping" shall mean selectively removing and stockpiling the surficial top organic or hydric soils for replacement after the construction of the pipe line has been completed.

**2-01.2 Disposal of Usable Material and Debris**

*The third paragraph of Section 2-01.2 is deleted and replaced with the following:  
(Local Agency SP)*

The Contractor shall dispose of all debris by disposal Method No. 2 or Method No. 3.

**2-01.3 Construction Requirements**

*Section 2-01.3 is supplemented with the following:  
(Local Agency SP)*

Clearing, grubbing and stripping within the project limits shall be kept to the minimum that is absolutely necessary to prepare the project area for construction of the project. Existing native vegetation adjacent to the project limits shall be protected from damage. To the extent possible, trees and brush shall be trimmed, rather than removed. Trimming of trees shall be done properly and neatly. Contractor shall review the areas to be cleared, grubbed and stripped with the Owner's Representative and obtain approval prior to clearing, grubbing and stripping areas. Trees, bushes, shrubs or areas within or adjacent to the project limits that are shown on the Drawings to be saved or need or warrant protection and will not interfere with construction to any real degree, as determined by the Owner's Representative, shall be properly marked and protected from damage by the Contractor. The Contractor's attention is directed to Section 1-07.16 Protection and Restoration of Property. Contractor shall give five (5) days advance notice.

**2-01.3(3) Stripping**

All areas to be impacted by construction shall be stripped prior to excavation. The upper 12 inches of the surficial soils shall be stripped. Stripped materials shall be stockpiled for later replacement within the same general area where it was removed. The Contractor's attention is directed to Section 2-13 Wetlands and Streams and Section 8-30 Wetland and Stream Restoration for more specific and additional requirements in these areas.

**2-01.4 Measurement**

*Section 2-01.4 is deleted and replaced with the following:  
(Local Agency SP)*

No unit of measurement shall apply to the lump sum price for clearing, grubbing and stripping.

**2-01.5 Payment**

*Section 2-01.5 is deleted and replaced with the following:  
(Local Agency SP)*

Payment will be made in accordance with Section 1-04.1 for the following Bid items:

Clearing, Grubbing, and Stripping	Per Lump Sum
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The unit Contract price per lump sum for "Clearing, Grubbing and Stripping" shall be full pay for all Work described in this section except Roadside Cleanup, which is paid under Final Cleanup and Restoration.

**END OF SECTION 2-01**

## **SECTION 2-02            REMOVAL OF STRUCTURES AND OBSTRUCTIONS**

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### **2-02.3(1)            Removal of Foundations**

*Section 2-02.3(1) is deleted and replaced with the following:  
(Local Agency SP)*

### **2-02.3(1)            General**

The work of this section shall include removal of all structures and obstructions, including existing facilities to be decommissioned or abandoned, that lie wholly or partially within the project limits and that are either designated to be removed or interfere with construction of the project.

Some minor obstructions may not be shown or specifically noted on the Drawings. The Contractor shall review the project area and anticipate the need for removal and replacement of minor obstructions such as fencing, signs, etc. Major obstructions that are encountered which are not shown on the Drawings, or could not have been foreseen by visual inspection of the project area, should be brought to the Owner Representative's attention. The Owner's Representative will make a determination if the obstruction adversely affects the Contractor's costs or schedule, and a proper adjustment to the Contract will be made in accordance with Section 1-04 Scope of Work.

Contractor shall salvage equipment or material designated to be salvaged on the Drawings or as specified herein. Salvaged equipment or material so designated shall become the property of the Contracting Agency. Such equipment and material shall be removed and handled carefully to prevent damage and shall be delivered to the Contracting Agency as directed by the Owner's Representative or Contracting Agency.

Where shown in the plans or where designated by the Engineer, the Contractor shall saw cut asphalt concrete pavement prior to removal of any pavement. The thickness of the existing pavement has not been observed. Contractor shall be responsible for observing conditions at the site prior to bidding to determine the extent of the work to be accomplished.

Contractor may pulverize the existing asphalt concrete pavement where the pavement is shown to be disturbed on the Plans. The road surface shall be restored to a drivable surface before leaving every day.

Waste material shall be disposed of in accordance with Section 2-01 Clearing, Grubbing and Roadside Cleanup. Materials that can be recycled shall be recycled to the greatest extent possible.

### **2-02.3(2)            Removal of Bridges, Box Culverts, and other Drainage Structures**

*Section 2-02.3(2) is deleted and replaced with the following:  
(Local Agency SP)*

### **2-02.3(2)            Removal of Piping, Structures and Appurtenances**

Where indicated on the Drawings or as required for the construction of the project, the Contractor shall excavate, remove and dispose of existing piping (storm drain, water main or sewer), structures (catch basins, manholes, vaults, etc.) and appurtenances. Pipe that is to be abandoned in-place shall be filled or plugged in accordance with Section 7-08 General Pipe Installation Requirements.

Asbestos cement pipe shall be abandoned in place; however, if it is necessary for portions to be removed, the Contractor shall do so in accordance with the requirements of the Northwest Clean Air Agency, Department of Labor and Industries, Washington Department of Occupational Safety and Health (DOSH) and the Occupational Safety and Health Agency (OSHA). The Contractor shall acquire and follow the requirements of all necessary permits.

Excavated areas shall be backfilled in accordance with Section 2-09 Structure Excavation.

### **2-02.3(3)            Removal of Pavement, Sidewalk and Curbs, and Gutters**

*2-02.3(3) is supplemented with the following:  
(Local Agency SP)*

The Contractor shall dispose of all removed pavement, curb, gutter, and sidewalk in accordance with Section 2-01 Clearing Grubbing and Roadside Cleanup, Disposal Method No. 2. These materials shall be recycled to the greatest extent possible.

Pavement, curb, gutter and sidewalk shall be saw cut full depth. Cutting with jack hammers or excavation equipment will not be permitted. The Contractor shall make a vertical saw cut to delineate the areas of pavement to be removed from those areas of pavement to remain. The removed pavement shall become the property of the Contractor and shall be promptly removed from the project.

If the Contractor elects to pulverize the asphalt concrete pavement, the edge of the pulverized asphalt shall be set back at least 12-inches away from the final edge of the restored asphalt joint and sawcutting the edge of the asphalt to be pulverized is not required. However, prior to performing any paving operations, the edge of the existing asphalt shall be sawcut in a vertical manner to provide a clean neat joint. The full depth of the existing asphalt concrete pavement shall be pulverized. Following the pulverization operation, the material shall be graded and compacted to form a smooth, uniform cross slope. The equipment used shall be capable of effectively pulverizing the existing asphalt concrete pavement for the full depth in one pass. Pulverization shall be performed in such a manner that disturbance of the subgrade is kept to a minimum. The pulverized material shall meet a 1-inch minus gradation.

Damage caused to portions of the pavement to remain, due to the Contractor's operations, shall be repaired by the Contractor at no expense to the Contracting Agency.

#### **2-02.3(4) Existing Lift Station Demolition and Decommissioning**

*Section 2-03.3(4) is added as the following:  
(Local Agency SP)*

The demolition of Lift Station No. 5 shall not begin until the flows from Lift Station No. 5 have been diverted to Lift Station No. 34.

The demolition of Lift Station No 5 will consist of the removal and salvage of equipment that is still useable or useable for parts. The equipment to be salvaged from the building and dry well includes the engine-generator, pumps and motors, valves, and electrical/control equipment. All remaining equipment, piping and appurtenances not considered useable shall be removed and properly disposed.

Services such as water, power and telephone shall be properly disconnected. Contractor shall coordinate this work with the appropriate agencies or companies.

Wastewater will be removed from the wet well and properly disposed. The upper 5 feet of the wet and dry wells and other structures such as manholes or vaults will be removed, bases demolished and backfilled with pea gravel. The building, including the foundation and exterior equipment pads will be demolished, removed and disposed. Site fencing and other miscellaneous site improvements shall be removed and disposed. The site will be graded to properly drain and match existing adjacent contours/topography.

The site will be top soiled, seeded and stabilized as shown on the Drawings and as specified in Section 8-01.

Demolition of certain walls and other features in the building of Lift Station No. 34 shall be as shown on the Drawings.

Contractor shall properly protect existing equipment from dust and damage.

Contractor will be responsible for obtaining all necessary permits and following all pertinent codes and regulations that pertain to the demolition.

#### **2-02.4 Measurement**

*Section 2-02.4 is supplemented with the following:  
(Local Agency SP)*

No specific unit of measurement shall apply to the lump sum item for Pavement Grinding/Removal.

No specific unit of measurement shall apply to the lump sum item for Lift Station 5 Demolition.

No specific unit of measurement shall apply to the lump sum item for Lift Station 34 Demolition.

**2-02.5 Payment**

*Section 2-02.5 is deleted and replaced with the following:  
(Local Agency SP)*

Payment will be made in accordance with Section 1-04.1 for the following Bid items:

Removal of Structures and Obstructions	Per Lump Sum
Pavement Grinding/Removal	Per Lump Sum
Lift Station 5 Demolition	Per Lump Sum
Lift Station 34 Demolition	Per Lump Sum

“Pavement Grinding/Removal,” shall include all costs for grading and compacting the pulverized materials as well as sawcutting the existing asphalt concrete pavement.

“Lift Station 5 Demolition” shall include the removal, salvage, and disposal of equipment; coordination with the Contracting Agency’s maintenance staff to salvage equipment; disconnection of services such as water, power, and telephone including coordination and fees for the appropriate utility; removal and proper disposal of wastewater from the wetwell; the demolition of the base and upper 5-feet of all underground structures and subsequent backfill; the demolition of the building and foundation; the removal of the propane tank and foundation; and the grading of the site in accordance with the Contract Documents. Top soiling, seeding, fertilizing, and mulching of the site shall be covered under the bid items Top Soil and Seed, Fertilizer and Mulch.

“Lift Station 34 Demolition” shall include the removal, salvage, and disposal of equipment; demolition of walls and slabs and making necessary repairs to walls and slabs inside the building as shown on the Drawings. Top soiling, seeding, fertilizing, and mulching of the site shall be covered under the bid items Top Soil and Seed, Fertilizer and Mulch.

No separate payment will be made for the removal of curb, gutter and sidewalks. This work is considered incidental to the construction and its costs shall be included in other items of work.

**END OF SECTION 2-02**

## **SECTION 2-03            ROADWAY EXCAVATION AND EMBANKMENT**

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### **2-03.3(14)D    Compaction and Moisture Control Tests**

*Section 2-03.3(14)D is replaced with the following:  
(Local Agency SP)*

Maximum density and optimum moisture content shall be determined according to ASTM Standard D 1557 (Modified Proctor). Determining the in-place density and moisture content shall be by the nuclear method as outlined in ASTM Standard D 2922.

The Contractor's attention is direction to Section 1-06.8 regarding testing and quality control.

**END OF SECTION 2-03**

## **SECTION 2-04        HAUL**

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### **2-04.4        Measurement**

*Section 2-04.4 is deleted and replaced with the following:  
(Local Agency SP)*

No measurement will be made for haul.

### **2-04.5        Payment**

*Section 2-04.5 is deleted and replaced with the following:  
(Local Agency SP)*

No separate payment will be made for haul. This work is considered incidental to the construction and its costs shall be included in other items of work.

**END OF SECTION 2-04**

## **SECTION 2-06 SUBGRADE PREPARATION**

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### **2-06.3 Construction Requirements**

*Section 2-06.3 is supplemented with the following:  
(Local Agency SP)*

Construct only when the weather conditions will not detrimentally affect the quality of the finished work. Any portion of the work that are damaged by the effects of rain, wind, or other inclement weather conditions shall be aerated if excessively wet (using blade graders, harrows or other suitable equipment), moistened if excessively dry, reshaped and re-compacted to conform to the requirements of the plans and special provisions, at no additional cost.

Fill and compact all depressions and holes.

Blading and rolling shall be done until the surface is smooth, free from waves and other irregularities. The subgrade elevations shall be such that they are within a tolerance of 0.1 feet, match/blend with the existing roadway features (driveways, curb and gutter, sidewalk, paving, etc.).

If the subgrade is damaged by the contractor's operations, the contractor shall repair, reshape, and recompact the subgrade as necessary at no additional cost.

Subgrade below structures shall be as specified in Section 2-09 and elsewhere in the Special Provisions.

Subgrade below curb and gutter and sidewalks shall be moisture conditioned and compacted to a minimum of 95% maximum density.

Subgrade in non-classified areas shall be moisture conditioned and compacted to a minimum of 90% maximum density.

### **2-06.5 Measurement and Payment**

*Section 2-06.5 is deleted and replaced with the following:  
(Local Agency SP)*

No measurement will be made for subgrade preparation.

No separate payment will be made for subgrade preparation. This work is considered incidental to the construction and its costs shall be included in other items of work.

**END OF SECTION 2-06**

## **SECTION 2-07 WATERING**

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### **2-07.3 Construction Requirements**

*Section 2-07.4 is supplemented with following:  
(Local Agency SP)*

Contractor shall be responsible for controlling dust and mud within the project limits as well as on all streets used in the execution of this contract. The Contractor shall be prepared to furnish and use watering trucks equipped with high velocity water jets and low head sprinkling devices, street sweepers, and any other pieces of equipment necessary to render the project site free of dust and the streets free of all dust, mud, debris, and foreign materials. Any damage caused by dust and/or mud accumulation on the streets or in the storm sewer system shall be the sole responsibility of the Contractor.

### **2-07.4 Measurement**

*Section 2-07.4 is deleted and replaced with the following:  
(Local Agency SP)*

No measurement will be made for watering.

### **2-07.5 Payment**

*Section 2-07.5 is deleted and replaced with the following:  
(Local Agency SP)*

No separate payment will be made for watering. This work is considered incidental to the construction and its costs shall be included in other items of work.

**END OF SECTION 2-07**

## **SECTION 2-09            STRUCTURE EXCAVATION**

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### **2-09.3(1)C        Removal of Unstable Base Material**

*Section 2-09.3(1)C is deleted and replaced with the following:  
(Local Agency SP)*

When the material at the bottom of an excavation is not stable enough to support the Structure, the Contractor shall excavate below grade as shown on the Drawings, install geosynthetic soil stabilization fabric, and then replace the unstable material with foundation material as described in Section 7-08. Geotextile fabric shall overlap at least 12 inches at all seams. Geosynthetic soil stabilization material shall conform to Section 9-33.

Foundation material shall be placed in layers not more than 6-inches thick with each layer compacted to 95-percent of the maximum density determined by the Compaction Control Test, Section 2-03.3(14)D as amended by these Special Provisions. Unsuitable material shall be removed and disposed of in accordance with Section 2-01, Disposal Method No. 2.

Over-excavation of unsuitable materials, replacement and compaction with select material shall only be performed when authorized and directed by the Owner's Representative. Material over-excavated without authorization shall be backfilled as described herein at no cost to the Contracting Agency.

### **2-09.3(1)D        Disposal of Excavated Material**

*Section 2-09.3(1)D is deleted and replaced with the following:  
(Local Agency SP)*

All excavated material that is not used as backfill shall be removed and disposed of in accordance with Section 2-01, Disposal Method No. 2. No separate payment will be made for disposing of the excess material.

### **2-09.3(1)E        Backfilling**

*Section 2-09.3(1)E is supplemented with the following:  
(Local Agency SP)*

#### **Trench (Subsequent) Backfill**

Native material shall be used for trench (subsequent) backfill if it conforms to Section 9-03.14(3) with a moisture content within three (3) percent of the optimum moisture content. If the material is too dry, water shall be added. If the material is too wet, the material shall be replaced with suitable native material or imported trench (subsequent) backfill conforming to Section 9-03.14(1). Suitable excavated material shall be carefully segregated from unsuitable material, stockpiled, and protected for use as necessary. The use of imported trench (subsequent) backfill shall be subject to the approval of the Engineer.

The trench shall be properly dewatered prior to excavation. Material that is unsuitable due to inadequate dewatering shall be replaced with suitable native material or common borrow at no additional cost to the Owner.

#### **Structure Fill and Backfill**

The entire structural bearing prism, defined as the volume directly beneath the structure, extending downward and outward at a 1:1 slope from the outside base perimeter of the structure to undisturbed suitable native or compacted subgrade, shall be foundation material as described in Section 7-08. Foundation material shall be placed under structures to the thickness as shown on the Drawings or to a minimum depth of 12-inches if not shown, and compacted as specified in these Special Provisions. Suitable native material or imported trench (subsequent) backfill conforming to Section 7-08 shall be placed around all structures.

### **2-09.3(2)        Classification of Structure Excavation**

*Section 2-09.3(2) deleted and replaced with the following:  
(Local Agency SP)*

Structure excavation is unclassified. Excavate to the lines and grades shown or as required to accomplish the construction. Perform all excavation regardless of the type, nature, or condition of the material encountered.

**2-09.3(3) Construction Requirements, Structure Excavation, Class A**

*The title of Section 2-09.3(3) is revised to read as follows:  
(Local Agency SP)*

**2-09.3(3) Construction Requirements, Structure Excavation**

**2-09.3(3)B Excavation Using Open Pits – Extra Excavation**

*Section 2-09.3(3)B is supplemented with the following:  
(Local Agency SP)*

Sloping of the trench excavations in lieu of using shoring within the right of way will not be permitted.

**2-09.3(3)D Shoring and Cofferdams**

*The third paragraph of Section 2-09.3(3)D is deleted and replaced with the following:  
(Local Agency SP)*

Trench boxes, sliding trench shields, jacked shores, shoring systems that are installed after excavation, and soldier pile, sheet pile or similar shoring walls install in front of a pre-excavated slope are classified as non-structural shoring methods.

*The Submittals and Design Requirements paragraphs of Section 2-09.3(3)D is supplemented with the following:  
(Local Agency SP)*

Submittals will be reviewed by the Engineer only for verification of compliance with licensure requirements and that the design is project specific. The Contractor is solely liable for the adequacy of shoring, and shall indemnify and hold harmless the Contracting Agency and Engineer for any inadequacy or failure of the shoring system, including any resulting damages and costs.

**2-09.3(4) Construction Requirements, Structure Excavation, Class B**

*The title of Section 2-09.3(4) is revised to read as follows:  
(Local Agency SP)*

**2-09.3(4) Construction Requirements, Structure Excavation (Cont)**

**2-09.4 Measurement**

*Section 2-09.4 is supplemented with the following:  
(Local Agency SP)*

No measurement shall be made for structure excavation.

No measurement shall be made for open pit excavation.

Backfill materials shall be measured as described in Section 7-08 General Pipe Installation Requirements.

Unsuitable foundation replacement will be measured by the ton for the amount of excavation performed and is subject to the conditions of Section 1-04.6.

Non-Structural Shoring, where used, shall be measured by the linear foot along the trench centerline.

Structural shoring, where used, shall be measured by the square foot of shoring wall, with measurements extending from the existing ground to the bottom of the excavation for the length of shoring installed and is subject to the conditions of Section 1-04.6.

**2-09.5 Payment**

*Section 2-09.5 is deleted and replaced with the following:  
(Local Agency SP)*

Payment will be made in accordance with Section 1-04.1 for the following Bid items:

Unsuitable Foundation Replacement (Allowance)	Per Lump Sum
Non-Structural Shoring	Per Lineal Foot
Structural Shoring (Allowance)	Per Square Foot

Payment for "Unsuitable Foundation Replacement (Allowance)" shall be subject to Section 1-04.6 and shall include, but not be limited to include loading, hauling, and disposal or temporary stockpiling of unsuitable excavated material;,, hauling, furnishing and placing foundation material including geosynthetic soil stabilization material;,, compaction of backfill, and all other activities necessary to accomplish this work.

Payment for "Non-Structural Shoring" shall include the fabrication, installation and removal of non-structural shoring in accordance with all local, State and Federal safety regulations.

Payment for "Structural Shoring (Allowance)" shall be subject to Section 1-04.6 and shall include the fabrication, installation and removal of the structural sheeting, shoring and bracing and all other activities required to complete the work in accordance with all local, State and Federal safety regulations.

No specific pay item is made for structure excavation. All costs for structure excavation will be considered incidental to the construction and shall be included in the costs of the other associated items of work.

Payment for backfill materials shall be as described in Section 7-08 General Pipe Installation Requirements.

**END OF SECTION 2-09**

## **SECTION 2-11            TRIMMING AND CLEANUP**

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### **2-11.1            Description**

*Section 2-11.1 is deleted and replaced with the following:  
(Local Agency SP)*

This work consists of dressing, trimming, repairing, and cleaning up of the areas and features adjacent to and beyond the roadway such as shoulders, ditches, driveways, sidewalks, fencing, trails, paths, landscaping, and other features that were impacted or damaged by construction of the improvements.

### **2-11.4            Measurement**

*Section 2-11.4 is deleted and replaced with the following:  
(Local Agency SP)*

No measurement will be made for trimming and cleanup.

### **2-11.5            Payment**

*Section 2-11.5 is deleted and replaced with the following:  
(Local Agency SP)*

No specific pay item is made for trimming and cleanup. All costs for trimming and cleanup will be considered incidental to the construction and included in the costs of other items of work.

**END OF SECTION 2-11**

## **SECTION 2-12 CONSTRUCTION GEOSYNTHETIC**

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### **2-12.1 Description**

*Section 2-12.1 is supplement with the following:  
(Local Agency SP)*

Construction geosynthetics includes geosynthetics for silt fence, trench foundation stabilization, construction entrance, and separation of different native soils and import materials in the stockpile areas.

### **2-12.2(1) Submittals**

*Section 2-12.2(1) is added as the following:  
(Local Agency SP)*

Submittals shall be in accordance with Section 1-06 and as specified herein.

Submit manufacturer's minimum and maximum series of average roll values representative of geosynthetics furnished, sample, literature and specifications, test results, storage and installation instructions.

### **2-12.4 Measurement**

*Section 2-12.4. is deleted and replaced with the following:  
(Local Agency SP)*

Excepting silt fencing, which will be measured by the linear foot installed, no other measurement will be made of construction geosynthetics for the purpose of payment.

### **2-12.5 Payment**

*Section 2-12.5. is deleted and replaced with the following:  
(Local Agency SP)*

Payment for silt fencing is described in Section 8-01.

No specific pay item is made for all other geosynthetics. All other geosynthetics shall be considered incidental to the construction and included in the costs of other items of work.

**END OF SECTION 2-12**

## **SECTION 2-13 WETLANDS AND STREAMS (NEW SECTION)**

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### **2-13.1 Description**

*Section 2-13.1 is added as the following:  
(Local Agency SP)*

Wetlands and streams are located adjacent to the force main alignment. Portions of the force main alignment lie within wetland and stream buffer areas. This work includes the requirements for protecting these sensitive areas and restoring impacted areas to pre-construction conditions.

### **2.13.2 Vacant/Not Used**

### **2-13.3 Construction Requirements**

*Section 2-13.3 is added as the following:  
(Local Agency SP)*

Wetlands and streams within the project's limits are shown on the Drawings. A pre-construction survey will be performed by the Contracting Agency prior to construction in the area to clearly delineate wetland and stream boundaries within the project limits. The Contractor shall at all times conduct the work so as to ensure that all wetlands and streams in the vicinity of the construction site are not adversely affected by the construction. Contractor shall mark all wetland and stream boundaries with high visibility fencing to prevent workers from accidentally damaging these sensitive areas. If the Contractor does adversely impact any wetlands or streams through the prosecution of the work, the Contractor shall immediately notify the Engineer and Owner. The Engineer will provide the Contractor with formal written notification of the violation. The Contractor shall be responsible for the payment of any fines or penalties. If subsequent violations occur, the Contractor will be ordered to immediately stop work in the area and will revise construction methods to avoid impacts at the Contractor's sole expense. The Contractor will additionally be liable for any restoration work required by the regulating agencies with jurisdiction along with any fines levied by those agencies.

Construction in designated wetland and stream buffer areas shall be completed with as little impact to these areas as possible. Construction shall not impact wetland or stream buffer areas outside the project's limits as shown on the Drawings. Construction may only occur within the designated wetland buffer areas shown on the Drawings. Any impacts to wetlands, streams, or buffers outside of designated areas will be mitigated at the Contractor's expense. Construction within wetlands, streams, and wetland and stream buffer areas shall be in strict accordance with these specifications, as well as applicable permit requirements. Wetland and stream buffers impacted by the Contractor's work shall be restored by the Contractor to pre-construction conditions.

Stockpile and staging areas shall be located outside wetlands and wetland and stream buffer areas.

### **2-13.4 Measurement**

*Section 2-13.4 is added as the following:  
(Local Agency SP)*

No measurement will be made for this work.

### **2-13.5 Payment**

*Section 2-13.5 is added as the following:  
(Local Agency SP)*

No separate payment will be made for this work as it is considered incidental to the construction and its costs shall be included in other items of work.

**END OF SECTION 2-13**

**SECTION 4-04 BALLAST AND CRUSHED SURFACING**

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**4-04.1(1) Submittals (New Section)**

*Section 4-04.1 is supplemented with the following:  
(Local Agency SP)*

The Contractor shall submit all required information in accordance with Section 1-06 and as specified herein.

**4-04.4 Measurement**

*Section 4-04.4 is deleted and replaced with the following:  
(Local Agency SP)*

Crushed surfacing top course shall be measured per ton as verified by a certified weight ticket. All weight tickets shall be given to the Engineer at the time of material delivery.

Crushed surfacing base course shall be measured per ton as verified by a certified weight ticket. All weight tickets shall be given to the Engineer at the time of material delivery.

Shoulder ballast is included in Unsuitable Foundation Excavation in Section 2-09 Structure Excavation.

**4-04.5 Payment**

*Section 4-04.4 deleted and replaced with the following:  
(Local Agency SP)*

Payment will be made in accordance with Section 1-04.1 for the following Bid items:

Crushed Surfacing Top Course	Per Ton
Crushed Surfacing Base Course	Per Ton

Payment for "Crushed Surfacing Top Course" shall include hauling, furnishing, placing, and compacting crushed surfacing top course in accordance with the Contract Documents. No adjustments will be made for water.

Payment for "Crushed Surfacing Base Course" shall include hauling, furnishing, placing, and compacting crushed surfacing base course in accordance with the Contract Documents. No adjustments will be made for water.

Payment for shoulder ballast is included in Unsuitable Foundation Excavation in Section 2-09. No separate payment for shoulder ballast shall be made.

**END OF SECTION 4-04**

## **SECTION 5-04 Hot Mix Asphalt**

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### **5-04.1 Submittals (New Section)**

*Section 5-04.1 is supplemented with the following:  
(Local Agency SP)*

The Contractor shall submit all required information in accordance with Section 1-06 and as specified herein.

### **5-04.2 Materials**

*Section 5-04.2 is supplemented with the following:  
(Local Agency SP)*

Nominal minimum aggregate size shall be ½" per Section 9-03.8(6)B. Asphalt concrete shall be PG 64-22 meeting the requirements of Section 9-02.1(4).

Where temporary asphalt concrete restoration is needed, the Contractor shall furnish and place Asphalt Concrete – "Hot Mix" Class A, Class B or ATB to a minimum depth of two (2) inches over a compacted crushed rock base. It shall be compacted with a roller, vibratory plate or "hoe-pack" to provide a smooth driving surface. "Wheel-rolling" is not acceptable. The Contractor shall maintain a smooth riding surface as directed by the Engineer.

Prior to placing asphalt concrete pavement for final restoration, the Contractor shall remove and dispose of Temporary Asphalt Concrete and prepare subgrade in accordance with the plans and these Special Provisions.

### **5-04.3(7)A Mix Design**

*Section 5-04.3(7)A is deleted and replaced with the following:  
(Local Agency SP)*

#### **General**

Prior to the production of HMA, the Contractor shall determine a design aggregate structure and asphalt binder content in accordance with WSDOT Standard Operating Procedure 732. Once the design aggregate structure and asphalt binder content have been determined, the Contractor shall submit the HMA mix design on DOT form 350-042 demonstrating the design meets the requirements of Section 9-03.8(2) and 9-03.8(6). Verification of the mix design by the Contracting Agency may be required. Allow 25 calendar days for mix design verification prior to paving.

The mix design will be the initial Job Mix Formula (JMF) for the class of mix. Any additional adjustments to the JMF will require the approval of the Engineer and may be made per Section 9-03.8(7).

#### **Non-statistical Evaluation**

Non-statistical acceptance will apply to all HMA not designated as Commercial HMA in the Contract Documents. Non-statistical acceptance testing will be conducted as outlined in Section 5-04.3(8)A.

#### **Commercial Evaluation**

Where Commercial HMA is allowed, it can be accepted by a Manufacturer's Certificate of Compliance stating the material meets the requirements in the Contract. Where HMA Commercial is used for the traveled way, a minimum of one acceptance test to verify gradation, fracture, sand equivalent, and oil content is required in addition to the Manufacturer's Certificate of Compliance.

