

**CITY OF SNOHOMISH
WASHINGTON**

**SPECIFICATIONS, PROPOSAL AND
CONTRACT DOCUMENTS**

FOR

2014 STORM DRAINAGE IMPROVEMENT PROJECT

**3RD STREET AND AVENUE D
PARK AVENUE SOUTH OF 19TH STREET**

**ISSUED FOR BID
MAY 2014**

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*** DOCUMENTS TO BE TURNED IN WITH BID**

**CITY OF SNOHOMISH
2014 STORM DRAINAGE IMPROVEMENTS PROJECT
NOTICE OF CALL FOR BIDS**

NOTICE IS HEREBY GIVEN, that sealed bids shall be received and recorded by the City Clerk at City Hall, 116 Union Avenue, Snohomish, WA 98290, until 2:30 PM, Pacific Coast Time, Friday, June 13, 2014, and then publicly opened and read aloud. Bids for this project are being solicited through the small works roster process.

The work to be performed under this contract provides for construction of storm drainage pipe with associated utility upgrades among two separate sites as shown on the project plans and specified in these technical provisions for the City of Snohomish, Snohomish County, Washington.

Project Title: City of Snohomish 2014 Storm Drainage Improvements Project

Engineer's Estimate Range: Schedule No. 1: \$25,000 - \$35,000
Schedule No. 2: \$75,000 - \$100,000

Informational copies of any available maps, plans and specifications are on file for inspection in the office of the City of Snohomish Public Works Engineering Department (360-282-3196) or on the City's website www.snohomish.wa.gov.

All bid proposals shall be accompanied by a bid proposal deposit in cash, certified check, cashier's check or surety bond in an amount equal to five percent (5%) of the grand total amount of such bid proposal. NO BID SHALL BE CONSIDERED UNLESS ACCOMPANIED BY SUCH BID PROPOSAL DEPOSIT. If the successful bidder does not enter into a contract and file a performance and payment bond and the required insurance certificates, with the City of Snohomish within ten (10) working days after Notice of Award of Bid, the amount of the bid deposit shall be forfeited to the City of Snohomish. Unsuccessful bidders' deposits will be returned upon City's execution of contract documents or rejection of all bids.

A one hundred percent (100%) Contractor's Performance and Payment Bond is required. The bond must be delivered to the Snohomish City Clerk within ten (10) working days after notification of the award to the successful bidder. The Bond must be approved by City officials before the contract award is final.

A Contract is required and must be executed and returned to the City of Snohomish within ten (10) working days after notification of award. Approval of the contract by City officials is required before the contract award is final.

A certificate of liability insurance with \$1,000,000 single event and \$3,000,000 aggregate limits for this project must be furnished to the City of Snohomish within ten (10) working days after Notice of Award of Bid. This insurance certificate shall also specifically name the City of

Snohomish as an additional insured. The successful bidder may not commence work under this contract until all required insurance coverage has been approved by the City.

The City of Snohomish reserves the right to reject any or all bids, and to waive irregularities or informalities in the bid or in the opening. The City of Snohomish reserves the right to delete portions of the work.

No bidder may withdraw his bid after the hour set for the opening thereof, or before award of contract, unless said award is delayed for a period exceeding sixty (60) calendar days.

The bidder further agrees to begin work within ten (10) working days after Notice to Proceed has been issued by the City of Snohomish. The Contractor has thirty (30) working days to complete the construction of the project. Payment of liquidated damages will be made by the Contractor to the City in the amount specified in the Contract if the construction work is not physically completed within the allotted working days, in accordance with Section 1-08.9 of the Standard Specifications.

Bid package and technical related questions can be directed to Max Selin, P.E., Project Engineer, at (360) 282-3196.

Dated this 27th day of May, 2014

City of Snohomish, Washington

BY:

Torchie Corey, City Clerk

INFORMATION FOR BIDDERS

BIDS will be received by the CITY OF SNOHOMISH (herein called the "OWNER") at the time and location set forth in the Call for Bids herein before and then at said office publicly opened and read aloud.

Each BID must be submitted in a sealed envelope addressed to the CITY OF SNOHOMISH, ATTN: CITY CLERK, 116 Union Ave., Snohomish, WA, 98290. Each sealed envelope containing a BID must be plainly marked on the outside as BID for **CITY OF SNOHOMISH 2014 STORMWATER IMPROVEMENT PROJECT**. The envelope should bear on the outside the name of the BIDDER, his address, his license number if applicable, and the name of the project for which the BID is submitted. If forwarded by mail, the sealed envelope containing the BID must be enclosed in another envelope addressed to the OWNER at the above address.

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

The OWNER may waive any informalities or minor defects or reject any and all BIDS. Any BID may be withdrawn prior to the above scheduled time for the opening of BIDS or authorized postponement thereof. Any BID received after the time and date specified shall not be considered. No BIDDER may withdraw a BID within sixty (60) days after the actual date of the opening thereof.

Before submitting its proposal, the BIDDER shall examine the site of the work and review the drawings and specifications including ADDENDA and ascertain for themselves the work required and all of the physical conditions in relation thereto. Failure to take this precaution will not release the successful BIDDER from entering into contracts nor excuse the BIDDER from performing the work in strict accordance with the terms of the contract. No verbal statement made by any officer, agent, or employee of the OWNER, in relation to the physical conditions pertaining to the site of the work, will be binding on the OWNER during the gathering of information for proposal preparation by each BIDDER. After BIDS have been submitted, the BIDDER shall not assert that there was a misunderstanding concerning the quantities of WORK or of the nature of the WORK to be done.

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

Each BID must be accompanied by a BID deposit payable to the OWNER for five percent (5%) of the total amount of the BID. As soon as the BID prices have been compared, the OWNER will return the deposits of all except the three lowest responsible BIDDERS. When the Agreement is executed, the deposits of the remaining unsuccessful BIDDERS will be returned.

The party to whom the contract is awarded will be required to execute the Agreement and obtain the performance and payment bond within ten calendar days after the date on the NOTICE OF AWARD. The performance and payment bond in the amount of 100 percent of the CONTRACT PRICE, with a corporate surety approved by the OWNER, will be required for the faithful performance of the contract. The NOTICE OF AWARD shall be accompanied by the necessary Agreement and bond forms. In case of failure of the BIDDER to execute the Agreement, the OWNER may at his option consider the BIDDER in default; in which case the BID deposit accompanying the bid shall become the property of the OWNER.

The OWNER, within 10 days of receipt of acceptable bond and Agreement signed by the party to whom the Agreement was awarded, shall sign the Agreement within such period.

CONTRACTOR shall not commence work until a NOTICE TO PROCEED has been issued by the OWNER.

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

A conditional or qualified BID will not be accepted.

The project is divided among two separate Schedules. Award will be made as a whole to one BIDDER however; the City reserves the right to award one, all, none or any combination of the Schedules thereof that best serves the interest of the City.

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

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

The low BIDDER must supply the names and addresses of major material suppliers and subcontractors when requested to do so by the OWNER.

The City of Snohomish reserves the right to delete portions of the work.

Bid Package and technical related questions can be directed to the Project Engineer, Max Selin, PE, at (360) 282-3196.

CITY OF SNOHOMISH - BID PROPOSAL

TO: City of Snohomish
Attn: City Clerk
116 Union Avenue
Snohomish, WA 98290

The bidder declares that he or she has carefully examined the contract documents for the project; that he or she has personally visited the sites; that he or she has satisfied himself or herself as to the quantities of work involved, including materials and the equipment and conditions of work involved, surveying necessary for the project, and including the fact that the description of the quantities of work and materials as included herein, is brief and intended only to indicate the general nature of the work and to identify the said quantities with the detailed requirements of the contract documents and that this proposal is made according to the contract documents, which are hereby made a part of this proposal. The City of Snohomish reserves the right to delete portions of the work.

The bidder declares that he or she has exercised his or her own judgment regarding the interpretations of the specifications contained within the construction documents and has utilized all data that he or she believes pertinent in arriving at his or her conclusions.

The bidder agrees to hold his or her bid proposal open for sixty (60) days after the receipt of bids by the City.

The bidder agrees that if this proposal is accepted, he or she will, within ten (10) working days after notification of acceptance, execute a contract in the form included in the construction documents with the City of Snohomish, and will, prior to the time of execution of the contract, deliver to the City of Snohomish a performance and payment bond and a Certificate of Insurance and as required therein, and will, furnish all machinery, tools, apparatus, and other means of construction, and do the work in the manner, in the time, and according to the methods specified in the contract documents.

The bidder understands that the project is divided among two separate Schedules. Award will be made as a whole to one BIDDER however; the City reserves the right to award one, all, none or any combination of the Schedules thereof that best serves the interest of the City.

The bidder further agrees, if awarded the contract, to begin work within ten (10) working days after the date of notice to proceed and to complete the construction within thirty (30) working days as described in Section 1-08.5 in the Special Provisions included herein.

In the event the bidder is awarded the contract and shall fail to complete the work within the time limit or extended time limit agreed upon as more particularly set forth in the contract documents, liquidated damages shall be paid to the owner per the specifications contained in the contract documents.

The bidder proposes to accept as full payment for the work proposed herein the amount computed under the provisions of the contract documents. This amount shall be based on actual quantities of material placed and work performed. Bidder agrees that the unit prices represent a true measure of the labor and material required to perform the work, including all allowances for overhead and profit for each type of work called for in these contract documents.

**BID PROPOSAL
SCHEDULE NO. 1 – 3rd STREET AND AVENUE D
CITY OF SNOHOMISH
2014 STORM DRAINAGE IMPROVEMENTS PROJECT
NOTICE OF CALL FOR BIDS**

Note: Unit prices for all items, all extensions, and the total amount bid must be shown. Where conflict occurs between the unit price and the total amount named for any item the unit price shall prevail, and totals shall be corrected to conform thereto. All entries must be typed or entered in ink.

BID SCHEDULE

ITEM	SPEC NO.	DESCRIPTION	QTY	UNITS	UNIT PRICE	AMOUNT
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PREPARATION

1	1-09	MOBILIZATION	1	LS		
2	1-07	SPCC PLAN	1	LS		
3	2-02	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	1	LS		

GRADING

4	2-03	UNSUITABLE FOUNDATION EXCAVATION INCLUDING HAUL	10	CY		
5	2-03	OVER EXCAVATION INCLUDING HAUL	10	CY		

SURFACING AND PAVEMENT

6	5-04	ASPHALT PATCHING	20	TN		
7	5-04	ASPHALT SAW CUT	150	LF		
8	5-04	ASPHALT REMOVAL	65	SY		
9	4-04	CRUSHED SURFACING TOP COURSE	100	TN		

CONCRETE

10	8-14	CONCRETE SIDEWALK	15	SY		
11	8-14	CONCRETE ADA RAMP TYPE F40.15.02-E	2	EA		
12	8-04	CONCRETE CURB AND GUTTER	100	LF		

UTILITIES

13	7-05	ADJUST CATCH BASIN CASTING	2	EA		
14	7-04	TRENCH SAFETY SYSTEM	1	LS		
15	7-04	12-INCH DI PIPE	30	LF		
16	7-04	EXTEND AND CONNECT 2-INCH PVC SUMP DRAIN TO EXISTING STRUCTURE	15	LF		
17	7-04	6-INCH WRAPPED PERFORATED DRAIN PIPE	20	LF		

TRAFFIC

18	1-10	PROJECT TEMPORARY TRAFFIC CONTROL	1	LS		
19	8-22	PLASTIC STOP LINE	15	LF		

EROSION CONTROL

20	8-01	TESC	1	LS		
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MISCELLANEOUS

21	2-11	TRIMMING AND CLEANUP	1	LS		
22	1-04	MINOR CHANGES	1	F.A.	\$2,500	\$2,500
					Subtotal Bid Items 1-22	
					8.8% WSST	
					Total Bid	

**BID PROPOSAL
SCHEDULE NO. 2 – PARK AVENUE
CITY OF SNOHOMISH
2014 STORM DRAINAGE IMPROVEMENTS PROJECT
NOTICE OF CALL FOR BIDS**

Note: Unit prices for all items, all extensions, and the total amount bid must be shown. Where conflict occurs between the unit price and the total amount named for any item the unit price shall prevail, and totals shall be corrected to conform thereto. All entries must be typed or entered in ink.

BID SCHEDULE

Bid Items Under Rule 171 State Sales Tax

ITEM	SPEC NO.	DESCRIPTION	QTY	UNITS	UNIT PRICE	AMOUNT
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PREPARATION

1	1-09	MOBILIZATION	1	LS		
2	1-05	SURVEYING AND STAKING	1	LS		
3	2-02	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	1	LS		
4	1-07	SPCC PLAN	1	LS		

GRADING

5	2-03	UNSUITABLE FOUNDATION EXCAVATION	10	CY		
6	2-06	OVER EXCAVATION INCLUDING HAUL	10	CY		

SURFACING AND PAVEMENT

7	4-04	CRUSHED SURFACING TOP COURSE	1000	TN		
8	5-04	ASPHALT SAW CUT	250	LF		
9	5-04	ASPHALT REMOVAL INCLUDING HAUL	140	SY		
10	5-04	ASPHALT PATHWAY (3-INCH)	35	TN		
11	5-04	ASPHALT DRIVEWAY REPAIR	45	SY		

UTILITIES

12	7-05	TYPE 1 CATCH BASIN WITH VANED GRATE	2	EA		
13	7-05	48-INCH TYPE 2 CATCH BASIN WITH FRAME AND COVER	2	EA		
14	7-04	12-INCH PVC STORM PIPE	20	LF		
15	7-04	18-INCH PVC STORM PIPE	10	LF		
16	7-04	24-INCH PVC STORM PIPE	160	LF		
17	7-04	24"X12" PVC TEE ASSEMBLY	1	EA		
18	7-04	TRENCH SAFETY SYSTEM	1	LS		
19	7-05	ADJUST EXISTING CATCH BASIN CASTING	2	EA		

CONCRETE

20	8-04	CONCRETE EXTRUDED CURB	220	LF		
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TRAFFIC

21	1-10	PROJECT TEMPORARY TRAFFIC CONTROL	1	LS		
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EROSION CONTROL

22	8-01	TESC	1	LS		
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MISCELLANEOUS

23	2-01	CLEARING AND GRUBBING	1	LS		
24	2-11	TRIMMING AND CLEANUP	1	LS		
25	1-04	MINOR CHANGES	1	F.A.	\$5,000.00	\$5,000.00
					Subtotal Bid Items 1-25	
					8.8% WSST	
					Total Bid	

RECEIPT OF ADDENDA

Receipt of the following Addenda to the Contract Documents is hereby acknowledged

Addendum #	Date of Receipt	Signed Acknowledgement

Note: Failure to acknowledge receipt of the Addenda may be considered an irregularity in the proposal.

BID PROPOSAL SIGNATURE SHEET

The undersigned bids for complete construction of the following project: **2014 Storm Drainage Improvement Project** as described in the contract documents. The bidder proposes to accept as full payment for the work proposed herein; the amount computed under the provisions of the contract documents.

NOTE: The City reserves the right to accept or reject any and all bids as determined by the City.

TOTAL:

Schedule No. 1 Total Bid Including Applicable Tax	\$
Schedule No. 2 Total Bid Including Applicable Tax	\$
Total All Schedules	\$

Contractor (Firm Name)

Signature

Address

Name & Title (printed)

Phone & Fax Number

Date of Signing

Washington State Contractor's
Registration Number

Indicate whether contractor is partnership
corporation, or sole proprietorship

All bid proposals shall be accompanied by a bid proposal deposit in cash, certified check, cashier's check or surety bond in an amount equal to five percent (5%) of the bid proposal. **NO BID SHALL BE CONSIDERED UNLESS ACCOMPANIED BY SUCH BID PROPOSAL DEPOSIT.**

Bid proposal to be submitted in a sealed envelope marked "**BID ENCLOSED**" FOR **2014 Storm Drainage Improvement Project**

WASHINGTON STATE SALES TAX. The work on this contract is to be performed upon lands whose ownership obligates the Contractor to pay sales tax. The provisions of Section 1-07.2(2) apply.

COMPLETION TIME AND LIQUIDATED DAMAGES

It is understood and agreed that all work required to complete this Project and achieve the implied intent of the Plans and Specifications shall be completed within thirty (30) working days. Refer to Section 1-08.5 of the General Requirements.

It is further understood and agreed that the Owner may deduct liquidated damages from payments due or to become due the Contractor in the amount set forth in Section 1-08.9, Liquid Damages, for each working day in beyond the time allowed in the contract, as stipulated in the paragraph above, unless specified otherwise. Such deductions may be made for any delays, which cannot reasonably be shown to be beyond the Contractor's control.

The liquidated damages do not include and are in addition to damages from costs for engineering, administrative, and other costs incurred beyond contract completion date. The cost of additional office and field engineering, construction surveillance, and other costs beyond contract completion date shall be billed the contractor at standard billing rates for said services then in effect.

NON COLLUSION DECLARATION

The undersigned, being duly sworn, deposes and says that the Bid submitted herewith is a genuine and not a collusive or sham bid or made in the interest or on behalf of any person herein named and that the person, firm, association, joint venture, 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 a bid for consideration in the award of a contract for the improvement described on the first page of this Proposal Form.

PREVAILING WAGES

The prevailing rate of wages shall be paid to all workers, laborer, or mechanics per Chapter 39.12 RCW. (See 2012 WSDOT/APWA Standard Specifications).

PROPOSAL FORM (continued)

BID DEPOSIT

A Bid Deposit in an amount of five percent (5%) of the Total Bid Amount(s) based upon the Lump Sum or Bid Schedule approximate quantities at the unit prices including applicable taxes and in the form indicated on the following pages.

Cash _____ IN THE AMOUNT OF \$ _____

Cashier's Check _____ \$ _____

Certified Check _____ \$ _____ Payable to the Owner

Bid Bond _____ IN THE AMOUNT OF 5% OF THE AMOUNT
BID

SURETY

If the Bidder is awarded a construction contract on this Bid, the Surety who provides the Contract Bond will be

_____.

Whose address is _____
Street

City State Zip Code

BIDDER INFORMATION AND SIGNATURE

The party by whom this bid is submitted and by whom the contract will be entered into, in case the award is made to him, is:

Corporation/Partnership/Individual

Firm Name: _____

Doing business at

Address City/State

Which is the address to which all communications concerned with this bid and contract should be sent.

The name of the president, treasurer, and manager of the bidding corporation, or the names of all persons and parties interested in this bid as partners or principals are as follows

<u>Name/Title</u>	<u>Address</u>

IN WITNESS hereto, the undersigned agrees to the conditions of the BID, certifies that this BID has not been restricted, modified or conditioned, acknowledges receipt of addenda ____to ____, attests to the absence of collusion in the Non-Collusion Affidavit below, and agrees to be bound by its provisions, certifies and agrees concerning non-segregated facilities in the Non-Segregated facilities statement below, covenants, stipulates and agrees in accordance with the Anti-Discrimination Certification below, declares, accepts and understands in accordance with the Bidder's Declaration and Understanding below, agrees as to prevailing wages as below, agrees as to Washington State Sales tax as above, understands and agrees as to the completion of time and liquidated damages as below, and with the full authority of the firm or other business entity submitting this BID has set his hand this _____day of _____2014.

If Sole Proprietor or Partnership

Signature of Bidder

Title

If Corporation

Attest:

Name of Corporation

Secretary

By _____

Title _____

Sworn to before me this _____ day of

_____, _____.

Notary Public in and for the State
Of Washington residing at

- NOTE:
1. If the Bidder is a co-partnership, so state, giving the Name under which business is transacted.
 2. If the Bidder is a corporation, this Proposal must be Executed by the duly authorized officials and notarized.

DEPOSIT OR BID BOND FORM

DEPOSIT STATEMENT

Herewith find deposit in the form of certified check, cashier's check or cash in the amount of \$ _____, which amount is not less than five percent of the total bid.

SIGN HERE _____

BID BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____, as Principal,
and _____, as Surety, are
held firmly bound unto the _____, Washington, as
Obligee, in the penal sum of _____ Dollars, for the
payment of which the Principal and the Surety bind themselves, their heirs, executors,
administrators, successors, and assigns, jointly and severally by these presents.

The condition of this obligation is such that if the Obligee shall make any award to the
Principal for

_____,
Washington, according to the terms of the bid made by the Principal therefore, the
Principal shall duly make and enter into a contract with the Obligee in accordance with
the terms of said proposal or bid and award and shall give bond for the faithful
performance thereof, with Surety or Sureties approved by the Obligee, or if the Principal
shall, in case of failure to so do, pay and forfeit to the Obligee the penal amount of the
deposit specified in the call for bids, then this obligation shall be null and void; otherwise,
it shall be and remain in full force and effect, and the Surety shall forthwith pay and
forfeit to the Obligee, as penalty and liquidated damages, the amount of this bond.

SIGNED, SEALED, AND DATED THIS _____ DAY OF _____, _____.

Principal

Surety

Received return of deposit in the sum of \$ _____

ANTI-DISCRIMINATION CERTIFICATE

CITY OF SNOHOMISH
STATE OF WASHINGTON
COUNTY OF SNOHOMISH

The bidder hereby covenants, stipulates and agrees that no person shall be discriminated against in the bidding of the service and/or materials hereunder and that the bidder shall not refuse to hire any person therefore because of such person's race, creed, color or national origin, unless based on a bona fide occupational qualification. Also, the bidder will in no matter discriminate against any person because of such person's race, creed, color or national origin. Any such discrimination shall be deemed a violation of this bid and shall render this bid subject to forfeiture.

Contractor's Signature

Subscribed and sworn to before me this _____ day of _____, 2014.

Notary Public in and for
The State of Washington,
Residing at

My commission expires _____

INDEMNIFICATION ADDENDUM

_____ (hereinafter called Contractor) agrees to defend, indemnify and hold the City of Snohomish (hereinafter called Owner) harmless from any and all claims, demands, losses and liabilities to or by third parties arising from, resulting from or connected with services performed or to be performed under this subcontract by Contractor or contractor's agents or employees to the fullest extent permitted by law and subject to the limitations provided below.

Contractor's duty to indemnify Owner shall not apply to liability for damages arising out of bodily injury to persons or damage to property caused by or resulting from the sole negligence of Owner or Owner's agents or employees.

Contractor's duty to indemnify Owner for liability for damages arising out of bodily injury to persons or damage to property caused by or resulting from the concurrent negligence of (a) Owner's agents or employees, and (b) Contractor or Contractor's agents or employees, shall apply only to the extent of negligence of Contractor or Contractor's agents or employees.

Contractor specifically and expressly waives any immunity that may be granted it under the Washington State Industrial Insurance Act, Title 51 RCW. Further, the indemnification obligation under this subcontract shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable to or for any third party under workers compensation acts, disability benefits acts, or other employee benefits acts; provided Contractor's waiver of immunity by the provisions of this paragraph extends only to claims against Contractor by Owner and does not include, or extend to, any claims by Contractor's employees directly against Contractor.

Contractor's duty to defend, indemnify and hold Owner harmless shall include as to all claims, demands, losses and liability to which is applies, Owner's personnel-related costs, reasonable attorney's fees, court costs and all other claim-related expenses.

THE UNDERSIGNED HEREBY CERTIFY THAT THIS ADDENDUM WAS
MUTUALLY NEGOTIATED.

Dated: _____ Dated: _____

Owner: CITY OF SNOHOMISH

Contractor:

By _____
Signature

By: _____
Signature

Title: _____

Title: _____

CERTIFICATION OF NONSEGREGATED FACILITIES

The bidder certifies that s/he does not maintain or provide for her/his employees any segregated facilities at any of her/his establishments, and that s/he does not permit her/his employees to perform their services at any locations, under her/his control, where segregated facilities are maintained. The bidder certifies further that s/he will not maintain or provide for her/his employees any segregated facilities at any of her/his establishments, and that s/he will not permit her/his employees to perform their services at any location under her/his control where segregated facilities are maintained. The bidder agrees that a breach of this certification will be a violation of the Equal Opportunity clause on any contract resulting from acceptance of this bid. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms, and washrooms, restaurants, or other eating areas, time clocks, locker rooms or other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact because of habit, local custom or otherwise. The bidder agrees that except where s/he has obtained identical certification from proposed subcontractor prior to the award of subcontracts exceeding \$10,000, which are not exempt from the provisions of the Equal Opportunity clause, that s/he will retain such certifications in her/his files.

NOTE: The penalty for making false statements in offers is prescribed in 18 USC 1001.

Dated: _____, _____
(Name of Bidder)

By _____
Signature

Title _____

Official Address:

(City, State, Zip)

Must be included without alteration.

2014 Storm Drainage Improvement Project**0-01.3(7) SURPLUS MATERIAL DISPOSAL AND/OR REMOVAL**

TYPE OF MATERIAL TO BE REMOVED FROM SITE	LOCATION OF STORAGE AND/OR DISPOSAL SITE (include name and phone number of owner and address of site)	PROPOSED METHOD OF DISPOSAL AND/OR REUSE

Note: Please refer to “Disposal of Surplus Material” in Section 2-03.3(7) of the Standard Specifications.

If a disposal site is rejected, the Contractor is responsible for locating a new disposal site that will meet the Owner’s criteria. Any associated costs incurred in finding a new or different disposal and/or storage site will be the responsibility of the Contractor and at no additional cost to the Owner.

CONTRACT

THIS AGREEMENT, made in 3 copies, each of which shall be deemed original, and entered into as of the date hereinafter affixed, by and between CITY OF SNOHOMISH, hereinafter called the Owner, and _____ HEREINAFTER called the Contractor,

WITNESSETH:

That in consideration of the terms and conditions contained herein and attached and made a part of this Agreement, the parties hereto covenant and agree as follows:

I. The Contractor shall do all work and furnish all labor, tools, materials and equipment for the construction of the 2014 Storm Drainage Improvement Project Schedule No. 1 and Schedule No. 2 in accordance with and as described in the attached plans and specifications, including any Addenda which are by this reference incorporated herein and made a part hereof, and shall perform any alterations in or additions to the work provided under this contract and every part thereof.

If said work is not completed within the time specified, the Contractor agrees to pay to the Owner the sum set forth in Section 1-08.9 for each and every calendar day said work remains uncompleted after expiration of the specified time, as liquidated damages. The Contractor shall provide and bear the expense of all equipment, work, and labor of any sort whatsoever that may be required for the transfer of materials and for constructing and completing the work provided for in this contract and every part thereof and shall guarantee said materials and work for a period of one year after completion of this contract, except such as are mentioned in the specifications to be furnished by CITY OF SNOHOMISH.

II. CITY OF SNOHOMISH hereby promises and agrees with the Contractor to employ and does employ the Contractor to provide the materials and to do and cause to be done the above-described work and to complete and finish the same according to the attached plans and specifications and the terms and conditions herein contained and hereby contracts to pay for the same according to the attached specifications and the

schedule of prices bid and hereto attached, at the time and in the manner and upon the conditions provided for in this contract.

III. The Contractor for himself and for his heirs, executors, administrators, successors and assigns does hereby agree to the full performance of all covenants herein contained upon the part of the Contractor.

IV. It is further provided that no liability shall attach to CITY OF SNOHOMISH by reason of entering into this contract, except as expressly provided herein.

V. The CITY OF SNOHOMISH is committed to transparency and accountability in its contracting and expenditures, and obtaining maximum taxpayer value for public works projects. Prior to final acceptance and release of retainage by the CITY OF SNOHOMISH, Contractor shall provide the CITY OF SNOHOMISH with a report listing the names and addresses of the subcontractors and suppliers receiving contract funds from the Project.

VI. This agreement consists of the following documents, all of which are incorporated by reference as if set forth in full herein, and are component parts hereof:

1. Legal, Procedural, Contract Documents and Indemnification Addendum
2. Washington State Legal Requirements (RCW's and WAC's)
3. City of Snohomish Engineering Standards and Specifications
4. Amendments to the Standard Specifications
5. 2014 Standard Specifications (WSDOT/APWA)
6. Special Provisions
7. Contract Drawings (Plans)

Countersigned:

This _____ day of _____, _____.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed the day and year first herein above written.

CITY OF SNOHOMISH (Owner)

By _____
Larry Bauman, City Manager

Approved as to form

By _____
Grant Weed, City Attorney

CONTRACTOR

By _____

Address:

Telephone Number:

Fax Number:

Acknowledgement of Waiver of Contractor's Industrial insurance immunity. See
Standard Specifications, 1-07.14. (Initial acknowledgement)

Owner

Contractor

CONTRACT BOND

KNOW ALL MEN BY THESE PRESENTS: That whereas CITY OF SNOHOMISH has awarded to _____, hereinafter designated as the "Principal," a contract for the construction of the Project designated City of Snohomish 2014 Storm Drainage Improvement Project Schedule No. 1 and Schedule No. 2 all as hereto attached and made a part hereof, and whereas said principal is required under the terms of said contract to furnish a bond for the faithful performance of said contract:

NOW, THEREFORE, we the principal and _____

(Surety)

a corporation, organized and existing under and by virtue of the laws of the State of _____, duly authorized to do business in the State of Washington, as surety, are held and firmly bound unto CITY OF SNOHOMISH, a municipal corporation of the State of Washington in the sum of: lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by those presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that if the above-bonded principal, his or its heirs, executors, administrators, successors, or assigns shall in all things stand to and abide by and well and truly keep and perform the covenants, conditions, and agreements in the said contract and shall faithfully perform all the provisions of such contract and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said contract that may hereafter be made, at the time and in the manner therein specified, and shall pay all laborers, mechanics, subcontractors, and material men and all persons who shall supply such person or persons or subcontractors with provisions and supplies for the carrying on of such work on his or their part and shall indemnify and

save harmless CITY OF SNOHOMISH, their officers and agents and shall further save harmless and indemnify said CITY OF SNOHOMISH from any defect or defects in any of the workmanship entering into any part of the work or designated equipment covered by said contract which shall develop or be discovered within one (1) year after the final acceptance of such work, then this obligation shall become null and void; otherwise, it shall remain in full force and effect, provided that the liability hereunder for defects in materials and workmanship for a period of one (1) year after the acceptance of the work shall not exceed the sum of:

And the said surety, for the value received, hereby further stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on the bond, and it does hereby waive notice of any change, extension of time, alterations, or additions to the terms of the contract or the work or to the specifications.

IN WITNESS WHEREOF, the said principal and the said surety have caused this bond and three (3) counterparts thereof to be signed and sealed by their duly authorized officers this _____ day of _____, ____.

Principal

TWO WITNESSES: (If sole proprietor or Partnership)

By _____

ATTEST: (If Corporation)

Corporate Seal

By _____

Title _____

Surety

By _____

Its _____

Address of local office and agent of Surety
Company is: _____

APPROVED AS TO FORM

By _____
Attorney for CITY OF SNOHOMISH

NOTE: THIS QUESTIONNAIRE MUST BE COMPLETED AND ATTACHED TO CERTIFICATE OF INSURANCE.

Insurance Coverage Questionnaire

For:

Project Title: **2014 Storm Drainage Improvement Project**

Project Owner: **CITY OF SNOHOMISH**

Are the following coverage's and/or conditions in effect?

	Yes	No
The Policy form is ISO Commercial General Liability form GC-00 001 or GC 00 02 (Circle ONE). If no, attach a copy of the policy with required coverages clearly identified.		
The Owner, its officials, officers, employees and volunteers are additional insures as Respects (a) activities performed for the Owner by or on behalf of the Named Insured, (b) products and completed operations of the Named Insured, or (c) premises, owned, leased, or used by the Named Insured.		
Products Completed operation coverage.		
Cross Liability clause (or equivalent wording).		
Personal Injury Liability Coverage (with employee exclusion deleted)		
Broad Form Damage with X, C U Hazards included.		
Blanket Contractual Liability coverage applying to this contract or Contractual Liability Coverage applying to this contract		
Employers Liability – Stop Gap		
Written notice of cancellation to the City		

Deductibles

CITY OF SNOHOMISH

**CONTRACTOR'S DECLARATION OF OPTION FOR MANAGEMENT
OF STATUTORY RETAINED PERCENTAGE**

The owner shall withhold the retained percentage for this contract from time-to-time as such retained percentage accrues and in accordance with RCW 60.28.010, 020, and 050.

OPTION A. I hereby elect to have the retained percentage for this contract held in a fund by the owner until thirty (30) days following final acceptance of the work. (No interest will be earned on the retained percentage amount under this election).

CONTRACTOR:

Date: _____

OPTION B. I hereby elect to have the owner deposit the retained percentage for this contract, from time-to-time, as such retained percentage accrues and in accordance with RCW 60.28.010, 020, and 050.

I hereby designate _____
as the depository for said funds which shall be deposited in an interest earning account subject to joint control by owner and the contractor. All interest earned on said deposits shall belong to the contractor. (If contractor fails to designate the depository then the owner designates)

I hereby further agree to be fully responsible for payment of all costs of fees incurred as a result of establishing said depository account and depositing the retained percentage as authorized by statute. The owner shall not be liable in any way for any costs or fees in connection therewith.

CONTRACTOR:

Date: _____

ATTN: FINANCE DEPARTMENT *This form is for selection of retainage option ONLY. **OPTION B** must have a signed Escrow Instruction/Agreement on file prior to processing retainage payment to the bank. Signed Agreement will be secured by the Purchasing Division.*

CITY OF SNOHOMISH

**PUBLIC WORKS PROJECT - RETAINED PERCENTAGE ESCROW
AGREEMENT**

Escrow No. _____

City of Snohomish
116 Union Avenue
Snohomish, WA 98290

Contractor: _____

Address: _____

Project Title: _____

TO: Escrow Bank or Trust Co:

The undersigned, _____, herein referred to as the Contractor, has directed the City of Snohomish to deliver to you its warrants which shall be payable to you and the Contractor jointly. Such warrants are to be held and disposed of by you in accordance with the following instructions and upon the terms and conditions hereinafter set forth.

INSTRUCTIONS

1. Warrants or checks made payable to you and the contractor jointly upon delivery to you shall be endorsed by you and forwarded for collection. The moneys will then be used by you to purchase, as directed by the Contractor, bonds or other securities chosen by the Contractor and approved by the City of Snohomish. Attached is a list of such bonds, or other securities approved by the City of Snohomish. Other bonds or securities, except stocks may be selected by the Contractor, subject to express written approval of the City of Snohomish. Purchase of such bonds or other securities shall be in a form which shall allow you alone to reconvert such bonds or other securities into money if you are required to do so by the City of Snohomish as provided in paragraph 4 of this Escrow Agreement.

2. When and as interest on the securities held by you pursuant to this agreement accrues and is paid, you shall collect such interest and forward it to the Contractor at its address designated below unless otherwise directed by the Contractor.

3. You are not authorized to deliver to the Contractor all or any part of the securities held by you pursuant to this agreement (or any moneys derived from the sale of such securities, or the negotiation of the City of Snohomish's warrants) except in accordance with written instructions from the City of Snohomish. Compliance with such instructions shall relieve you of any further liability related thereto. The estimated completion date on the contract underlying this Escrow Agreement is

4. In the event the City of Snohomish orders you to do so in writing, you shall, within thirty-five (35) days of receipt of such order, reconvert into money the securities held by you pursuant to this agreement and return such money together with any other moneys held by you hereunder, to the City of Snohomish. Written release will be issued by the City Treasurer. For further information contact the City Treasurer at (360) 568-3115.

5. The Contractor agrees to pay you as compensation for your services hereunder as follows:

Payment of all fees shall be the sole responsibility of the Contractor and shall not be deducted from any property placed with you pursuant to this agreement until and unless the City of Snohomish directs the release to the Contractor of the securities and moneys held hereunder whereupon you shall be granted a first lien upon such property released and shall be entitled to reimburse yourself from such property for the entire amount of your fees as provided for herein above. In the event that you are made a party to any litigation with respect to the property held by you hereunder, or in the event that the conditions of this escrow are not promptly fulfilled or that you are required to render any service not provided for in these instructions, or that there is any assignment of the interests of this escrow or any modifications hereof, you shall be entitled to reasonable compensation for such extraordinary services from the Contractor and reimbursement from the Contractor for all costs and expenses, including attorneys fees occasioned by such default, delay, controversy or litigation.

6. This agreement shall not be binding until executed by the Contractor and the City of Snohomish and accepted by you.

7. This instrument contains the entire agreement between you, the Contractor and the City of Snohomish with respect to this escrow and you are not a party to nor bound by any instrument or agreement other than this; you shall not be required to take notice of any default or any other matter nor be bound by nor required to give notice or demand, nor required to take any action whatever except as herein expressly provided; you shall not be liable for any loss or damage not caused by your own negligence or willful misconduct.

8. The foregoing provisions shall be binding upon the assigns, successors, personal representatives and heirs of the parties hereto.

9. The Contractor's Federal Income Tax Identification number is _____.

The undersigned have read and hereby approve the instructions as given above governing the administration of this escrow and do hereby execute this agreement on this _____ day of _____, 2014.

CONTRACTOR

CITY OF SNOHOMISH

Signature

City Manager

Title: _____

ATTEST:

City Clerk

The above escrow instructions received and accepted this _____ day of _____, 2014.

ESCROW BANK OR TRUST CO:

Signature

Title: _____

Securities Authorized by City of Snohomish - Select only one:

1. Bills, certificates, notes or bonds of the United States;
2. Other obligations of the United States or its agencies;
3. Obligations of any corporation wholly-owned by the government of the United States;
4. Indebtedness of the Federal National Mortgage Association; and
5. Time deposits in commercial banks.

PLEASE RETURN THIS SIGNED AGREEMENT TO:

City of Snohomish
Attn: City Treasurer
116 Union Avenue
Snohomish, WA 98290

RETAINAGE RELEASE REQUIREMENTS

The following are the documents required to be on file with the City of Snohomish prior to release of retainage to the Contractor.

No.	Document	Generated by	Contact	Date Received by City
1.	Contractor's Notification to City of Completion of Contract Work	Contractor	City Engineer	
2	Recommendation of Project Acceptance	City / Project Engineer	City Engineer	
3	Final Project Acceptance	City / Council	City Engineer	
4	Intent to Pay Prevailing Wages	Contractor	Dept. of Labor & Industries	
5	Notification of Completion to Department of Revenue	City / City Treasurer	Dept. of Revenue Excise Tax Division	
6	Affidavit of Wages Paid	Contractor	Dept. of Labor & Industries	
7	Certificate of Payment State Excise Tax by Public Works Contractor	State	Dept of Revenue Excise Tax Division	
8	Release Regarding Industrial Insurance	City	City Engineer	
9	Certification of Payment of Contributions	State	Dept. of Employment Security	
10	Receipt for Payment in full or Release of Lien signed by Lien Claimant and filed with City	Contractor	All claims against retainage or payment Bond filed with the City	
11	All warranty documents to include Performance Bond	Contractor	Project Engineer	
12	Contractor's Record Drawings	Contractor	City Engineer	

SECTION I

AMENDMENTS TO THE STANDARD SPECIFICATIONS

1 **INTRO.AP1**

2 **INTRODUCTION**

3 The following Amendments and Special Provisions shall be used in conjunction with the
4 2014 Standard Specifications for Road, Bridge, and Municipal Construction.

5

6

AMENDMENTS TO THE STANDARD SPECIFICATIONS

7

8 The following Amendments to the Standard Specifications are made a part of this contract
9 and supersede any conflicting provisions of the Standard Specifications. For informational
10 purposes, the date following each Amendment title indicates the implementation date of the
11 Amendment or the latest date of revision.

12

13 Each Amendment contains all current revisions to the applicable section of the Standard
14 Specifications and may include references which do not apply to this particular project.

15

16 **1-02.AP1**

17 **Section 1-02, Bid Procedures and Conditions**

18 **April 7, 2014**

19 **1-02.8(1) Noncollusion Declaration**

20 The third paragraph is revised to read:

21

22 Therefore, by including the Non-collusion Declaration as part of the signed bid Proposal,
23 the Bidder is deemed to have certified and agreed to the requirements of the
24 Declaration.

25

26 **1-03.AP1**

27 **Section 1-03, Award and Execution of Contract**

28 **March 3, 2014**

29 **1-03.4 Contract Bond**

30 The last word of item 3 is deleted.

31

32 Item 4 is renumbered to 5.

33

34 The following is inserted after item 3 (after the preceding Amendments are applied):

35

36 4. Be conditioned upon the payment of taxes, increases, and penalties incurred on the
37 project under titles 50, 51, and 82 RCW; and

38

39 **1-04.AP1**

40 **Section 1-04, Scope of the Work**

41 **April 7, 2014**

42 **1-04.4 Changes**

43 In the third paragraph, item number 1 and 2 are revised to read:

44

- a. When the character of the Work as altered differs materially in kind or nature from that involved or included in the original proposed construction; or
- b. When an item of Work, as defined elsewhere in the Contract, is increased in excess of 125 percent or decreased below 75 percent of the original Contract quantity. For the purpose of this Section, an item of Work will be defined as any item that qualifies for adjustment under the provisions of Section 1-04.6.

1-07.AP1

Section 1-07, Legal Relations and Responsibilities to the Public January 6, 2014

1-07.2 State Taxes

This section is revised to read:

The Washington State Department of Revenue has issued special rules on the state sales tax. Sections 1-07.2(1) through 1-07.2(3) are meant to clarify those rules. The Contracting Agency will not adjust its payment if the Contractor bases a Bid on a misunderstood tax liability.

The Contracting Agency may deduct from its payments to the Contractor, retainage or lien the bond, in the amount the Contractor owes the State Department of Revenue, whether the amount owed relates to the Contract in question or not. Any amount so deducted will be paid into the proper State fund on the contractor's behalf. For additional information on tax rates and application refer to applicable RCWs, WACs or the Department of Revenue's website.

1-07.2(1) State Sales Tax: Work Performed on City, County, or Federally-Owned Land

This section including title is revised to read:

1-07.2(1) State Sales Tax: WAC 458-20-171 – Use Tax

For Work designated as Rule 171, **Use Tax**, the Contractor shall include for compensation the amount of any taxes paid in the various unit Bid prices or other Contract amounts. Typically, these taxes are collected on materials incorporated into the project and items such as the purchase or rental of; tools, machinery, equipment, or consumable supplies not integrated into the project.

The Summary of Quantities in the Contract Plans identifies those parts of the project that are subject to **Use Tax** under Section 1-07.2(1).

1-07.2(2) State Sales Tax: Work on State-Owned or Private Land

This section including title is revised to read:

1-07.2(2) State Sales Tax: WAC 458-20-170 – Retail Sales Tax

For Work designated as Rule 170, **Retail Sales Tax**, the Contractor shall collect from the Contracting Agency, **Retail Sales Tax** on the full Contract price. The Contracting Agency will automatically add this **Retail Sales Tax** to each payment to the Contractor and for this reason; the Contractor shall not include the **Retail Sales Tax** in the unit Bid prices or in any other Contract amount. However, the Contracting Agency will not provide additional compensation to the Prime Contractor or Subcontractor for **Retail Sales Taxes** paid by the Contractor in addition to the **Retail Sales Tax** on the total

1 contract amount. Typically, these taxes are collected on items such as the purchase or
2 rental of; tools, machinery, equipment, or consumable supplies not integrated into the
3 project. Such sales taxes shall be included in the unit Bid prices or in any other Contract
4 amounts.

5
6 The Summary of Quantities in the Contract Plans identifies those parts of the project
7 that are subject to **Retail Sales Tax** under Section 1-07.2(2).
8

9 **1-07.2(3) Services**

10 This section is revised to read:

11
12 Any contract wholly for professional or other applicable services is generally not subject
13 to **Retail Sales Tax** and therefore the Contractor shall not collect **Retail Sales Tax** from
14 the Contracting Agency on those Contracts. Any incidental taxes paid as part of
15 providing the services shall be included in the payments under the contract.
16

17 **1-08.AP1**

18 **Section 1-08, Prosecution and Progress**

19 **May 5, 2014**

20 **1-08.1 Subcontracting**

21 The eighth paragraph is revised to read:

22
23 On all projects, the Contractor shall certify to the actual amounts paid to Disadvantaged,
24 Minority, Women's, or Small Business Enterprise firms that were used as
25 Subcontractors, lower tier subcontractors, manufacturers, regular dealers, or service
26 providers on the Contract. This Certification shall be submitted to the Project Engineer
27 on a monthly basis each month between Execution of the Contract and Physical
28 Completion of the contract using the application available at:
29 <https://remoteapps.wsdot.wa.gov/mapsdata/tools/dbeparticipation>. The monthly report is
30 due 20 calendar days following the end of the month. A monthly report shall be
31 submitted for every month between Execution of the Contract and Physical Completion
32 regardless of whether payments were made or work occurred.
33

34 The ninth paragraph is deleted.

35

36 **1-10.AP1**

37 **Section 1-10, Temporary Traffic Control**

38 **April 7, 2014**

39 **1-10.1(1) Materials**

40 The following material reference is deleted from this section:

41

42 Barrier Drums 9-35.8

43

44 **1-10.1(2) Description**

45 The first paragraph is revised to read:

1
2 The Contractor shall provide flaggers, and all other personnel required for labor for
3 traffic control activities and not otherwise specified as being furnished by the
4 Contracting Agency.
5

6 **1-10.2(1) General**

7 In the third paragraph, the first two sentences are revised to read:
8

9 The primary and alternate TCS shall be certified by one of the organizations listed in the
10 Special Provisions. Possession of a current Washington State TCS card and flagging
11 card by the primary and alternate TCS is mandatory.
12

13 **1-10.2(1)B Traffic Control Supervisor**

14 The first paragraph is revised to read:
15

16 A Traffic Control Supervisor (TCS) shall be present on the project whenever flagging or
17 other traffic control labor is being utilized or less frequently, as authorized by the
18 Engineer.
19

20 The last paragraph is revised to read:
21

22 The TCS may perform the Work described in Section 1-10.3(1)A Flaggers or in Section
23 1-10.3(1)B Other Traffic Control Labor and be compensated under those Bid items,
24 provided that the duties of the TCS are accomplished.
25

26 **1-10.2(2) Traffic Control Plans**

27 The first paragraph is revised to read:
28

29 The traffic control plan or plans appearing in the Contract documents show a method of
30 handling vehicle, bicycle, and pedestrian traffic. All construction signs, flaggers, and
31 other traffic control devices are shown on the traffic control plan(s) except for
32 emergency situations. If the Contractor proposes adding the use of flaggers to a plan,
33 this will constitute a modification requiring approval by the Engineer. The modified plans
34 shall show locations for all the required advance warning signs and a safe, protected
35 location for the flagging station. If flagging is to be performed during hours of darkness,
36 the plan shall include appropriate illumination for the flagging station.
37

38 In the second paragraph, the second sentence is revised to read:
39

40 Any Contractor-proposed modification, supplement or replacement shall show the
41 necessary construction signs, flaggers, and other traffic control devices required to
42 support the Work.
43

44 **1-10.3(1) Traffic Control Labor**

45 The first paragraph is revised to read:
46

47 The Contractor shall furnish all personnel for flagging, for the execution of all
48 procedures related to temporary traffic control and for the setup, maintenance and
49 removal of all temporary traffic control devices and construction signs necessary to
50 control vehicular, bicycle, and pedestrian traffic during construction operations.
51

1 **1-10.3(1)A Flaggers and Spotters**

2 This section's title is revised to read:

3

4 **Flaggers**

5

6 The first paragraph is revised to read:

7

8 Flaggers shall be posted where shown on approved Traffic Control Plans or where
9 directed by the Engineer. All flaggers shall possess a current flagging card issued by
10 the State of Washington, Oregon, Montana, or Idaho. The flagging card shall be
11 immediately available and shown to the Contracting Agency upon request.

12

13 The last paragraph is deleted.

14

15 **1-10.3(1)B Other Traffic Control Labor**

16 This section is revised to read:

17

18 In addition to flagging duties, the Contractor shall provide personnel for all other traffic
19 control procedures required by the construction operations and for the labor to install,
20 maintain and remove any traffic control devices shown on Traffic Control Plans.

21

22 **1-10.3(3)B Sequential Arrow Signs**

23 This section is supplemented with the following sentence:

24

25 When used in the caution mode, the four corner mode shall be used.

26

27 **1-10.3(3)F Barrier Drums**

28 This section including title is deleted in its entirety and replaced with the following:

29

30 **1-10.3(3)F Vacant**

31

32 **1-10.3(3)K Portable Temporary Traffic Control Signs**

33 The fifth paragraph is revised to read:

34

35 The Project Engineer or designee will inspect the signal system at initial
36 installation/operation and approve the signal timing. Final approval will be based on the
37 results of the operational inspection.

38

39 **1-10.4(2) Item Bids With Lump Sum for Incidentals**

40 In the second paragraph, the first and second sentences are revised to read:

41

42 "Flaggers" will be measured by the hour. Hours will be measured for each flagging
43 station, shown on an approved Traffic Control Plan, when that station is staffed in
44 accordance with Section 1-10.3(1)A.

45

46 The first sentence of the last bulleted item in this section is revised to read:

47

48 Installing and removing Barricades, Traffic Safety Drums, Cones, Tubular Markers and
49 Warning Lights and Flashers to carry out approved Traffic Control Plan(s).

50

51 **1-10.5(2) Item Bids With Lump Sum for Incidentals**

52 This section is deleted and replaced with the following:

1
2 "Traffic Control Supervisor", lump sum.
3
4 The lump sum Contract payment shall be full compensation for all costs incurred by the
5 Contractor in performing the Work defined in Section 1-10.2(1)B.
6
7 "Pedestrian Traffic Control", lump sum.
8
9 The lump sum Contract payment shall be full compensation for all costs incurred by the
10 Contractor in performing the Work for pedestrian traffic control defined in Section 1-10.
11
12 "Flaggers", per hour.
13
14 The unit Contract price, when applied to the number of units measured for this item in
15 accordance with Section 1-10.4(2), shall be full compensation for all costs incurred
16 by the Contractor in performing the Work defined in Section 1-10.3(1)A.
17
18 "Other Traffic Control Labor", per hour.
19
20 The unit Contract price, when applied to the number of units measured for this item in
21 accordance with Section 1-10.4(2), shall be full compensation for all labor costs incurred
22 by the Contractor in performing the Work specified for this item in Section 1-10.4(2).
23
24 "Construction Signs Class A", per square foot.
25
26 The unit Contract price, when applied to the number of units measured for this item in
27 accordance with Section 1-10.4(2), shall be full compensation for all costs incurred by
28 the Contractor in performing the Work described in Section 1-10.3(3)A. In the event that
29 "Do Not Pass" and "Pass With Care" signs must be left in place, a change order, as
30 described in Section 1-04.4, will be required. When the Bid Proposal contains the item
31 "Sign Covering", then covering those signs indicated in the Contract will be measured
32 and paid according to Section 8-21.
33
34 "Sequential Arrow Sign", per hour.
35
36 The unit Contract price, when applied to the number of units measured for this item in
37 accordance with Section 1-10.4(2), shall be full compensation for all costs incurred by
38 the Contractor in performing the Work described in Section 1-10.3(3)B.
39
40 "Portable Changeable Message Sign", per hour.
41
42 The unit Contract price, when applied to the number of units measured for this item in
43 accordance with Section 1-10.4(2), shall be full compensation for all costs incurred by
44 the Contractor in performing the Work for procuring all portable changeable message
45 signs required for the project and for transporting these signs to and from the project.
46
47 "Transportable Attenuator", per each.
48
49 The unit Contract price, when applied to the number of units measured for this item in
50 accordance with Section 1-10.4(2), shall be full compensation for all costs incurred by
51 the Contractor in performing the Work described in Section 1-10.3(3)J except for costs

1 compensated separately under the items “Operation of Transportable Attenuator” and
2 “Repair Transportable Attenuator”.

3
4 “Operation of Transportable Attenuator”, per hour.

5
6 The unit Contract price, when applied to the number of units measured for this item in
7 accordance with Section 1-10.4(2), shall be full compensation for all costs incurred by
8 the Contractor in performing the Work for operating transportable attenuators on the
9 project.

10
11 “Repair Transportable Attenuator”, by force account.

12
13 All costs of repairing or replacing transportable attenuators that are damaged by the
14 motoring public while in use as shown on an approved Traffic Control Plan will be paid
15 for by force account as specified in Section 1-09.6. To provide a common Proposal for
16 all Bidders, the Contracting Agency has estimated the amount of force account for
17 “Repair Transportable Attenuator” and has entered the amount in the Proposal to
18 become a part of the total Bid by the Contractor. Transportable attenuators damaged
19 due to the Contractor’s operation or damaged in any manner when not in use shall be
20 repaired or replaced by the Contractor at no expense to the Contracting Agency.

21
22 “Other Temporary Traffic Control”, lump sum.

23
24 The lump sum Contract payment shall be full compensation for all costs incurred by the
25 Contractor in performing the Work defined in Section 1-10, and which costs are not
26 compensated by one of the above-listed items.

27
28 “Portable Temporary Traffic Control Signal”, lump sum.

29
30 The lump sum Contract payment shall be full compensation for all costs incurred by the
31 Contractor in performing the Work as described in Section 1-10.3(3)K, including all
32 costs for traffic control during manual control, adjustment, malfunction, or failure of the
33 portable traffic control signals and during replacement of failed or malfunctioning
34 signals.

35
36 **5-01.AP5**

37 **Section 5-01, Cement Concrete Pavement Rehabilitation**
38 **January 6, 2014**

39 **5-01.2 Materials**

40 The referenced section for the following item is revised to read:

41
42 Dowel Bars 9-07.5

43
44

1 **5-04.AP5**

2 **Section 5-04, Hot Mix Asphalt**
3 **January 6, 2014**

4 **5-04.3(7)A3 Commercial Evaluation**

5 The second sentence in the first paragraph is revised to read:

6
7 Mix designs for HMA accepted by commercial evaluation shall be submitted to the
8 Project Engineer on WSDOT Form 350-042.

9
10 **6-02.AP6**

11 **Section 6-02, Concrete Structures**
12 **April 7, 2014**

13 **6-02.3(1) Classification of Structural Concrete**

14 In paragraph two, item number 1 is revised to read:

15
16 Mix design and proportioning specified in Sections 6-02.3(2), 6-02.3(2)A and 6-
17 02.3(2)A1.

18
19 Item number 3 is renumbered to 4.

20
21 After the preceding Amendments are applied, the following new numbered item is inserted
22 after item number 2:

23
24 3. Temperature and time for placement requirements specified in Section 6-02.3(4)D.

25
26 **6-02.3(2) Proportioning Materials**

27 In the third paragraph, the first sentence is revised to read:

28
29 The use of fly ash is required for Class 4000P concrete, except that ground granulated
30 blast furnace slag may be substituted for fly ash at a 1:1 ratio.

31
32 In the table titled "Cementitious Requirement for Concrete", the row beginning with "4000D"
33 is deleted.

34
35 The fourth paragraph is revised to read:

36
37 When both ground granulated blast furnace slag and fly ash are included in the
38 concrete mix, the total weight of both these materials is limited to 40 percent by weight
39 of the total cementitious material for concrete class 4000A, and 50 percent by weight of
40 the total cementitious material for all other classes of concrete.

41
42 **6-02.3(2)A Contractor Mix Design**

43 In the first paragraph, the third sentence is revised to read:

44
45 The required average 28 day compressive strength shall be selected in accordance with
46 ACI 318, Chapter 5, Section 5.3.2.

47

- 1 In the first paragraph, the fifth sentence is revised to read:
2
3 All proposed concrete mixes except Class 4000D shall meet the requirements in
4 Cementitious Requirement for Concrete in Section 6-02.3(2).
5
6 In the fourth paragraph, the fourth sentence is deleted.
7
8 In the sixth paragraph, the first sentence is deleted.
9
10 In the seventh paragraph, the last sentence is deleted.
11
12 The eighth paragraph is revised to read:
13
14 Air content for concrete Class 4000D shall conform to Section 6-02.3(2)A1. For all
15 other concrete, air content shall be a minimum of 4.5 percent and a maximum of 7.5
16 percent for all concrete placed above the finished ground line.
17
18 The following new sub-section is added:
19
20 **6-02.3(2)A1 Contractor Mix Design for Concrete Class 4000D**
21 All Class 4000D concrete shall be a project specific performance mix design conforming
22 to the following requirements:
23
24 1. Aggregate shall use combined gradation in accordance with Section 9-03.1(5)
25 with a nominal maximum aggregate size of 1-1/2 inches.
26 2. Permeability shall be less than 2,000 coulombs at 56 days in accordance with
27 AASHTO T 277.
28 3. Freeze-thaw durability shall be provided by one of the following methods:
29 a. The concrete shall maintain an air content between 4.5 and 7.5 percent.
30 b. The concrete shall maintain a minimum air content that achieves a
31 durability factor of 90 percent, minimum, after 300 cycles in accordance
32 with AASHTO T 161, Procedure A. This air content shall not be less than
33 3.0 percent. Test samples shall be obtained from concrete batches of a
34 minimum of 3.0 cubic yards.
35 4. Scaling shall have a visual rating less than or equal to 2 after 50 cycles in
36 accordance with ASTM C 672.
37 5. Shrinkage at 28 days shall be less than 320 micro strain in accordance with
38 AASHTO T 160.
39 6. Modulus of elasticity shall be measured in accordance with ASTM C 469.
40 7. Density shall be measured in accordance with ASTM C 138.
41
42 The Contractor shall submit the mix design in accordance with Section 6-02.3(2)A. The
43 submittal shall include test reports for all tests listed above that follow the reporting
44 requirements of the AASHTO/ASTM procedures. Samples for testing may be obtained
45 from either laboratory or concrete plant batches. If concrete plant batches are used, the
46 minimum batch size shall be 3.0 cubic yards. The Contractor shall submit the mix
47 design to the Engineer at least 30 calendar days prior to the placement of concrete in
48 the bridge deck.
49
50 **6-02.3(4)D Temperature and Time For Placement**
51 The first two sentences are revised to read:
52

Concrete temperatures shall remain between 55°F and 90°F while it is being placed, except that Class 4000D concrete temperatures shall remain between 55°F and 75°F during placement. Precast concrete that is heat cured in accordance with Section 6-02.3(25)D shall remain between 50°F and 90°F while being placed.

6-02.3(5)H Sampling and Testing for Compressive Strength and Initial Curing

The second paragraph is revised to read:

The Contractor shall provide and maintain a sufficient number of cure boxes in accordance with WSDOT FOP for AASHTO T 23 for curing concrete cylinders. The cure boxes shall be readily accessible and no more than 500 feet from the point of acceptance testing, unless otherwise approved by the Engineer. The Contractor shall also provide, maintain and operate all necessary power sources and connections needed to operate the cure boxes. The cure boxes shall be in-place and functioning at the specified temperature for curing cylinders prior to concrete placement. Concrete cylinders shall be cured in the cure boxes in accordance with WSDOT FOP for AASHTO T 23. The cure boxes shall have working locks and the Contractor shall provide the Engineer with one key to each of the locks. Once concrete cylinders are placed in the cure box, the cure box shall not be disturbed until the cylinders have been removed. The Contractor shall retain the cure box Temperature Measuring Device log and provide it to the Engineer upon request.

The following new paragraph is inserted after the last paragraph:

All cure box costs shall be incidental to the associated item of work.

6-02.3(6)A2 Cold Weather Protection

The first sentence in the first paragraph is revised to read:

This Specification applies when the weather forecast on the day of concrete placement predicts air temperatures below 35°F at any time during the 7 days following placement.

The first sentence of the second paragraph is revised to read:

The temperature of the concrete shall be maintained above 50°F during the entire curing period or 7 days, whichever is greater.

6-02.3(10)D Concrete Placement, Finishing, and Texturing

This section is supplemented with the following new sub-sections:

6-02.3(10)D1 Test Slab Using Bridge Deck Concrete

After the Contractor receives the Engineer's approval for the Class 4000D concrete mix design, and a minimum of seven calendar days prior to the first placement of bridge deck concrete, the Contractor shall construct a test slab using concrete of the approved mix design.

