NO WORK OR SITE MOBILIZATION SHALL OCCUR UNTIL AFTER A PRE-CONSTRUCTION MEETING BETWEEN THE CITY AND THE PROPERTY OWNER, GEOTECHNICAL ENGINEER, GENERAL CONTRACTOR, AND EARTHWORK CONTRACTOR.

- 3. UNDERGROUND UTILITIES MAY BE SHOWN GRAPHICALLY IN THESE STANDARDS OR OTHER DOCUMENTS PROVIDED BY THE CITY. ANY REPRESENTATION OF UNDERGROUND UTILITIES IS FOR GENERAL INFORMATIONAL PURPOSES ONLY. THE OWNER OR THEIR AGENTS MAY NOT RELY UPON ANY REPRESENTATIVES OF THE LOCATION OR ABSENCE OF UNDERGROUND UTILITIES IN DOCUMENTS PROVIDED BY THE CITY.
- 4. THE OWNER AND CONTRACTOR MUST BE AWARE THAT EXCAVATING OR DIGGING FOR ANY REASON ON ANY PUBLIC PROPERTIES, PUBLIC RIGHTS-OF-WAY, OR PRIVATE PROPERTIES REQUIRES NOTIFICATION OF THE UTILITIES UNDERGROUND LOCATION CENTER AT 1-800-424-5555 OR 811 ON LOCAL PHONE NO LESS THAN 48 HOURS AND TWO BUSINESS DAYS PRIOR TO EXCAVATION
- 5. THE OWNER AND THEIR CONTRACTOR ARE ADVISED OF THE POSSIBILITY OF ENCOUNTERING BURIED ARTIFACTS OR OTHER CULTURAL RESOURCES DURING THE CONSTRUCTION OF ANY IMPROVEMENTS THAT REQUIRE EXCAVATION. IN THE EVENT AN ARTIFACT OR OTHER POSSIBLE CULTURAL RESOURCE IS DISCOVERED DURING CONSTRUCTION, THE OWNER IS ADVISED TO CONTACT CITY HALL IMMEDIATELY. THE CITY WILL REFER THE OWNER TO THE APPROPRIATE GOVERNMENT AGENCY FOR ADDITIONAL **INSTRUCTIONS**
- 6. THE CONTRACTOR AT ALL TIMES SHALL COMPLY WITH ALL FEDERAL AND STATE LAWS, LOCAL LAWS AND ORDINANCES, AND ANY REGULATIONS WHICH IN ANY MANNER AFFECT THE PROJECT. FAILURE TO COMPLY WITH THE LAWS AND CITY STANDARDS AND PERMIT CONDITIONS MAY RESULT IN DENIAL OF PLAN OR DEVELOPMENT PERMIT APPROVAL, REVOCATION OF PRIOR APPROVALS, LEGAL ACTION FOR FORFEITURE OF BOND, CODE ENFORCEMENT, AND/OR OTHER PENALTIES AS PROVIDED BY LAW.
- 7. THE CONTRACTOR SHALL RELEASE, INDEMNIFY AND PROMISE TO DEFEND AND SAVE HARMLESS THE CITY, ITS OFFICER, EMPLOYEES AND AGENTS FROM AND AGAINST ANY AND ALL LIABILITY, LOSS, DAMAGE, EXPENSE, ACTIONS AND CLAIMS, INCLUDING COST AND REASONABLE ATTORNEYS FEES INCURRED BY THE CITY IN DEFENSE THEREOF, ASSERTING OR ARISING DIRECTLY OR INDIRECTLY ON REGULATIONS WHETHER SUCH VIOLATIONS ARE BY THE CONTRACTOR, HIS/HER SUBCONTRACTORS EMPLOYEES. OR AGENTS.