### **5-04.3(8)A Acceptance Sampling and Testing**

*Items 1 and 2 of Section 5-04.3(8)A are deleted and replaced with the following:  
(Local Agency SP)*

#### **General**

Acceptance of HMA shall be as provided under non-statistical or commercial evaluation. Sampling of HMA for non-statistical evaluation will be as discussed in Section 5-04.3(8A) Items 3 through 6. Commercial evaluation will be used for Commercial HAM and other classes of HMA as allowed by the Contract. Commercial HMA may be used for amounts of HMA less than 2,500 tons in any application. Testing beyond that specified in Section 5-04.3(7)A, Item 3 for Commercial HMA will be at the discretion of the Engineer. Anti-strip additive, where required, will be verified and documented by the Engineer.

**Aggregates**

The acceptance criteria for aggregate properties of sand equivalent, voids in mineral aggregate (VMA), fracture, and gradation will be their conformance to the requirements of Section 9-03.8(2).

**5-04.3(9) Spreading and Finishing**

*Section 5-04.3(9) is supplemented with the following:  
(Local Agency SP)*

HMA shall be placed in at least two lifts. The final lift shall not be placed for at least 6 to 8 weeks after the next to last lift, unless approved otherwise by Engineer, to allow sufficient time for any settlement of the backfill material in the trench to occur.

**5-04.3(17) Paving under Traffic**

*The last paragraph of Section 5-04.3(17) is replaced with the following:  
(Local Agency SP)*

All costs in connection with performing the work in accordance with these requirements, including the installation and removal of temporary pavement markings, shall be included in the unit contract prices for the various bid items involved in the Contract and no further payment will be made.

**5-04.3(22) Temporary Asphalt**

*Section 5-04.3(22) is added as the following:  
(Local Agency SP)*

Contractor shall furnish, place, compact, and maintain temporary asphalt patches in such a manner to prevent traffic hazards until the removal and disposal of the temporary patch is required prior to the permanent patch and overlay. Temporary pavement patch shall be provided on all streets that currently have asphalt paving unless the existing asphalt is ground and removed or compacted as a temporary driving surface. Trench width for temporary pavement patch shall not exceed that which is shown on the Plans.

**5-04.4 Measurement**

*Section 5-04.4 is deleted and replaced with the following:  
(Local Agency SP)*

Temporary Asphalt (Allowance) shall be measured per ton and is subject to the conditions of Section 1-04.6.

Hot Mix Asphalt shall be measured per ton with no deduction being made for the weight of asphalt binder, blending sand, mineral filler, or any other component of the mixture. If the HMA is rejected as provided by Section 5-04.3(11), the material removed will not be included in the measured quantity being paid.

**5-04.5 Payment**

*Section 5-04.5 is deleted and replaced with the following:  
(Local Agency SP)*

Payment will be made in accordance with Section 1-04.1 for the following Bid items:

Temporary Asphalt (Allowance)	Per Ton
Hot Mix Asphalt	Per Ton

Payment for "Temporary Asphalt (Allowance)" shall include furnishing, placing, compacting and maintaining the temporary asphalt as well as sealing joints until the temporary asphalt is removed and replaced with Hot Mix Asphalt. Temporary tack coats will not be measured and are considered incidental to this bid item.

Payment for "Hot Mix Asphalt" shall include preparing the subgrade for paving, providing, hauling, placing, and compacting the asphalt pavement, adjusting existing utility covers and monument case covers to the new grade as necessary, and all other incidental work to complete the pavement in accordance with the Contract Documents.

**END OF SECTION 5-04**

## **SECTION 6-01            GENERAL REQUIRMENTS FOR STRUCTURES**

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### **6-01.2            Foundation Data**

*Section 6-01.2 is revised to read as follows:  
(Local Agency SP)*

Foundation data in the plans (from test borings, test pits, or other sources) were obtained only to guide the Owner and Engineer in planning and designing the project. These data reasonable represents the best information available to the Owner and Engineer concerning conditions and materials at the test sites at the time the investigations were made.

### **6-01.9            Working Drawings**

*Section 6-01.9 is supplemented with the following:  
(Local Agency SP)*

Working Drawings and calculations shall be required for any Contractor designed portions of the work, including concrete formwork and excavation or trench shoring.

**End of Section 6-01**

## **SECTION 6-02            CONCRETE STRUCTURES**

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### **6-02.1            Description**

*Section 6-02.1 is supplemented with the following:  
(Local Agency SP)*

The work includes reinforced concrete vaults, anchor blocks, and foundation elements.

### **6-02.3(1)        Classification of Structural Concrete**

*Section 6-02.3(1) is supplemented with the following:  
(Local Agency SP)*

All structural concrete shall be Class 4000D, air entrained, unless noted otherwise. The maximum water-cementitious ratio shall not exceed 0.50 as computed in accordance with ACI 318 Section 4.1.

### **6-02.3(2)A      Contractor Mix Design**

*The last paragraph of Section 6-02.3(2)A is deleted and replaced with the following:  
(Local Agency SP)*

Entrained air content shall be 4.5 percent at the point of placement, with maximum tolerance of +1 to -1.5 percent.

### **6-02.3(2)B      Commercial Concrete**

*Section 6-02.3(2)B is supplemented with the following:  
(Local Agency SP)*

Commercial concrete may be used for unreinforced concrete thrust blocks unless noted otherwise on the Contract Drawings.

### **6-02.3(4)C      Consistency**

*Section 6-02.3(4)C is supplemented with the following:  
(Local Agency SP)*

When a high range water reducer is used, concrete shall have a slump of 2 to 4 inches before the admixture is added and a maximum slump of 8 inches at the point of delivery after the admixture is added.

The minimum slump for concrete shall be 2 inches for slabs and walls, and 1 inch for footings.

Slump shall be determined by ASTM C143, with tolerances per ACI 117.

### **6-02.3(5)A      General**

*Section 6-02.3(5) is supplemented with the following:  
(Local Agency SP)*

Specimens used for AASHTO T22 Compressive Strength of Cylindrical Concrete Specimens shall use standard 6 inch diameter by 12 inch molds when the average of two cylinder breaks is used to determine compressive strength. If 4 inch diameter by 8 inch diameter molds are used, three specimens shall be taken and the average used to determine compressive strength.

### **6-02.3(5)E      Point of Acceptance**

*The first and second paragraphs of Section 6-02.3(5)E are deleted and replaced with the following:  
(Local Agency SP)*

Determination of concrete properties for acceptance will be made based on samples taken at the discharge of the placement system for all placements.

### **6-02.3(5)G Sampling and Testing Frequency for Temperature, Consistency, and Air Content**

*Section 6-02.3(5)G is supplemented with the following:  
(Local Agency SP)*

The Owner or his designated representative may increase the frequency of sampling and testing to include any truck load.

### **6-02.3(5)H Sampling and Testing for Compressive Strength and Initial Curing**

*The first paragraph of Section 6-02.3(5)H is deleted and replaced with the following:  
(Local Agency SP)*

Sampling and testing of concrete for compressive strength shall be at not less than one composite sample for each 50 cubic yards, or fraction thereof, of each design mixture of concrete placed in any one day. The Owner or his designated representative may increase the frequency of sampling and testing to include any truck load. For minor placements, the Engineer may waive strength tests if in his judgment adequate evidence of satisfactory strength is provided.

### **6-02.3(5)L Concrete With Non-Conforming Strength**

*Section 6-02.3(5)L is deleted and replaced with the following:  
(Local Agency SP)*

Strength will be considered deficient and concrete will be rejected when the Work fails to comply with requirements which control the strength of the structure, including but not limited to the following conditions:

1. Concrete strength failing to comply with contract requirements.
2. Reinforcing steel size, quantity, strength, position, or arrangement at variance with contract requirements.
3. Concrete elements which differ from the required dimensions or location.
4. Curing not in accordance with contract requirements.
5. Inadequate protection of concrete from extreme temperature and other environmental conditions during early stages of hardening and strength development.
6. Mechanical injury, construction fires, accidents, or premature removal of formwork resulting in deficient strength.

When strength of the structure is considered deficient, the following actions may be required by Engineer:

1. Structural analysis or additional testing, or both.
2. Core tests.
3. If testing is inconclusive or impractical or if structural analysis does not confirm the safety of the structure, load tests may be required and their results evaluated in accordance with ACI 318.
4. Concrete work rejected by structural analysis or by results of a load test shall be reinforced with additional construction when required by Engineer, or replaced.
5. The Contractor shall document all repair work proposed to bring strength-deficient concrete work into compliance with Contract Documents, and submit the documentation to Engineer for acceptance.

Durability of concrete will be considered deficient and the concrete work will be rejected when it fails to comply with the requirements which control durability of the structure, including but not limited to the following conditions:

1. Strength failing to comply with contract requirements.
2. Materials for concrete not conforming to contract requirements.

3. Concrete not conforming to air entrainment requirements or the total air content limits
4. Curing not in accordance with contract requirements.
5. Inadequate protection of concrete from detrimental temperature and other detrimental environmental conditions during early stages of hardening and strength development.

When durability of the structure is considered to be deficient, the following actions may be required by the Engineer:

1. Obtain and test samples of the ingredient materials used in the concrete.
2. Obtain samples of concrete from the structure by coring, sawing, or other acceptable means.
3. Laboratory evaluation of concrete and concrete materials to assess the ability of concrete to resist weathering action, chemical attack, abrasion, or other deterioration, and to protect reinforcement and embedments from corrosion.
4. Repair or replace concrete rejected for durability deficiency as directed by Engineer.
5. Document repair work to bring concrete work into compliance with Contract Documents and submit the documentation to Engineer for acceptance.

### **6-02.3(12)A Waterstop Joints**

*Section 6-02.3(12)A is added as the following:  
(Local Agency SP)*

The work and materials specified in this Section include requirements for waterstops.

#### **Contractor Submittals**

Submit the following Project Data:

1. **SAMPLES:** Submit to the Engineer for approval, samples of all the materials and waterstop sections proposed for use on the work. All waterstop sections must conform to the shapes and sizes specified. The samples shall be clearly marked to show the manufacturer's name and product identification. The samples shall be submitted along with the manufacturer's and all laboratory test data required to show compliance with cited reference standards and requirements specified herein.
2. **CERTIFICATES:** Certification from a recognized independent testing laboratory attesting that the material submitted will meet or exceed each and all of the physical and chemical characteristics specified herein and in the references cited herein.

#### **Quality Assurance**

**WATERSTOP INSPECTION:** All waterstop placements shall be inspected and accepted by the Owner's Resident Project Representative, or by a Special Inspector retained by the Owner or Engineer before concrete may be placed on either side of a waterstop joint.

All field joints in waterstops shall be inspected for misalignment, bubbles, inadequate bond, porosity, cracks, offsets, and other defects which would reduce the potential resistance of the material to water pressure at any point. All defective joints shall be replaced with material which will pass said inspection, and all faulty material shall be removed from the site and disposed of by the Contractor.

The following defects shall be grounds for rejection:

1. Offsets at joints greater than 1/32 inch (0.8 mm), or 15% of material thickness at any point, whichever is less.
2. Exterior crack at welded joint in outer surface, due to incomplete bond, which is deeper than 1/32 inch (0.8 mm), or 15% of material thickness at any point, whichever is less.

3. Any combination of offset or exterior crack which will result in a new reduction in the cross-section of the waterstop excess of 1/32 inch (0.8 mm), or 15% of material thickness at any point, whichever is less.
4. Misalignment of joint which results in a longitudinal misalignment of the waterstop in excess of ½ inch in 10 feet (12 mm in 3 m).
5. Porosity in the welded joint as evidenced by visual inspection.
6. Bubbles or inadequate bonding which can be detected with a pen-knife test. (If while prodding the entire joint on each side with the point of a pen knife, the knife breaks through the outer portion of the weld into a bubble, the joint shall be considered defective.)
7. Nail holes in the middle 2/3 of the waterstop material.
8. Dirt, oil, grease, paint, concrete laitance, or other foreign material on the waterstop.

### **Storage and Handling**

All waterstops shall be stored out of direct sunlight so as to permit free circulation of air around the waterstop material. In the event any PVC waterstop is installed in the concrete on one side of a joint and will remain unembedded in concrete on the opposite side of the joint for more than 2 days, suitable precautions shall be taken to shade and protect the exposed waterstop from the direct rays of the sun during the entire exposure and until the waterstop is embedded in the concrete on both sides of the joint.

Hydrophilic waterstop material shall be kept in dry storage prior to use, and shall be kept dry after installation until concrete is placed. Waterstop which has started to swell from moisture contact shall not be installed in the work.

### **Products**

Waterstops shall be of the size and type indicated on the Contract drawings and as specified in Section 9-24 PLASTIC WATERSTOPS.

### **Installation of Waterstops**

All waterstops shall be fully continuous for the extent of the joint. Splices necessary to provide such continuity shall be accomplished in conformance to printed instructions of manufacturer of the waterstop.

Contractor shall pay particular attention to removing all obstructions such as concrete, nails, etc., from joints when movements of floor, wall and roof sections can be expected under prestressing, temperature and other conditions.

The Contractor shall take suitable precautions and means to support and protect the waterstops during the progress of the work and shall repair or replace at his own expense any waterstop damage during the progress of the work.

All waterstops shall be stored so as to permit free circulation of air around the waterstop material. In the event any waterstop is installed in the concrete on one side of a joint and will remain unembedded in concrete on the opposite side of the joint form more than 2 days, suitable precautions shall be taken to shade and protect the exposed waterstop from the direct rays of the sun during the entire exposure and until the waterstop is embedded in the concrete on both sides of the joint.

The waterstop shall be correctly positioned in the forms prior to concrete placement so that the center of the waterstop is centered on the joint unless otherwise detailed on the Contract Drawings.

In cases where preformed expansion joint material is used in conjunction with the waterstop, allowance shall be made for equal waterstop embedment on each side in the concrete.

Waterstop shall be held in place in the forms by use of a split form or other approved method that will positively hold the waterstop in the correct position and to the correct alignment.

Horizontal waterstops shall be bent up during placing of concrete until the concrete has been brought to the level of the waterstop; additional concrete shall then be placed over the waterstop, after which the concrete shall be thoroughly vibrated.

All horizontal and vertical waterstops which are not accessible during pouring shall be tied off in two directions every 12 inches in such a manner that bending over one way or another is prevented.

A hog-ring or nail may be driven through both ends of the waterstop to facilitate placing and tying of waterstops to reinforcing steel forms or form-ties.

### **Splices in Elastomeric Waterstops**

Splices in the continuity or at intersections around the waterstops shall be performed by heat-sealing the adjacent waterstop sections in accordance with the manufacturer's printed recommendations. It is essential that:

1. The material not be damaged by heat sealing.
2. The splices have a tensile strength of not less than 75 percent of the unspliced materials tensile strength.
3. The continuity of the waterstop ribs and centerbulbs shall be maintained. Maintain continuity at bends in the plane of the waterstop by using miter cuts so ribs and centerbulbs remain aligned.

Butt joints of the ends of two identical waterstop sections may be made while the material is in place in the forms.

All joints in waterstop involving more than two ends jointed together, and all joints which involve an angle cut, alignment change, or the joining of two dissimilar waterstop sections shall be fabricated by the Contractor prior to placement in the forms, allowing not less than 18-inch-long (450 mm) strips of waterstop material beyond the joint. Upon being inspected and approved, such prefabricated waterstop joint assemblies shall be installed in the forms and the ends of the 18-inch (450 mm) strips shall be butt-welded to the straight-run portions of waterstop in place in the forms.

All waterstops shall be properly spliced, and joints shall be checked for strength and pinholes after splicing.

### **Handling of Hydrophilic Waterstop**

Confine waterstop within the concrete joint, with a minimum 2-inch concrete cover to the exterior joint surface, unless otherwise indicated.

Exposed waterstop must be kept dry before concrete pour. If swelling occurs prior to confinement, replace with new material.

Nail waterstop to hardened concrete to hold securely in place during concrete placement of second pour.

### **Splices for Hydrophilic Waterstop**

BENTONITE TYPE: Butt ends of waterstop together. Do not overlap.

MODIFIED CHLOROPRENE RUBBER: Butt ends of waterstop together and glue with Manufacturer's recommended adhesive.

### **Concrete Placement around Waterstop**

Special care shall be used in placing concrete around waterstops by careful working, routing, and vibrating to ensure that all air and rock pockets have been eliminated.

### **Installation of Retrofit Waterstop**

Existing concrete shall be cleaned and roughened by bush hammer in areas to receive retrofit waterstop. The waterstop shall be bonded to the prepared concrete with epoxy adhesive and mechanically anchored with stainless steel battens and concrete screws or anchors in accordance with Manufacturer's installation instructions.

## **6-02.3(14) Finishing Concrete Surfaces**

*Section 6-02.3(14) is supplemented with the following:  
(Local Agency SP)*

Unless noted otherwise on the plans, all concrete surfaces exposed to public view shall receive Class 1 surface finish. All other surfaces shall receive Class 2 surface finish.

**6-02.3(16) Plans for Falsework and Formwork**

*Section 6-02.3(16) and its subsections are deleted.*

**6-02.3(17) Falsework and Formwork**

*Section 6-02.3(17) and its subsections are deleted and replaced with the following:  
(Local Agency SP)*

**6-02.3(17)A Submittals**

Submit the following project data unless otherwise specified:

1. Formwork Release Agent. Submit data on formwork release agent proposed for use with each form surface to be used for acceptance.
2. Shop Drawings. Submit shop drawings for formwork and formwork supports, sealed by a professional Engineer licensed in the state where the work will be done.
3. Calculations for formwork, reshoring and backshoring, sealed by a professional Engineer licensed in the state where the work will be done.
4. Manufacturer's data and samples of form ties.
5. Manufacturer's data and samples of expansion joint materials.
6. Manufacturer's data and samples of waterstops.

Submit the following data when required:

1. Reshoring. When reshoring or backshoring is required or permitted, submit procedures and plans of operations, before use, sealed by a professional Engineer licensed in the state where work will be performed. Indicate on shop drawings the magnitude of construction loads permitted during reshoring or backshoring.
2. Form Liners. Submit samples and catalog data for form liner material when specified.

Submit the following data when alternatives are proposed:

1. Formwork Facing Materials. When formwork facing materials other than those specified are proposed for use, submit data for acceptance.
2. Control Joints. If construction or control joints other than those indicated on Contract Drawings are desired, submit request for acceptance.
3. Testing for Formwork Removal. When methods other than test of cylinders are proposed for determining time for formwork removal, submit data as specified in 3.04.B.

**6-02.3(17)B Materials Handling**

All materials and equipment shall be shipped, stored, handled and installed in such a manner as not to degrade quality, serviceability or appearance.

**6-02.3(17)C Form Materials**

**Form Facing Materials**

Materials for form faces in contact with concrete shall meet the requirements of Specification Section 6-02.3(14) and the following requirements, unless otherwise specified in the Contract Documents.

1. For Finish on Backfilled Surfaces, no form facing material is specified.
2. For Class 1 or Class 2 Finish, use plywood, tempered concrete-form-grade hardboard, metal, plastic, paper or other acceptable materials capable of producing the desired finish for form-facing materials. Form facing materials shall produce a smooth, uniform texture on the concrete.

Do not use form-facing materials with raised grain, torn surfaces, worn edges, patches, dents or other defects that will impair the texture of concrete surfaces. Furnish panels in largest practicable sizes to minimize number of joints.

### **Form Ties**

Provide factory-fabricated, adjustable-length, removable or snap-off metal form ties designed to prevent form deflection and to prevent spalling concrete surfaces upon removal.

Provide ties so that portion remaining within concrete after removal of exterior parts is at least 1 inch from the outer concrete surface. Provide form ties which will not leave a hole larger than 1-inch diameter in the concrete surface.

Provide tie cones at each end.

Ties shall positively secure the wall to the required dimension and hold the wall to that dimension prior to and during concrete placement.

The use of tie wires as form ties will not be permitted.

### **Snap Ties**

Snap ties, if used, shall not be broken until the concrete has reached the design concrete strength. Snap ties, designed so that the ends must be broken off before the forms can be removed, shall not be used.

Ties for liquid containment structures and walls below grade shall have a neoprene waterstop, factory applied at the center of the tie.

### **Taper Ties**

Taper ties with plastic or rubber plugs of an approved and proven design may be used. The plugs shall be driven into the hole with a steel rod, placed in a cylindrical recess made therefore in the wall. At no time shall plugs be driven on the flat area outside the cylindrical recess. Plugs shall be A-58 Sure Plug as manufactured by Dayton Superior.

### **Formwork Release Agent**

Use commercially manufactured form release agent that prevent formwork absorption of moisture, prevent bond with concrete, do not stain the concrete surfaces, and do not leave residual matter on surface of concrete or adversely affect proper bonding or subsequent application of other material applied to concrete surface.

For concrete surfaces of reservoirs, tanks, or channels used for conveyance, treatment or storage of water for eventual potable use, form release agents shall be listed in National Sanitation Foundation Standard 61, "Drinking Water System Components – Health Effects."

### **6-02.3(17)D Performance and Design Requirements**

Design and engineering of formwork and formwork supports shall be the responsibility of the Contractor. Designs of formwork and preparation of formwork drawings shall be under the supervision of a professional engineer licensed in the state where the work will be done.

Design formwork for construction loads, lateral pressure and requirements of the applicable building code, and for construction sequence shown on the Contract Drawings, if applicable. Design formwork to withstand the pressure resulting from placement and vibration of concrete and to maintain specified tolerances. The design assumptions for form pressure and rate of fill limitations for wall forms shall be stated on the formwork drawings. Wall forms shall be designed so wall sections can be poured full height between joints shown on the Contract Drawings without horizontal cold joints.

Do not use earth cuts as forms for vertical or sloping surfaces unless required or permitted by Contract Documents.

Maximum deflection of facing materials reflected on concrete surfaces exposed to view shall be 1/240 of the span between structural members of the formwork, except for architectural concrete.

Locate and detail formed joints to the following requirements:

1. Locate and form construction joints that least impair strength of the structure. In general, locate construction joints in the middle third of the spans of slabs, beams, and girders. When a beam intersects a girder within this region, offset the joint in the girder a distance equal to or greater than twice the width of the beam. Locate joints in walls and columns at the underside of floors, slabs, beams, or girders and at the top of footings or floor slabs. Make joints perpendicular to the main reinforcement. Any construction joints not shown on the Contract Drawings shall require the approval of the Engineer.
2. Provide keyways where indicated on Contract Drawings. Where longitudinal keyways are indicated on the Contract Drawings, make them a minimum of 1½-inch deep in joints in walls and between walls and slabs or footings.
3. Provide construction and contraction (control) joints where indicated on the Contract Documents. The location of control joints other than those indicated on the Contract Documents shall be submitted for acceptance.

For a Class 1 or Class 2 finish, set the facing materials in an orderly and symmetrical arrangement, and keep the number of seams to a practical minimum. Support facing material with studs or other backing capable of maintaining deflections within specified tolerances.

#### **6-02.3(17)E Form Fabrication and Manufacture**

Formwork shall be tight to prevent loss of mortar from concrete. Provide watertight formwork when architectural concrete is specified.

Place ¾-inch-minimum chamfer strips in the corners of formwork to produce beveled edges on permanently exposed surfaces unless otherwise specified. Do not bevel reentrant corners or edges of formed joints of concrete unless otherwise specified in the Contract Documents.

Provide temporary openings at the base of the column and wall formwork and at other points where necessary to facilitate cleaning and inspection. Inspect formwork and remove deleterious material immediately before concrete is placed.

Fabricate embedded form ties so ends or end fasteners can be removed with minimum spalling at the faces of concrete.

After the ends or end fasteners of form ties have been removed, terminate the embedded portion of ties not less than 2 diameters, or twice the minimum cross-section dimension of the tie, from the formed concrete surface. In no case shall this distance be less than ¾ inch.

Locate waterstops in joints where indicated on Contract Drawings. Use pieces of premolded waterstop with a maximum practicable length to create the minimum number of end joints. Make joints in waterstops in accordance with the manufacturer's recommendations. Ensure that joints develop effective watertightness equal to the continuous waterstop material, permanently develop not less than 50% of the strength of the parent section and permanently retain flexibility.

#### **6-02.3(17)F Construction and Erection of Formwork**

At construction joints, lap contact surface of the form sheathing for flush surfaces exposed to view over the hardened concrete in the previous placement.

Ensure formwork is held firmly against hardened concrete to prevent offsets or loss of mortar at construction joints and to maintain a true surface.

Unless otherwise specified in Contract Documents, construct formwork so concrete surfaces will conform to tolerance limits of ACI 117. The class of surface as given in ACI 117 shall be as follows:

1. Walls and elevated slabs: Class A
2. Footings: Class C

Provide positive means of adjustment (such as wedges or jacks) of shores and struts. Do not make adjustments in the formwork after concrete has taken its initial set. Brace formwork securely against lateral deflection and lateral instability.

To maintain specified tolerances, camber formwork to compensate for anticipated deflections in formwork prior to hardening of concrete. Set formwork and intermediate screed strips for slabs accurately to produce designated elevations and contours of the finished surface prior to removal of formwork. Ensure that edge forms and screed strips are sufficiently strong to support vibrating screeds or roller pipe screeds when the finish specified requires the use of such equipment.

When formwork is cambered, set screeds to a like camber to maintain required concrete thickness.

Fasten form wedges in place after final adjustment of forms and prior to concrete placement.

Anchor formwork to shores, supporting surfaces, or members to prevent upward or lateral movement of the formwork system during concrete placement.

The Contractor shall form for and leave all openings in the concrete work where required for the installation of his own work and/or for the work of others. He shall carefully examine all drawings for the need of such openings, and in failing to provide openings as shown on the Drawings, he shall cut them at his own expense. Except as otherwise noted or specified, all such openings shall be filled with concrete, after the work to be installed therein has been completed. Construct formwork for wall openings to facilitate removal and to counteract swelling of wood formwork.

Provide runways for moving equipment and support runways directly on the formwork or structural member without resting on the reinforcing steel.

Place sleeves, inserts, anchors, and embedded items required for adjoining work or for support of adjoining work prior to concrete placement.

Position and support expansion joint material, waterstops, and other embedded items to prevent displacement. Fill voids in sleeves, inserts, and anchor slots temporarily with readily removable material to prevent entry of concrete into voids.

Clean surfaces of formwork and embedded materials of mortar, grout, and foreign material before concrete is placed.

Cover surfaces of formwork with an acceptable material that will prevent bond with the concrete. A field-applied formwork release agent or a factory-applied liner may be used. If a formwork release agent is used, apply to the surfaces of the formwork in accordance with the manufacturer's recommendations before placing reinforcing steel. Do not allow formwork release agent to puddle in the forms. Do not allow formwork release agent to contact reinforcing steel or hardened concrete against which fresh concrete is to be placed.

### **Cleanouts and Access Panels**

Temporary openings shall be provided at the bottom of the wall forms to facilitate cleaning and inspection prior to placing concrete.

Shavings, chips and all refuse shall be removed and the forms shall be broom-cleaned before any concrete is placed. Cleanout openings will not be permitted in exposed concrete without the Engineer's approval.

### **6-02.3(17)G Removal of Falsework and Forms**

When finishing is required, remove formwork as soon as removal operations will not damage concrete, and subject to specification requirements for strength of concrete required for removal of formwork.

Remove top forms on sloping surfaces of concrete as soon as removal will not allow concrete to sag. Perform needed repairs or treatment required at once and follow immediately with specified curing.

Loosen wood formwork for wall openings when this can be accomplished without causing damage to concrete.

Tie-rod clamps to be entirely removed from the wall shall be loosened 24 hours after concrete is placed, and form ties may be removed at that time.

Do not damage concrete during removal of formwork for columns, walls, sides of beams, and other parts not supporting the weight of the concrete. Perform needed repair and treatment required on vertical surfaces at once and follow immediately with specified curing.

Unless otherwise specified, leave formwork and shoring in place to support the weight of concrete in beams, slabs, and in-place structural members until concrete has reached  $f'c$ , in accordance with 3.04. If a lower compressive strength is proposed for removal of formwork and shoring, submit detailed plans for review and acceptance. When shores and other vertical supports are arranged to allow the form-facing material to be removed without loosening or disturbing the shores and supports, the facing material may be removed at an earlier age unless otherwise specified.

### **Form Removal Safety**

Forms shall be removed in a manner to ensure complete safety of the structure. In no case shall supporting forms or shoring of slabs or other suspended members be removed until members have acquired sufficient strength to support safely their weight and the load thereon.

