

# KING COUNTY WATER DISTRICT NO. 90

## CONSTRUCTION PROVISIONS

UPDATED: 2/14/2013

### CONSTRUCTION PROVISIONS

1. STANDARD SPECIFICATIONS

THE PROJECT IS TO BE BUILT AND CONSTRUCTED IN ACCORDANCE WITH THE "2010 STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION," PREPARED JOINTLY BY THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION AND THE WASHINGTON STATE CHAPTER OF THE AMERICAN PUBLIC WORKS ASSOCIATION AS AMENDED REGULARLY BY THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION, AND HEREINAFTER REFERED TO AS THE "STANDARD SPECIFICATION," EXCEPT WHERE HEREIN SUPPLEMENTED OR MODIFIED IN THESE DOCUMENTS. IMPROVEMENTS IN KING COUNTY RIGHT-OF-WAY SHALL ALSO CONFORM TO THE LATEST REVISION OF THE KING COUNTY ROAD STANDARDS. IN CASES OF CONFLICT THE FOLLOWING SUPPLEMENTS AND MODIFICATIONS SUPERSEDE THE STANDARD SPECIFICATIONS.

2. TRAFFIC MAINTENANCE AND PROTECTION

ALL WORK SHALL BE PERFORMED WITH DUE REGARD FOR THE SAFETY AND CONVENIENCE OF THE PUBLIC AND SO THAT INTERFERENCE WITH AUTOMOTIVE AND PEDESTRIAN TRAFFIC WILL BE MINIMIZED. FLAGGING PERSONNEL, BARRICADES, SIGNS AND TRAFFIC CONTROL FURNISHED OR PROVIDED SHALL CONFORM TO THE STANDARDS ESTABLISHED IN THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. ALL FLAGGERS SHALL BE CERTIFIED AND CARRY IN THEIR POSSESSION A CARD THAT VERIFIES THEY HAVE SUCCESSFULLY COMPLETED TRAINING TO BECOME A CERTIFIED FLAGGER. THE DISTRICT MAY REQUIRE THE CONSTRUCTION OF TWO-WAY BRIDGES OF APPROVED CONSTRUCTION ON STREETS WITH HIGH TRAFFIC VOLUME. WHERE DETOURS ARE BUILT, THEY SHALL BE GRADED AND MAINTAINED TO THE SATISFACTION OF THE DISTRICT.

WHERE CONSTRUCTION HAS BEEN COMPLETED OR IS IN PROGRESS IN EXISTING STREETS, THE STREETS SHALL BE GRADED AND MAINTAINED TO THE SATISFACTION OF THE DISTRICT. NO DETOURS FOR FOOT TRAFFIC SHALL BE MORE THAN ONE BLOCK IN LENGTH AND WHERE CROSSING TRENCHES, DETOURS SHALL BE PROVIDED WITH ADEQUATE FOOTBRIDGES WITH HANDRAILS. AT LEAST ONE HALF OF EXISTING STREETS SHALL BE LEFT OPEN FOR TRAFFIC AND EMERGENCY VEHICLES AT ALL TIMES.

3. CONFINEMENT OF CONTRACTOR'S OPERATIONS

THE CONTRACTOR SHALL CONFINE CONSTRUCTION ACTIVITIES WITHIN THE PROPERTY OF THE DEVELOPER AND THE LIMITS OF EASEMENTS AND CONSTRUCTION/RIGHT-OF-WAY PERMITS OUTSIDE OF THE DEVELOPER'S PROPERTY. ALL WORK ON EASEMENTS AND PERMIT AREAS OUTSIDE THE DEVELOPER'S PROPERTY SHALL BE PERFORMED IN STRICT COMPLIANCE WITH THE PROVISIONS OF THE EASEMENT OR PERMIT. ANY DAMAGE TO PROPERTY OR PERSONS FROM ANY ENCROACHMENT BEYOND THESE LIMITS SHALL BE THE RESPONSIBILITY OF THE DEVELOPER. EQUIPMENT AND MATERIALS STORAGE SHALL BE CONFINED TO THE DEVELOPER'S PROPERTY. PIPE STRUNG ON PUBLIC RIGHTS-OF-WAY SHALL BE PLACED A SAFE DISTANCE FROM ANY TRAVELED ROAD IN SUCH MANNER AS

TO AVOID ACCIDENTAL ROLLING ONTO THE ROAD. NO DRIVEWAYS SHALL BE BLOCKED. LIGHTED BARRICADES IN AN ADEQUATE NUMBER AND LOCATION PURSUANT TO STATE, COUNTY AND LOCAL REGULATIONS SHALL BE PROVIDED.

4. PLANS AND SPECIFICATIONS ACCESSIBLE

THE DEVELOPER/CONTRACTOR SHALL HAVE ONE COPY OF THE PLANS AND SPECIFICATIONS CONSTANTLY ACCESSIBLE ON THE JOB.

5. TRENCH EXCAVATION, FOUNDATION BEDDING AND BACKFILL

THE CONTRACTOR SHALL EXCAVATE ALL MATERIALS ENCOUNTERED TO THE DEPTH SHOWN ON THE DRAWINGS AS SPECIFIED, OR AS DIRECTED BY THE ENGINEER.