The test slab may be constructed on grade, shall have a minimum thickness of eight-inches, shall have minimum plan dimensions of 10-feet along all four edges, and shall be square or rectangular.

During construction of the test slab, the Contractor shall demonstrate concrete sampling and testing, use of the concrete temperature monitoring system, the concrete fogging

1 system, concrete placement system, and the concrete finishing operation. The
2 Contractor shall conduct the demonstration using the same type of equipment to be
3 used for the production bridge decks, except that the Contractor may elect to finish the
4 test slab with a hand-operated strike-board.

5
6 After the construction of the test slab and the demonstration of bridge deck construction
7 operations is complete, the Contractor shall remove and dispose of the test slab in
8 accordance with Sections 2-02.3 and 2-03.3(7)C.

9
10 **6-02.3(10)D2 Preparation for Concrete Placement**

11 Before placing bridge approach slab concrete, the subgrade shall be constructed in
12 accordance with Sections 2-06 and 5-05.3(6).

13
14 Before any concrete is placed, the finishing machine shall be operated over the entire
15 length of the deck/slab to check screed deflection. Concrete placement may begin only
16 if the Engineer approves after this test.

17
18 Immediately before placing concrete, the Contractor shall check (and adjust if
19 necessary) all falsework and wedges to minimize settlement and deflection from the
20 added mass of the concrete deck/slab. The Contractor shall also install devices, such
21 as telltales, by which the Engineer can readily measure settlement and deflection.

22
23 **6-02.3(10)D3 Concrete Placement**

24 The placement operation shall cover the full width of the bridge deck or the full width
25 between construction joints. The Contractor shall locate any construction joint over a
26 beam or web that can support the deck/slab on either side of the joint. The joint shall not
27 occur over a pier unless the Plans permit. Each joint shall be formed vertically and in
28 true alignment. The Contractor shall not release falsework or wedges supporting bridge
29 deck placement sections on either side of a joint until each side has aged as these
30 Specifications require.

31
32 Placement of concrete for bridge decks and bridge approach slabs shall comply with
33 Section 6-02.3(6). In placing the concrete, the Contractor shall:

- 34
35 1. Place it (without segregation) against concrete placed earlier, as near as
36 possible to its final position, approximately to grade, and in shallow, closely
37 spaced piles;
38 2. Consolidate it around reinforcing steel by using vibrators before strike-off by the
39 finishing machine;
40 3. Not use vibrators to move concrete;
41 4. Not revibrate any concrete surface areas where workers have stopped prior to
42 screeding;
43 5. Remove any concrete splashed onto reinforcing steel in adjacent segments
44 before concreting them;
45 6. Maintain a slight excess of concrete in front of the screed across the entire
46 width of the placement operation;
47 7. Operate the finishing machine to create a surface that is true and ready for final
48 finish without overfinishing or bringing excessive amounts of mortar to the
49 surface; and
50 8. Leave a thin, even film of mortar on the concrete surface after the last pass of
51 the finishing machine pan.
52

Workers shall complete all post screeding operations without walking on the concrete. This may require work bridges spanning the full width of the deck/slab.

After removing the screed supports, the Contractor shall fill the voids with concrete (not mortar).

If the surface left by the finishing machine is porous, rough, or has minor irregularities, the Contractor shall float the surface of the concrete. Floating shall leave a smooth and even surface. Float finishing shall be kept to the minimum number of passes necessary to seal the surface. The floats shall be at least 4-feet long. Each transverse pass of the float shall overlap the previous pass by at least half the length of the float. The first floating shall be at right angles to the strike-off. The second floating shall be at right angles to the centerline of the span. A smooth riding surface shall be maintained across construction joints.

The edge of completed roadway slabs at expansion joints and compression seals shall have a 3/8-inch radius.

After floating, but while the concrete remains plastic, the Contractor shall test the entire deck/slab for flatness (allowing for crown, camber, and vertical curvature). The testing shall be done with a 10-foot straightedge held on the surface. The straightedge shall be advanced in successive positions parallel to the centerline, moving not more than one half the length of the straightedge each time it advances. This procedure shall be repeated with the straightedge held perpendicular to the centerline. An acceptable surface shall be one free from deviations of more than 1/8-inch under the 10-foot straightedge.

If the test reveals depressions, the Contractor shall fill them with freshly mixed concrete, strike off, consolidate, and refinish them. High areas shall be cut down and refinished. Retesting and refinishing shall continue until a surface conforming to the requirements specified above is produced.

6-02.3(10)D4 Monitoring Bridge Deck Concrete Temperature After Placement

The Contractor shall monitor and record the concrete temperature and ambient temperature hourly for seven calendar days after placement. The Contractor shall monitor and record concrete temperature by placing two maturity meter temperature monitoring devices in the bridge deck at locations specified by the Engineer. The Contractor shall monitor ambient temperature using maturity meters near the locations where concrete temperature is being monitored. When the bridge deck is being enclosed and heated to meet cold weather requirements, ambient temperature readings shall be taken within the enclosure. The Contractor shall submit the concrete temperature and ambient temperature data to the Engineer in spreadsheet format within 14 calendar days from placing the bridge deck concrete.

The Contractor shall submit the type and model of maturity meter temperature monitoring device, and the associated devices responsible for recording and documenting the temperature and curing time, to the Engineer at least 14 calendar days prior to the pre-concreting conference for the first bridge deck to be cast. The placement and operation of the temperature monitoring devices and associated devices will be an agenda item at the pre-concreting conference for the first bridge deck to be cast.

1 **6-02.3(10)D5 Bridge Deck Concrete Finishing and Texturing**

2 Except as otherwise specified for portions of bridge decks receiving an overlay or
3 sidewalk under the same Contract, the Contractor shall texture the surface of the bridge
4 deck as follows:

5
6 The Contractor shall texture the bridge deck using diamond tipped saw blades
7 mounted on a power driven, self-propelled machine that is designed to texture
8 concrete surfaces. The grooving equipment shall provide grooves that are 1/8" ±
9 1/64" wide, 3/16" ± 1/16" deep, and spaced at 3/4" ± 1/8". The bridge deck shall
10 not be textured with a metal tined comb.

11
12 The Contractor shall submit the type of grooving equipment to be used to the
13 Engineer for approval 30 calendar days prior to performing the work. The
14 Contractor shall demonstrate that the method and equipment for texturing the
15 bridge deck will not chip, spall or otherwise damage the deck. The Contractor shall
16 not begin texturing the bridge deck until receiving the Engineer's approval of the
17 Contractor's method and equipment.

18
19 Unless otherwise approved by the Engineer, the Contractor shall texture the
20 concrete bridge deck surface either in a longitudinal direction, parallel with
21 centerline or in a transverse direction, perpendicular with centerline. The
22 Contractor shall texture the bridge deck surface to within 3-inches minimum and
23 15-inches maximum of the edge of concrete at expansion joints, within 1-foot
24 minimum and 2-feet maximum of the curb line, and within 3-inches minimum and 9-
25 inches maximum of the perimeter of bridge drain assemblies.

26
27 The Contractor shall contain and collect all concrete dust and debris generated by
28 the bridge deck texturing process, and shall dispose of the collected concrete dust
29 and debris in accordance with Section 2-03.3(7)C.

30
31 If the Plans call for placement of a sidewalk or an HMA or concrete overlay on the
32 bridge deck, the Contractor shall produce the final finish of these areas by dragging a
33 strip of damp, seamless burlap lengthwise over the bridge deck or by brooming it lightly.
34 Approximately 3-feet of the drag shall contact the surface, with the least possible bow in
35 its leading edge. It shall be kept wet and free of hardened lumps of concrete. When the
36 burlap drag fails to produce the required finish, the Contractor shall replace it. When not
37 in use, it shall be lifted clear of the bridge deck.

38
39 After the bridge deck has cured, the surface shall conform to the surface smoothness
40 requirements specified in Section 6-02.3(10)D3.

41
42 The surface texture on any area repaired to address out-of-tolerance surface
43 smoothness shall match closely that of the surrounding bridge deck area at the
44 completion of the repair. Methods used to remove high spots shall cut through the
45 mortar and aggregate without breaking or dislodging the aggregate or causing spalls.

46
47 **6-02.3(10)D6 Bridge Approach Slab Finishing and Texturing**

48 Bridge approach slabs shall be textured either in accordance with Section 6-02.3(10)D5,
49 or using metal tined combs in the transverse direction, except bridge approach slabs
50 receiving an overlay in the same Contract shall be finished as specified in Section 6-
51 02.3(10)D5 only.
52

1 The comb shall be made of a single row of metal tines. It shall leave striations in the
2 fresh concrete approximately 3/16-inch deep by 1/8-inch wide and spaced
3 approximately 1/2-inch apart. The Engineer will decide actual depths at the site. If the
4 comb has not been approved, the Contractor shall obtain the Engineer's approval by
5 demonstrating it on a test section. The Contractor may operate the combs manually or
6 mechanically, either singly or with several placed end to end. The timing and method
7 used shall produce the required texture without displacing larger particles of aggregate.

8
9 Texturing shall end 2-feet from curb lines. This 2-foot untextured strip shall be hand
10 finished with a steel trowel.

11
12 Surface smoothness, high spots, and low spots shall be addressed as specified in
13 Section 6-02.3(10)D5. The surface texture on any area cut down or built up shall match
14 closely that of the surrounding bridge approach slab area. The entire bridge approach
15 slab shall provide a smooth riding surface.

16 17 **6-02.3(11) Curing Concrete**

18 Items number 1 through 4 are deleted and replaced with the following 5 new numbered
19 items:

- 20
21 1. Bridge sidewalks, roofs of cut and cover tunnels — curing compound covered by
22 white, reflective type sheeting or continuous wet curing. Curing by either method
23 shall be for at least 10 days.
- 24 2. Bridge decks — See Section 6-02.3(11)B.
- 25 3. Bridge approach slabs (Class 4000A concrete) - 2 coats of curing compound and
26 continuous wet cure for at least 10-days.
- 27 4. Concrete barriers and rail bases – See Section 6-02.3(11)A.
- 28 5. All other concrete surfaces — continuous wet cure for at least three days.

29
30 In the second paragraph, the first sentence is replaced with the following three new
31 sentences:

32
33 During the continuous wet cure, the Contractor shall keep all exposed concrete surfaces
34 saturated with water. Formed concrete surfaces shall be kept in a continuous wet cure
35 by leaving the forms in place. If forms are removed during the continuous wet cure
36 period, the Contractor shall treat the concrete as an exposed concrete surface.

37
38 The third paragraph is revised to read:

39
40 When curing Class 4000A, two coats of curing compound that complies with Section 9-
41 23.2 shall be applied immediately (not to exceed 15 min.) after tining any portion of the
42 bridge approach slab. The continuous wet cure shall be established as soon as the
43 concrete has set enough to allow covering without damaging the finish.

44
45 In the fifth paragraph, the first sentence is revised to read:

46
47 If the Plans call for an asphalt overlay on the bridge approach slab, the Contractor shall
48 use the clear curing compound (Type 1, Class B), applying at least 1 gallon per 150
49 square feet to the concrete surface.

50
51 The eighth paragraph is deleted.

6-02.3(11)B Curing Bridge Decks

This new section is supplemented with the following new sub-sections:

6-02.3(11)B1 Equipment

The Contractor shall maintain a wet sheen, without developing pooling or sheeting water, using a fogging apparatus consisting of pressure washers with a minimum nozzle output of 1,500 psi, or other means approved by the Engineer.

The Contractor shall submit a bridge deck curing plan to the Engineer a minimum 14 calendar days prior to the pre-concreting conference. The Contractor's plan shall describe the sequence and timing that will be used to fog the bridge deck, apply pre-soaked burlap, install soaker hoses and cover the deck with white reflective sheeting.

6-02.3(11)B2 Curing

The fogging apparatus shall be in place and charged for fogging prior to beginning concrete placement for the bridge deck.

The Contractor shall presoak all burlap to be used to cover the deck during curing.

Immediately after the finishing machine passes over finished concrete, the Contractor shall implement the following tasks:

1. The Contractor shall fog the bridge deck while maintaining a wet sheen without developing pooling or sheeting water.
2. The Contractor shall apply the presoaked burlap to the top surface to fully cover the deck without damaging the finish, other than minor marring of the concrete surface. The Contractor shall not apply curing compound.
3. The Contractor shall continue to keep the burlap wet by fog spraying until the burlap is covered by soaker hoses and white reflective sheeting. The Contractor shall place the soaker hoses and whiter reflective sheeting after the concrete has achieved initial set. The Contractor shall charge the soaker hoses frequently so as to keep the burlap covering the entire deck wet during the course of curing.

As an alternative to tasks 2 and 3 above, the Contractor may propose a curing system using proprietary curing blankets specifically manufactured for bridge deck curing. Details of the proprietary curing blanket system, including product literature and details of how the system is to be installed and maintained, shall be submitted to the Engineer for approval.

The wet curing regime as described shall remain in place for at least 14 consecutive calendar days.

6-02.3(12)A Construction Joints in New Construction

The third paragraph is deleted and replaced with the following three new paragraphs:

If the Plans require a roughened surface on the joint, the Contractor shall strike it off to leave grooves at right angles to the length of the member. Grooves shall be installed using one of the following options:

- 1 1. Grooves shall be ½ to 1 inch wide, ¼ to ½ inch deep, and spaced equally at
- 2 twice the width of the groove. Grooves shall terminate approximately 1 ½-
- 3 inches from the face of concrete.
- 4 2. Grooves shall be 1 to 2 inches wide, a minimum of ½-inch deep, and spaced a
- 5 maximum of three times the width of the groove. Grooves shall terminate
- 6 approximately 1 ½-inches from the face of concrete.
- 7

8 If the Engineer approves, the Contractor may use an alternate method to produce a
9 roughened surface on the joint, provided that such an alternate method leaves a
10 roughened surface of at least a ¼-inch amplitude.

11
12 If the first strike-off does not produce the required roughness, the Contractor shall
13 repeat the process before the concrete reaches initial set. The final surface shall be
14 clean and without laitance or loose material.

15 16 **6-02.3(15) Date Numerals**

17 The third sentence in the first paragraph is revised to read:

18
19 When an existing Structure is widened or when traffic barrier is placed on an existing
20 Structure, the date shall be for the year in which the original Structure was completed.

21 22 **6-02.3(17)A Design Loads**

23 The fifth paragraph is revised to read:

24
25 Live loads shall consist of a minimum uniform load of not less than 25 psf, applied over
26 the entire falsework plan area, plus the greater of:

- 27
- 28 1. Actual weights of the deck finishing equipment applied at the rails, or;
- 29 2. A minimum load of 75 pounds per linear foot applied at the edge of the bridge
- 30 deck.
- 31

32 **6-02.3(17)J Face Lumber, Studs, Wales, and Metal Forms**

33 The second to last paragraph is deleted.

34 35 **6-02.3(17)O Early Concrete Test Cylinder Breaks**

36 The third paragraph is revised to read:

37
38 The cylinders shall be cured in the field in accordance with WSDOT FOP for AASHTO T
39 23 Section 10.2 Field Curing.

40 41 **6-02.3(20) Grout for Anchor Bolts and Bridge Bearings**

42 The first five paragraphs are deleted and replaced with the following two new paragraphs:

43
44 Grout shall conform to Section 9-20.3(2) for anchor bolts and for bearing assemblies
45 with bearing plates. Grout shall conform to Section 9-20.3(3) for elastomeric bearing
46 pads and fabric pad bearings without bearing plates.

47
48 Grout shall be a workable mix with a viscosity that is suitable for the intended
49 application. The Contractor shall receive approval from the Engineer before using the
50 grout.

51

1 **6-02.3(26)F Prestressing Reinforcement**

2 The last sentence in the fourth paragraph is revised to read:

3
4 If the prestressing reinforcement will not be stressed and grouted for more than 7
5 calendar days after it is placed in the ducts, the Contractor shall place an approved
6 corrosion inhibitor conforming to Federal Specification MIL-I-22110C in the ducts.
7

8 **6-02.5 Payment**

9 In the paragraph following the bid item "Commercial Concrete", per cubic yard the second
10 sentence is revised to read:

11
12 All costs in connection with concrete curing, and furnishing and applying pigmented
13 sealer to concrete surfaces as specified, shall be included in the unit contract price per
14 cubic yard for "Conc. Class ____".
15

16 The following new paragraph is inserted after the bid item "Superstructure (name bridge)",
17 lump sum:

18
19 All costs in connection with constructing, finishing and removing the bridge deck test
20 slab as specified in Section 6-02.3(10)D1 shall be included in the lump sum Contract
21 price for "Superstructure____" or "Bridge Deck____" for one bridge in each project, as
22 applicable.
23

24 The bid item "Cure Box", lump sum and paragraph following bid item are deleted.
25

26 **6-05.AP6**

27 **Section 6-05, Piling**
28 **March 3, 2014**

29 **6-05.3(4) Manufacture of Steel Casings for Cast-In-Place Concrete Piles**

30 This section is revised to read:

31
32 The diameter of steel casings shall be as specified in the Contract. A full-penetration
33 groove weld between welded edges is required.
34

35 **6-05.3(5) Manufacture of Steel Piles**

36 This section is revised to read:

37
38 Steel piles shall be made of rolled steel H-pile sections, steel pipe piles, or of other
39 structural steel sections described in the Contract. A full-penetration groove weld
40 between welded edges is required.
41

42 **6-05.3(6) Splicing Steel Casings and Steel Piles**

43 This section is revised to read:

44
45 The Engineer will normally permit steel piles and steel casings for cast-in-place
46 concrete piles to be spliced. But in each case, the Contractor shall obtain approval on
47 the need and the method for splicing. Welded splices shall be spaced at a minimum
48 distance of 10 feet. Only welded splices will be permitted.
49

1 Splice welds for steel piles shall comply with Section 6-03.3(25) and AWS D1.1/D1.1M,
2 latest edition, Structural Welding Code. Splicing of steel piles shall be performed in
3 accordance with an approved weld procedure. The Contractor shall submit a weld
4 procedure to the Engineer for approval prior to welding. For ASTM A 252 material, mill
5 certification for each lot of pipe to be welded shall accompany the submittal. The ends
6 of all steel pipe piling shall meet the fit-up requirements of AWS D1.1/D1.1M, latest
7 edition, Structural Welding Code Section 5.22.3.1, "Girth Weld Alignment (Tubular),"
8 when the material is spliced utilizing a girth weld.

9
10 Splice welds of steel casings for cast-in-place concrete piles shall be the Contractor's
11 responsibility and shall be welded in accordance with AWS D1.1/D1.1M, latest edition,
12 Structural Welding Code. A weld procedure submittal is not required for steel casings
13 used for cast-in-place concrete piles. Casings that collapse or are not watertight, shall
14 be replaced at the Contractor's expense.

15
16 **6-07.AP6**

17 **Section 6-07, Painting**
18 **January 6, 2014**

19 **6-07.3(10)E Surface Preparation – Full Paint Removal**

20 This section is revised to read:

21
22 For structures where full removal of existing paint is specified, the Contractor shall
23 remove any visible oil, grease, and road tar in accordance with SSPC-SP 1.

24
25 Following preparation by SSPC-SP 1, all steel surfaces to be painted shall be prepared
26 in accordance with SSPC-SP 10, near-white metal blast cleaning. Surfaces inaccessible
27 to near-white metal blast cleaning shall be prepared in accordance with SSPC-SP 11,
28 power tool cleaning to bare metal, as allowed by the Engineer.

29
30 **6-14.AP6**

31 **Section 6-14, Geosynthetic Retaining Walls**
32 **April 7, 2014**

33 **6-14.2 Materials**

34 In the first paragraph, the section number next to "Anchor rods and associated nuts, washers
35 and couplers" is revised to read:

36
37 9-06.5(4)

38
39 The following new paragraph is inserted after the first paragraph:

40
41 Anchor plate shall conform to ASTM A 36, ASTM A 572 Grade 50, or ASTM A 588.

42

1 **8-01.AP8**

2 **Section 8-01, Erosion Control and Water Pollution Control**
3 **April 7, 2014**

4 **8-01.3(1)A Submittals**

5 The first sentence in the second paragraph is revised to read:

6
7 Modified TESC Plans shall meet all requirements of the current edition of the WSDOT
8 Temporary Erosion and Sediment Control Manual M 3109.

9
10 **8-04.AP8**

11 **Section 8-04, Curbs, Gutters, and Spillways**
12 **January 6, 2014**

13 **8-04.3(1) Cement Concrete Curbs, Gutters, and Spillways**

14 The first sentence in the fourth paragraph is revised to read:

15
16 Expansion joints in the curb or curb and gutter shall be spaced as shown in the Plans,
17 and placed at the beginning and ends of curb returns, drainage Structures, bridges, and
18 cold joints with existing curbs and gutters.

19
20 **8-04.3(1)A Extruded Cement Concrete Curb**

21 The second sentence in the second paragraph is revised to read:

22
23 Cement concrete curbs shall be anchored to the existing pavement by placing steel
24 reinforcing bars 1 foot on each side of every joint.

25
26 The third paragraph is revised to read:

27
28 Steel reinforcing bars shall meet the dimensions shown in the Standard Plans.

29
30 **8-09.AP8**

31 **Section 8-09, Raised Pavement Markers**
32 **April 7, 2014**

33 **8-09.3(6) Recessed Pavement Marker**

34 The following sentence is inserted after the first sentence of the first paragraph:

35
36 The Contractor shall ensure that grinding of the pavement does not result in any
37 damage, (e.g. chipping, spalling or raveling) to the pavement to remain.

38
39 **8-11.AP8**

40 **Section 8-11, Guardrail**
41 **April 7, 2014**

42 **8-11.3(1) Beam Guardrail**
43

- 1 After the below Amendments to 8-11.3(1)F and 8-11.3(1)G are applied, this section is
2 supplemented with the following new sub-section:
3
- 4 **8-11.3(1)F Removing and Resetting Beam Guardrail**
5 The Contractor shall remove and reset existing guardrail posts, rail element, hardware
6 and blocks to the location shown in the Plans. The mounting height of reset rail element
7 shall be at the height shown in the Plans. The void caused by the removal of the post
8 shall be backfilled and compacted.
9
- 10 The Contractor shall remove and replace any existing guardrail posts and blocks that
11 are not suited for re-use, as staked by the Engineer. The void caused by the removal of
12 the post shall be backfilled and compacted. The Contractor shall then furnish and install
13 a new guardrail post to provide the necessary mounting height.
14
- 15 **8-11.3(1)A Erection of Posts**
16 The second paragraph in this section is deleted.
17
- 18 **8-11.3(1)C Terminal and Anchor Installation**
19 The last sentence in the last paragraph is deleted.
20
- 21 **8-11.3(1)F Plans**
22 This section number is revised to:
23
- 24 **8-11.3(1)G**
25
- 26 **8-11.3(1)G Guardrail Construction Exposed to Traffic**
27 This section number is revised to:
28
- 29 **8-11.3(1)H**
30
- 31 **8-20.AP8**
- 32 **Section 8-20, Illumination, Traffic Signal Systems, Intelligent Transportation**
33 **Systems, and Electrical**
34 **April 7, 2014**
- 35 **8-20.3(8) Wiring**
36 The second sentence in the eleventh paragraph is revised to read:
37
- 38 Every conductor at every wire termination, connector, or device shall have an approved
39 wire marking sleeve bearing, as its legend, the circuit number indicated in the Contract.
40
- 41 **8-23.AP8**
- 42 **Section 8-23, Temporary Pavement Markings**
43 **April 14, 2014**
- 44 This section's content is deleted in its entirety and replaced with the following new sub-
45 sections:
46

8-23.1 Description

The Work consists of furnishing, installing, and removing temporary pavement markings. Temporary pavement markings shall be provided where noted in the Plans; for all lane shifts and detours resulting from construction activities; or when permanent markings are removed because of construction operations.

8-23.2 Materials

Materials for temporary markings shall be paint, plastic, tape, raised pavement markers or flexible raised pavement markers. Materials for pavement markings shall meet the following requirements:

Raised Pavement Markers	9-21
Temporary Marking Paint	9-34.2(6)
Plastic	9-34.3
Glass Beads for Pavement Marking Materials	9-34.4
Temporary Pavement Marking Tape	9-34.5
Temporary Flexible Raised Pavement Markers	9-34.6

8.23.3 Construction Requirements

8-23.3(1) General

The Contractor shall select the type of pavement marking material in accordance with the Contract.

8-23.3(2) Preliminary Spotting

All preliminary layout and marking in preparation for application or removal of temporary pavement markings shall be the responsibility of the Contractor.

8-23.3(3) Preparation of Roadway Surface

Surface preparation for temporary pavement markings shall be in accordance with the manufacturer's recommendations.

8-23.3(4) Pavement Marking Application

8-23.3(4)A Temporary Pavement Markings – Short Duration

Temporary pavement markings – short duration shall meet the following requirements:

Temporary Center Line – A BROKEN line used to delineate adjacent lanes of traffic moving in opposite directions. The broken pattern shall be based on a 40-foot unit, consisting of a 4-foot line with a 36-foot gap if paint or tape is used. If temporary raised pavement markers are used, the pattern shall be based on a 40-foot unit, consisting of a grouping of three temporary raised pavement markers, each spaced 3 feet apart, with a 34 foot gap.

Temporary Edge Line – A SOLID line used on the edges of Traveled Way. The line shall be continuous if paint or tape is used. If temporary raised pavement markers are used, the line shall consist of markers installed continuously at 5-foot spacing.

Temporary Lane Line – A BROKEN line used to delineate adjacent lanes with traffic traveling in the same direction. The broken pattern shall be based on a 40-foot unit, consisting of a 4-foot line with a 36-foot gap, if paint or tape is used. If temporary raised pavement markers are used, the pattern shall be based on a 40-foot unit, consisting of a grouping of three temporary raised pavement markers, each spaced 3 feet apart, with a 34 foot gap.

Lane line and right edge line shall be white in color. Center line and left edge line shall be yellow in color. Edge lines shall be installed only if specifically required in the Contract. All temporary pavement markings shall be retroreflective.

8-23.3(4)A1 Temporary Pavement Marking Paint

Paint used for short duration temporary pavement markings shall be applied in one application at a thickness of 15 mils or 108 square feet per gallon. Glass beads shall be in accordance with Section 8-22.3(3)G.

8-23.3(4)A2 Temporary Pavement Marking Tape

Application of temporary pavement marking tape shall be in conformance with the manufacturer's recommendations.

Black mask pavement marking tape shall mask the existing line in its entirety.

8-23.3(4)A3 Temporary Raised Pavement Markers

Temporary raised pavement markers are not allowed on bituminous surface treatments.

8-23.3(4)A4 Temporary Flexible Raised Pavement Markers

Flexible raised pavement markers are required for new applications of bituminous surface treatments. Flexible raised pavement markers are not allowed on other pavement types unless otherwise specified or approved by the Engineer. Flexible raised pavement markers shall be installed with the protective cover in place. The cover shall be removed immediately after spraying asphaltic material.

8-23.3(4)B Temporary Pavement Markings – Long Duration

Application of paint, pavement marking tape and plastic for long duration pavement markings shall meet the requirements of Section 8-22.3(3); application of raised pavement markers shall meet the requirements of Section 8-09.3; and application of flexible pavement markings shall be in conformance with the manufacturer's recommendations.

8-23.3(4)C Tolerance for Lines

Tolerance for lines shall conform to Section 8-22.3(4).

8-23.3(4)D Maintenance of Pavement Markings

Temporary pavement markings shall be maintained in serviceable condition throughout the project until permanent pavement markings are installed. As directed by the Engineer; temporary pavement markings that are damaged, including normal wear by traffic, shall be repaired or replaced immediately.

Repaired and replaced pavement markings shall meet the requirements for the original pavement marking.

8-23.3(4)E Removal of Pavement Markings

Removal of temporary paint is not required prior to paving; all other temporary pavement markings shall be removed.

All temporary pavement markings that are required on the wearing course prior to construction of permanent pavement markings and are not a part of the permanent markings shall be completely removed concurrent with or immediately subsequent to the construction of the permanent pavement markings. Temporary flexible raised pavement markers on bituminous surface treatment pavements shall be cut off flush with the surface if their location conflicts with the alignment of the permanent pavement markings.

All damage to the permanent Work caused by removing temporary pavement markings shall be repaired by the Contractor at no additional cost to the Contracting Agency.

8-23.4 Measurement

Temporary pavement markings will be measured by the linear foot of each installed line or grouping of markers, with no deduction for gaps in the line or markers and no additional measurement for the second application of paint required for long duration paint lines. Short duration and long duration temporary pavement markings will be measured for the initial installation only; maintenance of lines will not be measured.

8-23.5 Payment

Payment will be made in accordance with Section 1-04.1, for each of the following Bid items that are included in the Proposal:

“Temporary Pavement Marking – Short Duration”, per linear foot.

“Temporary Pavement Marking – Long Duration”, per linear foot.

The unit Contract price per linear foot for “Temporary Pavement Marking – Short Duration” and “Temporary Pavement Marking – Long Duration” shall be full pay for all Work.

9-03.AP9

Section 9-03, Aggregates

April 7, 2014

9-03.1(2)C Use of Substandard Gradings

This section including title is deleted in its entirety and replaced with the following:

Vacant

9-03.14(3) Common Borrow

This section is revised to read:

Material for common borrow shall consist of granular or nongranular soil and/or aggregate which is free of deleterious material. Deleterious material includes wood, organic waste, coal, charcoal, or any other extraneous or objectionable material. The material shall not contain more than 3 percent organic material by weight. The plasticity index shall be determined using test method AASHTO T 89 and AASHTO T 90.

The material shall meet one of the options in the soil plasticity table below.

Soil Plasticity Table

Option	Sieve	Percent Passing	Plasticity Index
1	No. 200	0 - 12	N/A
2	No. 200	12.1 - 35	6 or Less
3	No. 200	Above 35	0

All percentages are by weight.

If requested by the Contractor, the plasticity index may be increased with the approval of the Engineer.

9-03.14(4) Gravel Borrow for Structural Earth Wall

In the second table, the row beginning with "pH" is revised to read:

pH	WSDOT Test Method T 417	4.5 - 9	5 – 10
----	-------------------------	---------	--------

9-05.AP9

Section 9-05, Drainage Structures and Culverts **April 7, 2014**

9-05.13 Ductile Iron Sewer Pipe

The first paragraph is deleted.

9-07.AP9

Section 9-07, Reinforcing Steel **January 6, 2014**

9-07.5(2) Corrosion Resistant Dowel Bars (for Cement Concrete Pavement)

This section's title is revised to read:

9-07.5(2) Corrosion Resistant Dowel Bars (for Cement Concrete Pavement and Cement Concrete Pavement Rehabilitation)

1 **9-09.AP9**

2 **Section 9-09, Timber and Lumber**
3 **January 6, 2014**

4 **9-09.3(1) General Requirements**

5 The fourth paragraph is revised to read:

- 6
- 7 All orders of treated timber and lumber shall be accompanied by a Certificate of
8 Treatment record. The Certificate of Treatment showing conformance to this
9 specification and AWWPA standards shall include the following information:
- 10 Name and location of the wood preserving company,
11 Customer identification,
12 Date of treatment and charge number,
13 Type of chemical used and amount of retention,
14 Treating process and identification of the Specification used,
15 Boring records verifying treatment penetration for timber and lumber with a nominal
16 dimension of 6" x 6" or larger,
17 Description of material that was treated, and
18 Signature of a responsible plant official.

19

20 The fifth paragraph is deleted.

- 21
- 22 The first sentence in the last paragraph is revised to read:
- 23 All timber and lumber to be used in aquatic environments, unless specified otherwise in
24 the Contract, shall be chemically treated using Western Wood Preservers Institute Best
25 Management Practices (BMPs).

26

27 **9-10.AP9**

28 **Section 9-10, Piling**
29 **March 3, 2014**

30 **9-10.5 Steel Piling**

31 This section is revised to read:

- 32
- 33 The material for rolled steel piling H-piling and pile splices shall conform to ASTM A 36,
34 ASTM A 572 or ASTM A 992. The material for steel pipe piling and splices shall
35 conform to one of the following requirements except as specifically noted in the Plans:
- 36
- 37 1. API 5L Grade X42 or X52 material may be used for longitudinal seam welded or
38 helical (spiral) seam submerged-arc welded pipe piles of any diameter.
- 39 2. ASTM A 252 Grade 2 or 3 material may be used for longitudinal seam welded
40 or helical (spiral) seam submerged-arc welded pipe piles of any diameter. For
41 the purposes of welding and prequalification of base metal, steel pipe pile
42 designated as ASTM A 252 may be treated as prequalified provided the
43 chemical composition conforms to a prequalified base metal classification listed
44 in Table 3.1 of the AWS D1.1/D1.1M, latest edition, Structural Welding Code,
45 the grade of pipe piling meets or exceeds the grade specified in the Plans, and
46 the carbon equivalent (CE) is a maximum of 0.45-percent.
- 47 3. ASTM A 572 or ASTM A 588 material may be used for longitudinal seam
48 welded piles of any diameter.

1
2 For helical (spiral) seam submerged-arc welded pipe piles, the maximum radial offset of
3 strip/plate edges shall be 1/8 inch. The offset shall be transitioned with a taper weld and
4 the slope shall not be less than a 1 in 2.5 taper. The weld reinforcement shall not be
5 greater than 3/16 inches and misalignment of weld beads shall not exceed 1/8 inch.
6
7 Steel soldier piles, and associated steel bars and plates, shall conform to ASTM A 36,
8 ASTM A 572 or ASTM A 992, except as otherwise noted in the Plans.
9
10 All steel piling may be accepted by the Engineer based on the Manufacturer's
11 Certificate of Compliance submitted in accordance with Section 1-06.3. The
12 manufacturer's certificate of compliance submittal for steel pipe piles shall be
13 accompanied by certified mill test reports, including chemical analysis and carbon
14 equivalence, for each heat of steel used to fabricate the steel pipe piling.
15

16 **9-14.AP9**

17 **Section 9-14, Erosion Control and Roadside Planting** 18 **April 7, 2014**

19 **9-14.4(6) Gypsum**

20 The first sentence is revised to read:

21
22 Gypsum shall consist of Calcium Sulfate ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$) in a pelletized or granular form.
23

24 **9-14.4(7) Tackifier**

25 This section is revised to read:

26
27 Tackifiers are used as a tie-down for soil, compost, seed, and/or mulch. Tackifiers shall
28 contain no growth or germination-inhibiting materials and shall not reduce infiltration
29 rates. Tackifiers shall hydrate in water and readily blend with other slurry materials.
30

31 The Contractor shall provide test results documenting the tackifier meets the
32 requirements for Acute Toxicity, Solvents, and Heavy Metals as required in Table 1 in
33 Section 9-14.4(2). The tests shall be performed at the manufacturer's recommended
34 application rate.
35

36 **9-14.4(8) Compost**

37 The second paragraph is revised to read:

38
39 Compost production and quality shall comply with WAC 173-350.
40

41 **9-14.4(8)A Compost Submittal Requirements**

42 Item 2 is revised to read:

43
44 5. A copy of the Solid Waste Handling Permit issued to the manufacturer by the
45 Jurisdictional Health Department in accordance with WAC 173-350 (Minimum
46 Functional Standards for Solid Waste Handling).
47

48 **9-14.6(2) Quality**

49 The second and third paragraphs in this section are revised to read:

1
2 All plant material shall comply with State and Federal laws with respect to inspection
3 for plant diseases and insect infestation. Plants must meet Washington State
4 Department of Agriculture plant quarantines and have a certificate of inspection. Plants
5 originating in Canada must be accompanied by a phytosanitary certificate stating the
6 plants meet USDA health requirements.

7
8 All plant material shall be purchased from a nursery licensed to sell plants in their state
9 or province.

10
11 **9-29.AP9**

12 **Section 9-29, Illumination, Signal, Electrical**
13 **April 7, 2014**

14 **9-29.3 Fiber Optic Cable, Electrical Conductors, and Cable**

15 The following new subsection is added:

16
17 **9-29.3(3) Wire Marking Sleeves**

18 Wire marking sleeves shall be full-circle in design, non-adhesive, printable using an
19 indelible ink and shall fit snugly on the wire or cable. Marking sleeves shall be made
20 from a PVC or polyolefin, and provide permanent identification for wires and cables.

21
22 **9-34.AP9**

23 **Section 9-34, Pavement Marking Material**
24 **April 14, 2014**

25 **9-34.2 Paint**

26 The second paragraph is revised to read:

27
28 Blue and black paint shall comply with the requirements of yellow paint in Section 9-
29 34.2(4) and Section 9-34.2(5), with the exception that blue and black paints do not need
30 to meet the requirements for titanium dioxide, directional reflectance, and contrast ratio.

31
32 **9-34.5 Temporary Pavement Marking Tape**

33 This section is revised to read:

34
35 Biodegradable tape with paper backing is not allowed.

36
37 This section is supplemented with the following new sub-sections:

38
39 **9-34.5(1) Temporary Pavement Marking Tape – Short Duration**

40 Temporary pavement marking tape for short duration shall conform to ASTM D4592
41 Type II except that black tape, black mask tape and the black portion of the contrast
42 removable tape, shall be non-reflective.

43
44 **9-34.5(2) Temporary Pavement Marking Tape – Long Duration**

45 Temporary pavement marking tape for long duration shall conform to ASTM D4592
46 Type I. Temporary pavement marking tape for long duration, except for black tape,
47 shall have a minimum initial coefficient of retroreflective luminance of $200 \text{ mcd} \cdot \text{m}^{-2} \cdot \text{lx}^{-1}$

1 when measured in accordance with ASTM E 2832 or ASTM E 2176. Black tape, black
2 mask tape and the black portion of the contrast removable tape, shall be non-reflective.
3
4 **9-34.6 Temporary Raised Pavement Markers**
5 This section's title is revised to read:
6
7 **Temporary Flexible Raised Pavement Markers**
8
9 The second paragraph is deleted.
10
11 **9-35.AP9**

12 **Section 9-35, Temporary Traffic Control Materials**
13 **April 7, 2014**

14 **9-35.0 General Requirements**
15 The following item is deleted from the list of temporary traffic control materials:
16
17 Barrier Drums
18
19 **9-35.8 Barrier Drums**
20 This section including title is deleted in its entirety and replaced with the following:
21
22 **9-35.8 Vacant**
23
24

SECTION II

SPECIAL PROVISIONS

INTRODUCTION TO THE SPECIAL PROVISIONS

(July 31, 2007 APWA GSP)

The work on this project shall be accomplished in accordance with the *Standard Specifications for Road, Bridge and Municipal Construction*, 2014 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 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 project-specific Special Provisions are not labeled as such. 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)

(April 2, 2007 Snohomish GSP)

Also incorporated into the Contract Documents by reference are:

- *Manual on Uniform Traffic Control Devices for Streets and Highways*, currently adopted edition, with Washington State modifications, if any
- *Standard Plans for Road, Bridge and Municipal Construction*, WSDOT/APWA, current edition
- *City of Snohomish Engineering Design and Construction Standards Manual*

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

Wherever reference is made in the Standard Specifications to the Contracting Agency, State, Commission, Department of Transportation, Secretary of Transportation, such reference shall be deemed to be the City of Snohomish through its City Council, employees, and duly authorized representatives.

DIVISION 1

GENERAL REQUIREMENTS

DESCRIPTION OF WORK

(March 13, 1995 WSDOT GSP)

This contract provides for the construction of an 18-inch PVC stormwater trunk main with associated manholes, catch basins, piping and appurtenances all in accordance with the attached Contract Plans, these Contract Provisions, and the Standard Specifications.

1-01 DEFINITIONS AND TERMS

1-01.3 Definitions

(September 12, 2008 APWA GSP)

This Section is supplemented with the following:

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.

Contract

The written agreement between the Contracting Agency and the Contractor. It describes, among other things:

1. What work will be done, and by when;
2. Who provides labor and materials; and
3. How Contractors will be paid

The Contract includes the Contract (Agreement) form; bidder's completed Proposal Form, all required forms, certificates and affidavits, performance, labor and material payment bonds, the 2014 Standard Specifications for Road, Bridge and Municipal Construction and amendments thereto, Contract Provisions, Contract Plans, Standard Plans, City of Snohomish Engineering Standards and Specifications and associated Standard Details, addenda and change orders.

Contract Documents

See definition for "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.

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.

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.

Traffic

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

1-02 BID PROCEDURES AND CONDITIONS**1-02.1 Prequalification of Bidders**

Delete this Section and replace it with the following:

1-02.1 Qualifications of Bidder

(March 25, 2009 APWA GSP)

Bidders must meet the minimum qualifications of RCW 39.04.350(1), as amended:

“Before award of a public works contract, a bidder must meet the following responsibility criteria to be considered a responsible bidder and qualified to be awarded a public works project. The bidder must:

- (a) At the time of bid submittal, have a certificate of registration in compliance with chapter 18.27 RCW;
- (b) Have a current state unified business identifier number;
- (c) If applicable, have industrial insurance coverage for the bidder's employees working in Washington as required in Title 51 RCW; an employment security department number as required in Title 50 RCW; and a state excise tax registration number as required in Title 82 RCW; and
- (d) Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065(3).”

1-02.2 Plans and Specifications

(October 1, 2005 APWA GSP)

Delete this section and replace it with the following:

Information as to where Bid Documents can be obtained or reviewed will be found in the Call for Bids (Advertisement for Bids) 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
Contract Provisions	2	Furnished automatically upon award.
Large plans (e.g., 22" x 34")	2	Furnished automatically upon award.

Additional plans and Contract Provisions may be obtained from the City if needed upon request.

1-02.4 Examination Of Plans, Specifications And Site Of Work

(March 13, 1995 WSDOT GSP)

1-02.4(1) General

(May 2014 COS)

This Section is supplemented with the following:

Contractor shall review the entire Contract to ensure that the completeness of their Proposal includes all items of Work regardless of where shown on the Plans and in the Contract. Bidders are cautioned that alternate sources of information (copies of the Contract obtained from third parties) are not necessarily an accurate or complete representation of the Plans and Contract. Bidders shall use such information at their own risk.

City of Snohomish storm and sewer standards are included in the Appendix.

1-02.5 Proposal Forms

(October 1, 2005 APWA GSP)

Delete this section and replace it with the following:

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.

The project is divided among three bidding schedules. Award will be made as a whole to one BIDDER however; the City reserves the right to award one, all, none or any combination of the Schedules thereof that best serves the interest of the City.

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.

1-02.7 Bid Deposit *(October 1, 2005 APWA GSP)*

Supplement this section with the following:

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.

The bidder must use the bond form included in the Contract Provisions.

1-02.9 Delivery of Proposal

(October 1, 2005 APWA GSP)

Revise the first paragraph to read:

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.

1-02.13 Irregular Proposals

(March 25, 2009 APWA GSP)

Revise item 1 to read:

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

(March 25, 2009 APWA GSP, Option B)

Delete this Section and replace it with the following:

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.

As evidence that the Bidder meets the bidder responsibility criteria above, the apparent two lowest Bidders must submit to the Contracting Agency within 24 hours of the bid submittal deadline, documentation (sufficient in the sole judgment of the Contracting Agency) demonstrating compliance with all applicable responsibility criteria, including all documentation specifically listed in the supplemental criteria. The Contracting Agency reserves the right to request such documentation from other Bidders as well, and to request further documentation as needed to assess bidder responsibility.

The basis for evaluation of Bidder compliance with these supplemental criteria shall be any documents or facts obtained by 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.

If the Contracting Agency determines the Bidder does not meet the bidder responsibility criteria 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 its appeal to the Contracting Agency. The Contracting Agency will consider the appeal before issuing its final determination. If the final determination affirms that the Bidder is not responsible, the Contracting Agency will not execute a contract with any other Bidder until at least two business days after the Bidder determined to be not responsible has received the final determination.

1-02.15 Pre Award Information

(October 1, 2005 APWA GSP)

Revise this section to read:

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.

1-03 AWARD AND EXECUTION OF CONTRACT

1-03.3 Execution of Contract

(October 1, 2005 APWA GSP)

Revise this section to read:

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) working 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) working additional calendar days for return of the documents, provided the Contracting Agency deems the circumstances warrant it.

1-03.4 Contract Bond

(October 1, 2005 APWA GSP)

Revise the first paragraph to read:

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).

1-04 SCOPE OF THE WORK

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

(October 1, 2005 APWA GSP)

Revise the second paragraph to read:

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.

1-04.6 Variation in Estimated QuantitiesReplacement

Section 1-04.6 is hereby deleted and replaced with the following:

Payment to the Contractor will be made only for the actual quantities of work performed and accepted in conformance with the contract. When the actual 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 and within the original time for completion.

1-05.7 Removal of Defective and Unauthorized Work (October 1, 2005 APWA GSP)

Supplement this section with the following:

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.

1-05.11 Final Inspection

Delete this section and replace it with the following:

1-05.11 Final Inspections and Operational Testing (October 1, 2005 APWA GSP)

1-05.11(1) Substantial Completion Date

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, after this inspection, 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 Date

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 Physical Completion Date a complete and operable system. Therefore when the work involves the installation of machinery or other mechanical equipment; street lighting, electrical distribution or signal systems; irrigation systems; buildings; or other similar work it may be desirable for the Engineer to have the Contractor operate and test the work for a period of time after final inspection but prior to the physical completion date. Whenever items of work are listed in the Contract Provisions for operational testing they shall be fully tested under operating conditions for the time period specified to ensure their acceptability prior to the Physical Completion Date. During and following the test period, the Contractor shall correct any items of workmanship, materials, or equipment which prove faulty, or that are not in first class operating condition. Equipment, electrical controls, meters, or other devices and equipment to be tested during this period shall be tested under the observation of the Engineer, so that the Engineer may determine their suitability for the purpose for which they were installed. The Physical Completion Date cannot be established until testing and corrections have been completed to the satisfaction of the Engineer.

The costs for power, gas, labor, material, supplies, 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, when required by the Engineer, shall not affect a manufacturer's guaranties or warranties furnished under the terms of the contract.

1-05.13 Superintendents, Labor and Equipment of Contractor *(March 25, 2009 APWA GSP)*

Revise the seventh paragraph to read:

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

1-05.15 Method of Serving Notices *(March 25, 2009 APWA GSP)*

Revise the second paragraph to read:

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.

Add the following new section:

1-05.16 Water and Power
(October 1, 2005 APWA GSP)

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

Add the following new section:

1-05.17 Oral Agreements
(October 1, 2005 AWPA 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.

1-06 CONTROL OF MATERIAL

Buy America

Section 1-06 is supplemented with the following:

(August 6, 2007 WSDOT GSP)

The major quantities of steel and iron construction material that is permanently incorporated into the project shall consist of American-made materials only. Buy America does not apply to temporary steel items, e.g., temporary sheet piling, temporary bridges, steel scaffolding and falsework.

The Contractor may utilize minor amounts of foreign steel and iron in this project provided the cost of the foreign material used does not exceed one-tenth of one percent of the total contract cost or \$2,500.00 , whichever is greater.

American-made material is defined as material having all manufacturing processes occurring domestically. To further define the coverage, a domestic product is a manufactured steel material that was produced in one of the 50 States, the District of Columbia, Puerto Rico, or in the territories and possessions of the United States.

If domestically produced steel billets or iron ingots are exported outside of the area of coverage, as defined above, for any manufacturing process then the resulting product does not conform to the Buy America requirements. Additionally, products manufactured domestically from foreign source steel billets or iron ingots do not conform to the Buy America requirements because the initial melting and mixing of alloys to create the material occurred in a foreign country.

Manufacturing begins with the initial melting and mixing, and continues through the coating stage. Any process which modifies the chemical content, the physical size or shape, or the final finish is considered a manufacturing process. The processes include rolling, extruding, machining, bending, grinding, drilling, welding, and coating. The action of applying a coating to steel or iron is deemed a manufacturing process. Coating includes epoxy coating, galvanizing, aluminizing, painting, and any other coating that protects or enhances the value of steel or iron. Any process from the original reduction from ore to the finished product constitutes a manufacturing process for iron.

Due to a nationwide waiver, Buy America does not apply to raw materials (iron ore and alloys), scrap (recycled steel or iron), and pig iron or processed, pelletized, and reduced iron ore.

The following are considered to be steel manufacturing processes:

1. Production of steel by any of the following processes:
 - a. Open hearth furnace.
 - b. Basic oxygen.
 - c. Electric furnace.
 - d. Direct reduction.
2. Rolling, heat treating, and any other similar processing.
3. Fabrication of the products.
 - a. Spinning wire into cable or strand.
 - b. Corrugating and rolling into culverts.
 - c. Shop fabrication.

A certification of materials origin will be required for any items comprised of, or containing, steel or iron construction materials prior to such items being incorporated into the permanent work. The certification shall be on DOT Form 350-109EF provided by the Engineer, or

such other form the Contractor chooses, provided it contains the same information as DOT Form 350-109EF.

1-07 LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC

1-07.1 Laws To Be Observed

(May 2014 COS)

Section 1-07.1 is supplemented with the following:

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.

All work under this contract shall be performed in a safe manner. The Contractor all Subcontractors shall observe all rules and regulations of the Washington State Department of Labor and Industries, rules and regulations of OSHA, WISHA or any other jurisdiction, and all other applicable safety standards. The Contractor shall be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the Work. This requirement shall apply continuously and not be limited to normal working hours.

The Engineer's review of the Contractor's work plan, safety plan, construction sequence, schedule or performance does not and is not intended to include review or approval of the adequacy of the Contractor's safety measures in, on, or near the construction site. The Engineer does not purport to be a safety expert, is not engaged in that capacity under the Contract, and has neither the authority nor the responsibility to enforce construction safety laws, rules, regulations or procedures, or to order the stoppage of Work for claimed violations thereof.

The Contractor shall exercise every precaution at all times for the prevention of accidents and the protection of persons (including employees and property. All exposed moving parts of equipment capable of inflicting injury by accidental contact shall be protected with sturdy removable guards in accordance with applicable safety regulations.

1-07.2 State Sales Tax

Delete this section, including its sub-sections, in its entirety and replace it with the following:

1-07.2 State Sales Tax

(October 1, 2005 APWA GSP)

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 Environmental Regulations

Section 1-07.5 is supplemented with the following:

(August 3, 2009 WSDOT GSP)

Environmental Commitments

The following Provisions summarize the requirements, in addition to those required elsewhere in the Contract, imposed upon the Contracting Agency by the various documents referenced in the Special Provision PERMITS AND LICENSES. Throughout the work, the Contractor shall comply with the following requirements:

General

The Contractor shall ensure that the Project Manager representing the Prime Contractor and all Subcontractors has read and understands this Special Provision. Prior to commencing any work on site, the Contractor shall provide the Engineer with a signed statement from the Project Manager stating that the Project Manager has read, understands and will abide by the conditions of this Special Provision.

Wetlands and Water Quality

The following restrictions and requirements pertain to work throughout the project limits:

Areas set aside for wash out of concrete delivery trucks, pumping equipment, and tools shall be approved by the Engineer. This area shall not have any possibility of draining to storm drainage infrastructure or waters of the State including wetlands.

During any operation involving saw cutting of concrete, a vacuum method to collect all concrete dust and debris shall be used at all times. Additionally, all water generated by the cutting operation shall be controlled and contained, to be disposed of on land with no possibility of entry to waters of the State, including wetlands.

Payment

All costs to comply with this special provision for the environmental commitments and requirements are incidental to the contract and are the responsibility of the Contractor. The Contractor shall include all related costs in the associated bid prices of the contract.

1-07.17 Utilities and Similar Facilities (May 2014 XOS)

This Section is supplemented with the following:

Locations and dimensions shown in the Plans for existing facilities are in accordance with available information obtained with out uncovering, measuring or other verification.

Utility Locations

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

Water City of Snohomish Joe Palmer Water Division Lead 425-328-0068	Sewer and Storm Drain City of Snohomish Dereck DeBardi Sewer and Water Division Lead 425-328-6251
Power Snohomish County PUD 360-563-2218	Gas Puget Sound Energy 1-888-225-5773
Cable Comcast Casey Brown 425-754-0064	Phone Frontier Marsha Hall 425-231-4609

1-07.17(2) Utility Construction, Removal, or Relocation by Others (May 2014 COS)

Delete this Section in its entirety and replace with the following:

Any authorized agent of the Contracting Agency or utility owners may enter the right-of-way to repair, rearrange, alter, or connect their equipment. The Contractor shall cooperate with such effort and shall avoid creating delays or hindrances to those doing the work. As needed, the Contractor shall arrange to coordinate work schedules.

The Contractor shall carry out the Work in a way that will minimize interference and delay for all forces involved. Any costs incurred prior to the utility owners anticipated completion (or if no completion is specified, within a reasonable period of time) that results from the coordination and prosecution of the Work regarding utility adjustment, relocation, replacement, or construction shall be at the Contractor's expense as provided in Section 1-05.14.

The Contractor shall coordinate all work with the various utility companies and their Contractors. The Contractor, when scheduling his work crews, shall use production rates that anticipate the need to provide buck-outs and/or gaps in the driveways, curb and gutter, and/or pavement sections where existing utility structures currently exist, and then come back at a later time to construct the missing sections after the utility has been relocated or adjusted by the applicable utility. The Contractor shall assume that the utilities will not be relocated prior to construction of this project nor at his convenience during the course of construction. As such, the Contractor shall assume such, and schedule his crews and his subcontractors to remobilize to the various sites and temporarily relocate his or his subcontractor's crews to other areas of the project and complete other unaffected portions of the project in order to coordinate the relocation of the utilities with the various utility companies. There shall be no additional money or time due the Contractor for leaving gaps or for buck-out construction, remobilization, demobilization, out of sequence construction, relocation of work crews, and construction of curb, gutter, or driveway patches after the utility has been relocated. It is the intent of these Specifications that the Contractor diligently pursue other work on the site when such conflicts occur and recognize and plan for the inherent inefficiencies and impaired production rates.

Payment

All costs to comply with this Section and repair specified in this Section, unless otherwise stated, are incidental to the Contract and are the responsibility of the Contractor. The Contractor shall include all related costs in the bid prices of the Contract.

1-07.18 Public Liability and Property Damage Insurance

Delete this section in its entirety, and replace it with the following:

1-07.18 Insurance (May 10, 2006 APWA GSP)

1-07.18(1) General Requirements

- A. The Contractor shall obtain the insurance described in this section from insurers approved by the 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, which is licensed to do business in the state of Washington (or issued as a surplus line by a Washington Surplus lines broker). 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.

- B. 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 (see C. below).
- C. If any insurance policy is written on a claim 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.
- D. The insurance policies shall contain a "cross liability" provision.
- E. 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.
- F. All insurance policies and Certificates of Insurance shall include a requirement providing for a minimum of 45 days prior written notice to the Contracting Agency of any cancellation in any insurance policy.
- G. Upon request, the Contractor shall forward to the Contracting Agency a full and certified copy of the insurance policy(s).
- H. The Contractor shall not begin work under the contract until the required insurance has been obtained and approved by the Contracting Agency.
- I. 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.
- J. 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):

- the Contracting Agency and its officers, elected officials, employees, agents, and volunteers

The above-listed entities shall be additional insured(s) 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.

1-07.18(3) Subcontractors

Contractor shall ensure that each subcontractor of every tier obtains and maintains at a minimum the insurance coverages listed in 1-07.18(5)A and 1-07.18(5)B. 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 Certificate(s) of Insurance and 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 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.

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

A policy of Commercial General Liability Insurance, including:

- Per project aggregate
- Premises/Operations Liability
- Products/Completed Operations – for a period of one year following final acceptance of the work.
- Personal/Advertising Injury

Contractual Liability
Independent Contractors Liability
Stop Gap / Employers' Liability
Explosion, Collapse, or Underground Property Damage (XCU)
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:

\$1,000,000 Each Occurrence
\$3,000,000 General Aggregate
\$1,000,000 Products & Completed Operations Aggregate
\$1,000,000 Personal & 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

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

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.

1-07.18(5)F Excess or Umbrella Liability

The Contractor shall provide Excess or Umbrella Liability coverage at limits of \$2,000,000 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.

1-07.23 Public Convenience And Safety

(April 2, 2007 WSDOT GSP)

Work Zone Clear Zone

The Work Zone Clear Zone (WZCZ) applies during working and nonworking hours. The WZCZ applies only to temporary roadside objects introduced by the Contractor's operations and does not apply to preexisting conditions or permanent Work. Those work operations that are actively in progress shall be in accordance with adopted and approved Traffic Control Plans, and other contract requirements.

During nonworking hours equipment or materials shall not be within the WZCZ unless they are protected by permanent guardrail or temporary concrete barrier. The use of temporary concrete barrier shall be permitted only if the Engineer approves the installation and location.

During actual hours of work, unless protected as described above, only materials absolutely necessary to construction shall be within the WZCZ and only construction vehicles absolutely necessary to construction shall be allowed within the WZCZ or allowed to stop or park on the shoulder of the roadway.

The Contractor's nonessential vehicles and employees private vehicles shall not be permitted to park within the WZCZ at any time unless protected as described above.

Deviation from the above requirements shall not occur unless the Contractor has requested the deviation in writing and the Engineer has provided written approval.

Minimum WZCZ distances are measured from the edge of traveled way and will be determined as follows:

Posted Speed	Distance From Traveled Way (Feet)
35 mph or less	10 *
40 mph	15
45 to 55 mph	20
60 mph or greater	30

* or 2-feet beyond the outside edge of sidewalk

Minimum Work Zone Clear Zone Distance

1-07.23(1) Construction Under Traffic

Section 1-07.23(1) is supplemented with the following:

(August 7, 2006 WSDOT GSP)

Lane closures are subject to the following restrictions:

1. Lane closures will be allowed between 8:00 am and 5:00 pm Monday through Friday except as described below.

If the Engineer determines the permitted closure hours adversely affect traffic, the Engineer may adjust the hours accordingly. The Engineer will notify the Contractor in writing of any change in the closure hours.

No lane closures will be allowed on a holiday or holiday weekend, or after 12:00 PM (noon) on a day prior to a holiday or holiday weekend. Holidays that occur on Friday, Saturday, Sunday or Monday are considered a holiday weekend.

1-07.23(2) Construction and Maintenance of Detours

Section 1-07.23(2) is supplemented with the following:

Detours are allowed under the following conditions and are subject to the following restrictions:

1. Temporary road closures with associated Detours if needed will be allowed on 2nd Street, Avenue E, Avenue F, Avenue G, and Avenue H as approved by the Engineer.

If the Engineer determines the permitted closure hours adversely affect traffic, the Engineer may adjust the hours accordingly. The Engineer will notify the Contractor in writing of any change in the closure hours.

No road closures will be allowed on a holiday or holiday weekend, or after 12:00 PM (noon) on a day prior to a holiday or holiday weekend. Holidays that occur on Friday, Saturday, Sunday or Monday are considered a holiday weekend.

1-07.24 Rights of Way (October 1, 2005 APWA GSP)

Delete this section in its entirety, and replace it with the following:

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

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 in 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.

1-08 PROSECUTION AND PROGRESS

Add the following new section:

1-08.0 Preliminary Matters *(May 25, 2006 APWA GSP)*

Add the following new section:

1-08.0(1) Preconstruction Conference *(October 10, 2008 APWA GSP)*

Prior to the Contractor beginning the work, a preconstruction conference will be held between the Contractor, the 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 of all lump sum items;
2. A preliminary schedule of working drawing submittals; and
3. A list of material sources for approval if applicable.

Add the following new section:

1-08.0(2) Hours of Work
(May 25, 2006 APWA GSP)

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 noon on the working day 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.