Care shall be taken by the Contractor to assure that newly unsupported portions of the structure are not subjected to heavy construction or material loading. Additional shores or bracing shall be provided, as required to adequately support the members during the construction period.

All responsibility involved in the removal of forms, shores, and bracing shall rest with the Contractor, and he shall be solely responsible for accidents to persons and property of any nature.

### **Reuse of Forms**

All parts of removed forms, reserved for reuse shall be inspected, cleaned and repair. Any part or panel which has been dented, deformed or otherwise rendered unfit for reuse shall be discarded.

### **6-02.3(17)H Reshoring and Backshoring**

When reshoring and backshoring is permitted or required, submit for acceptance a plan of reshoring and backshoring procedures and operations prior to their use.

While reshoring or backshoring are underway, do not permit any construction load on new construction.

During reshoring and backshoring, do not allow concrete in beam, slab, column, or any structural member to be loaded with combined dead and construction loads in excess of the loads permitted by Engineer for the concrete compressive strength at the time of reshoring or backshoring.

Place reshores and backshores in sequence with stripping operations.

Tighten reshores and backshores to carry the required loads without overstressing the concrete members. Leave them in place until tests required by the specifications for strength of concrete required for removal of formwork, indicate that the concrete compressive strength has attained the minimum value specified.

For floors supporting shores under newly placed concrete, either leave in place the original supporting shores or install reshores and backshores. The shoring system and the supporting slabs shall resist the anticipated loads. Locate reshores and backshores directly under a shore position or as indicated on formwork shop drawings.

In multi-story buildings, extend reshoring over a sufficient number of stories to distribute the weight of newly placed concrete, forms, and construction live loads.

### **6-02.3(17)I Strength of Concrete Required for Removal of Formwork**

When removal of formwork or reshoring is based on concrete reaching a specified compressive strength, concrete will be presumed to have reached this strength when test cylinders, field cured along with the concrete they represent, have reached the compressive strength specified for removal of formwork or reshoring. Mold cylinders in accordance with ASTM C31/C31M, and cure them under the same

conditions for moisture and temperature as used for the concrete they represent. Test cylinders in accordance with ASTM C39/C39M.

Alternatively, when specified or permitted, use of the following methods for evaluating concrete strength for formwork removal is permitted. Submit sufficient data using job materials to demonstrate correlation of measurements on the structure with the compressive strength of laboratory-cured molded cylinders or drilled cores. Correlation data for each alternative method for determining strength shall be submitted for acceptance.

1. Tests of cast-in-place cylinders in accordance with ASTM C873. This is limited to slabs with concrete depth from 5 to 12 inches.
2. Penetration resistance in accordance with ASTM C803/C803M.
3. Pullout strength in accordance with ASTM C900.
4. Maturity method in accordance with ASTM C1074.

### **Minimum Stripping Time**

Form removal for elevated slabs and beam or girder soffits shall only occur after the required concrete compressive strength has equaled the specified 28-day compressive strength as described herein, but in no case less than 7 days.

Form removal for columns, walls, and side forms of beams, girders, or footings shall be not less than 12 hours.

### **6-02.3(17)J Field Quality Control**

Establish and maintain survey controls and benchmarks in an undisturbed condition until final completion and acceptance of the project.

Variations from plumb and designated building lines shall not exceed the tolerances specified in ACI 117.

### **6-02.3(17)K Installation of Embedded Items**

The Contractor shall notify all trades when construction is ready for the setting of anchor bolts, inserts, sleeves, and other built-in equipment, in order that such material shall be set at the proper time. Before placing concrete, care shall be taken to determine that all items to be embedded in concrete are accurately located, firmly secured in place and protected from damage or displacement until securely held by the concrete.

All items shall be thoroughly cleaned, free from rust, scale, dirt, grease or other coating. Any wood used for removable keys shall be thoroughly dampened before concrete is placed against the wood. The Contractor shall be responsible for any displacement of the items caused by his workers.

Electrical conduit may be embedded in concrete, provided the following conditions are met. Conduit runs which cannot satisfy these conditions shall be done at the Contractor's expense.

1. Outside diameter of conduit shall not exceed 1/3 of the concrete thickness.
2. Conduit shall not be placed closer than 3 diameters on center.
3. Conduit shall not be embedded in structural concrete slabs less than 4 inches thick.
4. Only 2 conduits may cross at any point. The sum of the outside diameter of the crossing conduits shall not exceed 1/3 of the concrete thickness.
5. A 1½-inch-minimum concrete cover shall be provided for conduits in structural concrete slabs.
6. Conduit shall not be located between bottom of reinforcing steel and bottom of concrete slab.
7. Conduit is generally not permitted in beams or girders.
8. Aluminum conduit shall not be embedded in concrete.

9. Reinforcing steel and/or post-tensioning ducts shall not be repositioned to clear conduit. Adjust conduit positions to clear reinforcement.

### **06-02.3(18) Placing Anchor Bolts**

*Section 6-02.3(18) is supplemented with the following:  
(Local Agency SP)*

Anchor bolts shall be either drilled anchors or cast-in-place as shown on the Plans.

Drilled anchors shall either be epoxy adhesive type or expansion type, torque-controlled, 316 stainless steel, Hilti, Powers Fasteners, Rawl, Covert or approved equal. Hole diameter shall be in accordance with manufacturer's instructions.

Epoxy for adhesive anchors or dowel embedment shall be a non-sag, two-component epoxy resin conforming to ASTM C881/C881M-02, Type I, IV, or V; Grade 3, Class D, E, or F as required for application between concrete temperatures of 40 and 90°F.

Rapid setting epoxies shall not be used.

All anchors shall be male-type projecting anchors, unless female-type anchors are specifically called out otherwise. Provide minimum embedment depths shown on the Contract Drawings, but in no case less than IBC minimums for the size called out. Connected work shall not bear on threads.

Cast-in-place anchor bolts shall conform to ASTM F1554 Grade 36 unless noted otherwise on the plans. Headed stud type. "L" or "J" bolts shall not be used.

Submit catalog data for all items covered by this section to be incorporated in the Work.

All drilled anchors shall be tensioned using torque wrenches to not less than 50%, or more than 90% of rated allowable capacity after installation, in accordance with Manufacturer's instructions.

All cast-in-place anchors shall be tensioned to not less than 10,000 psi, or more than 20,000 psi tensile stress based on the root area of the thread.

### **06-02.3(24) Reinforcement**

*Section 6-02.3(24) and its subsections are deleted and replaced with the following:  
(Local Agency SP)*

#### **6-02.3(24)A Submittals**

Submit the following project data unless otherwise specified:

1. Reinforcement. Submit manufacturer's certified test report.
2. Placing Drawings. Submit placing drawings showing fabrication dimensions and locations for placement of reinforcement and reinforcement supports.
3. Splices. Submit a list and request to use splices not indicated in Contract Documents.
4. Mechanical Splices. Submit request for the use of mechanical splices not shown on the Project Drawings.
5. Column Dowels. Submit requests to place column dowels without the use of templates.
6. Field Bending. Submit requests and procedures to field bend or straighten reinforcement partially embedded in concrete.
7. Certification. If epoxy coated bars are being furnished, submit copy of current CRSI Plant Certification Manual.

Submit the following data when required:

1. Welding. Submit description of reinforcement weld locations and welding procedures, when welding is permitted in accordance with in 6-02.3(24)D.

2. Supports. If coated reinforcement is required, submit description of reinforcement supports not described in 6-02.3(24)C, Reinforcement Supports, and material for fastening coated reinforcement.

Submit the following data when alternatives are proposed:

1. Reinforcement Relocation. Submit request to relocate any reinforcement that exceeds placement tolerances.
2. Epoxy Coating Plants. Inspection and quality-control program of plants applying epoxy coating if proposed plant is not certified in accordance with the CRSI Certification Program.

#### **6-02.3(24)B Materials Delivery, Storage and Handling**

Prevent bending, coating with earth, oil or other material, or otherwise damaging the reinforcement.

For handling coated reinforcement, use equipment having contact areas padded to avoid damaging the coating. Lift bundles of coated reinforcement at multiple pick-up points to prevent bar-to-bar abrasion from sags in the bundles. Do not drop or drag coated reinforcement. Store coated reinforcement on cribbing that will not damage the coating.

#### **6-02.3(24)C Materials**

**REINFORCING BARS:** Bars used as reinforcement shall be deformed except spirals and welded wire fabric, which may be plain unless otherwise designated on the Contract Drawings. Reinforcement shall be grade 60 unless otherwise indicated on the Contract Drawings and shall conform to one of the following:

1. ASTM A615/A615M
2. ASTM A706/A706M
3. ASTM A970/A970M
4. ASTM A996/A996M, rail steel bars shall be Type R.

**COATED REINFORCING:** Reinforcing bar coatings, when required, shall be zinc or epoxy, as indicated on the Contract Drawings.

1. Zinc-coated (galvanized) reinforcement shall conform to ASTM A767/A767M. Repair all coating damage due to shipping, handling and placing in accordance with ASTM A780. The maximum amount of repaired damaged areas shall not exceed 2 percent of the surface area in each linear foot of each bar.
2. Epoxy-coated reinforcement bars shall conform to ASTM A775/A775M or ASTM A934/A934M as specified in the Contract Documents.
3. Coatings shall be applied in plants that are certified in accordance with the Concrete Reinforcing Steel Institute (CRSI) Certification Program or an equivalent program acceptable to the Engineer.
4. Repair damaged areas with patching material conforming to ASTM A775/A775M or ASTM A934/A934M as applicable and in accordance with the material manufacturer's written recommendations. Repair coating damage due to shipping, handling and placing. The maximum total damaged areas shall not exceed 2 percent of the surface area in each linear foot of each bar. Fading of the coating color will not be cause for rejection of epoxy-coated reinforcing bars.

**STAINLESS STEEL BARS:** Stainless steel bars shall conform to ASTM A955/A955M.

**BAR MATS:** Bar mats shall conform to ASTM A184/A184M.

**WIRE:** Use plain or deformed wire as indicated on the Contract Drawings. Plain wire may be used for spirals.

1. Plain wire shall conform to ASTM A82.
2. Deformed wire size D4 and larger shall conform to ASTM A496.

3. Epoxy-coated wire shall conform to ASTM A884/A884M. The maximum total damaged areas, including areas repaired at the manufacturing facility, shall not exceed 2% of the surface area in each linear foot or each wire. Repair all damaged areas.
4. For wire with a specified yield strength  $f_y$  exceeding 60,000 psi,  $f_y$  shall correspond to a strain of 0.35 percent.

**WELDED WIRE REINFORCEMENT:** Use welded wire reinforcement specified in Contract Documents and conforming to one of the following specifications:

1. Plain Welded Wire Reinforcement: ASTM A185, with welded intersections spaced not farther apart than 12 inches in the direction of principal reinforcement.
2. Deformed Welded Wire Reinforcement: ASTM A497/A497M, with welded intersections spaced not farther than 16 inches in the direction of principal reinforcement.
3. Epoxy-coated Welded Wire Reinforcement: Conform to ASTM A884/A884M.
4. For welded wire reinforcement with a specified yield strength  $f_y$  exceeding 60,000 psi,  $f_y$  shall correspond to a strain of 0.35 percent.

**WIRE REINFORCEMENT SUPPORTS:** Unless otherwise specified or permitted, use wire reinforcement supports complying with Class 1, maximum protection, or Class 2, moderate protection as indicated in the CRSI Manual of Standard Practice, Chapter 3. Coated wire reinforcement supports shall conform to the following:

1. **EPOXY COATED WIRE REINFORCEMENT SUPPORTS:** Use wire reinforcement supports coated with dielectric material, including epoxy or other polymer, for a minimum distance of 2 inches from the point of contact with epoxy-coated reinforcement.
2. **ZINC-COATED REINFORCEMENT:** Use galvanized wire reinforcement supports or wire reinforcement supports coated with dielectric material.

**PRECAST CONCRETE REINFORCEMENT SUPPORTS:** Precast concrete supports for supporting reinforcement shall not be less than 4 square inches having a compressive strength equal to or greater than the specified compressive strength of the concrete being placed.

**ALL-PLASTIC BAR SUPPORTS:** All-plastic bar supports may be used for horizontal and vertical reinforcing steel. They may have a snap-on action or other method of attachment. All-plastic supports shall be non-porous and chemically inert in concrete. All-plastic bar supports shall have rounded seatings so as not to punch holes in the formwork and shall not deform under load when subjected to normal temperatures encountered in use, nor shall they shatter or severely crack under impact loadings when used in cold weather.

All-plastic bar supports shall have at least 25% of their gross plane area perforated, and shall not be placed closer than 12 inches apart along a bar.

**TIE WIRE:** No. 16 American Wire Gauge or heavier, black annealed per ASTM A82.

### **6-02.3(24)D Fabrication**

**REINFORCEMENT:** Bend all reinforcement cold unless heating is specifically authorized in the Contract Documents or by the Engineer. Fabricate reinforcement in accordance with fabricating tolerances of ACI 117.

**WELDING:** When welding of reinforcement is required or permitted, make all welds in conformance with ANSI/AWS D1.4. Do not weld crossing bars (tack welding) for assembly of reinforcement, supports, or embedded items. After completing welds on zinc-coated (galvanized) or epoxy-coated reinforcement, repair coating damage in accordance with requirements specified above. Coat welds and steel splice members used to splice reinforcement with the same material used for repair of coating damage.

**6-02.3(24)E Placement**

When concrete is placed, reinforcement shall be free of materials deleterious to bond. Reinforcement with rust, mill scale, or a combination of both will be considered satisfactory, provided the minimum nominal dimensions, nominal weight and the minimum average height of deformations of a hand-wire-brushed test specimen are not less than the applicable ASTM specification requirements.

**TOLERANCES:** Place, support, and fasten reinforcement as shown on the Contract Drawings. Do not exceed the placing tolerances specified in ACI 117 before concrete is placed. Placing tolerances shall not reduce cover requirements except as specified in ACI 117.

**REINFORCEMENT RELOCATION:** When necessary to move reinforcement beyond the specified placing tolerances to avoid interference with other reinforcement, conduits or embedded items, submit the resulting arrangement of reinforcement for acceptance.

**CONCRETE COVER:** Minimum concrete cover for reinforcement, unless otherwise indicated in the Contract Drawings, shall be as indicated below:

	<b>Minimum Cover (inches)</b>
<b>Slabs &amp; Joists</b>	
Top & bottom bars for dry conditions	
#11 bars and smaller	3/4
#14 and #18 bars	1 1/2
Formed concrete surfaces exposed to earth, water or weather, and over or in contact with sewage and for bottoms bearing on work mat, or slabs supporting earth cover.	
#5 bars and smaller, W31 or D31 wire and smaller	1 1/2
#6 through #18 bars, W45 or D45 wire	2
<b>Beams &amp; Columns, formed</b>	
For dry conditions	
Stirrups, spirals and ties	1 1/2
Principal reinforcement	2
Exposed to earth, water, sewage or weather	
Stirrups, spirals and ties	2
Principal reinforcement	2 1/2
<b>Walls</b>	
For dry conditions	
#11 bars and smaller	3/4
#14 and #18 bars	1 1/2
Formed concrete surfaces exposed to earth, water, sewage, weather, or in contact with ground	
<b>Footings and Base Slabs</b>	
At formed surfaces and bottoms bearing on concrete work mat	
	2
At unformed surfaces and bottoms in contact with earth	
	3
Top of footings	
	same as slabs
Over top of piles	
	2

For bundled bars, minimum concrete cover shall be equal to the equivalent diameter of the bundle but need not be greater than 2 inches, except the minimum cover shall not be less than specified above. The

equivalent diameter of the bundle shall be based on a single bar of a diameter derived from the equivalent total area.

Tolerances on minimum concrete cover shall meet the requirements of ACI 117.

**REINFORCEMENT SUPPORTS:** Size and spacing of reinforcement supports shall conform to the CRSI Manual of Standard Practice. Reinforcement shown on the Contract Drawings shall not be relocated to serve as bolsters for other bars. The Contractor shall provide additional bars if necessary to support the reinforcement shown on the Contract Drawings.

Horizontal bars in slabs and beams shall be supported at intervals not greater than 48 inches.

Wall and column reinforcement shall be laterally supported by side form spacers or other means at intervals not greater than 48 inches horizontally or vertically in the case of walls, and not greater than 48 inches vertically and at not less than 90-degree intervals in the case of columns.

Unless otherwise approved by the Engineer, use the following reinforcement supports:

1. Place reinforcement supported from the ground or mud on precast concrete reinforcement supports.
2. Place non-coated reinforcement supported from formwork on reinforcement supports made of concrete, metal or plastic.
3. Place zinc-coated (galvanized) reinforcement supported from formwork on wire reinforcement supports, which are galvanized, coated with dielectric material, or made of dielectric material.
4. Reinforcement and embedded steel items used with zinc-coated (galvanized) reinforcement shall be zinc-coated (galvanized) or coated with non-metal materials.
5. Place epoxy-coated reinforcement supported from formwork on coated wire reinforcement supports, or on reinforcement supports made of dielectric material. Coatings or materials shall be compatible with concrete.
6. When precast reinforcement supports with embedded tie wires or dowels are used with epoxy-coated reinforcement, wires, or dowels shall be coated with dielectric material.
7. Reinforcement used as supports with epoxy-coated reinforcement shall be epoxy-coated.
8. In walls reinforced with epoxy-coated reinforcement, spreader bars shall be epoxy-coated. Proprietary combination bar clips and spreaders used in walls with epoxy-coated reinforcement shall be made of corrosion-resistant material or coated with dielectric material.
9. Fasten epoxy-coated reinforcement with tie wires coated with epoxy or other polymer.

**WELDED WIRE REINFORCEMENT:** For slabs on grade, extend welded wire reinforcement to within 2 inches of the concrete edge. Lap edges and ends of welded wire reinforcement sheets a minimum of one-mesh spacing. Welded wire reinforcement may extend through contraction joints only where permitted. Support welded wire reinforcement during placing of concrete to assure required positioning in the slab. Do not place welded wire reinforcement on grade and subsequently raise into position in concrete.

**COLUMN DOWELS:** Furnish and use templates for placement of column dowels unless otherwise permitted.

Make splices as indicated on the Contract Drawings unless otherwise approved by the Engineer. Mechanical splices for reinforcement not shown on the Contract Drawings may be used when approved by the Engineer. Reinforcement coating shall be removed in the area of the mechanical splice if so required by the splice manufacturer. After installing mechanical splices on zinc-coated (galvanized) or epoxy-coated reinforcement, repair coating damage and areas of removed coating in accordance with in 6-02.3(24)C. Coat exposed parts of mechanical splices used on coated bars with the same material used for repair of coating damage.

**FIELD BENDING OR STRAIGHTENING:** When permitted, bend or straighten reinforcement partially embedded in concrete in accordance with the following procedures.

Reinforcing bar sizes No. 3 through No. 5 may be bent cold the first time provided reinforcing bar temperature is above 32°F. For other bar sizes, preheat reinforcing bars before bending as follows:

1. Preheating. Apply heat by any method which does not harm the reinforcing bar material or cause damage to the concrete. Preheat a length of reinforcing bar equal to at least 5 bar diameters in each direction from the center of the bend, but do not extend preheating below the surface of the concrete. Do not allow the temperature of the reinforcing bar at the concrete interface to exceed 500°F. The preheat temperature of the reinforcing bar shall be 1100 to 1200°F. Maintain the preheat temperature until bending or straightening is complete. Measure the preheat temperature by temperature measurement crayons, contact pyrometer, or other acceptable method. Do not artificially cool heated reinforcing bars until the temperature of the bar is less than 600°F.
2. Bend Diameters. Minimum inside bend diameters shall conform to the requirements of the table below unless otherwise permitted. In addition, beginning of the bend shall not be closer to the concrete surface than the minimum diameter of bend.

<u>Bar Size</u>	<u>Minimum Inside Bend Diameter</u>
#3 through #8	6 bar diameters
#9, #10 and #11	8 bar diameters
#14 and #18	10 bar diameters

REPAIR OF BAR COATINGS: After field bending or straightening zinc-coated (galvanized) or epoxy-coated reinforcing bars, repair coating damage per Section 6-02.3(24)C.

FIELD CUTTING OF REINFORCEMENT: Reinforcement shall not be cut in the field except when specifically permitted.

1. When zinc-coated (galvanized) reinforcing bars are cut in the field, coat the ends of the bars with a zinc-rich formulation used in accordance with the manufacturer's recommendations, and repair any coating damage in accordance with Section 6-02.3(24)C.
2. When epoxy-coated reinforcing bars are cut in the field, coat the ends of the bars with the same material used for repair of coating damage, and repair any coating damage in accordance with Section 6-02.3(24)C. Do not flame-cut epoxy coated reinforcement.

REINFORCEMENT THROUGH EXPANSION JOINT: Do not continue reinforcement or other embedded metal items bonded to concrete through expansion joints. Dowels bonded on only one side of a joint and waterstops shall extend through the joint.

WORKER SAFETY: Workers placing reinforcing steel shall wear safety equipment and harnesses as required by state occupational safety regulations.

## END OF SECTION 6-02

## **SECTION 6-03 METAL FABRICATIONS**

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### **6-03 Steel Structures**

*Section 6-03 is deleted and replaced with the following:  
(Local Agency SP)*

### **6-03 Metal Fabrications**

#### **6-03.1 Description**

All steel framing and miscellaneous iron, steel, aluminum or other non-ferrous metal work, not specifically described in other sections.

#### **6-03.1(1) Submittals**

Submit the following Project Data:

1. Complete detail drawings of all steel framing and miscellaneous metal items specified herein or shown on the plans.
2. Certification of conformance with ASTM A380 for handling and cleaning of stainless steel.
3. Material data and certification for steels and weld electrodes.
4. Product data for manufactured items.

#### **6-03.1(2) Standards and Codes**

The following standards and codes shall apply:

1. American Institute of Steel Construction, "Code of Standard Practice for Steel Buildings and Bridges, 2005."
2. American Welding Society Standards
  - a. D1.1/D1.1M: 2006 Structural Welding Code - Steel.
  - b. D1.2/D1.2M: 2003 Structural Welding Code - Aluminum.
  - c. D10.4-86R: Recommended Practices for Welding Austenitic Chromium Nickel Stainless Steel Piping and Tubing.
3. ASTM Standards
  - a. A6/A6M-04A: General Requirements for Rolled Steel, Structural Steel Bars, Plates, Shapes, and Sheet Piling
  - b. A36/A36M-04: Carbon Structural Steel
  - c. A53/A53M-06A: Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
  - d. A194/A194M-07: Carbon and Alloy Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both
  - e. A307-04: Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength
  - f. A325-04b: Structural Bolts, Steel, Heat Treated, 120/105 KSI Minimum Tensile Strength
  - g. A380-06: Cleaning and Descaling Stainless Steel Parts, Equipment, and Systems
  - h. A500-03A: Cold Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
  - i. A563-04: Carbon and Alloy Steel Nuts
  - j. A666-03: Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar

- k. A992/A992M-06a: Structural Steel Shapes
- l. A1011/A1011M-05a: Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy with Improved Formability
- m. A1554-04: Anchor Bolts, Steel, 36, 55 and 105-KSI Yield Strength
- n. B209-04: Aluminum and Aluminum-Alloy Sheet and Plate
- o. B221-05a: Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
- p. F593-02: Stainless Steel Bolts, Hex Cap Screws, and Studs
- q. F594-02: Stainless Steel Nuts
- r. F1852-07: "Twist Off" Type Tension Control Structural Bolt/Nut/Washer Assemblies, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength

### **6-03.2 Materials**

Materials shall conform to the following requirements.

#### **Structural Steel**

ASTM A36/A36M (plate and rolled shapes other than wide flange shapes), ASTM A500 Grade B,  $F_y = 46$  ksi (tubing), ASTM A53/A53M, Grade B (pipe), ASTM A6/A6M (general requirements). Filler metal strength for welding shall be not less than 70 ksi, low hydrogen type. Wide flange shapes and structural tees fabricated from wide flange shapes shall be ASTM A992/A992M. Structural tee sections shall be straightened after cutting if necessary in order to meet the tolerances of ASTM A6.

#### **Miscellaneous Carbon Steel Sheet and Strip**

ASTM A1011/A1011M, "Structural Quality," Grade 36 or better.

#### **Aluminum**

ASTM B209 or B221, type 6061 or 6063. Welding shall be with an inert gas shielded arc or resistance welding process. No welding process that requires a welding flux shall be used. Weld filler shall conform to type recommended by AWS D1.2 for the alloys joined.

#### **Stainless Steel**

ASTM A666, type 304 or 316. Use 304L or 316L for shapes to be welded. Filler metals for welding shall be as specified in ANSI/AWS A5.9 Specification for Corrosion-Resisting Chromium and Chromium-Nickel Steel Bare and Composite Metal Cored and Stranded Welding Electrodes and Welding Rods. Molybdenum content of filler metal shall be not less than 6 percent.

#### **Bolts and Nuts**

Bolts and Nuts shall meet the following requirements:

1. Anchor bolts: All anchor bolts, nuts and washers shall be either hot-dip galvanized or stainless steel as called out on the drawings or specified; where not indicated on drawings or in specifications, stainless steel shall be used in all hydraulic structures or buried applications. Galvanized anchor bolts shall conform to ASTM F1554, Grade 36, with ASTM A563 or A194 nuts.
2. Expansion bolts: Bolts, nuts and washers shall be 316 stainless steel; wedges shall be double plated spring steel.
3. Machine bolts: ASTM A307 or stainless steel where called out on the drawings or specified. All carbon steel bolts, nuts and washers shall be hot dip galvanized for fabrication of galvanized metals.
4. High-strength bolts: ASTM A325 or F1852.
5. Stainless steel bolts and nuts: Stainless steel bolts shall conform to ASTM F593. Stainless steel nuts shall conform to ASTM F594. Bolts and nuts to be alloy group 1 or 2, condition CW1.

## Metal Type

Unless otherwise specified or noted on the plans, metal fabrications exposed to potable water or sewage shall be 316/316L stainless steel. All carbon steel fabrications shall be galvanized, unless otherwise specified or noted on the Plans.

## Fabrication

Fabrications shall meet the following requirements:

1. **Workmanship:** Conform to accepted shop practices. Form work true to detail, with clean, straight, sharply defined profiles. Unless otherwise shown or specified, finish exposed welds flush and smooth.
2. **Joints and Connections:** Weld all joints, unless other fastening methods are shown, specified, or specifically approved. Close fit exposed joints; make joints where least conspicuous. Unless otherwise shown or specified, use flat and countersunk headed bolts or screws in exposed connections.
3. **Cutting, Drilling:** Perform coping, cutting, drilling and punching required for accurate fitting and assembly work. In addition, perform similar operations as required for attachment of work of other trades, provided that directions for such work are supplied prior to project data approval. Where galvanized assemblies, punched holes shall be reamed; use flame cutting rather than cold shearing; avoid cold forming to prevent galvanizing vent holes in closed assemblies in accordance with Zinc Institute recommendations.
4. **Provisions for Attachment to Structure:** Furnish miscellaneous metal items complete with framing, supports, hangers, bracing, anchors and other devices shown, specified or necessary for reinforcement and proper, secure setting or attachment.
5. **Dissimilar Materials Protection:** Insulate aluminum surfaces in contact with metals other than galvanized or stainless steel, or with plaster or concrete by means of chromate gasketing or heavy coat of alkali-resistant bituminous paint.
6. **Workmanship:** Fabricate all items neatly and rigidly in accordance with the details. Form curved metal neatly to radii indicated. Provide members of sizes indicated and weld, bolt or rivet securely together. Furnish bolts, nuts, washers, and other fastening devices required for anchoring and securing work.
7. **Welding:** Use electric shielded-arc process in accordance with Welding Specifications of American Welding Society. Use only welding operators properly trained, highly skilled, and AWS-certified in arc welding. Grind smooth all surface welds exposed to view.

## Special Requirements for Stainless Steel Fabrications

Stainless steel fabrications shall meet the following special requirements:

1. Welds and joint areas shall be cleaned before and after welding in accordance with gross inspection requirements of ASTM A380.
2. Observe precautions against contamination with free iron and protection of cleaned surfaces in accordance with ASTM A380.