WHEN NATIVE MATERIAL AT THE TRENCH BOTTOM IS SUITABLE FOR PIPE BEDDING, THE BOTTOM SHALL BE HAND FINISHED TO GRADE SO THAT THE PIPE WILL HAVE UNIFORM SUPPORT ALONG THE BARREL AND BELL. AFTER THE PIPE IS IN PLACE, ADDITIONAL HAND-SELECTED NATIVE MATERIAL SHALL BE PLACED AND TAMPED IN PLACE AROUND THE PIPE UP TO THE HORIZONTAL DIAMETER OF THE PIPE.

WHEN NATIVE MATERIAL AT THE TRENCH BOTTOM IS STONY OR OTHERWISE NON-UNIFORM, THE TRENCH SHALL BE OVER-EXCAVATED 4-INCHES BELOW THE SPECIFIED GRADE. THE CONTRACTOR SHALL THEN FURNISH AND PLACE A LAYER OF PIPE BEDDING MATERIAL AS PROVIDED IN SECTION 9-03.15 OF THE STANDARD SPECIFICATIONS TO THE SPECIFIED GRADE. AFTER THE PIPE IS IN PLACE, ADDITIONAL BEDDING MATERIAL SHALL BE PLACED AND TAMPED IN PLACE AROUND THE PIPE UP TO A POINT 1-FOOT ABOVE THE TOP OF PIPE.

WHERE THE TRENCH BOTTOM IS IN A MATERIAL WHICH IS UNSUITABLE FOR FOUNDATION, OR MATERIAL WHICH WILL MAKE IT DIFFICULT TO OBTAIN UNIFORM BEARING FOR THE PIPE, SUCH MATERIAL SHALL BE REMOVED AND A STABLE FOUNDATION PROVIDED IN ACCORDANCE WITH PARAGRAPH 7-10.3(8) OF THE STANDARD SPECIFICATIONS.

THE PORTION OF THE BACKFILL ABOVE THE POINT 1-FOOT FROM THE TOP OF THE PIPE SHALL BE SUITABLE NATIVE BACKFILL OR FINELY DIVIDED EARTH, FREE FROM STONES LARGER THAN 2-INCHES IN DIAMETER. THE MATERIAL SHALL BE CARRIED UP EVENLY ON BOTH SIDES OF THE PIPE SIMULTANEOUSLY IN APPROXIMATELY 6-INCH LAYERS, AND EACH LAYER THOROUGHLY COMPACTED WITH APPROPRIATE TOOLS IN SUCH MANNER AS TO AVOID INJURING OR DISTURBING THE COMPLETED PIPELINE.

AT THE TIME OF COMPLETION OF BACKFILL AND COMPACTION, ALL TRENCH BACKFILL WITHIN THE RIGHT-OF-WAY SHALL BE MECHANICALLY COMPACTED TO 95% OF MAXIMUM DENSITY PER MODIFIED PROCTOR. ANY TRANSVERSE OPEN CUT WITHIN RIGHT-OF-WAY SHALL BE BACKFILLED ENTIRELY WITH 1 ¼" CRUSHED SURFACING BASE COURSE, AS SPECIFIED IN SECTION 9-03.9(3) OF THE STANDARD SPECIFICATIONS. BACKFILL COMPACTION ON PRIVATE EASEMENTS WHICH ARE NOT USED FOR DRIVING PURPOSES SHALL BE MECHANICALLY COMPACTED TO 90% OF MAXIMUM DENSITY PER MODIFIED PROCTOR.

6. COVER OVER PIPELINES

MAINS SHALL BE INSTALLED WITH A MINIMUM DEPTH OF COVER OF 36-INCHES FOR 8-INCH DIAMETER AND SMALLER MAINS AND 48-INCHES FOR MAINS OVER 8-INCHES IN DIAMETER. EXCEPTIONS WILL BE ALLOWED ONLY WITH THE PRIOR APPROVAL OF THE ENGINEER. MINIMUM SEPARATION BETWEEN OTHER UTILITIES AND OTHER WATER MAINS SHALL BE 6-INCHES WITH SAND CUSHION.

7. WATER METER LOCATIONS

WATER SERVICES SHALL BE LOCATED AT LEAST 5-FEET FROM POWER VAULTS, HAND HOLES, AND/OR LIGHT STANDARDS.

8. CONNECTION TO EXISTING WATER MAINS

CONTRACTOR SHALL LEAVE EXISTING WATER LINES IN SERVICE UNTIL ACCEPTANCE OF THE NEW WATER LINES.

THE CONTRACTOR SHALL NOTIFY THE WATER DISTRICT SUPERINTENDENT AND OTHER UTILITIES AT LEAST 48 HOURS (TWO WORKING DAYS) IN ADVANCE OF ANY CONSTRUCTION AND MAKE THE NECESSARY ARRANGEMENTS WITH THE WATER DISTRICT SUPERINTENDENT FOR THE CONNECTION TO THE EXISTING WATER MAIN. THE CONTRACTOR SHALL NOT OPERATE ANY GATE VALVE OF THE WATER SYSTEM BEFORE OR DURING CONSTRUCTION WITHOUT PRIOR APPROVAL OF THE WATER DISTRICT. THE WATER DISTRICT SUPERINTENDENT MAY ELECT TO FURNISH THE MATERIAL, EQUIPMENT, AND LABOR NECESSARY FOR MAKING THE CONNECTION AND THE CONTRACTOR SHALL PAY THE WATER DISTRICT ALL COSTS FOR THE CONNECTION. IN THE EVENT THE WATER DISTRICT SUPERINTENDENT DOES NOT ELECT TO MAKE THE CONNECTION, HE MAY AUTHORIZE THE CONTRACTOR TO FURNISH THE MATERIALS, EQUIPMENT AND LABOR NECESSARY FOR MAKING THE CONNECTION UNDER THE SUPERVISION OF THE WATER DISTRICT.

