

# COMMUNITY STREET AND UTILITY STANDARDS 2009

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## INTRODUCTION AND REFERENCES

All construction within any existing or proposed right-of-way or municipal easement, or connection to an existing City utility or storm drainage system, or extension of private or public water and sewer mains and appurtenances on public or private property shall comply with the most current edition of the Washington State Department of Transportation (WSDOT) *Standard Specifications for Road, Bridge, and Municipal Construction* as revised by the American Public Works Association (APWA) and with the modifications, additions, and exceptions included in these City of Ephrata *Community Street and Utility Standards*. WSDOT amendments to the most current edition of the *Standard Specifications for Road, Bridge, and Municipal Construction* are explicitly excluded by the *Community Street and Utility Standards* except as specifically written or revised by the City of Ephrata. All construction shall conform to the applicable standards in effect at time of plan approval, or when the permit is issued if no plans are required. Plan approval shall expire 1 year after approval date if construction has not started; however, if construction plans are approved in conjunction with platting processes, the plans shall expire concurrently with the preliminary plat. All revisions contained in the City of Ephrata *Community Street and Utility Standards* shall prevail over other specifications unless revised in writing by the City.

All revised specifications described herein conform to similar section numbers as listed in the most current edition of the WSDOT and APWA Specifications. Reference materials for modification are compiled into the City of Ephrata *Community Street and Utility Standards* from APWA Specifications, Federal regulations, Washington State statutes and regulations, Ephrata ordinances or resolutions, recommended standards for water works, recommended standards for sewage works, Ephrata engineering/public works recommendations, International Building Codes, the latest

edition of the International Fire Code and its adopted appendices, B, C and D and the Manual on Uniform Traffic Control Devices (MUTCD).

All construction subject to these standards shall be constructed to ensure conformity within the existing block unless construction that deviates from this requirement is approved by the Engineer in writing prior to construction. Water, sewer, and street construction shall be in substantial compliance with the Water, Sewer, Street, and other Comprehensive plans or Capital Improvement Plans that are in effect at the time of plan approval.

Any discrepancies noted between the Special Provisions, the Supplemental Specifications, and the Standard Specifications shall be resolved in accordance with Section 1-04.2. Furthermore, any discrepancy shall be brought to the attention of the Engineer.

Materials and methods not provided for in these standards may be allowed to be used if the applicant demonstrates to the City of Ephrata that the materials and methods proposed are equal to or superior to the standards. Deviation from the standards shall be granted or denied solely at the discretion of the City Council or the Public Works Director.

Copies of the City of Ephrata *Community Street and Utility Standards* and the most current edition of the WSDOT/APWA *Standard Specifications for Road, Bridge, and Municipal Construction* are on file at the Public Works Department, 121 Alder St. Southwest, Ephrata, WA, where they may be examined and consulted by any interested party.

Copies of the City of Ephrata *Community Street and Utility Standards* are also available for purchase from the Public Works Department, and they are available on the Internet at [www.ephrata.org](http://www.ephrata.org).

Copies of the WSDOT/APWA *Standard Specifications for Road, Bridge and Municipal Construction* are available for purchase from the Washington State Department of Transportation, Olympia, Washington.

## **CONSTRUCTION REQUIREMENTS**

The following items shall be completed prior to start of construction within any existing or proposed right-of-way or municipal easement, or connection to an existing City utility or storm drainage system, or extension of private water and sewer mains and appurtenances on private property.

1. Prior to construction, the plans and specifications shall be approved and signed by the City Engineer/Public Works Director. However, public utility plans that are submitted to the City Engineer/Public Works Director for review do not need to be signed by the City Engineer/Public Works Director. Signature blanks are required on each plan sheet. Provide one (1) set of mylar reproducible drawings to the City Engineer/Public Works Director after all revisions have been made and approved.
2. The Contractor shall have a City of Ephrata Street and Utility Construction Bond in the amount of \$10,000 or for 150 percent of construction costs,

whichever is greater. However, property owners may take out a permit to install their sidewalk, or to remove and replace their sidewalk, without a Street and Utility Construction Bond.

3. The Contractor or property owner shall obtain a Street and Utility Construction Permit. The permit fee is 2.5 (2½) percent of the cost of construction. Construction costs shall be provided to the Engineer/Public Works Director or the Building Official for verification.
4. All required construction staking shall be performed under the direction of a Professional Land Surveyor. The surveyor shall provide a copy of the staking notes to the Engineer/Public Works Director.
5. A pre-construction conference shall be scheduled between the Contractor, City staff, and any affected utilities. The City Hall conference room is available for this meeting.
6. The Contractor shall provide a traffic control plan for work within the City's right-of-way reflecting the requirements set forth in the MUTCD.
7. The developer shall provide circuitry for all required street lighting in conjunction with the Grant County PUD. The Grant County PUD shall prepare a street lighting plan for inclusion into the street and utility construction plans when required.
8. Plans for new public utilities shall be submitted with construction plans and shall be approved by the respective utility. The Contractor shall install all new telephone, electric, cablevision and other public utilities underground.
9. The Contractor shall provide submittals to the Engineer/Public Works Director for approval on all non-standard materials.

Inspector hours are between the hours of 8:00 a.m. and 4:00 p.m. Any work that requires inspection outside of the regular hours shall be coordinated with the Engineer/Public Works Director or Building Official. Furthermore, any work that causes City inspector overtime shall be billed to the Contractor at \$30.00 per hour. Any payment for overtime shall be paid by the Contractor prior to acceptance of the project.

The Contractor shall perform all work in accordance with OSHA and WISHA safety regulations. The Contractor shall construct all work in conformance with the current WSDOT *Standard Specifications for Road, Bridge and Municipal Construction* as amended by the APWA and the City of Ephrata *Community Street and Utility Standards*, and Supplemental Specifications as required by the Engineer/Public Works Director. The Contractor shall be responsible to check on any revised *Community Street and Utility Standards* that may be in effect at the time of construction.

**A 2-year maintenance bond is required in the amount of 50 percent of the construction costs. The maintenance bond shall be provided upon completion of the project and prior to City Council acceptance of the project.**

The City Council may deviate, waive, or add to the preceding items based on the extent and nature of the proposed construction.

**DEVIATION PROCEDURE**

The WSDOT *Standard Specifications for Road, Bridge and Municipal Construction* as revised by the APWA, and the *Community Street and Utility Standards* may be deviated subject to the approval by the City Council or the Public Works Director.

A request may be made to the Public Works Director for a deviation of any requirement of the *Community Street and Utility Standards*. All requests shall be in writing and sent to the Public Works Director at 121 Alder St. Southwest, Ephrata, Washington, 98823.

Upon receipt of a request or recommendation for a deviation to the *Community Street and Utility Standards* the City Council or the Public Works Director shall consider the deviation request at or prior to its next regular meeting. The City Council shall approve, conditionally approve, or disapprove the deviation request in compliance with the following requirements:

1. The City Council or the Public Works Director shall not grant a deviation that would be detrimental to the public health, safety, or welfare; or that would be injurious to real property.
2. In granting a deviation, the City Council or the Public Works Director may require such conditions as may serve the objectives of the requirement that is being deviated, insofar as is practicable.

**DIVISION 1 GENERAL REQUIREMENTS**

1-01 DEFINITIONS AND TERMS

1-01.2(2) ITEMS OF WORK AND UNITS OF MEASUREMENT

*The section is supplemented with the following:*

AWG	American Wire Gauge
CSTC	Crushed Surfacing Top Course
CSBC	Crushed Surfacing Base Course
D	Depth
DI	Ductile Iron
FIPT	Female Iron Pipe Thread
FL	Flanged
FT	Feet
ID	Inside Diameter
IPT	Iron Pipe Thread
L	Length
Max	Maximum
MH	Manhole
MIPT	Male Iron Pipe Thread
Min	Minimum

MJ	Mechanical Joint
OC	On center
OD	Outside Diameter
PE	Polyethylene
PIP	Pressure Irrigation Pipe
R	radius
Rebar	Reinforcing Steel
ROW	Right-of-way
SF	Square Feet
SW	sidewalk
typ.	Typical
W	Width
x	By
X-brace	Crossbrace

### 1-01.3 DEFINITIONS

*The section is revised by replacing the definition for Engineer with the following:*

Engineer      The City Engineer or the City Engineer’s designated representative.

### 1-04 SCOPE OF THE WORK

#### 1-04.1 INTENT OF THE CONTRACT

*The section is supplemented with the following:*

The developer shall furnish all labor and materials necessary to provide plans, specifications, subdivision drawings, engineering, and other related items associated with a development project.

#### 1-04.2 COORDINATION OF CONTRACT DOCUMENTS, PLANS, SPECIAL PROVISIONS, SPECIFICATIONS, AND ADDENDA

*The section is revised by replacing the first sentence in the second paragraph as follows:*

In case of discrepancies, Special Provisions shall govern over Supplemental Specifications; Supplemental Specifications shall govern over Standard Specifications; and units of measurement on a proposal shall govern over units of measurement contained in the Special Provisions. Where discrepancies are noted within the Special Provisions, Supplemental Specifications, or Standard Specifications, the plans shall govern over the written specifications. The Contractor shall notify the Engineer/Public Works Director immediately when any discrepancies are noted.

THE FOLLOWING SECTION (1-04.12) IS ADDED.

#### 1-04.12 WASTE SITES

Waste sites shall be provided by the Contractor. Waste sites shall be operated in such a manner as to meet all laws, ordinances, and safety and health requirements of the State, County, and City. Waste sites shall not be permitted if operations or results of such operations create a nuisance problem, or result in damage to municipal, public, or private properties.

The Contractor shall provide the Engineer/Public Works Director with copies of any excavation and grading permits that are required by Ephrata Municipal Code 16.04.040.

THE FOLLOWING SECTION (1-04.13) IS ADDED.

#### 1-04.13 USE OF PRIVATE PROPERTY

The Contractor shall obtain permission from the property owner before using any private property adjoining the work. The Contractor shall obtain a written release from all damages that has been signed by the property owner; and the Contractor shall provide the written release to the Engineer/Public Works Director prior to the City's acceptance of the project.

#### 1-05 CONTROL OF WORK

##### 1-05.6 INSPECTION OF WORK AND MATERIALS

*The section is supplemented with the following:*

Inspection shall be performed by the City's Engineer, Public Works Director, City Construction Inspector or an engineering firm hired by the City. Permit fees shall be per the Ephrata Municipal Code and shall be collected prior to issuance of a Street and Utility Construction Permit.

Permit fees do not cover developer costs of any material tests required. Any material tests required for the project shall be borne by the developer.

##### 1-05.10 GUARANTEES

*The section is supplemented with the following:*

If defective material or workmanship is discovered within 2 year after the date of Final Acceptance of the work, the Contractor shall return and either correct or replace the defective work as directed by the Engineer/Public Works Director. If the weather or other factors prohibit corrections from being made within 1 year after final acceptance, the Contractor's bond shall be extended for 1 additional year.

#### 1-06 CONTROL OF MATERIAL

##### 1-06.2 ACCEPTANCE OF MATERIALS

##### 1-06.2(1) SAMPLES AND TESTS FOR ACCEPTANCE

*The section is supplemented with the following:*

**AWWA** - American Waterworks Association. The effective date of the AWWA Specifications is on the first day of the second month after publication. The AWWA Specifications and Revisions thus in effect at time of plan approval, or when the permit is issued if no plans are required, shall apply whenever referenced in these specifications.

Copies of the AWWA Specifications may be obtained from American Waterworks Association, Inc., Customer Service, 6666 Quincy Avenue, Denver, Colorado 80235.

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

### 1-07.5 FISH AND WILDLIFE AND ECOLOGY REGULATIONS

#### 1-07.5(4) AIR QUALITY

*The section is revised by replacing paragraph 1 with the following:*

The Contractor shall comply with the regulations of the local air pollution control authorities or with the regulations of the Department of Ecology, whichever are more stringent.

THE FOLLOWING SECTION (1-07.5(5)) IS ADDED.

#### 1-07.5(5) LIABILITY

The Contractor shall be liable for the payment of all fines and penalties resulting from failure to comply with the Federal, State, and local control regulations.

### 1-07.7 LOAD LIMITS

#### 1-07.7(1) GENERAL

*The section is revised by replacing paragraph 1 with the following:*

While moving equipment or materials on any public street, road, or highway, the Contractor and its Subcontractors, agents, or suppliers shall adhere to RCW 46.44 of the Motor Vehicle Laws of the State of Washington and local laws that control traffic or limit loads. The Street and Utility Construction Permit neither exempts the Contractor, its Subcontractors, agents, or suppliers from such laws nor licenses overloads. At the Engineer's/Public Works Director's request, the Contractor shall furnish to the Engineer/Public Works Director a listing of all haul vehicles to be used in the work. The list shall include vehicle owner license number, tare weight, and maximum legal load for vehicle and trailer, if any.

### 1-07.13 CONTRACTOR'S RESPONSIBILITY FOR WORK

#### 1-07.13(2) RELIEF OF RESPONSIBILITY FOR COMPLETED WORK

*The section is replaced with the following:*

The Contractor shall be responsible for maintaining and protecting all portions of the work until the project has been accepted by the City Council.

#### 1-07.13(4) REPAIR OF DAMAGE

*The section is replaced with the following:*

When the Engineer/Public Works Director determines public safety is affected, the Engineer/Public Works Director may elect to accomplish repair by others and charge such costs to the developer.

#### 1-07.16 PROTECTION AND RESTORATION OF PROPERTY

##### 1-07.16(1) PRIVATE/PUBLIC PROPERTY

*The section is supplemented with the following:*

When trenching is required within a planting strip, the Contractor shall protect the existing curb, gutter, and sidewalk from damage; utilizing protective measures as approved by the Engineer/Public Works Director. The Contractor shall demonstrate the method or procedure of protection, as directed by the Engineer/Public Works Director, before proceeding with trenching in a planting strip. Any damage to existing improvements shall be repaired promptly at the Contractor's expense.

Damaged sidewalk and driveway entrances in the Bomanite Paving District shall be replaced with like materials. Bomanite Paving District boundaries are as shown on *Community Street and Utility Standards* details.

##### 1-07.17 UTILITIES AND SIMILAR FACILITIES

*The section is supplemented by the APWA supplement and with the following:*

Additional costs and loss of time due to the removal or relocation of any utility or other facility are the responsibility of the developer.

##### 1-07.23 PUBLIC CONVENIENCE AND SAFETY

###### 1-07.23(1) CONSTRUCTION UNDER TRAFFIC

*The section is supplemented with the following:*

The Contractor shall provide access to emergency traffic such as police, fire, and emergency units at all times. The Contractor shall notify the Multi-agency Communications Center (MACC, 509-762-1160) prior to closing any street and immediately upon reopening a closed street. The Contractor shall also coordinate all construction activities with the school district, post office, disposal firms, and other services that may be operating in the project area. The Contractor shall be liable for any damages that result from failure to provide reasonable notice, access, or

coordination. When construction operations are such that debris from the work is deposited on the streets, the Contractor shall remove on a daily basis, as a minimum, all deposits or debris that have accumulated on the roadway surface. If daily removal is insufficient to keep the streets clean, the Contractor shall perform removal operations on a more frequent basis. If the Engineer/Public Works Director determines that a more frequent cleaning is impractical or if the Contractor fails to keep the streets free from deposits and debris resulting from the work, the Contractor shall, upon order of the Engineer/Public Works Director, provide facilities for and remove all clay or other deposits from the tires or between wheels before trucks or other equipment travel over paved streets. If the Contractor fails or refuses to clean the streets, trucks, or equipment in question, the Engineer/Public Works Director may order the work suspended at the Contractor's risk until compliance with the Contractor's obligation is assured; or the Engineer/Public Works Director may order the streets in question cleaned by others. Such costs incurred by the City in achieving compliance with these contract requirements, including cleaning of the streets, shall be payable by the Contractor prior to final acceptance of the project. The Contractor shall have no claim for delay, extension of contract time, or additional cost should the Engineer/Public Works Director choose to suspend the Contractor's work until compliance is achieved.

THE FOLLOWING SECTION (1-07.23(1)A) IS ADDED.

#### 1-07.23(1)A EXISTING TRAFFIC CONTROL AND STREET NAME SIGNS

Existing traffic control and street name signs that interfere with construction shall be relocated or removed by the Contractor and temporarily stored in a safe place. "Stop", "Yield", "Speed Limit", and "One-Way" signs shall be removed or relocated only upon approval by the Engineer/Public Works Director. Existing signs shall not be removed until the Contractor has provided temporary measures sufficient to safeguard and direct traffic after the existing signs have been removed. Except as otherwise provided in the contract documents, preservation and maintenance of traffic control and street name signs shall be the sole responsibility of the Contractor. All temporary signs shall be in compliance with Section 1-10.3(3) of these specifications.

