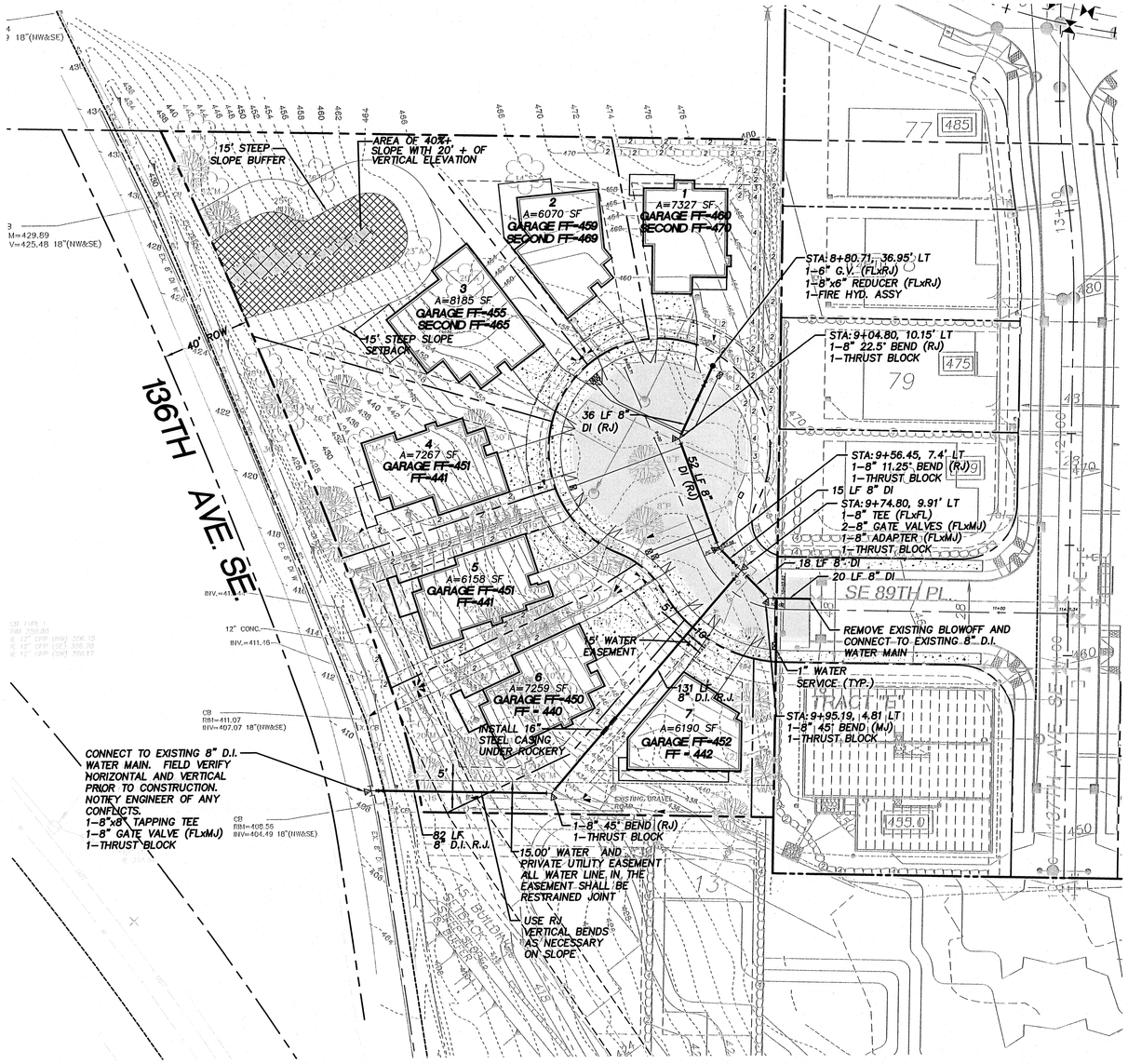
NW 1/4 OF SW 1/4 OF SEC. 34, T. 24 N., R. 05 E., W.M.

VARNEY SUBDIVISION

WATER PLANS

CITY OF NEWCASTLE



OWNERS
MARK AND DORTHEA VARNEY
GREACEN CONSTRUCTION, INC
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FAX: (206) 388-1648
WEB SITE: PACENG.COM

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REDMOND, WA 98052
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FAX: (425) 284-2855

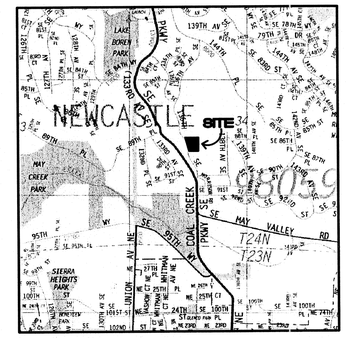
SHEET INDEX

CAUTION
LOCATION OF EXISTING UTILITIES SHOWN IS APPROXIMATE AND MAY NOT BE ACCURATE OR ALL INCLUSIVE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY LOCATION OF UTILITIES PRIOR TO PROCEEDING WITH CONSTRUCTION.

UTILITY PURVEYORS

WATER:	COAL CREEK UTILITY DISTRICT
SEWER:	COAL CREEK UTILITY DISTRICT
POWER:	PUGET SOUND ENERGY
TELEPHONE:	QWEST COMMUNICATIONS
SCHOOL DISTRICT:	ISSAQUAH #411
FIRE DISTRICT:	BELLEVUE FIRE DISTRICT

30 0 10 20 30 60
GRAPHIC SCALE



VICINITY MAP

SITE INFORMATION

PROPERTY ADDRESS:	8824 136TH AVE. SE. NEWCASTLE, WA 98059
EXISTING SITE ZONING:	R-6, CITY OF NEWCASTLE
TOTAL SITE AREA:	1.5 AC
PROPOSED LAND USE:	SINGLE FAMILY DETACHED
PROPERTY PARCEL NO.:	3424059012
PROPOSED NUMBER OF LOTS:	7 LOTS
PROPOSED DWELLING UNITS:	7 DWELLING UNITS

GENERAL NOTES

1. MAXIMUM ALLOWABLE DEFLECTION ON EACH JOINT SHALL NOT EXCEED ONE-HALF THE MANUFACTURER'S RECOMMENDED PERMISSIBLE DEFLECTION.
2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH COAL CREEK UTILITY DISTRICT STANDARD SPECIFICATIONS.
3. LOCATIONS OF THE EXISTING UTILITIES SHOWN ARE APPROXIMATE. EXISTING UTILITIES SHALL BE FIELD LOCATED BY REPRESENTATIVE UTILITY COMPANIES PRIOR TO CONSTRUCTION.
4. CONTRACTOR SHALL FIELD VERIFY ALL CONNECTIONS TO EXISTING PIPES FOR PROPER FITTING AND DEPTH.
5. CONTRACTOR SHALL NOTIFY ALL AFFECTED UTILITIES 24 HOURS PRIOR TO CONSTRUCTION.
6. ALL ADAPTERS ARE TO BE DUCTILE IRON FITTINGS.
7. VALVE POST MARKERS ARE TO BE INSTALLED FOR VALVES LOCATED OUT OF ASPHALTED AREAS.
8. "FIELD LOK" GASKETS MAY BE REQUIRED BY DISTRICT ON STEEP SLOPES.