WORK SHALL NOT BE STARTED UNTIL ALL OF THE MATERIALS, EQUIPMENT, AND LABOR NECESSARY TO PROPERLY COMPLETE WORK ARE ASSEMBLED ON THE SITE. ONCE WORK HAS STARTED ON A CONNECTION, IT SHALL PROCEED CONTINUOUSLY WITHOUT INTERRUPTION AND AS RAPIDLY AS POSSIBLE UNTIL COMPLETED.

EXISTING MAINS SHALL BE THOROUGHLY CLEANED PRIOR TO CONNECTIONS. STEEL MAINS SHALL HAVE EXTERIOR COATINGS REMOVED PRIOR TO GASKET INSTALLATION. UPON COMPLETION, ALL EXPOSED METAL SURFACES SHALL BE RECOATED WITH VERSIL-PAK, GRADE 3 PROTECTIVE WRAPPING, OR APPROVED EQUIVALENT FOR CORROSION PROTECTION.

9. BLOCKING

ALL FITTINGS ARE TO BE BLOCKED WITH POURED CONCRETE AGAINST UNDISTURBED SOIL WITH SUFFICIENT CONCRETE AND ¾-INCH ANCHOR RODS, IF REQUIRED, TO RESIST THE RESULTANT FORCES. BLOCKING SHALL PROVIDE FOR REMOVAL OF ANY CONNECTION TO THE FITTING WITHOUT DAMAGE TO THE FITTING. WHERE UNFAVORABLE GROUND CONDITIONS ARE ENCOUNTERED, SPECIAL BLOCKING WILL BE REQUIRED AS DIRECTED BY THE ENGINEER IN THE FIELD. WHEN DIGGING NEAR FITTINGS OF EXISTING PIPELINES, TEMPORARY WOOD BLOCKING SHALL BE INSTALLED TO PREVENT BLOWOUTS. SEE STANDARD DETAILS FOR THRUST BLOCKING DETAILS.

10. WATER WORKS TESTING

TESTING OF LINES SHALL BE IN ACCORDANCE WITH SECTION 7-11.3(11) AND (12)N ACCORDING TO THE STANDARD SPECIFICATIONS. MINIMUM TEST PRESSURE SHALL BE 250 PSI. DISINFECTION SHALL BE PER SECTION 7-11.3(12). DECHLORINATION SHALL BE WITH SODIUM ASCORBATE. SODIUM THIOSULFATE SHALL NOT BE ALLOWED.

11. REPAIR OF PIPELINE FAILURES

BROKEN OR OTHERWISE DEFECTIVE PIPE SHALL BE REMOVED AND REPLACED. REPAIR BANDS OR CLAMPS SHALL NOT BE USED TO REPAIR BROKEN PIPE.

12. JACKED CROSSING

AT LOCATIONS SHOWN ON THE PLANS, WATER MAIN CROSSINGS OF ARTERIAL STREETS SHALL BE MADE BY JACKING, DRIVING, OR AUGURING A STEEL CASING PIPE BENEATH THE SURFACE. STAKING REQUEST TO THE ENGINEER SHALL BE MADE A MINIMUM OF 5 WORKING DAYS PRIOR TO THE BEGINNING OF EXCAVATION OF THE BORE PIT. JACK CASING SHALL BE LAID AT THE SPECIFIED GRADE AND ALIGNMENT WHILE MAINTAINING CLEARANCE. IF CASING DOES NOT PROVIDE THIS, IT SHALL BE ABANDONED, FILLED, AND A NEW CASING INSTALLED TO MEET THIS LINE AND GARDE REQUIREMENT. NO OPEN EXCAVATION SHALL BE MADE CLOSER THAN 6-FEET FROM THE EDGE OF PAVEMENT. DIAMETER OF CASING PIPE SHALL BE SUFFICIENT TO WITHSTAND INSTALLATION FORCE AND HIGHWAY LOADING. IT SHALL NOT HAVE LESS THAN ¼-INCH WALL THICKNESS. AFTER THE WATER PEIPE HAS BEEN ADJUSTED TO GRADE, MOIST SAND SHALL BE TAMPED INTO THE CASING PIPE SO THAT ALL VOIDS WILL BE FILLED, AND THEN THE ENDS OF THE CASING SHALL BE SEALED WITH BRICK AND MORTAR.