The Contractor shall reset temporarily relocated or removed traffic and street name signs in their permanent location as work progresses and permits. The Contractor shall replace signs and other traffic control devices that are damaged or lost by the Contractor. However, the Engineer/Public Works Director may allow the Contractor to repair a damaged sign in lieu of its replacement.

The Contractor shall install temporary pressure-sensitive pavement marking tape or delineators when paint lines are obliterated due to construction activities as directed by the Engineer/Public Works Director. The Contractor shall remove these temporary features after the Engineer/Public Works Director approves of permanent traffic channelization that has been installed by the Contractor.

THE FOLLOWING SECTION (1-07.23(1)B) IS ADDED.

#### 1-07.23(1)B MAINTAINING ACCESS

The Contractor shall maintain access to residential and commercial property adjacent to the project. Access to residential property shall not be blocked for more than 8 consecutive hours. Access to commercial property shall not be blocked for more than 4 consecutive hours. The Contractor shall provide alternate access routes if the work requires blocking streets or driveways longer than the hours specified herein. The proposed alternate routes shall be approved by the Engineer/Public Works Director prior to their use and the alternate routes shall be the responsibility of the Contractor at no expense to the City.

The Contractor shall provide a notice 24 hours in advance to all property owners whose parking may be restricted. The notice shall indicate where they may park and the name and phone number of the Engineer/Public Works Director and Contractor.

#### 1-07.23(2) CONSTRUCTION AND MAINTENANCE OF DETOURS

*The section is revised by replacing paragraph 2 with the following:*

The Contractor shall be responsible for maintenance, control, and safeguarding of traffic on all detours necessary for construction, including on-site and off-site detours, unless otherwise relieved of this responsibility by the Engineer/Public Works Director.

*The section is supplemented with the following:*

All detours within the limits of the project, required or necessitated by the work, shall be the responsibility of the Contractor. This work includes side street crossings, freshly placed concrete, utilization of 1 or more lanes of the construction area for maintenance of through traffic, and all other related traffic control. Plans for such detours shall be in accordance with the requirements of Section 1-10. Surfacing and paving of all detours shall be consistent with the requirements of traffic as determined by the Engineer/Public Works Director.

#### 1-07.26 PERSONAL LIABILITY OF PUBLIC OFFICERS

*The section is revised by replacing all references to "Commission, the Secretary" or "State" with "City."*

#### 1-07.27 NO WAIVER OF STATE'S LEGAL RIGHTS

*The section is revised by replacing all references to "State" or "Secretary" with "City."*

THE FOLLOWING SECTION (1-07.28) IS ADDED.

#### 1-07.28 CONTRACTOR'S RESPONSIBILITY FOR SAFETY

The Contractor is solely responsible for the safety of all workers at the work site, no matter by whom they may be employed. Such responsibility shall include compliance with all local, State, and Federal safety laws, rules and regulations that are applicable to the site of all work to be performed by the Contractor, or any Subcontractor, under this contract. The Contractor is not relieved of this responsibility by actions of the Engineer/Public Works Director in the inspection of work in progress to ensure contract compliance, including trench safety progress. The Engineers that are assigned to perform inspections are not safety inspectors. The Contractor shall obtain an opinion or inspection from the appropriate regulatory agency if the Contractor is uncertain as to the application of any safety rule or regulation.

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 Contractor shall be aware of the work site's present condition. The Contractor shall indemnify and hold the City harmless from any and all claims arising from the condition of the work site or on account of any claim of unsafe conditions maintained at the work site during the term of this project.

THE FOLLOWING SECTION (1-07.29) IS ADDED.

#### 1-07.29 ARCHAEOLOGICAL AND HISTORIC PRESERVATION

The Contractor shall notify the Engineer/Public Works Director if any artifacts, skeletal remains, or other archaeological resources (as defined under RCW 27.53.040) are unearthed during excavation or otherwise discovered on the site. The Contractor shall immediately suspend any construction activity that is in violation of RCW 27.53. Suspension of the work shall remain in effect until the Engineer/Public Works Director has obtained permission to proceed from the State Historic Preservation Officer.

#### 1-09 MEASUREMENT AND PAYMENT

*This section is deleted from the Community Standards on developer funded projects. On projects using City funds, the section shall remain in its entirety.*

#### 1-09.11 DISPUTES AND CLAIMS (APWA ONLY)

#### 1-09.11(3) TIME LIMITATION AND JURISDICTION

*The section is supplemented with the following:*

If the Contractor is an out-of-state resident, the Contractor shall designate an agent in Washington upon whom process may be served before commencing work.

## 1-10 TEMPORARY TRAFFIC CONTROL

### 1-10.2 TRAFFIC CONTROL MANAGEMENT

#### 1-10.2(3) CONFORMANCE TO ESTABLISHED STANDARDS

*The section is supplemented with the following:*

The Contractor may submit alternate proposals to those for traffic control and detours required by contract documents. Such alternate proposals shall safely and adequately maintain vehicular and pedestrian traffic and shall comply with the most recent version of the MUTCD. They shall be submitted in writing to the Engineer/Public Works Director a minimum of 5 days in advance of their intended use. The acceptance of any proposal shall be entirely at the discretion of the Engineer/Public Works Director. The Contractor shall be solely responsible for any and all liability associated with traffic control.

#### 1-10.3 FLAGGING, SIGNS, AND ALL OTHER TRAFFIC CONTROL DEVICES

##### 1-10.3(3) CONSTRUCTION SIGNS

*The section is revised by replacing sentence 1 of paragraph 1 with the following:*

All signs required by the traffic control plan as well as any other appropriate signs prescribed by the Engineer/Public Works Director shall be furnished and maintained by the Contractor.

*The section is supplemented with the following:*

The Contractor shall provide the traffic signing and traffic control per the approved Traffic Control Plan, as a minimum. The Contractor shall provide additional signs, barricades, cones, flaggers, and traffic control to ensure public's safety in accordance with the Contractor's plan of operation.

The Contractor shall erect all signs specified by the Traffic Control Plan for an area where work is scheduled to be performed, prior to commencing work on the said area of the project. Work on any area of the project shall not commence until all signs, flaggers, and other traffic control devices for said area are in place and approved by the Engineer/Public Works Director.

The Contractor shall patrol the traffic control area a minimum of once per day and shall reset all disturbed signs and traffic control devices upon discovery or notification. All signs necessary for nighttime traffic control shall be fully reflectorized. The Contractor shall make the necessary changes to any signs or traffic control devices that need to be repeatedly reset to ensure the problem does not continue.

Additionally, the Contractor shall have on the job a sufficient number of type II barricades and 28-inch orange plastic cones to provide for safe working conditions and to protect the traveling public.

For nighttime use, barricades shall be equipped with flashing lights in conformance with the MUTCD. Barricades and cones shall be bright in color and in good working order. Cones shall have a minimum 6 inch-wide, reflectorized, white band placed a minimum of 3 inches and a maximum of 4 inches from the top. A second reflectorized, white band shall be placed a minimum of 2 inches below the first and shall be a minimum of 4 inches wide. Broken, faulty, or nonstandard equipment shall be replaced upon discovery or notification.

The Contractor shall assume full responsibility for maintaining safe conditions on the job site at all times. The Contractor shall provide additional signs, barricades, cones, and other safety equipment as necessary to provide safe conditions and to conform to the MUTCD. If the Contractor refuses to provide traffic control as required; or to replace defective traffic control signing, barricades, or cones; the Engineer/Public Works Director may provide the traffic control, flaggers, and equipment. The Engineer/Public Works Director shall reserve the right to stop additional work until adequate traffic control is provided by the Contractor. All costs incurred by the City for traffic control shall be paid by the Contractor prior to acceptance.

Where, in the opinion of the Engineer/Public Works Director, parking is a hazard to through traffic or to construction work, parking may be restricted either entirely or during the time when it creates a hazard. Signs for restricting parking shall be approved by the Engineer/Public Works Director prior to being placed by the Contractor. The Contractor shall be responsible for providing and maintaining the signs if they are used on any street within the project limits. If parking signs are used beyond the confines of the work area, such as in another street being used as a detour, the signs shall be the responsibility of the Contractor. The placement of signs restricting parking shall be as approved by the Engineer/Public Works Director.

The Contractor shall furnish all flagging and furnish and maintain all temporary traffic control signs and devices necessary to control traffic during construction operations. Traffic control signs and devices shall conform to the requirements set forth in the MUTCD.

#### 1-99 APWA SUPPLEMENT

#### 1-01.3 DEFINITIONS (APWA ONLY)

*The section is revised by replacing the definition for Final Acceptance Date with the following:*

#### **Final Acceptance Date**

The date the City Council accepts the completed project.

*The section is supplemented with the following:*

## **Primary streets**

Primary streets are streets that carry the majority of traffic that enters and exits urban areas and that carry the majority of through traffic. Primary streets have either fully-controlled or partially-controlled accesses. Primary streets include interstate highways, state highways, and the following specific streets:

Basin Street – entire length  
Division Street – entire length  
First Avenue NW – entire length  
Nat Washington Way (Southeast Boulevard) - entire length  
Alder Street – entire length

## **Secondary streets**

Secondary streets are streets that distribute trips of moderate lengths between different geographic areas of the city. Secondary streets include all arterials that are not otherwise classified as primary streets. Secondary streets provide access to identifiable areas of the city, but they do not enter into identifiable areas of the city. Secondary streets include the following specific streets:

C Street Northwest – entire length  
C Street Southwest – entire length  
D Street Northeast – entire length  
D Street Southeast – entire length  
Statter Road – entire length  
A Street NE – entire length  
Patrick Road – entire length  
Maringo Road – entire length  
3<sup>rd</sup> Avenue NE – entire length  
5<sup>th</sup> Avenue SE – Nat Washington Way to Airport St  
Railroad Avenue SE – Peachtree Road to City Limits

## **Tertiary collectors**

Tertiary collectors are streets that provide land access and traffic circulation within residential, commercial, and industrial areas of the city. Tertiary collectors differ from primary and secondary streets in that they may enter geographic areas of the city, to distribute traffic from the primary and secondary streets to their ultimate destination within the neighborhood. Tertiary collectors include the following specific streets:

Peachtree Drive – entire length  
Hilltop Drive – entire length  
9<sup>th</sup> Avenue SE – entire length  
2<sup>nd</sup> Avenue SE – entire length  
3<sup>rd</sup> Avenue SE – entire length  
3<sup>rd</sup> Avenue SW – entire length  
4<sup>th</sup> Avenue NW – entire length  
Frey Road NW – entire length  
1<sup>st</sup> Avenue NE – entire length  
K Street NE – entire length

Enterprise Street – entire length  
Airport Street – entire length

### **Residential streets**

Residential streets are all streets that are not classified as a primary street, secondary street, or tertiary collector. The Public Works Director shall classify all proposed streets as a primary street, secondary street, tertiary collector, or residential street.

### **Attorney**

Attorney is the attorney who is duly authorized to act for the City in matters pertaining to law.

### **Block**

The area of a street between two intersections.

### **City**

City is the City of Ephrata.

### **City Council**

City Council is the duly elected or appointed Council of the City of Ephrata, Washington.

### **City Engineer**

City Engineer is the Public Works Director.

### **Compacted Backfill**

Compacted Backfill is any acceptable backfill material that has been compacted to a minimum of 95 percent of the maximum density per Section 2-03.3(14)D.

### **Deferral**

Deferral is a temporary deviation from requirements that allows requirements to be completed at a later date as specified by City Council. Deferrals do not alter the requirements, they merely allow for their completion at a more convenient time for the Developer or the City.

### **Developer**

Developer is a person, firm, corporation, Contractor, subdivider, or other individual or agent of any person or party who is installing municipal improvements. Municipal improvements may include repairs or modifications to existing improvements, or new construction; whether they are proposed by the developer or required per City ordinance. The developer shall assume or cause to be assumed the definition and responsibilities of Contractor (1-01.3).

## **Deviation**

Deviation is a modification to any requirement of the *Community Street and Utility Standards* or *Ephrata Municipal Code* that has been approved by the City Council or Public Works Director. Such a modification may also be in the form of a deferral or a waiver.

## **Drain Rock**

Drain rock is the same as Gravel Backfill for Drains, as amended by Section 9-03.12(5).

## **Main**

Water mains are all potable water pipes that are 4 inches in diameter and larger, and all potable water pipes that serve more than a single service line. Sewer mains are all sewer pipes that are larger than 6 inches in diameter, and all sewer pipe that serves more than a single service line.

## **May**

May is a permissive condition. Where the term “may” is used, it shall be at the discretion of the Engineer/Public Works Director.

## **Pipe Bedding Zone**

Pipe Bedding Zone is the zone around the pipe that is a minimum of 6 inches from any portion of the pipe or its appurtenances.

## **Sand**

Sand is the same as bedding material acceptable by Section 7-09.3(9).

## **Sand Bedding**

Sand bedding is the same as bedding material acceptable by Section 7-09.3(9).

## **Sawcutting**

Sawcutting asphalt is any method allowed by the Engineer/Public Works Director to provide a clean, vertical break for asphalt removal. These methods may include pneumatic cutters, zippers, or wheel cutters.

Sawcutting concrete is any method allowed by the Engineer/Public Works Director that provides for a clean, straight, vertical edge; without any fractures or spalls on the concrete that remains.

## **Select Backfill**

Same as bedding material acceptable by Section 7-09.3(9).

## **Shall**

Shall is a mandatory condition. Where certain requirements in the design or application of the device are described with the "shall" stipulation, it is mandatory when an installation is made that these requirements be met.

## **Should**

Should is an advisory condition. Where the word "should" is used, it is considered to be advisable usage, recommended but not mandatory.

## **Special Provisions**

Special Provisions are plans and specifications that are provided for a specific project. Special Provisions revise Supplemental Specifications and Standard Specifications. In cases of discrepancy, the Special Provisions govern over the Supplemental Specifications and Standard Specifications.

## **Standard Specifications**

Standard Specifications are the *WSDOT Standard Specifications for Road, Bridge and Municipal Construction* as revised by the APWA. Standard Specifications are revised by the Supplemental Specifications and the Special Provisions.

## **Supplemental Specifications**

Supplemental Specifications are the *Community Street and Utility Standards*. Supplemental Specifications are in addition to the Standard Specifications and are revised by Special Provisions. In cases of discrepancy, the Supplemental Specifications govern over the Standard Specifications.

## **Undisturbed Ground**

Undisturbed ground is any ground or soil that is continuous for a minimum of 10 feet in any direction of a thrust block; and that has either never been disturbed or trenched through, or that has been compacted to a minimum of 95 percent of maximum density.

## **Waiver**

Waiver is a permanent deviation that allows alterations to the requirements of the Community Street and Utility Standards or the Ephrata Municipal Code.

## **1-04.2 COORDINATION OF CONTRACT DOCUMENTS, SPECIAL PLANS, SPECIAL PROVISIONS, -SPECIFICATIONS, AND ADDENDA (APWA ONLY)**

*The Section is deleted.*

## **1-05.4 CONFORMITY WITH AND DEVIATIONS FROM CONSTRUCTION STAKES (APWA ONLY)**

#### 1-05.4(1) ROADWAY AND UTILITY SURVEYS (APWA ONLY)

*The section is replaced with the following:*

The Developer shall hire a professional land surveyor to set the following construction stakes and marks establishing lines, slopes, and grade; and shall provide a copy of the survey notes to the Engineer/Public Works Director:

1. Street construction C Offset stakes two (2) to five (5) feet behind sidewalk to top of curb elevation at maximum 50-foot intervals.
2. Gravity sewer main construction C Offset stakes to pipe centerline and invert at changes in grade or alignment, and maximum 50-foot intervals.
3. Water main and sanitary sewer force main construction C Offset stakes to pipe centerline and top of pipe at maximum 100-foot intervals and at changes in alignment.
4. Structures C a minimum of 2 offset stakes for location and elevation.
5. Finish grade for paving in curb streets C 1 row of blue tops at crown line at 50-foot intervals.
6. Subgrade for curbed streets C No stakes are required. Contractor may set subgrade from offset cut and fill stakes if desired.