## Hot-Dip Galvanizing

Steel items called out on the drawings or specified herein, as galvanized, or hot-dip galvanized shall be hot-dip coated in accordance with one or more of the following, as is applicable:

<u>Reference</u>	<u>Title</u>
ASTM A90/A90M-07	Standard Test Method for Weight (Mass) of Coating on Iron or Steel Articles with Zinc or Zinc-Alloy Coatings
ASTM A123/A123M-02	Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

<b>Reference</b>	<b>Title</b>
ASTM A143/A143M-07	Standard Practice for Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement
ASTM A153/A153M-05	Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A384/A384M-07	Safeguarding Against Warpage and Distortion During Hot-Dip Galvanizing of Steel Assemblies
ASTM A385-05	Providing High Quality Zinc Coatings (Hot-Dip)
MILSPEC DOD-P-21035	Paint, High Zinc Dust Content, Galvanizing Repair

### **6-03.3 Construction Requirements**

#### **6-03.3(1) Installation**

##### **General**

Install work in strict accordance with Drawings and manufacturer's installation instructions. Perform cutting, drilling and fitting required. Accurately set, place and properly, securely attach work in true plans, alignment, plumb and level; properly adequately reinforce and stiffen.

##### **Prime Coat Touchup**

After installation of steel items, touch up field bolts, field welds, uncoated connections, and abrasions to shop protective coatings. Clean items of mud, dirt and other objectionable foreign matter prior to touching up the prime coat and field painting.

##### **Galvanized Items**

Items that have been drilled, cut, welded, or otherwise damaged shall be touched up using either of the following products:

1. "Galv-Weld," manufactured by Kenco Division of Southern Coating and Chemical Co., Galv-Weld Products, Sumter, South Carolina. Apply in accordance with manufacturer's instructions and to same thickness as specified hot dip coating.
2. Hot stick followed by CRC Zinc Re-nu brush-on cold galvanizing compound with epoxy binder. Apply in accordance with manufacturer's instructions.

##### **Aluminum Items**

Aluminum items in contact with concrete shall have contact surfaces coated to prevent corrosion. Aluminum items in contact with steel shall be electrically isolated with gaskets and fastener sleeves.

**END OF SECTION 6-03**

## **SECTION 6-07 PAINTING**

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### **6-07.1(1) Submittals (New Section)**

*Section 6-07.1(1) is added as the following:  
(Local Agency SP)*

The Contractor shall submit the following information in accordance with Section 1-06 and as specified herein.

1. Applicator's qualifications and references
2. Manufacturer's statement regarding instructions and training of applicator as well as applicator's experience.
3. Manufacturer's specifications for each coating system. Published literature for specified products and accessories as applicable, including manufacturer's specifications, physical characteristics and performance data. Manufacturer's instructions and directions for application if not included in the manufacturer's published literature.
4. A list of products proposed to be used.
5. Manufacturer's color charts. Basic colors are indicated in Section 6-07(3).5. Final color selection shall be made by the Contracting Agency from the submitted color charts
6. Manufacturers representative's field reports

### **6-07.1(2) Standards (New Section)**

*Section 6-07.1(2) is added as the following:  
(Local Agency SP)*

The following is a list of standards that are applicable to painting of the facilities and may be referenced in this specification. In all cases, the latest edition shall apply:

1. Steel Structures Painting Council (SSPC)
2. Steel and Structures Painting Manual, Volume 2, Systems and Specifications (SSPM)
3. National Association of Corrosion Engineers (NACE)

### **6-07.1(3) Quality Assurance (New Section)**

*Section 6-07.1(3) is added as the following:  
(Local Agency SP)*

Contractor shall comply with the requirements of the Washington Department of Occupational Safety and Health for this work.

All surface preparation, coating and painting shall conform to the applicable requirements of the NACE and SSPM as published by SSPC.

Tnemec products are listed as the standard of quality, in terms of performance and characteristics. Other manufacturer's products will be considered subject to meeting the listed quality, performance and characteristics of the standard/product(s) for the particular application and compliance with the specifications. Substantiating technical data is required. Submit request for substitution in accordance with the Special Provisions. Substitutions which decrease the film thickness, solids by volume, or the number of coats will not be considered. All requests for substitutions shall include test reports that demonstrate the product(s) meet or exceed the performance and characteristics of the listed standard/product(s). Testing shall demonstrate that the product(s) also meet or exceed the performance and characteristics for liquid/submerged environment (wastewater immersion) as well as the gas or vapor/unsubmerged environment (hydrogen sulfide gas and sulfuric acid).

Applicator shall have a minimum of 10 years experience in the application of similar products. Provide references for a minimum of five (5) different projects completed in the last three (3) years with similar

products and scope of work. Include name and address of project, size of project in value (painting), contact person and contact information.

Coating manufacturer's authorized representative shall provide a written statement attesting that the applicator has been instructed on proper preparation, mixing and application procedures for coatings specified as well as the applicator's qualifications.

Contractor shall conform to manufacturer's specifications, directions and recommendations for best results in the use of each of their products for each condition. If results are at a variance with these specifications, report the discrepancy to the Engineer for decision.

The coating system manufacturer shall provide a qualified representative to visit the site from time to time during the coating operations if requested by the Engineer. The manufacturer's representative shall provide a written report.

## **6-07.2 Materials**

*Section 6-07.2 is deleted and replaced with the following:  
(Local Agency SP)*

Materials, supplies, and articles provided shall be the standard products of the coating manufacturer. Paints in a particular coating system shall be the products of a single manufacturer.

### **6-07.2(1) Delivery and Storage**

Materials shall be delivered to the job site in their original, unopened containers. Each container shall bear the manufacturer's name brand, batch number, date of manufacture, storage life, and special directions.

Paints shall be stored in enclosed structures and shall be protected from weather and excessive heat or cold. Flammable materials shall be stored in accordance with state and local codes. Materials exceeding storage life recommended by the manufacturer shall be removed from the site.

### **6.07.2(2) Coating System Specifications**

Coating systems shall meet the following specifications:

#### **Coating System A**

Coating Material:	Surface Filler, Amine Epoxy Mortar & Polyamine Epoxy
Surfaces:	Concrete Subject to Wastewater Gases
Surface Preparation:	SP-13
Application:	Field
Surface Filler:	One coat, 1/16". Fill Joints, Voids, Bugholes, Tnemec Mortar Clad
Intermediate:	One coat, 125 mils dry film thickness, Tnemec 434 Perma Shield
Final:	One coat, 15-18 mils dry film thickness, Tnemec 435 Perma Glaze
Color:	Primer: Beige Finish: See Section 6-07.3

Chemical Resistant Lining shall comply with the following:

1. This coating system shall be field applied. Shop coating will not be allowed.
2. The Contractor is advised that with all thick-film, quick curing materials applied to concrete surfaces, outgassing of the concrete can occur. Possible remedies include applying materials when the temperature of the concrete surfaces are descending, or applying a thin (1/8 inch) layer of the specified surfacing material. Other remedies may exist, and may be submitted to the Owner's Representative for approval.
3. Fill all joints, voids, bugholes and other surface imperfections with specified surfacer filler.
4. Apply specified chemical resistant mortar to all floor areas and walls scheduled to be coated at specified nominal thickness. Application shall be either by trowel or spray. If spray-applied, material shall be finish-toweled to a hard, dense film.
5. Topcoat/gelcoat shall be applied to the minimum specified thickness upon cure regardless of the number of coats required.

**Coating System B**

Coating Material: Polyaminoamine Epoxy  
Surfaces: Building Interior Concrete and Concrete Block  
Surface Preparation: Concrete and Concrete Block: Clean and Dry, Tnemec Series 54-562 Modified Epoxy Masonry Filler as required  
Application: Field  
Coating System: Primer: One coat Tnemec Series 69 Hi-Build Epoxyline II, 8.0 to 10.0 mils dry film thickness  
Finish: One coat Tnemec Series 69 Hi-Build Epoxyline II, 8.0 to 10.0 mils dry film thickness.  
Color: Primer: Beige  
Finish: See Section 6-07.3

**Coating System C**

Coating Material: Polyaminoamine Epoxy  
Surfaces: Interior Concrete/Grout Vaults, Piping, Valves and Equipment  
Surface Preparation: Metal surfaces shall be prepared in accordance with SSPC SP-6 (Commercial Blast Cleaning).  
Concrete shall be prepared in accordance with SSPC SP-13. Surface shall be clean and dry.  
Shop primed surfaces which are to be incorporated in the work shall be prepared in the field by cleaning all surfaces in accordance with SSPC SP-2 (Hand Tool Cleaning).  
Galvanized or nonferrous surfaces shall be treated with a passivator and vinyl wash primer as recommended by the coating system manufacturer. If smoothing of rough metalwork is necessary, a smoothing cement acceptable to the paint system material manufacturer shall be used.  
Application: Field  
Coating System: Primer: One coat, 6 to 8 mils dry film thickness, Tnemec N69 Epoxoline II  
Finish: One coat, 6-8 mils dry film thickness, Tnemec N69 Epoxoline II.  
Color: Primer: Off-White  
Finish: See Section 6-07.3

**6-07.3 Construction Requirements**

*Section 6-07.3 is deleted and replaced with the following:  
(Local Agency SP)*

Coating system shall not be applied until the Engineer has inspected the surface to be coated.

Surface preparation shall be as specified for each paint system and in Section 6-07.3. Number of coats specified in each system shall be the minimum number of coats applied to provide the required dry film thickness.

**6-07.3(1) Preparation**

**General**

Surfaces to be coated shall be clean. Before applying coating or surface treatments, oil, grease, dirt, rust, loose millscale, old weathered coatings, and other foreign substances shall be removed. Oil and grease shall be removed before mechanical cleaning is started. Where mechanical cleaning is accomplished by blast cleaning, the abrasive used shall be washed, graded, and free of contaminants which might interfere with the adhesion of the coatings.

Clean cloths and clean fluids shall be used in solvent cleaning. Cleaning and painting shall be scheduled so that dust and spray from the cleaning process will not fall on wet, newly painted surfaces.

Contractor shall demonstrate that field coating is compatible with factory coating by applying small test patches of specified coating over shop coating.

The Contractor shall pay special attention to painting of existing surfaces adjacent to the new piping and structures. Care shall be taken in surface preparation and finish work to provide a smooth transition from one surface to the other. If necessary, compatible primer shall be used when painting over existing surface.

### **Metallic Surfaces**

Metallic surfaces shall be prepared in accordance with applicable portions of surface preparation specifications of the Steel Structures Painting Council (SSPC). Specific applicable standards are specified in each coating system. The solvent in solvent cleaning operations shall be as recommended by the manufacturer.

Surface preparation for galvanized metal, aluminum, copper, and brass shall be in accordance with SSPC SP-1 (solvent cleaning) and passivated in accordance with the coating manufacturer's written instructions.

### **Preparation of Concrete Surfaces**

Unless otherwise specified, surfaces which are to be coated shall be allowed to age for at least 28 days and allowed to dry to the moisture content recommended by the coating manufacturer. Moisture content may be tested by the Engineer with a Delmhorst Instrument Company moisture detector, or equal. In addition, the surfaces shall be brush treated with a 10 percent muriatic acid solution and thoroughly flushed with water after 10 minutes. (Ten percent acid solution is commercial solution; 30 percent is diluted 2 water to 1 acid.) Loose concrete and laitance shall be removed by sandblasting and chipping, and voids and cracks shall be repaired as specified in Section 6-02.

Surfaces shall be cleaned with clear water by washing and scrubbing to remove foreign and deleterious substances.

### **6-07.3(2) Application**

#### **Workmanship**

All work shall be performed by skilled craftsmen qualified to perform the required work in a manner comparable with the best standards of practice, and in accordance with the coating manufacturer's instructions. Coated surfaces shall be free from runs, drops, ridges, waves, laps, and brush marks. Coats shall be applied so as to produce an even film of uniform thickness completely coating corners and crevices. All coating and painting shall conform to applicable standards of the National Association of Corrosion Engineers and the Steel Structures Painting Council Manual. Each coat of paint shall be applied evenly and sharply cut to line. Care shall be exercised to avoid overspraying or spattering paint on surfaces not to be coated. Glass, hardware, floors, roofs, and other adjacent areas and installations shall be protected by taping, drop cloths, or other suitable measures. Material applied prior to approval of surface by the Engineer shall be removed and reapplied at the expense of the Contractor to the satisfactions of the Engineer.

#### **Paint Properties, Mixing, and Thinning**

Paint, when applied, shall provide a satisfactory film and smooth even surface, and glossy undercoats shall be lightly sanded to provide a surface suitable for the proper application and adhesion of subsequent coats. Paints shall be thoroughly stirred, strained, and kept at a uniform consistency during application. Coatings consisting of two or more components shall be mixed in accordance with the manufacturer's instructions. Where necessary to suit the conditions of the surface, temperature, weather and method of application, the paint may be thinned immediately prior to use by the addition of not more than one pint of the proper thinner per gallon. Unless otherwise specified, paint shall not be reduced more than necessary to obtain the proper application characteristics. Thinner shall be as recommended by the coating manufacturer.

#### **Atmospheric Conditions**

Unless otherwise specified or required for certain water-thinned paints, paints shall be applied only to surfaces that are dry, and only under such combination of humidity and temperatures of the atmosphere and surfaces to be painted as will cause evaporation and not condensation. Paint shall not be applied to

surfaces upon which there is frost or moisture condensation. During damp weather, when the temperature of the surface to be coated is within 10°F of the dew point, the surfaces shall be heated to prevent moisture condensation thereon. Bare metal surfaces, except those which may be warped by heat, may be dehydrated by flame-heating devices immediately prior to paint application. During painting, and for a period of at least 8 hours after the paint has been applied, the temperature of the surfaces to be painted, the painted surfaces, and the atmosphere in contact shall be maintained at or above 40°F and 10°F above the dew point. Paint, when applied, shall be approximately the same temperature as that of the surface on which it is applied. Fans or heaters shall be used inside enclosed areas where conditions causing condensation are severe.

### **Method of Paint Application**

Where two or more coats are required, alternate coats shall contain sufficient compatible color additive to act as indicator of coverage, or the alternate coats shall be of contrasting colors. Color additives shall not contain lead or any lead compound which may be destroyed or affected by hydrogen sulfide or any gas likely to be found in wastewater.

Electrical and mechanical equipment, on which the manufacturer's coating is acceptable, shall be touch-up primed and painted with two coats of the specified coating system to match the color scheduled.

Paint shall not be applied to a surface until it has been prepared as specified. Unless otherwise specified, the primer or first coat shall be applied by brush to ferrous surfaces. Unless otherwise specified, prime and finish coats shall be applied at the rate recommended by the manufacturer for the service involved. After the prime coat is dry, suction spots shall be touched up before succeeding coats are applied. Unless otherwise specified, coats for concrete shall be brushed or rolled.

Unless otherwise specified, finish coats shall not be applied until other work in the area is complete, and until the prime and intermediate coats have been inspected.

### **Film Thickness and Continuity**

Coating system thickness is the total thickness of primer and finish coats and does not include passivators or sealers.

The surface area covered per gallon of paint for various types of surfaces shall not exceed those recommended by the manufacturer. The first coat on metal surfaces refers to the first full paint coat and not to conditioning or other pretreatment applications. Unless otherwise specified, the average total thickness (dry) of any completed protective coating system on exposed metal surfaces shall be not less than 1.25 mils per coat. The minimum thickness at any point shall not deviate more than 25 percent from the required average. Unless otherwise specified, no less than two coats shall be applied.

### **Special Requirements**

Hangers and supports shall be coated, except for the final coat, prior to installation. Except for those to be filled with grout, the underside of ungalvanized equipment bases and supports shall be coated with at least two coats of rust inhibiting primer prior to setting the equipment in place. Bolt and bolt holes in flanges (such as those used with couplings or wafer-type valves where holes and bolts as finally installed will be exposed to weather or moisture) shall be painted prior to assembly to prevent rusting of the unprotected metal.

#### **6-07.3(3) Testing**

Upon full cure, the installed coating system, Paint System A, shall be checked by high voltage spark detection in accordance with NACE RP0188-90 to verify a pinhole-free surface. Voltage shall be set at 11,000 volts. Areas which do not pass the spark detection test shall be corrected at no cost to the Owner and rechecked. High voltage spark detection shall be conducted on the chemical resistant mortar before the installation of the gel coat.

Upon completion of the coating system, Paint System A, the lined area shall be cleaned and prepared to permit close visual inspection by the Owner's Representative. Any and all deficiencies or defective work (not in compliance with this section or related sections) will be marked for repair or removal/replacement by the Contractor at no additional cost to the Owner.

**6-07.3(4) Cleanup**

Upon completion of painting, the Contractor shall remove surplus materials, protective coverings, and accumulated rubbish, and thoroughly clean all surfaces and repair any overspray or other paint-related damage.

**6-07.3(5) Coating Systems Schedule**

In the following schedule, coating system letters shall conform to those listed in the Coating System Specification sheets. Unless shown otherwise surface coatings shall be semigloss, except that ceilings shall be coated with flat coatings to match wall areas. Surfaces to be coated and coating systems to be used are described below. The final coat shall be applied only after all other work, including punch list items, has been completed.

Surface	Coating System
Metal equipment, including metal base and guards; conduits, piping; electrical and instrumentation control panels and stations, including supports. Refer to equipment specifications for exceptions.	
a. Iron and steel (includes galvanized) (except non-ferrous and stainless) exposed to moisture or atmosphere.	C
b. Interior iron and steel (includes galvanized) (except non-ferrous or stainless).	C
c. Non-buried iron and steel piping, valves, and appurtenances including supports	C
d. Air Compressor	C
Concrete and Grout	
a. Interior of vaults	C
b. Interior building wall concrete and block	B
c. Interior Manhole 15	A
Materials Not Requiring Paint	
a. Rubber, stainless steel, and PVC pipe.	—
b. Labels and Nameplates: Do not paint over Underwriters Laboratories Factory Mutual, or other code-required labels, equipment names, identification, performance rating, or nomenclature plates.	—
c. Pre-finished items, except as damaged, including Factory finished mechanical and electrical equipment	—
d. Metal surfaces, including stainless steel and aluminum, chromium plate, copper, bronze, brass	—

**6-07.3(6) Color Schedule**

The following table is a listing of colors for coatings covered in this section and factory-applied finishes. It is intended to provide a general indication of the required color. It is recommended that colors be reviewed by the Owner during the submittal review process as the Owner may request the use of different

colors than indicated below. The final color selection will be made from the manufacturer's standard color chart. Where an exact match to other surfaces is specified, a custom-mixed color may be required.

Surface	Color
Equipment Building Interior Walls and Floor	Match Existing
Equipment Building Interior Misc. Metals, Exposed to View	Match Existing
Interior Concrete Vaults and Manholes	Light Gray
Sewage Piping, Valves, Supports, and Accessories	Light Gray

For surfaces that require coating but no color is listed, the color shall be selected by the Owner. The Contractor shall anticipate that additional colors (standard or custom-mixed) may be required.

**6-07.4 Measurement**

*Section 6-07.4 is deleted and replaced with the following:  
(Local Agency SP)*

Payment for painting is included in other bid items. No measurement shall be made for painting.

**6-07.5 Payment**

*Section 6-07.5 is deleted and replaced with the following:  
(Local Agency SP)*

Payment for painting is included in other bid items. No separate payment for painting shall be made.

**END OF SECTION 6-07**

## **SECTION 7-05            MANHOLES AND VAULTS**

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*Section 7-05 is renamed Manholes and Vaults*

### **7-05.1            Description**

*Section 7-05.1 is supplemented with the following:  
(Local Agency SP)*

This work shall also include the construction of all vaults.

### **7-05.1(1)            Submittals**

*Section 7-05.1(1) is added as the following:  
(Local Agency SP)*

The Contractor shall submit the following information in accordance with Section 1-06 and as specified herein.

1. Manufacturer's technical data and information for all manholes and vaults to verify conformance, including hatches, frames and covers, steps, wall penetrations, joint seals, grout, and waterproofing as applicable.
2. Shop drawings
3. Concrete mix design
4. Structural design calculations
5. Qualifications of structural engineer
6. Other data and information to verify conformance

### **7-05.1(2)            Quality Assurance**

*Section 7-05.1(2) is added as the following:  
(Local Agency SP)*

For acceptance on the Basis of Rational Design, the Contractor shall submit structural design calculations and shop drawings stamped by a professional structural engineer registered in the State of Washington. This requirement will extend to manholes and vaults and shall address the structural design of slab tops, walls and bases.

### **7-05.1(3)            Reference Standards**

*Section 7-05.1(3) is added as the following:  
(Local Agency SP)*

Where referenced, the following editions of design standards and references shall apply:

1. AASHTO Standard Specification for Highway Bridges, 17th Edition, 2002
2. AASHTO LRFD Bridge Design Specifications, 3rd Edition, 2004
3. ASTM C443-05a Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
4. ASTM C478-06a, Precast Reinforced Concrete Manhole Sections
5. ASTM C857-95(2001) Minimum Structural Design Loading for Underground Precast Concrete Utility Structures
6. ASTM C858-83(2004), Underground Precast Concrete Utility Structures
7. ASTM C1619-05 Elastomeric Seals for Joining Concrete Structures
8. ACI 318 -05 Building Code Requirements for Structural Concrete

## **7-05.2 Materials**

*Section 7-05.2 is supplemented with the following:  
(Local Agency SP)*

### **7-05.2(1) Standard Products**

Although the use of standard products by fabricators is generally intended by this specification, some customization is likely to be required and it is the intent of the specification that the fabricators modify products as necessary to conform to this specification. This may involve revisions to dimensions, forms, reinforcement, concrete mix, and other variations from the fabricator's standard fabrication practice. The Contractor is cautioned to advise suppliers of this requirement to avoid misunderstandings and delays in product approvals.

The weight of any soil or pavement shall be based on an assumed unit weight of soil of 135 pcf (lbs per cubic foot) and an assumed unit weight for concrete or asphalt pavement of 150 pcf.

### **7-05.2(2) Manholes**

Manholes shall be Standard Type 1 of the diameter shown on the plans. Cut-in manholes shall conform to the requirements of a Standard Type 1 manhole except as modified on the Drawings. Manholes shall conform to ASTM C478-06a except as modified herein.

Manholes shall be designed for AASHTO H2O loading. For acceptance on the Basis of Rational Design, wheel load distribution shall be in accordance with AASHTO Standard Specification for Highway Bridges, 2002, or AASHTO LRFD Bridge Design Specifications, 2004.

### **Riser Sections**

Riser sections shall be minimized to the extent practicable to minimize the number of joints. Joints shall not be located closer than 6 inches to openings for pipes.

Where step or ladder details are shown on the plans, they shall take precedence where they deviate from the requirements of ASTM C 478.

Steps and ladders provided in conformance with ASTM C478 shall conform to Washington State Occupational Safety and Health Standards in addition to federal OSHA requirements.

### **Grade Rings**

Grade rings conforming to ASTM C478 shall be used where shown on the plans for final adjustment of manhole frame height to match surface grades, and shall be mortared into place. Maximum allowable dimension from the top of the eccentric cone to the top of the casting shall be 22 inches. A minimum of one adjustment ring shall be installed between the top cone and the manhole frame and cover.

Where a custom adjustment riser section is shown on the plans instead of standard grade rings above the manhole top slab, for example to accommodate a sloping finished grade, the design shall be accepted on the Basis of Rational Design, based on the same live loads used for flat top slab design. Lateral soil loads on custom adjustment risers shall be based on an equivalent fluid density loading of 95 pcf, including hydrostatic loading.

### **Base Sections**

Base section bottom slabs shall be accepted on the Basis of Rational Design, however reinforcement and thickness shall be not less than required by ASTM C478 or by WSDOT Standard Plans B.15.20-00, 8.15.40-00, and B.15.60-00 (within the diameter ranges to which applicable.). Bottom pressure shall be calculated with and without groundwater assuming maximum live load over the top slab. If the top of the manhole is large enough to allow full axle or multiple axle wheel loads, then full axle or multiple axle wheel loads shall be used to calculate maximum live load.

Base sections shall be assumed to be subject to full hydrostatic load from groundwater with a surface elevation equal to the top of the manhole at its center at grade.

If the dead weight of the manhole sections and any backfill that bears on the manhole are not sufficient to provide a safety factor against buoyancy uplift of at least 1.50, the base slab shall be extended beyond the outside wall of the base section sufficiently to mobilize enough net weight of backfill to provide the required safety factor when added to the dead weight of the structure and top slab backfill.

The uplift force due to buoyancy shall be calculated as the volume of water displaced by the submerged portion of the structure times the unit weight of water.

Only the weight of backfill soil within the footprint of the base slab shall be counted as part of the resisting force. A buoyant soil weight of 50 pcf shall be assumed for the unit weight of soil below the groundwater level. The dry weight of soil shall be used above the groundwater level, and shall be assumed to be not less than 135 pcf. Resistance associated with soil friction on the sides of the structure shall not be included in the computation of the safety factor.

### **Joints**

Joints between precast manhole elements shall be rubber gasketed in a manner similar to pipe joints conforming to ASTM C443. In addition to the rubber gasket, all joints shall be provided with a flexible, butyl resin sealant, ConSeal/CS 440 or equivalent.

No pipe penetrations shall be constructed within 6" of joints.

### **Manhole Frames and Covers**

Manhole castings shall conform to WSDOT Standard Specifications, section 9-05.15(1) Manhole Ring and Cover as modified herein. Manholes frames and covers shall have the word "SEWER" for sanitary sewer utilities cast into the top surface of the cover and shall be the bolt down type as shown on the Drawings.

### **Manhole Channels**

Flow channels in manholes shall be constructed of concrete and shall be shaped and sloped to provide a smooth transition between the inlet and outlet sewer lines and minimize turbulence. The channels and manholes shall conform accurately to the sewer grade. Channeling height shall be to the springline of the largest diameter pipe penetration or higher. Benches shall be sloped from the manhole wall toward the channel to prevent accumulation of solids.

### **Coatings**

The exterior surfaces of the manhole base and riser sections shall be factory coated with Tnemec Series 46H-413 Hi-Build Tneme-Tar. Exterior coating shall be applied at 16 mils dry film thickness and per manufacturer's specifications. Exterior joints, cracks that are 10 mils (0.01 inch) wide and wider, and damage due to transport and installation, shall be touched up in the field prior to backfilling.

### **Wall Penetrations**

Pipe penetrations shall be as shown on the plans and as specified herein. Unless otherwise approved by the Engineer, all pipe penetrations shall be core drilled in the field after installation of the structure and piping.

Wall penetrations of manholes shall consist of flexible connector including resilient EPDM Rubber internal Korband and external pipe clamp. The flexible connector shall be Kor-N-Seal, or equal. Resilient EPDM Rubber shall conform to ASTM C923. Internal Korband shall conform to ASTM C923 and ASTM A167. Korband shall be made of 304 stainless steel. External pipe clamp shall conform to ASTM C923 and ASTM A167. External take-up clamps shall be made of 304 stainless steel. The bolt assembly shall be made of 304 stainless steel. The ends of all pipes shall be trimmed flush with the walls. Inside and outside of the band shall be filled with Cavity-O-Ring as shown on the Plans. Cavity-O-Ring and Kor-N-Seal connector shall be as manufactured by NPC Inc., Milford, NH, or approved equal.

316 stainless steel pipe stiffeners shall be used for HDPE pipes at wall penetrations.

## **7-05.2(3) Vaults**

### **Design Standards**

Vaults shall conform to ASTM C858-83(2004) except as modified below:

The minimum specified concrete compressive strength shall be 4500 psi at 28 days.

Loading assumptions, unless noted otherwise on the plans, shall conform to ASTM C857-83(2004) except as follows:

Minimum vehicle load A-16 shall apply (HS20-44)

Assume a maximum dry density of soil of 135 pcf, and a soil friction angle  $\phi = 30^\circ$ . Use the at-rest soil coefficient  $K_a = (1 - \sin \phi)$  in lieu of the active soil coefficient  $K_a$  with formulas in ASTM C857.

Unless noted otherwise on the plans, wall design shall include hydrostatic pressure assuming groundwater at the surface elevation, measured at the center of the vault.

Live load surcharge pressure of 125 psf shall be assumed in lieu of surcharge pressures in ASTM 858. Surcharge pressure shall be checked with and without simultaneous loading of intersecting walls.

Minimum concrete cover, over reinforcement shall not be less than that required by ACI 318, if greater than ASTM C858.

### **Flat Slab Tops**

The size of openings for manhole frames, risers, hatches, pipe, or duct shall conform to the size and location shown on the plans. Where openings vary from the standard products of the precast vault manufacturer, the details shown on the plans shall govern unless revisions are approved by the Engineer.

Unless noted otherwise, flat slab tops shall be designed for AASHTO H2O loading. For acceptance on the Basis of Rational Design, wheel load distribution shall be in accordance with AASHTO Standard Specification for Highway Bridges, 2002, or AASHTO LRFD Bridge Design Specifications, 2004.

The weight of any soil over the flat slab shall be based on an assumed unit weight of soil of 135 pcf (lbs per cubic foot) and an assumed unit weight for concrete or asphalt pavement of 150 pcf.