Approved By:
Coal Creek Utility District
Date 7/26/08 Don Hanley

CALL BEFORE YOU DIG
Call: TOLL FREE
1-800-424-5555

18612 REGISTERED PROFESSIONAL ENGINEER 7/26/08
EXPIRES: MAY 6, 2007

FILE NAME (UPDATED BY) PLOT DATE & TIME

SYM	REVISION	DATE	BY	APP'D
	REVISED PER COAL CREEK UTILITY DISTRICT COMMENTS	09/12/08	JGC	DGS
	REVISE WATER PER COAL CREEK UTILITY DISTRICT COMMENTS	08/21/08	JGC	DGS

DESIGNED
DRAWN TLR
CHECKED JINGSON

Pacific Engineering Design, LLC
15445 53RD AVE. S. SEATTLE, WA 98188
PHONE: (206) 431-7970 FAX: (206) 388-1648 WEB SITE: PACENG.COM
Civil Engineering and Planning Consultants

COAL CREEK UTILITY DISTRICT
6801 132ND PLACE S.E.
NEWCASTLE, WASHINGTON 98059

REFERENCE INFORMATION	
FIELD BOOK:	
SURV. CPU FILE:	
DATUM: NGVD29	

DATE: JULY 26, 2007
SCALE: NOTED

VARNEY WATER EXTENSION
WATER PLAN/COVER SHEET

JOB NUMBER 07019.00
DWG NO. 06015WA.DWG
SHEET 1 OF 3

JOB No. 06015

PART TWO - MATERIALS

NOTE: "Developer" in these specifications shall also signify "Contractor" for the purpose of District Financed Projects.

2-1 GENERAL

All materials and equipment shall be new and undamaged. Where possible, the same manufacturer of each item shall be used throughout the job.

2-2 MATERIAL LISTS AND SPECIFICATIONS

The Developer or his Contractor shall deliver to the Engineer a material list not less than ten (10) days before commencement of construction. The list shall contain the manufacturer and model number, if applicable, of the material and equipment to be installed as a part of the work so that the Engineer may determine whether such materials conform to the Plans and Specifications. Materials that are not included in the material list shall not be installed as a part of the work. The manufacturer's technical specifications for pipe, appurtenances and equipment to be incorporated into the work shall be submitted to the Engineer at least ten (10) days before commencement of construction with the materials listed.

2-3 GUARANTEE BY MANUFACTURER

If requested by the District or the Engineer, a written guarantee made by the manufacturer of any materials to be incorporated into the work shall be furnished, guaranteeing to the District that such materials shall conform to these Specifications and any specifications otherwise applying to the work.

2-4 DUCTILE IRON PIPE AND FITTINGS

(a) Ductile iron pipe shall conform to AWWA Standard C-151. Pipe shall be thickness class 52 or as indicated on the Drawings. Pipe and fittings shall have cement mortar lining conforming to AWWA Standard C-104. Joints shall be mechanical joint or push-on joint and shall conform to AWWA Standard C-111.

(b) Cast iron fittings shall conform to AWWA Standard C-110 or C-153. Mechanical or push-on joints shall conform to AWWA Standard C-111. Flanged joints shall conform to ASA Standard B-16.1, class 125. Flange gaskets shall be ring type, cloth insert rubber, 1/16-inch thick, equal to Rainbow or Durable Garlock.

2-5 COPPER PIPE AND FITTINGS

(a) Copper pipe shall conform to ASTM B 88, type K, annealed.

(b) Fittings shall be brass conforming to ASTM B 62 for compression style connections.

See Standard Details.

2-6 VALVES

(a) Gate valves shall be resilient seated, non-rising stem, conforming to AWWA Standard C-515. Valves to have S.S. nuts and bolts. Valves shall be open by turning counterclockwise. Joints shall be as indicated on the Plans.

(b) Butterfly valves shall conform to AWWA Standard C-504 as supplemented herein. Valves shall be Class 150B with flanged, mechanical joint, or flanged x M.J. end connections. Valves in chambers shall be handwheel operated with integral position indicators. Buried valves shall have a stem extension with AWWA 2-inch operating nut and suitable valve box. Buried valves 14 inches or larger and other valves that may be designated "critical" shall be provided with a ground level position indicator and valve box adaptor. Rubber seats may be either body or disc-mounted. Valves using hardware to retain the seat shall positively secure all internal fastners with lockwires or equivalent means.

Manual operators shall be certified to withstand an input torque of 450 foot-pounds in either extreme position of travel. This torque shall be absorbed by individually adjustable travel stop mechanisms using the operator housing to limit travel. All valve operating nuts shall be brought to within three (3) feet of the finished grade.

2-7 FIRE HYDRANTS

Hydrants shall have a 5-1/4-inch main valve opening (MVO), 6-inch MJ connections, two 2-1/2-inch hose connections, ASA (National) standard thread and a 4-inch pumper connection with City of Seattle standard threads 4-875. They shall have 36 inches of ground cover unless otherwise required, and be flanged at the ground line. Hydrants shall be constructed that the direction of the pumper connection may be rotated to face the roadway. Hydrant shackles and straps shall be as shown on the Standard Details. Hydrants shall be EJIW Watermaster 5CD250 W/ Dust cap, Mueller, M & H, or Waterous Pacer model WB-67-250.

See Standard Details.

2-8 VALVE BOXES

Valve boxes shall be cast iron, two-piece, suitable for installation required, equal to Rich Co. style 045 with drop in handle or approved equal. Locking lids of approved design shall be used where designated on plans.

2-9 CORPORATION STOP, SERVICE CLAMP, CURB STOP

See Service Connections in Standard Details.

2-10 TWO-INCH BLOW OFF

See Standard Details.