#### 1-05.12 FINAL ACCEPTANCE (APWA ONLY)

*The section is replaced with the following:*

Acceptance by the City Council shall constitute final acceptance of the project.

Final acceptance shall not constitute acceptance of any unauthorized or defective work or material. The City shall not be barred from requiring the Contractor to remove, replace, repair, or dispose of any unauthorized or defective work or from recovering damages for any such work or material.

### **DIVISION 2 EARTHWORK**

#### 2-01 CLEARING, GRUBBING, AND ROADSIDE CLEANUP

##### 2-01.2 DISPOSAL OF USABLE MATERIAL AND DEBRIS

*The section is revised by replacing paragraph 3 with the following:*

The Contractor shall dispose of all debris in accordance with Section 2-01.2(2), Disposal Method No. 2--Waste Site.

#### 2-02 REMOVAL OF STRUCTURES AND OBSTRUCTIONS

##### 2-02.3 CONSTRUCTION REQUIREMENTS

*The section is supplemented with the following:*

The removal of street improvements shall be conducted in such a manner as not to injure utilities and any portion of the improvement that is to remain in place. The Contractor shall be responsible for damage to improvements or utilities caused by careless removal.

The Contractor shall remove manholes, catch basins, and structures as shown on the plans, or where structures or installations of concrete, brick, block, or other items interfere with the construction. All abandoned pipe openings shall be plugged watertight with grout or Class 3000 concrete.

Where the structures are removed, the voids shall be backfilled with suitable material and compacted to 95 percent of maximum density.

Unless otherwise directed, all casting, pipe, and other material of recoverable value taken from the discarded facilities shall be carefully salvaged and delivered to the City in good condition and in such order of salvage as the Engineer/Public Works Director may direct. Items deemed of no value by the Engineer/Public Works Director shall become the property of the Contractor and shall be removed from the site.

#### 2-02.3(3) REMOVAL OF PAVEMENT, SIDEWALKS, AND CURBS

*The section is replaced with the following:*

Pavement shall be removed as shown on the Plans and as directed by the Engineer/Public Works Director.

Sidewalks and curbs shall be removed as shown on the Plans and as directed by the Engineer/Public Works Director. Sidewalk aprons and private walks on street grading and paving projects shall be removed to the extent necessary to provide for construction of pavements and curbs. The Contractor shall remove any additional sidewalk required to provide proper connections and grades, as determined by the Engineer/Public Works Director.

The Contractor shall dispose of all asphalt and concrete off site.

THE FOLLOWING SECTION (2-02.3(4)) IS ADDED.

#### 2-02.3(4) REMOVAL AND/OR REPLACEMENT OF FENCE

The Contractor shall remove and replace fences at those locations as shown on the construction plans and as directed by the Engineer/Public Works Director. The Contractor shall remove fences and vegetation that obstruct or limit access to city utilities as directed by the Ephrata Public Works Director, Engineer or Construction Inspector.

#### 2-03 ROADWAY EXCAVATION AND EMBANKMENT

##### 2-03.1 DESCRIPTION

*The section is supplemented with the following:*

The work shall include the removal of asphalt concrete pavement, bituminous surface treatment, and cement concrete pavement within the roadway as shown on the plans or as directed by the Engineer/Public Works Director. The work shall also include the relocation of existing signs and mailboxes, and the removal and salvaging of existing landscaping improvements, plants, and irrigation lines lying within the limits of excavation or embankment.

## 2-03.3 CONSTRUCTION REQUIREMENTS

### 2-03.3(14) EMBANKMENT CONSTRUCTION

#### 2-03.3(14)C COMPACTING EARTH EMBANKMENTS

*The section is revised by replacing the second sentence of Method B with the following:*

All material below the 2-foot level shall also be compacted to 95 percent of maximum density.

#### 2-03.3(14)D COMPACTION AND MOISTURE CONTROL TESTS

*The section is replaced with the following:*

Maximum density and optimum moisture for materials with more than 35 percent retained on the No. 4 sieve shall be determined by **WSDOT Test Method No. T 606, or the contractor may assume a maximum density of 145 Lb/CF**. This variation does not modify standard testing procedures that are defined by WSDOT or AASHTO.

Maximum density and optimum moisture for materials with 35 percent or less retained on the No. 4 sieve shall be determined by the WSDOT FOP for AASHTO T 99, Method B/ASTM 1557 Method D, with the following exceptions:

1. 10-pound hammer shall be used.
2. 18-inch drop shall be used.
3. 5 lifts per test

In-place densities and moisture content shall be determined by using WSDOT Test Method No. 615.

The Contractor shall provide all necessary excavation, vibratory compaction equipment, and labor to facilitate taking compaction tests. The Contractor shall provide the test equipment and operator. The Contractor shall provide all necessary test pits and additional work as directed by the Engineer/Public Works Director. The Contractor shall provide the Engineer/Public Works Director an opportunity to be present during compaction testing. All compaction results shall be with referral to required maximum densities.

THE FOLLOWING SECTION (2-03.3(19)) IS ADDED.

## 2-03.3(19) PROTECTION OF EXISTING IMPROVEMENTS

### 2-03.3(19)A GENERAL

Utilities of record shall be shown on the construction plans insofar as it is possible to do so. The Contractor shall be aware that the approved plans may not show all subsurface objects or installations; and failure of the plans to show such underground objects or installations shall not relieve the Contractor from being responsible to call for utility locates and to make independent checks on the ground; nor does such failure relieve the Contractor from all liability for damages resulting from the work.

The Contractor shall give proper notification to the agencies that have utilities in place and to cooperate with these agencies in the protection and relocation of the various underground installations. These agencies may give assistance in the location of the various utilities, but this shall not relieve the Contractor from responsibility for any damage incurred, except as provided by State law.

The Contractor shall protect and preserve existing manholes, water meters, catch basins, and other items lying within the right-of-way.

### 2-03.3(19)B SEWERS AND APPURTENANCES

The Contractor shall place a 3/4-inch thick plywood shield or 1/4 inch steel plate over all existing manhole channels within the construction area, to prevent earth or debris from falling into live manholes. The Contractor shall cover the shield with a 6-foot by 6-foot by 20-mil plastic tarp. The Contractor shall remove the shield after all debris has been removed from the manhole, after the ring and cover has been adjusted to final grade, and within 24 hours after final adjustment. The Contractor shall remove all debris that falls into the channel and shall rod or flush all channels that contain construction debris. The Contractor shall provide a trap at the downstream manhole for any flushing or rodding procedures that may be required.

### 2-03.3(19)C DAMAGED WATER MAINS AND APPURTENANCES

The Contractor shall repair or replace any water valves, hydrants, valve boxes and other appurtenances that have been damaged during construction.

### 2-03.3(19)D PUBLIC AND PRIVATE UTILITIES

Utilities within the City right-of-way, other than those owned and operated by the City, are in the right-of-way pursuant to franchises or to rights claimed under the laws of the U.S.A. or the State of Washington. The respective utility agencies are responsible for all modifications and relocations of their facilities, as directed by the City. The Contractor shall coordinate all work with the work of agencies that are affected by the construction work. The Contractor shall protect all public and private utilities from damage.

The Contractor shall be liable for all damages to public or private utilities resulting from the Contractor's operations, and the Contractor shall hold the City harmless from all damages resulting from the Contractor's operations.

## 2-03.3(19)E EXISTING IMPROVEMENTS

The Contractor shall remove and salvage all landscaping improvements, plants, and irrigation lines lying within the limits of excavation or embankment to the property owner, as directed by the Engineer/Public Works Director.

The Contractor shall carefully cut and cap remaining irrigation lines within the right-of-way and within 6 inches behind back of sidewalk and re-install sprinkler heads prior to end of project.

The Contractor shall relocate existing mailboxes as required to provide continuous mail service to all residents.

## 2-06 SUBGRADE PREPARATION

### 2-06.3 CONSTRUCTION REQUIREMENTS

#### 2-06.3(1) SUBGRADE FOR SURFACING

*The section is supplemented with the following:*

7. All underground work contemplated in the area of the subgrade shall be completed and properly compacted before final subgrade is prepared for approval.

THE FOLLOWING SECTION (2-06.3(3)) IS ADDED.

#### 2-06.3(3) GRADE TOLERANCE

Grade tolerance for surfaces to receive crushed surfacing or ballast shall be +0.02 feet. The Contractor may leave areas of the surface lower than the grade established by the Engineer/Public Works Director; however, these low areas shall be filled with crushed surfacing top course.

## 2-07 WATERING

### 2-07.3 CONSTRUCTION REQUIREMENTS

*The section is supplemented with the following:*

The Contractor shall apply water for dust control as directed by the Engineer/Public Works Director.

THE FOLLOWING SECTION (2-07.3(A)) IS ADDED.

#### 2-07.3(1) CITY WATER SOURCE

The Contractor shall secure permission from and comply with all requirements of the City before obtaining water from a City water source. The Contractor shall measure all water obtained from a City water source with a hydrant meter that has been obtained from the City Water Department at 900 A Street SE. The Contractor shall be responsible for the hydrant meter rental rate and water charges. Current water

meter rental rates and water charges may be obtained by contacting the Water Department. The Contractor shall be responsible to protect the hydrant meter and associated apparatus from damage, loss, or theft until all items are returned to the possession of the Water Department.

The Contractor shall furnish all connectors, wrenches, valves and small tools that may be necessary to meet the requirements of the City. Hydrants shall only be operated with hydrant wrenches.

When operating a hydrant valve, the Contractor shall make certain that the hydrant valve is completely open or shut. An approved auxiliary valve shall be provided on the outlet line for control purposes. Fire hydrant valves shall be closed slowly to prevent surging of the system.

When use of the hydrant is complete, the Contractor shall notify the Water Department so that the hydrant may be inspected for possible damage. Any damage resulting from the use of the hydrant by the Contractor, including theft of City equipment, shall be repaired or replaced by the City, and the cost thereof shall be billed to the Contractor.

## 2-09 STRUCTURE EXCAVATION

### 2-09.3 CONSTRUCTION REQUIREMENTS

#### 2-09.3(4) CONSTRUCTION REQUIREMENTS, STRUCTURE EXCAVATION, CLASS B

*The section is revised by replacing paragraph 3 with the following:*

The Contractor shall provide excavation and trench safety systems that meet the requirements of the Washington Industrial Safety and Health Act, RCW Chapter 49.17, and WAC 296-155 if workers enter any trench or other excavation that is 4 feet or more in depth. Excavation and trench safety systems may include shoring, extra trench excavation, or other methods acceptable to the Department of Labor and Industries. The Contractor alone shall be responsible for worker safety and the City assumes no responsibility.

*The section is supplemented with the following:*

The Engineer/Public Works Director may approve a trench to remain open overnight in low-volume traffic areas. This allows a Contractor to avoid backfill and re-excavation operations in the area directly surrounding the end of a pipe. The Contractor shall submit a physical barrier protection plan for approval by the Engineer/Public Works Director. The plan shall include high-strength polymer barrier fencing and obstructions large enough to discourage entry to the excavation.

## 2-11 TRIMMING AND CLEANUP

### 2-11.1 DESCRIPTION

*The section is replaced with the following:*

This work consists of neatly finishing construction areas to the lines, grades, and cross sections shown on the Plans and as directed by the Engineer/Public Works Director. The work shall include trimming and cleaning the entire roadway including the roadbed, planting areas, sidewalks, shoulders, driveways, alleys, side street approaches, slopes, ditches, and utility trenches.

### 2-11.3 CONSTRUCTION REQUIREMENTS

*The section is replaced with the following:*

Slopes, sidewalk areas, planting areas, and roadway shall be smoothed and finished to the required cross section and grade by means of a grading machine insofar as it is possible to do so without damaging existing improvements, trees, and shrubs. Machine dressing shall be supplemented by hand work to meet requirements outlined herein, as verified by the Engineer/Public Works Director.

The project shall appear uniform in all respects after the Contractor has completed cleaning and dressing the project. All graded areas shall be true to line and grade as shown on the typical sections and as directed by the Engineer/Public Works Director. The Contractor shall fill and dress out the area to the sidewalk and curb regardless of limits shown on the plans. The Contractor shall place fill material high enough to allow for final settlement; however, the raised surface shall present a uniform appearance.

The Contractor shall remove all rocks larger than 2 inches in diameter for the entire surface of the construction area. The Contractor shall dispose the 2-inch and larger rocks as required for other waste material. The Contractor shall remove irregularities in slopes and shall dress the slopes to provide a uniformly-sloped surface.

All windrows of earth shall be removed entirely. Trash of all kinds resulting from clearing and grubbing or grading operations shall be removed and shall not be placed in areas adjacent to the project. Where machine operations have broken down brush and trees beyond the limits of the project, the Contractor shall remove and dispose of this material at no expense to the City.

The Contractor shall clean all debris from all drainage facilities that result from construction operations.

The Contractor shall remove and dispose of all construction stakes.

The Contractor shall thoroughly clean all pavements and oil mat surfaces. The Contractor shall also clean all existing improvements such as curbs, gutters, walls, sidewalks, castings, and other structures and appurtenances that have been spattered during construction, as directed by the Engineer/Public Works Director.

The Contractor shall flush the street at the conclusion of the project. The Contractor shall furnish all water required for flushing. The Contractor shall also clean all sidewalks from debris.

The Contractor shall shape the entire area that has been disturbed by construction in undeveloped areas such that upon project completion the construction area shall

present a uniform appearance that blends into the contour of the adjacent properties.

## 2-12 CONSTRUCTION GEOTEXTILE

### 2-12.2 MATERIALS

*The section is revised by deleting paragraph 3.*

## **DIVISION 4 BASES**

### 4-04 BALLAST AND CRUSHED SURFACING

#### 4-04.3 CONSTRUCTION REQUIREMENTS

##### 4-04.3(2) SUBGRADE

*The section is supplemented with the following:*

The Contractor shall give the Engineer/Public Works Director twenty-four (24) hours notice when construction of the subgrade has been completed. The Contractor shall not place any crushed surfacing or ballast until the subgrade has been measured and approved by the Engineer/Public Works Director. Any areas not conforming to the tolerances shall be corrected by the Contractor and re-measured and approved by the Engineer/Public Works Director prior to proceeding with the work.

##### 4-04.3(5) SHAPING AND COMPACTION

*The section is revised by replacing sentence 1 of paragraph 1 with the following:*

Immediately following spreading and final shaping, the Contractor shall compact each layer of surfacing to a minimum of 95 percent of the maximum density as determined by Section 2-03.3(14)D before the next succeeding layer of surfacing or pavement is placed.

*The section is supplemented with the following:*

Grade tolerance for the surface to receive asphalt concrete shall be plus 0.02 feet or minus 0.04 feet. The Contractor shall give the Engineer/Public Works Director twenty-four (24) hours notice when construction of crushed surfacing top course has been completed. The Contractor shall not place any asphalt tack until the finished grade has been measured and approved by the Engineer/Public Works Director. Any areas not conforming to the above tolerance shall be corrected by the Contractor and re-measured and approved by the Engineer/Public Works Director prior to proceeding with the work.

##### 4-04.3(10) HOURS OF WORK

*The section is supplemented with the following:*

The Contractor shall provide lighting and additional traffic control, as approved by the Engineer/Public Works Director, to assure the safety of the public if the work progresses during hours of darkness. The Contractor shall obtain City Council approval prior to working between the hours of 10 p.m. and 7 a.m.

## **DIVISION 5 SURFACE TREATMENTS AND PAVEMENTS**

*The entire Section 5-04 is replaced with the same Section 5-04 of the 2002 or most current edition of WSDOT/APWA Standard Specifications for Road, Bridge, and Municipal Construction with modifications as follows:*

### 5-04 ASPHALT CONCRETE PAVEMENT

#### 5-04.3 CONSTRUCTION REQUIREMENTS

##### 5-04.3(4) ROLLERS

*The section is revised by replacing sentence 2 of paragraph 1 with the following:*

The Contractor shall have a minimum of 2 dual-axle, steel-wheeled, tandem rollers on the job, weighing a minimum of 8 tons each, prior to beginning asphalt paving operations. For each additional paver with a separate operator, the Contractor shall provide 2 additional rollers as stated above. The minimum roller requirement may be reduced if the total amount of asphalt included in the total contract is 1000 tons or less.

##### 5-04.3(5) CONDITIONING OF EXISTING SURFACE

*The section is revised by replacing paragraph 2 with the following:*

The Contractor shall pre-level all uneven or broken surfaces over which asphalt concrete is to be placed. The pre-level shall be accomplished by using asphalt concrete pavement 3/8" HMA that is placed with an asphalt paver. The Engineer/Public Works Director may approve hand raking as a method for pre-leveling localized low spots.