Unless noted otherwise on the plans, hatches or manhole frames shall be cast in the top slab, the Contractor shall coordinate the fabrication between the precast supplier and hatch frame supplier to ensure adequate slab depth for installation of the frame within the slab thickness and minimum depth of concrete under the frame as required by the frame manufacturer. Refer to Section 7-06 for access hatch requirements.

Flat slab tops shall have a male or female joint conforming to the joint provided on riser sections above or below.

Provide reinforcement around openings for pipe or duct penetrations per ACI 318.

### **Riser Sections**

Riser sections shall be minimized to the extent practicable to minimize the number of joints. Joints shall not be located closer than 6 inches to openings for pipes.

Riser sections may be of uniform or non-uniform thickness, with or without flanges or stiffeners at the manufacturer's option unless noted otherwise on the plans.

Provide reinforcement around openings for pipe or duct penetrations per ACI 318.

### **Base Sections**

Base section bottom slabs shall be as required by design calculations, but in no case less than 6 inches thick. Bottom pressure shall be calculated with and without groundwater assuming maximum live load over the top slab. If the top slab is large enough to allow full axle or multiple axle wheel loads, then full axle or multiple axle wheel loads shall be used to calculate maximum live load.

Base sections shall be assumed to be subject to full hydrostatic load from groundwater with a surface elevation equal to the top of the vault at its center at grade.

If the dead weight of the vault sections, permanent interior grout fill, and any backfill over the flat slab top are not sufficient to provide a safety factor against buoyancy uplift of at least 1.50, the base slab shall be extended beyond the outside wall of the base section sufficiently to mobilize enough net weight of backfill to provide the required safety factor when added to the dead weight of the structure and top slab backfill.

The uplift force due to buoyancy shall be calculated as the volume of water displaced by the submerged portion of the structure times the unit weight of water. Only the weight of backfill soil within the footprint of the base slab shall be counted as part of the resisting force. Unless stated otherwise in the soils report, a buoyant soil weight of 50 pcf shall be assumed for the unit weight of soil below the groundwater level. The dry weight of soil shall be used above the groundwater level, and shall be assumed to be not less than 135 pcf. Resistance associated with soil friction on the sides of the structure shall not be included in the computation of the safety factor.

As an alternate to a precast base slab extending beyond the wall of the vault, the Contractor may use a cast-in-place reinforced concrete foundation slab to which the precast base section is attached by stainless steel clips and anchor bolts designed to resist uplift forces as described in this section. If a cast-in-place concrete foundation slab is provided, the precast base slab shall still be designed to resist uplift pressure due to hydrostatic loads.

Provide sumps or drains in base sections where shown on the plans.

### **Grade Rings**

Grade rings conforming to ASTM C478 shall be used where shown on the plans for final adjustment of manhole frame or access hatch height to match surface grades, and shall be mortared into place.

Where a custom adjustment riser section is shown on the plans instead of standard grade rings above the manhole top slab, for example to accommodate a sloping finished grade, the design shall be based on loading design criteria described above.

### **Joints**

Joints between base, riser and top sections shall be rubber gasketed in a manner similar to pipe joints conforming to ASTM C1619. In addition to the rubber gasket, all joints shall be provided with a flexible, butyl resin sealant, ConSeal/CS 440 or equivalent.

No pipe penetrations shall be constructed within 6" of joints.

### **Accessories**

Provide ladders, steps, sump grates and other accessories as shown on the plans.

Provide lifting devices in accordance with ASTM 858.

### **Coatings**

The exterior surfaces of the manhole base and riser sections shall be factory coated with Tnemec Series 46H-413 Hi-Build Tneme-Tar. Exterior coating shall be applied at 16 mils dry film thickness and per manufacturer's specifications. Exterior joints, cracks that are 10 mils (0.01 inch) wide and wider, and damage due to transport and installation, shall be touched up in the field prior to backfilling.

### **Wall Penetrations**

Pipe penetrations shall be as shown on the plans and as specified herein. Unless otherwise approved by the Engineer, all pipe penetrations shall be core drilled in the field after installation of the structure and piping.

Wall penetrations of manholes shall consist of flexible connector including resilient EPDM Rubber internal Korband and external pipe clamp. The flexible connector shall be Kor-N-Seal, or equal. Resilient EPDM Rubber shall conform to ASTM C923. Internal Korband shall conform to ASTM C923 and ASTM A167. Korband shall be made of 304 stainless steel. External pipe clamp shall conform to ASTM C923 and

ASTM A167. External take-up clamps shall be made of 304 stainless steel. The bolt assembly shall be made of 305 stainless steel. The ends of all pipes shall be trimmed flush with the walls. Inside and outside of the band shall be filled with Cavity-O-Ring as shown on the Plans. Cavity-O-Ring and Kor-N-Seal connector shall be as manufactured by NPC Inc., Milford, NH, or approved equal.

316 stainless steel pipe stiffeners shall be used for HDPE pipes at wall penetrations.

#### **Air/Vacuum Vault**

Air/vacuum vault shall be a precast vault, Utility Vault 504-LA or approved equal.

#### **7-05.2(4) Manhole Steps and Grab Bars**

Manhole steps shall be constructed of injection molded copolymer polypropylene conforming to ASTM D4101 that encapsulates a ½-inch diameter, Grade 60 ASTM A615 deformed steel reinforcing bar. Manhole steps shall have a tread width of 13-3/4 inches. Manhole steps shall meet ASTM C-478, C-497, AASHTO M-199 and OSHA related standards.

Subject to compliance with the contract documents, acceptable manufacturers are:

1. Bowco Industries, Inc.
2. Parson Environmental
3. American Step
4. Approved equal

#### **Grab Bars (Hand Holds)**

Grab bars shall be by the same manufacturer as the manhole steps. Minimum reinforcing bar size 1 inch diameter, galvanized.

#### **7-05.3 Construction Requirements**

*Section 7-05.3 is supplemented with the following:  
(Local Agency SP)*

Where piping enters through precast concrete units, the contractor shall core drill through the wall after installation of the structure.

Backfilling around the work will not be allowed until the concrete or mortar has thoroughly set and achieved the compressive strength specified for removal of formwork or reshoring described in Section 6-02.3. Backfilling shall be done in accordance with Section 2-09 Structure Excavation and as shown on the Plans.

Manholes and vaults shall be water tight.

All existing and new manholes, monuments, valves, catch basins shall be adjusted to grade after final paving.

#### **7-05.4 Measurement**

*Section 7-05.4 is deleted and replaced with the following:  
(Local Agency SP)*

Manholes will be measured per each

Cut-In manholes will be measured per each.

In addition, separate measurements for manholes and cut-in manholes in excess of 12-feet in height shall be made per linear foot for each additional foot of height over 12 feet.. Measurement for the extra depth shall be the vertical distance greater than 12 feet, measured from the flow line of the outlet pipe to the top of the finished rim elevation to the nearest 0.1 foot.

Air Release/Vacuum Stations shall be measured as described in Section 7-10.

No separate measurement shall be made for the meter vault and its associated appurtenances. This work shall be paid as described in Section 7-10.

No measurement will be made for adjusting existing and new manholes, monuments, valves and catch basins to grade.

**7-05.5 Payment**

*Section 7-05.5 is deleted and replaced with the following:  
(Local Agency SP)*

Payment will be made in accordance with Section 1-04.1 for the following bid items:

Type 1 Manhole, 48 inch	Per Each
Type 1 Manhole, 48 inch, Extra Depth	Per Lineal Foot
Type 1 Cut-in Manhole, 48 inch	Per Each
Type 1 Cut-in Manhole, 48 inch, Extra Depth	Per Lineal Foot
Type 1 Cut-in Manhole, 54 inch	Per Each
Type 1 Cut-in Manhole, 54 inch, Extra Depth	Per Lineal Foot

Payment for Type 1 Manholes or Cut-in Manholes shall include furnishing and installing a manhole of the diameter called out in the proposal and shall include but not limited to the following:

1. Excavation required to install the manhole,
2. Bedding, backfill and compaction around the new manhole,
3. Furnishing and installing the manhole base with required stub, manhole barrel, manhole grade rings, manhole rungs or ladder; manhole frame and cover; and channeling the manhole,
4. Final adjustment of structure to grade,
5. Bypassing sewer flow as necessary during the construction of the cut-in manholes, and
6. All other incidental work and materials for a complete installation

Payment for Extra Depth shall include furnishing and installing that portion of a manhole in excess of 12 vertical feet in depth and shall include all extra excavation, backfill and compaction, additional manhole rungs or ladder, and all other incidental work and materials for a complete installation.

Payment for "Air Release/Vacuum Station" shall be as described in Section 7-10.

The cost for trench shoring and surface restoration shall be by separate bid items.

No specific pay item is made for adjusting existing and new manholes, monuments, valves and catch basins to grade. All costs for adjusting existing and new manholes, monuments covers, valves and catch basins to final grade will be considered incidental to the construction and shall be included in the costs of the other associated items of work.

No specific pay item is made for the meter vault and its associated appurtenances. This work shall be as described in Section 7-10.

**END OF SECTION 7-05**

## **SECTION 7-06      ACCESS HATCHES (NEW SECTION)**

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*Section 7-06 is added as the following:  
(Local Agency SP)*

### **7-06.1      Description**

This section specifies vault and manhole access hatches.

#### **7-06.1(1)      Quality Assurance**

Single source responsibility: Contractor shall obtain access hatches from one manufacturer.

Coordination: Manufacturer and contractor shall coordinate design/requirements with precast concrete supplier.

Warranty: Warrant materials and workmanship against defects for a minimum of one full year after final acceptance. Repair defects, or replace with new materials, faulty materials or workmanship developed during the guarantee period at no expense to Owner.

#### **7-06.1(2)      Definitions**

Heavy Duty: Access hatch doors and frame will support load of 300 pounds per square foot (psf), minimum. Hatches in this category will not be subject to traffic loads.

Light Traffic Duty: Access hatch doors and frame will support H20 (AASHTO) loading. Hatches in this category will be suitable for use in off-street locations where not subjected to high density traffic.

Heavy Traffic Duty: Access hatch doors and frame will support H30 (AASHTO) loading (H20 + 30% increase). Hatches in this category will be suitable for use in street locations where subjected to high density traffic.

Stiffeners: Provides structural reinforcement to meet loading requirements.

Frame: Provides structural support for the hatch door and anchoring support.

#### **7-06.1(3)      Submittals**

In accordance with the requirements of Section 1-06, submit the following product technical data and information:

Manufacturer's technical data and information for each access hatch to verify conformance with the Contract Documents

Schedule, types, locations, materials, finish, latching provisions and other pertinent information

Structural calculations that demonstrate that the design meets load criteria

Shop drawings showing dimensions, tolerances, construction details, and other pertinent installation information and instructions

Operation and maintenance manual including parts list

### **7-06.2      Materials**

#### **7-06.2(1)      Acceptable Manufacturers**

Subject to compliance with the Contract Documents, the following manufacturers are acceptable: LW Products, Bilco Company, Halliday Products, Nystrom, or approved equivalent.

#### **7-06.2(2)      Manufactured Units – Materials and Fabrication**

Air release/vacuum station hatch shall be single-leaf, light traffic duty

Access hatches (Light and Heavy Traffic Duty) shall meet the following requirements:

1. Access hatch doors and frames will be designed to meet traffic load requirements.
2. Size and number of leafs will be as indicated in schedule and on Drawings.

3. Doors will be constructed of aluminum and stainless steel materials.
4. Light traffic duty doors will be constructed of ¼ -inch minimum structural grade aluminum, mill finish, diamond plate. Heavy traffic duty doors will be constructed of 3/8-inch minimum structural grade aluminum, mil finish, diamond plate. Provide stiffeners as required to meet load requirements.
5. Light traffic duty frame will be constructed of 1/4 -inch minimum structural grade, one piece aluminum extruded frame having a continuous concrete anchor as part of the one piece construction. Heavy traffic duty frame will be constructed of 3/8-inch minimum structural grade, one piece aluminum extruded frame having a continuous concrete anchor as part of the one piece construction. The inside of the frame shall have a continuous door-support angle which must have a full bed of concrete under both the frame and the support angle. Frame shall have 1-1/2 inch drain welded under frame to allow free drainage.
6. Doors shall be hydraulic spring assisted, open to 90 degrees and lock automatically in that position by a stainless steel positive locking arm (two minimum per leaf) and release handle. No more than 30 pounds of force will be required to open hatch cover. Hinges shall be stainless steel with tamper proof fasteners and be hinged as shown on the drawings.
7. Doors shall have a stainless steel lifting handle and stainless steel slam lock with padlock hasp and removable key handle.
8. Where required by schedule, provide safety grating for hatch opening. Grating shall be similar in design to aluminum Safety Grate System by LW Products or Syracuse Castings.
  - a. Grating to provide 300 psf rated fall-through protection.
  - b. Grating hardware:
    - 1.) All hardware to be stainless steel
    - 2.) Grating shall be hinged to open the same as doors. Hinges shall have tamper proof fasteners
    - 3.) Open to 90 degrees with positive locking hold-open arm using spring assist such that no more than 30 pounds of force is required to open safety grating. Vinyl grip handle.
    - 4.) Design shall be such that the clear opening of hatch is not reduced.
9. Doors shall be bolted down for traffic.
10. Hatches shall be protected from corrosion. Coat all surfaces in contact with concrete or dissimilar metals with two heavy coats of bituminous paint or equivalent.
11. All hardware shall be stainless steel.
12. Padlocks shall be provided with all access hatches.
13. A counterbalance mechanism may be necessary to effectively work against the gravitational forces acting on the hatches, as some hatches are located on sloping grades. Refer to plans for hatch locations and orientation to grades.

**7-06.3 Construction Requirements**

**7-06.3(1) Preparation**

Coordinate hatch with concrete placement.

Hatch design and construction requirements shall be coordinated with precast structure suppliers as some access hatches are located on sloping grades. If access ladders are to be provided, hatches shall be coordinated with ladder location and requirements for entry.

**7-06.3(2) Installation**

Install in accordance with manufacturer's instructions and recommendations and as shown on the drawings.

Unless otherwise shown on the drawings or directed by the Engineer, hatches shall be flush with finish grade.

**7-06.4 Measurement**

No measurement shall be made for hatches.

**7-06.5 Payment**

No separate payment will be made for hatches. This work is considered incidental to the construction and its costs shall be included in other items of work.

**END OF SECTION 7-06**

## **SECTION 7-08 GENERAL PIPE INSTALLATION REQUIREMENTS**

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### **7-08.1 Description**

*Section 7-08.1 is supplemented with the following:  
(Local Agency SP)*

This Work includes installing sewage force main and gravity sanitary sewer. The Contractor shall also follow adhere to Sections 7-10 as it applies to the specific kind of Work.

### **7-08.1(1) Submittals**

The Contractor shall submit the following information in accordance with Section 1-06 and as specified herein.

1. Supplier information;
2. Test data showing compliance with the specifications for all materials;
3. Dewatering plan(s) describing proposed methods, equipment, capacities, handling and proper disposal/discharge, operation and maintenance of the system, and contingency plans;
4. Dewatering System Design calculations; and
5. Qualifications of hydrogeologist and dewatering subcontractor.

### **7-08.1(2) Qualifications**

#### **Hydrogeologist**

The dewatering system shall be designed by a hydrogeologist licensed in the State of Washington. Hydrogeologist shall have a minimum of ten (10) years of demonstrated experience in the design of dewatering systems using various dewatering methods and of various sizes and complexity.

#### **Dewatering Contractor**

The Contractor shall also employ a dewatering subcontractor with at least ten (10) years of demonstrable experience with a minimum of 15 projects of similar size and complexity completed within the last five (5) years. This will only be required if the hydrogeologist determines that the dewatering system requires the use of dewatering wells or well points. If the hydrogeologist determines that sumps and pumps will be sufficient, this requirement will be waived.

### **7-08.1(3) Dewatering Plan**

Before commencement of any dewatering, the Contractor shall obtain the Engineer's acceptance of the design, materials, methods, installation, and operation and maintenance. The dewatering plan shall be submitted as an early submittal at the Preconstruction Conference and shall contain provisions for a backup plan should the primary plan fail to adequately dewater the trench.

### **7-08.2 Materials**

*Section 7-08.2 is deleted and replaced with the following:  
(Local Agency SP)*

Pipe bedding shall meet the requirements of Section 9-03.12(3) Gravel Backfill for Pipe Zone Bedding or Section 9-03.9(3) Crushed Surfacing Top Course.

Native trench (subsequent) backfill shall meet the requirements of Section 9-03.14(3) Common Borrow, except 100% shall pass the 4-inch square sieve.

Import trench (subsequent) backfill, structure fill and structure backfill shall meet the requirements of Section 9-03.14(1) Gravel Borrow.

Foundation material shall meet the requirements of Section 9-03.9(2) Shoulder Ballast.

Quarry spalls shall meet the requirements of Section 9-13.6.

Pea gravel shall meet the following requirements:

<u>Screen</u>	<u>Percent Passing</u>
½-inch	100
3/8 inch	85-100
#4	10-30
#8	0-10
#16	0-5

Controlled density fill shall meet the requirements of Section 2-09.3(1)E.

### **7-08.3 Construction Requirements**

#### **7-08.3(1) Excavation and Preparation of Trench**

*Section 7-08.3(1) is supplemented with the following:  
(Local Agency SP)*

Construction requirements as specified in Section 7-10 Sewage Force Main shall also apply.

Dewatering shall be as specified herein.

Trenching in areas designated wetland buffers or stream buffers shall be conducted in accordance with these Special Provisions.

Trench excavation shall be unclassified as specified in Section 2-09 Structure Excavation.

#### **7-08.3(1)A Trenches**

*The second and third paragraphs of Section 7-08.3(1)A are deleted and replaced with the following:  
(Local Agency SP)*

Trench widths shall be as shown on the plans and as specified in Section 2-09. Trenches shall be excavated to the depth and grade as shown on the Drawings. All surveying required for construction shall be by the Contractor as specified in Section 1-05.

#### **7-08.3(1)C Bedding the Pipe**

*The second paragraph of Section 7-08.3(1)C is revised to read as follows:  
(Local Agency SP)*

Pipe zone bedding shall be in accordance with the Drawings and these Special Provisions and shall be placed in loose layers and compacted to 95 percent of its maximum density. Bedding shall be placed, spread, and compacted before the pipe is installed so that the pipe is uniformly supported along the barrel. Lifts of not more than 6-inches shall be placed and compacted along the sides of the pipe to the height shown on the Drawings. Material shall be worked carefully under the pipe haunches and then compacted.

*Section 7-08.3(1)D is added as the following:  
(Local Agency SP)*

#### **7-08.3(1)D Dewatering**

##### **General Requirements**

The Contractor shall ascertain the extent to which groundwater may occur, the nature of the material in which it will appear, and the extent to which such occurrence of water will affect the work.

The Contractor is responsible for the design, implementation, operation and maintenance of the dewatering system needed to complete the work based on the time of year and proposed construction methods and techniques. It is the Contractor's responsibility to determine the appropriate type and design that is required for a given location, situation and conditions. The Contractor shall also be responsible for making the determination as to whether or not dewatering can be performed or the extent of the dewatering that can be accomplished without impacting structures/facilities and/or stream flow given the soil, groundwater, site conditions and shoring method. Watertight shoring and/or other

measures may be required to avoid adversely impacting structures/facilities, stream flow or other sensitive areas. Under no circumstances shall dewatering operations affect nearby structures or other facilities.

The Contractor shall design the dewatering system(s) using accepted methods of design and engineering consistent with sound modern practices. The Contractor shall have, or shall employ the services of qualified hydrogeologist(s), engineer(s), and/or subcontractor(s) for the design, installation, operation and maintenance of the dewatering system(s). The Contractor's attention is directed to Section 7-08.1 regarding qualifications for the design and construction of dewatering systems.

Before commencement of any dewatering, the Contractor shall obtain acceptance by the Engineer for the design, materials, method, installation, operation and maintenance and monitoring of the dewatering system. The plan shall also address how typical problems or issues that could arise will be dealt with and handled. Review by the Engineer of the method, installation, and operation and maintenance details submitted by the Contractor shall not in any way be considered to relieve the Contractor from full responsibility for a complete, proper and adequate design and performance of the system in controlling the water and protection of structures/facilities, stream flow, wetlands, or other sensitive areas. The Contractor shall be solely responsible for the proper design, installation, operation, maintenance, and any failure of any component of the dewatering (and shoring) system.

It is imperative that dewatering not affect streams and wetlands. The Contractor shall not allow the discharged from any dewatering system to degrade the water quality of the receiving waters. Contractor shall monitor flows above and below the discharge locations as describe herein to verify compliance with this requirement.

The Contractor shall provide a power source or generating facilities for the dewatering system. The Contractor's attention is directed to Section 1-07 regarding noise levels and requirements.

The Contractor shall provide backup equipment and systems for all ordinary emergencies, including pump failure and power outages. Equipment replacement parts, pipe, fittings and other materials shall be onsite for normal operation and maintenance and emergency repairs. Competent workers shall be available at all times for the continuous and successful operation of the dewatering system. The Contractor shall not disable or shut-down the dewatering system between shifts, weekends, holidays or work stoppages without the Engineer's approval. The Contractor is responsible for electrical power necessary for operation of the dewatering system.

All wells shall be constructed and decommissioned in accordance with WAC 173-160. Contractor shall properly contain and dispose of all drill cuttings/spoils and drilling/development water.

Subject to the Engineer's approval and requirements, permanent piping systems, existing or new, may be incorporated into the Contractor's dewatering system.

## **Dewatering**

All structure and pipe trench excavations shall be dewatered as required to keep the groundwater table at least two (2) feet below the subgrade elevation, or bottom of excavation, whichever is deeper, during construction. Groundwater shall be controlled so as to provide a firm foundation and prevent the formation of "quick" conditions or "boils" during excavation.

At all times structure excavations and pipe trenches shall be kept free from water to facilitate fine grading, the proper laying and joining of pipes and prevention of damage to completed joints and structures. Adequate pumping equipment shall be provided to handle and dispose of the water without damage to adjacent property, or cause a nuisance/menace to the public. Water in the trench shall not be allowed to flow through the pipe while construction work is in progress.

Dewatering of an excavation shall be properly controlled to prevent damage from settlement, lowering/reducing stream flow due to lowering of the groundwater table or adversely affecting nearby sensitive areas. It shall be incumbent upon, and the Contractor's sole responsibility, to make a determination as to the appropriate dewatering means, methods and/or shoring means and methods to facilitate the installation of the structures and/or pipelines, and at the same time, control the groundwater such that the excavation and foundation are stable. The release of groundwater to its static levels shall

be performed in such a manner as to maintain the undisturbed state of the foundation soils, prevent disturbance of backfill and prevent movement of all structures and pipelines.

Sumps shall only be used where the conditions are conducive for their use and the static groundwater levels are less than three (3) feet above the trench subgrade or in areas where the potentiometric surface has been previously lowered to within three (3) feet of the trench subgrade. If sumps and pumps are determined to be adequate for control of groundwater during excavation, the system shall be an engineered system. The use of open or cased sumps is not acceptable and will not be allowed. The sump system shall consist of sumps constructed of machine-slotted well screen installed three to four feet below excavation grade. An engineered filter pack of properly selected and graded material for the in-situ soils and a minimum of 4-inch thickness filter pack shall be installed around the well screen to reduce soil loss and turbidity during pumping.

Typically, sumps and pumps are not recommended where the groundwater is more than three (3) feet above the trench subgrade. An exception may be made if the soils have a low permeability and if the Contractor potholes to test the feasibility of dewatering with sumps and pumps in a given area. If groundwater recharge is deemed to be too rapid, vacuum well points or deep wells may be used. If well points or deep wells are used, two-way traffic shall be maintained when possible. The well point or deep well headers and pumps may be located in a trench, which would need to be plated or otherwise covered to create a drivable surface. All road closures and reroutes must be approved by the County Council. See Section 1-10 for further information regarding temporary traffic control.

If the excavation is not adequately dewatered as specified herein and the subgrade is unsuitable due to inadequate dewatering, the Contractor will be required to either modify the dewatering system or overexcavate and backfill such areas with suitable foundation material as directed by the Engineer. Such remedial work will be at the Contractor's expense.

### **Dewatering Discharge**

Contractor shall properly develop all wells and well points to remove fines resulting from drilling and construction and to increase the yield and hydraulic connection. The Contractor shall discharge all development water to sediment settling tanks or other approved treatment devices as specified herein prior to discharge. The Contractor shall not discharge any development water directly to ground surface or surface water.

The Contractor may discharge dewatering water into the existing sanitary sewer system, provided that there is no sediment present in the discharge water and the volume/rate is within the system's capacity. Unless otherwise allowed, the maximum rate of discharge into the existing sewer system shall not exceed 150 gpm. All sediment discharged into the sanitary sewer system shall be removed at the Contractor's expense. Should the sediment damage the pumping equipment, the Contractor will be responsible for any necessary repairs or replacement of the equipment, including any costs incurred by the Owner as a result.

The Contractor shall do whatever is necessary to eliminate or minimize picking up solids during dewatering operations. If solids are present in the dewatering water, the Contractor shall remove settleable and suspended solids as required to meet permit or water quality requirements if the discharge flows to surface waters or as needed to protect the disposal area(s) or sewer system by one of the following methods:

1. Treating the dewatering water through use of infiltration ponds
2. Treating dewatering water in Baker Tanks with chemical addition
3. Filtering the dewatering water in sand filters or other filtering devices
4. Filtering the dewatering water via overland flow

Each of the above treatment processes shall be properly sized such that it achieves the necessary level or degree of treatment.

If overland flow treatment is utilized, the Contractor shall control dewatering discharge such that the discharge is spread out over as great an area as possible. The overland flow shall not cause erosion or

allow sediment laden water to enter wetlands, streams, adjacent properties or the active construction area. Contractor shall adjust or modify discharge system or use sand bags, temporary berms, erosion control matting or other means as necessary to control the discharge.

### **Discharge Limits and Requirements**

The Contractor shall limit the rate of dewatering discharge to the discharge areas so that the capacity of the dewatering discharge area is not exceeded. The discharge shall not increase the turbidity of water downstream of the work by more than 5 NTU above background turbidity levels in accordance with Washington State Surface Water Quality Requirements, WAC 173-201A. The Contractor shall analyze the discharge for turbidity daily during the first week and weekly thereafter with a field turbidity meter using Standard Method 2130 (Standard Methods for Examination of Water and Wastewater, latest edition). Background turbidity shall be determined from water collected at least 50 feet upstream of all work areas and discharge points. Turbidity shall be calculated as the average of a number of samples (minimum of 3). The number and timing of samples shall be the same for each sampling station (i.e., background and discharge points). If the discharge is not meeting the discharge limits, the Contractor shall immediately modify the discharge system as necessary to meet the discharge limits. The Contractor will be responsible for any fines incurred as a result of the discharges exceeding the Surface Water Quality Requirements.

### **Restoration**

All dewatering piping and equipment shall be removed and disposal site(s) shall be regraded and restored to match pre-existing conditions. All wells, well points, and observation wells installed by the Contractor shall be decommissioned.

Contractor shall also decommissioned the existing monitoring wells shown on the Drawings.

### **Permits**

The Contractor shall comply with the requirements of all applicable permits and all federal, state and local water quality requirements. The Contractor's attention is directed to Section 1-07.6 Permits and Licenses. Contractor shall obtain all necessary permits required for installation and operation of the dewatering system, including construction and decommissioning of wells and disposal of the dewatering discharge. Permits required shall be addressed in the Contractor's dewatering plan. Acquisition of permits shall not result in delay of the work, or be cause for claim of delay.

The dewatering discharge system shall maintain water quality standards for surface waters in compliance with WAC 173-201A, Water Quality Standards for Surface Waters of the State of Washington, and all permits, including the National Pollutant Discharge Elimination System General Permit for Construction Activity.

### **Monitoring**

The Contractor shall provide in-line flow meters on all dewatering discharges.

The Contractor shall, on at least a daily basis, visually inspect the discharge areas and system for proper function and compliance with these specifications and permit requirements.

Continual checks or an appropriate means of monitoring by the Contractor shall be performed to verify that structures/soils are not settling or surface waters are not adversely affected by the dewatering operation. Where critical structures/facilities and surface waters exist immediately adjacent to the areas of proposed dewatering, reference points shall be established and observed at sufficiently frequent intervals so as to detect any changes prior to adverse impacts occurring.

The Contractor shall submit a weekly monitoring report to the Engineer.

Should settlement, reduction in stream flow/depth, or degraded water quality be observed, the Contractor shall immediately cease dewatering operations and implement contingency plans as outlined in the Contractor's approved dewatering plan. The responsibility for monitoring the dewatering operation in a manner which protects adjacent structures/facilities and streams rests solely with the Contractor.