13. WATER SUPPLY

WATER SUPPLY FOR FILLING, TESTING, AND FLUSHING OF THE NEW MAINS WILL BE AVAILABLE FROM THE EXISTING DISTRIBUTION SYSTEM; HOWEVER THE CONTRACTOR WILL BE BILLED BY THE WATER DISTRICT FOR THE WATER USED AT THE RATE OF \$3.60 PER 100 CUBIC FEET. FIRE HYDRANT METER AND DOUBLE CHECK VALVE FOR FILLING AND FLUSHING THE MAIN ARE AVAILABLE FOR RENT AT THE DISTRICT OFFICE, OR THE CONTRACTOR MAY PROVIDE HIS OWN METERING FACILITIES TO THE SATISFACTION OF THE DISTRICT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR FLUSHING THE PIPELINE AND SHALL FURNISH ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO ACCOMPLISH THE WORK. FLUSHING SHALL BE DONE UNDER THE SUPERVISION OF WATER DISTRICT NO. 90, WHOM THE CONTRACTOR SHALL NOTIFY NOT LESS THAN 24 HOURS IN ADVANCE.

WATER DISCHARGED DURING TESTING OR FLUSHING SHALL BE DECHLORINATED WITH SODIUM ASCORBATE. SODIUM THIOSULFATE IS NOT AN ACCEPTABLE REAGENT.

14. EXISTING UTILITIES

THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL EXISTING UTILITIES WELL ENOUGH IN ADVANCE OF THE EXCAVATION TO PREVENT DAMAGE DURING CONSTRUCTION. THE CONTRACTOR

SHALL BE RESPONSIBLE FOR ANY DAMAGE WHATSOEVER RESULTING FROM HIS OPERATIONS ON THE PROJECT.

## KING COUNTY WATER DISTRICT NO. 90 MATERIALS AND SURFACE RESTORATION

UPDATED: 2/14/2013

### MATERIALS

1. DUCTILE IRON PIPE

PIPE SHALL BE NEW 1/16-INCH CEMENT MORTAR-LINED, SEAL-COATED, THICKNESS CLASS 52 CONFORMING TO THE STANDARD SPECIFICATIONS 9-30.1(1) UNLESS NOTED ELSEWHERE ON THE PLANS. JOINTS SHALL BE PUSH-ON TYPE WITH RUBBER GASKET WHICH FITS INTO AN ANNULAR GROOVE. JOINTS AT VALVES OR FITTINGS MAY BE MECHANICAL JOINT OR FLANGED DEPENDING ON SPECIFICATION AND DRAWING REQUIREMENTS.

PIPE SHALL BE US PIPE, ACIPCO, GRIFFEN OR PACIFIC STATES.

2. POLYETHYLENE ENCASEMENT

ALL MAINS SHALL BE FULLY WRAPPED WITH 8-MIL POLYETHYLENE PER ANSI/AWWA C105.

3. FITTINGS

FITTINGS FOR DUCTILE IRON PIPE SHALL CONFORM TO SECTION 9-30.2(1) OF THE STANDARD SPECIFICATIONS AND MAY BE FLANGED, MECHANICAL, OR PUSH-ON AS REQUIRED. RESTRAINED MECHANICAL JOINTS TO BE MEG-A-LUG, MANUFACTURED BY EBBA IRON, INC. FIELD-LOK GASKETS MAY BE USED IF SPECIFIED ON THE DRAWINGS OR DIRECTED BY THE ENGINEER.

FITTINGS SHALL BE TYLER OR TYTON. TRANSITION COUPLINGS AND SADDLES SHALL BE ROMAC OR SMITH & BLAIR.

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4. FIRE HYDRANTS

FIRE HYDRANTS SHALL BE CLOW MEDALLION, MUELLER CENTURION 250, OR M&H 929 AND CONFORM TO THE LATEST REVISION OF AWWA C-502, EXCEPT AS HEREIN MODIFIED. HYDRANT SHALL HAVE A MINIMUM OF 5-1/4-INCH MAIN VALVE OPENING AND A 6-INCH MECHANICAL JOINT OUTLET. HYDRANT RUNS SHALL BE RESTRAINED WITH: A) FLANGED PIPE (SHORT RUNS ONLY), B) TWO 3/4-INCH DIAMETER TIE RODS, OR C) MEG-A-LUGS. FURNISH A 6-INCH AUXILIARY GATE VALVE FLANGED TO MAIN TEE WITH A VALVE BOX AND A RISER TO SUIT TRENCH DEPTH AT EACH INSTALLATION. HYDRANT SHALL BE FURNISHED WITH BREAK-OFF FLANGE OR BARREL AND BREAK-OFF COUPLING FOR THE STEM. THE HYDRANT SHALL BE FURNISHED WITH TWO 2-1/2-INCH HOSE CONNECTIONS WITH NATIONAL STANDARD THREADS AND ONE 4-INCH PUMPER CONNECTION WITH SEATTLE THREADS, (#475) ALL PORT END CAPS SHALL BE 1-1/4-INCH. OPERATING NUTS SHALL BE 1-1/4-INCH AND SHALL TURN COUNTERCLOCKWISE TO OPEN. NOZZLES SHALL BE FITTED WITH RENEWABLE BRONZE NIPPLES LOCKED IN PLACE. ALL HYDRANTS SHALL BE PAINTED WITH TWO TOP COATS OF FARWEST PAINT CASE YELLOW PN#X3472. HYDRANTS SHALL BE EQUIPPED WITH A 4-INCH SEATTLE THREAD (#475) BY 5-INCH LOCKING STORZ ADAPTER MEETING OR EXCEEDING THE FOLLOWING SPECIFICATIONS:

- A. STORZ ADAPTER TO BE FORGED AND/OR EXTRUDED 6061-T6 ALUMINUM ALLOY, HARDCOAT ANODIZED.
- B. THREADED PORTION TO HAVE NO LUGS AND TWO SET SCREWS 180° APART.
- C. STORZ FACE TO BE METAL, NO GASKET TO WEATHER.
- D. STORZ CAP SHALL BE FORGED AND/OR EXTRUDED 6061-T6 ALUMINUM ALLOY WITH ANODIZED HARDCOAT AND SYNTHETIC MOLDED RUBBER GASKET.
- E. STORZ CAP TO BE ATTACHED TO HYDRANT ADAPTER WITH 1/8-INCH COATED S.S. AIRCRAFT CABLE.
- F. CAP TO BE CONNECTED AND DISCONNECTED WITH STORZ WRENCHES ONLY. TORQUE TO BE SUFFICIENT SO CAP CANNOT BE REMOVED BY HAND.
- G. REMOVE ALL CHAINS.

5. FIRE HYDRANT GUARD POSTS

GUARD POSTS SHALL CONFORM TO STANDARD SPECIFICATIONS 9-30.5(6) AND BE BURIED TO A MINIMUM DEPTH OF 3 FEET. GUARD POSTS SHALL BE SET WITH THEIR TOPS AT THE SAME ELEVATION

AS THE BONNET FLANGE OF THE HYDRANT. THE EXPOSED PORTION OF THE GUARD POSTS SHALL BE PAINTED WITH TWO TOP COATS OF FARWEST PAINT CASE YELLOW PN# X3472. GUARD POSTS SHALL BE INSTALLED WHERE DIRECTED BY ENGINEER OR DISTRICT.

6. CUT-IN CONNECTIONS

ALL CUT-IN CONNECTIONS SHALL USE TWO SLEEVES. THE USE OF "WEDDING RINGS" WILL NOT BE ALLOWED.

7. WET TAPS

TAPPING SLEEVE SHALL BE JGM 412 STEEL OR ROMAC "SST" STAINLESS STEEL SLEEVE WITH FULL COVERAGE RUBBER GASKET.

VALVE SHALL BE A RESILIENT SEATED VALVE MADE FOR TAPPING, U.S. PIPE METROSEAL 250. SUBMITTALS REQUIRED FOR ALL WET TAP MATERIALS.

NO WET TAP SHALL BE MADE WITHIN 2-FEET OF THE END OF THE PIPE SEGMENT BEING TAPPED.

BRICK BLOCKING SHALL BE USED UNDER ALL VALVES FOR SUPPORT AND FOAM RING SHALL BE USED AS CUSHION BETWEEN THE VALVE AND VALVE BOX.

8. GATE VALVES

GATE VALVES SHALL BE BRONZE-MOUNTED RESILIENT SEAT WEDGING DEVICES AND SHALL MEET THE REQUIREMENTS OF AWWA C515-01 (DUCTILE IRON BODY AND BONNET) AND C550-05. VALVES SHALL HAVE AN O-RING STUFFING BOX. VALVE END CONNECTIONS MAY BE FLANGED, MECHANICAL JOINT OR PUSH-ON AS REQUIRED. VALVE STEM EXTENSIONS WITH PLATE WELDED TO OPERATING NUT WILL BE REQUIRED WHERE OPERATING NUT IS MORE THAN 4 FEET BELOW SURFACE. THE VALVE STEM EXTENSION TOP SHALL BE INSTALLED WITHIN 18 INCHES TO 24 INCHES BELOW FINISH GRADE.

GATE VALVES SHALL BE KENNEDY, M&H, OR MUELLER.

FOAM RING SHALL BE USED AS CUSHION BETWEEN THE VALVE AND VALVE BOX.

INSTALL BLOW OFF ON EITHER SIDE OF ANY CLOSED VALVE OR ZONE VALVE.

9. AIR/VAC

AIR/VAC VALVE SHALL BE VALMATIC OR CRISPIN.

10. VALVE MARKER POSTS

VALVE MARKER POSTS SHALL BE FURNISHED AND INSTALLED AS DIRECTED. MARKER POSTS SHALL BE CONCRETE WITH 4 INCHES MINIMUM SQUARE SECTION, 42-INCH LENGTH, AND SHALL BE REINFORCED WITH ONE NO. 3-39" LONG REINFORCED STEEL BAR GRADE 60. MARKERS SHALL BE PLACED AS DIRECTED BY THE ENGINEER. MARKERS SHALL BE SET SO AS TO LEAVE 18 INCHES EXPOSED ABOVE GRADE. THE EXPOSED POSITION OF THE MARKER POSTS SHALL BE PAINTED WITH TWO COATS OF FARWEST PAINT CASE YELLOW PN NO. X3472. 2-INCH HIGH LETTERS SHALL BE STENCILED WITH BLACK

EXTERIOR MASONRY PAINT ON THE FACE OF THE POST GIVING THE FOLLOWING INFORMATION: THE SIZE OF THE VALVE (E.G. 6-INCH GATE VALVE), AND THE DISTANCE IN FEET AN INCHESTO THE VALVE.