1-08.4 Notice to Proceed and Prosecution of the Work

(October 1, 2005 APWA GSP)

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

(May 2014 COS)

Delete this Section in its entirety and replace with the following:

The Contractor shall complete all Contract Work within the number of "working days" stated in the Contract Provisions or as extended by the Engineer in accordance with Section 1-08.8. Every day will be counted as a "working day" unless it is a nonworking day or an Engineer determined unworkable day. A nonworking day is defined as a Saturday, a Sunday, a day on which the Contract specifically suspends Work, or one of these holidays: January 1, the third Monday of January, the third Monday of February, Memorial Day, July 4, Labor Day, November 11, Thanksgiving, and Christmas Day. When any of these holidays fall on a Sunday, the following Monday shall be counted a nonworking day. When the holiday falls on a Saturday, the preceding Friday shall be counted a nonworking day. The days between December 25 and January 1 will be classified as nonworking days, provided the Contractor actually suspends performance of the Work.

Any unworkable day is defined as a half or whole day the Engineer declares to be unworkable because of weather or conditions caused by the weather that prevents satisfactory and timely performance of the Work shown on the critical path of the Contractor's approved progress schedule. Other conditions beyond the control of the Contractor may qualify for an extension of time in accordance with Section 1-08.8.

The Contract time shall begin on the first working day following the 10th calendar day after the issuance of the written notice to proceed or the first day on which the Contractor begins to perform Work on the site, whichever first occurs. The Contract Provisions may specify another starting date for the Contract time, in which case time will begin on the starting date specified.

Each working day shall be charged to the Contract as it occurs until the Work is physically complete. If requested by the Contractor in writing, the Engineer will provide the Contractor with a weekly statement that shows the number of working days: (1) charged to the Contract the week before; (2) specified for the substantial and 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 days that the Engineer determines to be unworkable. If the Contractor disagrees with any statement issued by the Engineer, the Contractor shall submit a written protest within 10 calendar days after the date of the statement. The protest shall be sufficiently detailed to enable the Engineer to ascertain the basis for the dispute and the amount of time disputed. Any statement that is not protested by the Contractor as required in this Section shall be deemed as having been accepted. If the Contractor elects to work 10 hours a day for four days a week (a 4-10 schedule), the fifth day of the week of that week will be charged as a working day if that day would be chargeable as a working day if the Contractor had not elected to utilize the 4-10 schedule.

The Engineer will give the Contractor written notice of the Completion Date of the Contract after all of the Contractor's obligations under the Contract have been performed by the Contractor. The following events must occur before the Completion Date will 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. Certified payrolls (Federal-aid projects);
 - b. Material acceptance certification documents;
 - c. Annual report of amounts paid as MBE/WBE participants or quarterly report of amounts credited as DBE participation, as required by the Contract Provisions
 - d. Final Contract voucher certification;
 - e. Property owner releases if needed as required by Section 1-07.24.

1-08.5 Time for Completion
(June 28, 2007 APWA GSP, Option B)

Revise the third and fourth paragraphs to read:

Contract time shall begin on the first working day following the seventh calendar day after the Notice to Proceed date. If the Contractor starts work on the project at an earlier date, then contract time shall begin on the first working day when onsite work begins.

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.

Revise the sixth paragraph to read:

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. Certified Payrolls (each pay period)
 - b. Material Acceptance Certification Documents
 - c. A report listing the names and addresses of the subcontractors and suppliers receiving contract funds from the Project.
 - d. Final Contract Voucher Certification
 - e. Any Property owner releases per Section 1-07.24

1-08.7 Maintenance During Suspension
(October 1, 2005 APWA GSP)

Revise the second paragraph to read:

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.

1-09.1 Asphalt
(May 2014 COS)

Supplement this section with the following:

Asphalt Patch shall be measured by trench neat line and not to exceed 4-inches in depth. Payment for Asphalt Patch shall be per ton based on measurement parameters listed in this supplement.

Asphalt Pathway shall be measured by neat line and not to exceed 3-inches in depth. Payment for Asphalt Patch shall be per ton based on measurement parameters listed in this supplement.

1-09.6 Force Account
(October 10, 2008 APWA GSP)

Supplement this section with the following:

The Contracting Agency has estimated and included in the Proposal, dollar amounts for all items to be paid per force account, only to provide a common proposal for Bidders. All such dollar amounts are 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 those estimates. Payment will be made on the basis of the amount of work actually authorized by Engineer.

1-09.9 Payments
(October 10, 2008 APWA GSP)

Delete the third paragraph and replace it with the following:

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 after signature of approval by the City Manager.

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.

1-09.13(3) Claims \$250,000 or Less
(October 1, 2005 APWA GSP)

Delete this Section and replace it with the following:

The Contractor and the Contracting Agency mutually agree that those claims that total \$250,000 or less, submitted in accordance with Section 1-09.11 and not resolved by nonbinding ADR processes, shall be resolved through litigation unless the parties mutually agree in writing to resolve the claim through binding arbitration.

DIVISION 2
EARTHWORK

2-02 REMOVAL OF STRUCTURES AND OBSTRUCTIONS

2-02.1 Description

Supplement this section with the following:

The work includes removing and disposing of sanitary and storm drain structures and pipe, water main pipe, associated hydrants, valves and services, sidewalk, curb ramps, curb and gutter, not included in Roadway Excavation, and any miscellaneous work needed to perform the work shown on the Plans.

2-02.3 Construction Requirements

(May 2014 COS)

This Section is supplemented with the following:

The removal of any existing improvements shall be conducted in such a manner as not to damage utilities and any portion of the infrastructure that is to remain in place. Any deviation in this matter will obligate the Contractor at his own expense, to repair, replace or otherwise make proper restoration to the satisfaction of the Contracting Agency.

When sawing of concrete or combinations of materials is required, the depth of cut shall be as such to accomplish the intended purpose, without damaging surfaces to be left in place and will be determined in the field to the satisfaction of the Engineer.

2-02.3(3) Removal of Pavement, Sidewalks, Curbs and Gutters

(May 2014 COS)

This Section is supplemented with the following:

Existing cement concrete sidewalks, roadway slabs, curbs, and curbs and gutters shall be removed at the nearest construction joint where possible and removed and waste hauled as required for the construction of this Project. Where directed by the Engineer, cement concrete curbs or curb and gutter shall be saw-cut per Section 2-02.3(6) prior to removal. Existing pavement shall be pre-cut per Section 2-02.3(6) before commencing excavation and shall be removed as required for the construction.

2-02.3(5) Waste Disposal (New Section)

(May 2014 COS)

Waste materials shall be loaded and hauled to a waste site secured by the Contractor and shall be disposed of in such a manner as to meet all requirements of state, county and municipal regulations regarding health, safety and public welfare.

Trench excavation soils may be hauled to the City Pit located at 123rd Ave SE, Snohomish, WA, if approved by the Public Works Inspector. Contractor shall coordinate hauling all soils, if approved, to the City Pit with the Public Works Inspector relative to haul hours and off loading locations.

2-02.3(6) Sawcutting (New Section)

(May 2014)

Where shown on the Plans or where directed in the field by the Engineer, the Contractor shall make a neat vertical saw-cut at the boundaries of the area to be removed. Care shall be taken

during saw cutting so as to prevent damage to the existing asphalt concrete, or concrete, to remain in place. Any pavement or concrete damaged by the Contractor outside the area scheduled for removal due to the Contractor's operations or negligence shall be repaired or replaced to the Contracting Agency's satisfaction by the Contractor at no additional cost to the Contracting Agency.

All cuts shall be continuous, full depth, and shall be made with saws specifically equipped for this purpose. No skip cutting or jack hammering will be allowed unless specifically approved otherwise in writing by the Engineer. Any pavement that is damaged outside the allowable trench widths or as marked in the field, not included in the overlay, in accordance with the Plans or pre-approved by the Contracting Agency shall be repaired entirely at the Contractor's expense.

Wheel cutting or jack hammering shall not be considered an acceptable means of pavement "cutting," unless pre-approved in writing by the Engineer. However, even if pre-approved as a method of cutting, no payment will be made for this type of work, and it shall be included in the various unit contract and lump sum prices listed in the Proposal. The location of all pavement cuts shall be pre-approved by the Engineer in the field before cutting commences. All water and slurry material resulting from saw cutting operations shall be vacuumed and not be allowed to enter the storm drainage or sanitary sewer system. It shall be removed from the site and disposed of in accordance with the Washington State Department of Ecology regulations.

2-02.5 Payment

(May 2014 COS)

This Section is supplemented with the following:

All costs for saw cutting as indicated in the Plans and as may be additionally necessary to construct the Project shall be included in the unit Contract and lump sum prices as listed in the Proposal. No additional or separate payment will be made for saw cutting.

The lump sum contract price for "Removal of Structure and Obstruction" shall be full compensation for furnishing all tools, labor, equipment, materials, and incidentals necessary for removing, loading, hauling, relocating, disposing of, and/or delivering items as noted herein and directed in the field by the Engineer, to include but not limited to, fees, fuel and permits related to disposal.

2-02.4 Measurement

Supplement this section with the following:

Sawcutting will be measured by the linear foot of sawcut, along the line and grade of the sawcut and the limits of the sawcut as shown in the Plans.

2-02.5 Payment

Supplement this section with the following:

"Saw cutting", per linear foot.

The unit contract price per linear foot for "Sawcutting" shall be full pay for performing the work as specified, including containment, collection, and disposal of all saw cutting debris and wastewater.

2-03 ROADWAY EXCAVATION AND EMBANKMENT

2-03.3(14)C Compacting Earth Embankments

Supplement this section with the following:

Method C shall be used for this project.

2-03.4 Measurement

This section is revised as follows:

Only one determination of the original ground elevation will be made on this project. Measurement for roadway excavation will be based on the original ground elevations recorded previous to the award of this contract. If discrepancies are discovered in the ground elevations which will materially affect the quantities of earthwork, the original computations of earthwork quantities will be adjusted accordingly.

Included in the Roadway Excavation quantity shown in the Bid Proposal is the estimated excavation to rebuild the pavement sections, extra excavation to remove underlying tree root systems and poor subgrade sections needed, removal of sidewalk, curb and gutter within excavation areas, and excavation for planting areas.

2-03.4 Measurement (May 2014 COS)

This Section is supplemented with the following:

Measurement of Over Excavation and Unsuitable Foundation Excavation, Incl. Haul will be per cubic yard, as field neat line measured in the excavated area (not truck measurement)

2-03.5 Payment

2-04 HAUL (May 2014 COS)

This Section is supplemented with the following:

If the sources of materials provided by the Contractor necessitates hauling over any public roads, the Contractor shall, at the Contractor's expense, make all arrangements for the use of the haul routes. No separate monies will be due the Contractor for this work.

2-09 STRUCTURE EXCAVATION

(May 2014 COS)

This Section is supplemented with the following:

When any work is being considered by the Contractor in the vicinity of an existing utility, the Contractor shall so inform an authority of the particular utility in ample time so that the utility involved and the Contractor may take any precautions necessary to facilitate construction in the vicinity of the utility, and thereby protect that particular utility from damage.

Protecting and Maintaining Utility Service

The Contractor shall protect and maintain the operational service of existing utility systems in a continuous manner as possible. The Contractor shall have the approval from the Engineer and notification shall be given to the Contracting Agency before any disruptions of service in existing utilities will be allowed. The Contractor shall comply with all the conditions established by the Engineer and the Contracting Agency. The Contractor shall give the utility owner a minimum notice of 48 hours before disrupting any planned service interruption. No planned interruption to an existing system shall be allowed on Fridays, weekends, or holidays, unless specifically agreed to in writing by the Contracting Agency. Where services are to be shut down, affected parties shall be notified in writing by the Contractor (i.e., door hangers) at least 48 hours and not more than 72 hours in advance of the time and period of shut down. The Contractor shall make every effort to keep shut down schedules to periods of anticipated minimum usage and for the least period of time.

Where the construction crosses or is adjacent to existing utilities, the Contractor shall exercise extreme care to protect such utilities from damage. Additionally, the Contractor shall review the Plans, the project site and familiarize himself with the various utilities and plan his construction activities in recognition that the very close proximity of existing utilities to the proposed work will adversely affect production rates of installation of the various planned improvements. The Contractor is hereby advised and cautioned that the location of existing utilities will be cause for considerable and extreme care and due diligence on the part of the Contractor. As such, work production rates are anticipated to be significantly impacted by their presence and normal production rates should not be anticipated, during construction by the Contractor for work in these areas. The Contractor shall anticipate minor alignment adjustments will also be required to accommodate the installation of utilities.

4-04.5 Payment

(May 2014 COS)

This Section is supplemented with the following:

The unit contract prices bid for the various types of ballast, structural fill, crushed surfacing base course, and crushed surfacing top course materials shall include all costs for obtaining the materials, hauling the materials to the site, stockpiling, spreading, grading, shaping, compaction and material testing, and all other incidentals, complete, in place and in good working order. Asphalt grindings are not subject to reimbursement under any of these bid items.

DRAINAGE STRUCTURES, STORM SEWERS, SANITARY SEWERS, WATER MAINS AND CONDUITS

7-04 STORM SEWERS

7-04.1 Description

This Section is supplemented with the following:

The Contractor shall furnish, install, and operate all necessary equipment to bypass storm drainage flows around the construction areas until such time that the new drainage system is ready to convey these flows.

7-04.3(1)A General (May 2014 COS)

This Section is supplemented with the following:

All lines shall be flushed clean of all debris prior to acceptance. The debris shall be intercepted and collected at the nearest downstream point of access. The material shall then be loaded and waste hauled to a Contracting Agency approved dumpsite.

7-04.5 Payment

This Section is supplemented with the following:

Payment will be made in accordance with Section 1-04.1, for each of the following bid items that are included in the Proposal:

The unit contract price per linear foot of storm drain pipe shall constitute full compensation for all labor, materials, tools, equipment, transportation, supplies, and incidentals required to complete all work to furnish and install this item, to include but not limited to excavation, pipe bedding, backfill, compaction, removal and waste haul of excess or unsuitable excavated material, dewatering, bypass pumping and maintaining storm sewer flows, connections to existing and new systems, flushing, cleaning, and testing.

7-05 MANHOLES, INLETS, CATCH BASINS, AND DRYWELLS

7-05.3 Construction Requirements

(May 2014 COS)

This Section is supplemented with the following:

The Contractor shall construct all manholes and catch basins from precast concrete bases and risers. Cast-in-place concrete bases shall only be used for “straddle” of existing systems and shall be watertight. In areas of new and existing pavement, the grate rim elevation shall be set to promote drainage flow. In unimproved areas, the rim elevations shall be set as shown on the Plans. Dewatering shall be per Section 7-08.3(1).

Unless specifically noted herein or shown differently on the Plans, the Contractor shall connect to the manhole and catch basin as follows:

<u>Pipe</u>	<u>Connection System</u>
DI	Kor-N-Seal*
HDPE	Kor-N-Seal*
PVC	Kor-N-Seal*
Corrugated Polyethylene	Per Manufacturer’s
Recommendation	
*Or Contracting Agency approved equal.	

All pipes entering manholes, catch basins, and dry well structures shall be securely connected to the structures with either a boot-type rubber coupling or a heavy-duty sand collar per manufacturer’s recommendations to effectively seal the pipe to the structure.

7-05.4 Measurement

(May 2014 COS)

This Section is supplemented with the following:

Manholes and catch basins will be measured per each and shall include frame and cover. No additional payment will be made on the basis of manhole or catch basin height.

7-05.5 Payment

(May 2014 COS)

This Section is supplemented with the following:

Payment will be made in accordance with Section 1-04.1, for each of the following bid items that are included in the Proposal:

The unit contract price per each for each catch basin and manhole shall constitute full compensation for all labor, materials, tools, equipment, transportation, supplies, and incidentals required to complete all work to furnish and install this item, to include but not limited to structure excavation, foundation gravel, backfill, compaction, removal and waste haul of excess

or unsuitable excavated material, pipe connection, channelizing, dewatering, bypass pumping and maintaining flows, and adjusting to finished grade.

7-08 GENERAL PIPE INSTALLATION REQUIREMENTS

7-08.2 Materials

(May 2014 COS)

This Section is supplemented with the following:

Gravel Backfill for Pipe Zone Bedding shall meet the requirements of Section 9-03.9(3) for Base Course. Bank Run Gravel for Trench Backfill shall meet the requirements of Section 9-03.9(3) for Base Course.

7-08.3(1)A Trenches

This Section is supplemented with the following:

Payment for trench excavation shall be included in the unit price for each respective pipe to be installed as part of this project. No separate or additional payment for trench excavation beyond the unit price bid for each respective pipe will be paid.

The length of trench excavation in advance of pipe laying shall be kept to a maximum of 100 feet. Excavation shall either be closed up at the end of the day or protected per Section 1.07.23(1).

The Contractor shall limit his excavation to the limits of the maximum payment width and depth shown on the Plans. If the Contractor purposely or neglectfully excavates trenches to a width or depth beyond the neat line payment limit of the trench as shown on the Plans, the expenses associated with any additional trenching, waste haul, trench backfill, compaction and testing, and surface restoration as a result of excavating beyond the neat line payment limits shall be borne by the Contractor.

It is not anticipated that solid rock will be encountered. Should such material be encountered, the excavation, removal and waste haul will be paid for by change order per Section 1-04.4. Boulders or broken rock less than 2 cubic yards in volume, shall not be classified as rock, nor will so called "hard-pan" or cemented gravel, even though it may be advantageous to use special equipment in its removal.

Trench excavation shall also include waste hauling all excess and/or unsuitable material encountered, including but not limited to, abandoned pipelines, concrete, asphalt, tree stumps, trees, logs, abandoned rail ties, piling, and riprap.

The Contractor shall furnish all equipment necessary to dewater the excavation. Before operations begin, the Contractor shall have sufficient pumping equipment and/or other

machinery available on site to assure that the operation of any dewatering system can be maintained.

The Contractor shall dispose of the water in such a manner as not to cause a nuisance or menace to the public, and comply with all codes, regulations, and ordinances of applicable governing authorities with regard to drilling, dewatering, and erosion control. The release of groundwater to its static level shall be performed in such a manner as to maintain the undisturbed state of the natural foundation soil, prevent disturbance of backfill and prevent movement of structures and pipelines.

The dewatering system shall be installed and operated by the Contractor so that the groundwater level outside the excavation is not reduced to the extent that would damage or endanger adjacent structures or property. Should settlement of the surrounding area and/or structures be observed, the Contractor shall cease dewatering operations and implement contingency plans. The cost of repairing any damage to adjacent structures, underground facilities or utilities and satisfactory restoration of above ground facilities to include fences, paving, concrete, etc., shall be the responsibility of the Contractor.

The Contractor shall be required to comply with all conditions and requirements mandated by the Department of Ecology for the construction, operation, and decommissioning of dewatering facilities.

7-08.3(2)B Pipe Laying – General (May 2014 COS)

This Section is supplemented with the following:

All pipe shall be unloaded from delivery vehicles with mechanical equipment. Dropping of pipe onto the ground or mats will not be permitted. All pipe and fittings shall be carefully lowered into the trench in such a way as to prevent damage to pipe materials and protective coatings and linings. Under no circumstances shall materials be dropped or dumped into the trench.

Every precaution shall be taken to prevent foreign material from entering the pipe while it is being laid. The pipe shall be secured in place with pipe bedding tamped under it. Precaution shall be taken to prevent dirt from entering the joint space. At times when pipe laying is not in progress, the open ends of pipe shall be closed by a watertight plug or other means approved by the Contracting Agency. If water is in the trench when work resumes, the seal shall remain in place until the trench is dewatered as specified for groundwater control.

All connections to existing pipe of differing materials shall be made with adapters per the City of Snohomish Standards and Specifications.

7-04.5 Payment

This Section is supplemented with the following:

The unit contract price per linear foot of storm sewer pipe shall constitute full compensation for all labor, materials, tools, equipment, transportation, supplies, and incidentals required to complete all work to furnish and install this item, to include but not limited to excavation, pipe bedding, backfill, compaction, removal and waste haul of excess or unsuitable excavated material, dewatering, bypass pumping, connections to existing and new systems, flushing, cleaning, and testing.

MISCELLANEOUS CONSTRUCTION

8-01 EROSION CONTROL AND WATER POLLUTION CONTROL

8-01.1 Description

This Section is supplemented with the following:

This Work includes installation, maintenance, and removal of silt fence, straw bales, filter bags, inlet protection, street cleaning, and all other erosion and water pollution control devices necessary to prevent impacts to the Pilchuck and Snohomish Rivers.

8-04 CURB, GUTTERS, AND SPILLWAYS

8-04.3 Construction Requirements (May 2014 COS)

This Section is supplemented with the following:

Any curb and gutter damaged, defaced, cracked, chipped, or determined to be of poor workmanship, in the opinion of the Contracting agency, shall be removed, waste hauled and replaced by the Contractor, at the Contractor's expense. Sacking and grinding shall not be considered an acceptable means for repairing unacceptable sections. The Contractor shall further provide verbal and written notice (door hangers) to property owners identifying restricted use of their driveways, sidewalks, etc. This notice must be provided twice: at 1 week prior and again 1 day prior to the work being performed.

8-14 CEMENT CONCRETE SIDEWALKS

8-14.3 Construction Requirements (May 2014 COS)

This Section is supplemented with the following:

Any sidewalk damaged, defaced, cracked chipped, or determined to be of poor workmanship, in the opinion of the Contracting Agency, shall be removed, waste hauled, and replaced by the Contractor at the Contractor's expense. Damaged sidewalk shall be removed at a construction or

expansion joint, Sawcutting will not be allowed. Sacking, grinding, or spot repairs shall not be considered an acceptable means for repairing unacceptable sections. The Contractor shall further provide verbal and written notice (door hangers) to property owners identifying restricted use of their driveways, sidewalks, etc. This notice must be provided twice: at one (1) week prior and again one (1) day prior to the work being performed.

8-13 MONUMENT CASES

8-13.1 Description

Supplement this section with the following:

This Work shall also include furnishing and replacing monuments under the supervision of a Professional Licensed Surveyor.

8-13.3 Construction Requirements

The fourth paragraph is deleted and this section is supplemented with the following:

The Contractor shall be responsible for reestablishing legal survey markers such as monuments and monument cases under the supervision of a Professional Licensed Surveyor, and for filing all the necessary monument replacement forms through the Washington State Department of Natural Resources.

All survey work performed by the Contractor shall conform to all applicable sections of the Revised Code of Washington and the Washington Administrative Code.

The Contractor shall perform all of the necessary calculations for the contracted survey work and shall provide copies of these calculations to the Contracting Agency. Electronic files of all survey data shall be provided and in a format acceptable to the Contracting Agency.

The Contractor shall provide all traffic control, signing, and temporary traffic control devices in order to provide a safe work zone.

8-13.4 Measurement

Revise this section to read:

Measurement of monument, case and cover will be by the unit for each monument replaced.

8-13.5 Payment

Revise the bid item to read:

“Monument”, per each.

8-30 MISCELLANEOUS

(May 2014 COS)

This Section is supplemented with the following:

8-30.1 Project Documentation

(May 2014 COS)

Description

The Work described in this section includes record drawings, photographs, and property release forms.

Construction Requirements Record Drawings

Record drawings and other documents are to be maintained and annotated by the Contractor during construction as follows: (1) a neatly and legibly marked set of Contract Plans showing the final location of piping, structures, paving limits, curbs, gutters, sidewalks, relocated utility structures, monuments, channelization, etc.; (2) additional documents such as schedules, lists, drawings, and easement/permit forms included in the Specifications; and (3) Contractor layout and installation drawings.

Unless otherwise specified, record drawings shall be full size and maintained in a clean, dry, and legible condition. Record documents shall not be used for construction purposes and shall be available for review by the Contracting Agency during normal working hours at the Contractor's field office. At the completion of the Work and prior to final payment, all record drawings and attachments shall be submitted to the Contracting Agency.

The record drawings shall be prepared concurrently with the Work being performed and shall be kept current at all times. Annotations to the record documents shall be made with an erasable colored pencil conforming to the following color code:

Additions	Red
Deletions	Green
Comments	Blue
Dimensions	Graphite

The record drawings shall identify all existing or abandoned utilities that were found during construction and not shown on the original Contract Plans. The Contractor will be provided with one set of Contract Plans for this purpose. At the end of the project, each record drawing and other document shall be stamped and signed by the Contractor, attesting to the accuracy of the drawing or other document.

Photographs

The Contractor shall provide comprehensive preconstruction photographs of the entire Work site and adjoining properties. The photographs shall provide complete coverage of all features.

Before construction starts, two each 4" x 6" color glossy prints of each exposure, together with the electronic file, shall be delivered to the Contracting Agency. Photographs shall be taken in and along the project limits, prior to construction. Special attention shall be provided to depict existing conditions, edge of pavement, drainage facilities, and utility markers. The photographs shall be of commercial quality and the back of each glossy color print shall indicate the date, name of the project and the location and direction where the photograph was taken. Photographs shall be provided in one bound 3 ring photograph album, with photographs arranged in a logical order and protected by clear plastic sheeting or sleeves specifically made for this purpose. The Contractor shall provide post-construction photographs from the same spot and angle as the pre-construction photographs. The Contractor shall provide a minimum of 24 pre and 24 post-construction photographs of each Work site.

Payment

All work required to complete the project documentation shall be considered incidental to the contract and as such merged in the various items bid.

APPENDICIES

- A. PREVAILING MINIMUM HOURLY WAGE RATE
- B. CITY OF SNOHOMISH STORM AND SEWER AND
SPECIFICATIONS AND STANDARD DETAILS

State of Washington
Department of Labor & Industries
Prevailing Wage Section - Telephone 360-902-5335
PO Box 44540, Olympia, WA 98504-4540

Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Journey Level Prevailing Wage Rates for the Effective Date: 05/27/14

<u>County</u>	<u>Trade</u>	<u>Job Classification</u>	<u>Wage</u>	<u>Holiday</u>	<u>Overtime</u>	<u>Note</u>
Snohomish	Asbestos Abatement Workers	Journey Level	\$41.69	<u>5D</u>	<u>1H</u>	
Snohomish	Boilermakers	Journey Level	\$64.44	<u>5N</u>	<u>1C</u>	
Snohomish	Brick Mason	Brick And Block Finisher	\$43.26	<u>5A</u>	<u>1M</u>	
Snohomish	Brick Mason	Journey Level	\$50.12	<u>5A</u>	<u>1M</u>	
Snohomish	Brick Mason	Pointer-Caulker-Cleaner	\$50.12	<u>5A</u>	<u>1M</u>	
Snohomish	Building Service Employees	Janitor	\$9.32		<u>1</u>	
Snohomish	Building Service Employees	Shampooer	\$9.32		<u>1</u>	
Snohomish	Building Service Employees	Waxer	\$9.32		<u>1</u>	
Snohomish	Building Service Employees	Window Cleaner	\$13.48		<u>1</u>	
Snohomish	Cabinet Makers (In Shop)	Journey Level	\$15.08		<u>1</u>	
Snohomish	Carpenters	Acoustical Worker	\$50.82	<u>5D</u>	<u>1M</u>	
Snohomish	Carpenters	Bridge, Dock And Wharf Carpenters	\$50.82	<u>5D</u>	<u>1M</u>	
Snohomish	Carpenters	Carpenter	\$50.82	<u>5D</u>	<u>1M</u>	
Snohomish	Carpenters	Carpenters on Stationary Tools	\$50.95	<u>5D</u>	<u>1M</u>	
Snohomish	Carpenters	Creosoted Material	\$50.92	<u>5D</u>	<u>1M</u>	
Snohomish	Carpenters	Floor Finisher	\$50.82	<u>5D</u>	<u>1M</u>	
Snohomish	Carpenters	Floor Layer	\$50.82	<u>5D</u>	<u>1M</u>	
Snohomish	Carpenters	Scaffold Erector	\$50.82	<u>5D</u>	<u>1M</u>	
Snohomish	Cement Masons	Journey Level	\$51.18	<u>7A</u>	<u>1M</u>	
Snohomish	Divers & Tenders	Diver	\$105.37	<u>5D</u>	<u>1M</u>	<u>8A</u>
Snohomish	Divers & Tenders	Diver On Standby	\$59.50	<u>5D</u>	<u>1M</u>	
Snohomish	Divers & Tenders	Diver Tender	\$54.82	<u>5D</u>	<u>1M</u>	
Snohomish	Divers & Tenders	Surface Rcv & Rov Operator	\$54.82	<u>5D</u>	<u>1M</u>	
Snohomish	Divers & Tenders	Surface Rcv & Rov Operator Tender	\$51.07	<u>5A</u>	<u>1B</u>	
Snohomish	Dredge Workers	Assistant Engineer	\$53.00	<u>5D</u>	<u>3F</u>	
Snohomish	Dredge Workers	Assistant Mate (Deckhand)	\$52.58	<u>5D</u>	<u>3F</u>	
Snohomish	Dredge Workers	Boatmen	\$52.30	<u>5D</u>	<u>3F</u>	
Snohomish	Dredge Workers	Engineer Welder	\$54.04	<u>5D</u>	<u>3F</u>	

Snohomish	Dredge Workers	Leverman, Hydraulic	\$55.17	<u>5D</u>	<u>3F</u>	
Snohomish	Dredge Workers	Mates	\$52.30	<u>5D</u>	<u>3F</u>	
Snohomish	Dredge Workers	Oiler	\$52.58	<u>5D</u>	<u>3F</u>	
Snohomish	Drywall Applicator	Journey Level	\$50.82	<u>5D</u>	<u>1H</u>	
Snohomish	Drywall Tapers	Journey Level	\$50.87	<u>5P</u>	<u>1E</u>	
Snohomish	Electrical Fixture Maintenance Workers	Journey Level	\$13.76		<u>1</u>	
Snohomish	Electricians - Inside	Cable Splicer	\$60.71	<u>7H</u>	<u>1E</u>	
Snohomish	Electricians - Inside	Construction Stock Person	\$29.41	<u>7H</u>	<u>1D</u>	
Snohomish	Electricians - Inside	Journey Level	\$56.69	<u>7H</u>	<u>1E</u>	
Snohomish	Electricians - Motor Shop	Craftsman	\$15.37		<u>1</u>	
Snohomish	Electricians - Motor Shop	Journey Level	\$14.69		<u>1</u>	
Snohomish	Electricians - Powerline Construction	Cable Splicer	\$68.33	<u>5A</u>	<u>4A</u>	
Snohomish	Electricians - Powerline Construction	Certified Line Welder	\$62.50	<u>5A</u>	<u>4A</u>	
Snohomish	Electricians - Powerline Construction	Groundperson	\$42.56	<u>5A</u>	<u>4A</u>	
Snohomish	Electricians - Powerline Construction	Heavy Line Equipment Operator	\$62.50	<u>5A</u>	<u>4A</u>	
Snohomish	Electricians - Powerline Construction	Journey Level Lineperson	\$62.50	<u>5A</u>	<u>4A</u>	
Snohomish	Electricians - Powerline Construction	Line Equipment Operator	\$52.47	<u>5A</u>	<u>4A</u>	
Snohomish	Electricians - Powerline Construction	Pole Sprayer	\$62.50	<u>5A</u>	<u>4A</u>	
Snohomish	Electricians - Powerline Construction	Powderperson	\$46.55	<u>5A</u>	<u>4A</u>	
Snohomish	Electronic Technicians	Journey Level	\$30.10		<u>1</u>	
Snohomish	Elevator Constructors	Mechanic	\$80.14	<u>7D</u>	<u>4A</u>	
Snohomish	Elevator Constructors	Mechanic In Charge	\$86.77	<u>7D</u>	<u>4A</u>	
Snohomish	Fabricated Precast Concrete Products	Journey Level - In-Factory Work Only	\$13.50		<u>1</u>	
Snohomish	Fence Erectors	Fence Erector	\$14.00		<u>1</u>	
Snohomish	Flaggers	Journey Level	\$35.34	<u>7A</u>	<u>3I</u>	
Snohomish	Glaziers	Journey Level	\$53.76	<u>7L</u>	<u>1Y</u>	
Snohomish	Heat & Frost Insulators And Asbestos Workers	Journeyman	\$58.93	<u>5J</u>	<u>1S</u>	
Snohomish	Heating Equipment Mechanics	Journey Level	\$69.37	<u>7F</u>	<u>1E</u>	
Snohomish	Hod Carriers & Mason Tenders	Journey Level	\$42.99	<u>7A</u>	<u>3I</u>	
Snohomish	Industrial Power Vacuum Cleaner	Journey Level	\$9.32		<u>1</u>	
Snohomish	Inland Boatmen	Boat Operator	\$54.57	<u>5B</u>	<u>1K</u>	
Snohomish	Inland Boatmen	Cook	\$50.95	<u>5B</u>	<u>1K</u>	
Snohomish	Inland Boatmen	Deckhand	\$51.19	<u>5B</u>	<u>1K</u>	
Snohomish	Inland Boatmen	Deckhand Engineer	\$52.18	<u>5B</u>	<u>1K</u>	

Snohomish	Inland Boatmen	Launch Operator	\$53.40	5B	1K	
Snohomish	Inland Boatmen	Mate	\$53.40	5B	1K	
Snohomish	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Cleaner Operator, Foamer Operator	\$9.73		1	
Snohomish	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Grout Truck Operator	\$11.48		1	
Snohomish	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Head Operator	\$12.78		1	
Snohomish	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Technician	\$9.32		1	
Snohomish	Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control	Tv Truck Operator	\$10.53		1	
Snohomish	Insulation Applicators	Journey Level	\$50.82	5D	1M	
Snohomish	Ironworkers	Journeyman	\$59.77	7N	1O	
Snohomish	Laborers	Air, Gas Or Electric Vibrating Screed	\$41.69	7A	3I	
Snohomish	Laborers	Airtrac Drill Operator	\$42.99	7A	3I	
Snohomish	Laborers	Ballast Regular Machine	\$41.69	7A	3I	
Snohomish	Laborers	Batch Weighman	\$35.34	7A	3I	
Snohomish	Laborers	Brick Pavers	\$41.69	7A	3I	
Snohomish	Laborers	Brush Cutter	\$41.69	7A	3I	
Snohomish	Laborers	Brush Hog Feeder	\$41.69	7A	3I	
Snohomish	Laborers	Burner	\$41.69	7A	3I	
Snohomish	Laborers	Caisson Worker	\$42.99	7A	3I	
Snohomish	Laborers	Carpenter Tender	\$41.69	7A	3I	
Snohomish	Laborers	Caulker	\$41.69	7A	3I	
Snohomish	Laborers	Cement Dumper-paving	\$42.46	7A	3I	
Snohomish	Laborers	Cement Finisher Tender	\$41.69	7A	3I	
Snohomish	Laborers	Change House Or Dry Shack	\$41.69	7A	3I	
Snohomish	Laborers	Chipping Gun (under 30 Lbs.)	\$41.69	7A	3I	
Snohomish	Laborers	Chipping Gun(30 Lbs. And Over)	\$42.46	7A	3I	
Snohomish	Laborers	Choker Setter	\$41.69	7A	3I	
Snohomish	Laborers	Chuck Tender	\$41.69	7A	3I	
Snohomish	Laborers	Clary Power Spreader	\$42.46	7A	3I	
Snohomish	Laborers	Clean-up Laborer	\$41.69	7A	3I	
Snohomish	Laborers	Concrete Dumper/chute Operator	\$42.46	7A	3I	
Snohomish	Laborers	Concrete Form Stripper	\$41.69	7A	3I	
Snohomish	Laborers	Concrete Placement Crew	\$42.46	7A	3I	
Snohomish	Laborers	Concrete Saw Operator/core Driller	\$42.46	7A	3I	
Snohomish	Laborers	Crusher Feeder	\$35.34	7A	3I	

Snohomish	Laborers	Curing Laborer	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Demolition: Wrecking & Moving (incl. Charred Material)	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Ditch Digger	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Diver	\$42.99	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Drill Operator (hydraulic,diamond)	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Dry Stack Walls	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Dump Person	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Epoxy Technician	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Erosion Control Worker	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Faller & Bucker Chain Saw	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Fine Graders	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Firewatch	\$35.34	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Form Setter	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Gabian Basket Builders	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	General Laborer	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Grade Checker & Transit Person	\$42.99	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Grinders	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Grout Machine Tender	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Groutmen (pressure)including Post Tension Beams	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Guardrail Erector	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Hazardous Waste Worker (level A)	\$42.99	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Hazardous Waste Worker (level B)	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Hazardous Waste Worker (level C)	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	High Scaler	\$42.99	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Jackhammer	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Laserbeam Operator	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Maintenance Person	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Manhole Builder-mudman	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Material Yard Person	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Motorman-dinky Locomotive	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Nozzleman (concrete Pump, Green Cutter When Using Combination Of High Pressure Air & Water On Concrete & Rock, Sandblast, Gunite, Shotcrete, Water Bla	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Pavement Breaker	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Pilot Car	\$35.34	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Pipe Layer Lead	\$42.99	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Pipe Layer/tailor	\$42.46	<u>7A</u>	<u>3I</u>	

Snohomish	Laborers	Pipe Pot Tender	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Pipe Reliner	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Pipe Wrapper	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Pot Tender	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Powderman	\$42.99	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Powderman's Helper	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Power Jacks	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Railroad Spike Puller - Power	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Raker - Asphalt	\$42.99	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Re-timberman	\$42.99	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Remote Equipment Operator	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Rigger/signal Person	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Rip Rap Person	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Rivet Buster	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Rodder	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Scaffold Erector	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Scale Person	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Sloper (over 20")	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Sloper Sprayer	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Spreader (concrete)	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Stake Hopper	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Stock Piler	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Tamper & Similar Electric, Air & Gas Operated Tools	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Tamper (multiple & Self- propelled)	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Timber Person - Sewer (lagger, Shorer & Cribber)	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Toolroom Person (at Jobsite)	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Topper	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Track Laborer	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Track Liner (power)	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Traffic Control Laborer	\$37.79	<u>7A</u>	<u>3I</u>	<u>8R</u>
Snohomish	Laborers	Traffic Control Supervisor	\$37.79	<u>7A</u>	<u>3I</u>	<u>8R</u>
Snohomish	Laborers	Truck Spotter	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Tugger Operator	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Tunnel Work-Compressed Air Worker 0-30 psi	\$60.06	<u>7A</u>	<u>3I</u>	<u>8Q</u>
Snohomish	Laborers	Tunnel Work-Compressed Air Worker 30.01-44.00 psi	\$65.09	<u>7A</u>	<u>3I</u>	<u>8Q</u>
Snohomish	Laborers	Tunnel Work-Compressed Air Worker 44.01-54.00 psi	\$68.77	<u>7A</u>	<u>3I</u>	<u>8Q</u>
Snohomish	Laborers	Tunnel Work-Compressed Air Worker 54.01-60.00 psi	\$74.47	<u>7A</u>	<u>3I</u>	<u>8Q</u>
Snohomish	Laborers	Tunnel Work-Compressed Air Worker 60.01-64.00 psi	\$76.59	<u>7A</u>	<u>3I</u>	<u>8Q</u>
Snohomish	Laborers		\$81.69	<u>7A</u>	<u>3I</u>	<u>8Q</u>

		Tunnel Work-Compressed Air Worker 64.01-68.00 psi				
Snohomish	Laborers	Tunnel Work-Compressed Air Worker 68.01-70.00 psi	\$83.59	<u>7A</u>	<u>3I</u>	<u>8Q</u>
Snohomish	Laborers	Tunnel Work-Compressed Air Worker 70.01-72.00 psi	\$85.59	<u>7A</u>	<u>3I</u>	<u>8Q</u>
Snohomish	Laborers	Tunnel Work-Compressed Air Worker 72.01-74.00 psi	\$87.59	<u>7A</u>	<u>3I</u>	<u>8Q</u>
Snohomish	Laborers	Tunnel Work-Guage and Lock Tender	\$43.09	<u>7A</u>	<u>3I</u>	<u>8Q</u>
Snohomish	Laborers	Tunnel Work-Miner	\$43.09	<u>7A</u>	<u>3I</u>	<u>8Q</u>
Snohomish	Laborers	Vibrator	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Vinyl Seamer	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Watchman	\$32.12	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Welder	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Well Point Laborer	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers	Window Washer/cleaner	\$32.12	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers - Underground Sewer & Water	General Laborer & Topman	\$41.69	<u>7A</u>	<u>3I</u>	
Snohomish	Laborers - Underground Sewer & Water	Pipe Layer	\$42.46	<u>7A</u>	<u>3I</u>	
Snohomish	Landscape Construction	Irrigation Or Lawn Sprinkler Installers	\$17.31		<u>1</u>	
Snohomish	Landscape Construction	Landscape Equipment Operators Or Truck Drivers	\$20.06		<u>1</u>	
Snohomish	Landscape Construction	Landscaping Or Planting Laborers	\$14.13		<u>1</u>	
Snohomish	Lathers	Journey Level	\$50.82	<u>5D</u>	<u>1H</u>	
Snohomish	Marble Setters	Journey Level	\$50.12	<u>5A</u>	<u>1M</u>	
Snohomish	Metal Fabrication (In Shop)	Fitter	\$15.38		<u>1</u>	
Snohomish	Metal Fabrication (In Shop)	Laborer	\$9.79		<u>1</u>	
Snohomish	Metal Fabrication (In Shop)	Machine Operator	\$9.32		<u>1</u>	
Snohomish	Metal Fabrication (In Shop)	Painter	\$9.98		<u>1</u>	
Snohomish	Metal Fabrication (In Shop)	Welder	\$15.38		<u>1</u>	
Snohomish	Millwright	Journey Level	\$51.92	<u>5D</u>	<u>1M</u>	
Snohomish	Modular Buildings	Journey Level	\$9.32		<u>1</u>	
Snohomish	Painters	Journey Level	\$37.80	<u>6Z</u>	<u>2B</u>	
Snohomish	Pile Driver	Journey Level	\$51.07	<u>5D</u>	<u>1M</u>	
Snohomish	Plasterers	Journey Level	\$49.29	<u>7Q</u>	<u>1R</u>	
Snohomish	Playground & Park Equipment Installers	Journey Level	\$11.94		<u>1</u>	
Snohomish	Plumbers & Pipefitters	Journey Level	\$62.57	<u>5A</u>	<u>1G</u>	
Snohomish	Power Equipment Operators	Asphalt Plant Operators	\$53.49	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Assistant Engineer	\$50.22	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Barrier Machine (zipper)	\$53.00	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Batch Plant Operator, Concrete	\$53.00	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Bobcat	\$50.22	<u>7A</u>	<u>3C</u>	<u>8P</u>

Snohomish	Power Equipment Operators	Brokk - Remote Demolition Equipment	\$50.22	7A	3C	8P
Snohomish	Power Equipment Operators	Brooms	\$50.22	7A	3C	8P
Snohomish	Power Equipment Operators	Bump Cutter	\$53.00	7A	3C	8P
Snohomish	Power Equipment Operators	Cableways	\$53.49	7A	3C	8P
Snohomish	Power Equipment Operators	Chipper	\$53.00	7A	3C	8P
Snohomish	Power Equipment Operators	Compressor	\$50.22	7A	3C	8P
Snohomish	Power Equipment Operators	Concrete Pump: Truck Mount With Boom Attachment Over 42 M	\$53.49	7A	3C	8P
Snohomish	Power Equipment Operators	Concrete Finish Machine -laser Screed	\$50.22	7A	3C	8P
Snohomish	Power Equipment Operators	Concrete Pump - Mounted Or Trailer High Pressure Line Pump, Pump High Pressure.	\$52.58	7A	3C	8P
Snohomish	Power Equipment Operators	Concrete Pump: Truck Mount With Boom Attachment Up To 42m	\$53.00	7A	3C	8P
Snohomish	Power Equipment Operators	Conveyors	\$52.58	7A	3C	8P
Snohomish	Power Equipment Operators	Cranes: 20 Tons Through 44 Tons With Attachments	\$53.00	7A	3C	8P
Snohomish	Power Equipment Operators	Cranes: 100 Tons Through 199 Tons, Or 150' Of Boom (Including Jib With Attachments)	\$54.04	7A	3C	8P
Snohomish	Power Equipment Operators	Cranes: 200 Tons To 300 Tons, Or 250' Of Boom (including Jib With Attachments)	\$54.61	7A	3C	8P
Snohomish	Power Equipment Operators	Cranes: 45 Tons Through 99 Tons, Under 150' Of Boom (including Jib With Attachments)	\$53.49	7A	3C	8P
Snohomish	Power Equipment Operators	Cranes: A-frame - 10 Tons And Under	\$50.22	7A	3C	8P
Snohomish	Power Equipment Operators	Cranes: Friction 100 Tons Through 199 Tons	\$54.61	7A	3C	8P
Snohomish	Power Equipment Operators	Cranes: Friction Over 200 Tons	\$55.17	7A	3C	8P
Snohomish	Power Equipment Operators	Cranes: Over 300 Tons Or 300' Of Boom (including Jib With Attachments)	\$55.17	7A	3C	8P
Snohomish	Power Equipment Operators	Cranes: Through 19 Tons With Attachments A-frame Over 10 Tons	\$52.58	7A	3C	8P
Snohomish	Power Equipment Operators	Crusher	\$53.00	7A	3C	8P
Snohomish	Power Equipment Operators	Deck Engineer/deck Winches (power)	\$53.00	7A	3C	8P
Snohomish	Power Equipment Operators	Derricks, On Building Work	\$53.49	7A	3C	8P
Snohomish	Power Equipment Operators	Dozers D-9 & Under	\$52.58	7A	3C	8P
Snohomish	Power Equipment Operators		\$52.58	7A	3C	8P

		Drill Oilers: Auger Type, Truck Or Crane Mount				
Snohomish	Power Equipment Operators	Drilling Machine	\$53.00	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Elevator And Man-lift: Permanent And Shaft Type	\$50.22	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Finishing Machine, Bidwell And Gamaco & Similar Equipment	\$53.00	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Forklift: 3000 Lbs And Over With Attachments	\$52.58	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Forklifts: Under 3000 Lbs. With Attachments	\$50.22	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Grade Engineer: Using Blue Prints, Cut Sheets, Etc	\$53.00	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Gradechecker/stakeman	\$50.22	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Guardrail Punch	\$53.00	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Hard Tail End Dump Articulating Off- Road Equipment 45 Yards. & Over	\$53.49	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Hard Tail End Dump Articulating Off-road Equipment Under 45 Yards	\$53.00	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Horizontal/directional Drill Locator	\$52.58	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Horizontal/directional Drill Operator	\$53.00	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Hydralifts/boom Trucks Over 10 Tons	\$52.58	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Hydralifts/boom Trucks, 10 Tons And Under	\$50.22	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Loader, Overhead 8 Yards. & Over	\$54.04	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Loader, Overhead, 6 Yards. But Not Including 8 Yards	\$53.49	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Loaders, Overhead Under 6 Yards	\$53.00	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Loaders, Plant Feed	\$53.00	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Loaders: Elevating Type Belt	\$52.58	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Locomotives, All	\$53.00	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Material Transfer Device	\$53.00	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Mechanics, All (leadmen - \$0.50 Per Hour Over Mechanic)	\$54.04	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Motor Patrol Grader - Non- finishing	\$52.58	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Motor Patrol Graders, Finishing	\$53.49	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Mucking Machine, Mole, Tunnel Drill, Boring, Road Header And/or Shield	\$53.49	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators		\$50.22	<u>7A</u>	<u>3C</u>	<u>8P</u>

		Oil Distributors, Blower Distribution & Mulch Seeding Operator				
Snohomish	Power Equipment Operators	Outside Hoists (elevators And Manlifts), Air Tuggers, strato	\$52.58	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Overhead, Bridge Type Crane: 20 Tons Through 44 Tons	\$53.00	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Overhead, Bridge Type: 100 Tons And Over	\$54.04	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Overhead, Bridge Type: 45 Tons Through 99 Tons	\$53.49	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Pavement Breaker	\$50.22	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Pile Driver (other Than Crane Mount)	\$53.00	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Plant Oiler - Asphalt, Crusher	\$52.58	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Posthole Digger, Mechanical	\$50.22	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Power Plant	\$50.22	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Pumps - Water	\$50.22	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Quad 9, Hd 41, D10 And Over	\$53.49	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Quick Tower - No Cab, Under 100 Feet In Height Based To Boom	\$50.22	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Remote Control Operator On Rubber Tired Earth Moving Equipment	\$53.49	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Rigger And Bellman	\$50.22	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Rollagon	\$53.49	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Roller, Other Than Plant Mix	\$50.22	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Roller, Plant Mix Or Multi-lift Materials	\$52.58	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Roto-mill, Roto-grinder	\$53.00	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Saws - Concrete	\$52.58	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Scraper, Self Propelled Under 45 Yards	\$53.00	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Scrapers - Concrete & Carry All	\$52.58	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Scrapers, Self-propelled: 45 Yards And Over	\$53.49	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Service Engineers - Equipment	\$52.58	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Shotcrete/gunite Equipment	\$50.22	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Shovel , Excavator, Backhoe, Tractors Under 15 Metric Tons.	\$52.58	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators	Shovel, Excavator, Backhoe: Over 30 Metric Tons To 50 Metric Tons	\$53.49	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators		\$53.00	<u>7A</u>	<u>3C</u>	<u>8P</u>

		Shovel, Excavator, Backhoes, Tractors: 15 To 30 Metric Tons				
Snohomish	Power Equipment Operators	Shovel, Excavator, Backhoes: Over 50 Metric Tons To 90 Metric Tons	\$54.04	7A	3C	8P
Snohomish	Power Equipment Operators	Shovel, Excavator, Backhoes: Over 90 Metric Tons	\$54.61	7A	3C	8P
Snohomish	Power Equipment Operators	Slipform Pavers	\$53.49	7A	3C	8P
Snohomish	Power Equipment Operators	Spreader, Topsider & Screedman	\$53.49	7A	3C	8P
Snohomish	Power Equipment Operators	Subgrader Trimmer	\$53.00	7A	3C	8P
Snohomish	Power Equipment Operators	Tower Bucket Elevators	\$52.58	7A	3C	8P
Snohomish	Power Equipment Operators	Tower Crane Over 175'in Height, Base To Boom	\$54.61	7A	3C	8P
Snohomish	Power Equipment Operators	Tower Crane Up To 175' In Height Base To Boom	\$54.04	7A	3C	8P
Snohomish	Power Equipment Operators	Transporters, All Track Or Truck Type	\$53.49	7A	3C	8P
Snohomish	Power Equipment Operators	Trenching Machines	\$52.58	7A	3C	8P
Snohomish	Power Equipment Operators	Truck Crane Oiler/driver - 100 Tons And Over	\$53.00	7A	3C	8P
Snohomish	Power Equipment Operators	Truck Crane Oiler/driver Under 100 Tons	\$52.58	7A	3C	8P
Snohomish	Power Equipment Operators	Truck Mount Portable Conveyor	\$53.00	7A	3C	8P
Snohomish	Power Equipment Operators	Welder	\$53.49	7A	3C	8P
Snohomish	Power Equipment Operators	Wheel Tractors, Farmall Type	\$50.22	7A	3C	8P
Snohomish	Power Equipment Operators	Yo Yo Pay Dozer	\$53.00	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Asphalt Plant Operators	\$53.49	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Assistant Engineer	\$50.22	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Barrier Machine (zipper)	\$53.00	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Batch Plant Operator, Concrete	\$53.00	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Bobcat	\$50.22	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Brokk - Remote Demolition Equipment	\$50.22	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Brooms	\$50.22	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Bump Cutter	\$53.00	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Cableways	\$53.49	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Chipper	\$53.00	7A	3C	8P
Snohomish		Compressor	\$50.22	7A	3C	8P

	Power Equipment Operators-Underground Sewer & Water				
Snohomish	Power Equipment Operators-Underground Sewer & Water	Concrete Pump: Truck Mount With Boom Attachment Over 42 M	\$53.49	<u>7A</u>	<u>3C</u> <u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Concrete Finish Machine -laser Screed	\$50.22	<u>7A</u>	<u>3C</u> <u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Concrete Pump - Mounted Or Trailer High Pressure Line Pump, Pump High Pressure.	\$52.58	<u>7A</u>	<u>3C</u> <u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Concrete Pump: Truck Mount With Boom Attachment Up To 42m	\$53.00	<u>7A</u>	<u>3C</u> <u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Conveyors	\$52.58	<u>7A</u>	<u>3C</u> <u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Cranes: 20 Tons Through 44 Tons With Attachments	\$53.00	<u>7A</u>	<u>3C</u> <u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Cranes: 100 Tons Through 199 Tons, Or 150' Of Boom (Including Jib With Attachments)	\$54.04	<u>7A</u>	<u>3C</u> <u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Cranes: 200 Tons To 300 Tons, Or 250' Of Boom (including Jib With Attachments)	\$54.61	<u>7A</u>	<u>3C</u> <u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Cranes: 45 Tons Through 99 Tons, Under 150' Of Boom (including Jib With Attachments)	\$53.49	<u>7A</u>	<u>3C</u> <u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Cranes: A-frame - 10 Tons And Under	\$50.22	<u>7A</u>	<u>3C</u> <u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Cranes: Friction 100 Tons Through 199 Tons	\$54.61	<u>7A</u>	<u>3C</u> <u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Cranes: Friction Over 200 Tons	\$55.17	<u>7A</u>	<u>3C</u> <u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Cranes: Over 300 Tons Or 300' Of Boom (including Jib With Attachments)	\$55.17	<u>7A</u>	<u>3C</u> <u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Cranes: Through 19 Tons With Attachments A-frame Over 10 Tons	\$52.58	<u>7A</u>	<u>3C</u> <u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Crusher	\$53.00	<u>7A</u>	<u>3C</u> <u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Deck Engineer/deck Winches (power)	\$53.00	<u>7A</u>	<u>3C</u> <u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Derricks, On Building Work	\$53.49	<u>7A</u>	<u>3C</u> <u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Dozers D-9 & Under	\$52.58	<u>7A</u>	<u>3C</u> <u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Drill Oilers: Auger Type, Truck Or Crane Mount	\$52.58	<u>7A</u>	<u>3C</u> <u>8P</u>
Snohomish		Drilling Machine	\$53.00	<u>7A</u>	<u>3C</u> <u>8P</u>

	Power Equipment Operators- Underground Sewer & Water					
Snohomish	Power Equipment Operators- Underground Sewer & Water	Elevator And Man-lift: Permanent And Shaft Type	\$50.22	7A	3C	8P
Snohomish	Power Equipment Operators- Underground Sewer & Water	Finishing Machine, Bidwell And Gamaco & Similar Equipment	\$53.00	7A	3C	8P
Snohomish	Power Equipment Operators- Underground Sewer & Water	Forklift: 3000 Lbs And Over With Attachments	\$52.58	7A	3C	8P
Snohomish	Power Equipment Operators- Underground Sewer & Water	Forklifts: Under 3000 Lbs. With Attachments	\$50.22	7A	3C	8P
Snohomish	Power Equipment Operators- Underground Sewer & Water	Grade Engineer: Using Blue Prints, Cut Sheets, Etc	\$53.00	7A	3C	8P
Snohomish	Power Equipment Operators- Underground Sewer & Water	Gradechecker/stakeman	\$50.22	7A	3C	8P
Snohomish	Power Equipment Operators- Underground Sewer & Water	Guardrail Punch	\$53.00	7A	3C	8P
Snohomish	Power Equipment Operators- Underground Sewer & Water	Hard Tail End Dump Articulating Off- Road Equipment 45 Yards. & Over	\$53.49	7A	3C	8P
Snohomish	Power Equipment Operators- Underground Sewer & Water	Hard Tail End Dump Articulating Off-road Equipment Under 45 Yards	\$53.00	7A	3C	8P
Snohomish	Power Equipment Operators- Underground Sewer & Water	Horizontal/directional Drill Locator	\$52.58	7A	3C	8P
Snohomish	Power Equipment Operators- Underground Sewer & Water	Horizontal/directional Drill Operator	\$53.00	7A	3C	8P
Snohomish	Power Equipment Operators- Underground Sewer & Water	Hydralifts/boom Trucks Over 10 Tons	\$52.58	7A	3C	8P
Snohomish	Power Equipment Operators- Underground Sewer & Water	Hydralifts/boom Trucks, 10 Tons And Under	\$50.22	7A	3C	8P
Snohomish	Power Equipment Operators- Underground Sewer & Water	Loader, Overhead 8 Yards. & Over	\$54.04	7A	3C	8P
Snohomish	Power Equipment Operators- Underground Sewer & Water	Loader, Overhead, 6 Yards. But Not Including 8 Yards	\$53.49	7A	3C	8P
Snohomish	Power Equipment Operators- Underground Sewer & Water	Loaders, Overhead Under 6 Yards	\$53.00	7A	3C	8P
Snohomish	Power Equipment Operators- Underground Sewer & Water	Loaders, Plant Feed	\$53.00	7A	3C	8P
Snohomish	Power Equipment Operators- Underground Sewer & Water	Loaders: Elevating Type Belt	\$52.58	7A	3C	8P
Snohomish	Power Equipment Operators- Underground Sewer & Water	Locomotives, All	\$53.00	7A	3C	8P
Snohomish	Power Equipment Operators- Underground Sewer & Water	Material Transfer Device	\$53.00	7A	3C	8P
Snohomish	Power Equipment Operators- Underground Sewer & Water	Mechanics, All (leadmen - \$0.50 Per Hour Over Mechanic)	\$54.04	7A	3C	8P
Snohomish	Power Equipment Operators- Underground Sewer & Water	Motor Patrol Grader - Non- finishing	\$52.58	7A	3C	8P
Snohomish	Power Equipment Operators- Underground Sewer & Water	Motor Patrol Graders, Finishing	\$53.49	7A	3C	8P

Snohomish	Power Equipment Operators-Underground Sewer & Water	Mucking Machine, Mole, Tunnel Drill, Boring, Road Header And/or Shield	\$53.49	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Oil Distributors, Blower Distribution & Mulch Seeding Operator	\$50.22	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Outside Hoists (elevators And Manlifts), Air Tuggers, strato	\$52.58	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Overhead, Bridge Type Crane: 20 Tons Through 44 Tons	\$53.00	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Overhead, Bridge Type: 100 Tons And Over	\$54.04	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Overhead, Bridge Type: 45 Tons Through 99 Tons	\$53.49	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Pavement Breaker	\$50.22	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Pile Driver (other Than Crane Mount)	\$53.00	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Plant Oiler - Asphalt, Crusher	\$52.58	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Posthole Digger, Mechanical	\$50.22	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Power Plant	\$50.22	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Pumps - Water	\$50.22	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Quad 9, Hd 41, D10 And Over	\$53.49	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Quick Tower - No Cab, Under 100 Feet In Height Based To Boom	\$50.22	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Remote Control Operator On Rubber Tired Earth Moving Equipment	\$53.49	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Rigger And Bellman	\$50.22	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Rollagon	\$53.49	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Roller, Other Than Plant Mix	\$50.22	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Roller, Plant Mix Or Multi-lift Materials	\$52.58	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Roto-mill, Roto-grinder	\$53.00	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Saws - Concrete	\$52.58	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Scraper, Self Propelled Under 45 Yards	\$53.00	7A	3C	8P
Snohomish	Power Equipment Operators-Underground Sewer & Water	Scrapers - Concrete & Carry All	\$52.58	7A	3C	8P