*Section 7-08.3(1)E is added as the following:  
(Local Agency SP)*

**7-08.3(1)E Wet Weather Earthwork**

Wet weather generally begins in mid-October and continues through May, although precipitation periods may occur at any time of the year. Earthwork completed in wet weather or under wet conditions shall be accomplished in small sections to minimize exposure to wet weather. Each section shall be small enough so that the removal of soil and placement of backfill can be accomplished on the same day. No soil shall be left uncompacted and exposed to water. A smooth-drum roller or equivalent shall be used to roll the surface to seal out as much water as possible and promote runoff. Soil that is too wet for compaction shall be removed and replaced with clean, imported backfill material. Grading and earthwork should not be accomplished during periods of heavy continuous rainfall.

*Section 7-08.3(1)F is added as the following:  
(Local Agency SP)*

**7-08.3(1)F Extra Trench Excavation**

Changes in grade or alignment from those shown on the Drawings may be necessary because of conflicts with utilities or other reasons. If, in the opinion of the Engineer, it is necessary to adjust, correct, relocate, or in any way change the grade or alignment, such changes shall be made by the Contractor as directed by the Engineer and as specified herein.

When the pipeline grade is lowered in excess of 1-foot below the grade indicated on the Drawings, the Contractor shall make the extra trench excavation as necessary.

When the pipeline alignment is changed by more than 1-foot from the alignment indicated on the Drawings, but only after the trench has been excavated, the Contractor shall make the extra trench excavation at the changed location and backfill and compact the previous trench.

When the change in pipeline grade or alignment is less than 1-foot, the Contractor shall perform the necessary excavation at no additional cost.

Additional trench excavation as described herein and when required and approved by the Engineer will be classified as extra trench excavation.

**7-08.3(3) Backfilling**

*The second and third paragraphs of Section 7-08.3(3) are deleted and replaced with the following:  
(Local Agency SP)*

Pipe zone backfill material shall be import material and compacted as specified herein. Backfill above the pipe zone shall be as specified herein and in Section 2-09.

*Section 7-08.3(3) is supplemented replaced with the following:  
(Local Agency SP)*

Marking tape and/or tracer wire as shown on the Drawings shall be installed over the pipe lines. Marking tape shall meet the requirements of Section 9-15.18.

After each section of trench is backfilled, maintain the surface of the backfilled trench even with the adjacent ground surface until final surface restoration is completed. Excessive settlement of trench backfill will be considered a result of defective compaction. If compaction testing verifies that this is the case, the Contractor will be required to rework the backfill until the specified compaction is achieved.

**7-08.3(4) Plugging Existing Pipe**

*Section 7-08.3(4) is deleted and replaced with the following:  
(Local Agency SP)*

The existing asbestos cement pipe shall be completely filled with CDF as shown on the drawings. Contractor shall expose sections of the asbestos cement pipe and provide taps as necessary to fill the pipe with CDF and to verify the pipe is completely filled.

Where shown on the Plans or where designated by the Engineer, other pipes which are to be abandoned in place shall be plugged with controlled density fill and the ends capped.

*Section 7-08.3(5) is added as the following:  
(Local Agency SP)*

**7-08.3(5) Backfilling for Structures**

Backfilling for structures shall be in accordance with Section 2-09 and as specified herein.

Structure backfill shall be placed immediately adjacent to all structures including utility structures (e.g., manholes, vaults, etc.).

After completion of foundations, walls and other construction below grade, and prior to backfilling, concrete forms shall be removed and the excavation shall be cleaned of all construction debris.

Structure backfill shall not be placed behind walls until floor slabs or until other bracing elements that provide adequate structural restraint are in place. No backfill shall be placed against any cast-in-place concrete structure until permission is given by the Engineer and preferably not until the concrete has achieved 70 percent of its minimum twenty-eight (28) day strength.

Structure backfill shall be properly moisture conditioned to within three (3) percent of optimum moisture content, placed in loose lifts to the specified depth such that it can be compacted to the specified compaction.

Pea gravel may only be used for structure backfill in certain situations at the discretion of the Engineer. The Contractor shall not anticipate that pea gravel will be approved for use as structure backfill.

**7-08.4 Measurement**

*Section 7-08.4 is deleted and replaced with the following:  
(Local Agency SP)*

Import trench (subsequent) backfill will be measured by the ton.

Controlled density fill will be measured by the cubic yard, including haul.

Potholing (Allowance) shall be measured per each and shall be subject to Section 1-04.6.

Dewatering – Well Points or Deep Wells will be measured by the linear foot of trench being dewatered by these dewatering methods.

Extra Excavation will be as measured in the field by the Engineer, computed to the nearest cubic yard, for the amount of extra excavation performed. The depth shall be the actual depth removed below the depth specified. The width shall be the actual width removed, but in no case shall the measured width exceed the allowable trench width. Measurement shall only be made if the alignment changes by more than 1-foot vertically or horizontally beyond the trench limits shown on the Drawings.

There will be no measurement for structure excavation, native trench (subsequent) backfill, pipe zone bedding, structure fill, pea gravel, quarry spalls, filling or plugging pipes that are abandoned in place, abandoning monitoring wells, or for dewatering with sumps and pumps.

Foundation material and shoring shall be measured in accordance with Section 2-09.

**7-08.5 Payment**

*Section 7-08.5 is deleted and replaced with the following:  
(Local Agency SP)*

Payment will be made in accordance with Section 1-04.1 for the following Bid items:

Imported Trench (Subsequent) Backfill	Per Ton
Controlled Density Fill (Allowance)	Per Cubic Yard
Potholing (Allowance)	Per Each

Dewatering – Well Points or Deep Wells	Per Lineal Foot
Extra Trench Excavation (Allowance)	Per Cubic Yard

Payment of “Imported Trench (Subsequent) Backfill” shall include hauling and furnishing the imported material and hauling and disposing of the unsuitable native material. Installation of the backfill shall be included in the cost of the pipe.

Payment of “Controlled Density Fill” shall include furnishing and installing the controlled density fill for cut-off collars, CDF encasement of pipes, filling of pipes to be abandoned in place, and utility crossings. This bid item shall also include hauling and disposing of the material being replaced by the controlled density fill.

Payment for “Potholing (Allowance)” shall include all costs associated with potholing existing utilities to determine their elevations below ground in order to identify conflicts with the proposed sewer improvements in time to minimize changes to the sewer system or the existing utilities. This bid item shall include excavating to expose the existing utility, backfilling the excavating with imported bedding material and trench (subsequent) backfill material, and restoring the asphalt patch if necessary.

Payment for “Dewatering – Well Points or Deep Wells” shall include installing, operating, maintaining, and abandoning the well points or deep wells. This item shall also include but not be limited to all associated headers, pumps, and conveyance piping needed to transport the dewatering effluent to its release point, monitoring of water quality upstream and downstream of the release points, treating the dewatering effluent as required, acquiring any necessary permits, and restoring any areas disturbed by the dewatering operations.

Payment for “Extra Excavation (Allowance),” shall include excavating, loading, hauling, and disposing of excavated material, supplying additional shoring as required, placing and compacting backfill material, and all other activities necessary to accomplish the work.

No specific pay item is made for native trench (subsequent) backfill, pipe zone bedding, structure fill, drain rock, pea gravel, quarry spalls, dewatering with sumps and pumps, filling and plugging existing pipes that are abandoned in place, and abandoning the existing monitoring wells. All costs for these items will be considered incidental to the construction and shall be included in the costs of the pipe.

**END OF SECTION 7-08**

## **SECTION 7-10 SEWAGE FORCE MAIN (NEW SECTION)**

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### **7-10.1 Description**

*Section 7-10.1 is added as the following:  
(Local Agency SP)*

This work consists of constructing sewage force main in accordance with the Plans, the Standard Specifications, the Special Provisions, and the Standard Plans, at the locations shown on the Plans.

### **7-10.1(1) Submittals**

The Contractor shall submit the following information in accordance with Section 1-06 and as specified herein.

1. HDPE pipe, fittings and appurtenances
2. Ductile iron pipe, fittings, and appurtenances
3. Qualifications of butt fusion equipment operator(s)
4. Qualifications of factory fusion technician
5. Qualifications of pigging/pipeline cleaning contractor
6. Butt fusion equipment
7. Data logger, including copy of data and information
8. Butt fusion procedures and requirements that are detailed and specific for the pipe manufacturer
9. Letter from pipe manufacturer that discusses any differences of concern between this specification and the pipe manufacturer's procedures and requirements
10. Daily print out of fusion process/joint data logger information. Compiled information shall also be provided on a CD on a weekly basis
11. Daily joint checklist and data forms

### **7-10.1(2) Quality Assurance**

#### **7-10.1(2)A HDPE Fusion Qualifications**

##### **Butt Fusion Equipment Operators**

Butt fusion equipment operators shall have a minimum of two (2) years experience with thermal fusion of HDPE pipe in the sizes that are being installed. Operators shall be properly trained and certified in the use of the particular butt fusion equipment and associated tools.

##### **Factory Fusion Technician**

A qualified, factory trained, and suitably experienced fusion technician shall be provided for a period of two weeks to check and oversee the initial equipment setup and operation, fusion welding, use and maintenance of equipment and associated tools.

#### **7-10.1(2)B Pigging/Pipeline Cleaning Qualifications**

##### **Pigging/Pipeline Cleaning Contractor**

The pigging/pipeline cleaning contractor shall specialize in pigging/pipeline cleaning as its primary business and been in business for a minimum of ten (10) years. Company shall be certified by an established pig manufacturer, such as, Pipeline Pigging Products, Inc., Houston, TX. Contractor shall be licensed, fully equipped, and shall have successfully completed at least ten (10) pigging/pipeline cleaning projects on 6-inch and larger pressure pipelines in the last three (3) years. For each project, provide project name, location, a description of project components, contract value, Contracting Agency's name and phone number and description of company's responsibilities.

**7-10.1(2)C Testing of HDPE Joints**

A bent strap field-test in accordance with ASTM F 2620 shall be performed on an initial fusion to establish a data logger trace and baseline for a proper and acceptable HDPE joint fusion process. This will also be required if there is a change in the fusion equipment operator, or a change/significant repair/adjustment to the fusion equipment. At the discretion of the Engineer and Contracting Agency's Representative, additional bent strap tests may be required. Such testing will, however, not exceed a test for every twenty (20) to thirty (30) joints. Any disbondment indicates poor fusion quality and will be considered unacceptable. Fusion procedures shall be reviewed and machine set-up shall be checked. Changes shall be made as determined or deemed appropriate, and a new trial fusion and bent strap test shall be performed. Fusion of joints shall not proceed until a test joint passes the bent strap test.

A standard tensile test in accordance with ASTM D638 will be performed on the same weld used for the bent strap test for validation and comparison purposes. The Contracting Agency will be responsible for these tensile tests. Contractor shall cooperate and assist the Contracting Agency in with accommodating and obtaining the necessary specimen for this test. The testing will be performed by an accredited laboratory (Terrapin Testing, Rancho Cordova, CA, 916-853-9658)

**7-10.1(2)D Reference Standards**

Where referenced, the following editions of design standards and references shall apply:

1. Standard Specification for Polyethylene Plastic Pipe and Fittings Materials, ASTM D 3350
2. Standard Test Method for Notch Tensile Test to Measure the Resistance to Slow Crack Growth of Polyethylene Pipe and Resins, ASTM F 1473
3. Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings, ASTM F 2620
4. Underground Installation of Thermoplastic Pressure Piping, ASTM D2774
5. Field Leak Testing of Polyethylene (PE) Pressure Piping Systems Using Hydrostatic Pressure, ASTM F2164
6. Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing, ASTM D 3261
7. Test Method for Tensile Properties of Plastics, ASTM D 638
8. Polyethylene (PE) Pressure Pipe and Fittings, 4 in. (100 mm) through 63 in. (1,575 mm) for Water Distribution and Transmission, AWWAC906
9. Handbook of Polyethylene Pipe, Plastic Pipe Institute, 1st Edition, 2006
10. PE Pipe – Design and Installation, AWWA Manual of Practice 55, 1st Edition, 2006

**7-10.2 Materials**

*Section 7-10.2 is added as the following:  
(Local Agency SP)*

**7-10.2(1) HDPE Pipe and Fittings**

**7-10.2(1)A HDPE Pipe**

The force main shall be as shown in the following table:

Nominal Size	Pressure Rating (psi)	Factor of Safety	DR	Outside Diameter (in.)	Min. Wall Thickness (in.)	Average ID (in.)
14"	138	2.0	15.5	14	0.903	12.085

Pipe and butt fusion fittings shall be manufactured in accordance with AWWA C906, except PE 4710 resin, meeting the requirements of ASTM D 3350 with a cell classification of PE 445474 C or higher shall be used. PE4710 rework material generated in the manufacturer's own plant may be blended with virgin

PE 4710 compound. Rework not meeting PE 4710 and recycled compounds shall not be used. PE 4710 compound shall meet or exceed the physical properties shown in the following table:

Property Value	Specification	Unit	Nominal Value
Material Designation	PPI/ASTM	NA	PE 4710
Cell Classification	ASTM D 3350	NA	445474 or Higher
Density (Natural Compound)	ASTM D 1505 or ASTM D792	g/cm <sup>3</sup>	0.947-0.955
High Load Melt Index	ASTM D 1238	g/10 min	6-18
Flexural Modulus	ASTM D 790	psi	110,000-160,000
Tensile Strength	ASTM D 638	psi	3,500-4,000
Slow Crack Growth (PENT)	ASTM F 1473	hrs	>500
HDB @ 73 F	ASTM D 2837 and PPI TR-3	psi	1,600
HDB @ 140 F	ASTM D 2837 and PPI TR-3	psi	1,000
HDS	PPI TR-4	psi	1,000
UV Stabilizer	ASTM D 1603 or ASTM D 4218	%C	2.0-2.5

Pipe shall have the following pressure class ratings for water at 73 F and lower using a design factor of 0.63. The manufacturer shall also provide temperature factors for pressure ratings at temperatures above 73 F.

DR 11	200 psi
DR 13.5	160 psi
DR 15.5	138 psi
DR 17	125 psi

Pipe shall contain 2.0 to 2.5 percent carbon black that is well dispersed throughout the pipe when tested in accordance to ASTM D 1603 or ASTM D 4218. Unpigmented areas in the pipe are not acceptable. The pipe shall be homogeneous throughout and free of visible cracks, holes, foreign inclusions, voids or other such defects.

Pipe OD sizes 4-inch through 24-inch shall be available in both steel pipe sizes (IPS) and ductile iron pipe sizes (DIPS or DIOD).

At the time of product shipment, manufacturer shall provide certification of compliance with these specifications.

#### **7-10.2(1)B Butt Fusion Fittings**

Butt fusion fittings shall be manufactured in accordance with ASTM D 3261 for molded fittings or AWWA C906 for fabricated fittings except PE 4710 compound as specified herein shall be used.

Fittings shall contain 2.0 to 2.5 percent carbon black that is well dispersed throughout the fitting wall when tested in accordance to ASTM D 1603 or ASTM D 4218. Unpigmented areas in the pipe are not acceptable. The fittings shall be homogeneous throughout and free of visible cracks, holes, foreign inclusions, voids or other such defects.

Butt fusion fittings including flange adapters, M/J adapters, molded and fabricated fittings (e.g., elbows and tees) shall have at least the same pressure class rating as the pipe. The butt fusion ends shall meet AWWA C906 specifications for OD and minimum wall thickness for the mating pipe. The maximum wall thickness of the fitting butt fusion end shall not exceed 1.27 times the mating pipe minimum wall thickness. Fabricated fittings shall be manufactured using a data logger that records temperature, fusion pressure, and provides a graphic representation of the fusion cycle as part of the quality control.

**7-10.2(1)C Flange Adapters**

Flange adapters shall have a serrated sealing surface, gasket and Type 316 stainless steel, Class 150, back-up ring. Back-up rings shall be of the convoluted type specifically designed for use with HDPE flange adapters. Gaskets shall be chemically and thermally compatible for use in raw sewage and buried service. Gaskets shall be full face, of appropriate hardness, thickness and style as recommended by the pipe manufacturer. Bolts, nuts and washers for flanges shall be Type 316 stainless steel.

**7-10.2(1)D Butt Fusion Equipment**

Butt fusion equipment shall be less than three (3) years old, appropriate for pipe diameter, well maintained and in good working condition. Butt fusion equipment shall be self-contained, electric hydraulic, semi automatic control system/operation for 12-inch and larger diameter pipe.

**7-10.2(1)E Data Logger**

Butt fusion equipment shall be equipped with a data logger that monitors and tracks key parameters of the fusion process (heater temperature and heating, fusion and cooling pressures, and times) and provides a graphic representation of the fusion cycle.

**7-10.2(1)F Polyurethane Cleaning Pigs**

Pigs for cleaning the pipe line shall be manufactured of 2 to 10 pound per cubic foot density polyurethane foam with an open cell structure. Pigs shall have a bullet shaped nose with an exterior coating of closed cell urethane suitable for use in raw wastewater systems. The peripheral surface on the pig shall be resilient and abrasive resistant and capable of maintaining a constant sliding seal against the interior wall of the pipeline. Pigs shall be capable of navigating the pipeline's bends and valves. Pigs shall be suitable for use in HDPE pipelines and appropriate for the pipe's diameter (including welds and ovalness of pipe). Pigs shall be able to pass through reductions of up to 60 to 65 percent of nominal cross sectional area of pipe. Excluding abrasive or scraper pigs, which shall not be used, Contractor shall provide and utilize the progressive approach and be responsible for selecting the size and type of pigs to systematically and properly clean the pipeline.

**7-10.2(2) Ductile Iron Pipe and Fittings**

**7-10.2(2)A Ductile Iron Pipe**

Ductile iron pipe shall be as shown in the following table:

Nominal Size	Thickness Class	Factor of Safety	Outside Diameter (in.)	Min. Wall Thickness (in.)	Average ID (in.)
8"	50	2.0	9.05	0.25	8.55
12"	50*	2.0	13.2	0.28	12.64

Ductile iron pipe shall meet the requirements of AWWA C150 and C151 and shall be Thickness Class 50 minimum. Ductile iron pipe to be joined using bolted flanged joints shall be Thickness Class 53. Ductile iron pipe shall be joined with Push-on, Mechanical Joint, Flange, or Proprietary Restrained Joints as shown on the Plans or specified.

**7-10.2(2)B Ductile Iron Fittings**

Ductile iron fittings shall be Thickness Class 53 conforming to the requirements of AWWA C110/A21.10, C111/A21.11 and AWWA C153/A with joints to match the connecting pipe. Unless otherwise shown on the drawings, elbows shall be the standard radius style.

**Push-On Joints**

Push-on joints shall be 250 psi minimum working pressure conforming to the requirements of AWWA C110/A21.10 and C111/A21.11. Push-on joints shall be American Cast Iron Pipe Co., Fastite Joint; US Pipe and Foundry, Tyton Joint, or equivalent.

## **Mechanical Joints**

Mechanical joints shall be 250 psi minimum working pressure conforming to the requirements of AWWA C110/A21.10, C111/A21.11 and C153/A21.53. The plain ends of pipe shall be marked to show the required depth of penetration for making the joint. Restrained joints shall be one of the following:

### **Proprietary Restrained Joints**

Proprietary Restrained joint system shall be 250 psi minimum working pressure conforming to AWWA C111/A21.11 and C153/A21.53. Restrained joints shall be American Cast Iron Pipe Co., Flex-Ring or Lok-Ring Joint; U.S. Pipe, TR Flex; or equivalent.

Restrained joint system shall be rated for a 250 psi minimum working pressure. Harnesses shall be of ductile iron material, equipped with teeth (not set screws) to engage the pipe barrel. Mechanical restrained joint system shall be Megalug, Series 1100 by Ebaa Iron, Inc., or equivalent.

### **Flanged Joints**

Flanged joints shall conform to the requirements of AWWA C115/A21.15 and/or ANSI B16.5 as required, 125-pound flat face or 250-pound raised face. Gray cast iron will not be allowed.

### **7-10.2(2)C Coatings**

Exterior surfaces of all ductile iron pipe and fittings for buried service shall be factory-coated with a bituminous coating approximately 1-mil thick. All ductile iron pipe and fittings shall be encased in tube-form polyethylene meeting the requirements of ANSI/AWWA C105 and shall be high-density, cross-laminated polyethylene film, natural or black color.

Ductile iron pipe and fittings to be painted shall be purchased from the manufacturer without the petroleum asphalt coating normally furnished pursuant to AWWA Standards C110, C115, C151 or C153.

Interior surfaces of all ductile iron pipe and fittings shall be lined with 40 mils nominal dry film thickness Protecto 401 ceramic epoxy.

### **7-10.2(2)D Nuts and Bolts**

Nuts and bolts shall be ANSI B18.2.1 standard square or hexagon head bolts with ANSI B18.2.2 standard hexagon nuts. Threads shall be ANSI B1.1, standard coarse thread series; bolts shall be class 2A, nuts shall be class 2B. Length shall be in conformance with ANSI B16.5.

#### **Nuts and Bolts for Buried Service**

Nuts and Bolts that are buried (in direct contact with soil) shall be made of a noncorrosive high-strength, low alloy steel having the characteristics specified in ANSI/AWWA C111/A21.

#### **Nuts and Bolts for Vaults and Other Below Grade Structures**

Nuts and bolts contained within vaults, valve boxes and other below grade structures shall be Type 304 stainless steel conforming to the following:

1. Bolts: ASTM A193, UNS S30400.
2. Nuts: ASTM A194, UNS S304xx.

#### **Nuts and Bolts for Submerged/Corrosive Environments**

Nuts and bolts that are submerged or in corrosive environments shall be Type 316 stainless steel conforming to the following

1. Bolts: ASTM A193, UNS S31600
2. Nuts: ASTM A194, UNS S316xx

Corrosive environments are defined as being environments containing corrosive compounds such as those generated by municipal sewage.

### **7-10.2(3) Air Release/Vacuum Station**

#### **7-10.2(3)A Vault**

Vault shall be per Section 7-05 Manholes and Vaults.

#### **7-10.2(3)B Combination Sewage Air Release/Vacuum Valve**

Combination sewage air release/air vacuum valves shall be designed to operate with raw sewage under pressure to permit discharging of air from an empty line when filling and relieve a vacuum when pressure transients occur or while draining. The valve body shall be designed to withstand 250 psi. Valve body shall be constructed of AISI 316 stainless steel.

Air release and vacuum valves shall be installed as shown on the plans and in accordance with the manufacturer's recommendations.

Valves shall consist of a single chamber conical body enclosing a control float to regulate passage of air between the pipeline and the atmosphere. The valve body shall have an end flange for connection to system piping, conforming to ANSI B16.1, Class 125, to meet operating and test pressures of pipe. The control float shall be connected to a rolling seal via a stainless steel stem.

The combination air release/vacuum valve shall discharge air at high flow rates during the filling of the system and admit air into the system at high flow rates during its drainage. The valve shall be designed to prevent premature closing.

At any time during system operation, should internal pressure of the system fall below atmospheric pressure, the valve shall admit air into the system.

The passage of air between the pipeline and the atmosphere shall be accomplished via a single orifice and an internal control float connected to a rolling seal.

The valves shall be designed and constructed to operate as specified for each of the following operational conditions:

1. Pipeline filling: During routine filling of the pipeline, valves shall vent air present in the pipeline through the orifice. High velocity air shall not blow the float shut. Sewage entry into the lower portion of the valve shall cause the control float to rise, sealing of the orifice. As pressure increases, the air trapped in the valve body shall compress. As air becomes disentrained and enters the valve body, sewage is displaced. Once sufficient sewage has been displaced so that the float is no longer supported, the float will lower and open the orifice to release air. When sufficient air has been displaced and the sewer level rises, the float will raise and seal the orifice.
2. Normal system operation: During normal pipeline operation when the pipeline is flowing full under pressure, valves shall release air which becomes disentrained from the flow and collects in the valve body.
3. Transient conditions due to pump failure or valve closure: Upon development of negative pressures in the pipeline, as may occur during pipeline drainage or liquid column separation, the orifice shall open by the unrolling of the seal permitting free flow of air into the pipeline. The orifice shall remain open until vacuum conditions are relieved in the pipeline and the valve body refills with sewage.

Combination air release and vacuum valves shall be A.R.I. USA D-023 valves. Engineer knows of no equivalent product to the A.R.I. valve specified.

#### **7-10.2(3)C Odor Control System**

The carbon canister shall be a cylindrical, stainless steel canister with a 2-inch FIP inlet. There shall be a 2-inch heavy duty flexible hose and Schedule 80 PVC piping with a check valve from the air/vacuum valve to the canister to allow for the release of air through the carbon canister. The hose shall have excess length. There shall be quick connect/disconnect fittings on the ends of the flexible hose and piping for connecting and disconnecting both the canister and air/vacuum valve. A second check valve shall be attached to the air/vacuum valve to allow for the intake of air. Hose, piping, valves, fittings and

fasteners shall be constructed of suitable corrosion resistant materials, stainless steel, Schedule 80 PVC or polymer materials.

The carbon shall be potassium hydroxide impregnated granular activated carbon. The system shall be capable of filtering 200 to 400 cubic feet per minute. The minimum weight of carbon to be provided shall be 40 lbs.

The spent filter material shall be considered non-hazardous and able to be disposed of as municipal waste.

The odor control system shall be an OCU 1620 as manufactured by Odor Control Specialties, Riverside, MO or approved equal.

### **7-10.3 Construction Requirements**

*Section 7-10.3 is added as the following:  
(Local Agency SP)*

#### **7-10.3(1) HDPE Pipe**

##### **7-10.3(1)A Field Handling of Pipe and Fittings**

Appropriate handling equipment of adequate capacity shall be used to prevent damage to the pipe. Lifting equipment, such as cranes, extension booms cranes, etc. shall be hooked to wide web choker slings that are secured around the load or to lifting lugs on the component. Only wide web slings shall be used for lifting. Wire rope, slings and chains shall not be used. Spreader bars shall be used when lifting pipe or components longer than twenty (20) feet. Pipe must not be dumped, dropped, pushed, dragged or rolled from trucks, equipment or into the trench. Appropriate equipment must always be used to lift, move and lower the pipe. The maximum length of pipe that can be lowered into the trench shall be such that the pipe is not bent more than the pipe manufacturer's minimum bend radius. To provide a factor of safety, the pipe manufacturer's recommended minimum bend radius or curvature is that for long-term bending as shown in Table 8-2 of AWWA M55. (For pipes with DRs between 13.5 and 21, the minimum bend radius is 27 times pipe OD.)

Pipe damaged by improper handling will not be allowed to be incorporated into the work. Pipe that is kinked or has cuts or gouges in excess of 10% of the minimum wall thickness will be considered compromised. The compromised section of pipe shall be cut out and be removed from the jobsite. Provided the damage is not extensive or excessive (in area or length), the damage will be considered. Pipe that has sustained minor damage will be repaired in accordance with the manufacturer's instructions. Sharp notches or cuts that penetrate less than 10% of the wall thickness may be able to be dressed smooth so the notch is blunted. Blunt scrapes or gouges that penetrate less than 10% of the wall thickness may not be considered damaged or compromised. Minor surface abrasion will not be considered damaged.

##### **7-10.3(1)B Joints**

All joints shall be butt fused welded. Butt fused joints shall have a joint weld strength equal to or greater than the tensile strength of the pipe itself. Flange adapters or M/J adapters butt fused to the pipe will be provided only where shown on the Drawings. No other types of joints or joint restraint devices will be allowed unless specifically shown on the Drawings or specified herein.

##### **7-10.3(1)C Flanges**

Bolts on flanges shall be tightened in a pattern sequence to the torque value recommended by the pipe and/or flange adapter manufacturer. A torque wrench shall be used to tighten all bolts and nuts. Bolts shall be retightened twice thereafter as follows:

1. One (1) to two (2) hours initial tightening and
2. Four (4) to six (6) hours after the initial tightening.

Flanges shall be marked with an indelible marker to indicate the number and time of each tightening.

### **7-10.3(1)D Special Support for Appurtenances and Structures**

Below grade flange connections that support heavy appurtenances such as large diameter valves or are connected to steel, ductile or concrete piping require special foundation or structural support. Special foundation and structural support at such locations shall be as shown on Drawings.

### **7-10.3(1)E Field Fusion**

Fusion stations shall be established along the force main alignment for joining pipe in various sections of the alignment. Fusing/joining pipe in the trench will not be allowed.

A tent/shelter that is specifically made for field fusion operations shall be set up over the joining operation at all times to minimize contamination and heat loss, as well as protect the operation during inclement weather. A suitable base board or ground sheet shall be set underneath the tent/shelter.