##### 5-04.3(5)A PREPARATION OF EXISTING SURFACES

*The section is supplemented by adding the following to the first paragraph:*

All vegetation shall be completely removed by burning.

##### 5-04.3(9) SPREADING AND FINISHING

*The section is supplemented with the following:*

A minimum paving crew shall include a paver operator, screed operator, 2 roller operators, and 2 rakers. The Contractor shall not start paving until the minimum paving crews are on site, unless approved by the Engineer/Public Works Director.

The Contractor shall apply asphaltic emulsion paint binder (tack coat) to all existing asphalt surfaces and to curbs, gutters, and appurtenances that will be covered by asphalt. The tack coat shall cover the entire surface.

5-04.3(11) JOINTS

*The section is supplemented by adding the following sentence to paragraph 4:*

A cold pavement joint shall be defined as a joint in place more than 4 hours or as a joint with a temperature less than 100°F.

THE FOLLOWING SECTIONS (5-06) ARE ADDED.

5-06 ASPHALT CONCRETE PAVEMENT PATCHING

5-06.1 DESCRIPTION

The work includes removal of asphalt or Portland Cement Concrete pavement, placement of CSTC, application of tack coat, and placement of asphalt concrete pavement.

5-06.2 MATERIALS

Materials shall meet the requirements of the following sections:

Asphalt Concrete Pavement.....	5-04
Crushed Surfacing Base Course.....	9-03.9(3)

5-06.3 CONSTRUCTION REQUIREMENTS

5-06.3(1) GENERAL

The Contractor shall schedule all pavement patching to accommodate the demands of traffic.

The Contractor shall patch all areas where pavement has been removed within ten (10) calendar days of the removal of original asphalt. Deviation to this standard may be allowed with sufficient cause and only after written permission from the City Public Works Director.

Sawcutting shall be performed as shown on the plans or as directed by the Engineer/Public Works Director.

The Contractor shall provide mechanical compaction for each lift of asphalt by means of a roller, plate whacker, jumping jack, or hand tamper. However, the Contractor shall compact any patch that exceeds 4-feet in width with a roller.

The Contractor shall expand the perimeter of the asphalt patch as necessary to provide an even grade adjacent to the patch that doesn't have any humps or dips, as directed by the Engineer/Public Works Director. The Contractor shall widen all asphalt patches to allow room for the compaction equipment that is being used.

Additionally, the Contractor shall widen all patches that are adjacent to the curb to provide for a patch with a maximum cross slope of 6 percent towards the curb.

The Contractor shall apply asphaltic emulsion paint binder to all existing surfaces of ACP, curbs, gutters, and appurtenances that will be covered by asphalt. The tack coat shall cover the entire surface.

#### 5-06.3(2) GRADE TOLERANCE

All asphalt patches shall be a minimum of 3-inches thick. Additionally, asphalt patches shall match the depth of adjacent asphalt if the adjacent asphalt is between 3-inches thick and 6-inches thick. And, asphalt patches shall be a minimum of 6-inches thick if the adjacent asphalt is 6-inches or thicker. However, the Engineer/Public Works Director may allow a transition from thicker asphalt depths to a minimum of 3 inches for large patches.

Grade tolerance for the surface to receive asphalt concrete shall be in accordance with Section 4-04.3(5). The Contractor shall not place any asphalt until the base has been approved by the Engineer/Public Works Director. The Contractor shall correct any areas that do not conform to the above tolerance and the areas shall be approved by the Engineer/Public Works Director prior to proceeding with the work.

#### 5-06.3(3) SPREADING AND FINISHING

The Contractor may apply asphalt in a single lift, with the maximum depth of each compacted lift being not more than 2½ inches. Additional lifts in 2½ inch increments may be required as directed by the Engineer/Public Works Director. Asphalt concrete pavement shall be compacted in accordance with section 5-04.3(10).

The Contractor shall use a paving machine or latent boxes for all patching in excess of 8 feet wide.

#### 5-06.3(4) TRAFFIC CONTROL

Proper signs, barricades, lights, and other warning devices shall be maintained twenty-four (24) hours a-day until the patch is completed and ready for traffic.

#### 5-06.3(5) TEMPORARY PATCHES

The Contractor shall place temporary patches within ten (10) calendar days if permanent patches cannot be constructed within ten (10) calendar days following excavation. Temporary patches consist of cold plant mix asphalt or Portland Cement Concrete. For cold plant mix patches, the Contractor shall provide proof of availability of cold plant mix prior to cutting the pavement.

Physical completion shall not be declared until the Contractor has replaced all temporary patches with permanent patches.

#### 5-06.3(5)A TEMPORARY PATCHES B COLD PLANT MIX ASPHALT

1. Temporary cold mix patches shall be a minimum of two (2) inches thick.
2. Temporary patches shall match existing grade.

3. The Contractor shall replace temporary patches with permanent patches prior to May 15<sup>th</sup>.
4. The Contractor may be required to expand temporary patches a minimum of twelve (12) more inches around the perimeter of a temporary patch prior to placement of a permanent patch. The Contractor shall saw cut the additional asphalt required for expanding the patch.

5-06.3(5)B TEMPORARY PATCHES B PORTLAND CEMENT CONCRETE

1. Portland Cement Concrete for temporary patches shall be Class 3000.
2. Temporary patches shall be a minimum of six (6) inches in depth.
3. Temporary patches shall match existing grade.
4. The Contractor shall place steel plates over the patch area and shall restore traffic within two (2) hours after placing Portland Cement Concrete. The Contractor shall remove the steel plates after the Portland Cement Concrete has set up for a minimum of seven (7) calendar days.
5. The Contractor shall replace temporary patches with permanent patches prior to May 15<sup>th</sup>.
6. The Contractor may be required to expand temporary patches a minimum of twelve (12) more inches around the perimeter of a temporary patch prior to placement of a permanent patch. The Contractor shall saw cut the additional asphalt required for expanding the patch.

5-06.3(6) OIL MAT STREETS

The Contractor shall trim the existing oil mat in a straight line. The Contractor shall place and compact asphalt concrete pavement Class B in accordance with section 5-04.3(10) after the subgrade has been prepared as shown on the drawings or as directed by the Engineer/Public Works Director.

5-06.3(7) EXISTING PORTLAND CEMENT CONCRETE PATCHES

The Contractor shall remove and replace existing Portland Cement Concrete patches with asphalt concrete pavement Class B prior to overlay. All new asphalt patches shall be in accordance with this section.

THE FOLLOWING SECTION (5-07) IS ADDED

5-07 ADJUSTMENT OF MANHOLES, CATCH BASINS, MONUMENT CASES, VALVE BOXES, AND CLEAN OUTS TO GRADE.

5-07.1 DESCRIPTION

This work shall consist of adjusting manholes, monument cases, water valve boxes, and clean outs to grade.

5-07.2 MATERIALS

*Materials shall meet requirements of the following sections:*

Ballast and Crushed Surfacing Top Course	4-04
Asphalt Concrete Pavement	5-04

Portland Cement Concrete Class 3000 shall be used for adjusting utilities.

Asphalt concrete pavement 3/8" HMA shall be used for adjusting utilities; however, the Engineer/Public Works Director may approve utility adjustment patches with 5/8" HMA asphalt provided that larger aggregate is raked from the exposed patch.

### 5-07.3 CONSTRUCTION REQUIREMENTS

#### 5-07.3(1) PAVED SURFACES

The Contractor shall provide four (4) to sixteen (16) inches of adjustment rings between the cone or flattop section of a manhole and the bottom side of the manhole frame. Final elevation of the frame and cover shall be 1/4-inch below final street grade.

The Contractor shall remove frames and adjustment rings from manholes and similar structures so that the structure is a minimum of eight (8) inches below subgrade whenever the structure is being rehabilitated or adjusted in conjunction with street paving or patching projects. The Contractor shall cover the lowered structures with a temporary metal cover. The Contractor shall reference each structure so that they may be easily found upon completion of the street work.

The Contractor shall adjust manholes, valve boxes, monuments, and other structures in the roadway after the pavement is completed. The Contractor shall locate the center of each structure from references that were previously established by the Contractor. The Contractor shall cut and remove asphalt pavement in a neat circle or square. The diameter of the circle or side of the square shall be equal to the outside diameter of the frame plus two (2) feet to allow for compaction. The Contractor shall remove the crushed rock and base material around the appurtenance to the depth of required concrete as shown on the respective detail. The Contractor shall adjust the top of the appurtenance to 1/4-inch below finish grade of the asphalt. Wedges used for adjusting shall be non-organic. A maximum of three (3) wedges shall be used for any adjustment. No wedges shall protrude inside of the frame and all loose wedges shall be removed prior to pouring Portland Cement Concrete. The Contractor shall compact the excavation area and place Portland Cement Concrete to within 1.5 to 2 inches of the top of the structure.

The Contractor shall complete the adjustment on the following day by applying tack coat to the concrete, edges of the pavement, and the outer edge of the casting; and by placing and compacting asphalt concrete with hand tampers, plate whackers, or rollers. The final elevation of the patch shall match the existing paved surface.

The Contractor shall apply grout seal flush with the inside of the frame and adjustment rings upon completion of the final adjustment patch. The Contractor shall remove any concrete or grout within the structure at the completion of the adjustment.

#### 5-07.3(2) UNPAVED SURFACES

The Contractor shall remove frames and adjustment rings from manholes and similar structures so that the structure is a minimum of six (6) inches below subgrade whenever the structure is being rehabilitated or adjusted in conjunction with street paving or patching projects. The Contractor shall cover the lowered structures with a temporary metal cover. The Contractor shall reference each structure so that it may be easily found upon completion of the street work.

The Contractor shall install cement concrete pads around all manholes, valve boxes, monuments, and other structures that are not within paved surfaces. The length of each side or diameter of the pad shall be per the respective detail. Final elevation of the pad in graded roadways shall be at final street grade; whereas the final elevation for frames and covers outside of roadways shall be at final grade of existing terrain. All pads in the roadway shall be sloped towards the direction of traffic.

The Contractor shall adjust manholes, valve boxes, monuments, and other structures in the roadway after the final grading is completed. The Contractor shall locate the center of each structure from references that were previously established by the Contractor. The Contractor shall excavate around the top of each structure in a neat square. The Contractor shall remove the material around the structure to a depth required for concrete as shown on the respective detail and to provide for a minimum of six (6) inch depth for the placement of a concrete pad. The Contractor shall adjust the top of the appurtenance to the required elevation of the top of pad. Wedges used for adjusting shall be non-organic. A maximum of three (3) wedges shall be used for any adjustment. Wedges shall not protrude inside of the frame and all loose wedges shall be removed prior to placing Portland Cement Concrete. The Contractor shall compact the excavation area and place Portland Cement Concrete to the top of the frame and cover.

The Contractor shall apply grout seal flush with the inside of the frame and adjustment rings after the pads have been placed. The Contractor shall remove any concrete or grout within the structure at the completion of the adjustment. The Contractor shall complete the adjustment by removing the forms and by backfilling around and above the pad as may be required.

## **DIVISION 6 STRUCTURES**

### 6-02 CONCRETE STRUCTURES

#### 6-02.3 CONSTRUCTION REQUIREMENTS

##### 6-02.3(2)B COMMERCIAL CONCRETE

*The section is replaced with the following:*

Commercial class concrete shall not be used on City projects except as allowed by the Engineer/Public Works Director for utility frame adjustments.

6-02.3(4)C CONSISTENCY

*The section is revised by replacing Item 3 and Item 5 with the following:*

1. Four (4) inches for non-vibrated concrete (Includes class 4000P).

*The section is revised by deleting the last sentence of the paragraph.*

**DIVISION 7 DRAINAGE STRUCTURES, STORM SEWERS, SANITARY SEWERS, WATER MAINS, AND CONDUITS**

7-04 STORM SEWERS

7-04.2 MATERIALS

*The section is replaced with the following:*

Materials shall meet the requirements of the following sections:

Reinforced Concrete Storm Sewer Pipe	9-05.7(2)
PVC Pipe	9-05.12(1)
Ductile Iron Sewer Pipe	9-05.13

The Contractor shall use ductile iron pipe whenever the depth of cover is a minimum of eighteen (18) inches but less than thirty-six (36) inches.

7-04.3(1)F LOW PRESSURE AIR TEST FOR STORM SEWERS CONSTRUCTED OF NON AIR-PERMEABLE MATERIALS

*The section is revised by deleting the last paragraph.*

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

7-05.2 MATERIALS

*The section is supplemented with the following:*

Geotextile Material for Drainage	9-33
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Utility castings shall be as shown on the appropriate construction detail.

7-05.3 CONSTRUCTION REQUIREMENTS

*The section is supplemented with the following:*

Entry couplings shall be used for all PVC pipe penetrations.

The manhole lid and ladder rungs shall be located directly above the inflow pipe.

The Contractor shall bring channels together smoothly with well rounded junctions. Channel sides shall be carried up vertically to the crown elevation of the various pipes, and the concrete shelf between channels shall be smoothly finished and warped evenly with slopes to drain.

The Contractor shall seal catch basins on the outside by placing concrete from 1-inch below the top of the base section to 1.5-inch below the top of the frame. The Contractor shall seal the frame and adjustment rings inside the catch basin with a non-shrink-type concrete or grout.

The Contractor shall install new frames and grates as directed by the Engineer/Public Works Director whenever existing frames and grates are being adjusted. The Contractor shall deliver salvageable frames and grates to the City Shop at 900 A Street SE if the Engineer/Public Works Director determines that they are salvageable; otherwise they shall become the property of the Contractor.

The Contractor shall store construction fabric for drywells in a dry place off the ground. Rolls shall be placed straight in piles. The construction material shall not be exposed to sunlight for more than a total of 40 hours, either during storage or placement.

The surface to be covered by the fabric shall be graded uniformly so that it is free from protruding rocks or other objects. The fabric shall be placed loosely as a liner for the ditch to avoid placing the fabric in tension upon backfilling. The fabric shall be placed with minimum overlaps of one (1) foot. The Contractor shall not operate equipment directly on the fabric. The Contractor shall repair or replace any fabric that is punctured or disturbed during construction in accordance with Section 2-12.

The Contractor shall provide mechanical compaction for drain rock that is placed below the base prior to placing the base.

#### 7-05.3(1) ADJUSTING MANHOLES AND CATCH BASINS TO GRADE

*The section is supplemented with the following:*

Manholes and catch basins shall be adjusted in accordance with Section 5-07.

#### 7-05.3(2) ABANDON EXISTING MANHOLES

*The section is revised by replacing the first sentence of the Section with the following:*

Where it is required that an existing manhole be abandoned, the structure shall be broken down to a depth of at least 4 feet below the revised finish grade, all connections shall be plugged, and the manhole shall be filled with select backfill and compacted to 95 percent maximum density.

#### 7-05.3(3) CONNECTIONS TO EXISTING MANHOLES

*The section is supplemented with the following:*

The Contractor shall carefully penetrate the wall of the manhole at the elevation shown on the plans. PVC pipe penetrations shall be made using an approved pipe entry coupling.

THE FOLLOWING SECTION (7-05.3(5)) IS ADDED

7-05.3(5) DRYWELL

The Contractor shall compact the base layer of gravel backfill prior to placing the drywell base.

Construction geotextile shall be placed between the drain rock and the existing soil.

7-08 GENERAL PIPE INSTALLATION REQUIREMENTS

7-08.2 MATERIALS

*The section is replaced with the following:*

Gravel Backfill for Pipe Zone Bedding	9-03.12(3)
Gravel Backfill for Drains	9-03.12(4)

7-08.3 CONSTRUCTION REQUIREMENTS

7-08.3(1) EXCAVATION AND PREPARATION OF TRENCH

7-08.3(1)C BEDDING THE PIPE

*The section is revised by replacing the first sentence of paragraph 2 with the following:*

Pipe zone bedding material shall be placed in loose layers and compacted to 95 percent of maximum density.

*The section is supplemented with the following:*

The Contractor shall install pipe zone bedding material as shown on the Trenching and Bedding Detail. Pipe bedding shall conform to Section 9-03.12 (3) for pipes installed above groundwater. Pipe bedding shall conform to Section 9-03.12(4) for pipes installed in groundwater.

7-08.3(2) LAYING PIPE

7-08.3(2)A SURVEY LINE AND GRADE

*The section is revised by replacing the first paragraph with the following:*

Survey line and grade control hubs shall be set under the direct supervision of a professional land surveyor, retained by the Developer.