Snohomish	Power Equipment Operators-Underground Sewer & Water	Scrapers, Self-propelled: 45 Yards And Over	\$53.49	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Service Engineers - Equipment	\$52.58	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Shotcrete/gunite Equipment	\$50.22	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Shovel , Excavator, Backhoe, Tractors Under 15 Metric Tons.	\$52.58	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Shovel, Excavator, Backhoe: Over 30 Metric Tons To 50 Metric Tons	\$53.49	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Shovel, Excavator, Backhoes, Tractors: 15 To 30 Metric Tons	\$53.00	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Shovel, Excavator, Backhoes: Over 50 Metric Tons To 90 Metric Tons	\$54.04	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Shovel, Excavator, Backhoes: Over 90 Metric Tons	\$54.61	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Slipform Pavers	\$53.49	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Spreader, Topsider & Screedman	\$53.49	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Subgrader Trimmer	\$53.00	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Tower Bucket Elevators	\$52.58	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Tower Crane Over 175'in Height, Base To Boom	\$54.61	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Tower Crane Up To 175' In Height Base To Boom	\$54.04	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Transporters, All Track Or Truck Type	\$53.49	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Trenching Machines	\$52.58	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Truck Crane Oiler/driver - 100 Tons And Over	\$53.00	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Truck Crane Oiler/driver Under 100 Tons	\$52.58	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Truck Mount Portable Conveyor	\$53.00	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Welder	\$53.49	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Wheel Tractors, Farmall Type	\$50.22	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Equipment Operators-Underground Sewer & Water	Yo Yo Pay Dozer	\$53.00	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Power Line Clearance Tree Trimmers	Journey Level In Charge	\$44.86	<u>5A</u>	<u>4A</u>	
Snohomish	Power Line Clearance Tree Trimmers	Spray Person	\$42.58	<u>5A</u>	<u>4A</u>	

Snohomish	Power Line Clearance Tree Trimmers	Tree Equipment Operator	\$44.86	<u>5A</u>	<u>4A</u>	
Snohomish	Power Line Clearance Tree Trimmers	Tree Trimmer	\$40.08	<u>5A</u>	<u>4A</u>	
Snohomish	Power Line Clearance Tree Trimmers	Tree Trimmer Groundperson	\$30.20	<u>5A</u>	<u>4A</u>	
Snohomish	Refrigeration & Air Conditioning Mechanics	Mechanic	\$62.57	<u>5A</u>	<u>1G</u>	
Snohomish	Residential Brick Mason	Journey Level	\$20.00		<u>1</u>	
Snohomish	Residential Carpenters	Journey Level	\$39.62	<u>5D</u>	<u>1M</u>	
Snohomish	Residential Cement Masons	Journey Level	\$14.00		<u>1</u>	
Snohomish	Residential Drywall Applicators	Journey Level	\$39.62	<u>5D</u>	<u>1M</u>	
Snohomish	Residential Drywall Tapers	Journey Level	\$50.87	<u>5P</u>	<u>1E</u>	
Snohomish	Residential Electricians	Journey Level	\$30.82	<u>7F</u>	<u>1D</u>	
Snohomish	Residential Glaziers	Journey Level	\$36.20	<u>7L</u>	<u>1H</u>	
Snohomish	Residential Insulation Applicators	Journey Level	\$25.68		<u>1</u>	
Snohomish	Residential Laborers	Journey Level	\$20.73		<u>1</u>	
Snohomish	Residential Marble Setters	Journey Level	\$30.74		<u>1</u>	
Snohomish	Residential Painters	Journey Level	\$17.46		<u>1</u>	
Snohomish	Residential Plumbers & Pipefitters	Journey Level	\$28.99		<u>1</u>	
Snohomish	Residential Refrigeration & Air Conditioning Mechanics	Journey Level	\$36.92	<u>5A</u>	<u>1G</u>	
Snohomish	Residential Sheet Metal Workers	Journey Level (Field or Shop)	\$41.84	<u>7F</u>	<u>1R</u>	
Snohomish	Residential Soft Floor Layers	Journey Level	\$42.15	<u>5A</u>	<u>3D</u>	
Snohomish	Residential Sprinkler Fitters (Fire Protection)	Journey Level	\$42.48	<u>5C</u>	<u>2R</u>	
Snohomish	Residential Stone Masons	Journey Level	\$30.74		<u>1</u>	
Snohomish	Residential Terrazzo Workers	Journey Level	\$9.32		<u>1</u>	
Snohomish	Residential Terrazzo/Tile Finishers	Journey Level	\$21.60		<u>1</u>	
Snohomish	Residential Tile Setters	Journey Level	\$25.17		<u>1</u>	
Snohomish	Roofers	Journey Level	\$44.71	<u>5A</u>	<u>3H</u>	
Snohomish	Roofers	Using Irritable Bituminous Materials	\$47.71	<u>5A</u>	<u>3H</u>	
Snohomish	Sheet Metal Workers	Journey Level (Field or Shop)	\$69.37	<u>7F</u>	<u>1E</u>	
Snohomish	Shipbuilding & Ship Repair	Boilermaker	\$40.12	<u>7M</u>	<u>1H</u>	
Snohomish	Shipbuilding & Ship Repair	Carpenter	\$36.61	<u>7R</u>	<u>2B</u>	
Snohomish	Shipbuilding & Ship Repair	Electrician	\$36.18	<u>5T</u>	<u>3E</u>	
Snohomish	Shipbuilding & Ship Repair	Heat & Frost Insulator	\$58.93	<u>5J</u>	<u>1S</u>	
Snohomish	Shipbuilding & Ship Repair	Laborer	\$26.90	<u>5T</u>	<u>3E</u>	
Snohomish	Shipbuilding & Ship Repair	Machinist	\$36.18	<u>5T</u>	<u>3E</u>	
Snohomish	Shipbuilding & Ship Repair	Painter	\$37.80	<u>6Z</u>	<u>2B</u>	
Snohomish	Shipbuilding & Ship Repair	Shipfitter	\$36.18	<u>5T</u>	<u>3E</u>	
Snohomish	Shipbuilding & Ship Repair	Welder/Burner	\$36.18	<u>5T</u>	<u>3E</u>	

Snohomish	Sign Makers & Installers (Electrical)	Sign Installer	\$26.56		<u>1</u>	
Snohomish	Sign Makers & Installers (Electrical)	Sign Maker	\$20.50		<u>1</u>	
Snohomish	Sign Makers & Installers (Non-Electrical)	Sign Installer	\$22.56		<u>1</u>	
Snohomish	Sign Makers & Installers (Non-Electrical)	Sign Maker	\$20.50		<u>1</u>	
Snohomish	Soft Floor Layers	Journey Level	\$42.15	<u>5A</u>	<u>3D</u>	
Snohomish	Solar Controls For Windows	Journey Level	\$9.32		<u>1</u>	
Snohomish	Sprinkler Fitters (Fire Protection)	Journey Level	\$69.59	<u>5C</u>	<u>1X</u>	
Snohomish	Stage Rigging Mechanics (Non Structural)	Journey Level	\$13.23		<u>1</u>	
Snohomish	Stone Masons	Journey Level	\$50.12	<u>5A</u>	<u>1M</u>	
Snohomish	Street And Parking Lot Sweeper Workers	Journey Level	\$15.00		<u>1</u>	
Snohomish	Surveyors	Assistant Construction Site Surveyor	\$52.58	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Surveyors	Chainman	\$52.06	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Surveyors	Construction Site Surveyor	\$53.49	<u>7A</u>	<u>3C</u>	<u>8P</u>
Snohomish	Telecommunication Technicians	Journey Level	\$22.38		<u>1</u>	
Snohomish	Telephone Line Construction - Outside	Cable Splicer	\$36.01	<u>5A</u>	<u>2B</u>	
Snohomish	Telephone Line Construction - Outside	Hole Digger/Ground Person	\$20.05	<u>5A</u>	<u>2B</u>	
Snohomish	Telephone Line Construction - Outside	Installer (Repairer)	\$34.50	<u>5A</u>	<u>2B</u>	
Snohomish	Telephone Line Construction - Outside	Special Aparatus Installer I	\$36.01	<u>5A</u>	<u>2B</u>	
Snohomish	Telephone Line Construction - Outside	Special Apparatus Installer II	\$35.27	<u>5A</u>	<u>2B</u>	
Snohomish	Telephone Line Construction - Outside	Telephone Equipment Operator (Heavy)	\$36.01	<u>5A</u>	<u>2B</u>	
Snohomish	Telephone Line Construction - Outside	Telephone Equipment Operator (Light)	\$33.47	<u>5A</u>	<u>2B</u>	
Snohomish	Telephone Line Construction - Outside	Telephone Lineperson	\$33.47	<u>5A</u>	<u>2B</u>	
Snohomish	Telephone Line Construction - Outside	Television Groundperson	\$19.04	<u>5A</u>	<u>2B</u>	
Snohomish	Telephone Line Construction - Outside	Television Lineperson/Installer	\$25.27	<u>5A</u>	<u>2B</u>	
Snohomish	Telephone Line Construction - Outside	Television System Technician	\$30.20	<u>5A</u>	<u>2B</u>	
Snohomish	Telephone Line Construction - Outside	Television Technician	\$27.09	<u>5A</u>	<u>2B</u>	
Snohomish	Telephone Line Construction - Outside	Tree Trimmer	\$33.47	<u>5A</u>	<u>2B</u>	
Snohomish	Terrazzo Workers	Journey Level	\$46.96	<u>5A</u>	<u>1M</u>	

Snohomish	Tile Setters	Journey Level	\$46.96	<u>5A</u>	<u>1M</u>	
Snohomish	Tile, Marble & Terrazzo Finishers	Finisher	\$37.79	<u>5A</u>	<u>1B</u>	
Snohomish	Traffic Control Stripers	Journey Level	\$42.33	<u>7A</u>	<u>1K</u>	
Snohomish	Truck Drivers	Asphalt Mix Over 16 Yards (W. WA-Joint Council 28)	\$48.87	<u>5D</u>	<u>3A</u>	<u>8L</u>
Snohomish	Truck Drivers	Asphalt Mix To 16 Yards (W. WA-Joint Council 28)	\$48.03	<u>5D</u>	<u>3A</u>	<u>8L</u>
Snohomish	Truck Drivers	Dump Truck	\$37.94		<u>1</u>	
Snohomish	Truck Drivers	Dump Truck And Trailer	\$38.52		<u>1</u>	
Snohomish	Truck Drivers	Other Trucks	\$38.52		<u>1</u>	
Snohomish	Truck Drivers	Transit Mixer	\$34.63		<u>1</u>	
Snohomish	Well Drillers & Irrigation Pump Installers	Irrigation Pump Installer	\$17.05		<u>1</u>	
Snohomish	Well Drillers & Irrigation Pump Installers	Oiler	\$13.93		<u>1</u>	
Snohomish	Well Drillers & Irrigation Pump Installers	Well Driller	\$19.01		<u>1</u>	

SECTION 4**STORM AND SURFACE WATER**

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DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS

SECTION 4

STORM AND SURFACE WATER

4-1 GENERAL

This section of the Standards provides criteria for the design of storm and surface water drainage systems, including storm pipes, culverts, and catch basins. Each of the sections in this chapter contains the design criteria and references standard details for the various systems or facilities.

Drainage control and storm water treatment shall be provided for all property improvements within the City of Snohomish per these Standards and current version of the Department of Ecology (DOE) Storm Water Management Manual and the City's Land Use Code.

Projects which will disturb one acre or more of land, or create 5,000 square feet or more of impervious surface, paved or otherwise, must refer to the said DOE Storm Water Management Manual for drainage plan and runoff control requirements.

The use of Low-Impact Development concepts are strongly encouraged where they do not conflict with the requirements of these Standards. Low-Impact Development concepts include such practices as preserving native vegetation for stormwater dispersal, soil amendments to promote stormwater infiltration, pervious pavements, and vegetated swales.

4-2 STORM DRAINAGE CONVEYANCE SYSTEM DESIGN CRITERIA

4-2.1 OVERVIEW

For the purposes of this section, the conveyance system includes all portions of the surface water system that transport storm and surface water runoff, either natural or man-made, except those features protected as environmentally sensitive areas under the City's land use code. Environmentally sensitive areas may only be modified as allowed under the City of Snohomish Land use Code. Storm water must generally be treated and detained prior to discharge to an environmentally sensitive area, including those features created for mitigation.

This section covers the following components of the conveyance system:

- Pipe systems
- Culverts
- Outfalls
- Open channels

4-2.2 DESIGN FLOW AND ROUTE REQUIREMENTS

Design Flow

All existing and proposed conveyance systems shall be designed to convey runoff from the 25-year storm. The method used to determine the design flow will depend on the characteristics of the drainage area and the type of conveyance. Tight-lined conveyance systems receiving runoff from relatively small and/or highly impervious drainage areas shall be sized using flows determined using the rational method. Flows for culverts or channels receiving runoff from large and/or relatively pervious drainage areas shall be sized using flows determined using hydrograph methods.

A backwater analysis may be required for a proposed or existing pipe system if the ability of the pipe system to convey the peak rate of runoff from the 25-year design storm event may be effected by tail water conditions (outlet control) anywhere in the pipe system.

Structures such as catch basins and manholes for proposed pipe systems, such as catch basins and manholes, must provide a minimum of 0.5 feet of freeboard between the headwater surface (hydraulic grade line) and the top of the structure for flow from a 25-year storm. However, structures may overtop for flow resulting from a 100-year storm. When overtopping occurs for the 100-year storm, the additional flow over the ground surface is analyzed using the methods described in **Section 1-6 and is added to the flow capacity of the pipe system.

Easements and Building Setback Lines

All public and privately maintained conveyance systems shall be located in drainage easements in accordance with **Section 4-1.3 and **Section 4-2.1.3.8. The exceptions are roof downspout and minor yard and footing drains, unless they serve other adjacent properties.

4-2.3 PIPE SYSTEMS

Pipe systems are networks of storm drain pipes, catch basins, manholes, inlets, and outfalls designed and constructed to convey storm and surface water. The hydraulic analysis of flow in storm drain pipes is typically limited to “gravity flow”. The following subsections give design criteria for different components and aspects of pipe systems.

4-2.3(1) PIPE MATERIALS

1. Pipe material, joints, and protective treatment shall conform to the requirements set forth in Section 9-05 of the WSDOT/APWA Standard Specifications.

The following pipe materials are allowed for use in pipe systems in the City of Snohomish; other pipe materials may be approved on a case-by-case basis:

- (a) Plain concrete pipe (12 inches in diameter, used only for driveway culvert)
- (b) Reinforced concrete pipe
- (c) Ductile iron pipe

- (d) PVC pipe (SDR35, ASTM D3034 with 3 feet of cover, minimum)
- (e) Corrugated high density polyethylene pipe, with smooth interior
- (f) Profile wall PVC, culvert pipe, profile wall PVC storm sewer pipe (AASHTO M304, or ASTM F794 Series 46).

2. Coupling bands shall be of the same material as the pipe.
3. Materials for concrete, rubber gaskets, metal castings, reinforcing steel, and masonry units shall meet the requirements of the appropriate sections of the WSDOT/APWA Standard Specifications.

4-2.3(2) PIPE SIZES, SLOPES, AND VELOCITIES

1. No storm drain pipe between catch basins or manholes in the public right-of-way shall be less than 12 inches in diameter; with the exception that 8-inch pipe may be used between inlets and catch basins in runs of 50 feet or less.
2. The minimum velocity in any pipe or culvert carrying the design storm flow shall be two feet per second.
3. The maximum allowable velocity in concrete pipe shall be 30 feet per second.
4. Changes of pipe size are allowed only at junctions, and structures must be located at all junctions.
5. Downstream decrease in pipe size is not a recommended practice and will only be allowed under special conditions.

4-2.3(3) STRUCTURES

1. Manholes, catch basins, and inlets shall be constructed of pre-cast units in accordance with the following Standard Plans:

<u>Item</u>	<u>Section</u>
Manholes	605A-C
Manhole ring and cover	405
Catch Basins	402 through 404
Inlets	401
Steps and Ladder	606, 606A
Frames and Grates	405A through 409

2. Catch basin (or manhole) diameter shall be determined by pipe size and orientation at the junction structure. A plan view of the junction structure, drawn to scale, will be required when more than four pipes enter the structure on the same plane, or if angles of approach and clearance between pipes is of concern. The plan view (and sections if necessary) must insure a minimum solid concrete wall distance between pipe openings of 8 inches for 48-inch and 54-inch catch basins and 12 inches for 72-inch and 96-inch catch basins.

3. Catch basin evaluation of structural integrity for H-20 loading may be required for multiple junction catch basins and other structures.
4. Catch basins shall be provided within 50 feet of the entrance to a pipe system to provide for silt and debris removal.
5. HDPE pipe systems longer than 100 feet must be secured at the upstream end and the downstream end must be placed in a four foot section of the next larger pipe size. This sliding sleeve connection accounts for the high thermal expansion/contraction coefficient of this pipe material.
6. The maximum slope of the ground surface for a radius of five feet around a catch basin grate shall be 3:1.
7. A Type II catch basin or a manhole shall be required when the depth to the flow-line exceeds 5.5 feet, regardless of the pipe size.
8. All Type II catch basins and all manholes shall be equipped with ladders per Standard Plan No. 606 or 606A.
9. A Type II catch basin shall be installed as the last collector in the public right-of-way prior to discharge to the combined sanitary sewer.
10. Concrete inlets shall not be used where the discharge goes directly into the main storm drain system.

4-2.3(4) PIPE ALIGNMENT/CONNECTIONS/COVER

1. Pipes must be laid true to line and grade with no curves, bends, or deflections in any direction, except for HDPE and ductile iron with flanged restrained mechanical joint bends (not greater than 30 degrees) on steep slopes.
2. A catch basin or manhole will be required at all changes in storm drain diameter and changes in grade or alignment.
3. Connections to a pipe system shall be made only at catch basins or manholes. No wyes or tees are allowed except on roof, footing, or yard drain systems on pipes eight inches in diameter or less, with clean-outs upstream of each wye or tee.
4. Six inches minimum vertical and three feet minimum horizontal clearance (between outside surfaces) shall be provided between storm drain pipes and other utility pipes and conduits.
5. Any closed storm drainage system collecting runoff from paved areas in the public right-of-way or private property shall provide for floatable material separation (see Standard Plan No. 410) prior to discharge to the main storm drainage system in the public right-of-way, unless otherwise approved by the City Engineer.
6. All PVC connections to catch basins or manholes shall be made by grouting in an approved manhole adapter into which the PVC pipe is inserted.

7. Activities such as trench excavation, tunneling or boring, pipe embedment, backfilling, compaction, safety and pavement patching, whether for public or private utilities, shall conform to the requirements set forth in other sections of these Standards. For all the above, except pavement patching, see Section 3-9 Underground Utilities and Standard Plan Nos. 610, 611, and 615. For pavement patching see Section 3-14 and Standard Plan No. 316.

4-2.3(5) FRAMES/LIDS/GRATES/COVERS

1. In general, frames and grates shall be furnished and installed per Standard Plan Nos. 405 through 409.
2. The cover or grating of a manhole or catch basin shall not be grouted to final grade until the final elevation of the pavement, gutter, ditch, or sidewalk in which it is to be placed has been established, and until permission thereafter is given by the City Inspector to grout the cover or grating in place.
3. Lids, grates, and covers shall be seated properly to prevent rocking.
4. All catch basins and manholes in unpaved areas shall be equipped with locking frames and lids or grates per Standard Plan Nos. 405 or 607.
5. All Type II catch basins and all manholes with catches shall be supplied with locking lids or grates per standard plan No. 405.
6. Type II catch basins and manholes functioning exclusively as access structures shall be equipped with round 24-inch covers and frames per Standard Plan No. 607.
7. Round lids on all storm drain structures shall have "Drain" cast into the lid.
8. In conditions when the effectiveness of a normal grate installation would be limited, an open curb face frame and grate shall be furnished and installed per Standard Plan Nos. 408 and 409. These conditions include high likelihood of clogging from leaf fall, especially in sag vertical curves; when the inlet is a surface drainage end point, such as a cul-de-sac; and when normal inlet grates may be passed over due to the road grade. The use of open curb face frame and grates must be approved by the City Engineer.

4-2.3(6) RESTRICTOR DEVICES

1. The minimum orifice size diameter allowed for use in the City of Snohomish is one inch.
2. Restrictor devices shall be constructed and installed in accordance with Standard Plan numbers 412A through 412C.

4-2.3(7) DEBRIS BARRIERS

Debris barriers (trash racks) are required on all pipes entering or leaving a closed pipe system, including pipes entering or leaving a control/restrictor manhole or catch basin from a surface-type BMP (detention pond, infiltration basin, wet pond, biofiltration swale, etc.).

4-2.3(8) DRAINAGE EASEMENTS

1. Public drainage easements a minimum of 15 feet wide are required for maintenance and access of pipes located outside of the public right-of-way which convey runoff from public streets or other facilities.
2. Where possible, pipes shall be located within the center of the drainage easement, but in no case shall a pipe be closer than five feet to a property line.
3. Where possible, drainage easements shall be contained on one lot, and not bisected by a lot line.
4. Shared private pipes must be located within private drainage easements.
5. Easements for downspout roof drains, yard drains, and footing drains are not required unless these systems are shared by more than one property owner.

4-2.4 CULVERT DESIGN CRITERIA

4-2.4(1) Headwater

1. For new culverts 18 inches in diameter or less, the maximum allowable 25-year design storm headwater elevation (measured from the inlet invert) shall not exceed two times the pipe diameter/arch culvert height used and shall be one foot or more below the road or parking lot sub-grade.
2. For new culverts larger than 18 inches in diameter, the maximum 25-year design storm headwater elevation for the new culvert shall be one foot or more below the road or parking lot sub-grade.

4-2.4(2) INLET

1. For culverts 18 inches in diameter and larger, the embankment around the culvert inlet shall be protected from erosion by rock lining or riprap as specified in **Table 4-2.1, except the length shall be a minimum of five feet (upstream of the culvert), and the height shall be at the design headwater elevation.
2. Trash racks/debris barriers are required on culverts that are over 60 feet in length and that are 12 inches to 36 inches in diameter. Exceptions are culverts on fish-bearing streams.
3. In order to maintain the stability of roadway embankments, concrete headwalls, wing walls, or tapered inlets and outlets may be required if right-of-way and/or easement constraints prohibit the culvert from extending to the toe of the embankment slope. Normally concrete inlet structures/headwalls installed in or near roadway embankments must be flush with and conform to the slope of the embankment.

4-2.4(3) OUTLETS

The receiving channel at the outlet shall be protected from erosion by rock lining, as specified in **Table 4-2.1, except the height shall be one foot above the maximum tail water elevation or one foot above the crown of the pipe, whichever is higher.

4-2.4(4) FISH PASSAGE

Guidance for designing culverts for fish passage must be obtained from the Washington State Department of Fish and Wildlife.

4-2.5 OUTFALL DESIGN CRITERIA

4-2.5(1) GENERAL

1. All outfalls (at a minimum) shall be provided with rock protection per **Table 4-2.1. For outfalls with a velocity at the design flow greater than 10 fps, a gabion dissipater or engineered energy dissipater shall be required.
2. Mechanisms which reduce velocity prior to discharge from an outfall are encouraged.
3. Engineered energy dissipaters, including stilling basins, drop pools, hydraulic jump basins, baffled aprons, and bucket aprons, are required for outfalls with velocity at design flow greater than 20 fps.
4. Inlet control will usually dictate outfall pipe system capacity. The inlet conditions should be carefully examined, as well as the consequences should the inlet to the pipe system become plugged or capacity exceeded.

4-2.5(2) OUTFALL SYSTEMS TRAVERSING STEEP SLOPES

1. Outfall systems constructed of pipe segments which are banded and/or gasketed are not acceptable for traversing steep slopes. Failure of the system will result from leaks which develop at the joints.
2. Continuously fused, welded or flange bolted mechanical joint pipe systems (such as high density polyethylene pipe (HDPEP) or ductile iron pipe with flange-bolted mechanical joints) with proper anchoring shall be used for outfall systems traversing steep slopes.
3. In general, outfall pipes systems shall be installed in trenches with standard bedding on slopes up to 20 percent. On slopes greater than 20 percent, outfall pipe systems shall be placed on the ground surface with proper pipe anchorage.
4. HDPEP outfall systems must be designed to address the material limitations as specified by the manufacturer, in particular thermal expansion/contraction and pressure design. Sliding sleeve connections to address thermal expansion and contraction shall be used. These sleeve connections consist of a section of the appropriate length of the next larger size diameter of pipe into which the outfall pipe is fitted. These sleeve connections must be located as close to the discharge end of the outfall system as is practical.

5. Flows of very high energy will require a specifically engineered energy dissipation structure as described above.

4-2.6 OPEN CHANNEL DESIGN CRITERIA

Open channels, either natural or artificial, may be used to convey storm water on and from a site. In general, however, natural channels are protected as environmentally sensitive areas under the City's Land Use Code and may not be used to convey untreated, undetained storm water. Alteration of these channels, including bank stabilization projects, requires special permits. Artificial channels are those constructed from upland areas specifically to convey storm and surface water. In general, the criteria in this section do not apply to biofiltration swales, which are primarily designed to treat storm water runoff.

When constructing artificial channels, vegetation-lined channels are preferred when properly designed and constructed. Rock-lining may be necessary along the length of channels or at specific locations (such as bends and outfalls) when a vegetative lining will not provide adequate protection from erosive velocities.

4-2.6 (1) ARTIFICIAL CHANNELS

1. Channel section geometry shall be trapezoidal. Side slopes shall not be steeper than 3H:1V for vegetation-lined channels and 2H:1V for rock-lined channels, unless the channel is engineered specifically for steeper slopes.
2. A minimum 0.5 ft freeboard above design flows must be provided.
3. Vegetation-lined channels shall have bottom slope gradients of five percent or less and a maximum average velocity at the design flow of five fps.
4. Rock-lined channels shall be used when design flow velocities exceed five fps. Rock lining shall be in accordance with **Table 4-2.2.
5. A maintenance access easement 15 feet wide (minimum) is required along all publicly maintained constructed channels located on private property. However, required easement widths and building setback lines may vary with channel top width. A minimum 15 feet setback must be provided between any structures and the top of the bank of the channel.

4-2.6 (2) ROCK-LINING

In rock-lined channels, stone (riprap) is placed on the channel sides and bottom to protect the underlying material from erosion. Proper riprap design requires the determination of the median size of stone, the thickness of the riprap layer, the gradation of stone sizes, and the selection of angular stone which will interlock when placed.

Research by the U.S. Army Corps of Engineers has provided criteria for selecting the median stone size, W_{50} (Figure 4-2.1). If the riprap is to be used in a highly turbulent zone, such as a culvert outfall, downstream of a stilling basin, at sharp changes in channel geometry, etc., the median stone (W_{50}) should be increased from 200 percent to 600 percent depending on the severity of the locally high turbulence. The thickness of the riprap layer should generally be twice the median stone diameter (D_{50}) or at least that of

the maximum stone. The riprap should have a reasonably well-graded assortment of stone sizes within the following gradation:

$$1.25^3 (D_{\max}/D_{50})^3 \leq 1.50, (D_{15}/D_{50}) = 0.50, (D_{\min}/D_{50}) = 0.25$$

4-2.6 (3) RIPRAP FILTERS

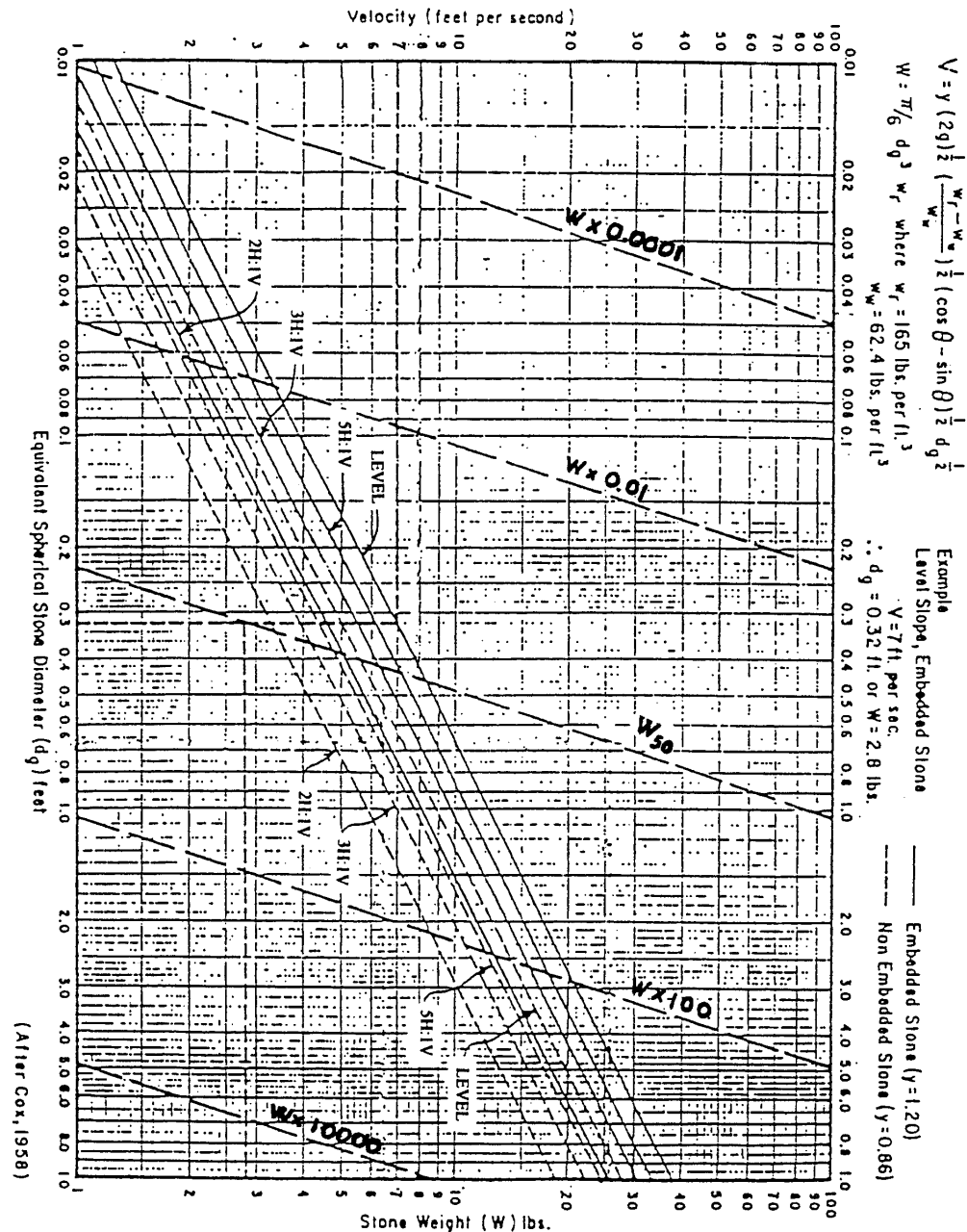
Riprap should be underlain by a sand and gravel filter (or filter fabric) to keep the fine materials in the natural or artificial channel from being washed through the voids in the riprap. Likewise, the filter material must be selected so that it is not washed through the voids in the riprap. Adequate filters can usually be provided by a reasonably well-graded sand and gravel material with $D_{15} < 5d_{85}$, where d refers to the sieve opening through which 85 percent of the material being protected will pass and D_{15} has the same interpretation for the filter material. A filter with a D_{50} of 0.5 mm will protect any finer material including clay. Where very large riprap is used, it is sometimes necessary to use two filter layers between the material being protected and the riprap.

For additional information and procedures for specifying filters for riprap and general guidance, refer to the Army Corps of Engineers Manual EM 1110-2-1601 (1970) "Hydraulic Design of Flood Control Channels", paragraph 14, Riprap Protection.

Figure 4-2. 1 Median Stone Size Selection for Riprap Design

STORM AND SURFACE WATER

Figure 4-2. 1 Median Stone Size Selection for Riprap Design



Rev. 4/02

Table 4-2. 1 Outfall Protection

STORM AND SURFACE WATER

Table 4-2.1 Outlet Protection

Design Flow Discharge Velocity (fps)	REQUIRED PROTECTION (Minimum Dimensions)				
	Type	Thickness	Width	Length	Height
0 - 5	Riprap*	1 ft	Diameter + 6 ft	8 ft or 4x diameter, whichever is greater	Crown + 1 ft
>5 - 10	Riprap**	1 ft	Diameter + 6 ft or 3x diameter, whichever is greater	12 ft or 3X diameter, whichever is greater	Crown + 1 ft
>10 - 20	Gabion	1 ft	As required	As required	Crown + 1 ft
Note: The stone for riprap shall be hard, sound, and durable and free of rock fines, soil, or other extraneous material. It shall also be free of segregation, seams, cracks, and other defects which would tend to destroy its resistance to weather. * Riprap for these velocities shall be reasonably well-graded with rock gradation as follows: 100 % passing an 8 inch square sieve (maximum stone size = 8 inches) 40 - 60% passing a 6 inch square sieve (median stone size = 6 inches) 0 - 10% passing a 2 inch square sieve (minimum stone size = 2 inches) ** Riprap for these velocities shall be reasonably well-graded with rock gradation as follows: 100% passing a 24 inch square sieve (maximum stone size = 24 inches) 40 - 60% passing a 16 inch square sieve (median stone size = 16 inches) 0 - 10% passing a 4 inch square sieve (minimum stone size = 4 inches) Note: The above riprap sizing assumes 3H:1V side slopes on the outlet channel.					

Table 4-2. 2 Channel Protection

STORM AND SURFACE WATER

Table 4-2.2 Channel Protection

Velocity at Design Flow	Required Protection	Thickness	Min. Height Above Design Water Surface
0 - 5 fps	Grass Lining/Bioengineering	Not applicable	0.5 feet
>5 - 8 fps	Riprap*/Bioengineering	1 ft	1 ft
>8 - 12 fps	Riprap**	2 ft	2 ft
>12 - 20 fps	Slope Mattress	varies	2 ft
>20 fps	Gabion, etc.	varies	varies

Note: The stone for riprap shall be hard, sound, and durable and free of rock fines, soil, or other extraneous material. It shall also be free of segregation, seams, cracks, and other defects which would tend to destroy its resistance to weather.

* Riprap for these velocities shall be reasonably well-graded with rock gradation as follows:

- 100 % passing an 8 inch square sieve (maximum stone size = 8 inches)
- 40 - 60% passing a 6 inch square sieve (median stone size = 6 inches)
- 0 - 10% passing a 2 inch square sieve (minimum stone size = 2 inches)

** Riprap for these velocities shall be reasonably well-graded with rock gradation as follows:

- 100% passing a 24 inch square sieve (maximum stone size = 24 inches)
- 40 - 60% passing a 16 inch square sieve (median stone size = 16 inches)
- 0 - 10% passing a 4 inch square sieve (minimum stone size = 4 inches)

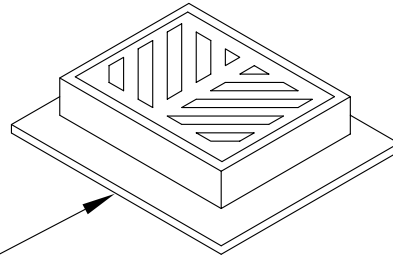
DRAWING INDEX

STORM AND SURFACE WATER

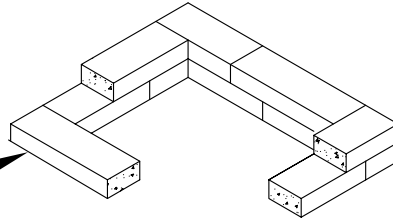
Last Revision Date

401	Precast Concrete Inlet	4-01-04
402	Catch Basin Type-A.....	4-01-04
403	Catch Basin Type-B.....	4-01-04
404	Catch Basin Type-2 (48" or 54")	4-01-04
405	Storm Drain Manhole Ring and Cover	4-01-04
405a	Frame For Grate Or Solid Cover	4-01-04
406a	Grate For Catch Basin Or Inlet.....	4-01-04
406b	Solid Cover For Catch Basin Or Inlet.....	4-01-04
406c	Vaned Grate For Catch Basin Or Inlet.....	4-01-04
407	Typical Frame & Grate Installation	4-01-04
408	Open Curb Face Frame & Grate Installation	4-01-04
409	Open Curb Face Frame & Grate Details.....	4-01-04
410	Floatable Material Separator And/or Gas Trap (6" or 8")	4-01-04
411	Floatable Material Separator And/or Gas Trap (12" And Larger).....	4-01-04
412a	Typical Restrictor Installation	4-01-04
412b	Typical Restrictor Installation	4-01-04
412c	Lift Gate Assembly And Secondary Orifice Detail	4-01-04
414	Typical Parking Lot Detention	4-01-04
415	Typical Parking Lot Detention	4-01-04
416	Typical Closed Underground Detention System	4-01-04
417	Typical Dry Type Detention Pond.....	4-01-04
419	Biofiltration Swale	4-01-04
420	Typical Wet Pond Layout.....	4-01-04
421	Oil/ Water Separator and Grit Removal Vault.....	4-01-04
422a	Bypass Structure Type I.....	4-01-04
422b	Bypass Structure Type 2	4-01-04
422c	Bypass Structure Type 3	4-01-04
422d	Bypass Structure Type 4	4-01-04
422e	Multiple Restrictor Structure	4-01-04

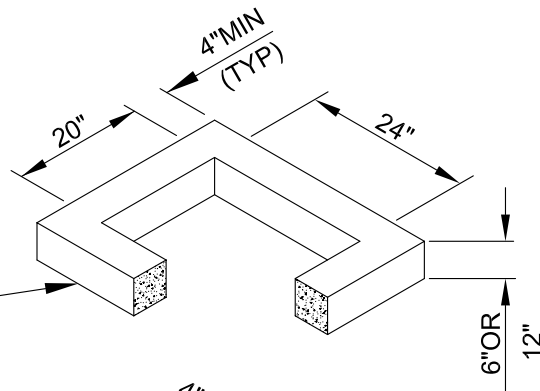
FRAME AND OPEN GRATE PER STD 405
VANED GRATE PER STD 406A



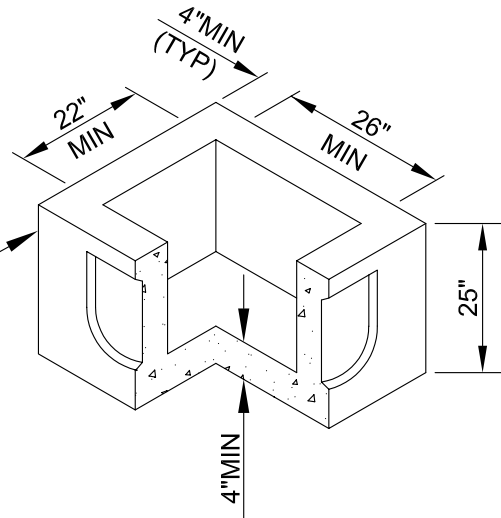
2"x4"x8" SOLID BRICK
USED FOR FINAL ADJUSTMENT
TO GRADE. 6" HIGH MAX



6" OR 12" CONCRETE
RISER SECTION
CLASS 4000 CONC



PRECAST CONC BASE SECTION
W/MAX OF ONE 17"Ø KNOCKOUT
PER SIDE. ENTRANCE ANGLE
TO BE LIMITED BY KNOCKOUTS
CLASS 4000 CONC
PIPE OUTER DIA PLUS
INLET WALL THICKNESS
SHALL NOT EXCEED 17".



INLET TO CONFORM TO WSDOT STANDARD PLAN B-26



PRECAST CONCRETE INLET

City of Snohomish Public Works Department

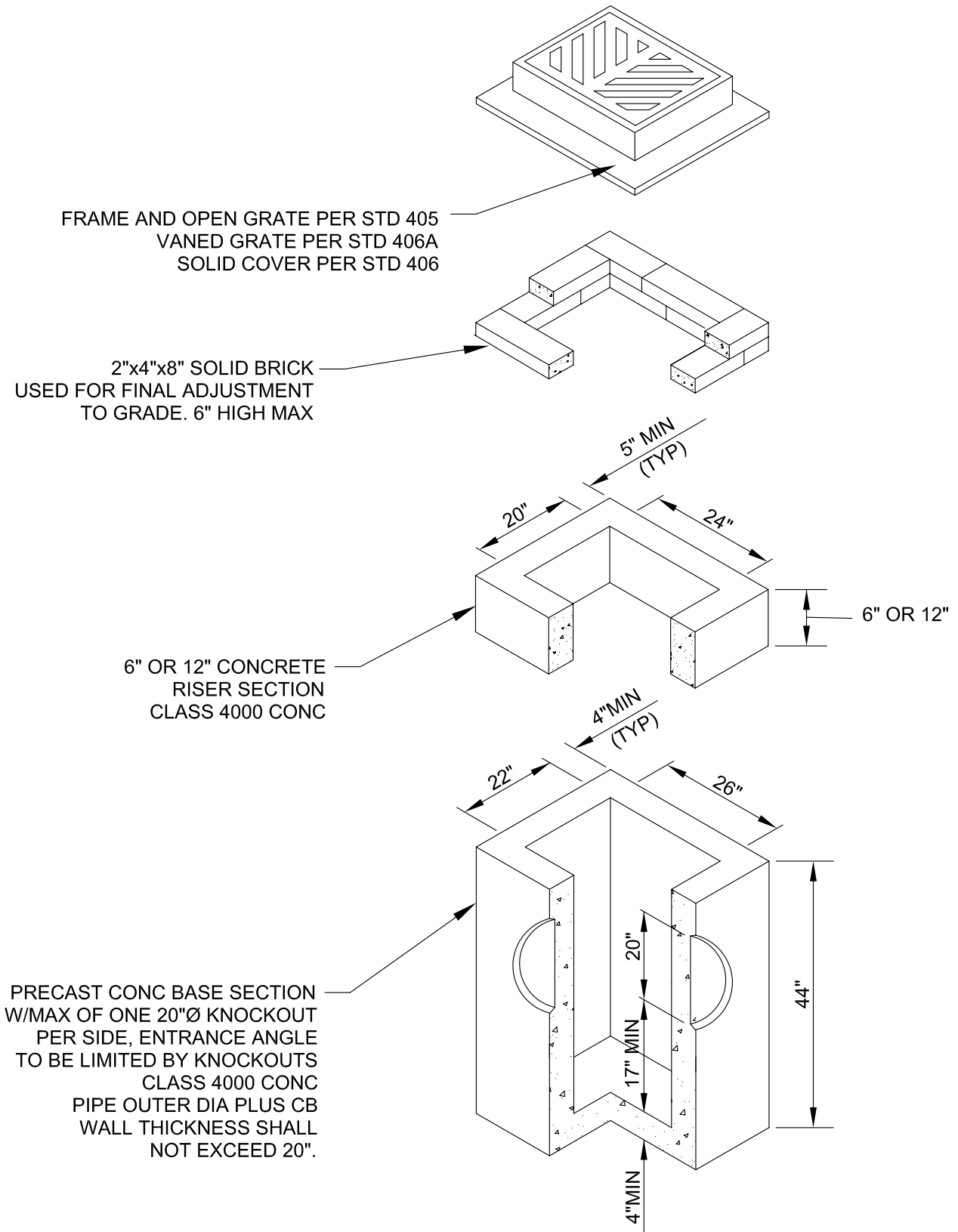
Approved By:

City Engineer

Date: May 30, 2004

401

Number



CATCH BASIN TO CONFORM TO WSDOT STANDARD PLAN B-1



CATCH BASIN TYPE A

City of Snohomish Public Works Department

Approved By:

City Engineer

Date: May 30, 2004

402

Number

FRAME AND OPEN GRATE PER STD 405
VANED GRATE PER STD 406A
SOLID COVER PER STD 406

2"x4"x8" SOLID BRICK
USED FOR FINAL ADJUSTMENT
TO GRADE. 6" HIGH MAX

6" OR 12" CONCRETE
RISER SECTION
CLASS 4000 CONC

6" CONCRETE
REDUCING TOP SLAB
CLASS 4000 CONC

PRECAST CONC BASE SECTION
W/MAX OF ONE 28"Ø KNOCKOUT
PER SID. ENTRANCE ANGLE
TO BE LIMITED BY KNOCKOUTS
CLASS 4000 CONC
PIPE OUTER DIA PLUS CB
WALL THICKNESS SHALL
NOT EXCEED 28"

CATCH BASIN TO CONFORM TO WSDOT STANDARD PLAN B-1A



CATCH BASIN TYPE B

City of Snohomish Public Works Department

Approved By:

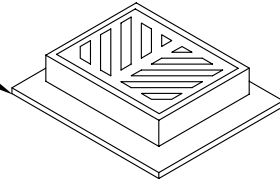
City Engineer

Date: May 30, 2004

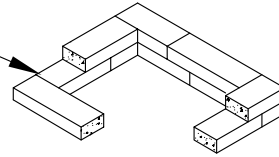
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Number

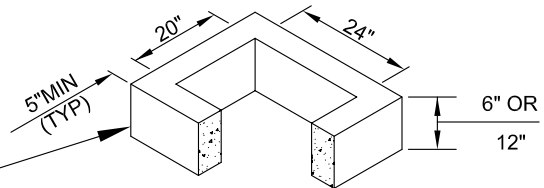
FRAME AND OPEN GRATE PER STD 405
VANED GRATE PER STD 406A
SOLID COVER PER STD 406



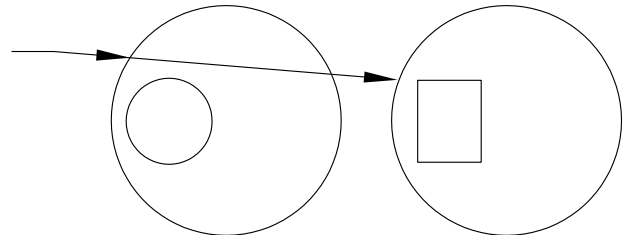
2"x4"x8" SOLID BRICK
USED FOR FINAL ADJUSTMENT
TO GRADE. 6" HIGH MAX



6" OR 12" CONCRETE
RISER SECTION
CLASS 4000 CONC

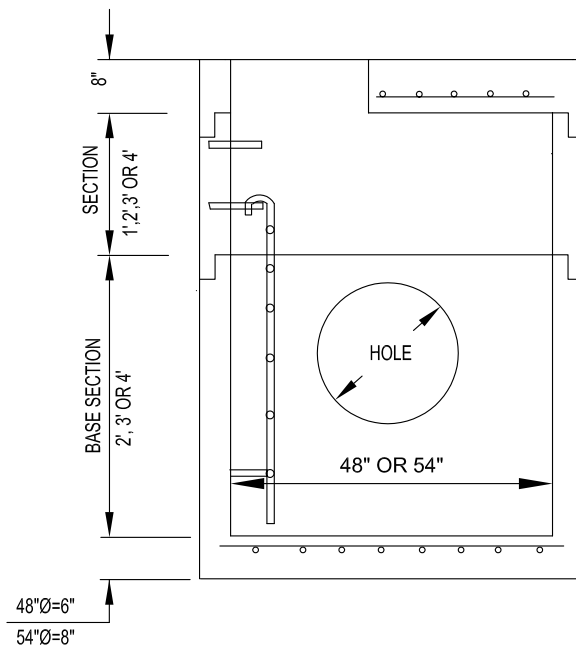


TOP SLAP WITH
24" ROUND ACCESS OR
20"x24" RECTANGULAR ACCESS



NOTES:

- 1 ALL TYPE 2 CB'S EQUIPPED WITH OPEN GRATES SHALL BE LOCKING TYPE.
- 2 ALL TYPE 2 CB'S NOT IN PAVED AREAS SHALL BE EQUIPPED WITH LOCKING LIDS,
- 3 CB'S SHALL BE SET SO THAT STEPS ARE DIRECTLY UNDER OPENING.
- 4 ALL TYPE 2 CB'S SHALL BE EQUIPPED WITH STEPS AND LADDER PER STD 606.
- 5 CONCRETE SHALL BE CLASS 4000.
- 6 MIN DISTANCE FROM INVERT TO CB BOTTOM SHALL BE 2.0'.
- 7 CB SECTIONS AND LID WILL BE HS20 TRAFFIC LOAD CERTIFIED BY MFG.
- 8 HOLE SIZE = PIPE OD + 5". MAX
MAX HOLE SIZE = 36" (48" CB)
MAX HOLE SIZE = 42" (54" CB)



CATCH BASIN TO CONFORM TO WSDOT STANDARD PLAN B-1E



CATCH BASIN TYPE 2 (48" OR 54")

City of Snohomish Public Works Department

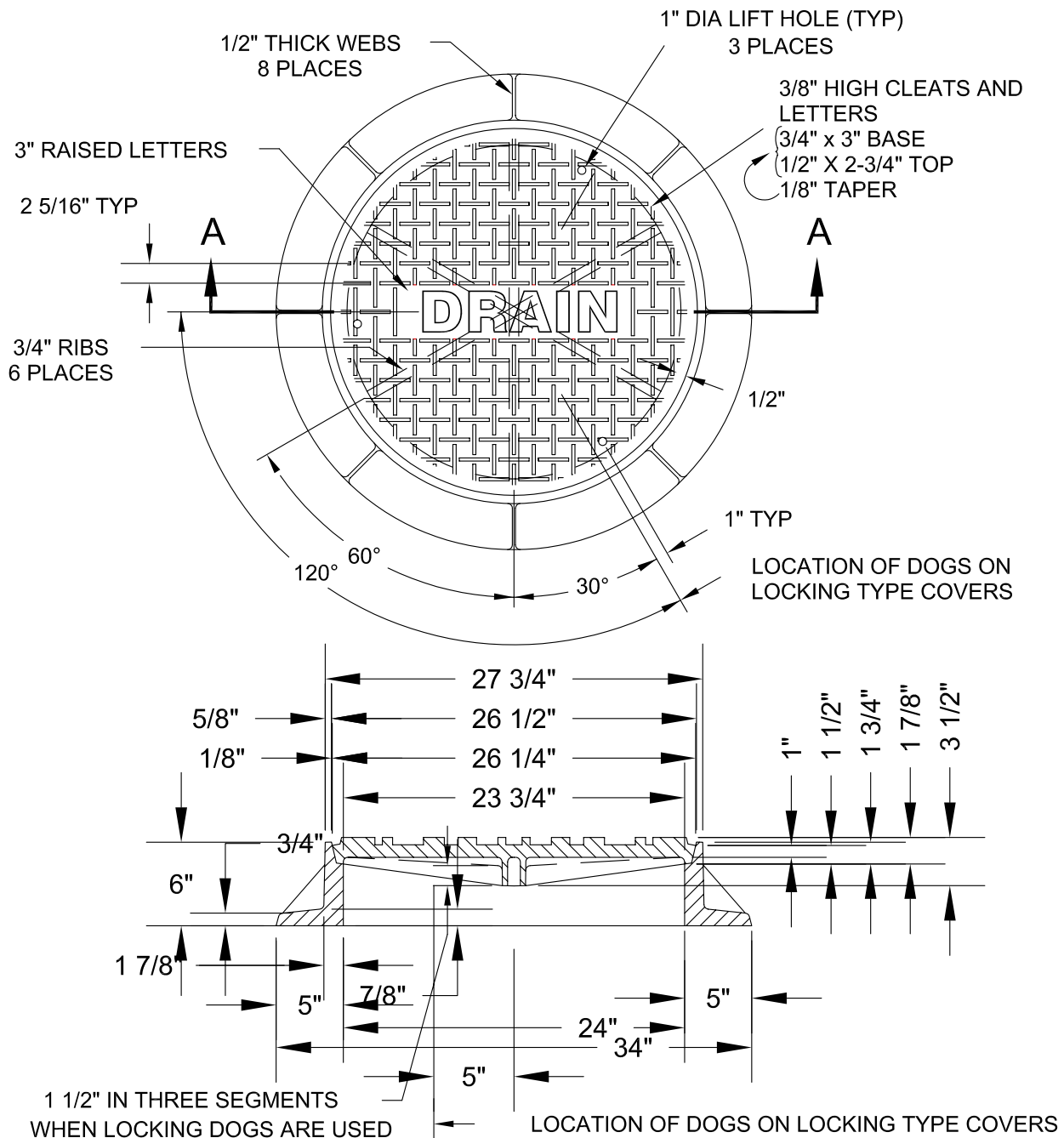
Approved By:

City Engineer

Date: May 30, 2004

404

Number



SECTION A-A

NOTES:

1. MANHOLE RINGS SHALL BE GRAY IRON CONFORMING TO THE REQUIREMENTS OF AASHTO M 105, GRADE 30B.
2. MANHOLE COVER TO BE DUCTILE IRON CONFORMING TO ASTM A536, GR 80-55-06
3. LOCKING COVER TO BE USED AT OFF-STREET LOCATIONS AND OTHER LOCATIONS AS DIRECTED. THE LID SHALL BE LOCKED DOWN WITH 3-5/8" S.S SOCKET HEAD CAP SCREWS.
4. RING AND COVER SHALL BE TESTED FOR ACCURACY OF FIT AND SHALL BE MARKED IN SETS FOR DELIVERY.
5. ALL CASTINGS TO HAVE A BITUMINOUS COATING.



STORM DRAIN MANHOLE RING AND COVER

City of Snohomish Public Works Department

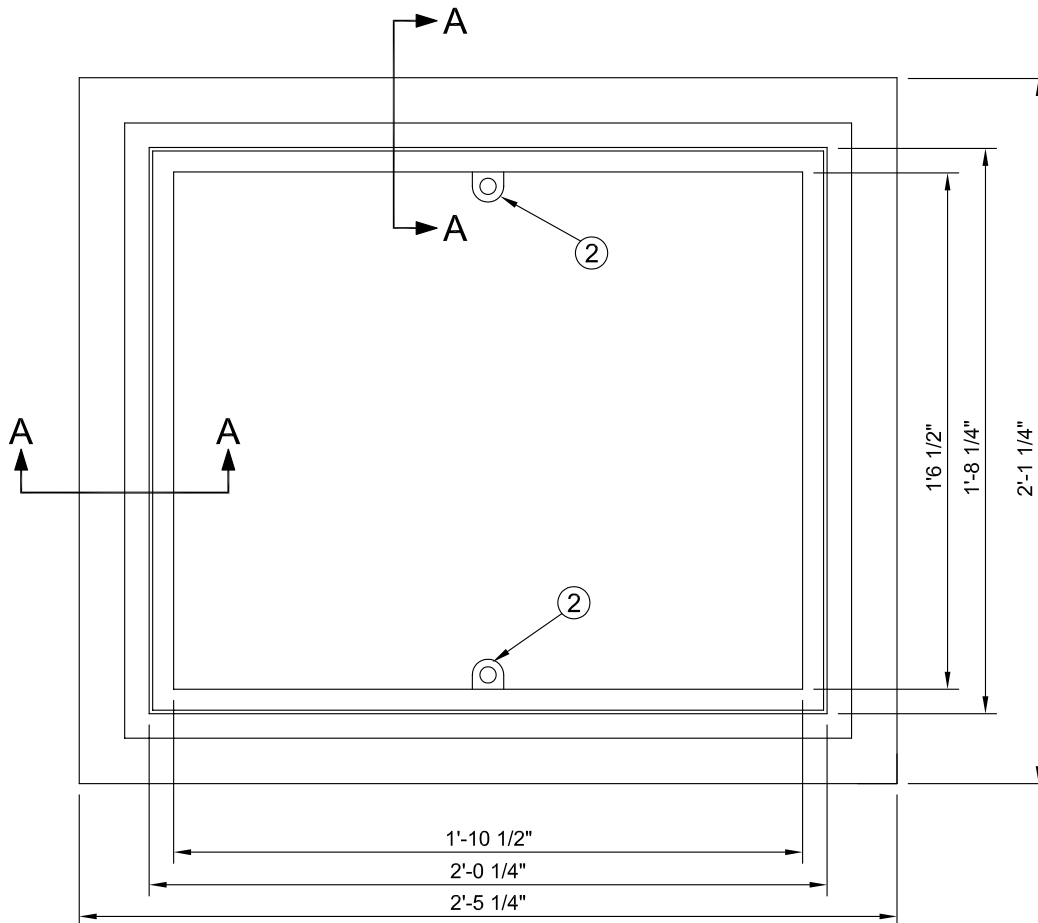
Approved By:

City Engineer

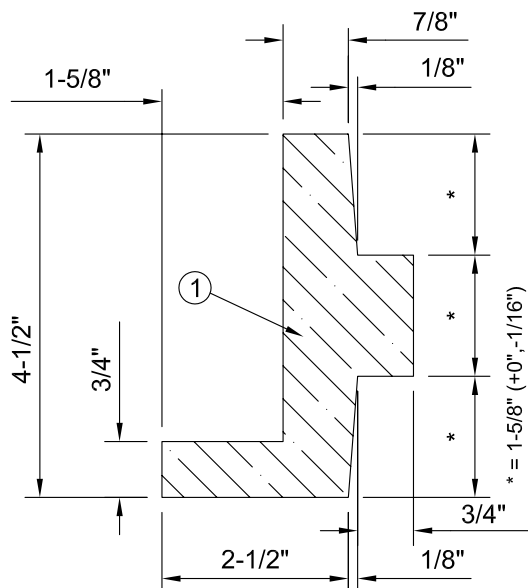
Date: May 30, 2004

405

Number



TOP VIEW



SECTION A-A

NOTES:

- ① MATERIAL USED SHALL BE CAST IRON PER ASTM-A48, CLASS 30. FRAME SHALL HAVE A BITUMINOUS COATING APPLIED.
- ② WHEN A LOCKING GRATE OR COVER IS REQUIRED THE FRAME SHALL BE FABRICATED SO AS TO ACCEPT TWO (2) 5/8" STAINLESS STEEL SOCKET HEAD CAP SCREWS OF GRATE OR COVER.
- ③ FOR APPROVED GRATES AND SOLID MANHOLE COVER SEE STD DWG'S 405A, 406A, 406B & 406C



FRAME FOR GRATE OR SOLID COVER

City of Snohomish Public Works Department

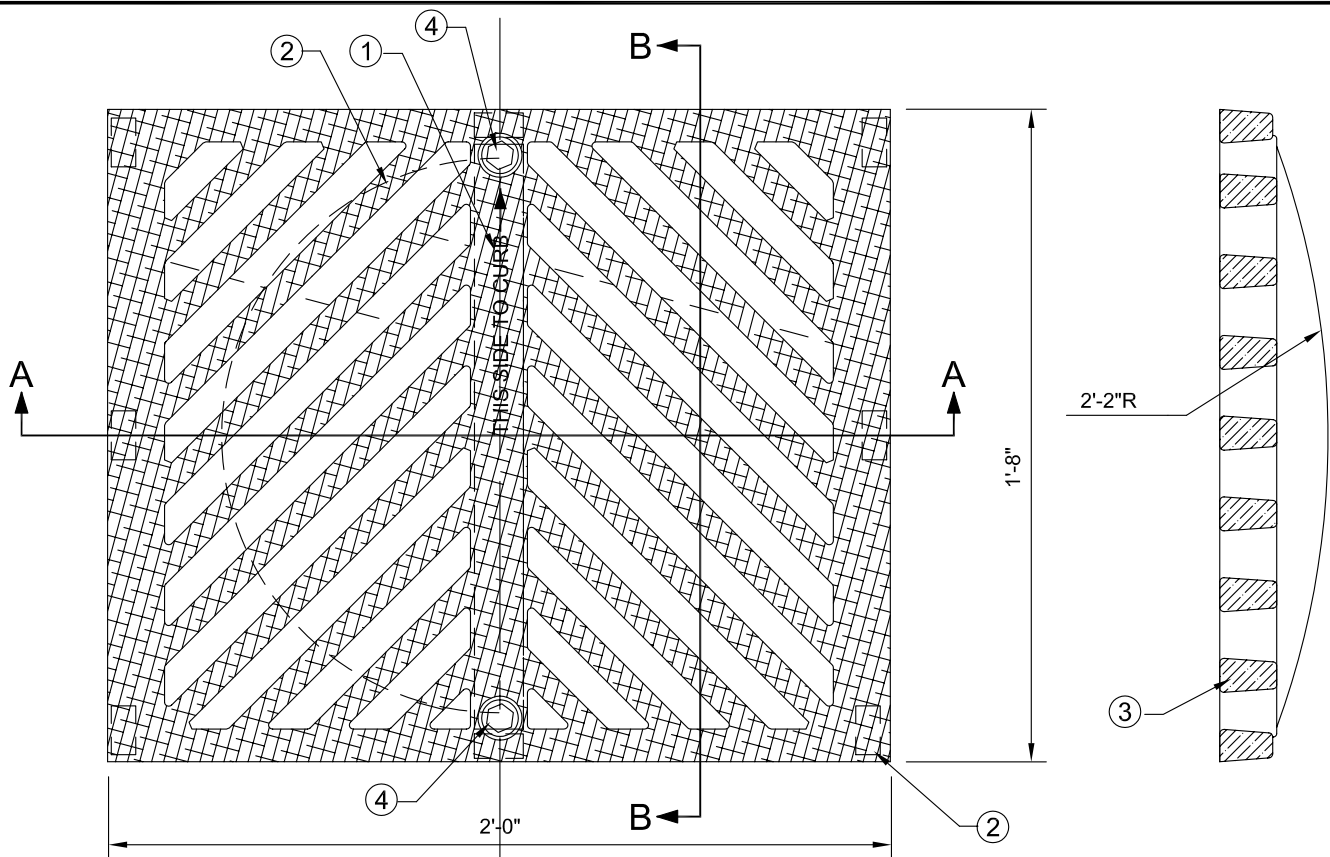
Approved By:

City Engineer

Date: May 30, 2004

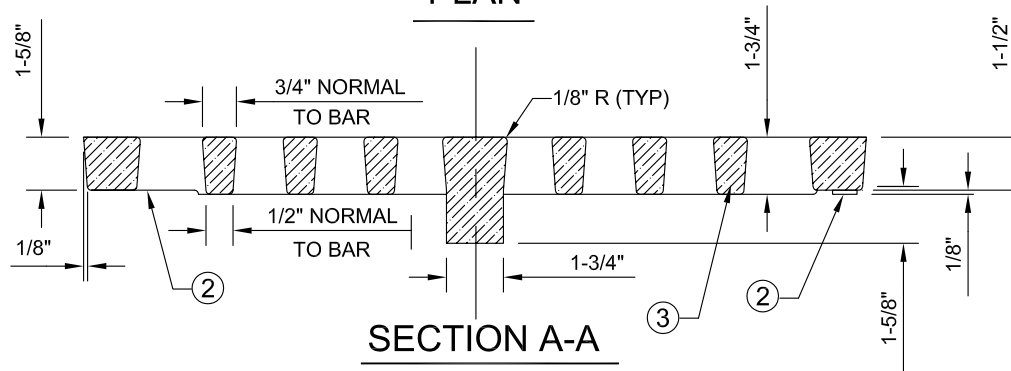
405a

Number



PLAN

SECTION B-B



SECTION A-A

NOTES:

- ① FOUNDRY NAME, THIS SIDE TO CURB W/ARROW AND (DI) FOR DUCTILE IRON SHALL BE EMBOSSED ON TOP OF GRATE WITH 1/16" RECESSED LETTERS.
- ② SEATING OF GRATE SHALL BE ACCOMPLISHED BY ONE OF THE FOLLOWING:
A. 8 INTEGRALLY CAST PADS (1-1/2"x3/4"x1/8").
B. MACHINE BOTTOM SURFACE OUTSIDE A 17" DIA
- ③ MATERIAL USED SHALL BE DUCTILE IRON PER ASTM-A536, GRADE 80-55-06. ALL CASTINGS SHALL HAVE A BITUMINOUS COATING.
- ④ WHEN LOCKING GRATE REQUIRED HOLES WILL BE PROVIDED IN CASTING TO ALLOW FOR TWO 5/8" DIA STAINLESS STEEL SOCKET HEAD CAP SCREWS SO THAT NO PART OF HEAD PROTRUDES ABOVE TOP OF CASTING.
- ⑤ GRATE TO BE USED WITH FRAME SHOWN IN STANDARD DWG 405.