2-11 PRESSURE REDUCING STATION

See Construction Drawings and Detail Sheet.

2-12 AIR AND VACUUM RELEASE VALVES

See Standard Details.

2-13 DETECTOR CHECK VALVE

Detector check valves shall be U.L. approved, FEBCO Model 806 DDC or equal.

See Standard Details.

2-14 HYDRANT GUARD POSTS

Guard posts shall be precast concrete nine inches (9") in diameter by six feet (6') long constructed with concrete having minimum strength of 3,500 psi. Reinforcing shall consist of a minimum of four (4) #3 deformed steel bars. See Standard Detail #4 for placement.

2-15 VALVE MARKER POSTS

Valve marker posts shall be equal to Fog-Tite Meter Seal Company product 4" x 4" - 42" long.

See Standard Details.

2-16 CONCRETE BEDDING AND BLOCKING

Bedding and blocking concrete shall be Portland cement concrete containing four sacks of cement per cubic yard and a maximum aggregate size of 1-1/2 inches. Maximum slump shall be 3-1/2 inches.

2-17 BOLTS IN PIPING

Bolts shall be carbon steel, zinc or chromium plated, brass or stainless steel.

2-18 BEDDING MATERIALS

Bedding material shall be well-graded, clean, granular sand and shall meet the following requirements:

U.S. Standard Sieve Size	% Passing By Weight
Sand:	
3/8" square opening	100
1/4" square opening	90-100
#10 sieve	40-75
#40 sieve	15-40
#200 sieve	0-15

2-19 TRENCH FOUNDATION MATERIAL

Over-excavated material shall be replaced with trench foundation material conforming to one of the following gradations as specified:

U.S. Standard Sieve Size	Class "A" Min.	Class "A" Max.	Class "B" Min.	Class "B" Max.
2-1/2" square opening	98%	100%	95%	100%
2" square opening	92	100	75	100
1-1/2" square opening	72	97	30	60
1-1/4" square opening	58	75	0	15
3/4" square opening	27	47	0	1
3/8" square opening	3	14	0	0
No. 4 sieve	0	1	0	0

2-20 ASPHALTIC CONCRETE

Asphalt concrete pavement shall conform to the technical requirements for Class B Asphalt in the latest edition of the State of Washington Standard Specifications for Road, Bridge and Municipal Construction.

2-21 TOP COURSE AND KEYSTONE MATERIAL

For use in restoration of excavated areas, Top Course and Keystone material shall be manufactured from ledge or talus rock, be free from wood, roots, bark and other extraneous material and shall conform to the following requirements.

U.S. Standard Sieve Size	% Passing By Weight
5/8" square opening	100
1/4" square opening	55-75
U.S. No. 40 sieve	8-24
U.S. No. 200 sieve	10 Max.
Sand Equivalent	40 Min.

2-22 BASE COURSE MATERIAL

Base course material shall conform to the following requirements:

U.S. Standard Sieve Size	% Passing By Weight
1-1/2" square opening	100
5/8" square opening	50-80
1/4" square opening	30-50
U.S. No. 40 sieve	3-18
U.S. No. 200 sieve	7.5 Max.
Sand Equivalent	40 Min.

2-23 IMPORTED BACKFILL MATERIAL

Imported backfill material shall be free from wood, bark, roots or other extraneous material and shall meet the following requirements:

U.S. Standard Sieve Size	% Passing By Weight
2-1/2" Square Opening	100
1/4" Sieve	25 Min.
No. 200	10 Max.
Sand Equivalent	35 Min.

PEA GRAVEL WILL NOT BE ALLOWED AS BACKFILL MATERIAL

PART THREE - CONSTRUCTION

3-1 GENERAL

Except as otherwise noted herein, all work shall be accomplished as recommended in the latest revision of AWWA and APWA Specifications and according to the recommendations of the manufacturer of the material and equipment concerned.

In roadway areas, all asphalt and concrete pavement shall be saw cut and vacuumed. When trenching operations cut through concrete pavement, the pavement shall be removed to a width of 18 inches greater than the top width of the trench. The concrete shall be saw cut on a straight line and shall be beveled so that the cut will be approximately 1 inch wider at the top than at the bottom. Asphalt paving shall be saw cut ahead of the backhoe to prevent excessive tearing up of the surfacing and to eliminate ragged edges.

3-2 ALIGNMENT

Pipe shall be laid to the specified grade and alignment as staked in the field. Alignment deviation shall not exceed 0.5 feet. Replacement of stakes lost or destroyed shall be made at the Developer's expense and in accordance with Contract Plans, including modifications called for by the District.

3-3 TRENCH

Trenches shall be excavated to the line and grade designated by the District. Except for unusual circumstances where approved by the District, the trench sides shall be excavated vertical and the trench shall be excavated to only such widths as are necessary for adequate working space. The maximum trench width at the top of the pipe shall normally be the outside diameter of the pipe barrel plus 16 inches. The trench shall be kept free from water until joining material has set. Surface water shall be diverted so as to not enter the trench. The Developer shall maintain sufficient pumping equipment on the job to insure that these provisions are carried out. Boulders, rocks, roots and other obstructions shall be entirely removed or cut out to the width of the trench and to a depth of 6 inches below water main grade. Where material is removed form below a water main grade, the trench shall be backfilled to grade with material satisfactory to the District and thoroughly compacted. Trenching operations shall not proceed until pipe laying is ready to commence and not more than 300 feet of trench shall be opened in advance of pipe laying operations without written approval of the District. All work on County right-of-way shall be backfilled in its entirety each day.

The depth of trenching for water mains shall be such as to give a minimum cover of 36 inches over the top of the pipe unless otherwise specified. Pipe cover shall be increased as required to provide minimum 6-inch clearance when crossing culverts or existing utilities, and due to localized breaks in grade. Where the profile of the pipeline and ground surface is shown on the Plans, the pipeline shall be laid to the elevation shown, regardless of depth. Excavation shall be to such depth that the minimum cover over the valve nuts shall be one foot. No valve shall be located in such a position as to be in any roadside ditch, drainage ditch or channel.

3-4 TRENCH FOUNDATION

If, in the judgement of the District, the native trench bottoms will provide a firm base for the subsequent placement of bedding, pipe and backfill, such native trench bottom may be used if the bottom is leveled and smoothed so that the entire length of pipe will rest on a well-compacted base. Trench bottoms shall be over-excavated as necessary to remove all unstable soil and eliminate "boiling" or "quick" conditions to such a depth as to provide a firm base. Over-excavated materials shall be replaced with trench foundation material as specified in Section 2-19. Foundation material shall be placed when ordered by the District.