7-08.3(2)G JOINTING OF DISSIMILAR PIPE

*The section is replaced with the following:*

Dissimilar pipe shall be jointed with factory-fabricated adapter coupling as approved by the Engineer/Public Works Director.

7-08.3(3) BACKFILLING

*The section is revised by replacing sentences 3 thru 6 of paragraph 4 with the following:*

The Contractor shall place backfill above the pipe zone bedding in horizontal layers that are a maximum of 18-inches thick with a maximum aggregate of 12-inches or less. The Contractor shall compact each layer to a minimum of 95 percent maximum density. Maximum density and optimum moisture shall be in accordance with Compaction and Moisture Control Tests of Section 2-03.3(14)D. Material that is excavated from the trench may be used for backfill above the pipe zone, except that organic material, frozen lumps, wood, rocks, or pavement chunks shall not be used.

THE FOLLOWING SECTION (7-08.3(5)) IS ADDED.

7-08.3(5) DETECTABLE MARKING TAPE

The Contractor shall install detectable marking tape above all culverts, storm sewers, and sanitary sewer mains. The tape shall be placed 2 feet above the top of the pipe for the entire length of the pipe.

7-09 WATER MAINS

7-09.2 MATERIALS

*The section is revised by deleting the following materials:*

Steel Pipe (6 inches and over)	9-30.1(4)A
Fittings for Steel Pipe (6 inches and over)	9-30.2(4)A
Steel Pipe (4 inches and under)	9-30.1(4)B
Fittings for Steel Pipe (4 inches and under)	9-30.2(4)B

*The Section is supplemented by adding the following to paragraph 2.*

**All water mains shall be constructed of PVC pipe unless approved by the Public Works Director.**

### 7-09.3 CONSTRUCTION REQUIREMENTS

*The Section is supplemented with the following:*

Hydrant assemblies shall be installed within three (3) feet of dead-end water mains. Blow off assemblies may be approved by the Engineer/Public Works Director in lieu of hydrant assemblies for temporary dead-end water mains.

#### 7-09.3(5) GRADE AND ALIGNMENT

*The section is revised by replacing sentence 1 of paragraph 3 with the following:*

The depth of trenching for water mains shall provide a minimum cover of 42 inches over the top of the pipe unless otherwise shown on the plans or approved by the Engineer/Public Works Director.

#### 7-09.3(7) TRENCH EXCAVATION

*The section is revised by replacing paragraph 3 with the following:*

Trench excavation within right-of-way or municipal easements shall not be more than 150 feet ahead of the pipe-laying operation. The Engineer/Public Works Director may approve a trench to remain open overnight in low-volume traffic areas. This allows a Contractor to avoid backfill and re-excavation operations in the area directly surrounding the end of a pipe. The Contractor shall submit a physical barrier protection plan for approval by the Engineer/Public Works Director. The plan shall include high-strength polymer barrier fencing and obstructions large enough to discourage entry to the excavation.

#### 7-09.3(7)B ROCK EXCAVATION

*The section is revised by replacing sentence 2 of paragraph 1 with the following:*

Ledge rock, boulders, or stones shall be removed to provide a minimum clearance of six (6) inches under the pipe.

#### 7-09.3(9) BEDDING THE PIPE

*The section is revised by replacing sentence 1 and 2 with the following:*

Pipe zone bedding shall be installed as shown on the Trenching and Bedding Detail. Pipe zone bedding shall conform to Section 9-03.12(3) for pipes installed above groundwater and above seasonal groundwater zones. Pipe zone bedding shall conform to Section 9-03.12(4) for pipes installed in groundwater and in seasonal groundwater zones.

#### 7-09.3(10) BACKFILLING TRENCHES

*The section is supplemented with the following:*

Pipe zone bedding is required around all water pipe. Pipe zone bedding shall be placed as shown on the Trenching and Bedding Detail.

### 7-09.3(11) COMPACTION OF BACKFILL

*The section is revised by replacing the second sentence of paragraph 2 with the following:*

In such cases, the backfill material shall be placed in successive layers not exceeding eighteen (18) inches in loose thickness, and each layer shall be compacted with mechanical tampers to the density specified herein.

### 7-09.3(15) LAYING OF PIPE ON CURVES

#### 7-09.3(15)A DUCTILE IRON PIPE

*The section is revised by replacing the last sentence of paragraph 2 with the following:*

The Contractor shall provide all special fittings required to install the pipe to the line and grade shown on the plans at no cost to the City.

### 7-09.3(17) LAYING DUCTILE IRON PIPE WITH POLYETHYLENE ENCASUREMENT

*The section is replaced with the following:*

The Contractor shall lay all ductile iron pipe, valves, and fittings with a polyethylene encasement installed in accordance with AWWA C105.

### 7-09.3(19) CONNECTIONS

#### 7-09.3(19)A CONNECTIONS TO EXISTING MAINS

*The section is revised by replacing paragraph 1, 2, and 5 with the following:*

##### Method 1 - Isolation

The Contractor shall not connect new water mains to existing water mains until a satisfactory bacteriological report has been received by the Engineer/Public Works Director and the new water main has passed the hydrostatic pressure test. A backflow prevention assembly that has been approved by the Water Department Supervisor shall be used on the supplying water line when the new water main is filled during disinfection and flushing operations.

##### Method 2 - Lockout

Water mains may be connected to existing water mains prior to passing a bacteriological test provided that the following conditions are met:

1. All materials used in the connection shall be disinfected. The interiors of all pipe and fittings including couplings and sleeves shall be swabbed or sprayed with 1-percent hypochlorite solution before they are installed.

2. The Contractor shall install a new isolation valve to separate the new main from the existing main.
3. The isolation valve shall only be operated by Water Department personnel and shall have a lockout installed on the valve to assure no unauthorized person operates the valve.
4. The isolation valve shall only be opened by Water Department personnel for filling and flushing the new main.
5. The new main shall be vented to atmosphere whenever the valve is open. These procedures are to prevent any backflow from the new main due to back pressure. If an unsatisfactory bacteriological test report is obtained, the valve shall remain closed and the new main shall be disinfected by injection of a chlorine solution at a location near the valve.

Connections and taps to existing water mains shall be made by the Water Department unless otherwise approved by the Water Department Supervisor. The Contractor shall contact the Water Department Supervisor at least forty-eight (48) hours prior to making the connection or tap. The Contractor shall submit a list of materials to the Engineer/Public Works Director, prior to excavation, which includes: fittings, valves, tapping tees, and other items required for the connection. The Contractor shall furnish all labor, equipment, materials, excavation, backfill, and compaction, required to connect to the existing main; however, the actual connection or tap shall be made by Water Department personnel.

When the work requires an interruption of service the affected customers shall be notified in advance. The Water Department Supervisor, Engineer/Public Works Director, and Contractor shall mutually agree upon a date and time for the work to be performed. The schedule shall allow ample time for the Contractor to mobilize labor, materials, and equipment; and for the Water Department to notify all affected customers.

#### 7-09.3(20) DETECTABLE MARKING TAPE

*The section is revised by replacing the second sentence with the following:*

The Contractor shall install the tape approximately two (2) feet above the top of the line for the full length of the line.

#### 7-09.3(21) CONCRETE THRUST BLOCKING

*The section is revised by replacing paragraph 1 with the following:*

Concrete thrust blocking shall be installed by the Contractor, as detailed on the plans and approved by the Engineer/Public Works Director, and shall be placed at all bends, tees, dead ends, and crosses. Concrete thrust blocking shall meet the requirements of Section 6-02.

#### 7-09.3(23) HYDROSTATIC PRESSURE TEST

*The section is supplemented with the following:*

A successful pressure test shall be performed by the Contractor within thirty (30) days of a satisfactory bacteriological sample; otherwise an additional satisfactory bacteriological sample shall be taken.

#### 7-09.3(23)A TESTING EXTENSIONS FROM EXISTING MAINS

*The section is deleted.*

#### 7-09.3(23)B TESTING SECTION WITH HYDRANTS INSTALLED

*The section is deleted.*

#### 7-09.3(23)C TESTING HYDRANTS INSTALLED ON EXISTING MAINS

*The section is deleted.*

#### 7-09.3(24) DISINFECTION OF WATER MAINS

*The section is supplemented with the following:*

When a pressure test fails, and any portion of the piping system must be taken apart or replaced, the Contractor shall re-chlorinate the water main as directed by the Engineer/Public Works Director.

If a section of pipe has not passed a pressure test within thirty (30) days of a satisfactory bacteriological sample then the line shall be flushed and re-sampled before additional pressure tests shall be allowed, and the contractor shall pay the additional costs to refill, re-flush, and resample the section.

*THE FOLLOWING SECTION (7-09.3(25)) IS ADDED:*

#### 7-09.3(25) TRACER WIRE

A solid copper tracer wire shall be taped to the top of all PVC water mains installed and to all service lines between the water main and the water meter. The wire installation shall conform to the standard details.

#### 7-12 VALVES FOR WATER MAINS

### 7-12.3 CONSTRUCTION REQUIREMENTS

*The section is supplemented with the following:*

The Contractor shall replace existing valve boxes with new valve boxes that are provided by the City of Ephrata as directed by the Engineer/Public Works Director.

The Contractor shall install all valves a maximum of ten (10) feet from all tees and crosses; however, valves on the branch side of a tee may be a FL x MJ valves, bolted to the tee.

One (1) valve shall be installed at a minimum of every 800 lineal feet of pipe or at each road intersection along the line where accepted and approved by the Public Works Director installed in residential areas, and a minimum of every 500 lineal feet in commercial/industrial-use areas.

THE FOLLOWING SECTIONS (7-13) ARE ADDED.

### 7-13 WATER METER VAULTS

#### 7-13.2 MATERIALS

*Materials shall meet the requirements of the following sections:*

Concrete Structures	6-02
Pipe Joint Gaskets	9-04.4
Reinforcing Steel	9-07
Manhole Ring and Cover	9-12.4(1)
Precast Concrete Utility	9-12.8
Service Pipe	9-30.6(3)A
Fittings	9-30.2

### 7-13.3 CONSTRUCTION REQUIREMENTS

The excavation for the vault shall be large enough to allow room for compaction of backfill. The vault shall be set on six (6) inches of select backfill compacted to 95 percent of maximum density. Backfill material that is placed within two (2) feet of the structure shall be free of rocks that are larger than four (4) inches in diameter; and native backfill material that does not meet this requirement shall be replaced with select backfill.

An entry coupling is required for PVC pipe where the pipe penetrates the vault. The annular space between the pipe and the vault shall be a minimum of two (2) inches to allow for differential settlement of the vault and pipe.

### 7-14 HYDRANTS

#### 7-14.3 CONSTRUCTION DETAILS

### 7-14.3(1) SETTING HYDRANTS

*The section is revised by replacing sentence 1 of paragraph 1 with the following:*

Hydrants shall be constructed and installed in accordance with the Hydrant Assembly Detail. In areas without sidewalks, hydrants shall be installed to the elevation as approved by the Engineer/Public Works Director.

### 7-14.3(2) HYDRANT CONNECTIONS

*The section is replaced with the following:*

Hydrant laterals shall consist of a section of 6-inch pipe from the main to the hydrant and shall include an auxiliary gate valve set vertically and placed in line as indicated in the Hydrant Assembly Detail. Mechanical joints and bell/spigot connections shall be restrained joints. Concrete thrust blocks and shackle rods are not allowed as a means of resisting thrust.

### 7-14.3(2)A HYDRANT RESTRAINTS

*The section is replaced with the following:*

Hydrants shall be restrained as shown in the Hydrant Assembly Detail.

### 7-14.3(2)B AUXILIARY GATE VALVES AND VALVE BOXES

*The section is replaced with the following:*

Auxiliary gate valves and valve boxes shall be installed in accordance with Section 7-12.

## 7-15 SERVICE CONNECTIONS

### 7-15.1 GENERAL

*The section is replaced with the following:*

This work consists of installing the service connections from the main to the water meter for the premises served. Service connections for commercial premises as well as residential premises are included.

All water service lines that are served by the City water system shall be connected to municipal water mains and shall not be served from private water mains.

### 7-15.3 CONSTRUCTION REQUIREMENTS

*The section is revised by replacing sentence 1 of paragraph 2 with the following:*

The depth of trenching for service connection piping shall be such as to provide a minimum of 42 inches of cover over the top of the pipe, except for the gooseneck at the corp. stop and for extenuating field conditions.

*The last sentence of paragraph 4 is replaced with the following:*

The contractor shall not commence work that involves interruption of water service until all affected customers have been notified twenty-four (24) hours in advance by the Water Department of the scheduled water service interruption.

*The last sentence of paragraph 5 is replaced with the following:*

All fittings, appurtenances, and other miscellaneous materials on the sections of existing pipe that have been removed shall become the property of the Contractor except for the meter and all items determined by the Engineer/Public Works Director as salvageable.

*The section is supplemented with the following:*

The Contractor shall schedule construction operations so that water service customers are not without water for more than four (4) consecutive hours.

THE FOLLOWING SECTION (7-15.3(2)) IS ADDED.

#### 7-15.3(2) SERVICE METER

The Water Department shall provide and install service meters that are two (2) inches or smaller, at prices established by City ordinance. The Contractor shall provide and install approved service meters that are larger than two (2) inches. Meters that are larger than two (2) inches shall be compound meters and the installation shall have an electronic radio transmitter (installed outside the vault); hand-wheel gate valves on each side of the meter; and a bypass that is the same size as the service line, with hand-wheel gate valves. All water meters shall measure gallons. The Contractor shall provide submittals to the Public Works Director for approval on all meters and meter installations that are larger than two (2) inches. The Contractor shall not commence work until the submittals have been approved by the Public Works Director. All connection fees, system development fees, and reimbursement fees due to the City for the service shall be paid prior to the service meter installation.

Service meters shall be installed in the sidewalk whenever possible. Otherwise, the meters shall be installed in the center of a 5-foot by 5-foot by 6-inch concrete pad at locations designated by the Engineer/Public Works Director. Concrete for meter pads shall be Portland Cement Concrete Class 3000.

Service meters that are within the traveled way in commercial/industrial-use areas shall be installed in traffic-rated vaults.

THE FOLLOWING SECTION (7-15.3(3)) IS ADDED.

#### 7-15.3(3) WATER/SEWER CROSSINGS

Water/sewer pipe crossings shall be constructed in accordance with current Washington State Department of Ecology requirements.

THE FOLLOWING SECTION (7-15.3(4)) IS ADDED.

7-15.3(4) BEDDING THE PIPE

Pipe zone bedding material shall conform to the requirements of Section 7-09.3(9).

THE FOLLOWING SECTION (7-15.3(5)) IS ADDED.

7-15.3(5) BACKFILLING TRENCHES

Backfill shall conform to the requirements of Section 7-09.3(10).

THE FOLLOWING SECTION (7-15.3(6)) IS ADDED.

7-15.3(6) COMPACTION OF BACKFILL

Compaction of trenches shall conform to the requirements of Section 7-09.3(11).

THE FOLLOWING SECTION (7-15.3(7)) IS ADDED.

7-15.3(7) RELOCATE SERVICE METERS

The Contractor shall relocate existing meter tiles, setters, frames, and covers if any work is scheduled in the area of existing water service meters, as directed by the Engineer/Public Works Director. The work shall include replacement of nonstandard service lines with 1" poly pipe or as dictated by water meter size between the meter and the water main, if service meters are relocated, and if the excavation of the service line from the main to the service meter would not require additional asphalt, curb, or sidewalk to be replaced.

7-17 SANITARY SEWERS

7-17.2 MATERIALS

*The section is revised by replacing the first paragraph with the following:*

Pipe used for sanitary sewers may be ductile iron (rigid) or PVC (thermoplastic).

*The section is revised by replacing the fourth paragraph with the following:*

Materials shall meet the requirements of the following sections.

Solid wall PVC Sanitary Sewer Pipe	9-05.12(1)
Ductile Iron Sewer Pipe	9-05.13

7-17.3 CONSTRUCTION REQUIREMENTS

7-17.3(2) CLEANING AND TESTING

### 7-17.3(2)A GENERAL

*The section is revised by replacing paragraph 1 with the following:*

All gravity sewer pipe and appurtenances shall be tested after backfilling, and in accordance with section 7-17.3(2)F.

All sewer mains shall be thoroughly cleaned by a method approved by the Engineer/Public Works Director.