GRATE FOR CATCH BASIN OR INLET

City of Snohomish Public Works Department

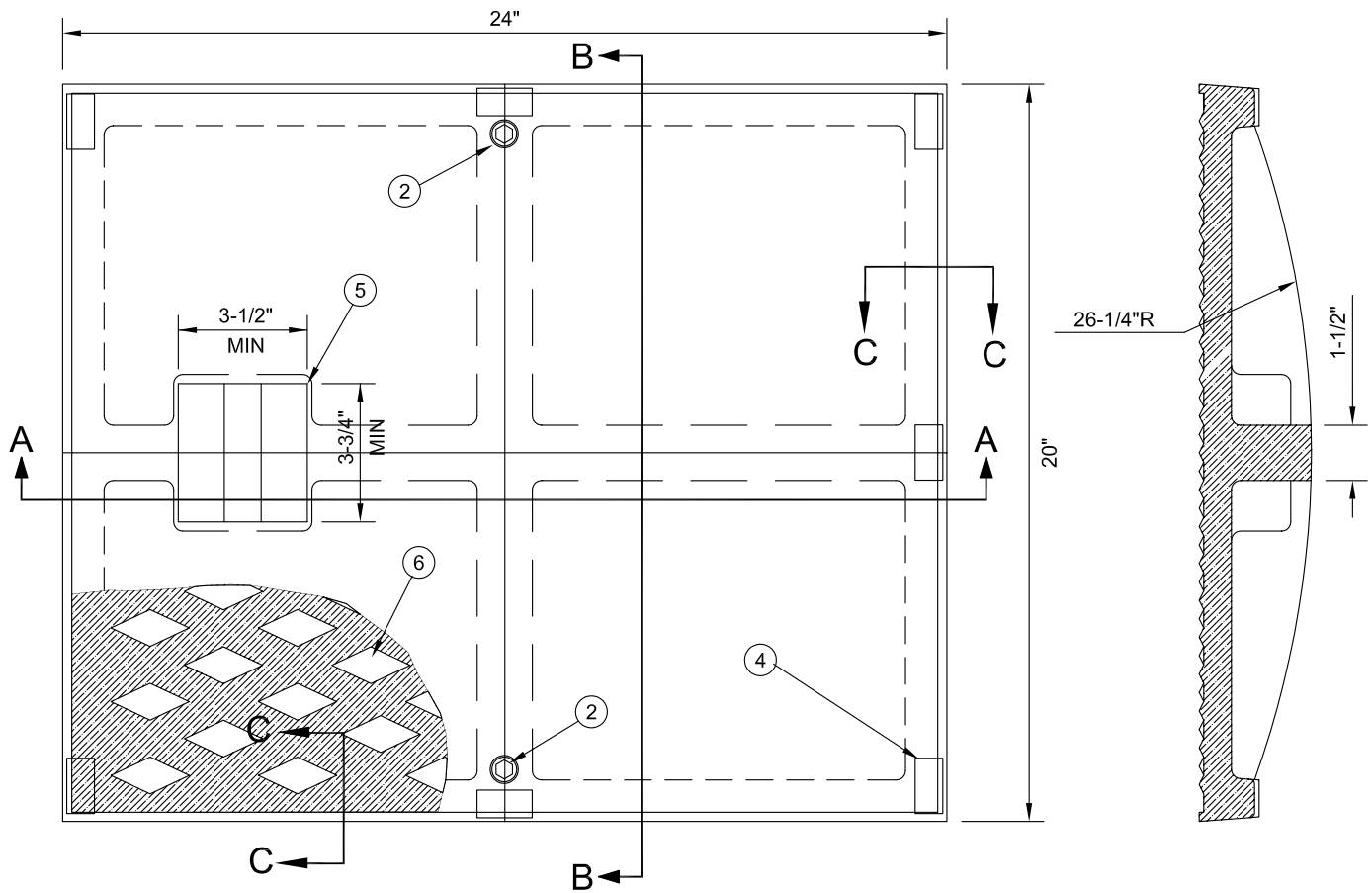
Approved By:

City Engineer

Date: May 30, 2004

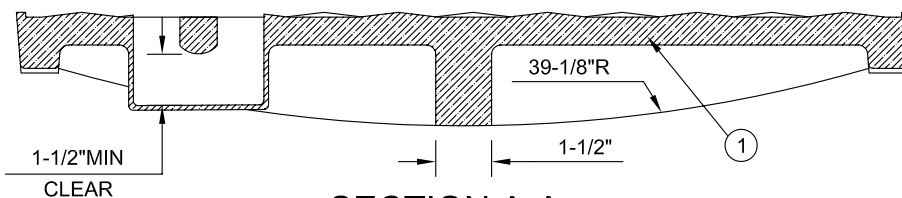
406a

Number

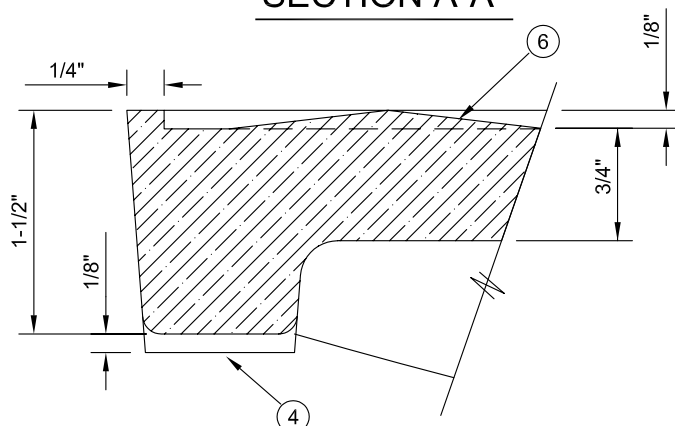


TOP VIEW

SECTION B-B



SECTION A-A



SECTION C-C

NOTE:

- ① MATERIAL USED SHALL BE DUCTILE IRON PER ASTM-A536, GRADE 80-55-06, WITH BITUMINOUS COATING.
- ② WHEN LOCKING GRATE REQUIRED HOLES WILL BE PROVIDED IN CASTING TO ALLOW FOR TWO 5/8" DIA STAINLESS STEEL, SOCKET HEAD CAP SCREWS. NO PART OF SCREW WILL PROTRUDE ABOVE GRATE.
- ③ GRATE TO BE USED WITH FRAME SHOWN IN STD DWG 405.
- ④ GRATE SEATING: 8 INTEGRALLY CAST PADS.
- ⑤ CAST POCKET LIFT HANDLE.
- ⑥ NON-SKID DIAMOND PATTERN APPROX 2-1/2"x1"x1/8"HIGH



**SOLID LID COVER FOR CATCH BASIN
OR INLET**

City of Snohomish Public Works Department

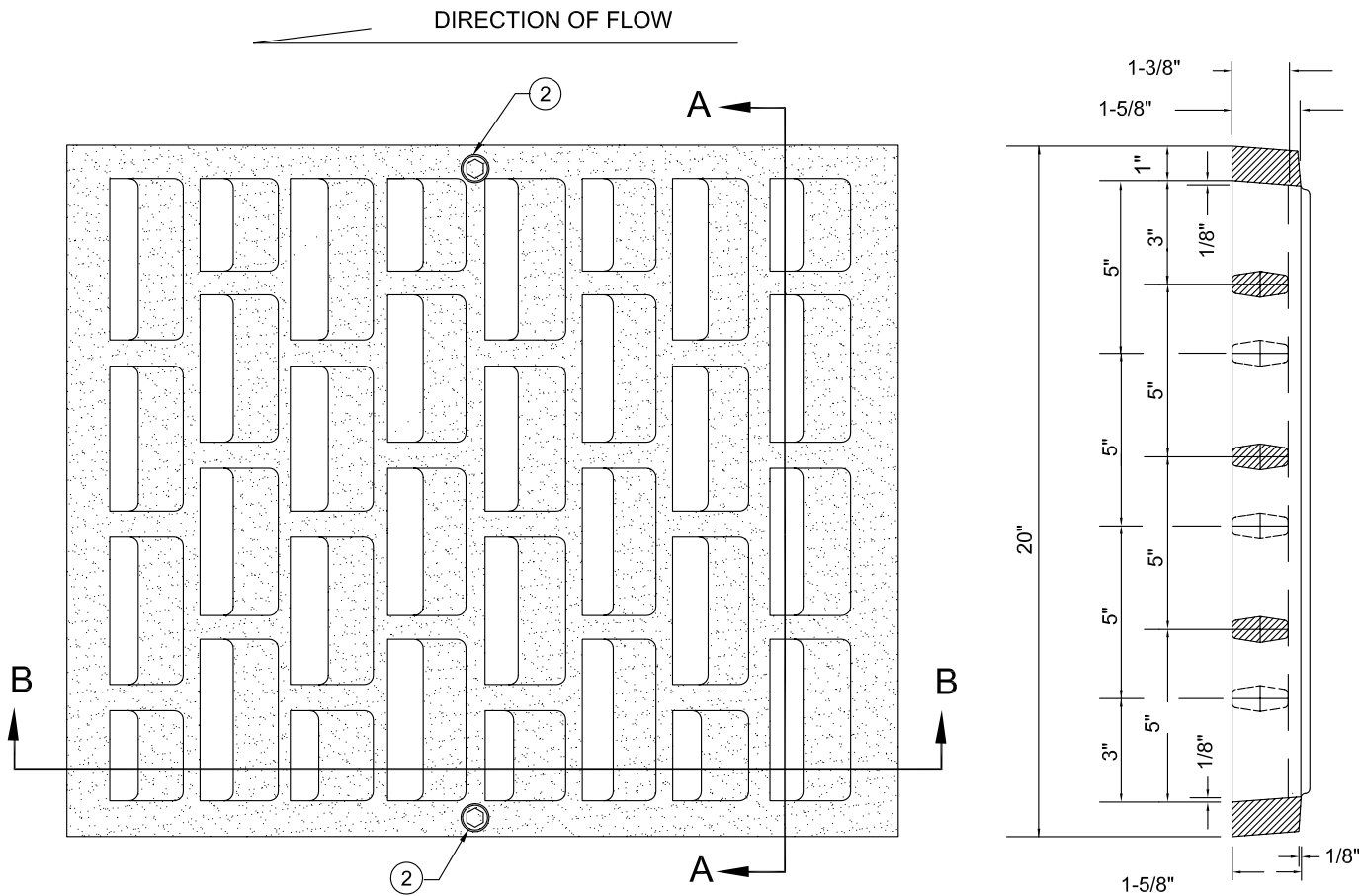
Approved By:

City Engineer

Date: May 30, 2004

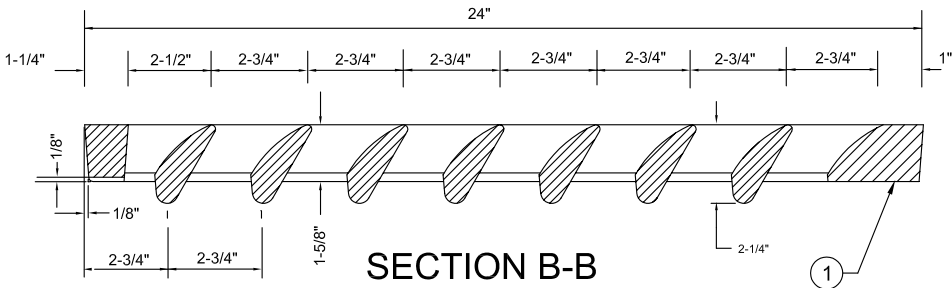
406b

Number



TOP VIEW

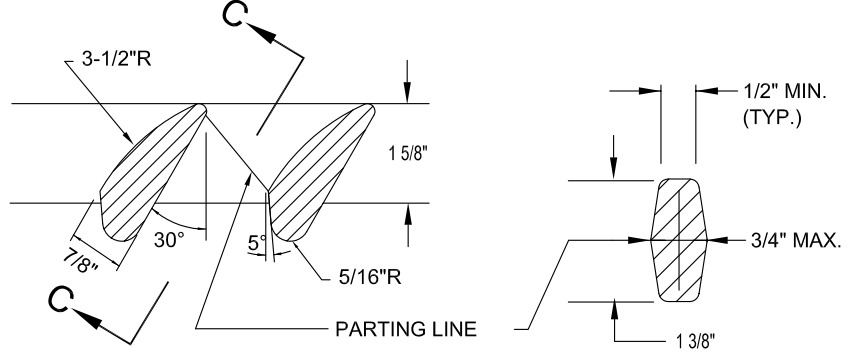
SECTION A-A



SECTION B-B

NOTE:

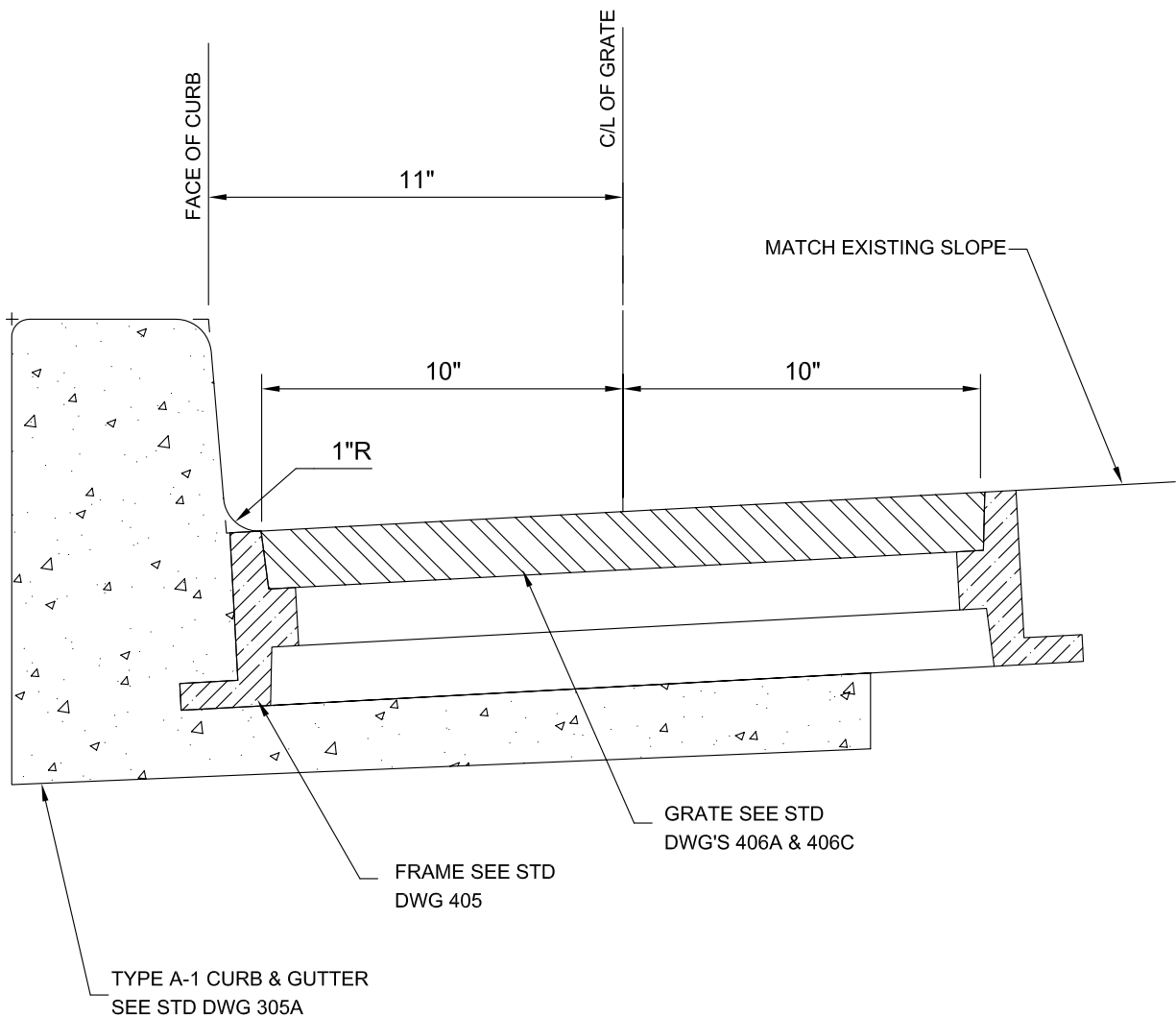
- ① MATERIAL USED SHALL BE DUCTILE IRON PER ASTM-A536, GRADE 80-55-06, WITH BITUMINOUS COATING.
- ② WHEN LOCKING GRATE REQUIRED HOLES WILL BE PROVIDED IN CASTING TO ALLOW FOR TWO 5/8" DIA STAINLESS STEEL, SOCKET HEAD CAP SCREWS. NO PART OF SCREW WILL PROTRUDE ABOVE GRATE.
- ③ GRATE TO BE USED WITH FRAME SHOWN IN STD DWG 405.



VANE DETAIL

SECTION C-C

W.S.D.O.T. STD PLAN B-2B



TYPICAL FRAME AND GRATE INSTALLATION

City of Snohomish Public Works Department

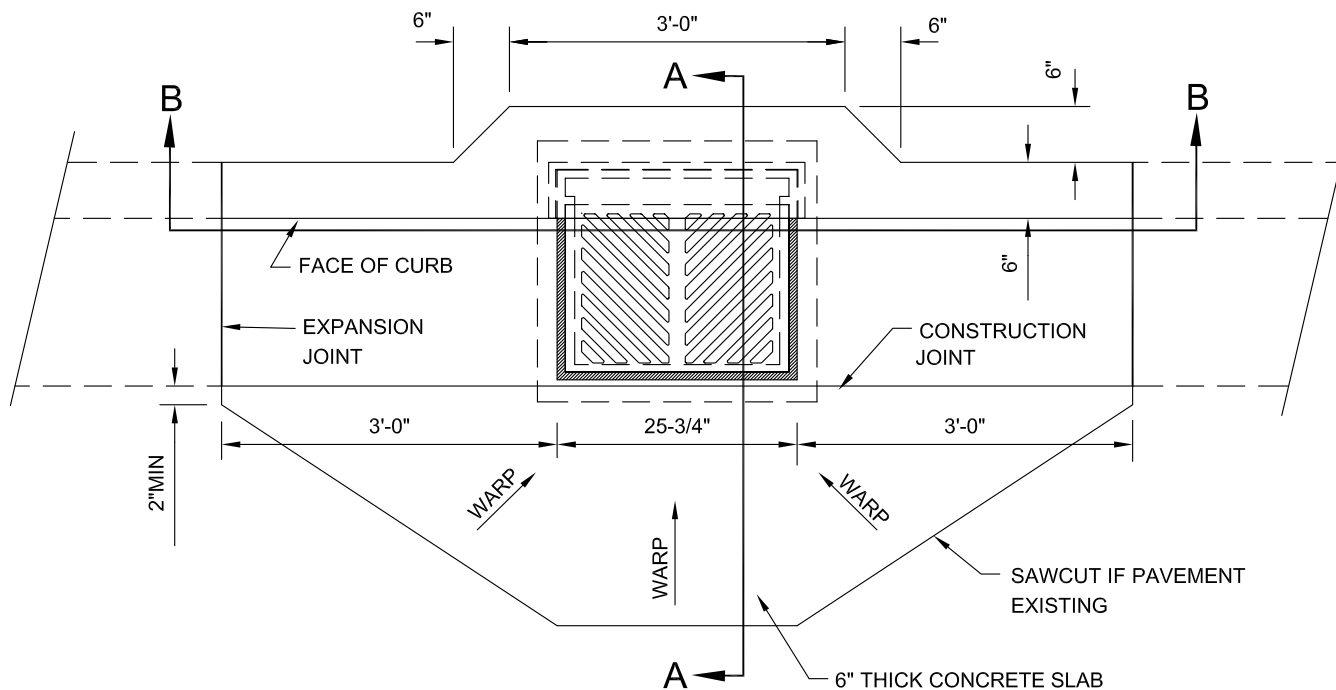
Approved By:

City Engineer

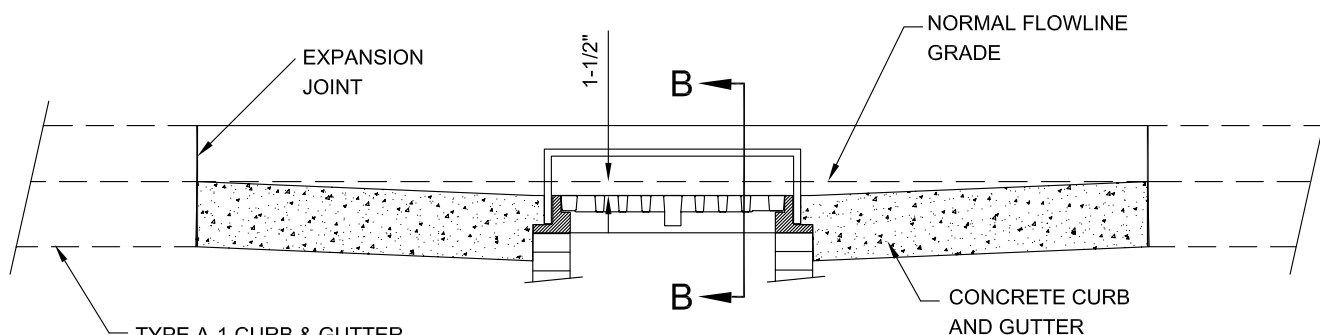
Date: May 30, 2004

407

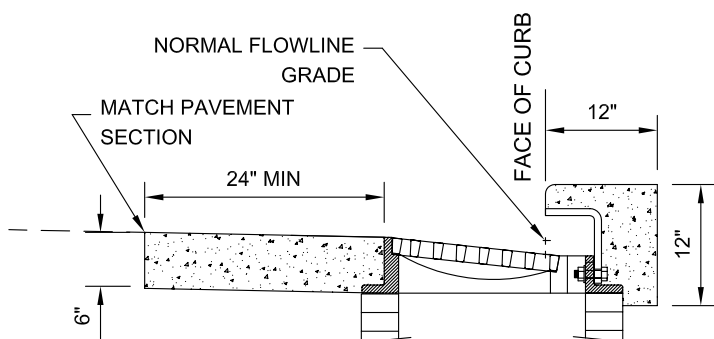
Number



TOP VIEW



SECTION A-A



SECTION B-B

NOTES:

1. INSTALLATION OF OPEN CURB FACE FRAME AND GRATE MUST BE APPROVED BY CITY ENGINEER ON A CASE BY CASE BASIS.

PROBLEMS OF FLOATABLE MATERIAL ENTERING STORM DRAINAGE SYSTEM BY USE OF THIS INSTALLATION MUST BE ADDRESSED.

2. SEE STD DWG 409 FOR FRAME AND GRATE DETAILS.



**OPEN CURB FACE FRAME AND GRATE
INSTALLATION**

City of Snohomish Public Works Department

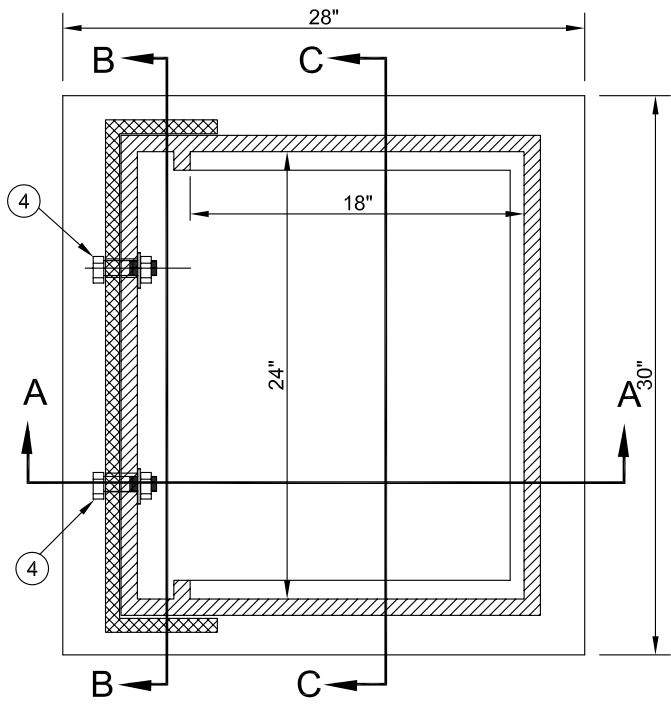
Approved By:

City Engineer

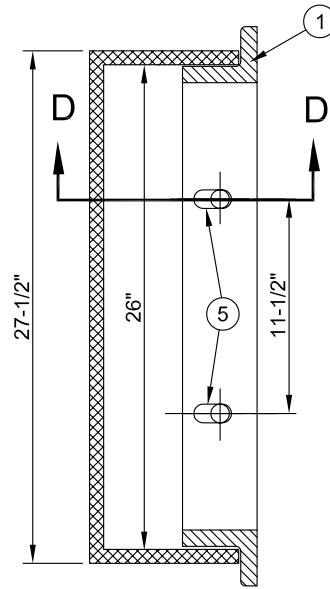
Date: May 30, 2004

408

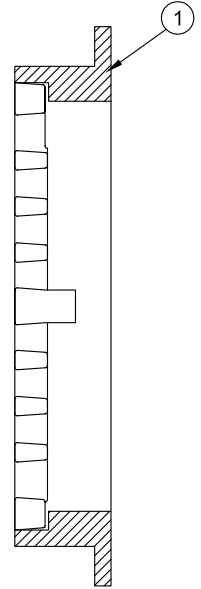
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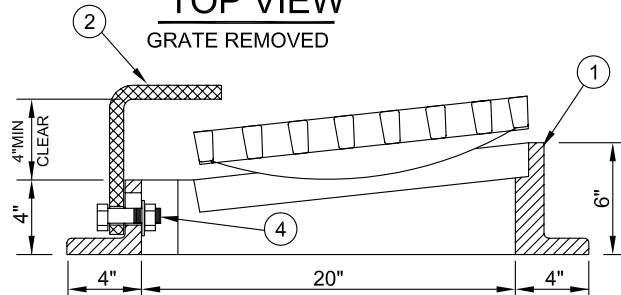
TOP VIEW



SECTION B-B

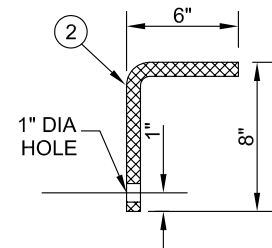


SECTION C-C

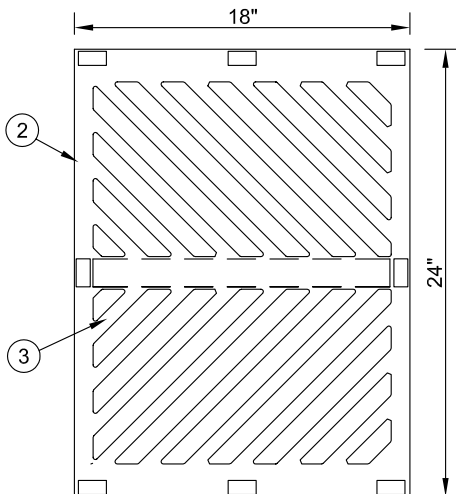


SECTION A-A

GRATE RAISED



SECTION D-D



GRATE TOP VIEW

NOTES:

- ① FRAME MATERIAL SHALL BE CAST IRON ASTM A48, CLASS 30, WITH A BITUMINOUS COATING.
- ② GRATE AND COVER MATERIAL SHALL BE DUCTILE IRON ASTM A536, GRADE 80-55-06 WITH BITUMINOUS COATING.
- ③ GRATE TO BE FABRICATED PER STANDARD DWG 406A WITH OVER ALL DIMENSIONS OF 24"x18".
- ④ PROVIDE 3/4" BOLT, NUT AND WASHERS
- ⑤ ADJUSTMENT SLOT IN FRAME CASTING APPROXIMATELY 1"x2". VERTICAL PLACEMENT TO PROVIDE MIN CLEARANCE BETWEEN GRATE AND COVER PLATE.
- ⑥ SEE STANDARD DWG 408 FOR INSTALLATION DETAILS.



**OPEN CURB FACE FRAME AND GRATE
INSTALLATION**

City of Snohomish Public Works Department

Approved By:

City Engineer

Date: May 30, 2004

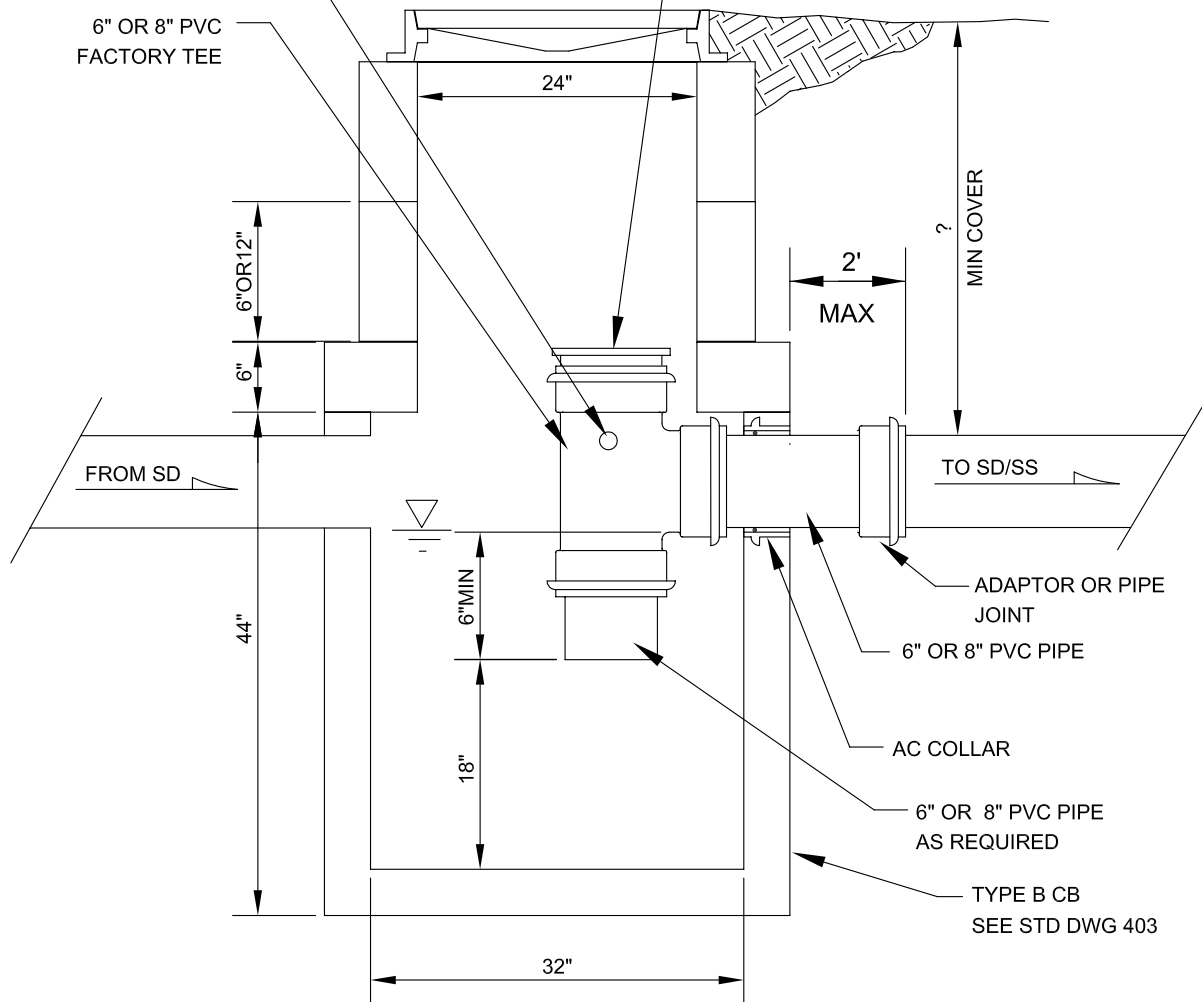
409

Number

1" VENT HOLE WHEN
NOT CONNECTED TO SS

6" OR 8" PVC PLUG

6" OR 8" PVC
FACTORY TEE



FLOATABLE MATERIAL SEPARATOR AND/OR GAS TRAP (6" OR 8")

City of Snohomish Public Works Department

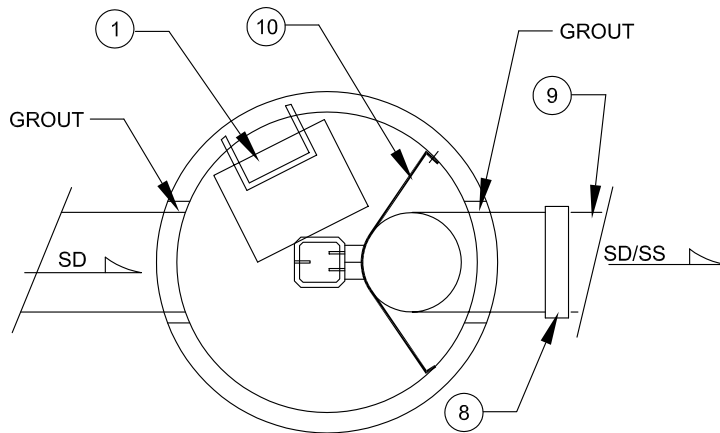
Approved By:

City Engineer

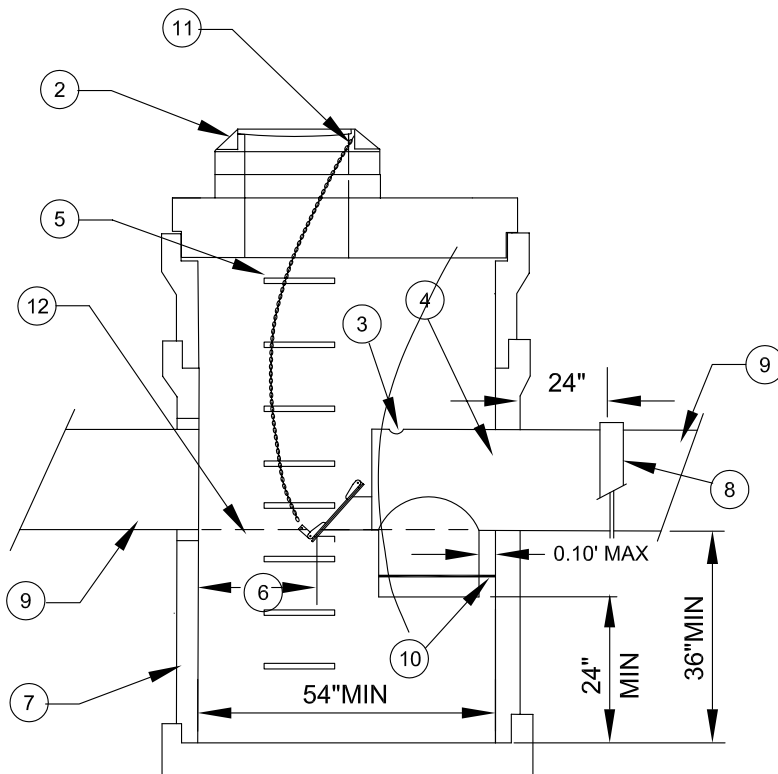
Date: May 30, 2004

410

Number



PLAN



ELEVATION

NOTES:

- 1 INSTALL CB TOP, FRAME, GRATE AND SECTIONS SO THAT LIFT GATE IS VISIBLE THROUGH OPENING AND STEPS CLEAR INLET AND RESTRICTOR UNIT.
- 2 INSTALL LOCKING FRAME & GRATE OR LID PER STD DWG 405 .
FRAME AND LID PER STD DWG 405 IS REQUIRED IF INSTALLATION IN NOT IN PAVED AREA OR IS NOT TO FUNCTION AS A CB.
- 3 1" VENT HOLE WHEN NOT CONNECTED TO TO COMBINED SANITARY SEWER SYSTEM.
- 4 SEPARATOR ASSEMBLY SEE STD DWG 412B & 412C AS APPLICABLE.
- 5 STEPS PER STD DWG 606.
- 6 MIN CLEARANCE:
36"FOR OUTLETS OF 24" AND LARGER
18" FOR OUTLETS OF 18" AND SMALLER
- 7 54" TYPE 2 CB OR LARGER.
- 8 BAND STRAP WITH GASKET
- 9 SEE PLAN AND SPECIFICATIONS FOR SIZE AND TYPE OF PIPE ENTERING AND EXITING CB.
- 10 SECURE SEPARATOR TO CB WITH 8 GA ALUMINUM STRAP. BOLT TO CB WALL WITH STAINLESS STEEL ANCHOR BOLTS AND TACK WELD TO SEPARATOR UNIT.
- 11 BOLT OR WELD CHAIN TO FRAME.
- 12 INVERT ELEVATION: SEE PLANS AND SPECIFICATIONS.



FLOATABLE MATERIAL SEPARATOR AND/OR GAS TRAP (12" AND LARGER)

City of Snohomish Public Works Department

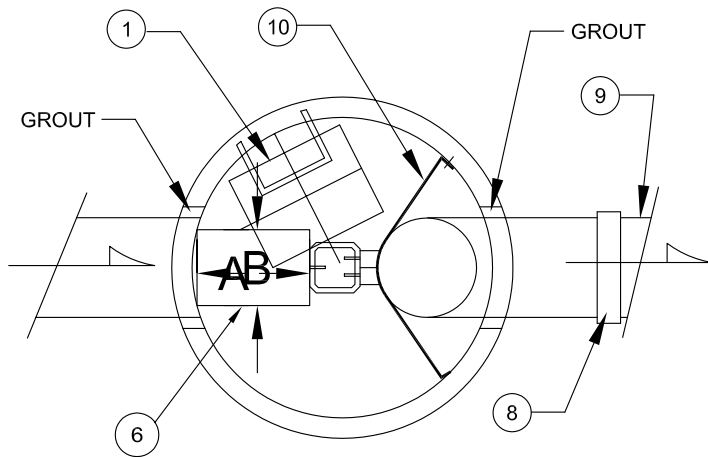
Approved By:

City Engineer

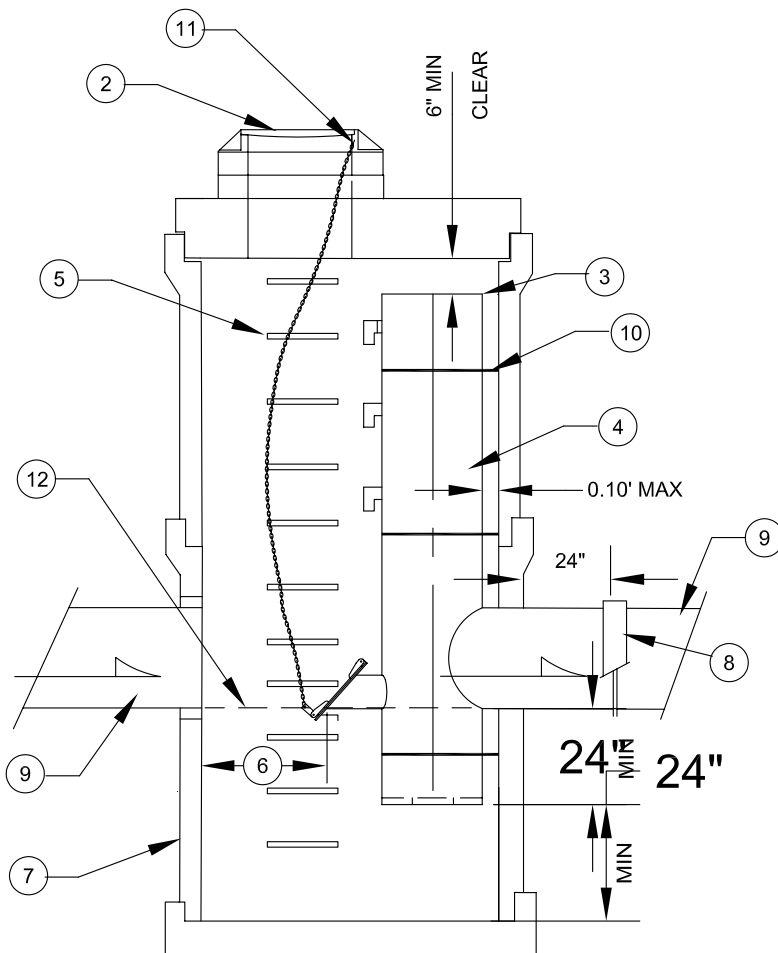
Date: May 30, 2004

411

Number



PLAN



ELEVATION

NOTES:

- ① INSTALL CB TOP, FRAME, GRATE AND SECTIONS SO THAT LIFT GATE IS VISIBLE THROUGH OPENING AND STEPS CLEAR INLET AND RESTRICTOR UNIT.
- ② INSTALL LOCKING FRAME & GRATE OR LID PER STD DWG 405. FRAME AND LID PER STD DWG 405 IS REQUIRED IF INSTALLATION IS NOT IN PAVED AREA OR IS NOT TO FUNCTION AS A CB.
- ③ OVERFLOW ELEVATION.
- ④ RESTRICTOR ASSEMBLY SEE STD DWG 412B & 412C.
- ⑤ STEPS PER STD DWG 606.
- ⑥ MIN CLEARANCE:
36" FOR OUTLETS OF 24" AND LARGER
18" FOR OUTLETS OF 18" AND SMALLER
- ⑥ MAINTENANCE CLEAR ZONE:
THIS AREA IS REQUIRED FOR CLEANING AND WILL BE FREE OF OBSTRUCTIONS FROM GATE TO TOP OF STRUCTURE.

DIM	OUTLET SIZE	
	18" AND SMALLER	24" AND LARGER
A	18"	36"
B	18"	24"

- ⑦ 54" TYPE 2 CB OR LARGER.
- ⑧ BAND STRAP WITH GASKET
- ⑨ SEE PLAN AND SPECIFICATIONS FOR SIZE AND TYPE OF PIPE ENTERING AND EXITING CB.
- ⑩ SECURE RESTRICTOR TO CB WITH 8 GA ALUMINUM STRAPS BOLT TO CB WALL WITH STAINLESS STEEL ANCHOR BOLTS AND TACK WELD TO RESTRICTOR UNIT. ONE STRAP ABOVE AND BELOW OUTLET REQUIRED, INTERMEDIATE STRAPS REQUIRED FOR RESTRICTOR RISERS GREATER THAN 12' ABOVE OUTLET.
- ⑪ BOLT OR WELD CHAIN TO FRAME.
- ⑫ INVERT ELEVATION: SEE PLANS AND SPECIFICATIONS.



TYPICAL RESTRICTOR INSTALLATION

City of Snohomish Public Works Department

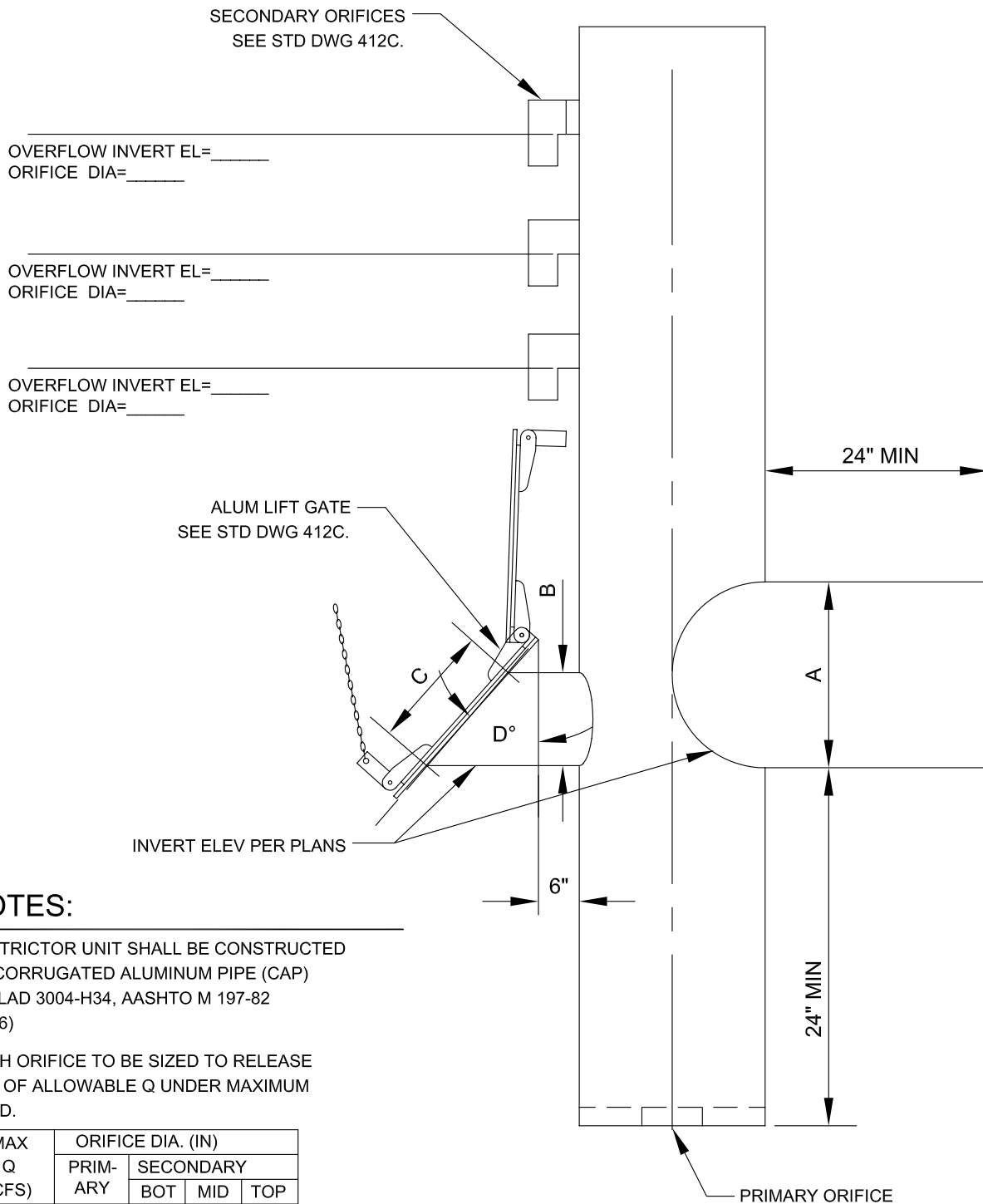
Approved By:

City Engineer

Date: May 30, 2004

412a

Number



NOTES:

- 1 RESTRICTOR UNIT SHALL BE CONSTRUCTED OF CORRUGATED ALUMINUM PIPE (CAP) ALCLAD 3004-H34, AASHTO M 197-82 (1986)
- 2 EACH ORIFICE TO BE SIZED TO RELEASE 25% OF ALLOWABLE Q UNDER MAXIMUM HEAD.

MAX Q (CFS)	ORIFICE DIA. (IN)			
	PRIM- ARY	SECONDARY		
		BOT	MID	TOP
0-5	3"	NR	NR	NR
6-10	6"	NR	NR	NR
11-25	3"	3"	NR	NR
	8"	4"	3"	NR
	9"	3"	3"	3"

ITEM	DESCRIPTION	SIZE	
A	OUTLET	18" AND SMALLER	24" AND LARGER
B	CLEANING	6" ID	10" ID
C	GATE SIZE	8" OPENING	12" OPENING
D	ANGLE	42°±	34°±



TYPICAL RESTRICTOR INSTALLATION

City of Snohomish Public Works Department

Approved By:

City Engineer

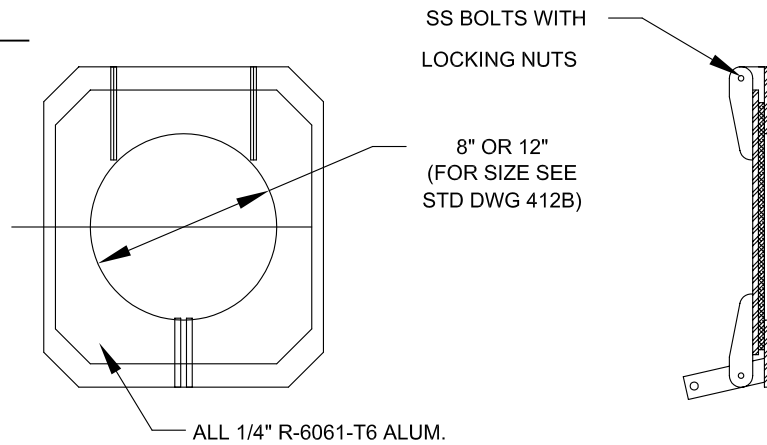
Date: May 30, 2004

412b

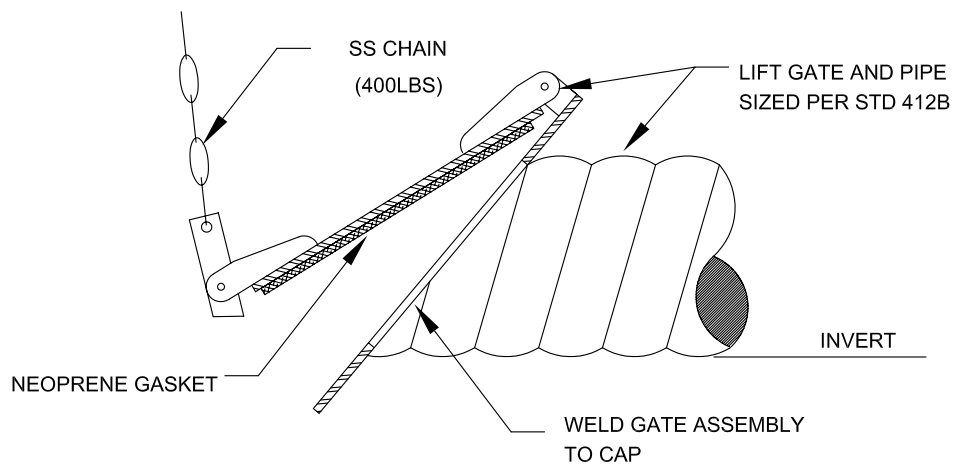
Number

NOTES:

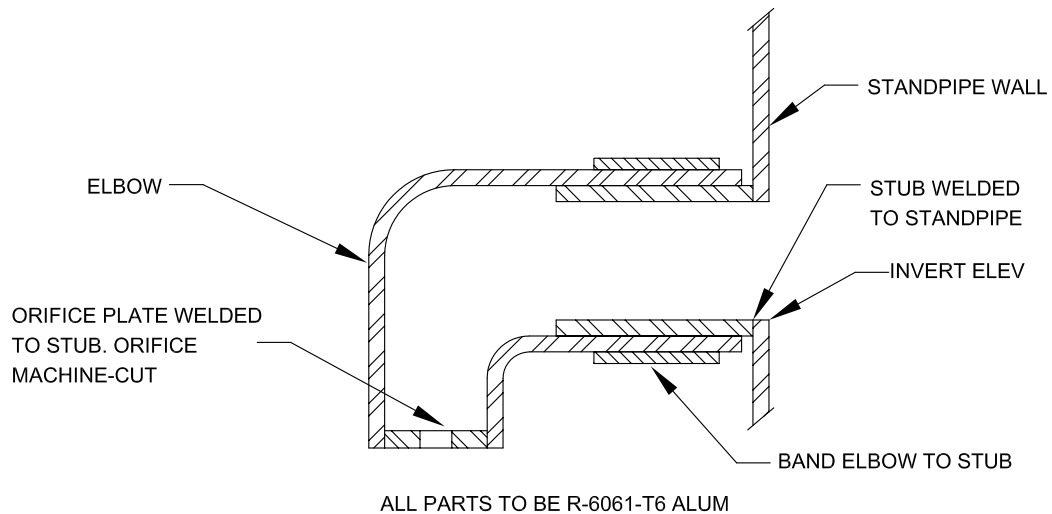
LIFT GATE SHALL BE CONSTRUCTED OF: 1/4" R-6061-T6 ALUM.
W/CLOSED CELL NEOPRENE PER ASTM 1056-67 CHEMICAL RESISTANT (OIL & GREASE), OZONE RESISTANT, 67° TO +250° F SERVICE TEMP.