All connections shall be clean, dry and free of detrimental surface defects before the connection is made. General dust and light soil may be removed by wiping the surfaces with clean, untreated, dry, lint-free, non-synthetic cloths. Heavier soil shall be washed or scrubbed off with soap and water solution, followed by a thorough rinsing with clean, clear water, and drying with clean, untreated, dry, lint-free, non-synthetic cloths. Chemical solvents are not to be used as they may leave a residue or be incompatible with HDPE.

Use handsaws and chain saws for cutting pipe. Chain saws shall be used without chain lubrication because of the potential for chain oil contamination.

The following procedures and requirements for joining/fusion of pipe are based on PPI's, Performance Pipe and WL Plastics pipe joining procedures and requirements. Pipe manufacture shall provide a letter to Engineer of any differences of concern between these specifications and the pipe manufacturer's recommended procedures or requirements. Deviations to these specifications will be subject to the approval of the Engineer.

#### **Fusion Machine Preparation**

Wash the heater plate when cold before every welding session. Never use chemicals, metal or abrasive implements to clean heating tool. Burned or charred material shall be removed in accordance with the equipment manufacturer's written instructions.

Using the equipment manufacturer's instructions, calculate and verify that the fusion machine hydraulic fusion joining pressure gauge setting is such that it is within the recommended interface pressure range.

Verify the heating tool is at and maintaining correct temperature. Monitor the heating tool surface with a calibrated, pyrometer or an infrared temperature gauge to insure proper temperature (heating tool thermometers will typically be higher than surface temperature). Verify that all points on the both heating tool surfaces where the surfaces will contact the pipe are within the recommended range.

#### **Secure and Support**

Properly align and secure the components in the butt fusion equipment. Pipe shall be properly supported on either side of the equipment such that the pipes are aligned straight to each other at the fusion joint.

#### **Face**

Face ends of pipe to establish smooth, clean parallel mating surfaces. Remove shavings with a clean, untreated, dry, lint free, non-synthetic cloth. Do not touch the component ends with hands after facing.

#### **Align**

Bring the component ends together, check alignment, and check for slippage. Look for complete contact all around both ends with no detectable gaps.

#### **Melt**

Prior to pipe joining, heating tool surfaces must be clean, and heating tool surfaces must be up to the specified minimum recommended temperature (400° F), but not above the maximum recommended temperature (450° F). Optimum temperature is 425° F. Immediately after heating tool removal, quickly inspect (within 3 seconds) both component ends for proper melt surfaces. They should appear flat,

smooth, and be completely melted. Unacceptable melt is any combination of a concave (cupped), bubbly or pock-marked sandpaper like melt surface, or unmelted areas or melted material sticking to heating tool surface. Do not continue with making the joint if these conditions are observed as low strength joints result from improper melt surfaces. Allow melted ends to cool, and remake the joint from the beginning.

**Join**

If acceptable melt is observed, immediately bring component ends together to ensure full contact.

Apply and hold joining force against the melted ends until the joint cools and solidifies. Observe the melt bead roll as the component ends are joined and the joining force is applied. The correct joining force will form a double bead that is rolled over to the surface on both ends. When the proper melt bead size is formed (table below), quickly and smoothly separate the ends, and remove the heating tool.

Pipe Size (Inches)	Approximate Melt Bead Size (Inches)
8 – 12	3/16 – 1/4
12 – 24	1/4 - 7/16
24 – 36	7/16 – 1/2
36 – 54	1/2 - 9/16

The joint must be kept under pressure until the joint has cooled sufficiently. While maintaining pressure, allow joint to cool under ambient conditions. Do not use forced air, water or wet cloths to expedite cooling of the joint. Proper cooling times (under pressure) are dependent on pipe diameter, wall thickness, heater plate temperature and environmental conditions. Estimated cooling time as determined by the pipe manufacturer shall be adhered to at all times to insure joint integrity. The pipe manufacturer’s cooling times are estimates, however, and should therefore be considered as only a guideline. Adjustment to these times will likely be needed. A pyrometer shall be used to check the bead temperature. If the temperature is about the same as that of the pipe, the joint has cooled enough for gentle handling (i.e., removal of the joint/ pipe from the machine to start another joint). Additional time (30 minutes or more) is required for the joint to cool completely through, and until such additional time has elapsed, the pipe shall not be subject to rough handling or bending.

**Inspections**

On both sides, the double bead should be rolled over to the surface, and be uniformly rounded and consistent in size and shape all around the joint. The combined width of the beads should be 2 to 2-1/2 times the height above the surface. The V-groove between the beads should not be deeper than half the bead height above the component OD surface. Use a bead gauge to check that bead width conforms to specifications. Enter information on joint checklist and data form. Number/code the joint using an indelible marker. Print out data from data logger/controller and verify compliance. Complete joint checklist and data form.

Contracting Agency’s representative will periodically check and monitor the joint/fusion process, but will not observe all joints that are made. Data logger joint information, joint checklists, and data forms for each joint shall be readily available for review by the Contracting Agency’s representative. Pipe/joints shall be elevated and placed such that Contracting Agency’s Representative can easily and readily review the entire joint.

**Rejected Joints**

The following will be the basis and grounds for rejecting joints. Joints that are rejected will be cut out and remade from the beginning.

1. Beads not rolled over to the surface
2. Flat beads
3. Non uniform or irregular bead size or shape

4. Bead widths less than specified minimum
5. V-grooves deeper than specified
6. Misaligned joints (greater than 10% wall offset)
7. Differences in trial data logger trace that indicate poor quality fusion

**7-10.3(1)F Allowance for Thermal Expansion/Contraction**

HDPE has a coefficient of thermal expansion of  $1.2 \times 10^{-4}$  ft/ft/deg F. Above ground HDPE shall be installed with excess length between anchor points such that contraction caused by a temperature drop to 0 degrees F will produce the length of pipe shown on the Drawings. Buried HDPE pipe shall be installed with excess length between anchor points such that contraction caused by a temperature drop to 40 degrees F will produce the length of pipe between two points shown on the Drawings. The amount of excess pipe depends on temperature of pipe at the time of installation and shall conform to the following table for above ground and buried piping. Pipe temperature is of the pipe material and not the ambient temperature. Measure pipe temperature with a strip thermometer laid directly on the pipe.

Pipe Temperature (degrees F)	Excess Pipe Length (inches/100 feet)	
	Above Ground Piping	Buried Piping
30	4.3	---
40	5.8	---
50	7.2	1.4
60	8.6	2.9
70	10.1	4.3
80	11.5	5.8
90	13.0	7.2
100	14.4	8.6

**7-10.3(1)G Hydrostatic Testing of HDPE Pipe**

Pipe shall be completely backfilled prior to testing. Test sections shall be sealed with full pressure rated end closures such as metal blind flanges bolted to HDPE flange adapters. Provide proper blocking to restrain the pipe in place if necessary. Pressure testing against closed valves will not be permitted. All bolt on connections shall remain or be exposed for and during hydrostatic testing.

The Contractor shall provide two weeks advance notice of hydrostatic testing.

Leak tests shall be conducted in accordance with ASTM F2164 and as specified herein.

Pipe shall be tested at a pressure of 1.5 times the rated pressure of the pipe or the maximum pressure rating of the lowest pressure rated component in the test section, whichever is less. The test pressure shall be monitored at the lowest elevation point in the test section.

Add make-up water as required to maintain the test pressure (within 5%) for a period of four (4) hours. After this initial expansion and stabilization phase, reduce the pressure by 10 psi. Once this has been done, begin the test. The pressure shall remain within 5% of the test pressure for a period of one (1) hour to indicate that there is no leakage and be accepted.

Under no circumstances shall the total time for initial pressurization and time at the test pressure exceed eight (8) hours. If for some reason the test is not completed because of leakage, equipment failure, or any other reason, the test section shall be depressurized and allowed to relax for at least eight (8) hours before re-pressurization.

Correctly made fusion joints will exhibit no visible/zero leakage. Any visible leakage from a joint will be cause for rejection and the joint must be removed and remade. Repairs will not be allowed.

The force main improvements along Central Valley Road shall be hydraulically tested separately from the improvements along Fairgrounds Road. New piping at the intersection of Fairgrounds Road and Central Valley shall be tested in conjunction with the piping along Fairgrounds Road.

Water is available from the City of Bremerton. The City of Bremerton Water Department phone number is (360) 473-5270. The Contractor is responsible for coordinating with the City of Bremerton and complying with their requirements on the connection and use of the water, as well as paying for the water.

The Contractor is responsible for proper disposal of the water and shall neutralize the chlorine in the water before it is discharged. The treated water, unless otherwise allowed by regulatory agencies, shall be conveyed and discharged into either LS 5, LS 6 or LS 34. The discharge must be at a rate that is controlled and shall not exceed 150 gpm.

#### **7-10.3(2) Ductile Iron Pipe**

Ductile iron pipe shall meet the construction requirements of Sections 7-08.3 and 7-09.3. All references to "water" shall be replaced with "sewer force main." Ductile iron pipe shall only be used as shown on the Plans.

#### **7-10.3(3) Dewatering**

Dewatering shall be as specified in Section 7-08.3.

#### **7-10.3(4) Bypass Operations for Connections**

Bypass operations shall be as specified in Section 7-17.3.

#### **7-10.3(5) Pipeline Pigging and Cleaning**

After the force main is placed in service, the pipeline shall be pigged. Contractor shall provide all labor, materials, supplies and equipment necessary to properly pig and clean the pipeline including but not limited to:

1. Factory trained services personnel
2. Appropriate cleaning pigs
3. Electronic pig tracking equipment
4. Pressure profiling equipment
5. Two way radio communications

Prior to the use of plastic foam pigs, a swab made of soft plastic foam shall be sent through the piping to insure that the piping system's bends, fittings, valves, and interior dimensions will allow the initial cleaning pig to pass through it without being trapped within the system.

#### **7-10.4 Measurement**

*Section 7-10.5 is added as the following:  
(Local Agency SP)*

HDPE force main will be measured per linear foot of pipe installed, excepting pipe within structures and piping included at connection details. Measurement shall be to the nearest foot.

No unit of measurement shall apply to the lump sum price for Connecting to the Existing Sewer Force Main at PS 34. The limits of this bid item shall be as shown on the Drawings.

No unit of measurement shall apply to the lump sum price for Connecting to the Existing Sewer Force Main at PS 5. The limits of this bid item shall be as shown on the Drawings.

No unit of measurement shall apply to the lump sum price for Force Main Modifications at Fairgrounds Road. The limits of this bid item shall extend from the connection to the existing force main up to, but not including, the tee connecting the air/vacuum station to the force main.

No unit of measurement shall apply to the lump sum price for Connecting to the Existing Sewer at PS 6.

Measurement of air release/vacuum stations will be per each.

Trench excavation, bedding and backfill will be measured in accordance with Section 7-08.4.

No separate measurement will be made for cleaning and testing of sewer pipe.

### **7-10.5 Payment**

*Section 7-10.5 is added as the following:  
(Local Agency SP)*

Payment will be made in accordance with Section 1-04.1 for the following bid items:

14-Inch Diam. HDPE DR 15.5 Sewer Force Main	Per Lineal Foot
Connect to Ex. Sewer Force Main at PS 34	Per Lump Sum
Connect to Ex. Sewer Force Main at PS 5	Per Lump Sum
Force Main Modifications at Fairgrounds Road	Per Lump Sum
Connect to Ex. Sewer at PS 6	Per Lump Sum
Air Release/Vacuum Station	

Payment for "14-Inch Diam HDPE DR 15.5 Sewage Force Main" shall include all work associated with constructing the force main, including but not limited to trench excavation, dewatering with sumps and pumps, preparing the trench foundation, furnishing, laying and joining the pipe, placing and compacting the bedding material and trench backfill, as well as cleaning and testing the pipe. The unit price shall also include the cost of any concrete cut-off collars, tracer wire, utility marker tape, maintenance and restoration of existing utilities impacted by construction, and daily cleanup around the worksite.

Payment for "Connect to Existing Sewer Force Main at PS 34" shall include all work associated with temporarily shutting off and draining the existing force main; coordinating with the Contracting Agency for interruptions of the existing sewer pumping system; furnishing, installing, maintaining, and removing all bypass systems; excavation and haul; dewatering with sumps and pumps; cutting and connecting to the existing force main; furnishing and installing piping, fittings, and valves as shown on the plans; furnishing and installing flow meter vault including flow meter, piping, and drain as shown on the plans; and furnishing, placing and compacting foundation and bedding material; as well as placing and compacting backfill in all excavated areas. Imported trench (subsequent) backfill shall be paid in accordance with Section 7-08.5.

Payment for "Connect to Existing Sewer Force Main at PS 5" shall include all work associated with temporarily shutting off and draining the existing force main; coordinating with the Contracting Agency for interruptions of the existing sewer pumping system; furnishing, installing, maintaining, and removing all bypass systems; excavation and haul; dewatering with sumps and pumps; cutting and connecting to the existing force mains; furnishing and installing piping, fittings, and valves as shown on the Plans; and furnishing, placing and compacting foundation and bedding material; as well as placing and compacting backfill in all excavated areas. Imported trench (subsequent) backfill shall be paid in accordance with Section 7-08.5.

Payment for "Force Main Modifications at Fairgrounds Road" shall include all work associated with temporarily shutting off and draining the existing force main; coordinating with the Contracting Agency for interruptions of the existing sewer pumping system; furnishing, installing, maintaining, and removing all bypass systems; excavation and haul; dewatering with sumps and pumps; removing and disposing of the existing force main as necessary; cutting and connecting to the existing force main; furnishing and installing piping, fittings, and valves as shown on the Plans; and furnishing, placing and compacting foundation and bedding material; as well as placing and compacting backfill in all excavated areas. Imported trench (subsequent) backfill shall be paid in accordance with Section 7-08.5. This bid item shall also include disconnecting the two existing force mains from each other and plugging the existing pipes.

Payment for "Connect to Existing Sewer at PS 6" shall include all work associated with temporarily shutting off and draining the existing force main; coordinating with the Contracting Agency for

interruptions of the existing sewer pumping system; furnishing, installing, maintaining, and removing all bypass systems; excavation and haul; dewatering with sumps and pumps; cutting and connecting to the existing force mains; furnishing and installing piping, fittings, and valves as shown on the Plans; and furnishing, placing and compacting foundation and bedding material; as well as placing and compacting backfill in all excavated areas. Imported trench (subsequent) backfill shall be paid in accordance with Section 7-08.5.

Payment for "Air Release/Vacuum Station" shall include all excavation; dewatering with sumps and pumps; furnishing and installing the air release/vacuum vault, air release/vacuum valve including odor control unit; piping, fittings, and valves, including the mainline tee at the force main; and furnishing, placing and compacting foundation and bedding material; as well as placing and compacting backfill in all excavated areas. Imported trench (subsequent) backfill shall be paid in accordance with Section 7-08.5.

Payment for restoration will be made under the applicable bid items.

**END OF SECTION 7-10**

## **SECTION 7-12 VALVES FOR FORCE MAIN**

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*Change Title of Section 7-12 and make the following revision:  
(Local Agency SP)*

Replace all references to “water mains” with “sewer force mains.”

### **7-12.2 Materials**

*Section 7-12.2 is deleted and replaced with the following:  
(Local Agency SP)*

Gate valves shall conform to the latest revision of AWWA C515. Valves shall be standard pattern of a manufacturer whose products are approved by the Engineer and shall have the name or mark of the manufacturer, year valve casting was made, size, and working pressure plainly cast in raised letters on the valve body.

Gate valves shall have ductile iron body and bonnet (ASTM A536), resilient seat, flanged ends (ANSI B16.1 Class 125), non-rising stem, and be suitable for installation with the type and class of the pipe being installed. Valve wedge shall be fully encapsulated rubber meeting ASTM D429, and shall seal 100% leak tight. Seating rubber shall be EPDM elastomer. Valves shall be supplied with O-rings at all pressure retaining joints; no flat gaskets shall be allowed. Valve waterways shall be smooth, unobstructed and free of all pockets, cavities and depressions in the seat area.

There shall be no moving bearing or contact surfaces of iron in contact with iron. Contact surfaces shall be machined and finished in the best workmanlike manner, and all wearing surfaces shall be easily renewable.

Valve stem and stem nut shall be cast bronze meeting requirements of AWWA C515. The valve stem shall have a minimum yield strength of 20,000 psi and the stem nut shall have a minimum yield strength of 14,000 psi. All stems shall operate with 2-inch stem nuts. All stem O-rings above thrust collar shall be fully replaceable with the valve fully opened and subjected to full pressure.

Nuts and bolts for connecting bonnet and body shall be ANSI 316 stainless steel. Bolts may be regular square or hexagonal heads conforming to ANSI B18.2.1. Metric size socket head cap screws are not allowed.

Interior lining and exterior coating shall be fusion bonded epoxy meeting the requirements of AWWA C550.

All valves shall be vertically mounted. Valves 16” and larger shall be provided with spur gears.

Valves shall be rated 250 psi minimum cold water. Each valve shall be tested per the requirements of AWWA C515.

Subject to meeting the requirements of the Contract Documents, valves shall be as manufactured by M&H Valve, Mueller, or approved equal.

### **7-12.4 Measurement**

*Section 2-04.4 is deleted and replaced with the following:  
(Local Agency SP)*

No measurement will be made for gate valves.

### **7-12.5 Payment**

*Section 2-04.5 is deleted and replaced with the following:  
(Local Agency SP)*

No separate payment will be made for gate valves. This work is considered incidental to the construction and its costs shall be included in other items of work.

**END OF SECTION 7-12**

## **SECTION 7-13            MAGNETIC FLOW METER (NEW SECTION)**

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*Section 7-13 is added as the following:  
(Local Agency SP)*

### **7-13.1            Description**

This section specifies the 12-inch magnetic flow meter that will be installed in the meter vault near Pump Station 34.

Submittals shall be in accordance with Section 1-06 and as specified herein.

Submit manufacturer's product data, catalog cuts, and shop drawings detailing materials of fabrication, components, assembly, dimensions, capacity, and electrical. Include manufacturer's installation instructions and operations and maintenance manual. Include certification that the equipment and related devices are listed and labeled by a recognized independent testing laboratory and suitable for the intended use and classified area specified herein.

### **7-13.2            Materials**

#### **7-13.2(1)        Magnetic Flow Meter**

Magnetic flow meter element/transmitter shall consist of a flow tube and separate converter. Provide the interconnecting cables and conduits. The flow meter shall be suitable for velocity range of 1.5 to 30 fps. System accuracy shall be better than 0.5 percent of flow rate for velocities greater than 1.5 fps. Power supply shall be 120 volts plus 10 percent, 60 Hz plus 3 Hz. Magnetic flow meter shall be suited and rated for raw sewage and Class 1, Division 2 areas.

The flow tube shall be Type 304 stainless steel construction and lined with polypropylene or PTFE. Flow tubes shall have 150-pound ANSI B16.5 flange connections for meters up to 24-inches in size and AWWA C115 flanges for meters greater than or equal to 28-inches. Electrodes shall be Type 316 stainless steel. Flow tubes shall be provided with grounding rings. Flow tubes shall be provided with adequate protection for continuous submergence.

The transmitter shall provide a 4-20 mA signal proportional to flow with adjustable damping and shall be provided in a NEMA 4X case. Provide a pulse output for flow totalization. Size of flow meters shall be as shown on plans.

Magnetic flow meter and related items shall be located as shown on the Drawings. Transmitter shall be located in the pump station building as shown in the Drawings. Provide cable of adequate length to allow unit to be wired without splicing.

Subject to compliance with these specifications, magnetic flow meter shall be manufactured by Siemens Energy & Automation, or approved equivalent.

Provide a ductile iron spool of same diameter and length as the meter to allow removal of the flow meter for repair.

### **7-13.3            Construction Requirements**

#### **7-13.3(1)        Installation**

Install products in accordance with manufacturer's instructions.

Install Instrument mounting pipe stands level and plumb.

Instrument Mounting:

1. Mount all instruments where they will be accessible from fixed ladders, platforms or grade
2. Mount all local indicating instruments with face forward toward the normal operating area, within reading distance, and in the line of sight
3. Mount instruments level, plumb and support rigidly

4. Mount to provide:
  - a. Protection from heat, shock and vibrations
  - b. Accessibility for maintenance
  - c. Freedom from interference with piping, conduit and equipment

**7-13.4 Measurement**

No measurement will be made for magnetic flow meter.

**7-13.5 Payment**

No separate payment will be made for magnetic flow meter. This work is considered incidental to the construction and its costs shall be included in other items of work.

**END OF SECTION 7-13**

## **SECTION 7-16 SURGE TANK SYSTEM (NEW SECTION)**

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*Section 7-16 is added as the following:  
(Local Agency SP)*

### **7-16.1 Description**

This specification consists of the furnishing of all labor, materials, equipment and appurtenances for a vertical hydropneumatic, bladderless, surge control system.

### **7-16.1(1) Standards**

The following is a list of standards that are applicable to the equipment and installation and may be referenced in this specification. In all cases, the latest edition shall apply:

1. American National Standards Institute (ANSI)
2. American Society of Mechanical Engineers (ASME), Rules for Construction of Pressure Vessels
3. Hydraulic Institute Standards (HI)
4. Steel Structures Painting Council (SSPC)
5. Uniform Plumbing Code (UPC)
6. International Building Code (IBC)
7. National Electric Code (NEC)

### **7-16.1(2) Quality Assurance**

#### **7-16.1(2)A Manufacturer's Qualifications**

The manufacturer must have a minimum of five years of experience in design and manufacturing. The surge tank and all related appurtenances shall be supplied by the same manufacturer. The surge tank shall be manufactured in the USA.

#### **7-16.1(2)B Welder's Qualifications**

Tank welders shall be ASME certified.

#### **7-16.1(2)C Warranty**

The tank, compressors, and instrumentation shall carry a warranty of one year from initial operation.

#### **7-16.1(2)D Performance Guarantee**

The manufacturer shall provide a guarantee of performance and workmanship assuring that the system meets the provisions of these specifications. The surge tank system shall ensure that the hydraulic pressure at the pump station shall never be greater than 100 psig or less than 0 psig.

In the event that the test results and/or surge analysis fail to establish the capability of the equipment to meet the performance guarantee, the manufacturer shall upgrade the surge control equipment and systems as necessary and verify their capability to meet the specification requirements at no additional expense to the Owner.

### **7-16.1(3) Submittals**

Submit the following in accordance with Section 1-06 and as specified herein.

1. Dimensional fabrication drawings of surge control system's tank, tank appurtenances, piping, and connections
2. Interior and exterior tank painting systems
3. Technical data and catalogs cuts of surge tank, air compressor, other items as necessary
4. Operation and maintenance manual

5. ASME code calculations
6. Shop Testing: Tank ASME Form U-1A
7. Seismic and anchoring calculations
8. A list of ten (10) Operators with contact names and phone numbers using surge control systems designed and supplied by the Supplier

#### **7-16.2 Materials**

##### **7-16.2(1) Surge Control System Design Criteria**

Surge Control System shall include the following:

1. A standard hydropneumatic tank, equipped with an access manway located on the side of the tank
2. Air compressor package
3. Miscellaneous instruments and valves
4. Piping and wiring

##### **7-16.2(2) Pressure Vessel**

Pressure vessel shall be vertical cylindrical type with elliptical heads constructed of carbon steel SA-516 Gr. 70 material conforming to ASME Code Section VIII, Div. 1, Table UCS-23, and designed for a working pressure of 150 psig at 120 degrees F. Horizontal tanks will not be accepted. The surge control system shall be equipped with a 14-inch x 18-inch minimum access manway with carbon steel removable cover assembly. Vessel housing shall be provided with two lifting lugs and supporting structure consisting of four steel support legs. Pressure vessel shall be ASME Code Stamped.

The surge arrestor shall be anchored to a reinforced concrete foundation with steel supports as detailed on the Drawings and in accordance with the IBC.

Bottom Mounted Flanged Inlet/Outlet Assembly. Pressure vessel shall be provided with a bottom mounted 12-inch flanged inlet/outlet line connection as follows:

1. 150 pound class ANSI flange
2. Distance from the inlet/outlet flange face to the floor level shall be 12" unless otherwise requested by Engineer
3. 316 Stainless Steel NPT connections shall be provided as a part of the pressure vessel for the following items:
  - a. Safety Relief Valve
  - b. Gas precharge, pressure gauge, and bleed nozzle assembly
  - c. 2" Drain

##### **7-16.2(3) Pressure Gauge**

Surge Control System shall be provided with a pressure gauge. Gauge shall be as manufactured by Ashcroft or approved equivalent.

The gauge shall be selected so, under normal operating conditions, the gauge pointer will be approximately vertical and at the midpoint of the scale.

The pressure gauge shall be 4" or 4 ½" dial size with plastic case, flanged, and percent accuracy compliant with ANSI/ASME B40.1 Grade B. An isolation valve shall be mounted between the gauge and the tank to provide for removal of gauge.

#### **7-16.2(4) Surge Control System Equipment**

A sight glass for visual indication of water level in the tank shall be provided. It shall have flanged connections. Two isolation valves shall be installed to allow for removal of the sight glass.

#### **7-16.2(5) Finish Coatings**

The Surge Control System manufacturer shall coat all internal and external surfaces except stainless steel. Surfaces shall be prepared in accordance with Paint Application Specifications of the latest edition of Steel Structures Painting Manual, Steel Structures Painting Council and Section 6-07 of these Special Provisions. The internal and external coating shall be completed at the factory.

The internal surfaces shall be prepared per SSPC-SP5 white metal blast cleaning with a 3.0 mil minimum anchor profile. The interior shall be finished with two coats of 40 MDFT total of Tnemec Series 435 Perma-Glaze.

The external surfaces shall be prepared per SSPC-SP6 and coated with one coat 2.5-3.5 MDFT of Tnemec Series 1 Omnithane. An intermediate coat of Tnemec Series 27WB shall be applied at a thickness of 3.0-5.0 MDFT. A final coat of Tnemec Series 73 Endure Shield shall be applied at a thickness of 3.0-5.0 MDFT.

#### **7-16.2(6) Air Compressor**

The air compressor shall be configured to run manually.

The air compressor package shall include an air-cooled, two-stage, oil lubricated reciprocating type air compressor mounted on one air receiver. The air compressor shall be the standard product of a manufacturer such as Ingersoll-Rand or approved equal, who is regularly engaged in the design and construction of air compressor systems.

A Totally Enclosed Fan Cooled (TEFC) motor shall drive the compressor and shall be adequate to drive the compressor continuously at full-rated output. Motor shall be at least 2 hp and capable of producing pressures of 125 psi and a flow rate of 6.8 ACFM. Power supply shall be 230/460 volts, 3 phase and 60 hertz.

Compressor unit shall include a totally enclosed cast iron crankcase, radial finned cast iron cylinders, matched balanced pistons, separately removable valve housing, low oil switch and a direct reading pressure gauge. The low oil switch shall shut down the compressor if the oil level is too low. The switch shall not reset without oil being added.

The control panel shall be provided with a power on light, on-off switch, run light, motor thermal overload alarm light and low oil level alarm light. The panel shall contain combination magnetic motor starter and circuit breaker for the air compressor.

The compressor shall be shutdown by motor thermal overload, or low oil level. An alarm condition shall energize a local alarm light.

The air receiver tank shall have a minimum capacity of 80-gallons.

The air compressor package shall be powder coated in the factory with urethane polyester or polyester TGIC thermosetting powders. Thickness shall be 1.5-2.0 MDFT or as recommended by the coating manufacturer. Coatings shall be smooth and uniform in appearance, with no blisters or pinholes.

#### **7-16.2(7) Gaskets**

All gaskets shall be butyl rubber. Spare gasket shall be furnished for all gasketed openings.

#### **7-16.2(8) Physical Data**

Dimensions of the Surge Control System shall be as follows:

1. Nominal volume shall be minimum 750 gallons.
2. Surge Control System shall not exceed 60 inches in diameter and 101 inches in vertical height as shown on the Drawings.

3. Design pressure: 150 psig.
4. Design temperature: 120 degrees F.

**7-16.3 Construction Requirements**

**7-16.3(1) Manufacturer**

Subject to compliance with the Contract Documents, the hydropneumatic surge control system shall be as designed and manufactured by PULSCO, AA Tanks, or approved equivalent. The air compressor shall be manufactured by Ingersoll-Rand or approved equivalent.

**7-16.3(2) Installation**

The surge control system shall be installed according to the plans and manufacturers instructions. Anchorage of the tank shall be in compliance with the IBC. Plumbing shall be in compliance with the UPC. Electrical shall be in compliance with the NEC.

**7-16.3(3) Manufacturer’s Representative**

The Surge Control System supplier shall furnish a qualified technical representative to provide installation, start-up assistance, and training of Owner’s personnel, and to field test and verify the system’s performance.