Sewer mains shall not be installed at slopes greater than 4.0 percent.

The ends of all new sewer mains shall terminate with a manhole, and all sewer services shall be connected downstream from a manhole.

*The section is supplemented with the following:*

The Contractor shall lay all ductile iron pipe, valves, and fittings with a polyethylene encasement installed in accordance with AWWA C105.

### 7-17.3(2)F LOW PRESSURE AIR TEST FOR SANITARY SEWERS CONSTRUCTED OF NON AIR-PERMEABLE MATERIALS

*The section is replaced with the following:*

All gravity sewer and appurtenances shall be tested with a minimum of five (5) psi for five (5) minutes. An acceptable test shall not show any visible pressure loss on the gauge. The gauge shall be calibrated to a maximum of thirty (30) psi. At completion of the test, the pressure shall be released so that the gauge may be verified to return to zero (0) psi.

## 7-18 SIDE SEWERS

### 7-18.2 MATERIALS

*The section is supplemented with the following:*

Detectable Marking Tape

9-15.18

### 7-18.3 CONSTRUCTION REQUIREMENTS

#### 7-18.3(1) GENERAL

*The section is supplemented with the following:*

Side sewer locations shown on the Plans shall be subject to relocation in the field by the Engineer/Public Works Director.

Slopes for sewer service pipes within the right-of-way shall not be less than 1/4-inch vertical to 1-foot horizontal. However, where 6-inch diameter or larger service pipe is allowed to accommodate larger service flows, slopes may be reduced as allowed

by WSDOE. Slopes for sewer service pipe outside of the right-of-way shall be as approved and inspected by the Building Official.

#### 7-18.3(5) END PIPE MARKER

*The section is replaced with the following:*

The Contractor shall mark the location of the end of the side sewer with a #4 rebar, which shall extend from the end of the sewer service to finished grade. The Contractor shall cut the top of the rebar flush with the finish grade and shall install a red plastic "Sewer Service" cap as provided by the Engineer/Public Works Director.

THE FOLLOWING SECTION (7-18.3(6)) IS ADDED:

#### 7-18.3(6) DETECTABLE MARKING TAPE

The Contractor shall install detectable marking tape over all side sewer lines. The tape shall be placed approximately two (2) feet above the top of the line and shall extend the full length of the pipe. The tape shall be tied off to the #4 rebar that marks the end of side sewer.

THE FOLLOWING SECTION (7-20) IS ADDED:

#### 7-20 SANITARY SEWER FORCE MAIN

##### 7-20.1 DESCRIPTION

This work shall consist of constructing sanitary sewer force mains, low-pressure sewer mains, and low-pressure services in accordance with Sections 7-09 and 7-12. Work on sanitary sewer force mains, low-pressure mains, and low-pressure services shall exclude Section 7-09.3(24).

##### 7-20.2 MATERIALS

Materials shall meet the requirements of the following sections:

Polyethylene Encasement	7-09.3(17)
Detectable Marking Tape	9-15.18
Ductile Iron Pipe	9-30.1(1)
Polyvinyl Chloride (PVC) Pipe	9-30.1(5)
Fittings	9-30.2
Ductile Iron Pipe Fittings	9-30.2(1)
Polyvinyl Chloride (PVC) Pipe Fittings	9-30.2(5)
Gate Valve (3 inches to 12 inches)	9-30.3(1)
Combination Air Release/Air Vacuum Valve	9-30.3(7)
Check Valves	9-30.3(10)

##### 7-20.3 CONSTRUCTION REQUIREMENTS

#### 7-20.3(1) DETECTABLE MARKING TAPE

The Contractor shall install detectable marking tape over the sewer main. The tape shall be placed approximately two (2) feet above the top of the sewer main over the entire length of the pipe.

#### 7-20.3(2) TRACER WIRE

Tracer wire shall be installed on all pressure sewer mains and service lines.

#### 7-20.3(3) TESTING

The Contractor shall test the force main in accordance with Section 7-09.3(23), Hydrostatic Pressure Test; except that the test pressure shall be 100 psi or 1.5 times maximum operating pressure, whichever is greater.

#### 7-20.3(4) LAYING DUCTILE IRON PIPE AND FITTINGS WITH POLYETHYLENE ENCASEMENT

Ductile iron pipe and iron pipe fittings shall be laid with polyethylene encasement. Polyethylene encasement shall be installed in accordance with AWWA C105.

#### 7-20.3(5) BACK-UP FORCE MAIN LINE

Contractor shall install a second back-up/emergency line adjacent to force main line of like size.

### 7-21 SEWER LIFT STATIONS

#### 7-21.1 DESCRIPTION

This work shall consist of locating and constructing a sewer lift station under the direction of the City Public Works Director/Engineer.

#### 7-21.2 CONSTRUCTION REQUIREMENTS

##### 7-21.2(1) LIFT STATION SERVICE AREA

Lift station service areas shall be that area as defined by a review of the topology of the area in which a lift station is to be located. Service area may be extended beyond proposed subdivision area where it can be shown that location can serve a larger potential development area.

##### 7-21.2(2) VAULT

Vault shall be of sufficient size to accommodate the effluent generated within the proposed and expected service area of the proposed sewer service area as agreed by the contractor and City Public Works Director.

##### 7-21.2(3) PUMP UNITS

Pump units shall be of sufficient size to accommodate expected effluent generated within proposed sewer service area as defined by the Public Works Director/Engineer.

7-21.2(4) LID

Traffic rated, double access door lid shall be required. Halliday Products, Series W2S Access Door shall be specified or an approved equal after review by the City Public Works Director.

7-21.2(5) CONCRETE PADS

Concrete pads, 30" border around lids, 6" thick is required around all structures. Edge of concrete adjacent to gate shall be ramped to final grade to allow access by maintenance vehicles.

7-21.2(6) ENCLOSURE

Lift station and all supporting facilities shall be enclosed with a 24' X 24' (minimum) 6' chain-link fence, with 2 rows barb wire. 16' double gate shall be located with access from a public street. 5/8" minus gravel, 6" deep shall cover enclosed area.

7-21.2(7) PUMP PULLER

Superwinch, Type GP3000 or like equal pump pulling winch shall be provided for pump maintenance.

7-21.2(8) HOIST

Halliday Products, Series DB Portable Hoist, Model #D2B36D or approved equal shall be required. Halliday, Series D Hoist Socket, Model #D2S shall be provided and placed as approved by City Public Works Director.

7-21.2(9) GUIDE RAIL BRACKETS

Halliday Products, Series U Guide Rail Brackets or an approved equal shall be required and placed in accordance with manufacture design standards and approved by the City Public Works Director. Stainless Steel Chain shall be used for lifting of pumps.

7-21.2(10) GENERATOR

Kohler, Model 40REOZJB or an approved equal shall be placed within the fenced enclosure defined in 7-21.2(6). Generator shall be mounted on a 6" thick concrete slab and have a hinged fully closable and lockable cover.

7-21.2(11) CONTROL UNIT CABINET

NEMA 3R, Two door enclosure, 6'-0"(W) X 6'-0"(H) X 2'-0"(D) electrical cabinet shall be located within enclosure area and shall be of sufficient dimensions to house all electrical components and small tool storage. Installation shall meet manufacturer's standards.

7-21.2(12) INTAKE PORT

Effluent intake port shall be located in a location that does not allow effluent to flow over and upon pump units. Port shall be fitted with a 90° elbow, directed down.

7-21.2(13) TELEMETRY

Electronic sending unit shall be provided meeting City of Ephrata criteria for telemetry of unit or have the capability for upgrade of telemetry sensors and sending units.

7-21.2(14) LOCATION

Lift station and enclosure shall be located a minimum of 5' behind curb within right-of-way when possible. Easements or right-of-way shall be extended to include boundary of enclosure.

7-21.2(15) WATER LINE

Lift station will be equipped with a 1" typical City service line including a frost free spigot located within enclosure.

**DIVISION 8 MISCELLANEOUS CONSTRUCTION**

8-04 CURBS, GUTTERS, AND SPILLWAYS

8-04.1 DESCRIPTION

*The section is supplemented with the following:*

Replacement curb and gutter shall match the typical dimensions of adjacent curb and gutter unless otherwise directed by the Engineer/Public Works Director.

8-04.3 CONSTRUCTION REQUIREMENTS

8-04.3(1) CEMENT CONCRETE CURBS, GUTTERS, AND SPILLWAYS

*The section is revised by replacing paragraph 1 with the following:*

Cement concrete curb, curb and gutter, gutter, and spillway shall be constructed with air entrained concrete Class 3000 commercial concrete in accordance with WSDOT Standard Specifications.

*The section is revised by replacing sentence 4 of paragraph 3 with the following:*

The top, face, and gutter surfaces of the curb shall receive a light brush finish, parallel to the roadway.

*The section is revised by replacing sentence 1 and 2 of paragraph 4 with the following:*

The Contractor shall cut joints in the curb and gutter at 10-foot intervals. However, some flexibility is allowed in the placement of the joints so that the joints in the curb may line up with the joints in the sidewalk or at the tops of tapers, as directed by the Engineer/Public Works Director. Full-depth mastic shall be installed at 100-foot intervals and at points of curvature. However, mastic shall not be installed in depressed curb for driveways or curb ramps.

*The section is supplemented with the following:*

The Contractor shall provide forms that are clean and well oiled prior to placement. The top of the form shall not depart from grade more than 1/8 inch when checked with a 10-foot straight edge and the alignment shall not vary more than 1/4 inch in ten (10) feet.

The Contractor shall remove asphalt adjacent to the existing curb that is being removed for replacement. The Contractor shall remove a minimum of 18 inches of asphalt adjacent to the curb and additional asphalt may be required to be removed to correct depressions or critical slopes in the asphalt adjacent to the curb, as directed by the Engineer/Public Works Director. Asphalt patches shall be placed in accordance with Section 5-06.

The Contractor shall remove full sections of the existing curb when removing and replacing curbs and gutters; however, the Contractor may saw cut the curb and salvage portions of curb provided that the salvaged portion is completely intact, has not been moved or displaced by removing curb or sidewalk adjacent to it, and the salvageable curb is a minimum of 5-feet long. The Contractor shall remove additional curb as directed by the Engineer/Public Works Director if the adjacent curb has been damaged at the point of connection.

The Contractor shall not place any concrete on frozen ground. The Contractor shall cover all concrete with a minimum of a 10-mil visqueen if the National Weather Service predicts freezing weather within forty-eight (48) hours after the concrete is placed. Furthermore, the Contractor shall place concrete blankets on all concrete if the National Weather Service predicts temperatures below 25 degrees Fahrenheit within forty-eight (48) hours after the concrete is placed. All visqueen or blankets that are required to be placed shall be maintained for a minimum of seventy-two (72) hours.

The Contractor shall not place any concrete if the National Weather Service predicts temperatures below 15 degrees Fahrenheit within forty-eight (48) hours unless a heated enclosure is constructed and approved by the Engineer/Public Works Director.

#### 8-06.2 MATERIALS

*The section is revised by replacing the last sentence of the Section with the following:*

Cement concrete driveway approaches shall be air entrained concrete Class 3000 commercial concrete in accordance with WSDOT Standard Specifications.

#### 8-06.3 CONSTRUCTION REQUIREMENTS

*The section is revised by replacing the third sentence of Paragraph 1 with the following:*

The Contractor shall brush the surface of the driveway entrance with an approved concrete broom in a direction perpendicular to the curb, after troweling and after edging. Concrete showing poor brooming technique will be subject to rejection and replacement.

## 8-13 MONUMENT CASES

### 8-13.1 DESCRIPTION

*The section is replaced with the following:*

This work shall consist of furnishing and placing iron pipe, brass monument, adjustment sleeve, monument case, and cover, in accordance with the Monument Detail.

## 8-14 CEMENT CONCRETE SIDEWALKS

### 8-14.1 DESCRIPTION

*The section is replaced with the following:*

The work shall consist of constructing concrete sidewalks, driveways, slabs, and bike paths in accordance with these specifications and in conformity with the lines, grades, thicknesses, and typical cross-sections shown in the plans or as established by the Engineer/Public Works Director.

### 8-14.2 MATERIALS

*The section is revised by replacing paragraph 2 with the following:*

The concrete used for sidewalks, driveways, slabs, and bike paths shall be Class 3000 Portland Cement Concrete conforming to the requirements of section 6-02.

### 8-14.3 CONSTRUCTION REQUIREMENTS

#### 8-14.3(3) PLACING AND FINISHING CONCRETE

*The section is revised by replacing paragraph 2 with the following:*

The Contractor shall brush the surface of the sidewalks with an approved concrete broom in a direction perpendicular to the curb, after troweling and after edging. Concrete showing poor brooming technique will be subject to rejection and replacement.

*The section is supplemented with the following:*

The Contractor shall place control joints every five (5) feet for sidewalks and driveways. However, some flexibility is allowed in the placement of the joints so that the joints in the sidewalk may line up with the joints in the curb whenever possible,

as directed by the Engineer/Public Works Director. All control joints shall be perpendicular to the curb.

The Contractor shall place expansion joints every twenty (20) feet and at the top of all tapers for driveways and curb ramps. However, the Contractor shall not install expansion joints between the tops of tapers in driveways unless the driveway is more than 50-feet wide from the top-of-taper to the top-of-taper; in which case, the Contractor shall place an expansion joint at the center of the driveway.

The Contractor shall edge all joints and sidewalk edges with a ½ inch radius edger. Edgers for control joints shall be a minimum of ¾ inch deep.

The Contractor shall not spray water on the surface of the concrete for finishing; however, a very light mist may be acceptable by the Engineer/Public Works Director.

The Contractor shall immediately cover all concrete with plastic if rain begins to fall before the concrete has set up. Any sidewalks that have been subjected to rain prior to setting may be rejected.

Any concrete finish that has a vertical difference of 1/4-inch or more between panels shall be rejected.

The Contractor shall remove a minimum of one full section of existing sidewalk when removing and replacing sidewalks. However, the Contractor may saw cut the adjacent panels of sidewalk and salvage portions of sidewalk panels provided that the salvaged portion is completely intact, has not been moved or displaced by removing curb or sidewalk panels adjacent to it, and the salvageable sidewalk panel is a minimum of 3-feet long. All saw cuts shall be perpendicular to the curb and shall extend to the back of sidewalk. The Contractor shall remove additional sidewalk as directed by the Engineer/Public Works Director if adjacent sidewalk panels have been damaged.

The Contractor shall not place any concrete on frozen ground. The Contractor shall cover all concrete with a minimum of a 10-mil visqueen if the National Weather Service predicts freezing weather within forty-eight (48) hours after the concrete is placed. Furthermore, the Contractor shall place concrete blankets on all concrete if the National Weather Service predicts temperatures below 25 degrees Fahrenheit within forty-eight (48) hours after the concrete is placed. All visqueen or blankets that are required to be placed shall be maintained for a minimum of seventy-two (72) hours.

The Contractor shall not place any concrete if the National Weather Service predicts temperatures below 15 degrees Fahrenheit within forty-eight (48) hours unless a heated enclosure is constructed and approved by the Engineer/Public Works Director.

#### 8-14.3(4) CURING

*The section is supplemented with the following:*

The Contractor may use clear pigment curing compound as an alternative to moist burlap or quilted blankets. The Contractor shall apply clear pigment in accordance with the procedures outlined in section 5-05.3(13)B. The curing agent shall be applied immediately after brooming. However, between October 1<sup>st</sup> and March 31<sup>st</sup>, curing compound shall only be used if recommended by the manufacturer for temperatures encountered.

THE FOLLOWING SECTION (8-14.3(5)) IS ADDED.

#### 8-14.3(5) DEPRESSED CURB FOR CURB RAMPS

The Contractor shall construct depressed curbs for curb ramps at intersections where new cement concrete curbs are being constructed. The Contractor shall also install depressed curb for an additional ramp across from any new ramp at intersections where no existing ramps have previously been constructed, as directed by the Engineer/Public Works Director. The Contractor shall replace any depressed curb for curb ramps that have a vertical rise of more than 2-inch within 3-inches of the center of the flow line.

#### 8-21 PERMANENT SIGNING

##### 8-21.3 CONSTRUCTION REQUIREMENTS

###### 8-21.3(1) LOCATION OF SIGNS

*The Section is replaced with the following:*

Signs shall be located as shown on the plans and as directed by the Engineer/Public Works Director. The sign locations shown in the plans are subject to relocation in the field as directed by the Engineer/Public Works Director.