3-5 TIMBERING AND SHEETING

The Developer shall provide and install timbering and sheeting as necessary to protect workers, the work, existing buildings, utilities and other properties, and shall meet all OSHA and WISHA requirements.

3-6 DUCTILE IRON

Pipe laying shall in general conform to AWWA Standard C-600 and the manufacturer's recommendations unless specifically contradicted by these Specifications. Special care shall be taken in handling pipe to avoid damaging ends, coatings and linings. Pipe shall be carried in slings and shall not be rolled or dragged.

The pipe shall be cleaned of all foreign material and examined for defects before lowering into the trench. Whenever the pipe laying is not in process, the last section of pipe shall be tightly capped or plugged. No pipe cutting will be allowed except by means of a cutter or other device approved by the District. The trench shall be overexcavated 4 inches and a sand bedding shall be placed and compacted under and around to the spring line of the pipe. After approval by the District, the backfilling shall then be completed in conformance with the section on backfilling of this Specification.

All pipe installed at slopes 15% or greater shall incorporate "Field Lok" gaskets and/or mechanical restrained joint glands.

3-7 BEDDING MATERIAL PLACEMENT

All rigid pipe shall be placed in bedding material of the type specified in Section 2-18. The bedding shall be placed from a minimum of four (4) inches below the pipe barrel to the spring line of the pipe as shown on the Standard Details. Bedding material shall be worked and compacted by hand under, around and over the pipe to the depths required for the full width of the trench.

Bedding shall be placed in more than one lift. The first lift, to provide at least 4-inch thickness under any portion of the pipe, shall be placed before the pipe is installed and shall be spread smoothly so that the pipe is uniformly supported along the barrel. Subsequent lifts of not more than 6-inch thickness shall be placed as shown on the Standard Details and individually compacted to minimum 90 percent of maximum density.

3-8 BACKFILLING

No backfilling shall be performed until after the District has inspected the installation of the pipe and bedding and approved backfilling.

The initial backfill shall be hand placed select material spread evenly over the bedding material and compacted by hand up to an elevation of 12 inches above the top of the pipe. This shall be done in such a manner that subsequent backfilling will not disturb the pipe in any way. Subsequent lifts of not more than 12-inch thickness shall be placed as shown on the Standard Details and individually compacted to minimum 90 percent maximum density. Subsequent backfilling shall be performed by pushing material from the end of the trench along and directly over the pipe so that the material will be applied in the form of rolling slope, rather than by side filling. Backfilling from the sides of the trench will not be done until the District has determined that material has been carefully placed over the pipe to a sufficient depth.

In areas such as existing paving, or in areas to be paved or shoulder areas, where the District determines minor settlement would be detrimental and the native excavated material is not suitable for compaction as backfill, the trench shall be backfilled with imported backfill material as specified in Section 2-23.

3-9 COMPACTION OF BACKFILL

Compaction of backfill and backfill procedures in public rights-of-way shall, at the minimum, conform to the requirements of the governmental agency having jurisdiction thereof.

Backfilling shall be compacted to 95 percent of maximum theoretical density, from the pipe crown to the surface, in all areas where paving will be placed over the backfill and in shoulder areas and to 90 percent of maximum theoretical density in all other areas. Measurement of compaction density shall be by the modified AASHTO method.

Compaction of backfill shall be achieved by power operated tampers, or roller vibration equipment. Water settling will not be accepted as a means of compaction. If excavated material has a CaliforniaBearing Ratio for compacted and soaked sample of less than 7, or for any other reason in the judgement of the District cannot be compacted as specified, such excavated material shall be replaced with imported backfill material. No backfill shall be placed without immediate compaction according to these specifications.

The District will require that the services of an independent testing laboratory or County testing laboratory be employed to perform in-place density tests to ascertain whether the specified density can be or has been obtained, and the cost thereof shall be borne by the Developer.

Regardless of the approval of the District as to the manner of compaction or testing, the Developer shall repair any settlement of trenches and excavations that may occur within two years after compaction and formal acceptance of the work by the District.

3-10 POLYETHYLENE ENCASEMENT

Where the District determines that the pipe will be installed in corrosive soils, the Developer will protect the pipe with a polyethylene encasement as per ANSI/AWWA C105/A 21.5-82. No holes or repairs in the polyethylene encasement are allowed. Tapeing is required - poly wrap tape.

3-11 JACKED OR BORED CROSSING

All work shall be done in accordance with the requirements of the agency in control of the facility being bored or jacked. See highway crossings and railroad crossings (Section 3-12) for further details.

3-12 HIGHWAY CROSSINGS AND RAILROAD CROSSINGS

This item applies only to rigid surface pavements. The Developer may use any method that provides satisfactory results and is acceptable to the governmental agency having control of the road and to the District, provided that the Developer restores the roadway to its original condition. Normally, highway crossings require the placing of a steel casing by jacking or tunneling and laying the water mains within this casing. For steel casing specifications - see Plans. For District Standards for boring or tunneling see "Water or Sewer Casing Detail" on separate sheet.

3-13 FIRE HYDRANT INSTALLATION

Hydrant installation shall generally conform to AWWA Standard C-600 and the Standard Detail "Fire Hydrant Assembly". The concrete guard posts as shown on the Standard Detail Drawing shall be installed where required by the District. Shackle rods shall receive two coats of cold tar or asphalt prior to installation. Pumper nozzle shall face the road after installation is completed.

3-14 GATE VALVE INSTALLATION

Before installation, gate valves shall be cleaned of all foreign material as earlier specified for installation of pipe. Such blocking as the District may deem necessary shall be provided. The valve and valve box shall be set plumb with the valve box centered on the valve. The top of the valve box shall be set to the grade indicated by the District. If the valve nut is over 3 feet deep, operating nut extensions shall be used.

Valve markers shall be set where required by the District. The marker shall be set on a line through the valve at a right angle to the centerline of the road. The marker shall be generally set on the property line unless the District decides another location is safer or more conspicuous. Operating nut extensions shall be used if the nut is over 3 feet deep.

3-15 VALVE BOX INSTALLATION

Valve boxes shall be set flush in pavement. If placed in gravel areas, an asphalt pad 2 inches thick and three feet in diameter shall be placed around the box. No valve boxes shall be installed in the curb and gutter areas.