LIFT GATE DETAIL



LIFT GATE ASSEMBLY



SECONDARY ORIFICE DETAIL



LIFT GATE ASSEMBLY AND SECONDARY ORIFICE DETAIL

City of Snohomish Public Works Department

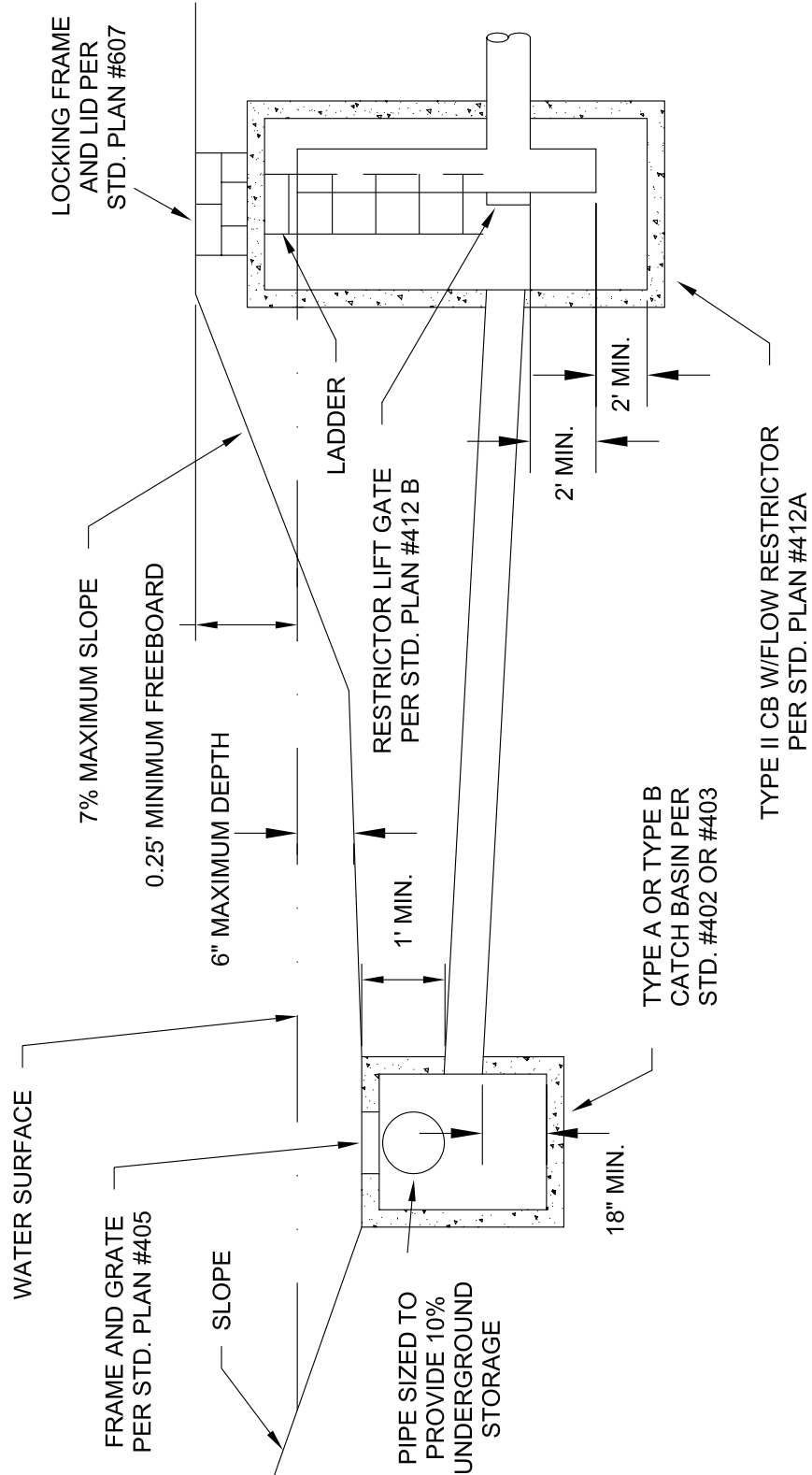
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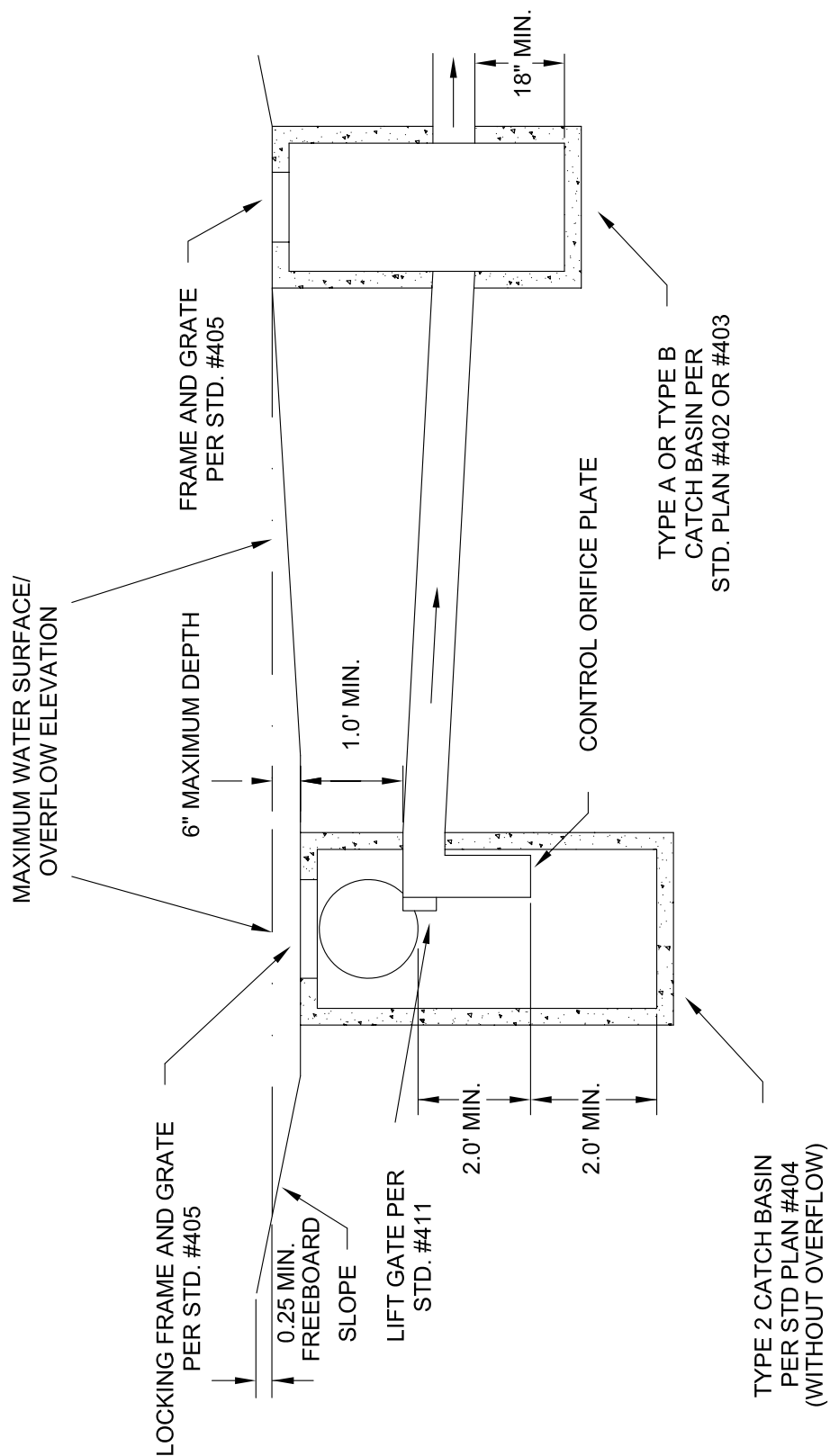
City Engineer

Date: May 30, 2004

412c

Number





TYPICAL PARKING LOT DETENTION

City of Snohomish Public Works Department

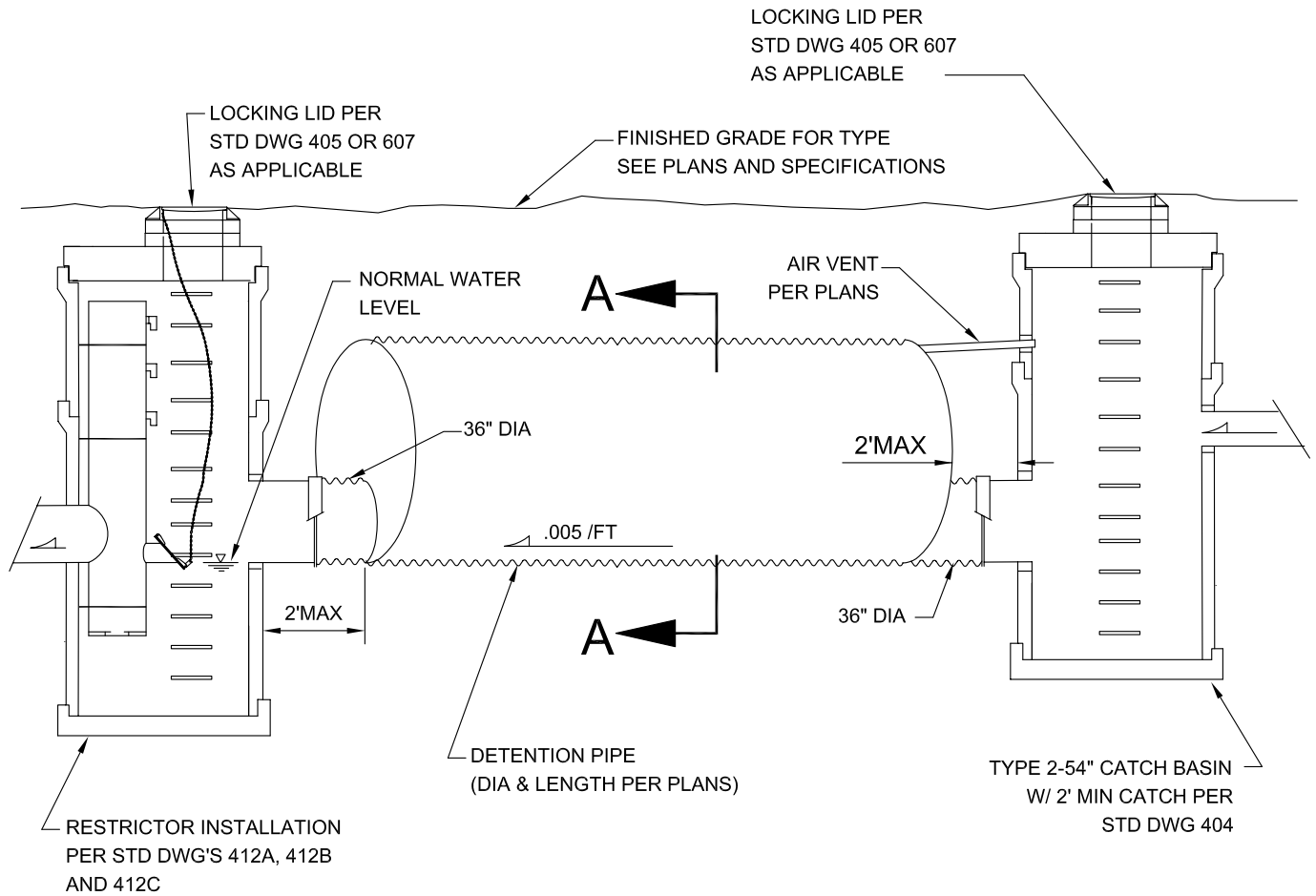
Approved By:

City Engineer

Date: May 30, 2004

415

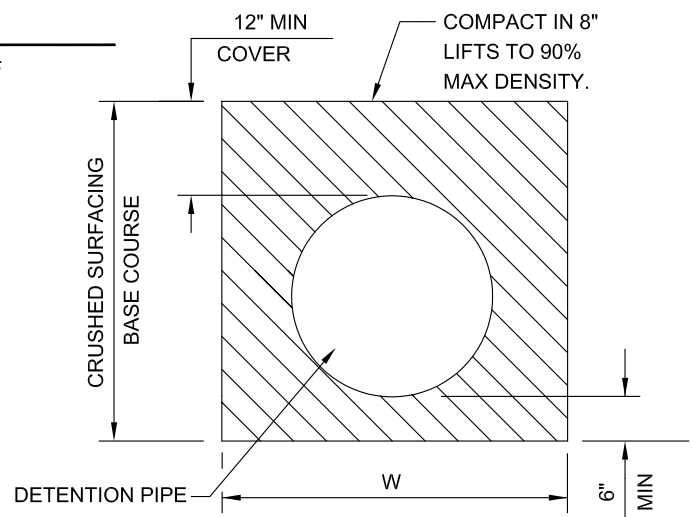
Number



ELEVATION

NOTES:

1. DETENTION PIPE SHALL BE FABRICATED FROM ONE OF THE FOLLOWING:
 - A. CORRUGATED STEEL PIPE
14 GAGE MIN, WITH TREATMENT #1.
 - B. CORRUGATED ALUMINIUM PIPE 12 GAGE MIN.
 - C. HIGH DENSITY POLYETHYLENE PIPE.
2. ANNUAL INSPECTIONS AND CLEANING REQUIRED BY OWNER TO INSURE PROPER OPERATION OF DETENTION SYSTEM.
3. W = MAXIMUM WIDTH OF TRENCH FOR PIPES 15" OR LESS IN DIAMETER $W = 40"$. FOR PIPES 18" OR GREATER $W = 1\frac{1}{2}" \times \text{I.D.} + 18"$.
4. COMPACT IN 8" LIFTS TO 90% MAX DENSITY.



SECTION A-A



TYPICAL CLOSED UNDERGROUND DETENTION SYSTEM

City of Snohomish Public Works Department

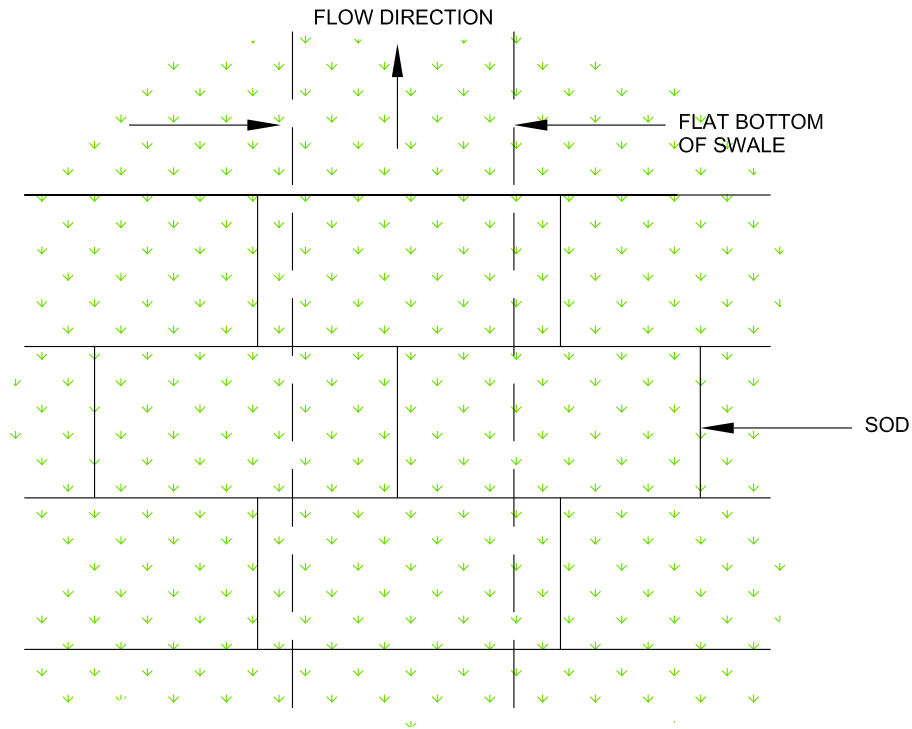
Approved By:

City Engineer

Date: May 30, 2004

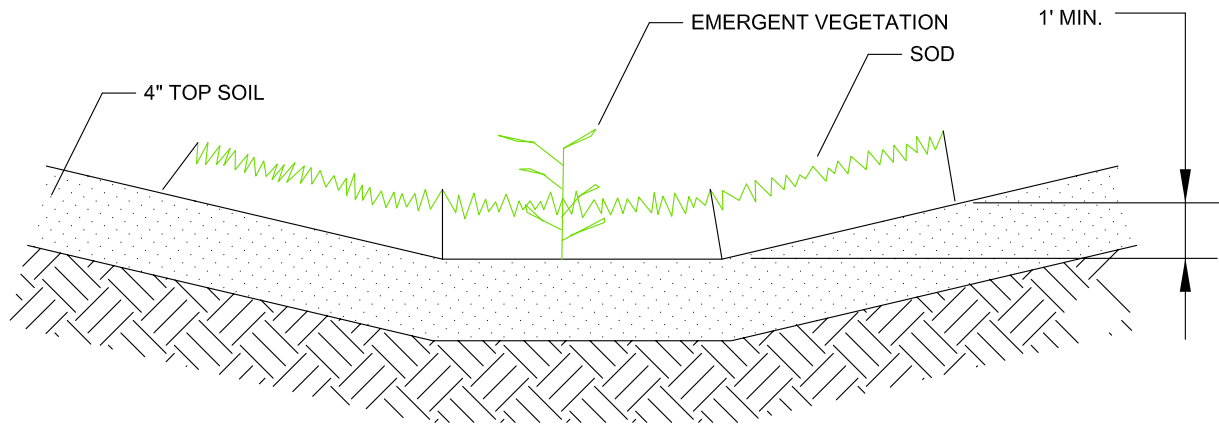
416

Number



BIOFILTRATION SWALE PLAN VIEW

NTS



BIOFILTRATION SWALE CROSS SECTION

NTS



BIOFILTRATION SWALE

City of Snohomish Public Works Department

Approved By:

City Engineer

Date: May 30, 2004

419

Number

WETLAND TREATMENT
CELL AT LEAST 15%
OF THE PERMANENT
POOL VOLUME

OPEN WATER CELL
NOT MORE THAN 85%
OF THE PERMANENT
POOL VOLUME

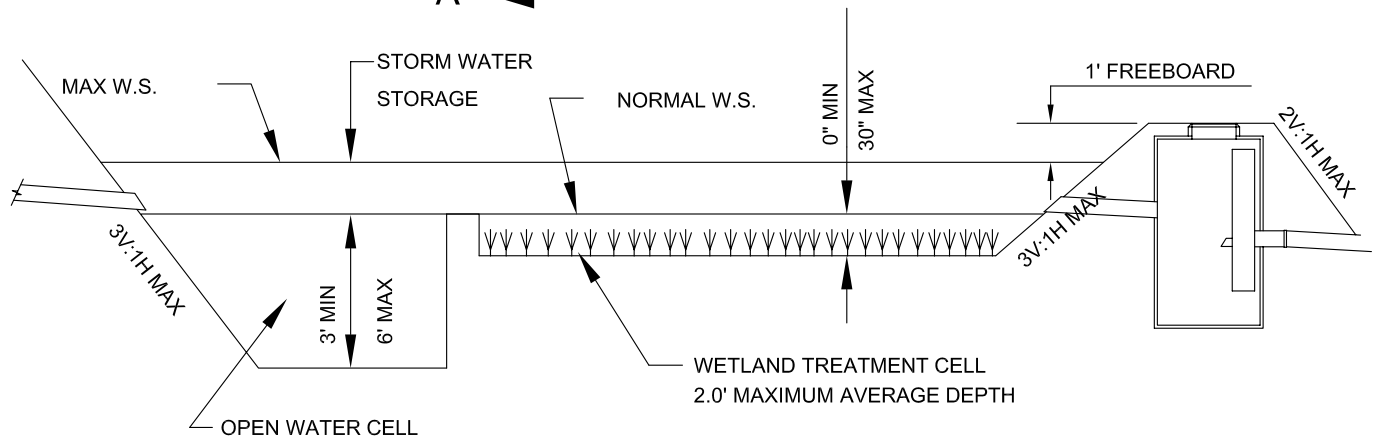
RESTRICTOR MH
PER STD DWG 412A

WETLAND PLANTS
TYPICAL

BAFFLE

MH

MINIMUM L/W=3



SECTION A-A



TYPICAL WET POND LAYOUT

City of Snohomish Public Works Department

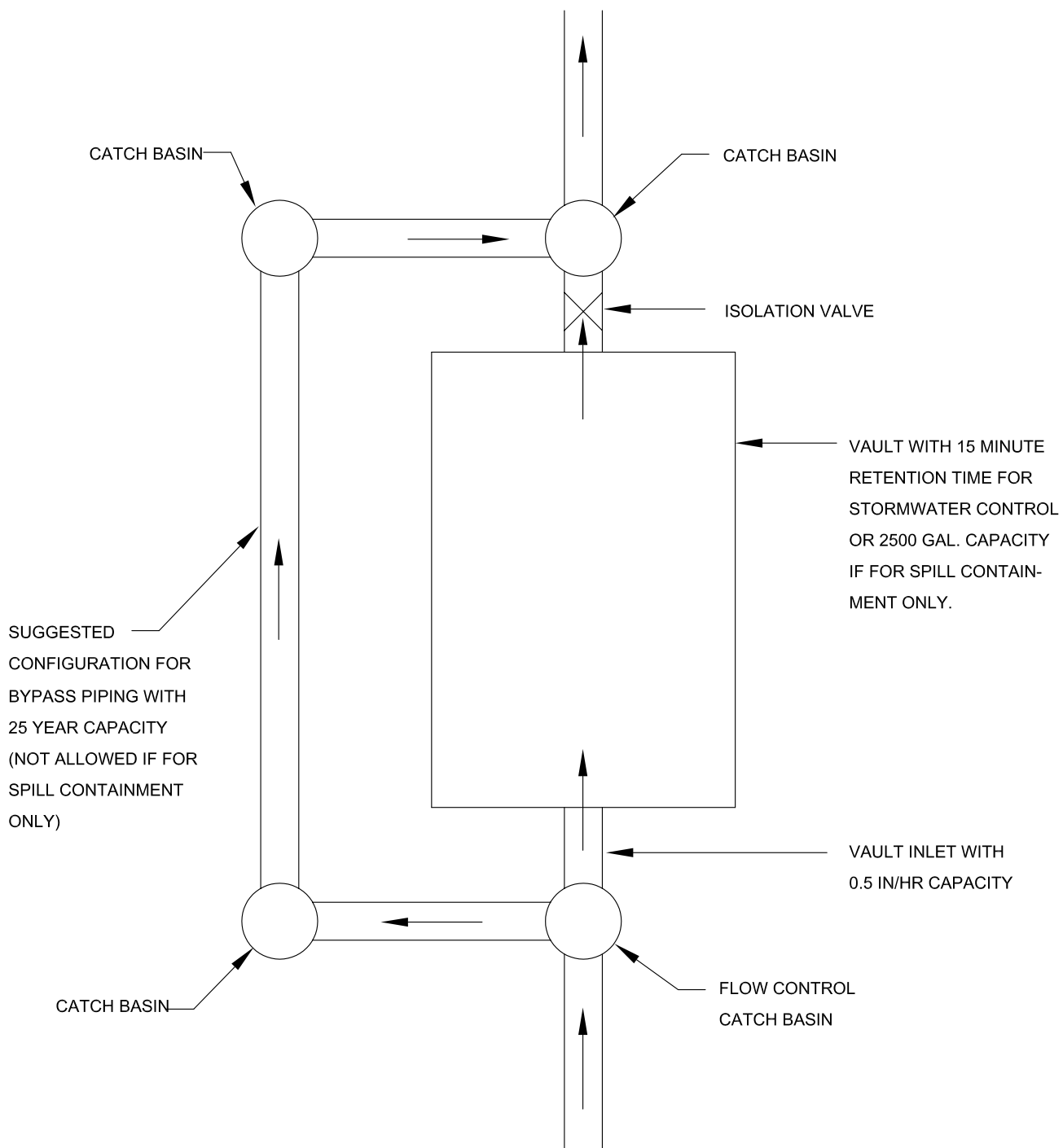
Approved By:

City Engineer

Date: May 30, 2004

420

Number



PLAN VIEW



OIL/WATER SEPARATOR AND GRIT REMOVAL VAULT

City of Snohomish Public Works Department

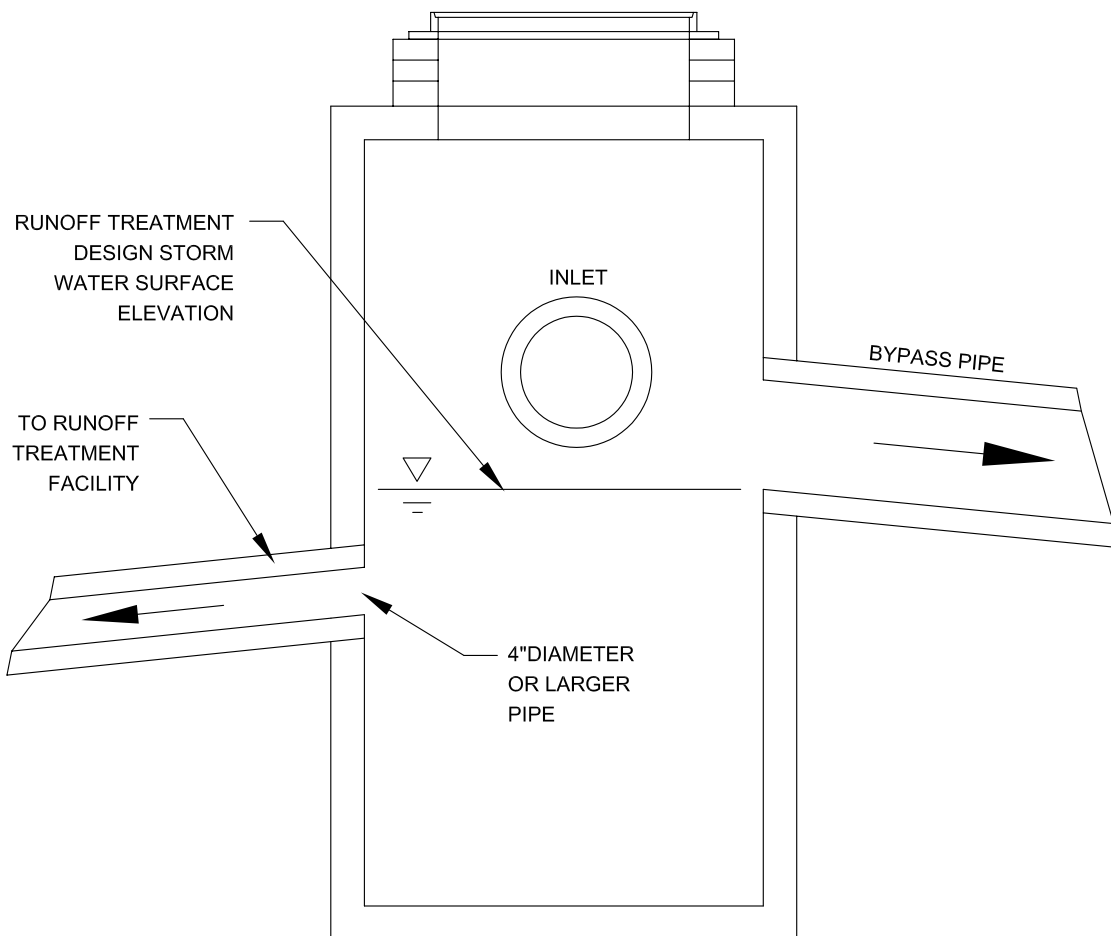
Approved By:

City Engineer

Date: May 30, 2004

421

Number



BYPASS STRUCTURE TYPE 1

City of Snohomish Public Works Department

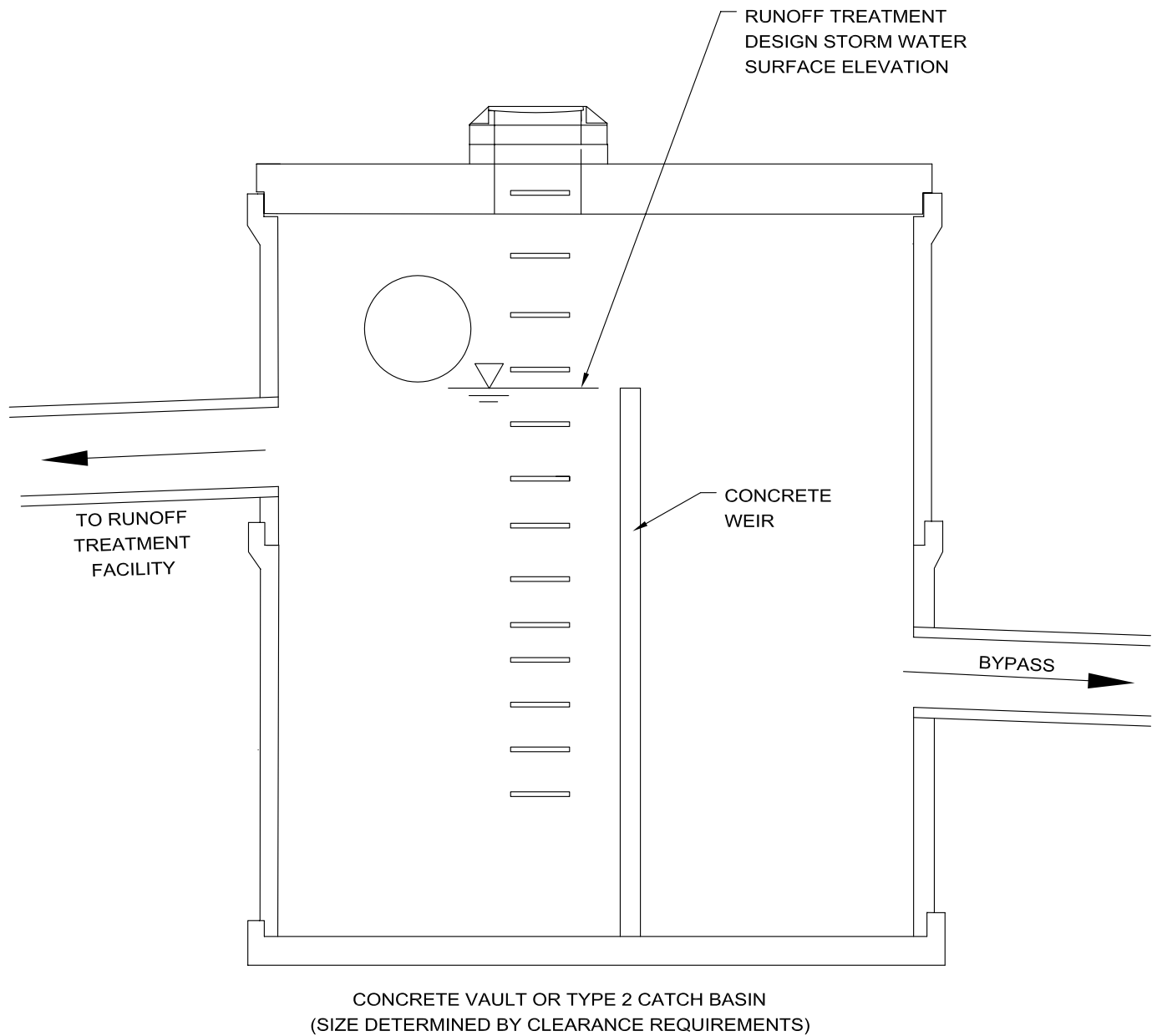
Approved By:

City Engineer

Date: May 30, 2004

422a

Number



ELEVATION



BYPASS STRUCTURE TYPE 2

Approved By:

City Engineer

Date: May 30, 2004

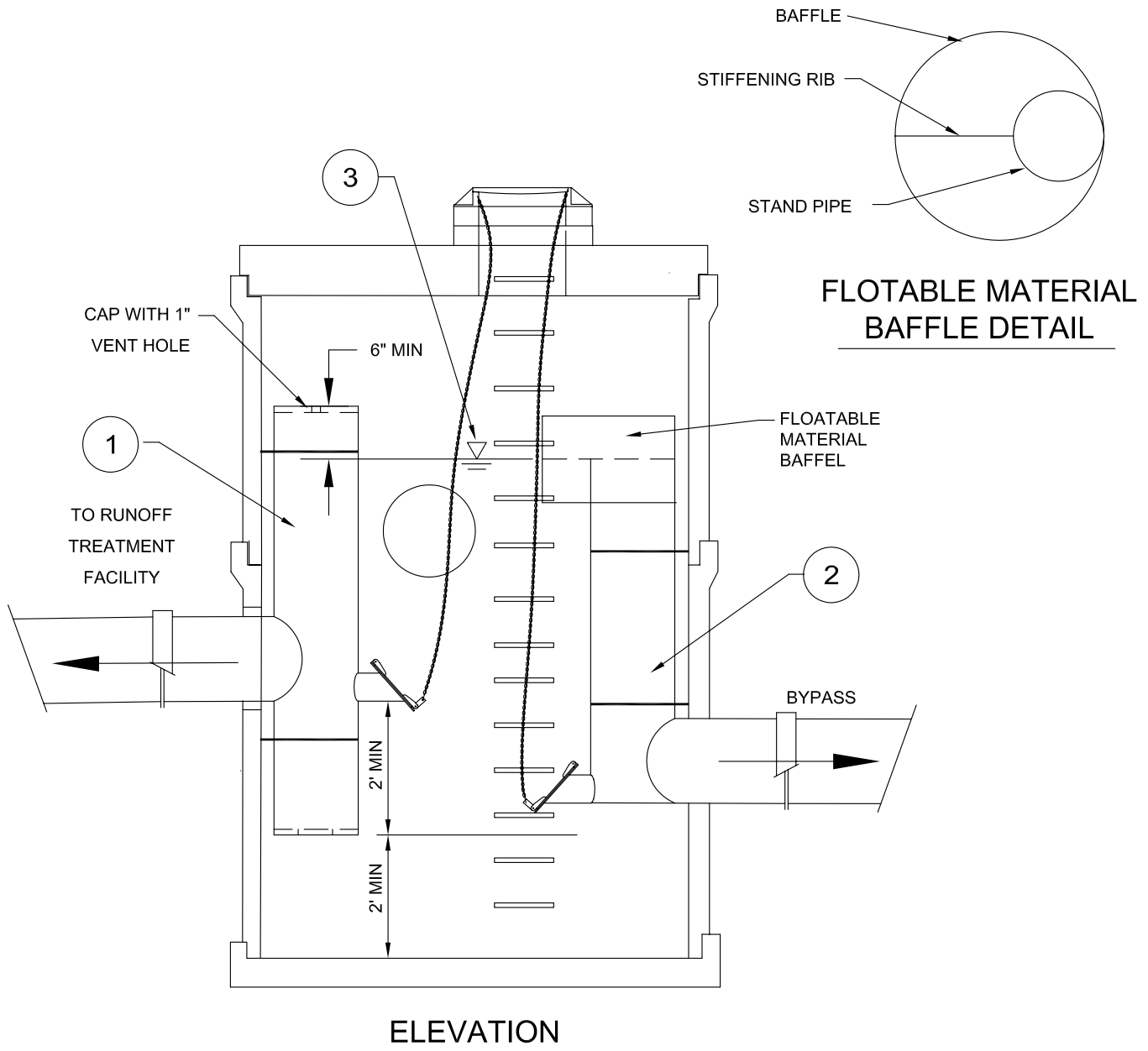
422b

Number

City of Snohomish Public Works Department



Number



NOTES:

- 1 RESTRICTOR STANDPIPE WITHOUT SECONDARY OVERFLOW ORIFICE AND WITH PRIMARY ORIFICE AND CAP OR PLATE WITH 1" DIAMETER (MAX) VENT HOLE. INSTALL PER STD DWG 412A.
- 2 RESTRICTOR STANDPIPE WITHOUT ANY PRIMARY OR SECONDARY ORIFICES AND WITH FLOATABLE MATERIAL BAFFLE. INSTALL PER CITY STANDARD DWG 412A.
- 3 RUNOFF TREATMENT DESIGN STORM WATER SURFACE ELEVATION.



BYPASS STRUCTURE TYPE 4

City of Snohomish Public Works Department

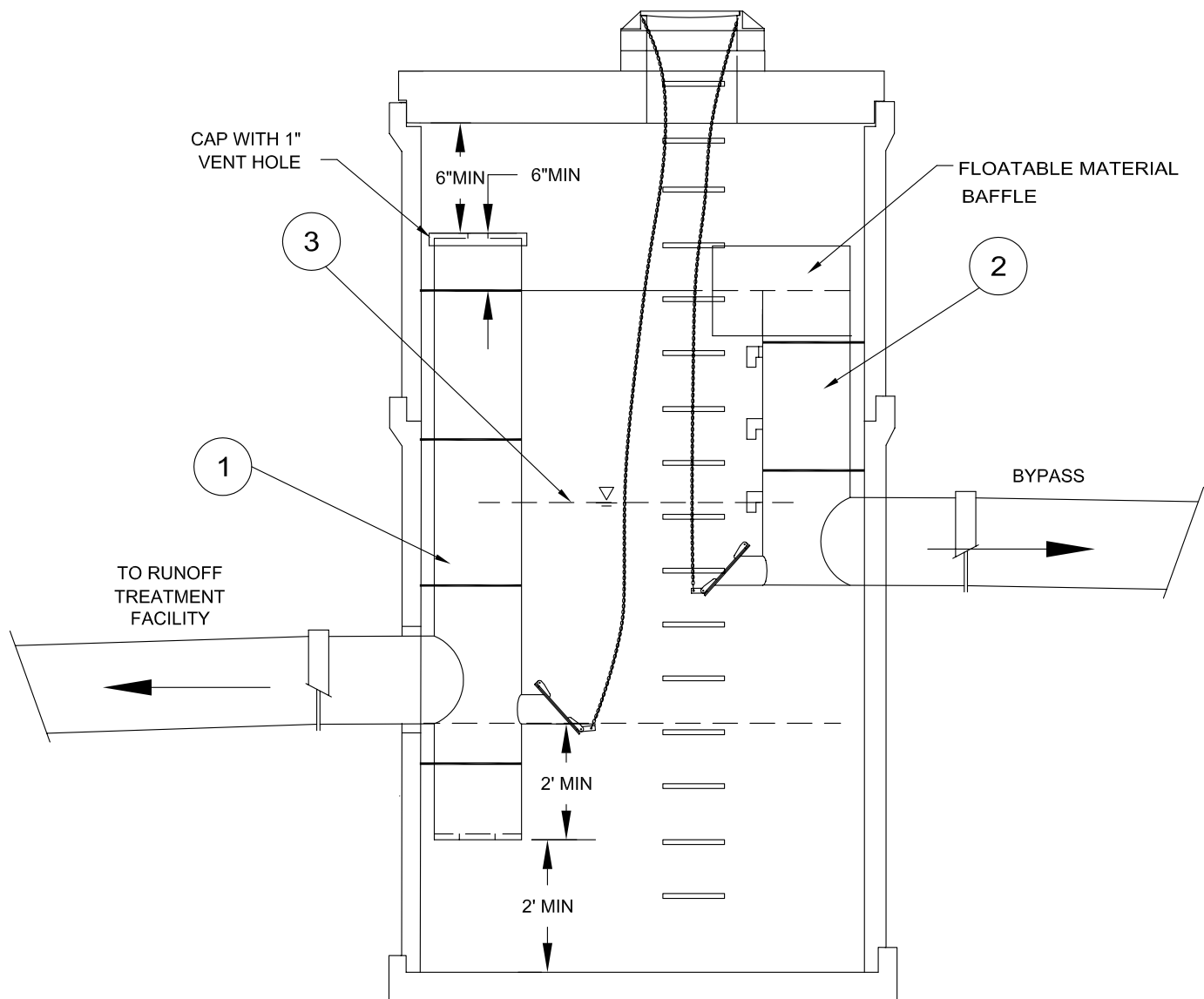
Approved By:

City Engineer

Date: May 30, 2004

422d

Number



ELEVATION

N.T.S.

NOTES:

- 1 RESTRICTOR STANDPIPE WITHOUT SECONDARY ORIFICES AND WITH PRIMARY ORIFICE AND A CAP OR PLATE WITH 1" DIAMETER (MAX) VENT HOLE. INSTALL PER STD DWG 412A.
- 2 RESTRICTOR STANDPIPE WITH SECONDARY ORIFICES AND A FLOATABLE MATERIAL BAFFLE (PER STD DWG 422D). INSTALL PER STD DWG 412A.
- 3 RUNOFF TREATMENT DESIGN STORM WATER SURFACE ELEVATION.



MULTIPLE RESTRICTOR STRUCTURE

City of Snohomish Public Works Department

Approved By:

City Engineer

Date: May 30, 2004

422e
Number

ENGINEERING STANDARDS

TABLE OF CONTENTS

SECTION 6

SANITARY SEWERS

<u>SECTION</u>	<u>DESCRIPTION</u>	<u>PAGE</u>
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6-1.01	General	6-1
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ENGINEERING STANDARDS

SECTION 6

SANITARY SEWER

6-1 DESIGN

6-1.01 GENERAL

These sewer engineering standards (Standards) set forth minimum standards for the planning, design, and construction of sanitary sewer facilities in the City of Snohomish.

Although these Standards are intended to apply to physical development within the City, the standards may not apply for all situations. Compliance with these Standards does not relieve the party responsible for the project of the responsibility to apply conservative and sound professional judgment. These standards are minimum standards and are intended to assist, but not substitute for competent work by design professionals. The City Engineer may require more stringent requirements than would normally be required under these Standards due to special conditions and/or environmental constraints.

6-1.02 SEWER MAIN EXTENSION

Sewer main extensions shall be required when a parcel does not front an existing sewer main. It is the policy of the City of Snohomish that when practical all sewer main extensions shall be extended to a point 10 feet beyond the farthest property corner, or as directed by the City Engineer. The sewer shall be sized for the ultimate development of the tributary area and in accordance with the City's Sewer Comprehensive Plan. The City Engineer may reserve the right to require the installation of a larger size main if it is determined a larger size main is needed to meet future system demand requirements.

Sewer main replacement and upgrade shall be required when the existing sewer main is not adequate for the proposed use. Such criteria used to determine adequacy include but are not limited to age, pipe diameter, material type and overall condition of the existing sewer main. If the proposed development requires a lift station and/or force main upgrade, construction shall be at the expense of the party responsible for the development. Improvements shall be extended from the project to a point where the system is deemed reliable by the City Engineer.

Condominiums, townhomes, duplexes, triplexes and fourplexes with four living units or less shall have separate sewer service lines from each unit to the sewer main. All dwellings that exceed four units shall be reviewed on a case by case basis as to the number of sewer service lines that will be required.

Connections to existing trunk mains that are 12 inches or larger are prohibited unless approved in writing by the City Engineer. Connections to the Cemetery Creek sewer trunk main are prohibited without written approval from the Public Works Director.

If a project directly benefits other property owners, a reimbursement agreement with the City in accordance with SMC Chapter 15.17 may be appropriate.

6-1.03 MANHOLE

Manhole Location

Sewer manholes shall be located such that the center of the frame and cover shall be in the center of the traveled lane or as otherwise directed by the City Engineer.

If sewer main construction requires construction within an easement, the minimum easement width shall be 20 feet. Sewer mains shall be placed in the center of the easement and parallel to the easement lines unless otherwise directed by the City Engineer.

Manholes placed outside of the right-of-way shall maintain permanent unobstructed maintenance vehicle access at all times.

Manholes shall be installed at the end of each sewer main; at all changes in grade, size or alignment; and at all sewer main intersections. The distance between manholes on a sewer main run shall not be greater than 300 feet.

Manhole Diameter

The manhole diameter shall depend on size, location and the number of connections for pipes. The minimum diameter for manholes shall be 48-inches for a maximum pipe size of 12-inches; 54-inches for a maximum pipe size of 24-inches; 72-inches for a maximum pipe size of 36-inches and 96-inches for a maximum pipe size of 48-inches.

The minimum distance between cutout holes is 8-inches for a 48-inch or 54-inch manhole and 12-inches for a 72-inch or 96-inch manhole measured on the inside of the manhole. The cutout hole size shall be equal to the outer pipe diameter plus manhole wall thickness. A minimum access diameter of 24-inches shall be provided. Please reference Standard Plans 604, 606, 607, and 608.

Manhole Depth

The minimum sewer manhole depth shall be 7-feet. When manhole depths exceed 25-feet, the manhole base slabs shall be designed by a professional structural engineer licensed in the State of Washington.

Manhole Inverts

The drop in the invert elevation across a manhole shall typically range from 0.1 to 0.2 feet. The maximum allowable drop in the invert elevation of a manhole shall be 1.0 feet.

When a side sewer connects directly to a manhole, the invert of the side sewer shall be equal to or above the sewer main crown but shall not exceed 18-inches above the invert of the sewer main.

Manhole Covers

Manholes in unpaved areas and easements shall have hinged bolt-locking covers per Standard Plan 613. All manholes in paved areas and sidewalks shall also have standard bolt locking covers.

Cleanouts

Cleanouts in the public sewer system are not an acceptable substitute for manholes. Cleanouts shall be installed on 6-inch private side sewers. Cleanout locations and spacing for private side sewers are governed under Section 6-1.13 of this Section.

6-1.04 SEWER PIPE

Sewer Pipe Sizing

No public gravity sewer main conveying raw wastewater shall be less than 8-inches in diameter. The pipe diameter and slope shall be selected to obtain the greatest practical velocities to minimize settling problems. Oversize sewers will not be approved to justify flatter slopes.

New sewer mains shall be designed so that under complete collection system build out, peak flow including inflow/infiltration (I/I) shall not exceed 50% capacity of the main. Existing sewer mains shall not exceed a peak flow of 75% capacity to preserve capacity requirements of the existing sewer main. Existing sewer mains that will exceed 75% capacity when new flows are introduced shall be replaced and upsized by the party responsible for the development to preserve capacity requirements of the sewer main.

Storm drainage connections to the City sewer system are prohibited outside of the Combined Sewer Overflow area. This area is designated on the City's wastewater system map and may be viewed on the City's website.

Pipe Material

Sewer pipe shall be SDR 35 PVC conforming to ASTM D3034 where invert depths are from 5-feet to 14-feet. When invert depths are shallower than 5-feet or deeper than 14-feet, AWWA C900 PVC pipe shall be used. If the depth exceeds 14-feet on any portion

of the pipe segment, the entire segment between manholes shall be C900 including associated side sewers.

Sewer Depth

In general, gravity sewer mains shall be sufficiently deep to receive wastewater from the basements of buildings located in the area to be served by the sewer mains. Gravity sewer mains shall also be constructed sufficiently deep in consideration of future collection system development in the area to serve new construction. The minimum depth of gravity sewer is 5 feet.

Slope

Sewers shall be installed with uniform slope between manholes. All sewers shall be designed and constructed to give mean velocities of not less than 2.0 feet per second when flowing full, based on Manning's formula. The following are the minimum slopes, however slopes greater than these are desirable.

Table 6-1
Minimum Pipe Slope by Pipe Diameter

Sewer Pipe Diameter (inches)	Minimum Slope (% or feet per 100 feet)
4	2.00
6	1.00
8	0.40
10	0.28
12	0.22
15	0.15
18	0.12
21	0.10
24	0.08
27	0.07
30	0.06
36	0.05

Maximum sewer main slope shall not induce velocities greater than 10 feet per second under daily peak flows.

Pipe anchor blocks shall be installed where the sewer main slope exceeds 20%. Each pipe length shall have one anchor block spaced at 20-foot on center.

Hill holders shall be required on sewer mains when unpaved slopes exceed 20% grade. Minimum hill holder spacing shall be 20-feet on center.

Alignment

Sewer mains shall be installed with straight alignment between manholes. Curvilinear sewer mains are not permitted in the City of Snohomish.

Change in Pipe Size

Where a smaller sewer pipe joins a larger one, the invert of the larger sewer pipe at the manhole shall be lowered sufficiently to maintain the same energy gradient. An approximate method for securing these results is to place the crowns of both pipes at the same elevation.

6-1.05 STREAM CROSSINGS

Placement and construction of sewer main stream crossings shall be done in accordance with all applicable State and local laws and regulations, including but not limited to obtaining necessary permits from the Washington State Department of Fish and Wildlife and Department of Ecology (DOE).

Sewer systems shall be designed to eliminate or minimize the number of stream crossings. When a sewer main must cross a stream, the crossing shall be designed to cross the stream as nearly perpendicular to the stream flow as possible and shall be free from change in grade.

Sewer systems located along streams shall be located outside of the stream bed and sufficiently away from the stream to provide for future possible stream widening and to prevent pollution by siltation during construction. Sewer structures shall not interfere with the free discharge of flood flows of the stream.

The top of all sewers entering or crossing streams shall be at sufficient depth below the natural bottom of the stream bed to protect the sewer line. In general, the following cover requirements shall be met:

1. A minimum of 1-foot of cover above the top of the casing pipe if the sewer pipe is located in rock.
2. A minimum of 5-feet of cover above the top of the casing pipe in all other material.

6-1.06 HORIZONTAL SEPARATION FROM OTHER UTILITIES

Sewer mains shall be installed at least 10-feet horizontally from any existing or proposed water main. The distance shall be measured edge to edge. In cases where it is not practical to maintain a 10-foot separation, the City Engineer may allow deviation on a case-by-case basis using DOE criteria. Side sewer and water service lines shall have

minimum horizontal clearances of 10-feet unless otherwise approved by the City Engineer. The following table lists minimum required horizontal clearances from sewers:

Table 6-2
Horizontal Clearances from Sewer

Utility	Clearance from Sewer (in feet)
Cable	5
Gas	5
Power	5
Storm Drain	5
Telephone, Fiber Optic	5
Water	10

6-1.07 VERTICAL SEPARATION FROM OTHER UTILITIES

Sewers crossing water mains shall be installed to provide a minimum vertical distance of 18-inches between the outside of the sewer and the outside of the water main. The City prefers that the sewer main be installed below the water main. Where a sewer crosses a water main, one full length of water main (18-feet minimum) shall be used with the pipe centered over the sewer for maximum joint separation. When the above conditions cannot be met, the City Engineer may approve a variance, but shall require that the sewer be constructed of ductile iron or C-900 pipe, be encased and be pressure tested prior to activation. Washington State Department of Ecology requirements shall also apply.

Sewers crossing water mains shall be installed to provide a minimum vertical distance of 18-inches between the outside of the sewer and the outside of the water main. The City prefers that the sewer main be installed below the water main. Where a sewer crosses a water main, one full length of sewer main (18-feet minimum) shall be used with the pipe centered over the water main for maximum joint separation. When the above conditions cannot be met, the City Engineer may approve a deviation in accordance with applicable DOE requirements and shall also require that the sewer main constructed of ductile iron or C-900 pipe, be encased and be pressure tested prior to activation.

Table 6-3
Vertical Clearances from Sewer

Utility	Clearance from Sewer (in feet)
Cable	1
Gas	1
Power	1

Storm Drain	1
Telephone, Fiber Optic	1
Water	1.5

6-1.08 STEEL CASING

Sewer pipe shall be encased in a steel or ductile iron casing when crossing under improvements where the ability to remove and replace pipe without disturbance to the improvement is needed. Casings are required when:

1. Crossing under rockeries over 5-feet high;
2. Crossing under retaining wall footings over 5-feet wide;
3. Crossing under reinforced earth retaining walls;
4. Crossing under streams or wetlands; and
5. Crossing under railways and highways.

Casings shall extend a minimum of 5 feet past each edge of the structure, or a distance equal to the depth of pipe, whichever is greater. The carrier pipe shall be supported by casing spacers per Standard Plan 618. The minimum vertical clearance between the bottom of the wall (or footing) and top of the pipe (or casing) shall be 2 feet. The pipe trench at the casing shall be backfilled with gravel backfill material when the vertical clearance is less than 3 feet.

Ductile iron pipe shall be encased in a steel casing when crossing under a railroad or highway where open cut is not allowed. Casings shall extend a minimum of six feet (6') beyond the edges of the right-of-way. The casing pipe and carrier pipe shall be installed in accordance with the applicable Federal, State and local regulations. In the case of railroad crossings, the project shall also comply with regulations established by the railroad company. Casing spacers shall be placed under the carrier pipe to ensure approximate centering within the casing pipe and to prevent damage during installation. Voids between all steel casings and native soil shall be pressure grouted. See Standard Plan 618.

6-1.09 SEWER CONNECTIONS

A side sewer shall be connected to the sewer main with a 6 inch factory tee connection or at a manhole. Where an existing side sewer stub is not available, a ROMAC tapping saddle is required for an existing sewer main. See Standard Plan 603.

All new sewer mains shall connect to existing sewer mains at manholes. If an existing manhole is not available, a new saddle manhole on existing sewer main is required per Standard Plan 605.

Existing manhole diameter must be adequate to accommodate the new sewer mains. If the existing manhole is not adequate, the existing manhole shall be upgraded at the expense of the party responsible for the project. If the existing manhole access is less than 24 inches in diameter, and/or concentric cone (manhole over 7 feet deep), the manhole shall be upgraded to include new 24 inch ring and cover and/or eccentric cone. At the connection to the existing sewer system, new sewer connections shall be physically plugged until all tests have been completed and the City Engineer approves the removal of the plugs.

6-1.10 FAT, OIL, AND GREASE SEPARATION

Oil/Water Separator

An oil/water separator is required whenever an industrial or commercial business generates or has the potential to generate fats, oils, or greases exceeding 100 milligrams per liter which will be discharged to the sewer system. An oil/water separation device shall be installed on the private property where the potential industrial or commercial source of the fat, oils, or greases is located by the property owner. Water discharged from any oil/water separator to the sewer system shall not contain more than 100 milligrams per liter of fats, oils or greases.

The oil/water separator shall be covered with removable sections. Access and inspection covers, weighing not more than 30 lbs., with suitable hand holds, shall be installed directly above the inspection “tee” and oil/grit collection compartments.

Only wastewater from floor drains and covered parking areas shall drain to the separator. The location and design shall eliminate the possibility of stormwater reaching the separator.

The separator shall be located within 20 feet from the driveway for access by maintenance vehicles.

A sampling tee shall be located on the outlet with a minimum 18 inch drop below the invert. Access to the separator shall be available for inspection and compliance determination sampling at all times.

When pre-treatment is no longer required, the inlet and outlet pipes shall be permanently plugged, the separation chambers pumped out, and the vault removed, or filled with compacted crushed rock or controlled density fill.

Grease Trap and Interceptor

The size and design of grease traps and interceptors and hydro-mechanical grease interceptors (HGI's) shall conform to the Uniform Plumbing Code and shall be approved by the City Building Official. Traps and interceptors shall be located on private property outside the building within 20 feet of driveway for access by maintenance vehicles. An

HGI may be located inside the building, and shall remain privately owned and maintained at the owner's or occupant's expense. A maintenance program must be submitted and approved that includes maintenance, testing requirements and reporting intervals. These facilities shall be available for the inspection by the Building Official at all times.

When pre-treatment is no longer required, the inlet and outlet pipes shall be permanently plugged, the separation chambers pumped out, and the vault removed, or filled with compacted crushed rock or controlled density fill.

6-1.11 EASEMENTS

All public sewer mains, manholes, air valves, lift stations, and other appurtenances not in public right-of-way shall be within public utility easements designated on submitted plans to provide the City with permanent access to these facilities, as well as easements for future sewer extension, as required. Unless otherwise approved by the City Engineer, the minimum width of the easement for sewer mains and appurtenances shall be 20 feet.

Easement areas shall be kept free from obstructions at all times. No structures, driveways or landscaping shall be constructed within the utility easement. Maintenance vehicle access shall be constructed with a suitable driving surface approved by the City Engineer.

Utility easements shall be fully executed and recorded with the Snohomish County Auditor prior to project acceptance by the City. The form of easement documents shall be subject to the approval of the City Attorney. Easement drawings and legal descriptions shall be included as exhibits. If off-site easements are required on properties not owned by the party responsible for the project, the party shall acquire the necessary easements at their own expense before construction plans will be approved by the City Engineer.

6-1.12 SIDE SEWERS

A side sewer stub shall extend from the main line to 10 feet past the edge of the property line. A side sewer stub shall also extend an additional 5 feet beyond any easements including the standard 10 feet utility easement required on lots fronting public right-of-way. Pipe of 6-inches in diameter shall be used within the public right-of-way or easement unless expected flow requires a larger size of line. See Standard Plan 601.

All residential side sewer lines on private property from the end of the 6 inch diameter stub to the building may be a minimum of 4 inches in diameter with a single connection per lot. Condominiums, town homes, duplexes, triplexes and fourplexes with four living units or less shall have separate sewer service lines from each unit to the main.

For a multi-family development four-plex and larger, a side sewer for each separate building is required and must be at least 6-inches in diameter. For side sewers serving more than ten units or serving more than one building, side sewers shall be a minimum of 8-inches in diameter and must be connected to a manhole.

Maximum distances between side sewer clean-outs shall be 100 feet. All side sewer cleanouts on commercial and multi-family developments shall include at grade access with covers per the City Standard Plan 602.

A 6-inch minimum pipe shall be used for all commercial side sewers unless otherwise directed by the City Engineer.

6-1.13 SEPTIC TANKS

Septic systems are generally not allowed. The City Engineer may approve a septic tank system if he/she determines that public sewer service is not available or it is not “practical” to provide public sewer service and the party has obtained the necessary permits from the Snohomish Health District.

6-1.14 PRIVATE GRINDER PUMP

Use of a grinder pump requires approval by the City Engineer and will be evaluated on a case-by-case basis. The party responsible for the project shall demonstrate to the satisfaction of the City Engineer that there is no other feasible means of sewer service available prior to grinder pump approval. The City Engineer may require the applicant to deepen the existing gravity sewer at their expense to eliminate the need for a grinder pump.

The design engineer shall specify pumps with proper flow rate and dynamic head and provide pump curves from the manufacturer to the City Engineer for review and approval. The minimum diameter of the force main shall be 2 inches (Schedule 80 PVC or approved equal). Interior grinder pump systems shall meet the requirements of the current Uniform Plumbing Code. Exterior grinder pumps systems are subject to the approval of the City Engineer.

6-1.15 LIFT (PUMP) STATION

All sewers shall be gravity when possible. Use of lift stations requires approval by the City Engineer and will be evaluated on a case-by-case basis. The City may require the applicant to deepen the existing gravity sewer at their expense to eliminate the need for pumping. The applicant shall demonstrate that there is no other feasible means of sewer service available.

Gravity flow sewer lines shall be used when possible. Use of lift stations requires approval by the City Engineer and will be evaluated on a case-by-case basis. The City Engineer may require the party responsible for the project to deepen the existing gravity sewer at their expense to eliminate the need for pumping. The party responsible shall demonstrate to the satisfaction of the City Engineer that there is no other feasible means of sewer service available prior to lift station approval.

Lift station design parameters are in Appendix 6A of these Engineering Standards.

6-1.16 MONITORING MANHOLE

Monitoring manholes are required for all industrial/commercial applications and other applications as determined by the City Engineer. The monitoring manhole shall be in an accessible location for inspection by City staff at any time and under all weather conditions. The depths of monitoring manholes shall be 4 feet minimum and 8 feet maximum. If the depth is less than 7 feet, a flat top manhole shall be used. Monitoring manholes shall be 48 inch Type I (or larger) with locking rings and covers. The rim elevations of the monitoring manholes shall be set to finished grade or as directed by the City Engineer.

6-2 MATERIAL

All materials shall be new and undamaged. The same manufacturer of each item shall be used throughout the work. All materials not specifically referenced shall comply with applicable sections of ANSI, ASTM, AWWA, the current WSDOT/APWA Standard Specifications and these Standards, and approved by the City Engineer.

When specific manufacturers or models are specified in these Standards, no substitutions will be allowed without prior approval by the City Engineer. If required by the City Engineer, the party responsible for the project shall furnish certification from the manufacturer of the materials being supplied that the inspection and all of the specified tests have been made and the results thereof comply with the requirements of the reference standards.

The party responsible for the project shall provide construction material submittals for approval to the City Engineer.

6-2.01 MANHOLES

Manholes shall be constructed of pre-cast sections with confined O-ring rubber gasket joints, and with either a pre-cast base or a cast-in-place base in accordance with the City Standard Plans 604, 605, 606, 607 and 608. Any request to deviate from these details is subject to the review and approval of the City Engineer.

Manholes shall be constructed in accordance with AASHTO M-199 (ASTM C 478) unless otherwise shown on plans and approved by the City Engineer. All pre-cast concrete and reinforced cast-in-place concrete shall be Class 4000. Non-reinforced concrete in channel and shelf shall be Class 3000. Concrete blocks may only be used for final adjustment of the casting to final street grade. Pre-cast bases shall be furnished with cutouts or knockouts. Knockouts shall have a minimum wall thickness of 2 inches.

Grouting

All structures shall be grouted with non-shrink grout inside, outside, in-between sections and risers and under castings. Jet-Set shall not be used. All structures that are not

watertight shall be re-grouted by and at the expense of the party responsible for the work until such structures are watertight.

All base reinforcing steel shall have a minimum yield strength of 60,000 psi and be placed in the upper half of the base with one inch minimum clearance.

6-2.02 MANHOLE RING AND COVER

Ductile iron rings and cast iron rings and covers shall conform to the Standard Plan 612 and Section 9-05.15 of the current WSDOT/APWA Standard Specifications.

Manhole rings shall be gray iron conforming to the requirements of AASHTO M 105 Grade 30B. Manhole covers shall be ductile iron conforming to ASTM A536, GR 80-55-06, East Jordan Iron Works or an equivalent approved by the City Engineer. Rings and covers shall be tested for accuracy of fit and shall be locked down with a 5 ⁵/₈ inch stainless steel socket head cap screws. All castings shall have a bituminous coating.

6-2.03 GRAVITY SEWER PIPE & FITTINGS

Sanitary sewer pipe shall be PVC or ductile iron meeting the following requirements unless otherwise directed by the City Engineer:

- 1) Polyvinyl Chloride (PVC) sanitary sewer pipe and fittings shall conform to the requirements of ASTM D-3034 SDR-35 with joints and rubber gaskets conforming to ASTM D 3212. All pipes shall be clearly marked with the data of manufacture. All pipes shall be provided with a reference mark for proper spigot insertion. Joint gaskets shall be fabricated from a compound of which the basic polymer shall be a synthetic rubber consisting of styrene, butadiene, polyisoprene or any combination thereof and shall meet the requirements of ASTM D-3212.
- 2) Ductile iron sewer pipe shall conform to ANSI A-21.51 or AWWA C-151 and shall be epoxy coated, push-on joint (Tyton joints only) or mechanical joint. Cement-lined ductile iron pipe shall not be used for sanitary sewer. The ductile iron pipe shall be Class 52, unless otherwise approved by the City Engineer.
- 3) AWWA C900 PVC pipe shall be pressure class 150 (SDR 18) unless otherwise approved by the City Engineer. Pipe joints shall be manufactured using an integral bell with an elastomeric gasket push-on type joint. Elastomeric gaskets shall conform to ASTM F477. All fittings shall be PVC, compatible with C900 with respect to joint dimensions and physical properties.

6-2.04 SIDE SEWER

Side sewer service lines shall be PVC, ASTM D-3034 SDR-35, with flexible gasket joints. Depths greater than 14 feet shall be AWWA C900 or CL 52 epoxy coated DIP.

6-2.05 SIDE SEWER AND FORCE MAIN TRACER TAPE AND LOCATE WIRE

Utility pipe tracer tape shall be detectable below ground surface and color coded. Tracer tape shall be detectable type, up to 6 inches in width, and buried 24 inches to 48 inches below finished grades. The color of the tape for sanitary sewer shall be green with black printing reading "CAUTION SANITARY SEWER BURIED BELOW". Tracer tape shall be "Lineguard Type II Detectable", or an equivalent approved by the City Engineer. Utility locate wire (10 Ga.) shall be installed on all sewer force mains. All end of spool connections shall be welded and watertight.