**7-16.3(4) Field Testing**

Temporary pressure gauges equipped with data loggers shall be located at the surge tank, the transition from HDPE to DI pipe near the intersection of Central Valley Road and Holland Road, and the high point of the system near the intersection of Central Valley Road and Fairgrounds Road. The loggers shall continuously record pressures from the startup of the pumps until a minimum of 2 minutes after the breaker is shut off.

The wet well shall be allowed to fill to the high level, at which point one pump shall be run at full speed. Once the pump is up to speed, the main breaker shall be shut off to simulate a power outage. If the data loggers do not read any pressures outside of the allowable range and if there is no damage to the force main, appurtenances, or surge control system, the test will be considered successful. Contractor shall provide copies to the Engineer of the test results at all three locations. The allowable ranges of pressures are as follows:

Allowable Pressure Ranges – Single Pump Test Scenario

Location	Minimum Reading	Maximum Reading
Surge Tank	25 psi	60 psi
Central Valley Road/ Holland Road	15 psi	35 psi
Central Valley Road/Fairgrounds Road	-5 psi	10 psi

Upon successful test, the system shall be tested using the same procedure and failure criteria outlined above but with both pumps running at full speed. Allowable ranges of pressures under the two-pump test scenario are as follows:

Allowable Pressure Ranges – Two Pump Test Scenario

Location	Minimum Reading	Maximum Reading
Surge Tank	30 psi	65 psi
Central Valley Road/ Holland Road	10 psi	40 psi
Central Valley Road/Fairgrounds Road	-10 psi	15 psi

Any damage to the existing ductile iron pipe in Central Valley Road north of Holland Road as a result of the surge tests shall not be considered the fault of the Contractor. The Owner may however elect to have the Contractor assist in the repair of the ductile iron pipe at the Owner’s expense.

Any damage to the newly installed force main, appurtenances or surge control system as a result of the surge test shall be repaired at no cost to the Owner.

**7-16.4 Measurement**

No unit of measurement shall apply to the lump sum price for the Lift Station 34 surge tank system.

**7-16.5 Payment**

Payment will be made in accordance with Section 1-04.1 for the following Bid items:

Lift Station 34 Surge Tank System	Per Lump Sum
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Payment for "Lift Station 34 Surge Tank System" shall include furnishing, installing, and testing the Surge Tank System, including the surge tank, air compressor, surge tank foundation, piping, valves, connection to the force main, drain piping and connections, electrical and testing.

**END OF SECTION 7-16**

## **SECTION 7-17            SANITARY SEWERS**

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### **7-17.1            Description**

*Section 7-17.1 is supplemented with the following:  
(Local Agency SP)*

This work shall also address the construction of all drain lines.

The Contractor shall submit the following in accordance with Section 1-06 and as specified herein.

1. Submittal information and data:
2. Manufacturer's information on pipe, fittings and appurtenances
3. Mandrel testing procedure

### **7-17.2            Materials**

*Section 7-17.2 is supplemented with the following:  
(Local Agency SP)*

Gravity sanitary sewer pipe and fittings shall meet the requirements of Section 9-05.12(1) Solid Wall PVC Sanitary Sewer Pipe or Section 9-30.1(5) and 9-30.2(5) Polyvinyl Chloride (PVC) as shown on the Plans.

Gravity drain pipe and fittings shall be Schedule 80 PVC meeting the requirements of Section 9-15.1(2).

### **1-07.17(3)        Temporary Sewage Bypassing (New Section)**

*Section 7-17.3(3) is added as the following:  
(Local Agency SP)*

The Contractor shall provide temporary sewer bypass pumping and piping (or suitable hoses) from existing upstream manholes to existing downstream manholes to facilitate installation of the facilities/improvements. The bypass system shall be comprised of at least two pumps, main power and a backup power system. Pumps shall have automatic start/ stop controls as well as an appropriate monitoring and alarm system. The monitoring and alarm system shall be capable of notifying the Contractor and the Contracting Agency of a system failure 24 hours a day and shall be fully functional during all bypass operations.

In the event of a failure, Contractor shall respond immediately and fix the cause of the problem. Contractor shall be on-call 24 hours a day and be able to respond within 30 minutes at all times during sewer bypassing. The Contractor will be required to demonstrate to the satisfaction of the Contracting Agency that this requirement can be met and that responsible and appropriately trained personnel will be able to deal with emergencies that could arise. The Contractor is encouraged to consider retaining a company or individual(s) that specialize in the operation and maintenance of sewer systems for bypasses that require unattended operation.

Contractor will be responsible for properly operating, protecting, maintaining and servicing the pumping equipment to ensure continuous and uninterrupted operation of the bypass system for the duration of the temporary bypass. Sufficient equipment, parts and materials and fuel shall be maintained onsite at all times. A minimum of 24-hours of fuel shall be maintained on-site during bypass operations. Contractor's personnel shall be knowledgeable and trained on how to operate and maintain the bypass equipment.

Noise levels of equipment shall meet the requirements of Kitsap County and Washington State noise level requirements. Contractor shall make the necessary provisions to control the noise of the temporary pumping equipment such that the noise generated by the equipment complies with Section 1-07.5(5) of the Standard Specifications as modified by these Special Provisions. Depending on the pumping and power supply equipment that is used, meeting these requirements may require the use of sound attenuating enclosures as well as other provisions and measures.

If possible, submersible pumps and existing electrical power supplies should be used in order to minimize engine noise. If engine-driven pumps or engine generators are used, equipment shall be located as far

from residences as possible, but in no cases closer than 50 feet. The Contractor shall anticipate that such equipment may need to be installed in special sound attenuating enclosures. Depending on the situation and subject to the approval of the Contracting Agency, the only possible exception or relaxation of this requirement will be in cases where the bypassing equipment will only be operated: 1) during the work week; 2) during normal working hours and; 3) period of bypass operation will be less than one week. See Section 1-07.5(5).

Before commencement of any bypassing operation, the Contractor shall obtain the Engineer's acceptance of the design, equipment and materials, installation, operation and maintenance. Temporary sewer bypass systems shall be designed by a registered professional engineer in the State of Washington. Engineer shall have demonstrated experience in the design of pumping systems of comparable size and complexity. Contractor shall submit the following information at least ten (10) days prior to beginning bypass operations:

1. Detailed explanation of, and plan and any necessary details showing, the proposed pumping and sewer bypassing system, including sequencing, and assistance required of the Contracting Agency to affect the bypassing plan.
2. Proposed pumping equipment and/or hauling equipment.
3. Engineering analysis and calculations for bypassing system.
4. Detailed explanation of, and plan and any necessary details showing, the proposed means and methods for draining system, including sequencing, and assistance required of the Contracting Agency to affect the draining of the system.

In addition, the Contractor shall take the following precautions and protective measures:

1. Review existing sewer system plans with the Engineer and Contracting Agency
2. Verify the size and location of connecting laterals and side sewers
3. Provide pumps with sufficient capacity and head
4. Provide pumping equipment redundancy and/or standby equipment that can be readily deployed
5. Investigate upstream manholes
6. Check and test pumping equipment and bypass system
7. Provide suitably experienced person(s) and training of personnel (more than one individual) for operation and maintenance of system, including dealing with emergencies
8. Check upstream manhole surcharging after bypassing operations have commenced
9. Properly monitor and maintain system during operation

Influent flow information at the following locations is limited. Therefore the following flow information is approximate.

**Pump Station 5:**

1. Influent average hourly flow varies between approximately 50 and 150 gpm
2. Influent Peak/Maximum hourly flow varies between approximately 200 and 450 gpm
3. Pumping Station Capacity (pump rate) is 500 to 600 gpm

**Pump Station 34:**

1. Influent average hourly flow varies between approximately 25 and 100 gpm
2. Influent peak/maximum hourly flow varies between approximately 150 and 200 gpm
3. Pumping Station Capacity (pump rate) is 900 to 1,000 gpm

The Contractor shall consider the need for, and be prepared to perform certain work during low flow periods which is generally between 12 am and 5 am in order to minimize bypass requirements.

For short term bypassing needs (<4 hours), the Contractor may consider the use of vacuum and/or tanker trucks. The Contractor is cautioned that this approach is usually only suitable for relatively low flow, short term situations. If this approach is used, proper pre-planning and coordination with the Contracting Agency will be required.

If Contractor elects to haul the sewage for these short term bypasses, then the Contractor shall provide all pumps, piping, and tanker trucks and be responsible for filling tanker trucks, hauling, and properly disposing of sewage. The Contractor shall schedule and conduct his/her work in a manner that will minimize the number of times and length of time that temporary/bypass pumping is required. This method of bypassing the sewage is limited to one-day shifts and shall not be left in operation overnight.

Spills or bypasses of sewage to surface waters or drainage courses are prohibited. In the event sewage spills are caused by the Contractor, the Contractor shall take immediate action to contain the spill, and shall be responsible for cleanup and any consequential damages. The Contracting Agency shall be entitled to take whatever supplemental actions are deemed necessary to stop a spill.

Sewer bypassing shall not cause backup of sewage into residences. Depth of surcharge upstream shall be kept to the minimum necessary. The Contractor will be responsible for repairing any damage to upstream property due to excessive surcharging of the system. All sewer pipes and manholes that were surcharged shall be properly flushed to remove accumulated sewage material at the conclusion of the sewer bypassing.

If damaged, restore bypass areas to pre-existing conditions. Contractor is fully responsible for any damage that may result from an inadequate or improper installation, maintenance or operation, or failure of any kind of the bypass system.

Costs incurred by the Contractor or Contracting Agency, including penalties imposed on the Contracting Agency as a result of any sewage spill caused by the Contractor, its employees, or subcontractors, shall be borne in full by the Contractor, including legal fees and other expenses to the Contractor or Contracting Agency resulting directly or indirectly from the spill

If the system has to be drained to complete the work, such as for a cut-over/connection, Contractor shall provide the necessary temporary pumping and/or storage equipment to drain or remove the sewage from the excavation and/or system.

Operation of the existing pump station facilities, including those operations which may be necessary to facilitate the Contractor's work will be provided by the Contracting Agency.

For minor assistance/operations, the Contractor shall provide a minimum of 3 days advance notice. When major assistance or the Contractor's work needs to be done during the low flow period, which will require coordination of more than one individual, or more than a few hours of one individual of the Contracting Agency's personnel, Contractor shall provide a minimum of 14 days advance notice.

The Contracting Agency will facilitate the connection to the force main by providing and coordinating the necessary manpower, pump station operation, and equipment to provide the Contractor up to four (4) hours of interrupted flow from both Pump Stations 34 and 5 during the low flow period to effect the new connections/tie ins to the existing force main. If sewer bypassing is required for other tie-ins such as for the gravity system improvements, these will be the responsibility of the Contractor.

Operation and performance of routine/normal maintenance of the pump station facilities are the responsibility of the Contracting Agency after:

1. The facilities have undergone and successfully completed all required testing in accordance with the Contract Documents.
2. The facilities are fully functional, operating reliably, properly and complete with respect to all aspects and requirements of the Contract Documents.
3. The Contracting Agency has approved O & M manuals and been properly trained in the operation and maintenance of the facilities.

The Contractor shall not at any time undertake to close off any lines or open valves or take any other action which would or might affect the operation of any part of the Contracting Agency's existing systems

without first discussing it with the Engineer and/or Contracting Agency. Unless permission is specifically granted, the Contracting Agency or responsible utility will open and close valves. Make request a minimum of two (2) working days in advance of the time that interruption of the existing system is required.

**7-17.3(2)A General**

*Section 7-17.3(2)A is supplemented with the following:  
(Local Agency SP)*

Gravity sewer piping and drains shall be flushed with water to remove any material or debris that may have been inadvertently introduced. All water used for cleaning shall be considered as wastewater and shall be removed and disposed of accordingly.

Gravity sewer cleaning shall be conducted by pulling a properly sized "go-no-go" ball/pig through the completed pipeline. Cleaning shall be conducted on a manhole to manhole or individual pipe sections basis. Cleaning shall be witnessed by the Contracting Agency's Representative. Contractor shall notify the Contracting Agency's Representative at least two days prior to cleaning.

Sanitary sewer shall be tested using the low pressure air test specified in Section 7-17.3(2)F. Low pressure air tests shall be performed after the sewers have been cleaned.

**7-17.3(2)H TV Inspection**

*Section 7-17.3(2)H is supplemented with the following:  
(Local Agency SP)*

Following the air testing, the Contracting Agency reserves the right to inspect the pipe using a TV camera and laser measuring equipment. The Contracting Agency will be responsible for this inspection. The costs incurred in making the initial inspection shall be borne by the Contracting Agency. The Contractor shall allow two days for this inspection to be made.

Any departure from that normally achieved with good construction practices such as pipeline misalignment (vertical or horizontal) will be deemed a deficiency. Pipe shall be excavated and the bedding and backfill re-compacted and replaced as necessary. The maximum allowable pipe deflection will be five (5.0) percent (in either horizontal or vertical). The pipe's internal diameter will be based on the inside dimensions and reasonable tolerances obtained from the pipe manufacturer. Pipe that is misaligned or exceeds the allowable deflection shall be excavated and the bedding and backfill re-compacted and replaced as necessary. The Contractor will bear the cost of correction such deficiencies as well as the TV inspection that is required to verify that the deficiency has been corrected.

**7-17.4 Measurement**

*Section 7-17.4 is deleted and replaced with the following:  
(Local Agency SP)*

The length of gravity sewer pipe measured for payment will be the linear feet of pipe as measured horizontally along the ground surface between the center of manholes to the nearest foot.

Trench excavation, bedding and backfill will be measured in accordance with Section 7-08.4.

No separate measurement will be made for cleaning and testing of sewer pipe.

No measurement will be made for drain piping.

**7-17.5 Payment**

*Section 7-17.5 is deleted and replaced with the following:  
(Local Agency SP)*

Payment will be made in accordance with Section 1-04.1 for the following bid items:

15-Inch Diam. PVC SDR 35 Gravity Sewer Main (Depth to I.E. < 12.0 feet)	Per Ton
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15-Inch Diam. PVC SDR 35 Gravity Sewer Main (Depth to I.E. = 12.0 feet to 16.0 feet)	Per Lineal Foot
16 Inch Diam. PVC C905 Gravity Sewer Main (Depth to I.E. > 16.0 feet)	Per Lineal Foot
8-Inch Diam. PVC SDR 35 Gravity Sewer Main (Depth to I.E. < 12.0 feet)	Per Lineal Foot
8-Inch Diam. PVC SDR 35 Gravity Sewer Main (Depth to I.E. = 12.0 feet to 16.0 feet)	Per Lineal Foot
8-Inch Diam. PVC C900 Gravity Sewer Main (Depth to I.E. > 16.0 feet)	Per Lineal Foot
6-Inch Diam. PVC SDR 35 Gravity Sewer Main	Per Lineal Foot

Payment for “\_\_\_\_\_ In Diam PVC SDR 35 Gravity Sewer Main (Depth to I.E. < 12.0 feet)” shall include all work associated with pipe where the depth from the invert of the pipe to the ground surface is less than 12.0 feet and shall include trench excavation, dewatering with sumps and pumps, preparing the trench foundation, furnishing, laying and joining the pipe, placing and compacting the bedding material and trench backfill, as well as cleaning and testing the pipe. The unit price shall also include the cost of any concrete cut-off collars, tracer wire, utility marker tape, maintenance and restoration of existing utilities impacted by construction, and daily cleanup around the worksite.

Payment for “\_\_\_\_\_ In Diam PVC SDR 35 Gravity Sewer Main (Depth to I.E. = 12.0 feet to 16.0 feet)” shall include all work associated with pipe where the depth from the invert of the pipe to the ground surface is between 12.0 feet and 16.0 feet and shall include trench excavation, dewatering with sumps and pumps, preparing the trench foundation, furnishing, laying and joining the pipe, placing and compacting the bedding material and trench backfill, as well as cleaning and testing the pipe. The unit price shall also include the cost of any concrete cut-off collars, tracer wire, utility marker tape, maintenance and restoration of existing utilities impacted by construction, and daily cleanup around the worksite.

Payment for “\_\_\_\_\_ In Diam PVC C900 (or C905) Gravity Sewer Main (Depth to I.E. > 16.0 feet)” shall include all work associated with pipe where the depth from the invert of the pipe to the ground surface is greater than 16.0 feet and shall include trench excavation, dewatering with sumps and pumps, preparing the trench foundation, furnishing, laying and joining the pipe, placing and compacting the bedding material and trench backfill, as well as cleaning and testing the pipe. The unit price shall also include the cost of any concrete cut-off collars, tracer wire, utility marker tape, maintenance and restoration of existing utilities impacted by construction, and daily cleanup around the worksite.

For the purpose of estimating progress payments, the work covered by this item will be broken down as follows.

- |   |     |
|---|-----|
| 1. Pipe bedded, buried and backfilled to grade: | 85% |
| 2. Pipelines cleaned and ready for testing:     | 5%  |
| 3. Successfully tested lines:                   | 10% |

Piping paid for under other bid items, such as connections, shall not be paid under this item.

No specific pay item is made for cleaning and testing. All costs for cleaning and testing will be considered incidental to the construction and shall be included in the costs of the other associated items of work.

No specific pay item is made for drain piping. All costs for drain piping will be considered incidental to the construction and shall be included in the costs of the other associated items of work.

**END OF SECTION 7-17**

## **SECTION 8-01            EROSION CONTROL AND WATER POLLUTION CONTROL**

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### **8-01.3(1)A        Submittals**

*Section 8-01.3(1)A is supplemented with the following  
(Local Agency SP)*

Submittals shall be in accordance with Section 1-06 and as specified herein. The Owner has prepared a Storm Water Pollution and Prevention Plan (SWPPP), which was used to obtain the Department of Ecology NPDES and State Waste Discharge General Permit for Stormwater Discharges Associated with Construction Activities (General Permit). The Contractor shall update this document as necessary during the course of his work.

The Contractor shall prepare and submit a temporary erosion and sedimentation control (TESC) plan based on the SWPPP, requirements in the General Permit, and the Drawings. TESC plan shall be prepared by a qualified, registered Washington Engineer. Engineer shall have prepared TESC plans for at least three (3) pipeline, development or earthwork type projects with a construction cost of \$1,000,000 or greater and that had similar aspects of construction and requirements. Qualifications of TESC engineer shall be submitted for approval before the TESC plan is prepared.

Submit data for all materials showing compliance with the specifications. If requested, submit material samples.

The Department of Ecology's most current Stormwater Management Manual for Western Washington as well as the County's Erosion and Sedimentation Control requirements shall be used as guidance in preparing the TESC plan and in determining and applying the TESC best management practices.

### **8-01.3(1)B        Erosion and Sediment Control (ESC) Lead**

*Section 8-01.3(1)B is supplemented with the following:  
(Local Agency SP)*

Contractor shall have a certified ESC Lead on-site or on-call at all times.

### **8-01.3(1)F        Construction Operations**

*Section 8-01.3(1)F is added as the following:  
(Local Agency SP)*

Temporary erosion and sedimentation control measures shall be in place and functional before land disturbing activities take place.

Construction areas shall be properly protected and stabilized as the construction progresses.

Disturbed slopes along streams or drainage channels shall be protected with erosion control matting or other suitable and approved measures.

Contractor shall maintain drainage conveyance within and downstream of construction areas to properly control drainage and runoff. Contractor shall be responsible for damage caused by lack of, or improper, measures or maintenance.

Properly maintain erosion and sedimentation control measures and facilities so that they will individually and collectively perform and function effectively. The Contractor and Engineer will periodically review and assess the performance and adequacy of the Contractor's TESC measures and facilities. The Contractor shall promptly correct any inadequacies or deficiencies found to exist. Such reviews or lack thereof, shall not relieve the Contractor of responsibility for providing and maintaining proper TESC measures and facilities at all times.

### **8-01.3(2)A        Preparation for Final Application**

*Section 8-01.3(2)A is supplemented with the following:  
(Local Agency SP)*

At the conclusion of the work, and as approved by the Engineer, Contractor shall seed, fertilize and mulch all areas within the project's limits that have been disturbed by the construction activities.

Unwanted or undesirable vegetation in areas to be seeded shall be controlled according to Section 8-02.3(2)B prior to seeding.

Areas requiring seeding that have become compacted due to construction use, such as staging areas and access roads, shall be loosened and cultivated to a minimum depth of 12-inches prior to seeding. With the Engineer's review and approval, the depth of cultivation may be reduced in areas that are in close proximity to existing vegetation that could be damaged.

Areas shall be graded to within 0.10 foot prior to seeding.

Suitable native topsoil that was stripped prior to construction, as required by Section 2-01, shall be evenly spread and distributed in the same general areas from which it originated to the extent possible as directed by the Engineer.

For those areas shown on the plans where imported topsoil is to be placed, topsoil shall be placed as shown on the plans and specified in Section 8-02. Imported topsoil shall be a two way soil mix blended with compost. Topsoil shall be well combined, free of weeds, rocks, debris, and other deleterious materials that will not pass through a 7/16 inch sieve.

Composted organic mulch shall be an aged, well decomposed, dark, high organic/humus-like material with a fine texture meeting the following requirements:

1. pH range between 6.0 and 8.5
2. Foreign material no more than 1% on a dry weight or volume basis, whichever is least.
3. Meets Grade AA compost
4. Minimum organic matter is 30% on a dry weight basis
5. Soluble salt content less than 4.0 mmhos/cm
6. Compost score of 5 or higher on the Solvita compost maturity
7. Comprised of 85-94% recycled yard waste, 5-10% preconsumer food waste and 1-5% wood waste.

Two way soil mix shall be a mixture of 50% composted organic mulch and 50% sand, sandy loam or silty sand high in organic content. Mix shall not contain fresh sawdust or other fresh wood by products.

### **8-01.3(2)B Seeding and Fertilizing**

*Section 8-01.3(2)B is supplemented with the following:  
(Local Agency SP)*

In areas where the Contractor's activities have compromised the erosion control functions of the existing grasses, the Contractor shall overseed these areas at no additional cost to the Contracting Agency.

Grass seed of the following composition, proportion and quality shall be applied at the rates shown in the table below (Wetland Mix). Seed shall be as specified in Section 9-14.2. Seed shall be certified weed free which indicates there are no noxious or nuisance weeds in the seed.

Kind and Variety of Seed in Mixture	Percentage Pure Live Seed
Blue Wildrye	46
Native Red Fescue	38
Tufted Hairgrass	12
Western Mannagrass	2
American Sloughgrass	2

Seed shall be applied at a rate of 200 pounds per acre.

Fertilizer shall be as specified in Section 9-14.3. Fertilizer shall be 10-10-20 with urea-form and FTE applied at the rate of 400 pounds per acre.

Seed, fertilizer and mulch shall be applied by Method 1, hydroseeding.

Areas subsequently disturbed by the contractor's operations shall be reseeded at no additional cost to the Contracting Agency.

**8-01.3(2)D Mulching**

*Section 8-01.3(2)D is supplemented with the following:  
(Local Agency SP)*

Mulch and amendments shall be as specified in Section 9-14.4.

Seed shall be blended with mulch.

Mulch shall be wood cellulose fiber. Wood cellulose shall be applied with a soil binder and stabilizing emulsion. Guar gum, or approved equal, shall be used as the soil binder. Stabilizing emulsion shall be Marloc as manufactured by Reclamare Co. or approved equal. Wood cellulose fiber shall be applied at a rate of 200 pounds per acre. Hydro-mulch slurry shall be applied at a rate of 2,000 pounds per acre.

**8-01.3(9)C Straw Bale Barrier**

*Section 8-01.3(9)C is supplemented with the following:  
(Local Agency SP)*

Straw bales shall be twine tied. Each bale shall be secured with a minimum of two stakes. The first stake shall be angled toward previously installed bale to keep the ends tight against each other. Straw shall be free of noxious weeds and reed canary grass seed.

**8-01.3(9)D Inlet Protection**

*The fourth paragraph of Section 8-01.3(9)D is supplemented with the following:  
(Local Agency SP)*

Straps shall be provided to assist in removal of and cleaning of the inserts. All inserts shall have a 0.5 CF minimum storage capacity. An overflow shall be provided to prevent flooding in case the insert is clogged. Inserts shall be cleaned and maintained regularly per the manufacturer's recommendations.

**8-01.4 Measurement**

*Section 8-01.4 is deleted and replaced with the following:  
(Local Agency SP)*

Topsoil (imported) shall be measured per ton as verified by a certified weight ticket. All weight tickets shall be given to the Engineer at the time of delivery.

Silt fencing will be measured by linear foot along the ground line of completed fence to the nearest foot.

No unit of measurement shall apply to the lump sum price for temporary erosion and sediment control.

Seed, Fertilizer and Mulch shall be measured by the square yard.

**8-01.5 Payment**

*Section 8-01.5 is deleted and replaced with the following:  
(Local Agency SP)*

Payment will be made in accordance with Section 1-04.1 for the following Bid items:

Topsoil	Per Ton
Silt Fence	Per Lineal Foot
Temporary Erosion and Sediment Control	Per Lump Sum

Seed, Fertilizer, and Mulch	Per Square Yard
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Payment for "Top Soil" shall include furnishing, placing, and compacting topsoil as required.

Payment for "Silt Fence" shall include furnishing, installing, maintaining, and removing silt fence as required to prevent silt laden runoff from leaving the project site.

Payment for "Seed, Fertilizer, and Mulch shall include furnishing and placing seed, fertilizer, and mulch as required as well as watering all seeded areas as needed until seed has become established.

Payment for "Temporary Erosion and Sediment Control" shall include preparing the TESC plan, furnishing, installing, maintaining, and removing the TESC measures as appropriate and required. This bid item shall include but not be limited to sediment ponds, flow spreading and other water control or treatment features and measures, covering exposed earthen material with plastic sheeting or straw mulch, straw bales, catch basin inserts, erosion control blankets or plastic sheeting on exposed slopes, rock check dams, soil binders/tacking agents, and other erosion control requirements in accordance with the Contract Documents.

**END OF SECTION 8-01**

**SECTION 8-22 PAVEMENT MARKINGS**

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**8-22.1 Description**

*Section 8-22.1 is supplemented with the following:  
(Local Agency SP)*

Contractor shall remove and replace all striping disturbed by the Contractor's operations. Preconstruction photos shall be used to assist with determining the location of the striping.

**8-22.3(1) Preliminary Spotting**

*Section 8-22.3(1) is revised to read as follows:  
(Local Agency SP)*

The Contractor will provide preliminary spotting of the lines before marking begins. Approval by the Engineer is required before marking begins. Preliminary spotting to guide the striping machine is required for all longitudinal lines except where a clearly visible separation is present. Preliminary spotting shall be provided at a spacing of 100-feet maximum on tangents and 25 feet maximum on curves. The color of the material used for spotting shall match the color of the permanent marking.

**8-22.4 Measurement**

*Section 8-22.4 is deleted and replaced with the following:  
(Local Agency SP)*

No unit of measurement shall apply to the lump sum price for the "Pavement Striping".

**8-22.5 Payment**

*Section 8-22.5 is deleted and replaced with the following:  
(Local Agency SP)*

Payment will be made in accordance with Section 1-04.1 for the following bid items:

Pavement Striping	Per Lump Sum
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Payment for pavement striping shall include removing the existing striping as required, cleaning the street, laying out the preliminary spotting, furnishing and installing permanent striping as existed prior to construction.

**END OF SECTION 8-22**

## SECTION 9-03 MATERIALS

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### 9-03.8(2) HMA Test Requirements

Section 9-03.8(2) is supplemented with the following:  
(May 25, 2006 APWA GSP)

ESAL's

The number of ESAL's for the design and acceptance of the HMA shall be 3 million to 10 million.

### 9-03.8(7) HMA Tolerances and Adjustments

Section 9-03.8(7) is deleted and replaced with the following  
(May 25, 2006 APWA GSP)

1. Job Mix Formula Tolerances. After the JMF is determined as required in 5-04.3(7)A, the constituents of the mixture at the time of acceptance shall conform to the following tolerances:

Aggregate, percent passing	Non-Statistical Evaluation	Commercial Evaluation
1", ¾", ½", and 3/8" sieves	±6%	±8%
U.S. No. 4 sieve	±6%	±8%
U.S. No. 8 sieve	±6%	±8%
U.S. No. 200 sieve	±2.0%	±3.0%
Asphalt Binder	±0.5%	±0.7%

These tolerance limits constitute the allowable limits as described in Section 1-06.2. The tolerance limit for aggregate shall not exceed the limits of the control points section, except the tolerance limits for sieves designated as 100% passing will be 99-100. The tolerance limits on sieves shall only apply to sieves with control points.

**END SECTION 9-03**