3-16 CONCRETE BLOCKING

Concrete blocking shall be cast from 1:3:6 mix with a slump of not more than six inches (6"). Concrete blocking shall be cast-in-place, (not mixed in trench) and have a minimum of 1/4 square foot bearing against the fitting and bearing area against undisturbed soil as shown in the Standard Details. Additional bearing area may be required by the District. Blocking shall bear against fittings only and shall be clear of joints to permit taking up or dismantling joints. All hydrants, bends, tees, and valves shall be blocked. The Developer shall install blocking that is adequate to withstand full test pressure as well as operating pressures under all conditions of service. Vertical blocking, when required, shall conform to that shown in the Standard Details.

3-17 AIR AND VACUUM RELEASE VALVE INSTALLATION

See Plans. Location of the air release valves as shown on the Plans is approximate. The installation shall be set at the high point of the line.

3-18 HYDROSTATIC PRESSURE TEST

The hydrostatic pressure test shall be performed after the water system to be tested is initially filled, but before bacteriological sampling is conducted. Filling of mains from existing facilities shall be through an approved Reduced Pressure Backflow Device (RPBD) or Double Check Valve Assembly (DCVA).

Hydrostatic pressure tests shall be performed on all valved sections. The test shall be made at the low point of the section. Only District personnel shall operate valves. At no time shall the Developer's personnel operate valves during the testing procedures.

The Developer shall provide all necessary equipment, including temporary blowoff assemblies and provisions for temporary thrust restraint, and shall perform all work connected with the tests. The installation shall be tested at 250 psi. All mains, valves, hydrants, service fittings, and thrust blocks are to be tested at 250 psi. All service lines shall be tested from the main to the curb stop, in conjunction with the main at the pressure stated above. Containers used during testing must be clean of debris and disinfected. A 300 p.s.i. pressure gauge is to be used during test.

For approval, the pressure shall not drop more than 5 psi in 15 minutes. Any deffective joints, pipe or fittings shall be replaced at the Developer's expense and the test repeated until satisfactory. Maximum test L = 1000 Ft. A 300 psi guage shall be used.

3-19 STERILIZATION AND FLUSHING OF WATER MAIN

Sterilization of water lines shall conform to AWWA Standard C-651. Chlorination shall be by chloride-bearing compound placed in each pipe length or capsules secured to the top of the barrel of each pipe length. Chlorine residual shall not be less than 50 parts per million. Sterilization shall include all pipe mains, all pipe runs to hydrants and all service lines to the curb stop. Contact period shall be for a minimum of 24 hours during which time all valves shall be opened and closed. After the contact period, all mains, services and pipe runs to hydrants shall be thoroughly flushed and dechlorinated. A pressure test will be taken; then a water sample taken for testing and approval by the Washington State Department of Health. Flushing water drawn from pipe or hydrant shall pass through an approved RPBD or DCVA. No pressure testing is allowed during contact period.

The environment to which the chlorinated water is to be discharged shall be inspected and if there is any question that the chlorinated discharge will cause damage to the environment, a reducing agent shall be applied to the water to to be wasted to neutralize the chlorine residual remaining in the water. Disposal may be made to any available sanitary sewer provided the rate of disposal does not overload the sewer and the disposal is approved by the sewer agency having jurisdiction. Where necessary, federal, state and local regulatory agencies should be contacted to determine special provisions for the disposal of heavily chlorinated water.

Water required for flushing and testing due to non-passing purity tests, and to main breaks caused by the Developer, shall be paid for by the Developer at the existing Water District rates.

3-20 REPLACING ROAD SURFACING

The Developer shall restore all roadway and driveway surfaces excavated or disturbed to a condition acceptable the District and to the government agency having control of the road. Before replacing asphalt surfacing, the edges of the existing asphalt shall be trimmed, as necessary, to make a smooth joint. Where concrete must be broken out prior to trench excavation, the cut in the concrete shall be made by sawing square and straight with a concrete saw to a depth of not less than 1 inch.

3-21 SERVICE CONNECTION

(a) Ductile Iron Pipe: Connections into ductile iron pipe shall be by single strap saddles for 1-inch or smaller services and shall be made with double strap saddles for 1-1/2-inch and larger. Connections larger than 1-1/2-inch shall be made as required by the District. All saddles shall be epoxy coated and have stainless steel straps.

(b) Service saddles, corporation stops, tees, curb stops and reducers shall be as manufactured by Ford or equivalent.

(c) Taps to be made using tapping machine.

3-22 CONNECTION TO EXISTING PIPE LINES

No connections shall be made to the existing system until all hydrostatic and purity tests have been satisfactorily completed for the new sections of pipe. The two systems shall be completely isolated up to this point.

Where cut-ins are to be made in existing pipes, the work shall be conducted at such a time and in such a manner as to minimize the interruption of service. Necessary pipe, fittings and gate valves shall be assembled at the site ready for installation prior to shutting off water in the existing main. Once the water has been cut off, the work shall be prosecuted vigorously and shall not be halted until the line is restored to service. All fittings required for the connection shall be thoroughly swabbed with chlorine solution prior to connection Unless specifically provided for elsewhere in these Specifications, the Developer shall have the responsibility of giving at least 24 hours notice to the District of intention to disrupt service and shall give at least 24 hours notice to the affected water users.

Developer shall not operate any valves, including fire hydrant valves, in any part of the existing water system, except in the presence of the District. Developer shall notify the District 24 hours in advance of the need to operate valves.

3-23 WET TAPS

The material requirements for wet or "hot" taps of existing pipe lines shall be as follows:

TAPPING GATE VALVES

Valves shall be of the resilient-seated variety and shall meet or exceed the requirements of AWWA C509. Valves shall be coated internally and externally with fusion bonded epoxy coating meeting or exceeding AWWA C550. Double metal disc or solid metal wedge valve designs are not acceptable. All valves shall be new and of current manufacture, and shall display a current casting date.

For applications with working pressures exceeding 175 psi, a ductile iron valve rated for 250 psi or higher working pressure shall be used. The valve shall be U.S. Pipe Metroseal 250 or approved equal. For applications with working pressures below 175 psi, valves of the following manufacture, or an approved equal, are acceptable. Clow, M & H, Mueller, U.S. Pipe.

TAPPING SLEEVES

All tapping sleeves shall be rated by their manufacturer for a working pressure of at least 200 psi. Acceptable sleeve types are as follows:

"Mechanical Joint" Style: May be of either ductile or grey iron construction, although ductile iron is preferred. Acceptable for both size-on-size and non size-on-size applications on cast iron, ductile, iron, and AC mains through 12" on 12" only. All mechanical joint sleeves shall be new and of current manufacture shall display a current casting date and be manufactured by Clow, Dresser, Mueller, Tyler, U.S. Pipe or approved equal.