6-2.06 PLUGS

Plugs shall be able to withstand all test pressures without leakage. All plugs shall be approved by the Public Works Inspector.

6-2.07 BACKWATER CHECK VALVE

Backwater check valves installed on 4 inch through 8 inch diameter side sewer lines shall be rubber flapper swing type check valves. Flapper shall be constructed from steel reinforced rubber with 45 durometer standard rubber hardness. Valve seat shall be at a 45 degree angle to direction of flow. Flow area through valve shall equal full pipe area. Valve body shall be coated cast iron, East Jordan Ironworks or an equivalent approved by the City Engineer, with flanged ends and bolted over to allow removal of flapper without removing valve from line.

The backwater valve shall be housed in a 48 inch diameter pre-cast concrete valve chamber with concentric 48 inch by 24 inch concentric reducing cone, or concrete meter box, depending on depth. The 24 inch frame and cover shall be marked "SEWER".

6-2.08 STEEL CASING

Steel casing shall be black steel pipe conforming to ASTM A53. Casing thickness shall be 0.250 inch for casing 24 inches or less in diameter and 0.375 inch for casings over 24 inches in diameter.

6-2.09 CASING SPACER

Casing spacers and end seals shall be sized for pipe installation and shall be manufactured by Advance Products & Systems, Cascade Waterworks, Pipeline Seal and Insulators Co., or an equivalent approved by the City Engineer. See Standard Plan 618.

6-2.10 CONTROLLED DENSITY FILL

Controlled Density Fill (CDF) shall conform to the requirements of Section 2-09.3(1) E of the current WSDOT/APWA Standard Specifications.

6-2.11 CONCRETE

Concrete used for pads, thrust blocking, encasement, or slope anchor shall be mixed from materials acceptable to the City Engineer and shall have a 30 day compressive strength of not less than 3,000 psi. The mix shall contain five (5) sacks of cement per cubic yard and shall be of such consistency that the slump is between 1 inch and 5 inches.

6-2.12 BEDDING MATERIAL

Bedding material shall be $\frac{3}{8}$ inch minus manufactured washed pea gravel. Pipe bedding shall be $\frac{3}{8}$ inch minus pea gravel meeting the requirements of Section 9-03.12 of the WSDOT/APWA Standard. Bedding will be to the pipe zone shown on Standard Plan 616.

6-3 CONSTRUCTION

6-3.01 GENERAL REQUIREMENTS

All work shall be constructed as shown in the plans and in accordance with the current WSDOT/APWA Standards and Specifications, and these Standards. Materials shall be installed in compliance with the manufacturer's instructions and specifications, except where a higher quality of workmanship is required by the plans and these Standards. All work shall be in accordance with any applicable Federal, State, and local laws and regulations. The party responsible for the project shall arrange for necessary inspections by these agencies and shall submit evidence of their approval if requested by the City Engineer.

Construction shall not start prior to approval of the construction plans by the City Engineer.

6-3.02 MATERIAL SUBMITTALS

Five (5) sets of material submittals shall be submitted to the City Engineer for approval after the plans are approved for construction. The City Engineer shall either approve or disapprove and state the reasons for disapproval. A new corrected set of material submittals shall be submitted to the City Engineer for approval. Construction shall not proceed until the City Engineer has approved the materials.

The City Engineer's review of material submittals covers only general conformity to the plans and these Standards. The party responsible for constructing the project is responsible for quantity determinations. No quantities shall be verified by the City. Review and approval of material submittals by the City Engineer does not relieve the party responsible for construction of the project from the obligation to furnish required items in accordance with the plans and these Standards.

6-3.03 PRE-CONSTRUCTION CONFERENCE

The Contractor shall contact the Public Works Inspector (360-282-3193) to schedule a pre-construction conference after plans are approved and prior to staking and commencing construction. The pre-construction conference shall include the party responsible for the project, the project engineer, and representatives from the permit agencies, other utility companies, and City staff. An on-site tailgate meeting between the party responsible for the project and the Public Works Inspector shall be arranged by the party at least 48 hours prior to commencing construction.

6-3.04 CONSTRUCTION SCHEDULE

The party responsible for the project shall provide the City Engineer with the sewer construction schedule a minimum of five (5) business days prior to start of sewer system construction to arrange staking inspection and to give permitting agencies and customers two (2) business days notice. No construction is allowed until the construction plans have been approved.

6-3.05 EASEMENT

Prior to the start of the sewer system construction, the party responsible for the project shall acquire an record all necessary easements for the construction, installation and maintenance of any sewer mains or facilities proposed in the project that will not be located in existing City right-of-way or City easements.

6-3.06 PERMITS

The party responsible for a sewer system extension project shall obtain all necessary permits from the City and other appropriate State and Local agencies and entities at their expense.

6-3.07 TRAFFIC CONTROL PLAN

The party responsible for the project shall submit a traffic control plan prepared by the party responsible for the project or the project engineer to the City Engineer for approval. No work shall commence until a traffic control plan has been approved by the City Engineer.

6-3.08 HANDLING OF PIPE

All types of pipe shall be handled in a manner that prevents damage to the pipe, pipe lining or coating. Pipe and fittings shall be loaded and unloaded using forks or cable choker in a manner that avoids shock or damage. Under no circumstances shall the pipe be dropped, skidded, or rolled against other pipe. Damaged pipe will be rejected, and the party responsible for the work shall immediately place all damaged pipe apart from the undamaged. All damaged pipe shall be removed from the project site within 24 hours.

Pipe shall be stacked in such a manner as to prevent damage to the pipe, to prevent dirt and debris from entering the pipe, and to prevent any movement of the pipe. The bottom tiers of the stack shall be kept off the ground on timbers, rails or other similar supports. Pipe on succeeding tiers shall be alternated by bell and plain end. Timbers of 4 inch × 4 inch shall be placed between tiers and chocks shall be placed at each end to prevent movement. Each size of pipe shall be stacked separately.

Threaded pipe ends shall be protected by couplings or other means until the pipe is installed. Dirt or other foreign material shall be prevented from entering the pipe or pipe joints during handling and installation. When pipe installation is not in progress, the open ends of the pipe shall be closed by a watertight plug or by other means approved by the City Engineer.

6-3.09 STAKING

Staking shall be performed by or under the direct supervision of a land surveyor licensed in the State of Washington utilized/hired by the party responsible for the work. Two (2) business days notice shall be provided to the City Engineer to inspect construction staking prior to construction.

The minimum staking of sewer lines shall be as follows unless otherwise directed by the City Engineer:

- 1) Staking location of sewer mains and side sewers every 50 feet with cut or fill to invert of pipe.
- 2) Staking location of all manholes for alignment and grade with cut or fill to rim and pipe inverts.
- 3) Staking front lot corners prior to installation for side sewer tees.

6-3.10 DEVIATION FROM PLANS

No deviations from the approved plans and these Standards shall be allowed without the City Engineer's written approval. If major changes are required, the project engineer shall revise, sign and submit the plans for the City Engineer's approval prior to restart of construction.

6-3.11 INSPECTION AND TESTING

The City Engineer shall have access to the project site for the purpose of inspections and testing at all times. Proper facilities shall be provided for such access, inspection, and testing.

If any work is covered without approval or consent of the City Engineer, it must be uncovered for inspection if required by the City Engineer.

Before a pressure test is to be observed by the City Engineer, the party responsible for the project shall ensure that whatever preliminary tests are necessary to ensure that the material and/or equipment are in accordance with the plans and these Standards are done and successfully completed.

Written and verbal notices of deficiency shall be given to the party responsible for the work. The party responsible for the work shall correct such deficiencies before final inspection by the City Engineer.

The sewer system must successfully pass the pressure test before final project inspection by the City Engineer.

6-3.12 WATER QUALITY

The party responsible for the work is required to implement water pollution control BMPs and maintain these until the project is accepted by the City Engineer. The party responsible for the work shall familiarize themselves with the requirements of the DOE, the current adopted stormwater manual for western Washington, and other regulatory agencies having jurisdiction over such matters.

The oil and chemical storage site for the project shall be approved by the City Engineer and the area shall be diked. There shall be no disposal of waste oil or oil products on the project site. A waste oil disposal tank shall be provided if deemed necessary by the City Engineer.

The party responsible for the work shall submit a Notice of Intent (NOI) to the DOE if applicable. A copy of the NOI form is available at the front counter of City Hall located at 116 Union Avenue or can be obtained at the DOE website.

6-3.13 CONSTRUCTION ON EXISTING EASEMENTS

All work within public utility easements shall be performed in accordance with terms and conditions of the respective easement. Each easement area shall be restored to equal to or better than the condition of the easement area that existed prior to the work. Work shall not be performed within any public utility easement area unless such work is specifically authorized by the City Engineer. The party responsible for the project shall provide advance written notification to and shall coordinate the authorized work with the persons and/or entities owning property that is adjacent to the easement area.

6-3.14 PRE-CONSTRUCTION PHOTOS

Prior to commencement of work, photographs shall be provided to the City that clearly show the conditions of the project site immediately before the anticipated start of the work. Photographs will be obtained as follows:

- 1) 50 foot interval in easements up station and down station.

- 2) Any other locations as directed by the City Engineer.

The photographs shall be 4 inch x 6 inch, color prints, contained in albums, catalogued, and cross-referenced. Digital copies of all photographs shall also be provided to the City Engineer.

6-3.15 UNDERGROUND UTILITIES

The plans show the approximate locations of various existing utilities known to the project engineer such as gas lines, water mains, storm drainage, power lines, telephone lines, TV cables, fiber optics, and other obstructions based on information obtained from various sources. The party responsible for the project shall be responsible to check for interferences and obstructions by inquiry from the different utilities and by underground exploration before commencing excavation.

The party responsible for the project shall request field locates and notify the owners of underground utilities about the scheduled commencement of excavation through the one-call system (1-800-424-5555).

Notice shall be made to owners of underground utilities not less than two (2) business days or more than ten (10) business days prior to scheduled date of commencement of excavation. Test pits, for the purpose of locating underground utilities or structures in advance of the construction, shall be excavated and backfilled. Test pits shall be backfilled immediately after their purpose has been satisfied and the surface restored and maintained in a manner satisfactory to the City Engineer or the applicable agency.

Excavation around and under active utilities shall be performed with special care to ensure that utility service is not interrupted. Where it is necessary to cut, move or reconnect any service lines, arrangements shall be made with the respective utility owners.

The party responsible for the project shall indemnify, defend and hold harmless the City from any claim for damage of utilities and/or disruption to services resulting from project activities/operations. The form of the indemnification agreement shall be subject to the approval of the City Attorney.

6-3.16 TRENCH EXCAVATION

Trench excavation and backfill operations within State right-of-way: All excavation and backfill within the State right-of-way shall adhere to the current WSDOT/APWA Standard Specifications.

Trench excavation and backfill operations within Snohomish County right-of-way: Excavation within the Snohomish County right-of-way shall conform first to the Snohomish County Road Standards, and secondly to standards set forth by the current WSDOT/APWA Standard Specifications.

Trench excavation and backfill operations within City right-of-way: Excavation within City right-of-way shall conform to these Standards.

Clearing and grubbing limits may be established by the City or governing agency for certain areas. Debris resulting from the clearing and grubbing shall be appropriately disposed of in accordance with applicable State and local laws and regulations.

Trenches shall be excavated to the line and grade shown in the plans or as designated by the City Engineer. Higher strength pipe or special bedding may be required because of excess trench width.

Unsuitable material below the depth of the bedding shall be removed to the extent approved by the City Engineer and replaced with materials approved by the City Engineer.

The length of trench excavation in advance of pipe laying shall be kept to a minimum and shall not exceed more than 150 feet without prior written approval of the City Engineer.

When trenching operations take place in the City right-of-way, the pavement and all other improvements shall be restored as required by the right-of-way permit.

When excavation of rock is encountered, all rock shall be removed to provide a clearance below, on each side of all pipe, and fittings of at least 6 inches for pipe sizes 24 inches or smaller and 9 inches for pipe sizes 30 inches or larger. Material removed shall be replaced with appropriate backfill material, which shall be compacted to 95% standard proctor. See Standard Plan 617.

6-3.17 SHEETING AND SHORING

Sheeting and shoring shall be provided and installed as necessary to protect workers, the work and existing utilities and other properties in compliance with OSHA and WISHA requirements. Removal of the sheeting and shoring shall be accomplished in such a manner that there will be no damage to the work or to other properties.

6-3.18 TRENCH DEWATERING

Sufficient pumping equipment shall be provided and maintained on the project site to keep the trench free from standing water. Surface runoff shall not be allowed to flow to the trench. The trench water or other deleterious materials shall not be allowed to enter the pipe at any time. If, at anytime, water is found to be entering the new sewer pipe, the pipe shall be plugged and all work shall cease until the trench water is completely pumped out or otherwise controlled, to the satisfaction of the City Engineer. Any method used must be in accordance with the specifications and requirements of the City and current DOE stormwater manual for western Washington and any other applicable State regulations.

6-3.19 MANHOLE

Manhole Foundation

Unless otherwise directed by the City, manhole bases (pre-cast base sections) shall be placed on a minimum thickness of 6 inches of crushed surfacing base course meeting the requirements of Section 9-03.9(3) of the current WSDOT/APWA Standard Specifications. The crushed surfacing base course must be compacted to 95% of standard density.

Manhole Sections

Manhole sections shall be placed and aligned so as to provide vertical sides and vertical alignment of the ladder steps. The completed manholes shall be rigid, true to dimension and watertight. Rough or uneven surfaces shall not be permitted inside or outside. All manhole sections shall be newly manufactured and free of breaks or cracks.

Joints between pre-cast manhole elements shall be rubber gasketed in a manner similar to pipe joints conforming to ASTM C-443 and they shall be grouted inside and outside. The grout used between joints in the pre-cast sections and for laying manhole adjusting bricks shall be composed of two-part cement to one-part of plaster sand. All joints shall be thoroughly wetted and completely filled with non-shrink grout, smoothed both inside and outside. Grout shall be ½ inch minimum thick and 3 inch minimum on each side of joints. The exterior joints shall receive Riser Wrap[®] or an equivalent approved by the City Engineer that overlaps the manufacturer's water proofing by a minimum of 1 inch when required by the City Engineer. Shop drawings of the joint design shall be submitted to the City Engineer for approval prior to manufacture.

Completed joints shall show no visible leakage and shall conform to the dimensional requirements of ASTM 478. They must be inspected before backfill.

Grout such as "JetSet[®]" or similar products shall not be used in the City of Snohomish.

Lift Holes and Steel Loops

All manhole lift holes shall be completely filled with expanding grout and smoothed both inside and outside to ensure water tightness. All steel loops must be removed, flush with the manhole structure. The stubs shall be covered with grout and smoothed. Rough or uneven surfaces shall not be permitted.

Manhole Channels

All manholes shall be channeled unless otherwise approved by the City Engineer. Channels shall match existing sewer grades. Channels shall converge with smooth transitions rounded into well finished junctions. Channel sides shall be carried up

vertically to the crown elevation of the various pipes. Concrete shelves between channels shall be smoothly finished, warped evenly and sloped to drain.

All standard manholes shall have a minimum drop of 0.10 feet to a maximum drop of 2.0 feet between the invert in and the invert out. Shallow manholes shall have a minimum drop of 0.10 feet to a maximum drop of 0.50 feet between the invert in and the invert out.

Pipe Connections at Manholes

All pipes except PVC pipe entering or leaving the manhole shall be provided with flexible joints within $\frac{1}{2}$ of a pipe diameter or 12 inches, whichever is greater, from the outside face of the manhole structure. The flexible joint shall be placed on firmly compacted bedding, particularly within the area of the manhole excavation which normally is deeper than that of the sewer trench. Special care shall be taken to see that the openings through which pipes enter the manhole are completely and firmly rammed full of non-shrink grout to ensure water tightness.

PVC pipe connected to manholes shall be provided with a manhole adapter complete with gasket and approved by the City Engineer. No PVC pipe joint shall be placed within 10 feet of the outside face of the manhole.

All stubbed out pipes placed through manhole walls for future connections shall be suitably plugged and blocked, with bell end left intact in a manner acceptable to the City Engineer.

Kor-N-Seal[®] factory installed boots are allowed.

Drop Manholes

Drop manholes shall be constructed with an inside drop connection per City Standard Plan 611 for all manholes.

Ladders

Manhole ladders shall be installed in accordance with the approved manufacturer's recommended procedures and City Standard Plans 608 and 609 on sides of manholes opposite the pipe and channels if possible.

Connection to Existing Manholes

When connecting to an existing manhole, the existing manhole diameter must be adequate to accommodate the new sewer mains. If not, the existing manhole shall be upgraded or repaired as directed by the City Engineer at the expense of the party responsible for the project. If the existing manhole access is less than 24 inches in diameter, and/or concentric cone (manhole over 7 feet deep), the manhole shall be upgraded to include a new 24 inch ring and cover and/or eccentric cone. If connection to

an existing manhole places a channel directly under access opening, the ladder shall be moved and the cone section rotated to place the access over concrete shelf.

Invert elevations shall be verified by the party responsible for the work prior to construction. The crown elevation of laterals shall be the same as the crown elevation of the incoming pipe unless specified. The existing base shall be reshaped to provide a channel equivalent to that specified for a new manhole.

Excavation shall be done completely around the manhole to prevent unbalanced loading. The manhole shall be kept in operation at all times and the necessary precautions shall be taken to prevent debris or other material from entering the sewer, including a tight pipeline bypass through the existing channel if required by the City Engineer.

Connection of new sewer pipe to an existing manhole shall be accomplished by using core drilled holes to match the size of pipe. All openings shall be pipe O.D. plus structure wall thickness. The transition of connecting channels shall be constructed so as not to interrupt existing flow patterns.

Upstream pipes, except PVC pipe, penetrating the walls of manholes shall be placed with the bell facing out such that the bell is placed snug against the outside wall of the structure as the angle of penetration allows. Pipe, except PVC pipe, leaving or entering the manhole shall be provided with a flexible joint within $\frac{1}{2}$ of a pipe diameter, or 12 inches, whichever is greater. After pipes have been placed to their final position, they shall be grouted tight with non-shrink grout. PVC pipe shall be connected to an existing manhole per these Standards.

The party responsible for the work shall assure the workers' exposure to asbestos material be at or below the limit prescribed in WAC 296-62-07705.

Asbestos cement pipe shall be cut with a reed wheel cutter with controlled flowing water. Contaminated clothing shall be transported in sealed, impermeable bags and labeled in accordance with WAC 296-62-07705. Asbestos cement pipe shall be left and buried in the trench.

Pipe Plugging at Connections

At the connection to the existing sewer system, the party responsible for the work shall physically plug all new sewer connections until all tests have been completed and the City Engineer approves the removal of the plugs.

Saddle Manhole

A saddle manhole shall be constructed per City Standard Plan 605 and these Standards. The existing pipe shall not be cut until approval is received from the City Engineer.

Manhole Ring and Cover

Manhole rings and covers shall be installed per Standard Plan 612. All castings shall be coated with bituminous coating prior to delivery at the job site. Manholes in paved areas shall match the finished grade of the pavement.

Grade Adjustment

For manholes located in the City right-of-way, not less than 4 inches and not more than 26 inches shall be provided between the top of the cone (or slab for flat top manholes) and the bottom of the manhole frame. Grade adjustments shall be done within 24 hours after paving. Paving, repaving, and patching shall be completed within 72 hours. Manhole rim elevations in unpaved areas (planters and grassed areas) shall be at grade or as directed by the City Engineer. See Standard Plan 614. Locking covers shall be used for all manholes. Manholes shall not be located in areas subject to inflow. If a manhole must be located in an area subject to inflow in the opinion of the City Engineer, the manhole shall be equipped with a PRECO[®] sewer guard watertight manhole insert or an equivalent approved by the City Engineer.

6-3.20 SEWER MAIN

General

No broken or defective sewer pipe and related materials shall be used. The maximum permissible trench width between the foundation level and to 12 inches above the pipe shall be 40 inches for pipe 15 inches or smaller or $1\frac{1}{2}$ times the inside diameter plus 18 inches for pipes 18 inches or larger. See Standard Plan 615. If the maximum trench width is exceeded without authorization from the City Engineer, the Contractor will be required to provide pipe of higher pressure class or to provide a higher class of bedding, at the discretion of the City Engineer.

During excavation and installation of the sewer lines and placement of trench backfill, excavations shall be kept free of water. Surface run-off shall be controlled so as to prevent entry and collection of water in excavations. The static water level shall be drawn down a minimum of 1 foot below the bottom of the excavation so as to maintain the undisturbed state of the foundation soils and along the placement of any fill or backfill to the required density. The dewatering system shall be installed and operated so that the groundwater level outside the excavation area is not reduced to the extent which would damage or endanger adjacent structures or property.

Pipe Bedding

Pipe bedding shall be $\frac{3}{8}$ inch minus manufactured washed pea gravel. Bedding will be to the pipe zone shown on Standard Plan 616. The pipe zone is identified as 6 inches below the bottom of the bell to 12 inches above the top of pipe for pipe sizes 24 inches or smaller and 9 inches below the bottom of the pipe to 12 inches above the top of pipe for 30 inches or larger.

Bedding shall be installed and spread smoothly so that the pipe is uniformly supported. Subsequent lifts are not to exceed 6 inches in thickness and shall be installed to the crown of the pipe. All lifts shall be individually compacted to 90% of the maximum density as determined by ASTM D-698. A 12 inch lift of material shall be placed and compacted over the crown of the pipe prior to backfilling the trench.

Laying Sewer Pipe

All sewer main installations shall have line and grade set by survey, prior to construction. Staking shall show each manhole cut to all inverts. All sewer mains shall be straight between manholes at a minimum depth of 7 feet measured from the invert, unless otherwise approved in writing by the City Engineer or shown on the approved plans.

Any method may be used that accurately transfers the control points provided by the Surveyor in laying the pipe to the designated alignment and grade (such as "line and batter board" and "laser beam" etc.).

When using the "line and batter board" method, the line and grade shall be transferred into the ditch where they shall be carried by means of a taut grade line supported on firmly set batter boards at intervals of not more than 30 feet. Not less than three batter boards shall be in use at one time. In the event that the batter boards do not line up, work shall immediately stop and the situation remedied before work proceeds.

When using a "laser beam" to set pipe alignment and grade, the position of laser beam from surface hubs provided by the surveyor shall be constantly checked to ensure the laser beam is still on alignment and grade. In the event the laser beam is found out of position, work shall immediately stop and the necessary corrections shall be made to the laser beam equipment and pipe installed before work proceeds.

There shall be a minimum horizontal clearance between sewer and water main of 10 feet, unless a design alternative has been specifically approved by the City Engineer. Sanitary sewers shall be installed lower than water mains whenever possible. Where sanitary sewers and water mains cross, there shall be a minimum vertical separation of 18 inches between water mains and sanitary sewer mains unless an alternative design has been specifically approved by the City Engineer. Water mains shall be above sewer mains. Where clearances cannot be met, party responsible for the work shall use a pipe casing or other approved methods shall be used to protect the domestic water supply from potential cross contamination.

Sanitary sewers laid 14 feet and deeper must be epoxy coated ductile iron pipe of Class 52 or C-900 PVC.

Trenches shall be excavated to a depth and grade required. Pipe bedding shall be placed to provide a uniform and continuous bearing and support for the pipe on solid undisturbed or compacted ground.

Sewer lines shall be laid upgrade from the starting point of connection on the existing sewer or from a designated starting point, as approved by the City Engineer. Sewer pipe shall be installed with the bell end forward or upgrade. After placing a length of pipe in the trench, the spigot shall be centered in the bell and the pipe forced home and brought to correct line and grade. During joining, the pipe shall be partially supported to minimize unequal lateral pressure and to maintain concentricity. Pipe handling after the gasket has been affixed shall be carefully controlled to avoid disturbing and dislocating the gasket. Any disturbed or dislocated gaskets shall be removed, cleaned, replaced and lubricated before joining the sections.

The maximum amount of open trench on streets and roadway shoulders shall not exceed 150 feet at any one time unless otherwise approved by the City Engineer. The project site shall be a safe environment at all times. At the end of each day all open trenches must either be backfilled or covered with steel plates and barricaded with attached flashing yellow lights to prevent vehicles, people and animals from falling into the trench.

Experienced and qualified personnel shall be on-site to oversee the construction process during all shoring operations. Where conditions exist which require shoring, trenches shall be adequately shored to protect existing property, utilities, pavement etc. and to provide safe working conditions inside and above the trench. Shoring shall be designed and installed in accordance with applicable local, State and Federal laws and regulations. A combination of shoring and over break, tunneling, boring, sliding trench shields, or other methods may be used to accomplish the work, provided the method(s) meet all applicable local, State and Federal laws and regulations.

Compaction tests shall be required for all backfilled trenches in paved public roadways and in roadway shoulders. A minimum of one test location shall be chosen by the City Engineer for every 200 lineal feet of sewer main installed. The City Engineer has the discretion to require additional tests in locations specified by the City Engineer. All testing shall be at the expense of the party responsible for the project.

All excavated trench material deemed by the City Engineer to be unsuitable for trench backfill shall be removed from the project site.

No construction materials, soil, debris etc. shall be stockpiled in the City right-of-way unless specific permission is granted in writing by the City Engineer.

Under no circumstances shall pipe materials be dropped or dumped into the trench. Broken or otherwise defective pipe shall be removed from the job site and replaced.

Every precaution shall be taken to ensure foreign material does not enter the pipe. When pipe laying is not in progress, the open ends of the pipe shall be closed by a water tight plug or other means approved by the City Engineer. If water is in the trench when work resumes, the seal on the pipe shall remain in place until the trench is completely pumped dry. No pipe shall be laid in water, or when in the opinion of the City Engineer, trench conditions are unsuitable.

No willows, poplars, cottonwoods, birches, soft maple, gum or any other tree or shrub whose roots are likely to obstruct public sewers are allowed within 30 feet of any public sewer. Any of these trees found to be located within 30 feet of a proposed sewer main shall be removed by the party responsible for the work.

Connection to Existing Pipe

When connecting to the end of an existing pipe known to have a bell at the end of the pipe, a new pipe of the same material as the existing pipe shall be used. The plans can specify connection by inserting a spigot of the new pipe into the existing bell end, with a “donut” gasket.

When connecting to the end of an existing pipe known to have a plain end, or needing to be cut, plans shall specify the use of a coupling to connect new and existing lines.

Couplings and O-ring adapters utilized for joining pipes of dissimilar materials or different nominal sizes shall be flexible elastomeric PVC as manufactured by Fernco®, Inc. or an equivalent approved by the City Engineer. Couplings shall be supplied with 316 stainless steel band clamps, fasteners and shear rings as applicable to the sizes and types that are being connected together.

Plugs and Connections

All fittings shall be capped or plugged with a plug of an approved material and gasketed with the same gasket material as the pipe unit, or the pipe shall be fitted with an approved mechanical stopper, or the pipe shall have an integrally cast knock-out plug. The plug shall be able to withstand all test pressures without leaking.

Jointing

Where it is necessary to break out or connect to an existing sewer during construction, only new pipe having the same inside diameter will be used in reconnecting the sewer. Where joints must be made between pipes with a mismatched wall thickness, a flexible gasket coupling, adapter or coupling-adapter shall be used to make a watertight joint. Couplings shall be those manufactured by "Romac", "Smith Blair", or an equivalent approved by the City Engineer for reinforced pipes and "Fernco®" or an equivalent approved by the City Engineer for non-reinforced pipes.

Jacking, Auguring and Tunneling

Jacking, auguring and tunneling shall be done in accordance with current WSDOT/APWA Standard Specifications.

Slope

All sanitary sewers shall be designed and constructed to give mean velocities of not less than 2.0 feet per second when flowing full. The slopes shall meet the minimum required in these Standards.

Sewer Abandonment

Existing sewer lines to be abandoned shall be removed or filled completely with sand, concrete or controlled density fill. At the manhole connection where the existing sewer main is to be abandoned, the manhole shall be rechanneled with 3,000 psi cement concrete.

Cleaning, Testing and Television Inspection of Sanitary Sewer Pipe

All sanitary sewer pipes shall be cleaned and tested after backfilling. Testing shall be by either exfiltration or low pressure air method unless the ground water table is such that the City Engineer requires an infiltration test.

The party responsible for the project shall clean and flush all sewer lines with clean water using approved jet vactoring equipment prior to testing.

All testing shall be under the direction and in the presence of the City Engineer. The party responsible for the work shall notify the City Engineer at least 2 business days prior to the start of any testing. Cleaning and testing of sewer lines shall be completed within 15 business days after backfilling of sewer lines and structures. Any additional delay will require the written consent of the City Engineer. The party responsible for the work shall furnish all labor, materials, tools, and equipment necessary to make clean and test the sewer lines. Any damage resulting from testing shall be repaired by the party responsible for the work to the satisfaction of the City Engineer.

All tees and stubs shall be plugged with flexible jointed caps, or acceptable alternate, securely fastened to withstand the internal test pressure. These plugs or caps shall be readily removable and their removal shall provide a socket suitable for making a flexible jointed lateral connection or extension.

Testing of sewer mains shall include a television inspection by the party responsible for the project. Television inspection shall be done after the air test has passed and before the roadway is paved. Immediately prior to a television inspection, enough water shall run down the line so it comes out the lower manhole. A copy of the DVD and written report shall be submitted to the City Engineer. Acceptance of the sewer will be made after the DVD has been reviewed and approved by the City Engineer. Any tap to an existing system needs to be televised as well. No ponding within the sanitary sewer line will be accepted. Contact the Public Works Inspector for television testing procedure form.

If larger diameter pipe is tested one joint at a time, leakage allowances shall be converted from GPH per 100 feet to GPH per joint by dividing the number of joints occurring in 100 feet. If leakage exceeds the allowable amount, corrective measures shall be taken and the line shall be re-tested to the satisfaction of the City Engineer.

A mandrel test in accordance with Section 7-17.3(2)G of the current WSDOT/APWA Standards and Specifications may be required by the City Engineer for sewers mains (not side sewer lines).

If any sewer installation fails to meet the requirements of the test method used, the source or sources of the leakage shall be determined and all defective pipes replaced. The complete pipe installation shall meet the requirements of the test method used before being considered acceptable. Replacement of defective pipe shall be in accordance with a replacement plan approved by the City Engineer.

Exfiltration Test

Prior to exfiltration leakage testing, the pipe may be filled with clear water to permit normal absorption into the pipe walls. The leakage test shall be completed within 24 hours after filling the pipe. When under test, the allowable leakage shall be in accordance with the following. Specified allowances assume pre-wetted pipe.

Leakage shall be no more than 0.28 GPH per inch diameter per 100 feet of sewer, with a hydrostatic head of 6 feet above the crown at the upper end of the test section, or above the natural groundwater table at the time of test, whichever is higher. The length of pipe tested shall be limited so that the pressure at the lower end of the section tested does not exceed 16 feet of head above the invert, and in no case shall the length of pipe being tested be greater than 700 lineal feet or the distance between manholes, whichever is shorter.

Where the test head is other than 6 feet, the maximum leakage shall not exceed 0.28 GPH per inch of diameter, per 100 feet of pipe length times the square root of the test head. The leakage can be determined from the following equation:

$$\text{Maximum leakage (in gallons per hour):} \quad 0.28 * \frac{\sqrt{H}}{\sqrt{6}} * D * \frac{L}{100}$$

Where: D = diameter (in.)
 L = length of pipe (ft.)
 H = test head (ft.).

When the test is to be made one joint at a time, the leakage per joint shall not exceed the computed allowable leakage per length of pipe.

Television Inspection

All sanitary sewers shall be inspected by the use of a Closed Circuit Television (CCTV) camera and footage provided to the City on DVD. All deficiencies noted by the CCTV camera inspection shall be corrected to the satisfaction of the City Engineer prior to final acceptance of the project. No VHS tapes will be accepted.

The following information shall be electronically generated and displayed on the CCTV footage at the beginning of each sewer main inspection:

- 1) All video and inspection reporting shall be done in DVD format.
- 2) All joints shall have a 360 degree view to inspect for faulty joints.
- 3) An inspection of each lateral connection, documentation of the location of each lateral connection and the total length shall be shown on the inspection report.
- 4) Inspection reports shall include the project name, city, address, date, pipe size, type of pipe, direction, surveyed footage, and current weather conditions.
- 5) CCTV data shall be Granite XP version 2 or approved equal.
- 6) A 1-inch diameter target ball clearly visible shall be used.
- 7) Before the camera is set in the pipe, a 5 gallon bucket of water contrasting color dye shall be poured into a manhole.
- 8) All DVDs shall be labeled with the Contractor's name, location of the video, the test date and manhole numbers on a professional video inspection label.
- 9) Re-inspection of pipes is required within 10-12 months of acceptance date.

6-3.21 SANITARY SIDE SEWERS

Fittings and Clean-outs for Side Sewers

All fittings shall be factory produced and shall be designed for installation on the pipe to be used. Fittings shall be of the same quality and material as the pipe used, except when installing a PVC insert on existing pipe.

Side sewers shall be connected to the tee provided in the public sewer where such is available, utilizing approved fittings or adapters. Where no tee is provided or available, connection shall be made by the use of a Romac tapping saddle. See Standard Plan 603.

All side sewers shall have a 6 inch clean-out at the property line per Standard Plan 602. The riser portion of the clean-out shall be PVC unless otherwise approved by the City Engineer. For longer side sewer installations, extra clean-outs will be required at spacing not to exceed 100 feet.

Marking of Side Sewers

Tracer tape shall be installed over side sewer pipes and side sewer stubs. The tracer tape shall be placed 24 inches to 48 inches below the finished grade and it shall extend its full length. The location of all side sewers shall be marked with a 10 gauge wire and 2 inch x

4 inch wood marker at the termination of the stub. The marker shall be connected to the pipe at the invert and wrapped around marker post. Above the ground surface, it shall be painted white with black letters of 3 inches in height "SEWER xx INVERT DEPTH xx". Offset markers may be used when the side sewer location is within an existing driveway or other obstacle.

Testing of Side Sewers

When a new side sewer line is installed, the entire length of new pipe installed shall be tested. All side sewers shall be tested after backfill. Side sewer lines that are reconstructed or repaired to a length of 10 feet or more shall be tested for water-tightness. Testing of newly reconstructed sections of side sewer lines consisting of a single length of pipe is not required. Testing shall be performed in the presence of the City Engineer in accordance with these Standards and Section 7-17 Sanitary Sewers of the 2010 WSDOT/APWA Standard Specifications.

In cases where a new tap is made on the main, the first joint of pipe off the main shall be installed with a test tee, so that an inflatable rubber ball can be inserted for sealing off the side sewer installation for testing. In cases where the side sewer stub is existing to the property line, the test ball may be inserted through the clean-out wye to test the new portion of the side sewer installation.

Side Sewer As-Built Plans

The as-built drawings for side sewer lines shall show the following:

- 1) Location of the side sewer line, its connection with the building(s) and all dimensions.
- 2) Show station as distance of side sewer line tee from the center of the next downstream manhole.
- 3) The depth and point of connection of the side sewer line to the sanitary sewer main.
- 4) Any additional information which might be deemed necessary by the City Engineer.

Side Sewer Demolition

Side sewer demolition shall be performed prior to removal of building foundation. The side sewer for each building shall be excavated and removed from the house connection to the property line or the main as required by the City Engineer. The end of the side sewer shall be capped to remain in place. Side sewer demolition shall be performed in the presence of the City Engineer.

6-3.22 CLEANOUT

All clean-outs in paved areas, City right-of-way and easements shall be extended to grade and a 30" x 30" x 12" concrete pad shall be installed per Standard Plan 602. All clean-outs in private unpaved areas shall be installed per Standard Plan 602.

6-3.23 GREASE TRAP AND INTERCEPTOR

Grease traps and interceptors shall be installed and sized according to the criteria in the current Uniform Plumbing Code. Grease trap and interceptors shall be located on private property, and they shall remain privately owned and maintained by property owner or occupant. These facilities shall be available for the inspection by the City's Building Official at all times.

6-3.24 PRIVATE GRINDER PUMP

Private grinder pumps shall be installed in accordance with the manufacture's procedures and per approved plans by the City Engineer. The force main shall be pressure tested at 150% of the total dynamic head. All inspections must be completed prior to backfilling.

6-3.25 LIFT (PUMP) STATIONS

Lift stations shall be constructed in accordance with approved plans and specifications prepared by a engineer licensed in the State of Washington. Please reference Appendix A6 for lift (pump) station standards.

6-3.26 SPECIFICATIONS NOT COVERED BY THESE STANDARDS

In the event a construction or installation specification relating to sanitary sewers is not covered by these Standards, the City Engineer may require compliance with other applicable manuals or standards.

END OF SECTION

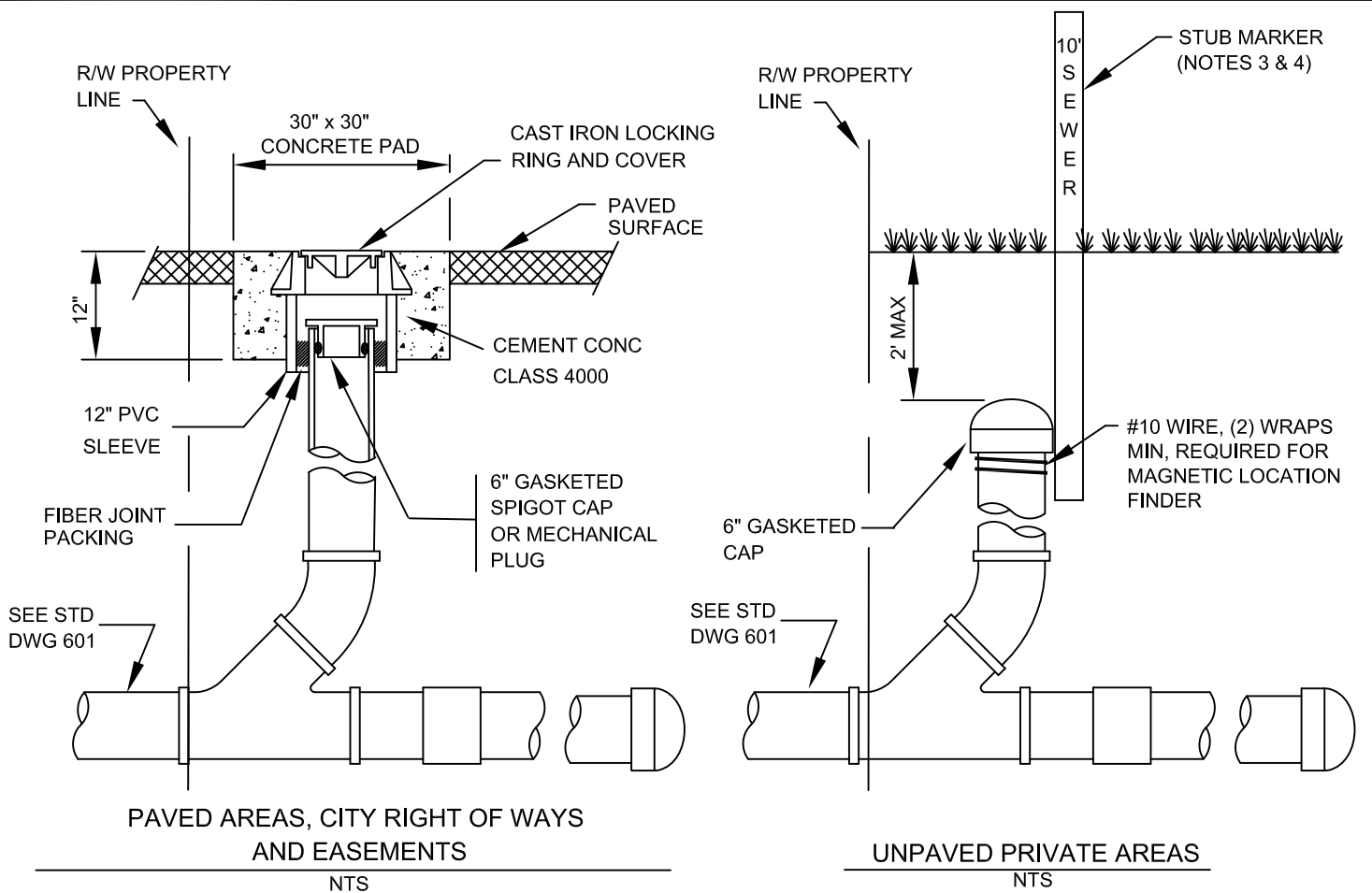
CITY OF SNOHOMISH
ENGINEERING DESIGN AND CONSTRUCTION STANDARDS
SANITARY SEWER
DRAWING INDEX

<u>STANDARD</u> <u>PLAN NO.</u>	<u>PLAN DESCRIPTION</u>	<u>REVISION DATE</u>
601	Typical Side Sewer Connections	April 2010
602	Sewer Clean-Out	April 2010
603	Typical Side Sewer Tap To Existing Sewer Mains	April 2010
604	Precast Shallow Manhole with Base April 2010	April 2010
605	Saddle Manhole 48" to 54"	April 2010
606	Type 1 Manhole 48" And 54"	April 2010
607	Type 2 Manhole 72" And 96"	April 2010
608	Type 3 Manhole 48" Through 96"	April 2010
609	Polypropylene Ladder	April 2010
610	Polypropylene Plastic Step	April 2010
611	Inside Drop Manhole Connection	April 2010
612	Manhole Ring and Cover	April 2010
613	Hinged Manhole Cover	April 2010
614	Manhole Pad and Adjustment	April 2010
615	Typical Sewer Trench Section	April 2010
616	Bedding For Sewer Pipe In Trenches	April 2010
617	Typical Sewer Trench Compaction	April 2010
618	Casing Detail	April 2010



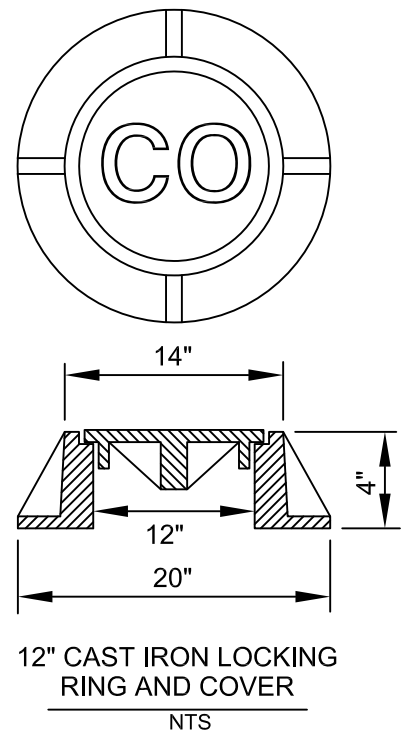
1. SIDE SEWER CONNECTIONS TO NEW MAINS SHALL BE FACTORY TEES.
2. TYPE B&C SHALL BE USED ONLY WHEN MAIN DEPTH EXCEEDS 15 FEET OR AS APPROVED BY THE CITY ENGINEER.
3. APPROVED COUPLING SHALL BE FERNCO OR APPROVED EQUAL.
4. SIDE SEWER SHALL BE EXTENDED 10' BEYOND THE PROPERTY LINE TO PREVENT DAMAGE TO THE CLEAN OUT AND TO MINIMIZE CONFLICTS WITH OTHER UTILITIES WHEN SERVICE IS CONNECTED
5. SIDE SEWERS SHALL BE MARKED PER SECTION 6.3.20 OF THESE STANDARDS.





NOTES

1. CLEAN-OUT PIPE AND FITTINGS SHALL BE PVC.
2. FOR NEW PLATS THE VERTICAL RISER PORTION OF THE CLEAN-OUT WILL BE CONSTRUCTED AT TIME OF CONNECTION TO BUILDING TO MINIMIZE DAMAGE. THE 6" WYE AND 6" PVC PIPE W/GASKETED CAPS WILL BE INSTALLED PRIOR TO BUILDING CONNECTION.
3. A 2"x4" STUB MARKER SHALL EXTEND DOWN TO A MINIMUM OF 24" BELOW GROUND. A MIN OF 36" SHALL EXTEND ABOVE GROUND.
4. THE STUB MARKER SHALL BE PAINTED WITH WHITE TRAFFIC PAINT AND THE WORD "SEWER" AND THE DEPTH IN FEET FROM GROUND TO SEWER STUB INVERT SHALL BE PAINTED ON THE MARKER WITH 3" HIGH BLACK PAINTED LETTERS.

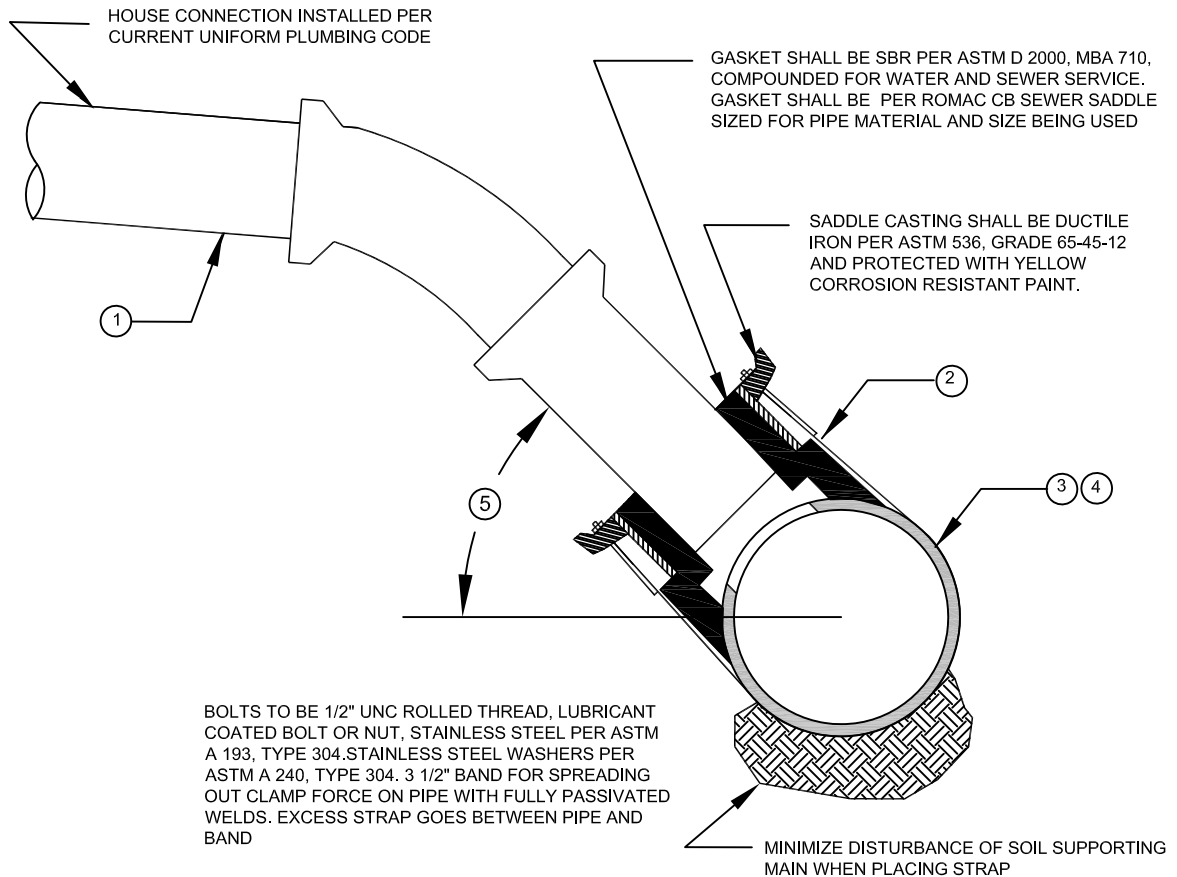


SEWER CLEAN OUT

City of Snohomish Public Works Department

Approved By:
S L S
City Engineer
Date: April 2010

602
Number



NOTES

- ① PVC SIDE SEWER. FOR REMAINDER OF PVC SERVICE SEE STD PLAN 601.
- ② ROMAC "CB" SEWER SADDLE OR APPROVED EQUAL.
- ③ EXISTING SANITARY SEWER MAIN.
- ④ CORE DRILL EXISTING MAINLINE PIPE PER MANUFACTURER'S SPECIFICATIONS.
- ⑤ 35° MIN, 45° MAX

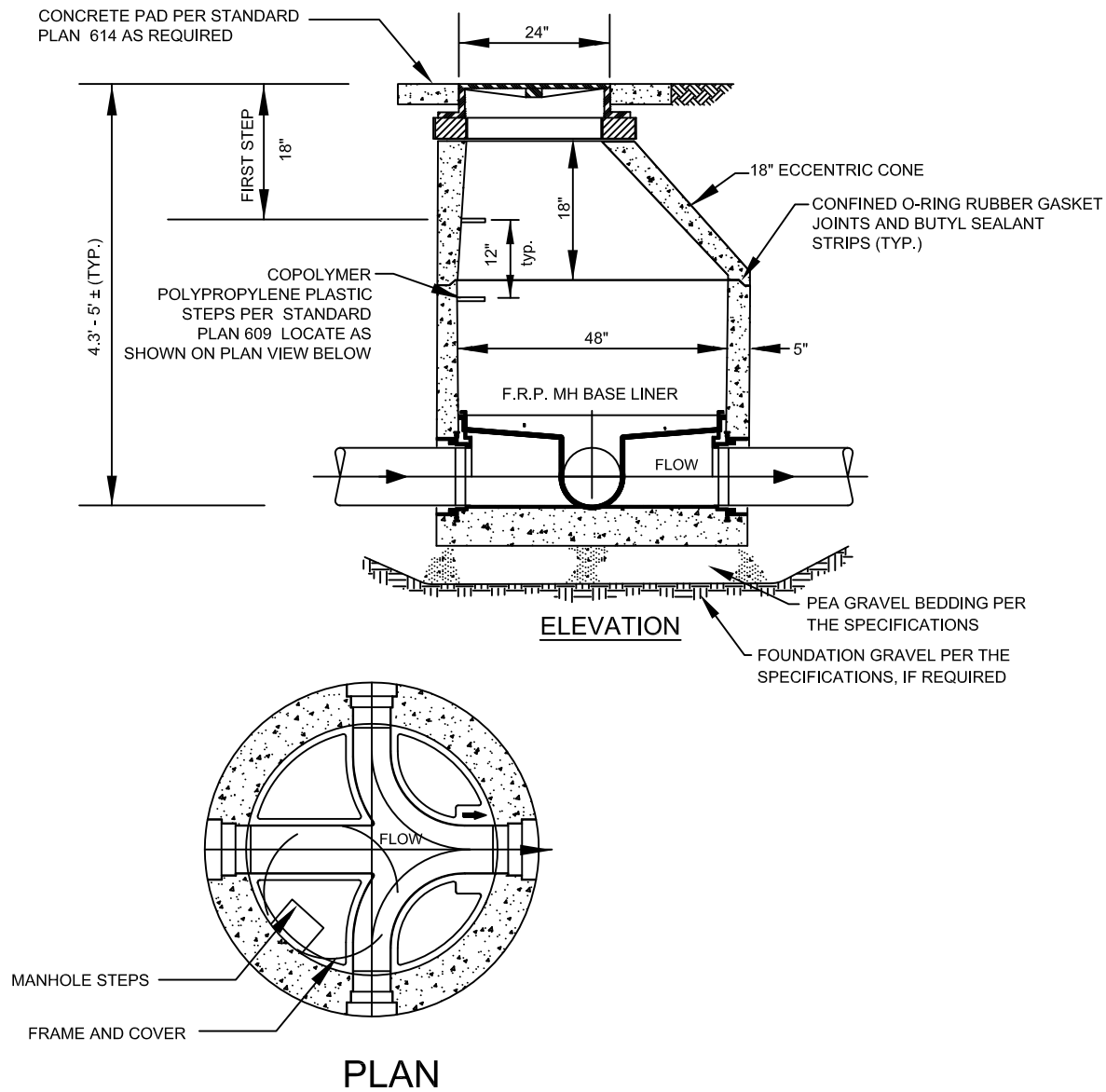


TYPICAL SIDE SEWER TAP TO EXISTING SEWER MAINS

City of Snohomish Public Works Department

Approved By:
S L S
City Engineer
Date: April 2010

603
Number



PRECAST SHALLOW MANHOLE W/ BASE LINER

NOT TO SCALE

Notes:

1. USE 18" ECCENTRIC CONE AND 2' BASE FOR SHALLOW MANHOLE APPLICATION.
2. MINIMUM DROP IN THE INVERT ELEVATION THROUGH THE MANHOLE SHALL BE 0.1'. MAXIMUM DROP IN THE INVERT ELEVATION THROUGH THE MANHOLE SHALL BE 0.5'.
3. MARKER POSTS MAY BE REQUIRED IN EASEMENTS.
4. THE MANHOLE BASE LINER SHALL BE A FIBERGLASS REINFORCED PLASTIC (F.R.P.) BASE LINER SYSTEM.
5. GROUT ADJUSTING RINGS INSIDE, OUTSIDE AND BETWEEN. GROUT UNDER CASTING.

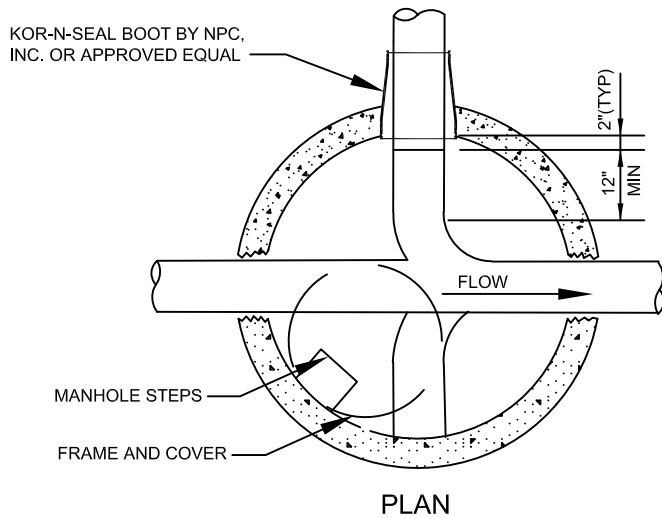
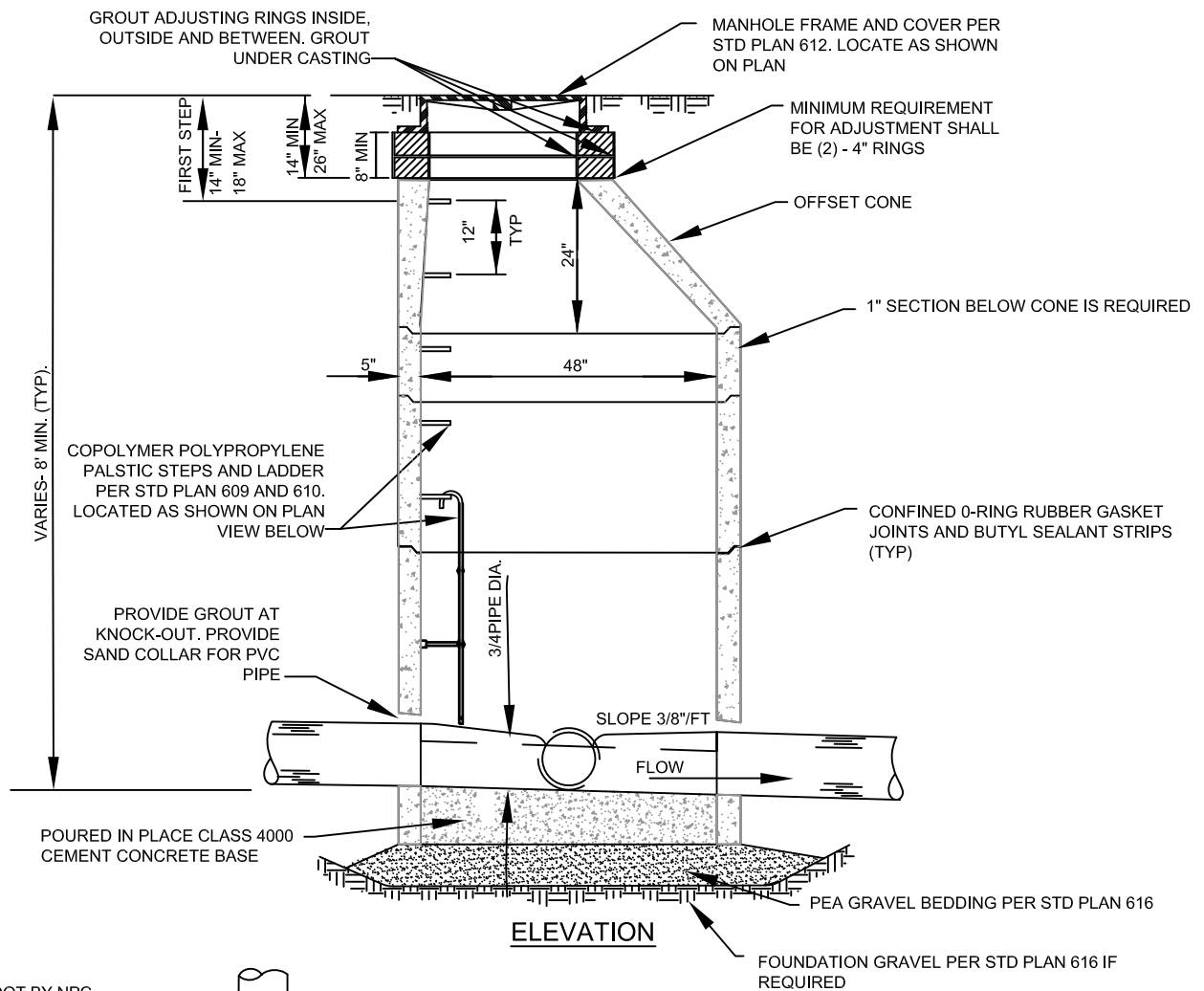


PRECAST SHALLOW MANHOLE WITH BASE LINER

City of Snohomish Public Works Department

Approved By:
S L S
City Engineer
Date: April 2010

604
Number



NOTES:

1. MINIMUM DROP IN THE INVERT ELEVATION THROUGH THE MANHOLE SHALL BE 0.1". MAXIMIM DROP IN THE INVERT ELEVATION THROUGH THE MANHOLE SHALL BE 0.5"
2. MARKER POSTS MAY BE REQUIRED IN EASEMENTS.