- THE CONTRACTOR SHALL PROTECT AND PRESERVE FROM DAMAGE, INTERFERENCE AND DESTRUCTION ALL PRIVATE AND PUBLIC PROPERTY ON OR IN THE VICINITY OF THE WORK. IF SUCH PROPERTY IS DAMAGED OR DESTROYED OR ITS USE INTERFERED WITH BY THE CONTRACTOR OR HIS AGENTS, IT SHALL BE RESTORED IMMEDIATELY TO ITS FORMER CONDITION BY THE CONTRACTOR AT HIS EXPENSE AND SUCH INTERFERENCE TERMINATED.
- WHENEVER CONSTRUCTION WORK UNDER THIS POLICY IS UNDERTAKEN ON EASEMENT, RIGHT-OF-WAY OR FRANCHISE, IT SHALL BE ACCOMPLISHED IN SUCH MANNER AS TO MINIMIZE DISTURBANCE AND
- 10. THE CONTRACTOR SHALL NOT REMOVE, EVEN TEMPORARILY, ANY TREES OR SHRUBS WHICH EXIST ON EASEMENTS OR PARKING STRIPS ACROSS OTHER'S PRIVATE OR PUBLIC PROPERTY WITHOUT FIRST OBTAINING APPROVAL FROM THE AFFECTED PROPERTY OWNER AND THE CITY.
- 11. THE CONTRACTOR SHALL RESTORE ALL EASEMENTS AND RIGHTS-OF-WAY TO A CONDITION EQUAL TO THEIR ORIGINAL CONDITION BEFORE ENTRY, OR TO A CONDITION SATISFACTORY TO THE PROPERTY OWNER, AND/OR OTHER AUTHORITY, AND THE CITY.
- 12. THE CONTRACTOR SHALL PROTECT FROM DAMAGE PRIVATE AND PUBLIC UTILITIES, INCLUDING TELEPHONE LINES, GAS LINES, POWER LINES, STORM DRAINS, SEWER AND WATER LINES, AND APPURTENANCES, HIGHWAY LIGHTING AND SIGNAL SYSTEMS, AND SIMILAR FACILITIES.
- 13. THE OWNER IS RESPONSIBLE FOR ALL DAMAGES TO STREETS, ROADS, HIGHWAYS, DITCHES, WALLS, CULVERTS, UTILITIES, BARRICADES, LIGHTS, OR ANY OTHER PROPERTY CAUSED BY THE OWNER OR OWNER'S CONTRACTOR'S WORK, WHETHER SUCH DAMAGE BE AT THE SITE OF THE WORK OR CAUSED BY TRANSPORTING OR HAULING TO OR FROM THE WORK. AND SHALL REPAIR OR REPLACE. OR ARRANGE FOR THE REPAIR OF ALL SUCH DAMAGES TO THE SATISFACTION OF THE CITY AND OF ANY OTHER AUTHORITY OR PERSON HAVING OWNERSHIP OR JURISDICTION OVER THE PLACE OF WORK AND/OR DAMAGE.
- 14. THE OWNER/CONTRACTOR SHALL BE RESPONSIBLE FOR INTERIM TRAFFIC CONTROL DURING CONSTRUCTION ON OR ALONG TRAVELED ROADWAYS. TRAFFIC CONTROL SHALL FOLLOW THE GUIDELINES OF THE WSDOT STANDARD SPECIFICATIONS. ALL BARRICADES, SIGNS AND FLAGGING SHALL CONFORM TO THE REQUIREMENTS OF THE MUTCD MANUAL. SIGNS MUST BE LEGIBLE AND VISIBLE AND SHOULD BE REMOVED AT THE END OF EACH WORK DAY IF NOT APPLICABLE AFTER CONSTRUCTION HOURS.