###### 8-21.3(2) PLACEMENT OF SIGNS

*The Section is supplemented with the following:*

The Contractor shall install permanent signs as shown on the Sign Installation Detail.

### **DIVISION 9 MATERIALS**

The Division is supplemented by including the following prior to Section 9-00.

Submittals as requested by the Engineer/Public Works Director for materials used on the project shall be approved by the Public Works Department prior to the installation of the item.

9-03 AGGREGATES

9-03.12 GRAVEL BACKFILL

9-03.12(5) GRAVEL BACKFILL FOR DRYWELLS

The section is revised by replacing the gradation requirements as follows:

Sieve Size	Percent Passing
3-inch square	100
1-inch square	0 – 20
U.S. No. 200	0 – 1.5

9-05 DRAINAGE STRUCTURES, CULVERTS, AND CONDUITS

9-05.15(1) MANHOLE RING AND COVER

The section is supplemented with the following:

Approved ring and covers include the following:

Manufacturer	Ring	Lid
D & L Foundry	A-2000-R1	A-2000-08 (Sewer) A-2000-09 (Storm Sewer)

9-05.15(2) METAL FRAME, GRATE AND SOLID METAL COVER FOR CATCH BASINS OR INLETS

The section is supplemented with the following:

The following catch basin frames and covers are approved for installation:

D & L Foundry	I-4432.02 (with <b>single direction vaned</b> -directional grate)
D & L Foundry	I-4432.03 (with <b>bi-directional vaned</b> -directional grate)

D & L Foundry I-4432.01 with herringbone grate is not approved for installation.

9-12 MASONRY UNITS

9-12.4 PRECAST CONCRETE MANHOLES

The section is supplemented with the following:

Ladder Rungs shall be Co-Polymer Polypropylene conforming to ASTM 2146-82, type II, grade 43758, with 2-inch diameter, grade 60 steel reinforcing bars.

The Contractor shall provide precast manhole elements with ladder rungs such that the completed manhole shall contain a continuous vertical ladder with rungs equally spaced at 12 inches. The lowest rung shall not be more than 16 inches above the

shelf, and the uppermost rung shall not be more than 12 inches below the top of cone.

#### 9-12.5 PRECAST CONCRETE CATCH BASINS

*The section is revised by replacing paragraph 1 with the following:*

Precast concrete catch basin construction shall conform to the requirements of Section 9-12.4, except that the dimensions shall conform to the catch basin detail.

THE FOLLOWING SECTION (9-12.8) IS ADDED.

#### 9-12.8 PRECAST CONCRETE UTILITY VAULT

Wilbert Vault Company (Spokane), Vault model number 1901, is an approved vault for 3-inch and 4-inch water service installations.

#### 9-21 RAISED PAVEMENT MARKERS (RPM)

THE FOLLOWING SECTION (9-21.4) IS ADDED.

#### 9-21.4 TACTILE WARNING SURFACES FOR CURB RAMPS

Armor-Tile, manufactured by Engineered Plastics Inc. (800-682-2525), is an approved material for truncated domes in curb ramps. Federal Yellow is an acceptable color for the tactile surface.

#### 9-22 MONUMENT CASES

#### 9-22.1 MONUMENT CASES, COVERS, AND RISERS

*The section is supplemented with the following:*

Approved monument case and covers include the following:

D & L Foundry	K-6523
Inland Foundry	1037
Olympic Foundry	M1015

#### 9-30 WATER DISTRIBUTION MATERIALS

#### 9-30.3 VALVES

#### 9-30.3(1) GATE VALVES B 3 INCHES TO 12 INCHES

*The section is replaced with the following:*

Gate valves shall be non-rising stem, resilient wedge, conforming to AWWA C509. The wedge shall be cast iron, completely encapsulated with urethane rubber. Urethane rubber shall be permanently bonded to the cast iron wedge in accordance with ASTM D429.

9-30.3(4) VALVE BOXES

*The section is supplemented with the following:*

The following valve boxes are approved for installation:

Olympic Foundry	VB 930
Tyler	6855 with drop lid
D & L Foundry	M-8040

9-30.3(7) COMBINATION AIR RELEASE/AIR VACUUM VALVES

*The section is supplemented with the following:*

For sewer line applications, the Contractor shall install air-release valves where shown on the plans. Air release valves shall be APCO Model 450, and shall have a minimum 2-inch inlet and a 1-inch outlet. Back-flushing valves shall have quick disconnect couplings and a minimum of five (5) feet of hose. Float systems shall be installed with a concave float.

THE FOLLOWING SECTION (9-30.3(10)) IS ADDED:

9-30.3(10) CHECK VALVES

Check valves for sewer line installations shall be Dresser M and H Style number 259-02, flanged end with lever, spring and bronze disk or Engineer/Public Works Director approved equal.

9-30.5 HYDRANTS

*The section is supplemented with the following:*

The following hydrants are approved for installation:

M & H model 929 or an approved equal.

9-30.5(1) END CONNECTIONS

*The section is replaced with the following:*

The end connection shall be a mechanical joint meeting the requirements of AWWA C110 and C111.

9-30.5(2) HYDRANT DIMENSIONS

*The section is replaced with the following:*

Hydrant connection pipe size - inside diameter: .....6 inch MJ  
Standpipe - minimum inside diameter: ..... 7 inches  
Valve opening, minimum diameter: ..... 5.25 inches

- Size of auxiliary gate valve: ..... 6 inches
- Hose nozzle:
  - number .....2
  - size ..... 2.5 inch
  - thread .....National Standard
  - length of thread..... 1 inch
- Pumper nozzle:
  - number.....1
  - size ..... 4.5 inch
  - thread .....National Standard with a 4-inch Storz connection

Style S-37, by Red Head Brass, Inc is an approved  
 Storz connection Operating nut ..... 1.5 inch standard pentagon

Hydrants shall include a weather shield on the operating nut.

All municipal hydrants shall be painted yellow. Sherwin-Williams Super Acrylic Safety Yellow 140-0571 is an approved paint for municipal hydrants that require painting.

All private hydrants shall be painted red. Sherwin-Williams Super Acrylic High Visibility Red (Safety) 140-0548 is an approved paint for private hydrants that require painting.

The bonnet shall be painted the same color as the hydrant and the Storz connection shall not be painted.

9-30.5(3) HYDRANT EXTENSIONS

*The section is revised by replacing sentence 1 with the following:*

Hydrant extensions shall have a 7-inch minimum inside diameter, and shall be ductile iron, and shall conform to AWWA standards for such castings.

9-30.6 WATER SERVICE CONNECTIONS (2 INCHES AND SMALLER)

9-30.6(1) SADDLES

*The section is revised by replacing the second paragraph with the following:*

Tapping tees shall be Romac Industries SST Stainless Steel Tapping Sleeve with Ductile Iron Flange.

Saddles for 1-inch service lines shall be Romac 101S.

Saddles for 2-inch service lines shall be Romac 202S.

Saddles used on PVC pipe shall be formed for PVC pipe and shall have flat, stainless steel straps. For PVC pipe, choose the saddle that has the pipe O.D. closest to the top of the saddle's O.D. range. The correct Romac saddle sizes for 6-inch, 8-inch, 10-inch, and 12-inch C900 PVC pipe are as follows:

6-inch:	6.63-6.90
8-inch:	8.63-9.05
10-inch:	10.00-11.10
12-inch:	12.00-13.20

9-30.6(2) CORPORATION STOPS

*The section is replaced with the following:*

Corporation stops shall be made of bronze alloy. Corporation stops for direct tapping shall have AWWA tapered thread inlet and an outlet connection compatible with IPS (Iron Pipe Standard). Corporation stops for 1-inch and 2-inch outlet saddles shall be Ford FB500.

9-30.6(3) SERVICE PIPES

9-30.6(4) SERVICE FITTINGS

*The section is supplemented with the following:*

Service fittings shall conform to AWWA C-800.

9-30.6(5) METER SETTERS

*The section is revised by replacing paragraphs 3 and 4 with the following:*

Setters shall be either 1-inch or 2-inch setters for services that are 2 inches and smaller.

Approved 1-inch setters include shall be:

- Ford Meter Box Co. .... VBH 74-24W-11-44
- A.Y. McDonald Manufacturing Co..... 28-424WDPP44

Approved 2-inch setters include shall be:

Ford Meter Box Co.....VBH-77-12HB-11-77 and VBH-76-12HB-11-77  
A.Y. McDonald Manufacturing Co.....20-R715WDF775

2-inch meter setters shall include a high, offset by-pass; a locking ball-valve inlet; and a dual check-valve outlet.

9-30.6(7) METER BOXES

*The section is replaced with the following:*

**Approved** tiles for 1-inch meter setters: Pressure irrigation pipe, SDR 51, PVC 1120, 21-inch diameter by 36-inch length is an approved meter tile for 1-inch meter setters.

**Approved** tiles for 2-inch meter setters: Hancor Hi-Q pipe, 30-inch diameter by 36-inch length is an approved meter tile for 2-inch meter setters.

**Approved** traffic rated tiles: H2PRECAST vault No. 3642 is approved for installation as a traffic rated vault for 1-inch and 2-inch services as required in commercial/industrial traffic areas.

Approved tiles for 3-inch meters:

H2Precast..... Small Meter Vault with traffic top, SMV 9686-TR  
Wilbert Vault Company (Spokane) .....Vault model number 1901

Approved tiles for 4-inch meters:

H2Precast..... Large Meter Vault with traffic top, LMV 14481-TR

Meter vaults for 3-inch and 4-inch service meters shall include at least a six-inch riser and a 6-inch frame and cover.

Poly-tuff meter tiles are not approved for installation for any meter tile.

THE FOLLOWING SECTION (9-30.6(8)) IS ADDED:

9-30.6(8) RING AND COVER FOR METER TILES

The following rings and covers are approved for 1-inch and 2-inch services:

1-inch service: ..... D & L Foundry L-2216  
2-inch service: ..... D & L Foundry **A-2000**  
Ring L-2216-R1 Lid L-2216-07

THE FOLLOWING SECTION (9-30.6(9)) IS ADDED:

### 9-30.6(9) COUPLINGS

Couplings for 1-inch and 2-inch services shall be as follows:

	1-inch setter	2-inch setter
Setter coupling (2 required)	Ford C8444	Ford C8477
Corporation coupling (1 required)	Ford C1444	Ford C1477

### 9-33 CONSTRUCTION GEOTEXTILE

*The section is replaced with the following:*

Geotextile material for underground drainage shall be AMOCO non-woven geotextile 4545, or Engineer/Public Works Director approved equal. This includes drywells, under-drain pipe, and french drains.

Geotextile material for concrete brick pavers shall be Phillips Fibers Corporation, SUPAC-4NP, or Engineer/Public Works Director approved equal.

Geotextile material for subgrade stabilization shall be AMOCO woven geotextile 2006, or Engineer/Public Works Director approved equal.

Geotextile material for overlays shall be AMOCO non-woven geotextile 4599 or 4597, or Engineer/Public Works Director approved equal.

# IRRIGATION AND LANDSCAPING STANDARD SPECIFICATIONS

## INTRODUCTION

THE FOLLOWING STANDARD SPECIFICATIONS DEFINE THE MINIMUM REQUIREMENTS FOR THE DESIGN AND CONSTRUCTION OF STREETSAPES AND OTHER LANDSCAPING WITHIN EPHRATA.

The Public Works Dept. can clarify any questions regarding these standard specifications, but will not design or engineer the project.

The following items must be completed in order to receive a bond release on the project.

- 1 The Public Works Department must receive a set of detailed plans and approve them before any construction begins. The plans need to include (when applicable): P.S.I., flow rates, head spacing, controller location (including power source) and plant locations.
- 2 As per General Conditions 5.0, burying un-inspected work will require reopening or exposing items to be inspected at the contractor's expense.
- 3 Trees that do not meet planting specification 5.1, will require replacement at contractor's expense with an acceptable tree.
- 4 Any changes must be applied for in writing, and receive approval in writing, prior to installation.

**Ephrata Public Works Department, 121 Alder St. SW, Ephrata,  
WA. 98823 (509) 754-4601**

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## I. General Conditions

- 1.0 Streetscapes shall be constructed to the sizes, grades and locations stated herein. Locations of all sprinkler heads, shrub heads, etc., are subject to approval by the City's Construction Inspector.
- 2.0 The landscaping of streetscapes shall include, but are not limited to, furnishing, installing and testing of irrigation mains (to 150 PSI for one hour), backflow device(s), water meter(s), sprinkler heads, gate valves, control valves, automatic valves, automatic controllers, topsoil, turf, trees, shrubs, a metered electrical connection, removal and/ or restoration of existing improvements, excavation and backfill, and all other appurtenant work in accordance with Ephrata Standards and Specifications.
- 3.0 The contractor shall adequately protect the job site, adjacent property, and the public. The developer/contractor is responsible for any damage, injury, or loss resulting from their actions and/or neglect.
- 4.0 The contractor shall, at all times during construction, maintain safe traffic and pedestrian routes around all construction areas. This may require proper and adequate signage, fences, barricades or other approved devices as required by the Streets Department or Construction Inspector.
- 5.0 The contractor shall not allow or cause any of the work to be buried or enclosed until after it has been inspected, tested and approved by the Construction Inspector. If any work is buried or enclosed before it has been inspected and/or tested, the developer/contractor must uncover the work at their expense, meet the requirements to pass inspection/testing, and re-bury/enclose the work to the satisfaction of the Construction Inspector and the Ephrata Standard Specifications & Plans.
- 6.0 **Ordinances and Regulations:** All design and construction must be in compliance with all Local, Municipal, State and Federal laws, rules and regulations. All design and construction must comply with the Ephrata Construction Standard, Specifications & Plans, Ordinances and Regulations.
- 7.0 **Bonding and Inspection:** The irrigation system and landscaping will be bonded as part of the entire development project. Bond releases are administered by the Public Works Department. Construction of irrigation and landscaping must meet the approval of the Construction Inspector prior to any bond releases.
- 8.0 **Materials:** Whenever a material is specified by name and/or number, such specifications shall be used for the purpose of describing materials, and establishing quality. **No substitution will be permitted unless approved by the Construction Inspector.**

### 9.0 Inspections and procedures:

- a. **Due to Washington having a limited growing season, no construction or inspections will be allowed from October 31 to March 31.**
- b. The contractor shall set up an inspection schedule with the Construction Inspector. **Prior to each inspection date, the contractor shall give twenty-four (24) hours notice to the Department. There is to be a minimum of six (6) inspections. The contractor may not proceed to the next phase of construction until the previous phase is inspected and approved. The Inspections are as follow:**

First inspection Open Main Line

Second inspection Final Irrigation system

Construction Standards

City of Ephrata Community Development Department

121 Alder St. SW, Ephrata, WA 98823

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Third inspection Plant material & Location  
Fourth inspection Start of maintenance  
Fifth inspection Start of guarantee Period  
Sixth inspection End of Guarantee Period

- c. In the event the contractor requests inspection of work and said work is substantially incomplete, the contractor shall be responsible for inspection fees at the rate of \$49.50 per re-inspection.
- d. The developer, after installing the irrigation main line, shall request from the City, the first inspection and approval.
- e. From the date the project is termed "satisfactory" by the inspector, the developer shall maintain the streetscape for a period of 1 year. At the beginning of the 1-year period, the developer shall schedule a final inspection. If at this inspection, the City deems the project acceptable, the one-year guarantee period will start and the Construction Inspector will inform the City Public Works Director that the Parks bond requirements have been met for "acceptance" by the city and any associated bond release.
- f. At the end of one (1) year the City Construction Inspector will, upon satisfactory inspection, release the contractor and developer from the one (1) year guarantee of the irrigation system and any other landscape items on the project. The Construction Inspection will inform the City Public Works Director that the Parks bond requirements have been met for the "warranty" release.
- g. The developers shall obtain written approval from the Public Works Department that the City has officially assumed maintenance and that all work has been performed satisfactorily.