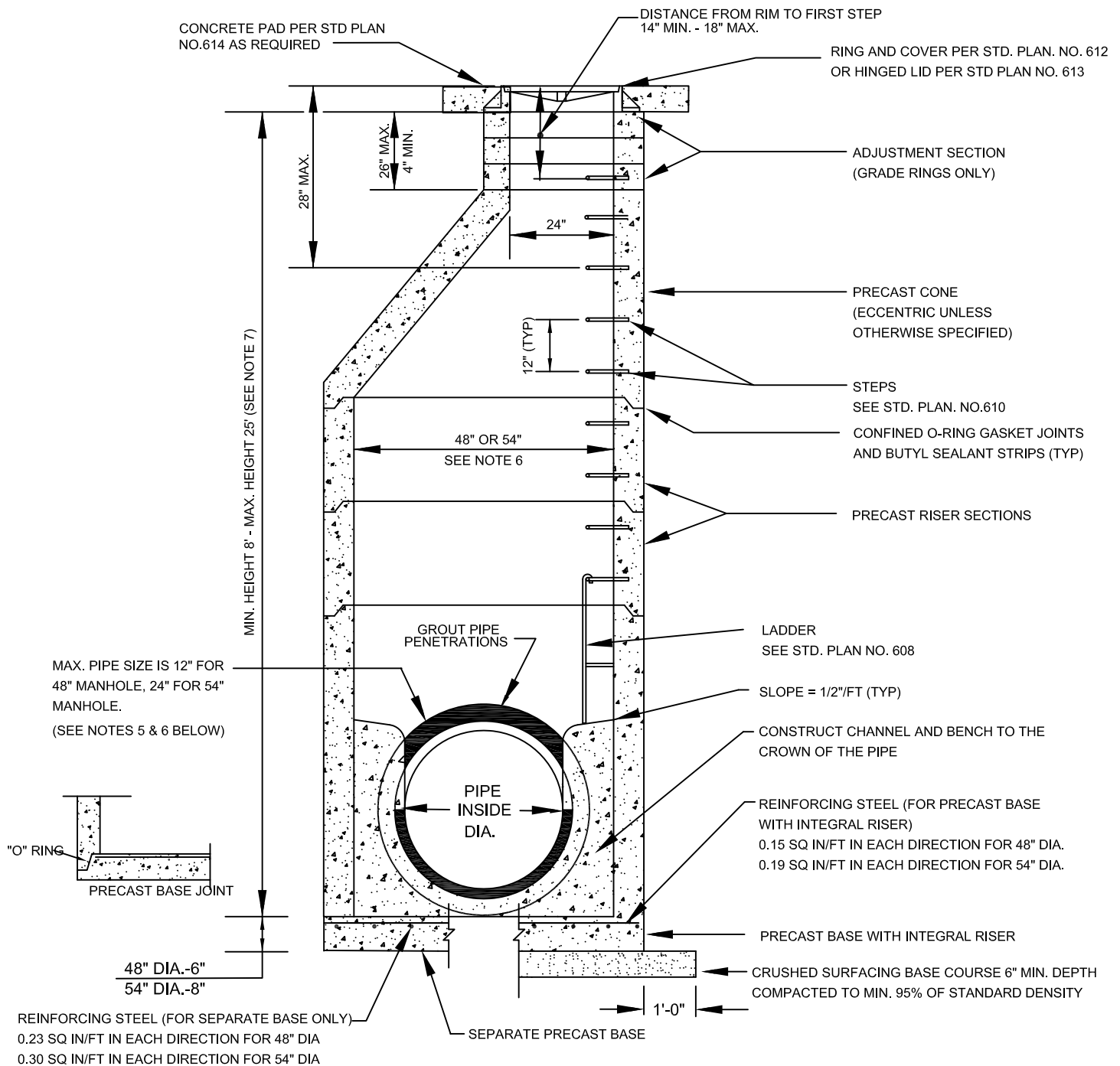


SADDLE MANHOLE - 48" to 54"

City of Snohomish Public Works Department

Approved By:
SLS
City Engineer
Date: April 2010

605
Number



NOTES

- MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M-199 (ASTM C 478) UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN STANDARD SPECIFICATIONS.
- NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
- PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM AND BE CORE DRILLED ONLY. NO HAMMERING IS ALLOWED; KOR-N-SEAL FACTORY INSTALLED BOOTS ARE ALLOWED.
- ALL BASE REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MINIMUM CLEARANCE.
- KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS MANHOLE WALL THICKNESS. MAXIMUM PIPE SIZE IS 12" FOR 48" MANHOLE, 24" FOR 54" MANHOLE. MINIMUM DISTANCE BETWEEN HOLES IS 8" (MEASURED ON THE INSIDE OF THE MANHOLE).
- MANHOLE SIZE DEPENDS ON SIZE, LOCATION AND NUMBER OF HOLES FOR PIPES. MANHOLE DESIGN AND SIZE SHALL BE APPROVED AND WARRANTED BY THE MANHOLE SUPPLIER.
- FOR HEIGHTS OVER 25' MANHOLE BASE SLAB DESIGN SHALL BE DESIGNED BY A LICENSED STRUCTURAL ENGINEER.
- GROUT ADJUSTING RINGS INSIDE, OUTSIDE AND BETWEEN. GROUT UNDER CASTING.

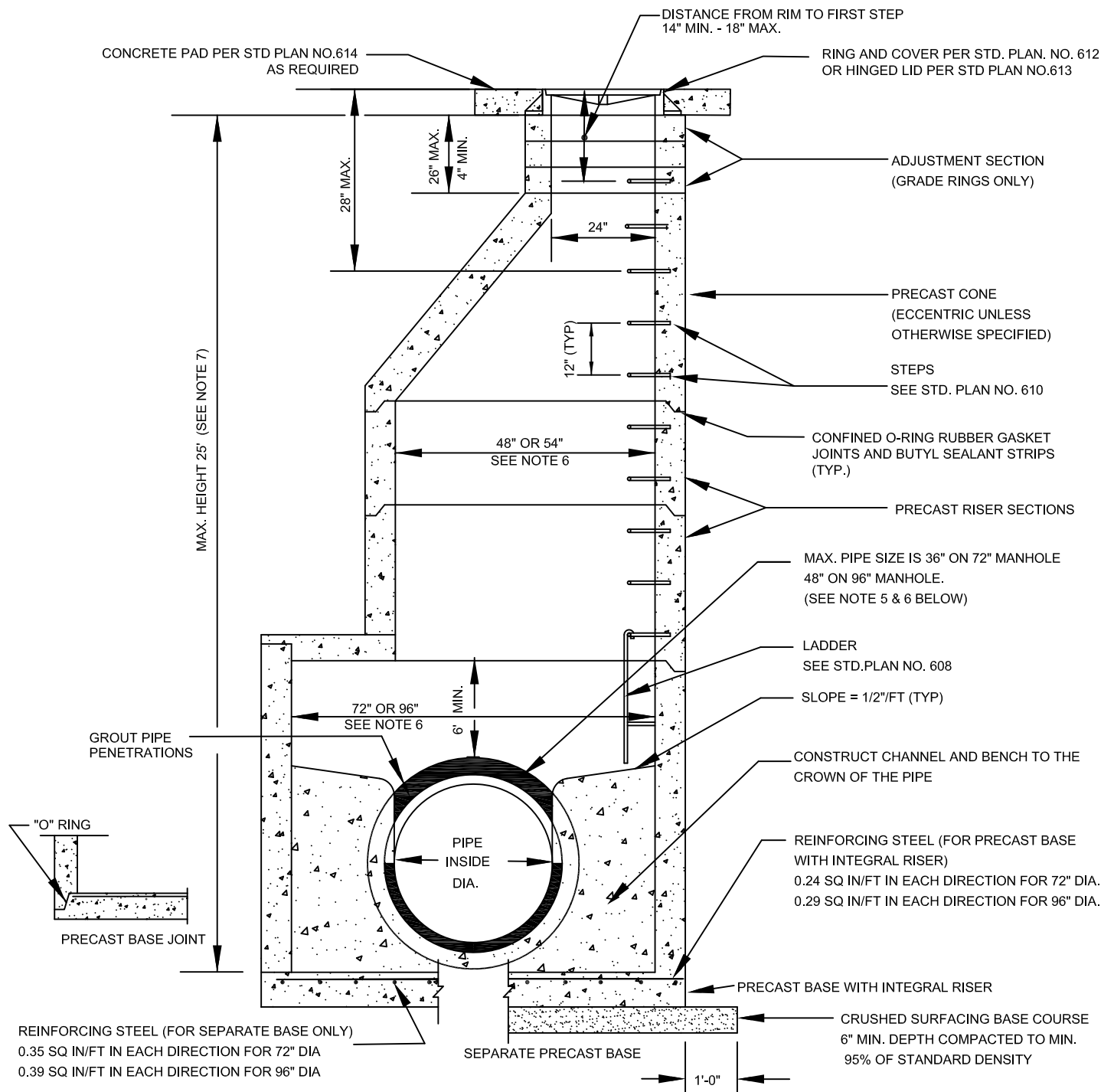


TYPE 1 MANHOLE (48" AND 54")

City of Snohomish Public Works Department

Approved By:
S L S
City Engineer
Date: April 2010

606
Number



NOTES

- MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M-199 (ASTM C 478) UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN STANDARD SPECIFICATIONS.
- NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
- PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM AND BE CORE DRILLED ONLY. NO HAMMERING IS ALLOWED; KOR-N-SEAL FACTORY INSTALLED BOOTS ARE ALLOWED.
- ALL BASE REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MINIMUM CLEARANCE.
- KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS MANHOLE WALL THICKNESS. MAXIMUM HOLE SIZE IS 36" FOR 72" MANHOLE, 48" FOR 96" MANHOLE. MINIMUM DISTANCE BETWEEN HOLES IS 12" (MEASURED ON THE INSIDE OF THE MANHOLE).
- MANHOLE SIZE DEPENDS ON SIZE, LOCATION AND NUMBER OF HOLES FOR PIPES. MANHOLE DESIGN AND SIZE SHALL BE APPROVED AND WARRANTED BY THE MANHOLE SUPPLIER.
- FOR HEIGHTS OVER 25' MANHOLE BASE SLAB DESIGN SHALL BE DESIGNED BY A LICENSED STRUCTURAL ENGINEER.
- GROUT ADJUSTING RINGS INSIDE, OUTSIDE AND BETWEEN. GROUT UNDER CASTING.



TYPE 2 MANHOLE (72" AND 96")

City of Snohomish Public Works Department

Approved By:

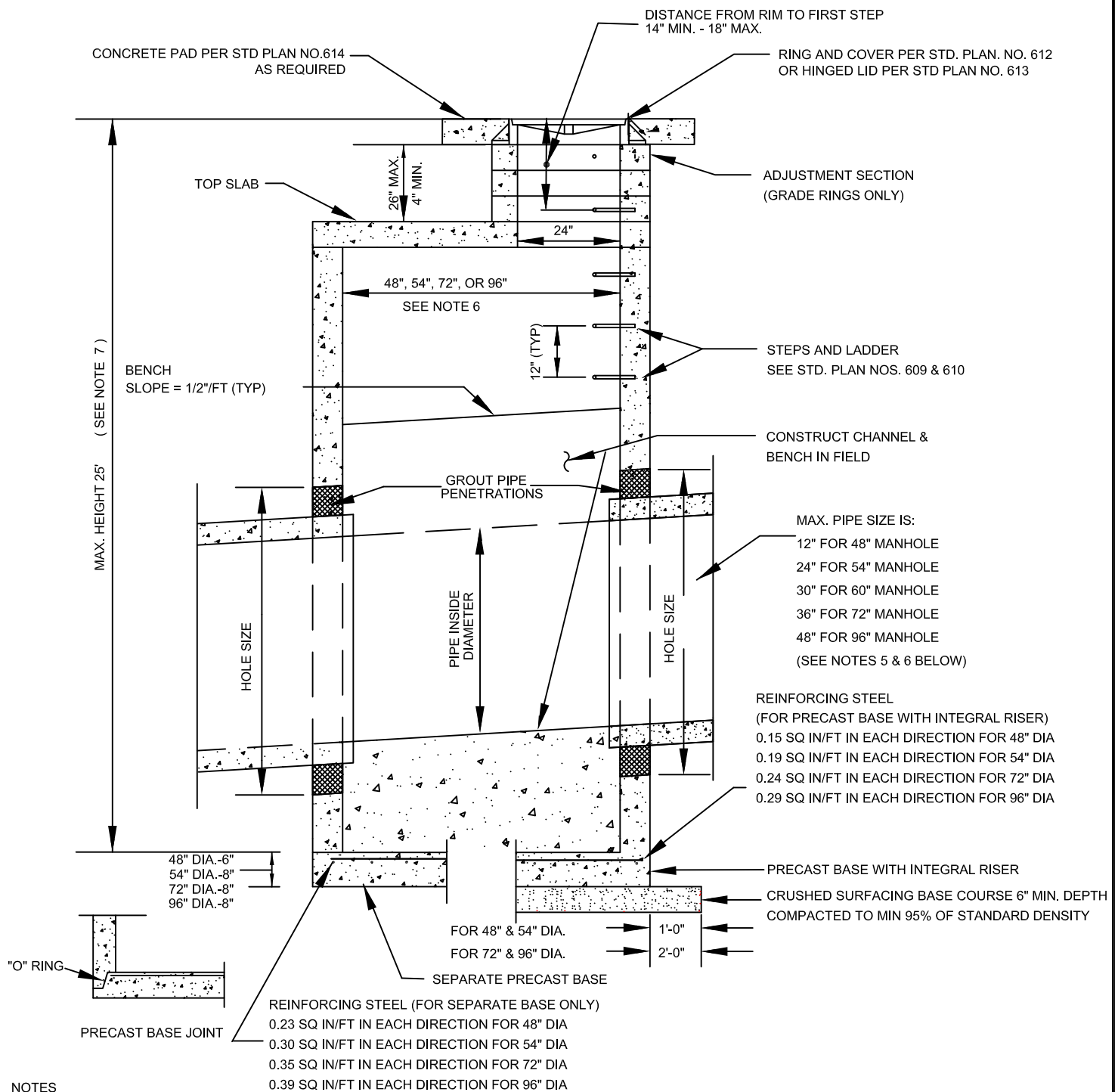
S L S

City Engineer

Date: April 2010

607

Number



NOTES

- MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M-199 (ASTM C 478) UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN STANDARD SPECIFICATIONS.
- NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
- PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM AND BE CORE DRILLED ONLY. NO HAMMERING IS ALLOWED; KOR-N-SEAL FACTORY INSTALLED BOOTS ARE ALLOWED.
- ALL BASE REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MINIMUM CLEARANCE.
- KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS MANHOLE WALL THICKNESS. MAXIMUM PIPE SIZE IS 12" FOR 48" MANHOLE, 24" FOR 54" MANHOLE, 36" FOR 72" MANHOLE AND 48" FOR 96" MANHOLE. MINIMUM DISTANCE BETWEEN HOLES IS 8" (MEASURED ON THE INSIDE OF THE MANHOLE).
- MANHOLE SIZE DEPENDS ON SIZE, LOCATION AND NUMBER OF HOLES FOR PIPES. MANHOLE DESIGN AND SIZE SHALL BE APPROVED AND WARRANTED BY THE MANHOLE SUPPLIER.
- FOR HEIGHTS OVER 25' MANHOLE BASE SLAB DESIGN SHALL BE DESIGNED BY A LICENSED STRUCTURAL ENGINEER.
- GROUT ADJUSTING RINGS INSIDE, OUTSIDE AND BETWEEN. GROUT UNDER CASTING.



TYPE 3 MANHOLE (48" THROUGH 96")

City of Snohomish Public Works Department

Approved By:

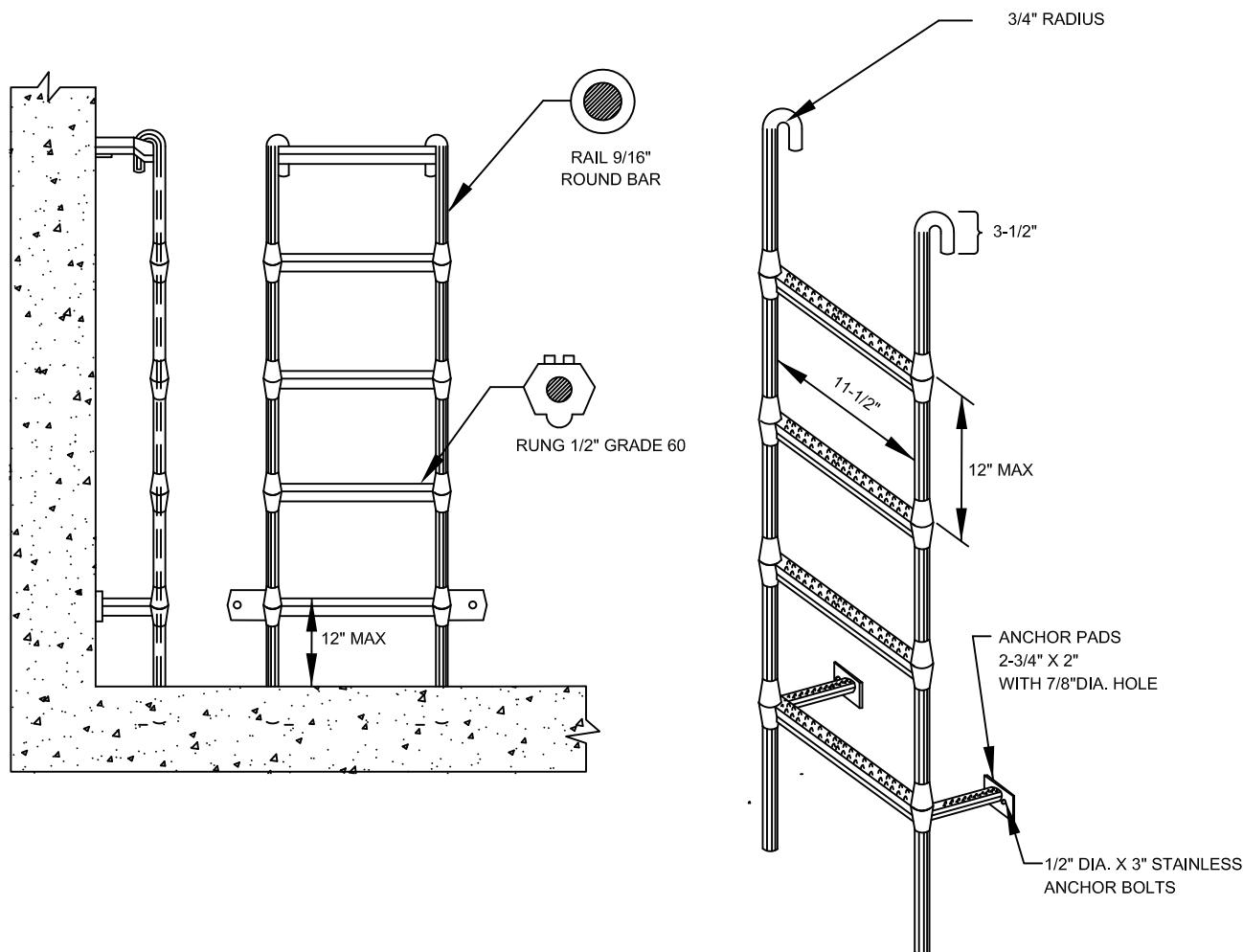
S L S

City Engineer

Date: April 2010

608

Number



NOTES:

1. STEPS SHALL BE REINFORCED COPOLYMER PROPYLENE PLASTIC CONFORMING TO:
 - (A) ASTM C 478 AND AASHTO M-199, HORIZONTAL LOAD SHALL BE 1500 LBS.
 - (B) ASTM A615 GRADE 60 (DEFORMED REINFORCING STEEL BAR).
 - (C) POLYPROPYLENE CONFORMS TO D-4101.
2. MANHOLE STEPS SHALL HAVE MOLDED SAFETY HAND GRIP. RED REFLECTORS ARE REQUIRED.
3. ALL FABRICATION DIMENSIONS INDICATED ARE MINIMUM.
4. THE ENTIRE POLYPROPYLENE PLASTIC MATERIAL SURROUNDING THE REINFORCING STEEL BAR SHALL BE CAST MONOLITHICALLY. MINIMUM COVER SHALL BE $\frac{3}{8}$ INCH.
5. STEPS SHALL BE AT A MINIMUM OF 12 INCHES.
6. STEPS SHALL BE INSTALLED IN ACCORDANCE WITH THE APPROVED MANUFACTURER'S RECOMMENDED PROCEDURE.

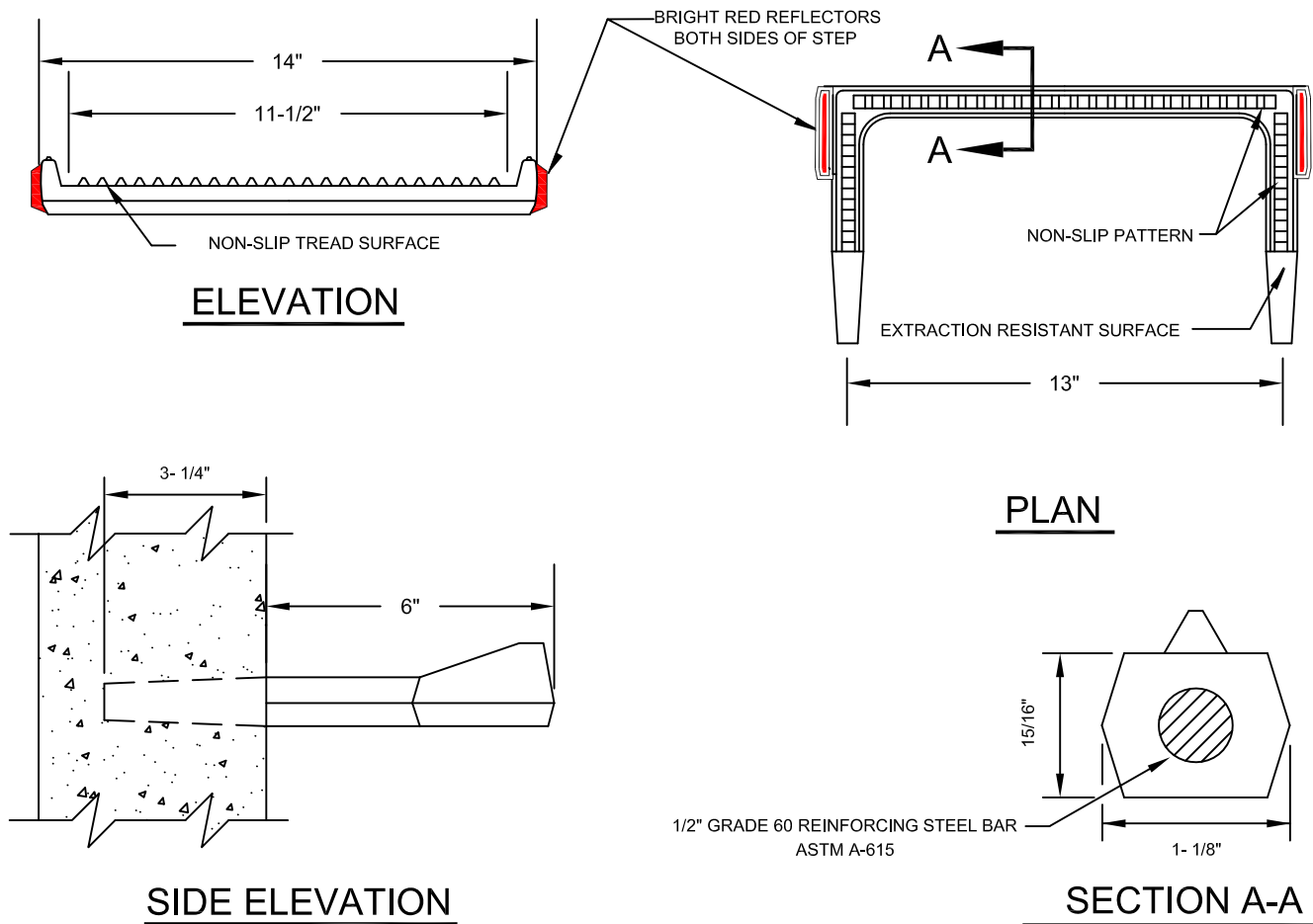


POLYPROPYLENE LADDER

City of Snohomish Public Works Department

Approved By:
S L S
City Engineer
Date: April 2010

609
Number



NOTES:

- STEPS SHALL BE REINFORCED COPOLYMER PROPOLENE PLASTIC CONFORMING TO:
 - ASTM C 478 AND AASHTO M-199, HORIZONTAL LOAD SHALL BE 1500 LBS.
 - ASTM A-615 GRADE 60 (DEFORMED REINFORCING STEEL BAR).
 - POLYPROPYLENE CONFORMS TO D-4101.
- MANHOLE STEPS SHALL HAVE MOLDED SAFETY HAND GRIP. RED REFLECTORS ARE REQUIRED.
- ALL FABRICATION DIMENSIONS INDICATED ARE MINIMUM.
- THE ENTIRE POLYPROPYLENE PLASTIC MATERIAL SURROUNDING THE REINFORCING STEEL BAR SHALL BE CAST MONOLITHICALLY. MINIMUM COVER SHALL BE $\frac{3}{16}$ INCH.
- STEPS SHALL BE SPACED AT A MAXIMUM OF 12 INCHES.
- STEPS SHALL BE INSTALLED IN ACCORDANCE WITH THE APPROVED MANUFACTURER'S RECOMMENDED PROCEDURE.

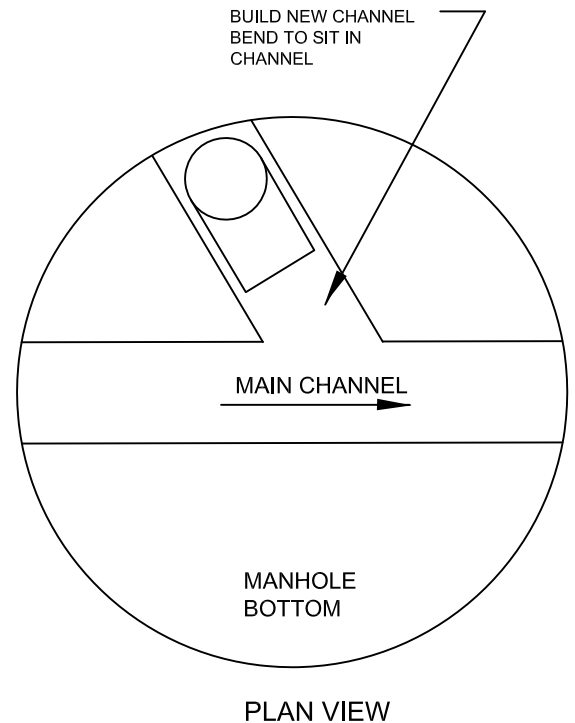
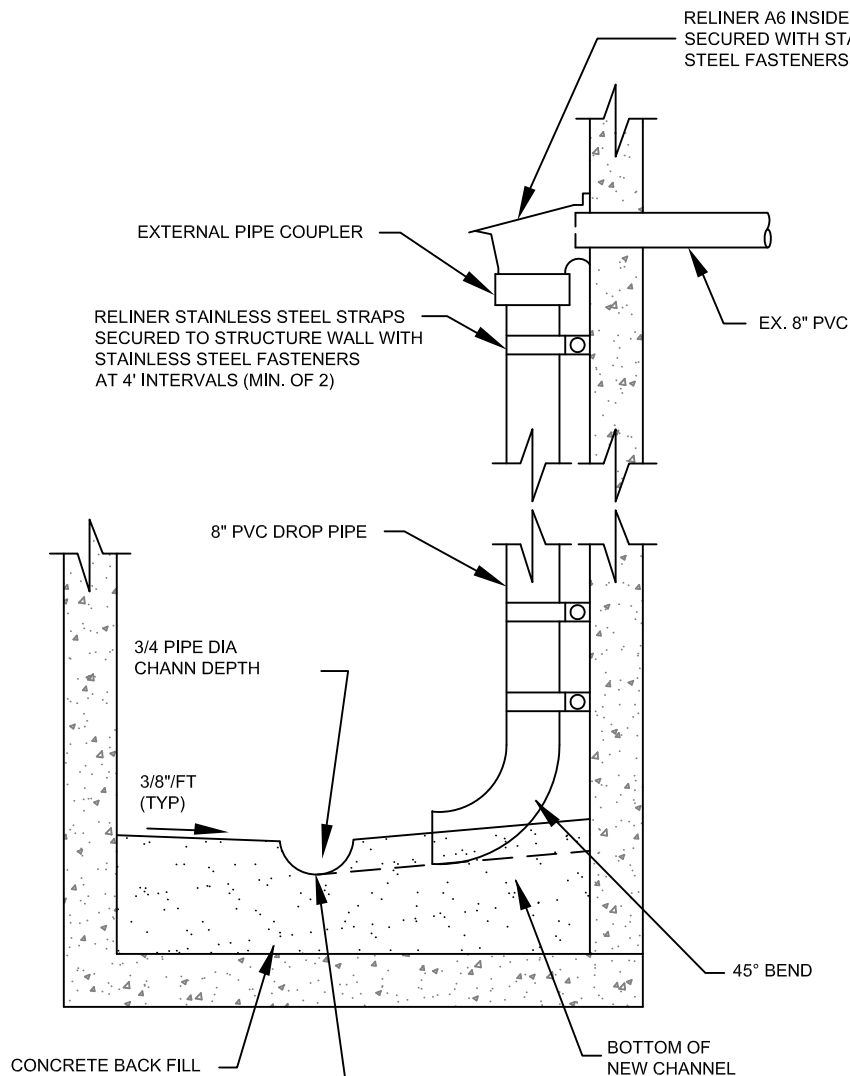


POLYPROPYLENE PLASTIC STEP

City of Snohomish Public Works Department

Approved By:
S L S
City Engineer
Date: April 2010

610
Number



NTS

NOTE:
DROP INLET SHALL BE RELINER-DURAN W/A6 BOWL OR EQUAL AS APPROVED BY CITY.
INSTALL PER MANUFACTURER'S SPECIFICATIONS.

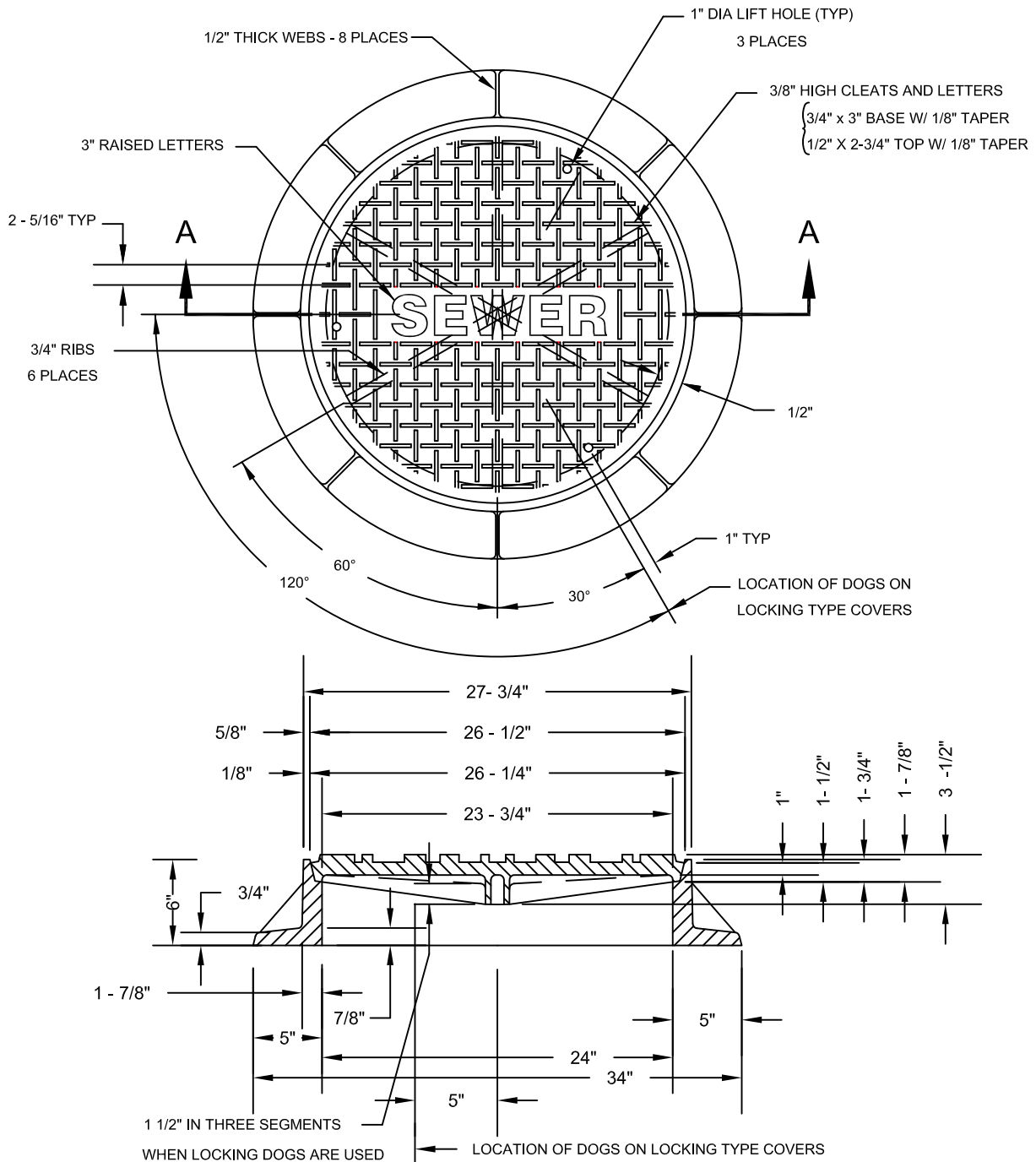


INSIDE DROP MANHOLE CONNECTION

City of Snohomish Public Works Department

Approved By:
S L S
City Engineer
Date: April 2010

611
Number



NOTES:

1. MANHOLE RINGS SHALL BE GRAY IRON CONFORMING TO THE REQUIREMENTS OF AASHTO M 105, GRADE 30B.
2. MANHOLE COVER TO BE DUCTILE IRON CONFORMING TO ASTM A536, GR 80-55-06 - EAST JORDAN IRON WORKS
3. LOCKING COVER SHALL BE USED IN ALL LOCATIONS. THE LID SHALL BE LOCKED DOWN WITH 3-5/8" S.S. SOCKET HEAD CAP SCREWS.
4. RING AND COVER SHALL BE TESTED FOR ACCURACY OF FIT AND SHALL BE MARKED IN SETS FOR DELIVERY.
5. ALL CASTINGS TO HAVE A BITUMINOUS COATING.

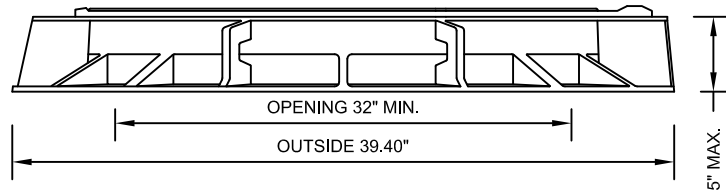


MANHOLE RING AND COVER

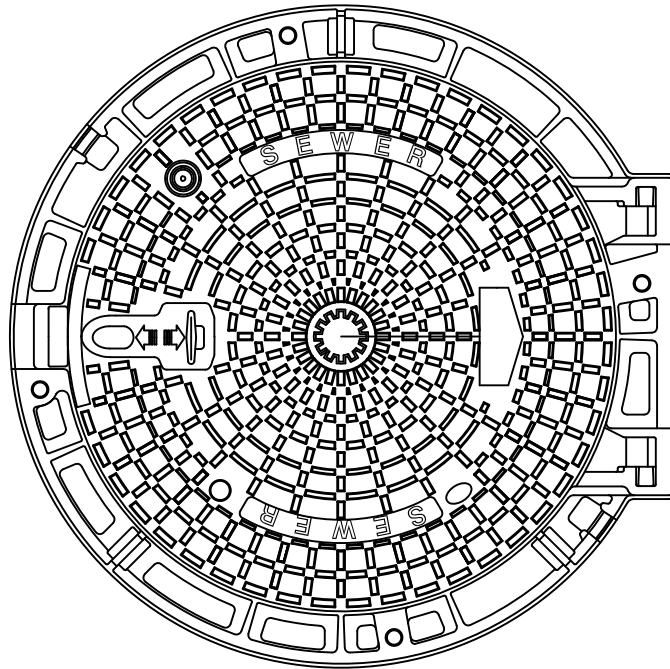
City of Snohomish Public Works Department

Approved By:
S L S
City Engineer
Date: April 2010

612
Number



ELEVATION



PLAN

NOTES:

1. MANHOLE COVER AND FRAME SHALL BE PARMEX OR APPROVED EQUAL. COVER AND FRAME SHALL BE MANUFACTURED FROM DUCTILE IRON.
2. COVER SHALL BE STAMPED SEWER.
3. COVERS SHALL BE DULY HINGED AND INCORPORATE A 90° BLOCKING SYSTEM TO PREVENT ACCIDENTAL CLOSURE. COVER SHALL BE ONE MAN OPERABLE USING STANDARD TOOLS AND SHALL BE CAPABLE OF WITHSTANDING A TEST LOAD OF 80,000 LBS.
4. FRAMES SHALL BE CIRCULAR, INCORPORATE A SEATING RING AND A FITTED PLUG IN EACH HINGE HOUSING AND BE AVAILABLE IN A 32" CLEAR OPENING. THE FRAME DEPTH SHALL NOT EXCEED 5", AND THE FLANGE SHALL INCORPORATE BEDDING SLOTS, BOLT HOLES AND LIFTING EYES.
5. ALL COMPONENTS SHALL BE BLACK COATED.
6. FRAME WEIGHT: 107 LBS
COVER WIEGHT: 162 LBS.
TOTAL WEIGHT: 269 LBS.

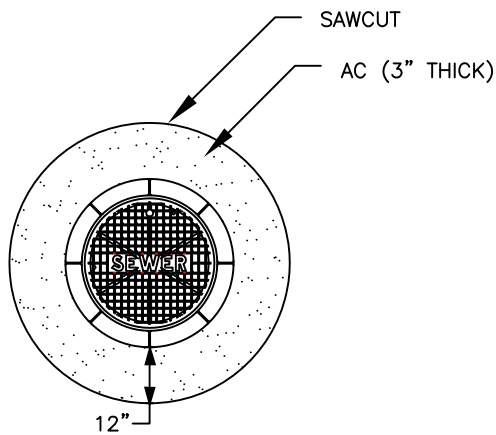


HINGED MANHOLE COVER

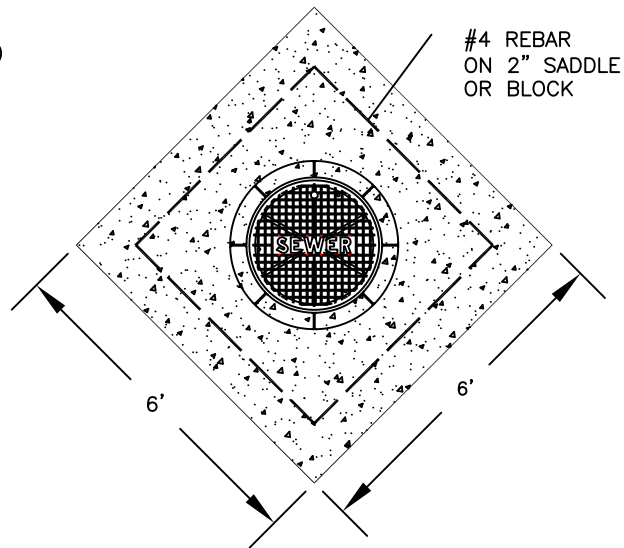
City of Snohomish Public Works Department

Approved By:
S L S
City Engineer
Date: April 2010

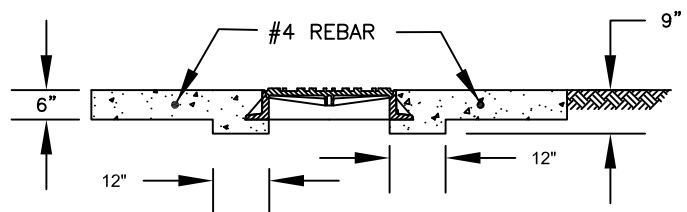
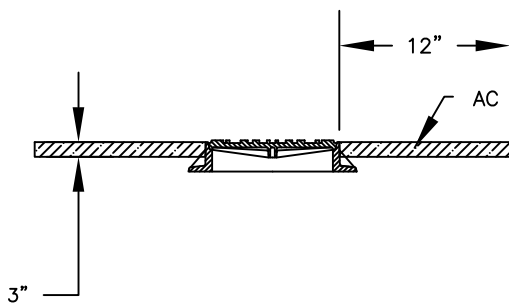
613
Number



PAVED TRAFFIC AREAS



OUTSIDE PAVED TRAFFIC AREAS



NTS

NOTES:

1. CONCRETE SHALL CONFORM TO CURRENT STANDARDS AND SHALL BE 5.5 SACK MIX. (MINIMUM 3000-PSI 28-DAY STRENGTH)
2. WHERE DEPTH OF NECK EXCEEDS 26 INCHES, ADJUST MANHOLE TO GRADE BY INSERTING A NEW MANHOLE BARREL SECTION BETWEEN THE CONE AND EXISTING BARREL.
3. ADJUSTMENT RINGS/BLOCK, TOP OF CONE SECTION, AND BOTTOM OF IRON RING, SHALL BE WET STACKED IN 3/4" GROUT, PLASTER SMOOTH INSIDE AND OUT.
4. STEPS OR RUNGS SHALL BE ADDED AS NEEDED PER STND PLAN 608 AND 609.
5. PRECAST ADJUSTMENT RINGS SHALL BE CAST WITH GROOVE TO ALLOW FIELD INSTALLATION OF SAFETY STEP.
6. CONCRETE PERIMETER SEAL SHALL EXTEND TO 12 INCH MINIMUM OR 2 INCHES BELOW THE BOTTOM OF THE ADJUSTMENT RINGS OR BLOCKS.
7. SAWCUT ONLY. NO OVERCUTTING LIMITS OF PATCH.
8. IN NON-TRAFFIC AREAS (LANDSCAPED) THE CONCRETE PAD IS 4" THICK WITHOUT REINFORCEMENT.

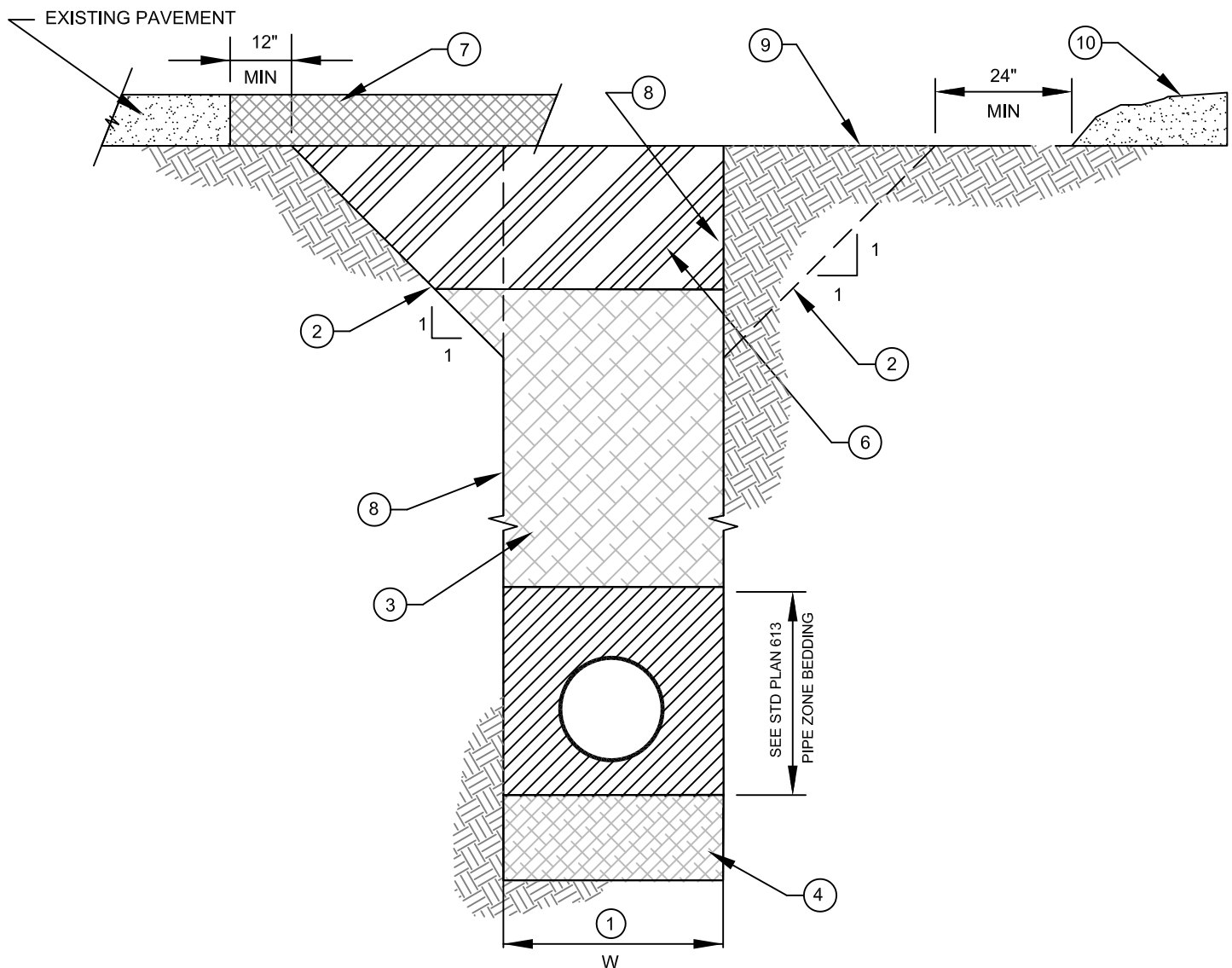


MANHOLE PAD AND ADJUSTMENT

City of Snohomish Public Works Department

Approved By:
S L S
City Engineer
Date: April 2010

614
Number



NOTES

- ① W = MAXIMUM WIDTH OF TRENCH. FOR PIPES 15" OR LESS IN DIA, W = 40", FOR PIPES 18" OR GREATER, W = 1-1/2 X I.D. + 18".
- ② ALTERNATE LAID-BACK TRENCH TO MEET O.S.H.A. REQUIREMENTS (NO SLOPES STEEPER THAN 1:1 EXCEPT FOR ROCK).
- ③ NATIVE MATERIAL IF ALLOWED IN ADVANCE BY THE CITY ENGINEER, OR IMPORTED GRAVEL BORROW AS DIRECTED SHALL COMPACT TO 90 % MAXIMUM DENSITY EXCEPT FROM SUBGRADE DOWN 4' WHICH SHALL BE CSTC.
- ④ CLASS A FOUNDATION GRAVEL, IF REQUIRED BY THE CITY ENGINEER TO REPLACE UNSUITABLE MATERIAL.
- ⑤ FOR ADDITIONAL COMPACTION INFORMATION SEE STANDARD PLAN 617.
- ⑥ THE TOP 4' OF BACKFILL SHALL BE CSTC. THE CONTRACTOR HAS THE OPTION TO FILL THE ENTIRE EXCAVATION TO SUBGRADE WITH CSTC. MINIMUM COMPACTION 95% MAXIMUM DENSITY.
- ⑦ SEE CITY OF SNOHOMISH STANDARD PLAN 316 FOR PAVEMENT PATCH DETAILS.
- ⑧ VERTICAL TRENCH WALLS WITH SHORING SHALL CONFORM TO O.S.H.A. REGULATIONS.
- ⑨ SUBGRADE OR GROUND SURFACE IN NON-PAVED AREAS.
- ⑩ EXCAVATED NATIVE MATERIAL OR APPROVED STOCKPILED BACKFILL MATERIAL.

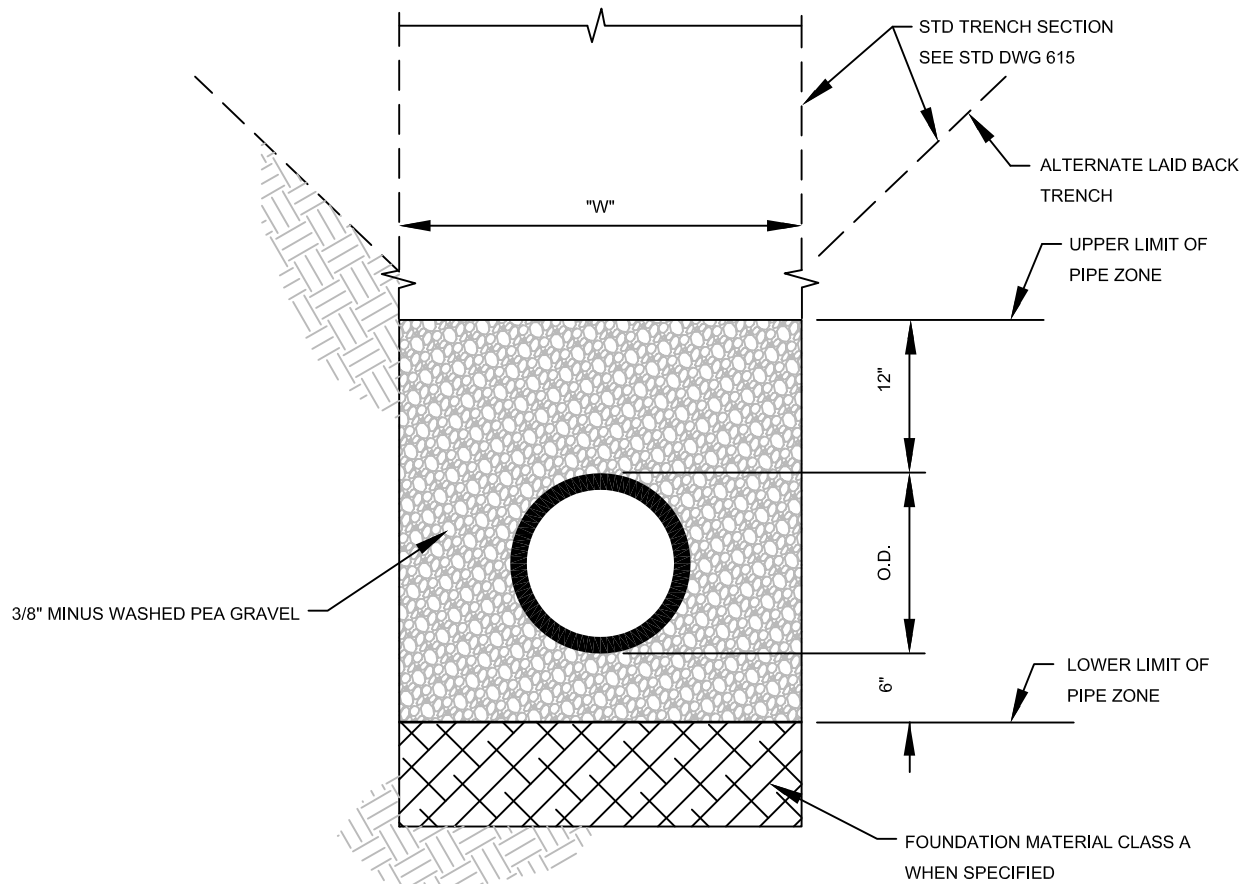


TYPICAL SEWER TRENCH SECTION

City of Snohomish Public Works Department

Approved By:
S L S
City Engineer
Date: April 2010

615
Number



LIMITS OF TRENCH:

1. W = MAXIMUM WIDTH OF TRENCH. FOR PIPES 15" OR LESS IN DIA $W = 40"$. FOR PIPES 18" OR GREATER, $W = 1\text{-}1/2 \times \text{I.D.} + 18"$

BEDDING AND FOUNDATION MATERIALS:

1. BEDDING MATERIAL SHALL BE PEA GRAVEL CONFORMING TO SECTION 9-03.12 (3) OF THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION WSDOT/APWA.
2. FOUNDATION MATERIAL, IF REQUIRED, SHALL BE FOUNDATION MATERIAL CLASS A CONFORMING TO SECTION 9-03.12 OF THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION WSDOT/APWA.

PROCEDURE FOR COMPACTION:

1. PROVIDE UNIFORM SUPPORT UNDER PIPE BARREL.
2. COMPACT BEDDING MATERIAL TO 90% MAXIMUM DENSITY EXCEPT DIRECTLY OVER PIPE. HAND TAMP ONLY.
3. HAND TAMP UNDER HAUNCHES.
4. FOR ADDITIONAL COMPACTION INFORMATION SEE STANDARD PLAN 617.

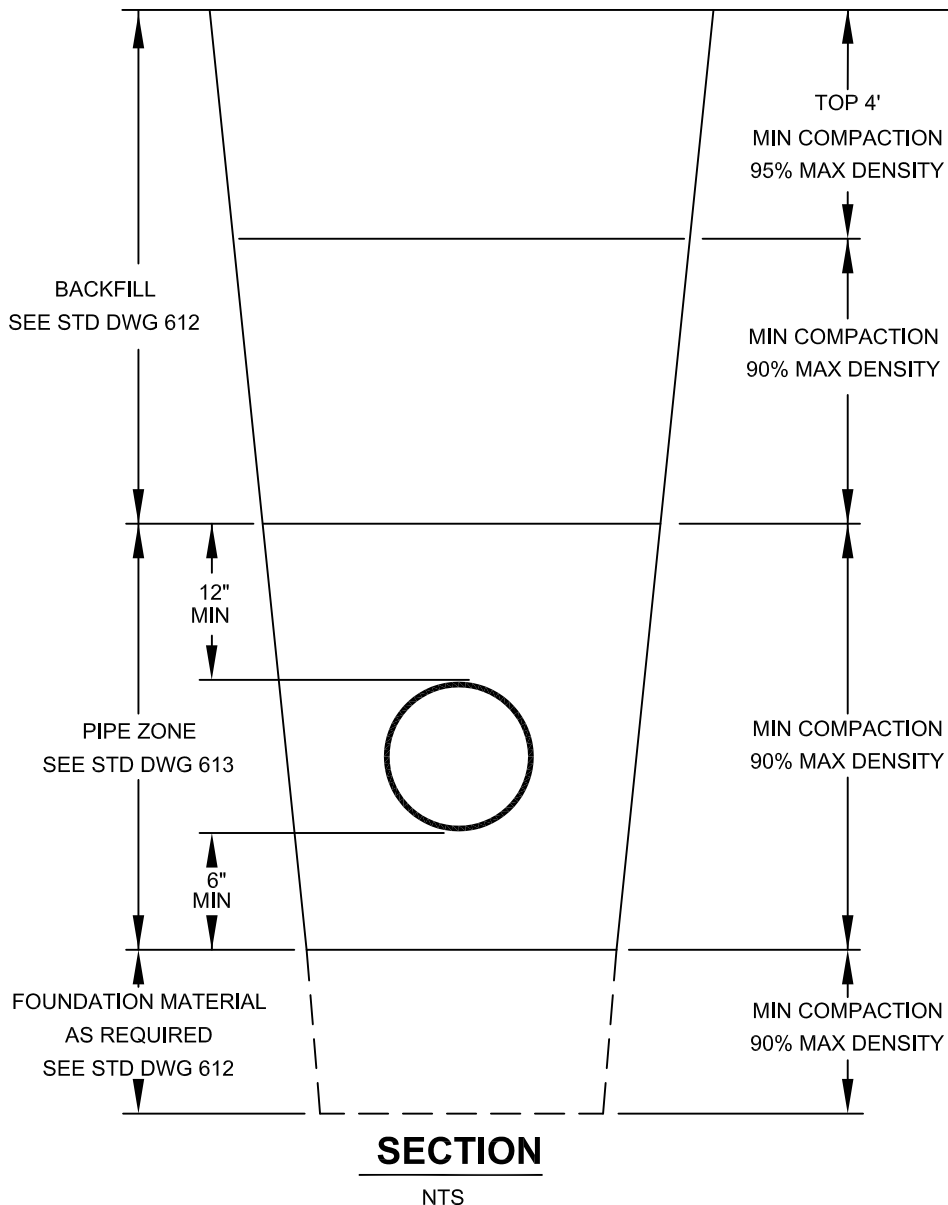


BEDDING FOR SEWER PIPE IN TRENCHES

City of Snohomish Public Works Department

Approved By:
S L S
City Engineer
Date: April 2010

616
Number



NOTES:

1. ALL BACKFILL MATERIAL SHALL BE PLACED IN LIFTS NOT TO EXCEED 12 INCHES BEFORE COMPACTION UNLESS AUTHORIZED BY THE CITY ENGINEER DUE TO THE CHARACTER OF THE MATERIAL AND COMPACTING EQUIPMENT.
2. MECHANICAL COMPACTION OF BACKFILL MATERIAL SHALL NOT BEGIN UNTIL THE DEPTH OF COMPACTED MATERIAL IS 2 FEET ABOVE THE TOP OF PIPE.
3. EACH LIFT SHALL BE MECHANICALLY COMPACTED TO THE REQUIRED DENSITY PRIOR TO PLACING SUCCEEDING LIFTS OF BACKFILL MATERIAL.
4. COMPACTION TESTS SHALL BE AS REQUIRED BY THE CITY ENGINEER, BUT IN NO CASE LESS THAN 2 TESTS EVERY 200 FEET OF TRENCH LENGTH (ONE AT SUBGRADE AND ONE AT 50% OF TRENCH DEPTH).
5. IN PLACE DENSITY WILL BE DETERMINED BY ONE OR MORE OF THE FOLLOWING METHODS
 ASTM D1556 – TEST FOR DENSITY OF SOIL IN PLACE BY THE SAND CONE METHOD.
 ASTM D2167 – (RUBBER BALLON METHOD)
 ASTM D2922 – (NUCLEAR METHOD)
6. LABORATORY DENSITY WILL BE DETERMINED BY ASTM D698, MOISTURE DENSITY RELATIONS OF SOILS AND SOIL AGGREGATE MIXTURES.

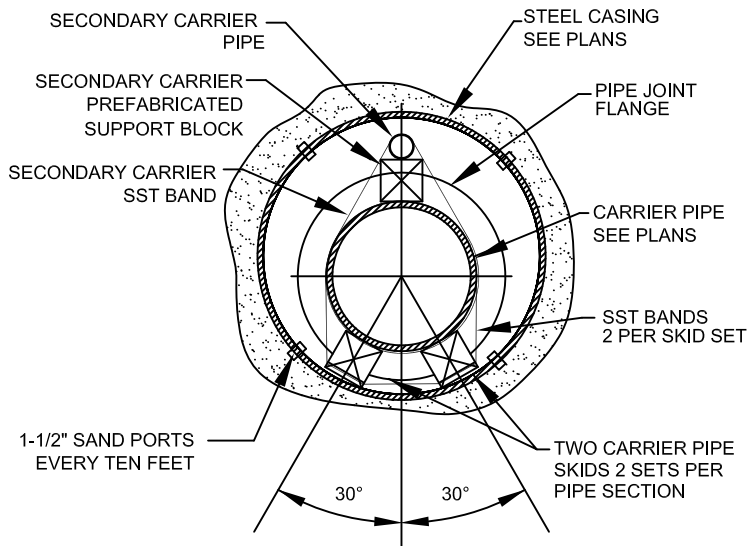


TYPICAL SEWER TRENCH COMPACTION

Approved By:
S L S
City Engineer
Date: April 2010

617
Number

City of Snohomish Public Works Department



A TYPICAL SECTION
NTS

CONSTRUCTION NOTES:

1. ALL JOINTS OF CARRIER PIPE WITHIN CASING SHALL BE FLANGED (FL) OR MECHANICAL JOINT (MJ) FITTINGS WITH MEG-A-LUG
2. RESTRAINTS.
CARRIER PIPE WILL BE PRESSURE TESTED BY CONTRACTOR AND TV'D BY CITY CREWS BEFORE FILLING ANNULAR SPACE OF CASING PIPE WITH SAND.
3. CARRIER SKIDS SHALL BE SECURELY ATTACHED TO CARRIER PIPE W/STAINLESS STEEL BANDS (MIN 2 BANDS PER SKID SET).
4. CARRIER SKIDS SHALL BE ROUNDED OR BEVELED ON LEADING EDGE, AND SHALL BE NOTCHED TO RECEIVE SST BANDS.
5. CARRIER SKIDS SHALL BE APPROVED PREFABRICATED SKIDS. A 1" MIN CLEARANCE SHALL BE MAINTAINED BETWEEN JOINT FLANGE AND CASING.
6. SECONDARY CARRIER PIPES SHALL BE SECURED TO THE TOP OF THE MAIN CARRIER PIPE AS SHOWN.
7. SECONDARY CARRIER PIPE WILL BE TESTED BEFORE CASING ANNULAR SPACE IS FILLED.