- 15. WHEN ROAD CLOSURES CANNOT BE AVOIDED THE OWNER/CONTRACTOR SHALL POST "TO BE CLOSED" SIGNS PRIOR TO THE CLOSING THE ROAD. THE TYPES AND LOCATION OF THE SIGNS SHALL BE SHOWN ON A DETOUR PLAN. A DETOUR PLAN MUST BE PREPARED AND SUBMITTED TO THE CITY AND APPROVED PRIOR TO CLOSING ANY CITY STREET. IN ADDITION, THE OWNER/CONTRACTOR MUST NOTIFY, IN WRITING, LOCAL FIRE, SCHOOL, LAW ENFORCEMENT AUTHORITIES, ALL TRANSIT, POST OFFICE AND ANY OTHER AFFECTED PERSONS AS DIRECTED BY THE CITY AT LEAST FIVE DAYS PRIOR TO CLOSING UNLESS THE ROAD CLOSURE IS OF AN EMERGENCY NATURE.
- 16. NOISE FROM CONSTRUCTION ACTIVITIES SHALL NOT BE HEARD ACROSS PROPERTY LINES, OR PUBLIC RIGHTS-OF-WAY BOUNDARIES. EXCEPT DURING THE PERIODS 7:00 AM TO 7:00 PM MONDAYS THROUGH FRIDAYS OR 9:00 AM THROUGH 6:00 PM ON WEEKENDS AND HOLIDAYS.
- 17. TRUCKS TRAVELLING TO AND FROM THE WORK SITE SHALL DO SO BY THE MOST DIRECT ROUTE FROM THE SITE AND TOLT AVENUE (SR 203). TRUCKS SHALL NOT USE SIDE STREETS TO PARK, STAGE OR TRAVEL.
- 18. STREET AND SIDEWALK SURFACES SHALL BE CONTINUOUSLY MAINTAINED FREE OF DIRT, DUST, OR MUD. CONTRACTOR SHALL MECHANICALLY SWEEP STREET SURFACES DAILY, OR MORE FREQUENTLY AS REQUIRED, DURING PERIODS OF TRUCKING OPERATIONS OR AS OTHERWISE REQUIRED TO MAINTAIN CLEAN STREET SURFACES. STREET SURFACES SHALL NOT BE WASHED INTO DRAINAGE STRUCTURES OR STORM WATER DITCHES.
- 19. SANITARY FACILITIES, INCLUDING PORTABLE TOILET FACILITIES, FOR USE BY CONTRACTOR PERSONNEL, MATERIAL SUPPLIERS, AND GOVERNING AGENCY INSPECTORS SHALL BE FURNISHED BY THE CONTRACTOR AND REGULARLY MAINTAINED THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITIES.
- 20. OWNER OR CONTRACTOR SHALL POST AND MAINTAIN SIGNAGE IDENTIFYING OWNER AND CONTRACTOR POINTS OF CONTACT INFORMATION FOR KEY PERSONNEL. SIGN SHALL BE NEAR THE ROW BOUNDARY AND CLEARLY VISIBLE. POINT OF CONTACT INFORMATION SHALL INCLUDE NAMES AND PHONE NUMBERS OF PERSONS IN AUTHORITY. AT LEAST ONE PHONE NUMBER POSTED SHALL OPERATE 24 HOURS/DAY AND 7 DAYS A WEEK.
- 21. PROTECT EXISTING SURVEY MONUMENTS, INCLUDING PROPERTY CORNERS, FROM DISTURBANCE OR DAMAGE BY CONSTRUCTION ACTIVITIES. ALL EXISTING SURVEY MONUMENTS, INCLUDING PROPERTY CORNERS. SHALL BE PERPETUATED BY LICENSED SURVEYOR IN ACCORDANCE WITH WAC 332-120 AND REQUIRED MONUMENT DESTRUCTION REPORTS FILED WITH THE DEPARTMENT OF NATURAL RESOURCES.
- 22. CONTRACTOR SHALL MAINTAIN, ON A DAILY BASIS, RECORD DRAWINGS SHOWING ALL DEVIATIONS FROM THE APPROVED PERMIT DRAWINGS. PRIOR TO FINAL APPROVAL, THE DEVELOPER SHALL SUBMIT AUTOCAD RECORD DRAWINGS, TO THE CITY ENGINEER, IN A FORMAT ACCEPTABLE TO THE CITY.