11. VALVE BOX

CAST IRON VALVE BOX WITH LID MARKED "WATER", 4" DEEP TAPERED VALVE BOX COVER, VALVE BOX TOP AND VALVE BOX BOTTOM FROM EJ GROUP INC. SHALL BE USED. EACH BOX SHALL BE ADJUSTED TO MATCH THE FINISH GRADE TO THE VALVE LOCATION. VALVE BOX COVERS SHALL BE PAINTED BLUE AS DESIGNATED BY THE WATER DISTRICT.

ORIENT THE VALVE BOX SO THE "EARS" ARE SET THE SAME AS THE PIPE DIRECTION.

PROVIDE 4-INCH THICK BY 4-FOOT WIDE ASPHALT OR CONCRETE COLLAR AROUND VALVE BOX COVERS IN UNIMPROVED AREAS, LANDSCAPE AREAS AND EASEMENTS.

FOAM RING SHALL BE USED AS CUSHION BETWEEN THE VALVE AND VALVE BOX.

12. PIPE BEDDING MATERIAL

5/8-INCH MINUS IMPORT BACKFILL SHALL BE USED WHEN NATIVE MATERIAL AT THE TRENCH BOTTOM IS STONY OR OTHERWISE NON-UNIFORM.

13. CRUSHED GRAVEL SURFACING

CRUSHED GRAVEL SURFACING SHALL CONFORM TO THE REQUIREMENTS OF SECTION 9-03.9(3) OF THE STANDARD SPECIFICATIONS.

14. BACKFILL GRAVEL

BACKFILL GRAVEL SHALL BE MADE WITH FINELY DIVIDED EARTH FREE FROM STONES LARGER THAN 2-INCHES IN DIAMETER.

15. ASPHALT CONCRETE PATCH

WHERE ASPHALT CONCRETE PATCH IS SCHEDULED, THE EXISTING SURFACE SHALL BE CUT ON A NEAT LINE WITH A CUTTING DISC OR SIMILAR APPROVED TOOL PRIOR TO EXCAVATION. FOLLOWING BACKFILL AND COMPACTION OF THE TRENCH, AND IMMEDIATELY PRIOR TO RESURFACING , THE EDGES OF THE SURFACING SHALL BE RE-TRIMMED 6-INCHES WIDER THAN THE EXCAVATION WITH STRAIGHT VERTICAL EDGES FREE FROM IRREGULARITIES. THE SUBGRADE SHALL BE CONSTRUCTED 5/8-INCH MINUS CRUSHED SURFACING BASE COURSE PLACED TO A COMPATED THICKNESS OF 6-1/2-INCHES. CLASS B ASPHALT CONCRETE SHALL THEN BE PLACED AND COMPACTED IN 2-INCH LIFTS UP TO A MAXIMUM 4-INCH THICKNESS TO MATCH THE EXISTING GRADE OF THE ORIGINAL SURFACE. ALL ASPHALT JOINTS SHALL BE SEALED WITH APPROVED SEALTER.

## SURFACE RESTORATION

### GENERAL

ALL UNPAVED SURFACES SHALL BE RESTORED TO A CONDITION EQUAL TO THAT WHICH EXISTED PRIOR TO CONSTRUCTION. ALL TREES, SHRUBS, AND ANY IMPROVEMENTS SHALL BE SAVED, RELOCATED, OR REPLACED



BY CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS OR IN EASEMENT STIPULATIONS. PRE-CONSTRUCTION PHOTOGRAPHS SHALL BE USED TO APPROVE RESTORATION.

CLEANUP

BEFORE THE WORK SHALL BE CONSIDERED COMPLETE, THE DEVELOPER/CONTRACTOR SHALL CLEAN OUT DITCHES THAT MAY HAVE BEEN FILLED DURING THE WORK, REPLACE DAMAGED SURFACING, REMOVE SURPLUS MATERIALS AND TRASH AND DISPOSE OF BRUSH, REPAIR ALL DAMAGES, AND OTHERWISE LEAVE THE WORK SITE/AREA IN A NEAT, ORDERLY AND WORKMANLIKE CONDITION. DUST CONTROL SHALL BE PROVIDED DURING THE PROGRESS OF THE WORK AND DURING CLEANUP. THE CONTRACTOR SHALL KEEP EXISTING ROADS AND STREETS ADJACENT TO OR WITHIN THE LIMITS OF THE PROJECT OPEN TO AND MAINTAINED IN A GOOD AND SAFE CONDITION FOR TRAFFIC AT ALL TIMES PER THE DISTRICT, CITY, OR COUNTY REQUIREMENTS. THE CONTRACTOR SHALL REMOVE, ON A DAILY BASIS, ANY DEPOSITS OR DEBRIS THAT MAY HAVE ACCUMULATED ON THE ROADWAY SURFACE AS A RESULT OF CONSTRUCTION OPERATIONS. REMOVAL SHALL BE PERFORMED ON A MORE FREQUENT BASIS SHOULD THE DISTRICT DETERMINE THAT SUCH REMOVAL IS NECESSARY.