"Stainless Steel" Style: The District prefers all stainless construction in this style. However, stainless sleeves with ductile iron (but not carbon steel) flanges are also acceptable. These sleeves are acceptable for all applications on ductile iron, cast iron and AC mains through 12" on 12" only. Stainless sleeves shall be manufactured by JCM or Romac or be an approved equal.

The District may at their option make all connections to existing mains and make all crossings of existing roadways at the expense of the Developer.

3-24 BACKFLOW PREVENTION DEVICES

Where the possibility of contamination of the water supply exists, the District will require certain services be equipped with a backflow prevention device. The only acceptable device is that which operates on the reduced pressure principle as indicated in the latest edition of the DOH approved list. The determination as to the need, size and location of a backflow device shall be determined solely by the District.

3-25 TRAFFIC CONTROL

All traffic control shall be according to the Manual of Uniform Traffic Control Devices and/or the agency with local jurisdiction. During construction, traffic shall not be delayed for more than 5 minutes unless previously approved by the District and the agency of jurisdiction.

3-26 ASBESTOS CEMENT PIPE

All pipe work and procedures are to be followed as set forth in WAC-296-62-077 thru 296-62-0776, including appendix A thru J.

3-27 NEW WATER SERVICE LINES

All new water service lines shall be marked with a 2" x 4" board which is to be located at meter box and the top of which shall be painted white and extended 4 feet above the ground labeled "WATER" in 2" high blue stenciled letters.

3-28 STREAMGUARD CATCH BASIN INSERTS

All catch basins located along project shall have a streamguard sediment catch basin insert model 9226 as manufactured by Ultra-Drain Guard, model 3003 as manufactured by Foss Environmental or approved equal installed. Inserts are to be cleaned and replaced by Contractor per manufacturer's recommendations or by District direction.

FILE NAME (DRAWN BY) | PLOT DATE & TIME

DESIGNED | DRAWN TLR | CHECKED JINGSON

SYM	REVISION	DATE	BY	APP'D
	REVISE WATER PER COAL CREEK UTILITY DISTRICT COMMENTS	08/21/08	JGC	DGS

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Civil Engineering and Planning Consultants

COAL CREEK UTILITY DISTRICT
6801 132ND PLACE S.E.
NEWCASTLE, WASHINGTON 98059

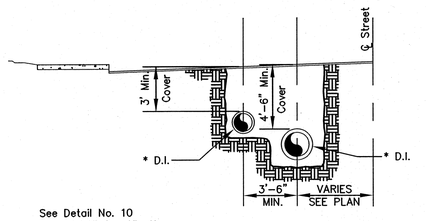
REFERENCE INFORMATION
FIELD BOOK:
SURV. CPU FILE:
DATUM: NGVD29

DATE: JULY 26, 2007
SCALE: NOTED

VARNEY SUBDIVISION STANDARD NOTES

JOB NUMBER 07019.00
DWG NO. 06015WANOTES-P2.DWG
SHEET 2 OF 3

JOB No. 06015

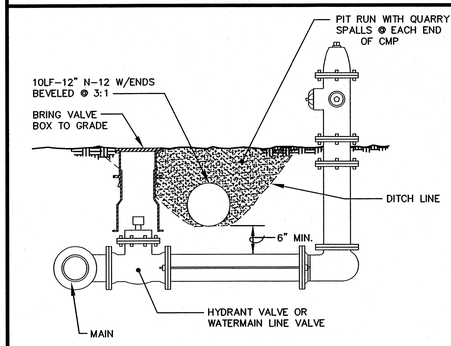


See Detail No. 10
For Backfill Specifications

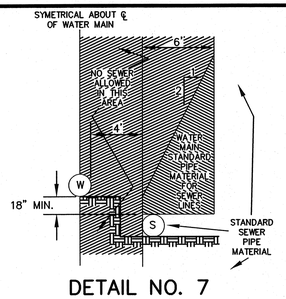
* Size as noted

SECTION B–B
SCALE 1" = 5'-0"

DETAIL NO. 1
TYPICAL TRENCH CROSS SECTION
WITH TWO PARALLEL WATER LINES



DETAIL NO. 2
INSTALLATION OF VALVES
& HYDRANTS IN DITCHES



DETAIL NO. 7
FOR PARALLEL CONSTRUCTION

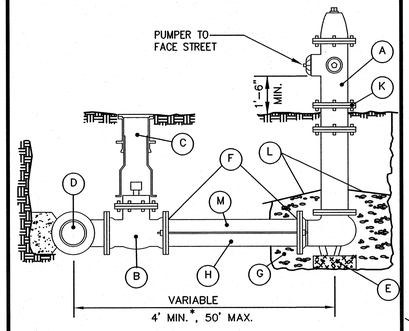
Table 1

WATER MAIN STANDARD PIPE MATERIAL

TYPE OF PIPE	AWWA (ASTM) STANDARD PIPE	JOINT	FITTINGS
Ductile Iron	C 151 & C104	C 111	C 153

All water and sewer line separation shall meet DOE Standards.

For Perpendicular Construction
For perpendicular sewer line crossings, lay sewer below water lines and provide 18 inches of separation between inverts of water lines and crown of sewer pipes. If this is not possible, use material standards as set forth above for the sewer with minimum 18 feet length centered over crossing to maximize joint separation.

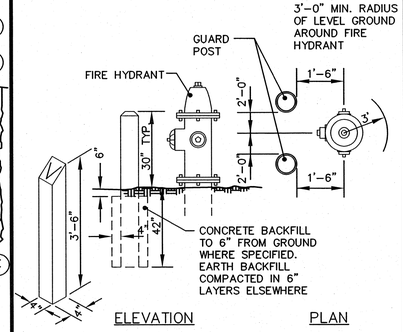


* Consult Engineer if less than 4 feet

Item	Quantity	Item Description
A	1	FIRE HYDRANT: 1–4" PUMPER–SEATTLE STANDARD THREAD 2–2½" HOSE NOZZLES–NATIONAL STD. THREAD MECHANICAL JOINT SHOE
B	1	AUXILIARY GATE VALVE: 6" – AWWA C509 RESILIENT SEAT, MJ x FL
C	1	VALVE BOX: CAST IRON SLIDE EXTENSION & BASE LID TO HAVE DROP IN HANDLE.
D	1	TEE: 6" FLANGED OUTLET
E	1	CONCRETE BRICK: 8" x 16" x 4"
F	2	RESTRAINED JOINT GLAND: MEGA–LUG OR EQUAL
G	¼ CY	1½" WASHED ROCK
H	Var.	6" DUCTILE IRON PIPE: CEMENT LINED, CLASS 52
J		DELETED
K	1	HYDRANT EXTENSION, WHERE REQUIRED
L	1	PLASTIC SHEETING OVER WASHED ROCK.
M	Var.	FIELD LOCK GASKETS AT PIPE BELL'S

1. Hydrants shall be painted with two coats of Seymour/Krylon Paint Equipment No. 00481 (Yellow).
2. All hydrants shall be break–away type, per King County standards
3. Pumper Cap shall be located one foot minimum behind sidewalk.
4. Hydrant to be located five feet behind curb if no sidewalk is present.