#### GENERAL ROW CONSTRUCTION NOTES

#### PUBLIC RIGHTS OF WAY CONSTRUCTION STANDARDS

1. ALL WORK IN PUBLIC RIGHTS-OF-WAY (ROW) AND ROW DEDICATION AREAS SHALL COMPLY WITH THE 2016 WASHINGTON STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION (WSDOT STD SPECS), EXCEPT AS MODIFIED BY THE CITY OF CARNATION STREET AND STORM SEWER SYSTEM STANDARDS, THE CONDITIONS ANNOTATED ON THE APPROVED PERMIT DRAWINGS, AND THE FOLLOWING CONDITIONS. CONFLICTING STANDARDS SHALL BE RESOLVED BY THE CITY ENGINEER.

#### COORDINATION WITH CITY

CITY ENGINEER REPRESENTATIVE: JORGE GARCIA, P.E., LOCHNER, (PH) 425-454-3160; E-MAIL: JGARCIA@HWLOCHNER.COM

#### PUBLIC WORKS SUPERINTENDENT: BILL FERRY, CARNATION CITY HALL, (PH) 425-333-4192

- 2. CITY ENGINEER REPRESENTATIVE MUST OBSERVE AND ACCEPT ALL WORK IN ROW, EXCEPT WATER AND SEWER INSTALLATIONS. COORDINATE WATER AND SEWER INSTALLATION OBSERVATION WITH THE PUBLIC WORKS SUPERINTENDENT. 3. SCHEDULE FOR WORK IN ROW SHALL BE UPDATED WEEKLY BY CONTRACTOR AND A COPY PROVIDED TO CITY ENGINEER REPRESENTATIVE ON A WEEKLY BASIS. CONTRACTOR SHALL COORDINATE CLOSELY WITH CITY ENGINEER REPRESENTATIVE TO
- KEEP CITY ENGINEER REPRESENTATIVE APPRISED OF WORK PROGRESS/STATUS. 4. CONTRACTOR SHALL NOT BURY PIPE OR STRUCTURES IN ROW UNTIL OBSERVED BY CITY ENGINEER REPRESENTATIVE OR PUBLIC WORKS REPRESENTATIVE. CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING AND SCHEDULING SITE OBSERVATION
- BY CITY REPRESENTATIVE. 5. UNLESS OTHERWISE DIRECTED, CONTRACTOR SHALL COORDINATE DIRECTLY WITH CITY ENGINEER REPRESENTATIVE FOR CONSTRUCTION OBSERVATION OF ALL WORK WITHIN THE ROW, EXCEPT WATER AND SEWER.

#### TEMPORARY TRAFFIC CONTROL

- 6. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SELECTING AND IMPLEMENTING PROPER TEMPORARY TRAFFIC CONTROL MEASURES IN ACCORDANCE WITH APPLICABLE REGULATIONS AND INDUSTRY STANDARD PRACTICES.
- 7. TEMPORARY TRAFFIC CONTROL SHALL BE PROVIDED AT ANY TIME WORK IN ROW MAY INTERFERE WITH NORMAL AND SAFE FLOW OF VEHICULAR AND PEDESTRIAN TRAFFIC. ALL FLAGGERS SHALL HOLD CURRENT CERTIFICATION BY STATE OF WASHINGTON. A MINIMUM OF ONE LANE OF TRAFFIC SHALL BE MAINTAINED ON ALL STREETS AT ALL TIMES, EXCEPT WHEN CITY HAS APPROVED A DETOUR.
- 8. ALL TRAFFIC CONTROL SIGNAGE SHALL COMPLY WITH THE LATEST VERSION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

9. ROAD CLOSURE/TRAFFIC DETOURS ARE NOT AUTHORIZED FOR THIS PROJECT. A MINIMUM OF ONE LANE OF TRAFFIC SHALL BE OPEN TO VEHICLES AT ALL TIMES.

10. CONTRACTOR SHALL SELECT, DESIGN, FURNISH AND PLACE TRENCH SAFETY SYSTEMS TO PROTECT WORKERS IN ACCORDANCE WITH WISHA, CH 49.17 RCW. CONTRACTOR IS SOLELY RESPONSIBLE FOR SELECTION. DESIGN. AND INSTALLATION OF APPROPRIATE TRENCH SAFETY MEASURES.