LANDSCAPING

LANDSCAPING RESTORATION SHALL BE PERFORMED BY CONTRACTOR USING THE SERVICES OF A QUALIFIED LANDSCAPE GARDENER WHOSE PRINCIPAL BUSINESS IS THIS TYPE OF WORK. WHERE ORNAMENTAL TREES AND SHRUBBERY ARE IN THE WORK AREA, THEY SHALL BE CAREFULLY REMOVED WITH THE EARTH SURROUNDING THEIR ROOTS WRAPPED IN BURLAP AND REPLANTED IN THEIR ORIGINAL POSITIONS WITHIN 4 DAYS. WORK MAY BE REQUIRED TO BE HALTED ELSEWHERE ON THE PROJECT TO ENSURE THIS WORK IS DONE IN A TIMELY MANNER. TREE AND SHRUBBERY REMOVAL AND TRANSPLANTING WILL BE DONE ONLY BY A LANDSCAPE GARDENER. ORNAMENTAL TREES AND SHRUBBERY MUST BE PROTECTED, BUT IF THROUGH SOME UNAVOIDABLE SITUATION SUCH TREES OR SHRUBBERY ARE DESTROYED OR DAMAGED, WHETHER IN PUBLIC OR PRIVATE PROPERTY, THEY SHALL BE REPLACED BY CONTRACTOR WITH MATERIAL OF EQUAL QUALITY AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR SUCH REPLACEMENT. CONTRACTOR SHALL TAKE EVERY PRECAUTION TO PROTECT EXISTING ORNAMENTAL TREES THAT ARE NOT REMOVED. PROTECTION MAY INCLUDE TYING BACK EXISTING LIMBS WHERE NECESSARY FOR WORK ROOM. SUCH TYING BACK SHALL BE DONE CAREFULLY TO AVOID BREAKAGE OR OTHER LIMB DAMAGE. NO LIMBS SHALL BE REMOVED OR TRIMMED WITHOUT THE WRITTEN PERMISSION OF THE PROPERTY OWNER, WITH A COPY OF SUCH PERMISSION GIVEN TO OWNER. IF SUCH REMOVAL OR TRIMMING IS APPROVED IN WRITING, IT SHALL BE PERFORMED IN A PROFESSIONAL MANNER BY A QUALIFIED LANDSCAPE GARDENER.

EROSION CONTROL

CONTRACTOR SHALL EXERCISE ALL NECESSARY PRECAUTIONS THROUGHOUT THE LIFE OF THE CONTRACT TO PREVENT POLLUTION, EROSION, SILTATION AND DAMAGE TO ANY WATER COURSES.

CONTRACTOR SHALL PREVENT SLOUGHING AND RAVELING OF CUT SLOPES AND NATURAL SLOPES THAT ARE DISTURBED. SURFACE RUNOFF SHALL BE PREVENTED FROM FLOWING INTO EXCAVATIONS BY USING CURBS, BERMS, DRAINAGE DITCHES, SWALES OR OTHER APPROVED METHODS. MANAGEMENT OF WATER PUMPED FROM EXCAVATIONS AND FLOWING FROM DISTURBED AREAS DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE CONTRACTOR.

TEMPORARY EROSION PROTECTION SHALL BE USED AND MAINTAINED DURING CONSTRUCTION TO PROTECT SLOPE SURFACES, ADJACENT AREAS AND RECEIVING WATERS. AS TEMPORARY EROSION PROTECTION, STRAW, JUTE MATTER, VISQUEEN SHEETING OR OTHER APPROVED FORMS OF GROUND COVER SHALL BE USED ON ALL AREAS DISTURBED BY CONSTRUCTION. SLOPED SURFACES SHALL BE RESTORED SO THAT SURFACE RUNOFF DOES NOT BECOME CHanneled OR FLOW ALONG THE WATER LINE ALIGNMENT.

TO PROMOTE REVEGETATION, DISTURBED AREAS SHALL BE COVERED WITH 2 TO 3-INCHES OF VEGETATION SOIL SUCH AS THE STRIPPED FOREST DUFF AND ORGANIC SOIL, OR IMPORTED TOPSOIL. THE VEGETATIVE SOIL SHALL BE TRACKED IN PLACE WITH THE EQUIPMENT RUNNING PERPENDICULAR TO THE SLOPE CONTOURS SO THAT THE TRUCK GROUSER MARKS PROVIDE A TEXTURE TO HELP RESIST EROSION. THEREAFTER, ALL DISTURBED AREAS SHALL BE HYDROSEEDDED.

IN ORDER TO EFFECTIVELY CONTROL POLLUTION, EROSION, RUN-OFF AND RELATED DAMAGE, CONTRACTOR SHALL SUBMIT TO ENGINEER FOR REVIEW AND APPROVAL AND PRIOR TO COMMENCING CONSTRUCTION A WRITTEN PLAN FOR PERFORMING ITEMS OF TEMPORARY WORK INCLUDING BUT NOT LIMITED TO, THE FOLLOWING:

CONSTRUCTING DITCHES, SANDBAG BERMS, CULVERTS, SILT FENCES, ETC., TO CONTROL SURFACE WATER.

PROTECTING SLOPES BY COVERING OR BY OTHER MEANS UNTIL PERMANENT EROSION CONTROL MEASURES ARE EFFECTIVE.