DETAIL NO. 3
FIRE HYDRANT ASSEMBLY



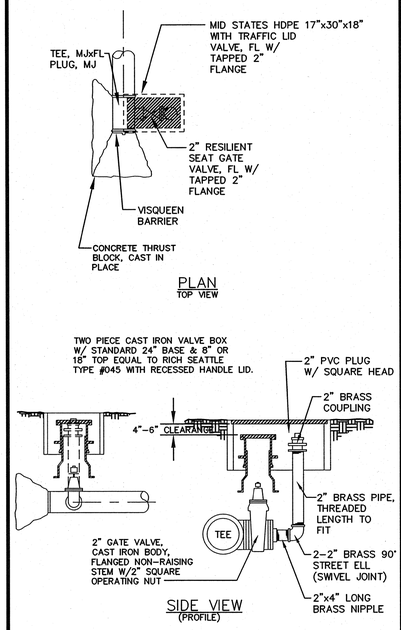
VALVE
MARKER POST

FIRE HYDRANT GUARD POST
GUARD POST WILL NOT BE ALLOWED IN THE STREET CLEAR ZONE AS PER KING COUNTY REQUIREMENTS

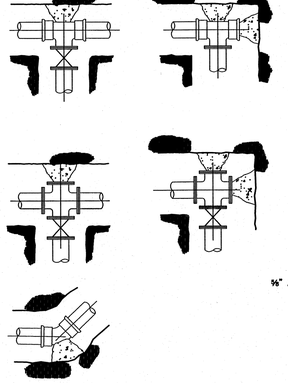
Notes:

1. Guard post shall be 9" diameter x 6' long precast concrete posts as per technical specifications. Paint with two (2) coats of Seymour/Krylon Paint Equipment Yellow No. 00481.
2. Valve marker post as specified. Paint as specified for hydrant guard post. Paint distance from the valve marker to the valve on the post with black enamel paint, using 2" high numerals.

DETAIL NO. 4
GUARD AND MARKER POSTS



DETAIL NO. 5
2" BLOW OFF



PIPE SIZE dia. in.	BEARING AREA of BLOCK sq. ft. TEES & BENDS	90° BEND	45° BEND	22½° BEND	11¼° BEND
6"	3	4	2	1.5	0.8
8"	5	7	4	2	1
10"	8	11.2	6	3	1.6
12"	13.0	18.0	10	5	3
16"	20	28.5	16	8	4

Notes:

1. All blocking shall be poured against firm undisturbed soil. blocking in organic soils or fill area to be designed by engineer.
2. Bearing area at fittings not given in bearing table shall be as directed by the Engineer.
3. When pouring against plugs and blind flanges, set steel meter box lid against fitting to keep concrete off bolts.
4. Layout to be approved by District prior to concrete pour.
5. For blocking scheme other than shown above, contact District Engineer for detail.

TYPE "A" BLOCKING FOR 11¼°/22½° VERTICAL BENDS

PIPE SIZE Nom. diameter inches	TEST PRESSURE psi	VERTICAL BEND degrees	VB CONC. @ BLOCKING cu. ft.	S SIZE OF BLOCK feet	d DIAMETER OF SHACKLE ROD inches	L DEPTH OF RODS IN CONCRETE feet
4"	250	11¼°	8	2.0	5/8"	1.5
		22½°	11	2.2		2.0
6"	250	11¼°	11	2.2	5/8"	2.0
		22½°	25	2.9		
8"	250	11¼°	16	2.5	5/8"	2.0
		22½°	47	3.6		
12"	250	11¼°	54	3.8	5/8"	2.0
		22½°	120	5.0	3/4"	2.5
16"		11¼°	96	4.5	7/8"	3.0
		22½°	215	6.0	1–¼"	4.0

TYPE "B" BLOCKING FOR 45° VERTICAL BENDS

4"	250	45°	30	3.1	5/8"	2.0
6"			68	4.1		
8"			123	5.0		
12"	250		294	6.6	3/4"	3.0
16"	*		*	*	*	*

* To be designed by Engineer

DETAIL NO. 6
CONCRETE BLOCKING

TOP OF SETTER TO BE 6" FROM FINISHED GRADE

A. Service Clamp, Ford model FC 101 or FC 202, or Equal.

B. Corporation Stop, Ford or Equal. I.P. Threads.

C. Copper Tubing, ASTM B 88, Type K.

D. Curb Stop, Ford or Approved Equal. Curb Stops to be 18" Deep Minimum to 36" Deep Maximum.

E. 1" Copper Setter with Locking Stop, C.T.S. Inlet and Horizontal Outlet, Angle Check Valve Outlet, 12" High per District Requirements. Ford No. VH 74–12W–11–44, or Equal. 1" x 4" brass nipple between curb stop and setter.

F. Traffic Areas: Meter Box Shall be Mid States HDPE 13"x24"x18" with Mid States 13"x24" ductile iron lid with reader. Traffic Lid Required With 2" M.X.U Hole.

F. Non Traffic Areas: Raven Meter Box 13"x24"x18" with reader lid.

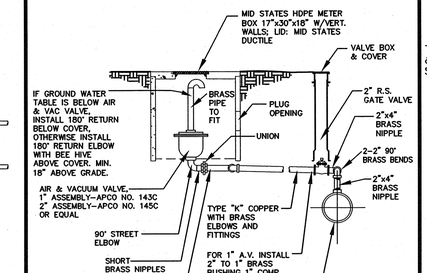
G. 2" PVC SDR 21Connecting Pipe for Radio Read Conduit (Length as Required) Locate 6" Below Top of Box and 5" From Customer End of Box. 2" ID, 2–3/8" OD, 2–1/2" Hole Typical

H. 2–1/2" Diameter Hole Located 4" From Both Edges of Lid

NOTES:

1. Single Service Lines are 1" Diameter.
2. Equal Materials Must be Approved by the District.
3. Copper Setter for Services with Multi–Residential Equivalents and Equivalents and all Commercial Services Shall Have a By–Pass with a Valve with Padlock Wings. Ford No. VFH66–12B or Equal.
4. No Meter Boxes in Sidewalks or Driveways.
5. After District Requirements Have Been Met, Meter(s) will be Installed Upon Completion of the Structure's Foundation and Roof.
6. Bedding Material Shall be used to Backfill Around Corp. Stop and Service Line.