#### **RESTRICTIONS**

- 11. WORK HOURS SHALL BE LIMITED TO 7:00 AM TO 7:00 PM, WEEKDAYS (M-F) AND 9:00 AM 6:00 PM WEEKENDS AND HOLIDAYS.
- 12. WORK REQUIRING OBSERVATION BY CITY STAFF OR CITY ENGINEER SHALL BE RESTRICTED TO WEEKDAYS (M-F), EXCLUDING HOLIDAYS RECOGNIZED BY CITY OF CARNATION, EXCEPT AS OTHERWISE AUTHORIZED BY THE CITY ENGINEER.
- 13. NO PAVEMENT OR ASSOCIATED BASE COURSE OR SUBGRADE WORK SHALL BE PERFORMED BETWEEN OCTOBER 1ST AND MARCH 31ST WITHOUT CITY ENGINEER APPROVAL

#### **BURIED UTILITIES**

14. BURIED UTILITIES SHALL BE LOCATED PRIOR TO START OF EXCAVATION IN ROW. POTENTIAL UTILITY CROSSINGS SHALL BE POTHOLED PRIOR TO EXCAVATION FOR NEW STORM, WATER AND UTILITIES. CONTRACTOR SHALL NOTIFY CARNATION PUBLIC WORKS DIRECTOR AND AFFECTED UTILITY PROVIDER OF ANY UTILITY CONFLICTS. CONTRACTOR SHALL COORDINATE WITH UTILITY PROVIDER FOR RELOCATION OF UTILITIES AND PERFORM WORK NECESSARY TO RELOCATE UTILITIES. AS REQUIRED.

15. BEFORE INSTALLATION, ALL MATERIALS USED WITHIN THE PUBLIC ROW SHALL BE ACCEPTED BY THE CITY ENGINEER. MATERIAL SUBMITTALS FOR ALL MATERIALS USED IN THE ROW SHALL BE PROVIDED TO THE CITY ENGINEER FOR REVIEW AND ACCEPTANCE.

- 16. MATERIAL SUBMITTALS SHALL BE FORWARDED TO THE CITY ENGINEER FOR REVIEW AND ACCEPTANCE
- 17. MAINTAIN AT LEAST ONE COPY ON SITE OF ALL MATERIAL SUBMITTALS ACCEPTED BY CITY ENGINEER.
- 18. SUBMIT PORTLAND CEMENT CONCRETE MIX DESIGNS AND ASPHALT CONCRETE AND ASPHALT TREATED BASE (ATB) MIX DESIGNS, FOR CITY APPROVAL, BEFORE INSTALLATION. ATB AND ASPHALT MIX DESIGNS SHALL BE WSDOT APPROVED MIX
- 19. SUBMIT PLAN FOR PROTECTING INFILTRATION DRAINAGE SYSTEM FROM CONTAMINATION BY CONSTRUCTION STORMWATER RUNOFF.
- 20. WITHIN 2 WORK DAYS OF DELIVERY, SUBMIT ONE COPY OF EVERY CONCRETE, ASPHALT AND ATB DELIVERY TRUCK TICKETS, TO CITY ENGINEER, FOR ALL CONCRETE, ASPHALT AND ATB INSTALLED WITHIN THE ROW. DELIVERY TICKETS SHALL
- INDICATE CLASS OF CONCRETE OR ASPHALT DELIVERED AND THE DATE AND SOURCE. 21. WITHIN 2 WORK DAYS OF TEST, SUBMIT ONE COPY OF EACH COMPACTION TEST OR LABORATORY TEST PERFORMED FOR WORK IN ROW, TO CITY ENGINEER. WITHIN 3 WORKING DAYS OF SITE VISIT, SUBMIT ONE COPY OF EACH OF THE GEOTECHNICAL ENGINEER'S FIELD REPORTS FOR WORK IN ROW, TO CITY ENGINEER.