**10.0 Record Drawing:** The Landscape Contractor will furnish the Public Works Department with two (2) preliminary sets of drawings for review, showing all sprinkler and landscaping work required. After initial review by the City, the Landscape Contractor shall make all noted corrections as discussed with staff. The Landscape Contractor shall submit two (2) final sets of drawings to be signed and approved by the Public Works Department. **Upon completion of construction, the developer/contractor must submit record drawings and electronic (.dwg) drawing to the Public Works Department for approval before any bond releases.**

## **II. Sprinkler Specification**

### **1.0 Excavation and Backfill:**

- 1.1 Trenches for irrigation pipe (plastic, brass, and/or galvanized) sprinkler lines shall be excavated either by hand or machine to a minimum depth of 14 inches and shall be of sufficient width to permit proper handling and installation of the pipe and fittings. The backfill shall be thoroughly compacted and level with the adjacent ground. Selected fill dirt or sand shall be used if soil conditions are rocky or obstructive. Trenching depth shall be two (2) inches below normal trench depth to allow for proper bedding.
- 1.2 Fill dirt or sand shall be used for the first six (6) inches above the pipe. The remainder of the backfill shall contain no lumps or rocks larger than two (2) inches.
- 1.3 Detectable tape or wire shall be placed six (6) inches above pipe between bedding

sand and native soil.

- 1.4 Any excavation, in or under the roadway curb, gutter and/or sidewalk, shall conform to the "Community Street and Utility Standards". This is obtainable from the Public Works Department.

## **2.0 Pipe and Tube:**

- 2.1 **General Requirements:** All piping under paving shall be installed in Schedule 40 PVC sleeves (see Detail I-4). Piping under the road to the water meter box must be poly material as listed in Community Street and Utility Standards.

Piping under paving shall be installed by jacking, boring or hydraulic driving. Cutting or breaking of sidewalks and/or concrete work is not permitted unless approved by public works director. Piping shall be located in such a way that a minimum of pipe will be located under paving.

- 2.2 **Plastic Pipe and Tubing:** Plastic pipe shall be extruded from PVC 1120-1220 compound and shall be so labeled. All PVC pipe shall be Schedule 40 except in situations where auxiliary pumping is required, which shall be Schedule 80 PVC pipe.

All pipe used in non-potable water situations shall be Schedule 40 purple pipe.

- 2.3 **Plastic pipefitting and Connections:** All plastic pipefitting shall be suitable for either solvent weld or screwed connection. Fittings shall be Lasco, Dura or Spears factory assembled fittings or approved equivalent. All fittings shall be Schedule 40 PVC except for mainline fittings, which shall be Schedule 80 PVC.

When connection is plastic to metal, Schedule 80 female adapters shall be used. The female adapter shall be hand tightened, plus one turn, with a strap wrench. All threaded joints are to be wrapped with Teflon tape.

**All PVC slip joints shall be primed prior to being glued.** Primer shall be Weldon P-70 or approved equivalent. Glue shall be Weldon 711, gray heavy bodied fast seal or approved equivalent. Burrs at cut ends shall be removed prior to installation to necessitate a smooth unobstructed water flow.

- 2.4 **Flushing and Testing:** Prior to the installation of sprinkler heads, control valves shall be opened with a full head of water to flush out the system. Sprinkler main lines shall be tested before backfilling for a period of not less than one hour, and shall show no leakage or loss of pressure.

- 2.5 **Wiring:** All wiring and pull boxes must be in accordance with the following:

- a. National Electric Code
- b. International Building Code
- c. Recommendations by the Construction Inspector or Building Department
- d. All wiring is to be continuous
- e. If splices are necessary they are to be in a minimum of ten-inch (10) round valve box with a 3M "DBR" or "DBY" dry splice or approved equivalent.
- f. All wiring under pavement or asphalt must be in conduit.

## **3.0 Sprinkler Heads, Gate Valves and Quick Couplers:** For standardization purposes and

inventory control, all sprinkler heads, valves and quick couplers shall be commercial grade Rain Bird or Hunter brand products. All Products must be approved prior to installation.

- 3.1 **Sprinkler Heads:** All sprinkler heads shall be set to grade and perpendicular to the finished grades unless otherwise specified. Heads adjacent to curbs and walks shall be ½” to 1” away from the curb or walkway. All nozzles shall be tightened and adjusted for the proper radius, arc, and flow rate. The following sprinkler head assemblies are the standard approved by the City of Ephrata and are mandatory unless previously accepted by the Construction Inspector:
  - a. Parks and Complexes – RainBird Falcon 6504 Rotors for large areas.  
RainBird Maxi-Paw Impact heads or 5000 series for 20 to 25 foot areas.  
RainBird 1800 pop-up series heads for area spacing of 8 to 15 feet.
  - b. Residential Sprinklers – RainBird Maxi-Paw Impact heads, RainBird Series 5000 rotors and RainBird 1804 and 1806 pop-ups.
- 3.2 **Gate Valves:** All gate valves shall be resilient wedge with square key of domestic manufacture with non-rising stem; 200 lb. water, oil, gas rated (i.e. Mueller/B & K series 900 gate valve or equivalent). All gate valves shall be installed with valve boxes. Six (6) inch or twelve (12) inch extensions shall be added when necessary to bring the valve boxes level with finish grade.
- 3.3 **Quick Coupling Valves:** A quick coupling valve shall be installed on all main lines immediately after the backflow prevention device. In addition a quick coupling valve shall be installed at every valve box or valve box cluster (See details). All quick coupler valves shall be RainBird #44RC or 33DRC and installed in a 10” round valve box.
- 3.4 **Quick Coupling Valve Keys:** All quick coupling valve keys shall be RainBird 44K or 33DK and shall have a hose swivel attached to the key. Two (2) keys are to be turned over to the Public Works Department at completion of the project.
- 3.5 **Sprinkler Risers:** All rotor pop-up sprinklers shall have an adjustable riser assembly (double swing joint). Spray pop-up sprinkler heads shall have double swing joint risers constructed of funny pipe, barbed fittings and marlex street ells on the head side.

**4.0 Irrigation Controller:** Irrigation controller shall be RainBird ESP-8LX, or Hunter. All controllers shall be mounted on a stable wall, power rack, or formed and constructed concrete based pedestal mount. All controllers shall be mounted in vandal proof and weatherproof boxes. **Controller type and locations must be approved by the Construction Inspector prior to installation.**

The contractor/developer is responsible for providing metered 110 volt (20 AMP minimum) electrical service, breaker, meter base and power disconnect. This connection must be inspected and approved by the City Building Department. All 110 wire must be in conduit and buried at least 36 inches deep.

All control wires must be 14 gauge solid core (minimum), run in the main line trench and be taped to the main line every ten (10) feet. Where it is not possible to run the controller wire in the main line trench the wires are to be buried 14” minimum and 18” maximum subgrade in conduit. Spare wire and a tracer wire must run to every valve along the entire mainline. **Controller wire colors are as follows:**

**Common  
Valve wire  
Spare  
Tracer**

**White  
Red  
Orange  
Yellow**

Installation and connection of the 110-volt electrical service to the controller must comply with all local, state and national codes.

**5.0 Electric Remote-Control Valve:** Valves shall be as specified on drawings and approved as per the Public Works Department. Remote-control valves shall be installed in a 17" x 11.75" (minimum) valve box (i.e. Carson Brooks standard or approved equivalent). A maximum of two (2) valves per box positioned such that the valve tops can be removed without removing the valve box. The standard electric controlled valves acceptable to the City of Ephrata are the RainBird PEB Series In-line valves 1" to 2". All valves larger than 1" shall have unions on both sides of the valve for maintenance.

- 5.1 **Connection Fee:** The Contractor/Developer shall pay the appropriate water connection fee for the water meter, prior to any construction.
- 5.2 **Connection to Mainline:** Developer/contractor shall be responsible for all construction costs involved with tapping into the City main line, including labor, materials, road cuts and road cut permits. Prior to making such connections, the developer/contractor must have written approval from the Water Department.
- 5.3 **General Requirements:** To comply with State of Washington regulations, which prohibit unprotected cross connections between a public water supply and an unapproved source or connection, the Water Department requires the installation of approved backflow prevention devices and at the contractor's expense. The type of backflow prevention device required shall be determined by the Water Department.
- 5.4 **Backflow Requirements, Inspections and Tests:** Back flow prevention devices shall be selected from a list of approved devices set forth by the Washington State Department of Health and/or Washington State Department of Ecology. Double Check Valve Assemblies (DCA) and Reduced Pressure Assemblies (RP) will be the only accepted styles of backflow prevention devices. This selection shall be approved by the Ephrata Water Department and the Ephrata Public Works Department prior to installation.

Each device shall be installed in compliance with the International Plumbing Codes and Washington State Department of Health regulations.

All backflow devices shall include properly located resilient seated test cocks and tightly closing resilient seated shutoff valves at each end of the assembly. The assembly is designed to protect against a health hazard contaminant.

Each device shall be tested within ten (10) days of installation and at least once yearly thereafter by a backflow technician licensed by the State of Washington. The locations of each device shall be reported to the Ephrata Water Department in writing within ten (10) days of installation.

- 5.5 **Backflow Prevention Location:** Location of backflow prevention installation shall be approved by Ephrata Public Works Department prior to installation.

5.6 **Double Check Valve Assembly (DCA)** (See Details)

- a. The DCA shall be readily accessible for testing, repair, and maintenance
- b. DCA's are to be installed in a pit, the DCA shall be installed with a minimum of 12-inch clearance between all sides of the vault including the floor, and roof, or ceiling and must be approved by the Ephrata Water Department.
- c. The DCA shall be maintained as assembled
- d. The DCA shall be installed in a horizontal position only.

5.7 **Reduced Pressure Assembly (RP)**

- a. The assembly shall be protected from freezing and vandalism.
- b. The bottom of the RP assembly shall be a minimum of 12 inches above the ground or floor.
- c. The body of the RP shall be a minimum of 12 inches from any walls, ceilings, or encumbrances and shall be readily accessible for testing, repair, and maintenance.
- d. RP's shall not be installed in a pit
- e. The relief valve on the RP shall not be directly connected to any waste disposal line, including sanitary sewer, storm drains or vents.
- f. The RP shall be maintained as assembled.
- g. The RP shall be installed in horizontal position only.

All outlets on potentially contaminated systems shall be posted: **DANGER – UNSAFE WATER**

### **III. Planting Specifications**

**NOTE: ALL CONSTRUCTED IRRIGATION SYSTEMS MUST BE INSPECTED AND APPROVED BY THE CONSTRUCTION INSPECTOR BEFORE ANY LANDSCAPING COMMENCES. APPROVAL SHALL BE OBTAINED BY THE DEVELOPER/CONTRACTOR IN WRITING FROM THE CONSTRUCTION INSPECTOR.**

#### **1.0 Scope of Work:**

- 1.1 The work consists of furnishing all equipment, labor and materials needed to complete all landscaping as per approved plans.
- 1.2 The Construction Inspector must approve all Plant quantities and sizes.

#### **2.0 Design Changes:**

- 2.1 In the event of any changes in plant locations, the developer/contractor must notify the Construction Inspector and submit amended design drawings to the Public Works

Department for approval prior to any planting.

### **3.0 Obstructions Below Ground:**

- 3.1 Prior to excavation for planting, the contractor shall locate all electrical cables, conduits and other utility lines so that proper precautions may be taken not to disturb or damages such improvements. In the event of a conflict between such lines and plant locations, promptly notify the Construction Inspector. Failure to follow this procedure places the responsibility and expense upon the contractor for making any and all repairs.
- 3.2 Remove rock, road base, and other underground obstructions to a minimum depth of 1 foot to permit proper installation of lawns and plants.

**4.0 Spacing:** When applicable, plant material within a row, shall be equally spaced. Otherwise, plants shall be installed in the locations shown on the approved plans. Ground cover material shall be at the spacing indicated (maximum distance of 8" on center).

### **5.0 Plants to be Furnished:**

- 5.1 The developer/contractor shall furnish and install plants as listed on the approved plans. Quantities and sizes are as follows:
  - a. All shrubs shall be five (5) gallon minimum, unless written approval is obtained from the Construction Inspector.
  - b. All trees shall be a minimum of 2 inch caliper as per American National Standards Institute, standard Z60.1-1986 American Standard for nursery stock. Any variation requires written approval of the Construction Inspector. The location of all trees shall be approved by the Construction Inspector prior to installation.
- 5.2 All plants delivered to the site must be first class representatives of their species or varieties, free from disfiguration, with well developed branch systems and vigorous and fibrous root systems. Plants not conforming to these requirements, must be removed, whether in place or not and replaced with acceptable plant material. Plants must be planted within 24 hours of arrival at the site.
- 5.3 All plant material must meet Federal, State, and County laws requiring inspection for plant disease and insect infestation. Tag all plants identifying type and size in accordance with standard of practice recommended by the American Association of Nurserymen.
- 5.4 Root conditions of plants furnished in containers may be determined by the Construction Inspector and any plant rendered unsuitable must be replaced at the developer/contractor's expense.

**6.0 Substitutions:** No substitutions for the indicated plant material will be permitted unless approved in advance by the Construction Inspector. Any substitutions shall be of a quality and size equal to that specified on the plans.

**7.0 Finish Grading and Soil Preparation:** Finish grading shall consist of the following:

- a. Planting areas shall conform to the uniform grade by floating or hand raking.
- b. It shall be the responsibility of the landscape contractor to insure proper drainage.

Surface drainage shall be modeled to facilitate the natural water runoff. Low spots and pockets must be graded to drain properly.

- c. Finish grade of all lawn areas shall be ½" below grade of adjacent pavement of any kind. Roll all lawn areas with a water fill roller to obtain uniform compaction and level surfaces (50 pounds minimum weight).
- d. Subsoil will consist of 8" to 10" of water retention soil.
- e. Import a minimum of 6" of screened sandy loam topsoil. No roadbase is to be in the planting areas for a minimum of 1 foot depth.
- f. Finish grade of all pond sides shall have a slope of 3:1 or flatter. All pond corners must be rounded with a minimum radius of 10 feet.

## **8.0 Planting:**

### **8.1 Seed:**

- a. Seed mix to be determined by the Construction Inspector.
- b. Soil preparations to be the same as for sod installation.
- c. Seeding may not be acceptable in Park strips.

### **Sod:**

- a. Prepare lawns areas as specified under soil preparation. Slope all areas to drain according to the approved plan drawings.
- b. Rake these areas as specified under soil preparations, until the surfaces are smooth and of uniformly fine texture immediately prior to planting the turf.
- c. Roll sod bed after grading with a water roller (50 pounds minimum weight).
- d. Apply 16-16-8 commercial fertilizer at the rate of 10 pounds per 1,000 square feet.
- e. Lay sod with staggered seams.
- f. After sod has been laid and watered, roll sod with 50 pound (min.) water roller to level sod and insure positive contact with soil.

### **8.2 Ground Cover:**

- a. Prepare ground cover areas as specified under soil preparations, including commercial fertilizer (16-16-8) at the rate of 15 pounds per 1,000 square feet.
- b. Spacing of ground cover shall be no greater than 8" on center.

### **8.3 Trees and Shrubs:**

- a. Plant, stake and water trees as shown on the standard tree staking detail.
- b. Location: Trees shall be kept not less than:
  - Forty (40) feet back of beginning of curb returns at any street intersection

- Twenty (20) feet from lamp standards and power poles.
  - Ten (10) feet from fire hydrants.
  - Five (5) feet from service walks and driveways
  - Five (5) feet from water meters.
- c. All containers, wire baskets etc. shall be removed from trees and shrubs prior to planting. All B & B stock shall have the bailing twine removed and burlap folded down below ground level.
- d. Incorrectly planted trees will not be accepted and will have to be replanted at developer/contractor's expense.**

### **9.0 Staking:**

Stake all trees at the time of planting, by placing two (2) T stakes 1' to 2' from the center and driving stake 24" into solid ground. Fasten the tree to the upper end of the stake in at least two (2) places using "cinch ties" or equivalent.

### **10.0 Maintenance:**

Plant maintenance work shall consist of watering, weeding, mowing, edging, fertilizing, and performing the following plant establishment work:

- a. The entire project shall be satisfactorily maintained for a period of 1-year (once every 7 days). The maintenance period will begin when all items of work have been completed as specified in the foregoing articles and to the satisfaction of the Construction Inspector. If project is not accepted, the developer/contractor is required to perform maintenance until the project is accepted. October 31 to March 31 is not considered part of the one (1) year maintenance period.
- b. Lawn and plants shall be properly watered by the irrigation system to maintain a healthy, green, growing condition.
- c. If the project has been accepted at the end of the 1 year maintenance period, an application of fertilizer, 16-16-8 1% Fe shall be applied as directed.
- d. At completion of the maintenance period, all areas, including sidewalks, streets and gutters, shall be clean and free of debris and weeds. All plant materials shall be live, healthy, free of infestations or weeds, and be of acceptable growth for the current time of year. The contractor must obtain written release from the Public Works Department before ending maintenance obligations.

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