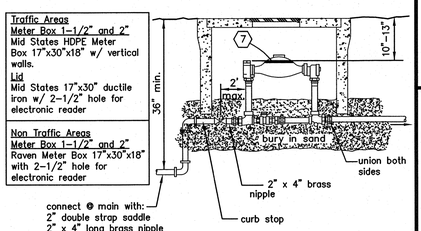
DETAIL NO. 8
SERVICE CONNECTIONS BEHIND SIDEWALK



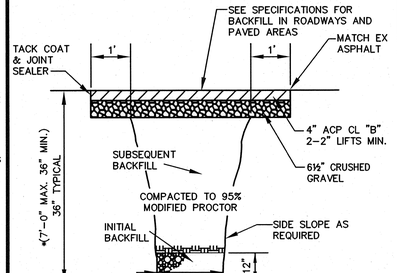
NOTE:
For 8" ductile iron pipe a 1" air/vac assembly is to be installed. For 12" and larger ductile iron pipe a 2" air/vac assembly is to be installed.

DETAIL NO. 9
AIR AND VACUUM RELEASE ASSEMBLY

Traffic Areas
Meter Box 1–1/2" and 2" Mid States HDPE Meter Box 17"x30"x18" w/ vertical walls.
Lid Mid States 17"x30" ductile iron w/ 2–1/2" hole for electronic reader
Non Traffic Areas Meter Box 1–1/2" and 2" Raven Meter Box 17"x30"x18" with 2–1/2" hole for electronic reader



1–1/2" & 2" METERS



MIN. WIDTH: WHEN h IS LESS THAN 1', MIN. WIDTH = O.D. + 16". WHEN h IS GREATER THAN 1', MIN. WIDTH = O.D. + 24".

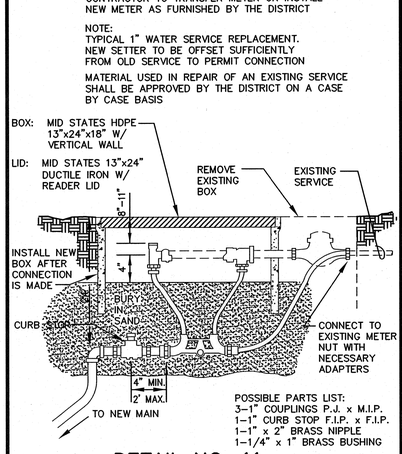
*NOTE:
Depths may increase as required. Additional fittings may be required to adjust grade to avoid conflicts.

DETAIL NO. 10
TRENCH CROSS SECTION FOR D.I. PIPE

CONTRACTOR TO TRANSFER METER OR INSTALL NEW METER AS FURNISHED BY THE DISTRICT

NOTE:
TYPICAL 1" WATER SERVICE REPLACEMENT. NEW SETTER TO BE OFFSET SUFFICIENTLY FROM OLD SERVICE TO PERMIT CONNECTION

MATERIAL USED IN REPAIR OF AN EXISTING SERVICE SHALL BE APPROVED BY THE DISTRICT ON A CASE BY CASE BASIS

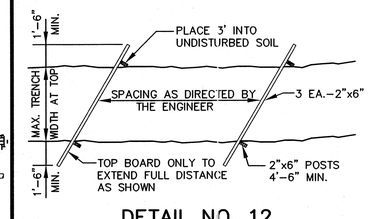


POSSIBLE PARTS LIST:
3–1" COUPLINGS P.J. x M.I.P.
1–1" CURB STOP F.I.P. x F.I.P.
1–1" x 2" BRASS NIPPLE
1–1/4" x 1" BRASS BUSHING

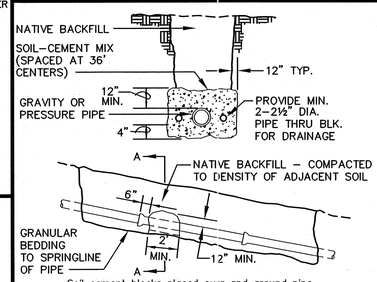
DETAIL NO. 11
REPLACEMENT OF
EXISTING SERVICE

Notes:

1. Timber baffles to be installed where directed by the Engineer or District Inspector.
2. All backfill shall be seeded.



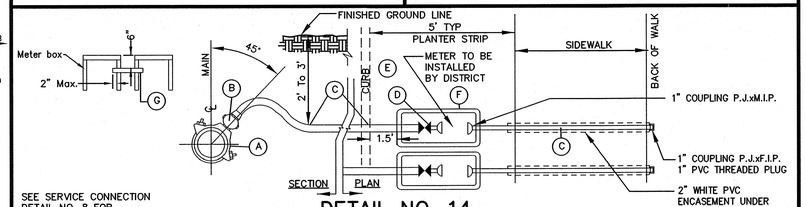
DETAIL NO. 12
HILL HOLDER



Soil cement blocks placed over and around pipe. Tamped into place before placing backfill. Use 10 percent cement with 30 percent native soil and water to suit to form a dry mix that will hold its shape when molded into a ball. Omit soil cement blocks on slopes less than 15 percent

NOTE: "FIELD LOK" GASKETS MAY BE USED IN LIEU OF PIPE ANCHORS.

DETAIL NO. 13
PIPE ANCHORS



SEE SERVICE CONNECTION DETAIL NO. 8 FOR ADDITIONAL CALLOUTS

DETAIL NO. 14
SERVICE CONNECTIONS IN PLANTER STRIP

SYM	REVISION	DATE	BY	APP'D
	REVISE WATER PER COAL CREEK UTILITY DISTRICT COMMENTS	08/21/08	JGC	DGS

DESIGNED
DRAWN TLR
CHECKED JINGSON

PLOT DATE & TIME
FILE NAME (UPDATED BY)
XREF'D NONE

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15445 53RD AVE. S. SEATTLE, WA 98188
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STANDARD DETAILS

JOB NUMBER 07019.00
DWG NO. 06015WADTLS–P3.DWG
SHEET 3 OF 3

JOB No. 06015