TEMPORARY SHORING OF TRENCH EXCAVATIONS.

IN ADDITION, CONTRACTOR, AS A MINIMUM, SHALL:

NOT ALLOW DISCHARGE OF GROUND AND/OR SURFACE WATERS FROM PIT SITES OR TRENCH EXCAVATIONS TO THE ADJACENT WETLANDS OR STREAMS, IF THE WATER TO BE DISCHARGED CONTAINS SILT OR OTHER FOREIGN MATERIALS.

NOT ALLOW DISCHARGES FROM PIT OR TRENCH EXCAVATIONS TO INCREASE THE EXISTING TURBIDITY OF THE RECEIVING WATERS.

TAKE NECESSARY STEPS TO CONTROL DRAINAGE AND/OR EROSION FROM THE CONSTRUCTION AREA TO MINIMIZE SILT AND SEDIMENT POLLUTION OF ADJACENT WETLANDS AND STREAMS.

WHEN THE TEMPORARY CONTROL FACILITIES ARE NO LONGER NEEDED, THEY SHALL BE REMOVED AND THE AREAS RESTORED TO A CONDITON BETTER THAN OR EQUAL TO THEIR ORIGINAL CONDITION.

IN THE EVENT THAT A SUSPENSION OF WORK IS ORDERED FOR AN EXTENDED PERIOD OF TIME, CONTRACTOR SHALL TAKE ALL ACTION NECESSARY TO CONTROL EROSION, POLLUTION AND RUN-OFF DURING THE SHUTDOWN PERIOD.

## RESTORATION

### WITHIN KING COUNTY:

RESTORATION SHALL BE PER KCC 16.82, KING COUNTY GRADING PERMIT CONDITIONS, AND AS DIRECTED BY THE KING COUNTY INSPECTOR.

### WITHIN CITY OF RENTON:

#### LAWN (CULTIVATED)

IN AREAS WHERE EXISTING LAWNS ARE DISTURBED, THE LAWNS SHALL BE REPLACED WITH A MINIMUM OF 4-INCHES OF NEW TOPSOIL AND EITHER EXISTING OR NEW SOD TO MATCH THE REMOVED SOD. RESEEDING WILL NOT BE ALLOWED.

#### LAWN (UNCULTIVATED), PASTURE OR VACANT LAND

UNCULTIVATED LAWNS, PASTURE, AND VACANT LAND SHALL BE RESTORED WITH A PASTURE GRASS IN ADDITION TO THE PROTECTION, RESTORATION, OR REPLACEMENT OF ANY IMPROVEMENTS OR TREES OTHERWISE CALLED FOR. DISTURBED AREAS SHALL NOT BE LEFT UNPROTECTED FOR LONG PERIODS. TEMPORARY SEEDING, COVERING, OR OTHER PROTECTION SHALL BE USED AS REQUIRED.

PREVIOUSLY ESTABLISHED GRADES CONFORMING TO THE REQUIREMENTS OF THE DRAWINGS SHALL BE MAINTAINED IN A TRUE AND EVEN CONDITION. IF NECESSARY, REPAIRS SHALL BE MADE BEFORE SEEDING.

THE SURFACE TO BE SEEDED SHALL BE CLEARED OF STONES OR OTHER DEBRIS LARGER THAN 1-INCH. THE TOP 4-INCHES SHALL BE CULTIVATED BY RAKING OR ROTOTILLING AFTER ALL COMPACTION AND PRIOR TO SEEDING. THE SURFACE SHALL BE APPROVED BY THE ENGINEER BEFORE BEGINNING SEEDING OPERATIONS.

SEED MIX, FERTILIZER, AND MULCH SHALL BE HYDRO SEEDED WITH APPROPRIATE EQUIPMENT UPON APPROVAL OF THE SEED BED. APPROPRIATE QUANTITIES OF SEED, FERTILIZER AND MULCH SHALL BE COMBINED WITH THE PROPER AMOUNTS OF WATER TO ENSURE THE UNIFORM COAT SPRAYED ON THE SOIL ACCOMMODATES THE FOLLOWING RATES:

SEED MIX: 40% PERENNIAL RYEGRASS  
10% WHITE CLOVER  
30% FESCUE  
20% RED CREEPING FESCUE  
APPLY AT THE RATE OF 100 POUNDS PER ACRE.

MULCH: SILVA-FIBER MULCH APPLIED AT FROM 1,500 POUNDS  
TO 2,000 POUNDS PER ACRE.

FERTILIZER: COMMERCIAL MIX 10/20/20 OF NITRATE, PHOSPHATE,  
AND POTASH APPLIED AT RATE OF 450 POUNDS PER ACRE.

METHOD OF APPLICATION AND PROPORTIONS OF SEED MIX MAY BE REVISED TO SUIT TYPE OF SOIL AND TIME OF YEAR, PROVIDED PRIOR APPROVAL IS GIVEN BY ENGINEER.

CONTRACTOR SHALL PROTECT AND MAINTAIN NEWLY SEEDED AREAS. WHERE SEEDED AREAS FAIL TO DEVELOP AFTER NORMAL ALLOWANCE FOR GERMINATION, CONTRACTOR SHALL RE-SEED.