- 22. CITY OF CARNATION PUBLIC WORKS DIRECTOR OR CITY ENGINEER SHALL APPROVE ALL WORK PERFORMED IN ROW.
- SUBGRADE FOR PAVEMENT AND SIDEWALKS SHALL BE PREPARED IN ACCORDANCE WITH WSDOT STD SPECS SECTIONS 2-03 AND 2-06. 24. GRAVEL BASE FOR PAVEMENT AND SIDEWALKS SHALL BE INSTALLED IN ACCORDANCE WITH WSDOT STD SPECS SECTION 4-04.
- 25. ASPHALT TREATED BASE (ATB) SHALL BE INSTALLED IN ACCORDANCE WITH WSDOT STD SPECS SECTION 4-06.
- 26. ASPHALT PAVEMENT SHALL BE INSTALLED IN ACCORDANCE WITH WSDOT STD SPECS SECTION 5-04.
- 27. STORM DRAINAGE SHALL BE INSTALLED IN ACCORDANCE WITH WSDOT STD SPECS SECTIONS 7-04. 7-05. AND 7-08.
- 28. CURBS AND GUTTERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH WSDOT STD SPECS SECTION 8-04. SIDEWALKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH WSDOT STD SPECS SECTION 8-14.
- 29. PERMANENT SIGNAGE SHALL BE INSTALLED IN ACCORDANCE WITH WSDOT STD SPECS SECTION 8-21. 30. PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH WSDOT STD SPECS SECTION 8-22.
- 31. PROJECT GEOTECHNICAL ENGINEER SHALL OBSERVE, TEST, AND APPROVE SUBGRADE BELOW ALL STREET WIDENING BEFORE AGGREGATE BASE AND ATB ARE INSTALLED AND SHALL PROVIDE WRITTEN ACCEPTANCE TO CITY. PROJECT GEOTECHNICAL ENGINEER SHALL OBSERVE, TEST, AND APPROVE TRENCH BACKFILL AND CRUSHED SURFACING TOP COURSE (CSTC) ROAD BASE BEFORE STREET ASPHALT IS INSTALLED AND SHALL PROVIDE WRITTEN ACCEPTANCE TO CITY. COMPACTION TESTING FOR SUBGRADE AND GRAVEL BASE SHALL COMPLY WITH WSDOT STD SPECS SECTION 2-03.3(14)D. COMPACTION TESTING SHALL BE PERFORMED FOR EVERY 400 SQUARE FEET OF SUBGRADE AND GRAVEL BASE, PER LIFT, EXCEPT MORE FREQUENT TESTING SHALL BE PERFORMED AS DIRECTED BY CITY ENGINEER OR GEOTECHNICAL ENGINEER BASED ON OBSERVABLE SOIL CONDITIONS OR FAILED TESTS. HABITAT FOR HUMANITY SHALL PROVIDE FOR IN-PLACE COMPACTION TESTING AND A COPY OF ALL TEST RESULTS SHALL BE PROVIDED TO CITY ENGINEER. CONTRACTOR SHALL PROOF ROLE ANY AND ALL LOCATIONS DESIGNATED BY PROJECT GEOTECHNICAL ENGINEER OR CITY ENGINEER REPRESENTATIVE.
- 32. CURB/GUTTER/SIDEWALK GRADES, STREET BASE AND SURFACE GRADES, AND PIPE GRADES SHALL BE MAINTAINED BY USE OF A LASER.
- 33. TRENCH AND EXCAVATION BACKFILL, PIPE AND DRAINAGE STRUCTURE BEDDING, AND ROAD BASE SHALL BE CRUSHED SURFACING TOP COURSE (CSTC) AND/OR BASE COURSE PER 2012 WSDOT STD SPEC SECTION 9-03.9(3). ASPHALT PAVEMENT SHALL BE CLASS 1/2" PG 64-22; ALL MEET LINES SHALL BE TACKED AND SEALED. TACK COAT SHALL BE CSS-1, EMULSIFIED ASPHALT. ATB SHALL BE PLACED AND COMPACTED IN MAXIMUM 3-INCH THICK LIFTS. HOT MIX ASPHALT (HMA) SHALL BE PLACED AND COMPACTED IN MAXIMUM 2-INCH THICK LIFTS. ALL HMA PATCHES AND HMA SURFACES SHALL BE COMPACTED BY ROLLING FLAT AND SLOPED TO SURFACE DRAIN WITHOUT PUDDLES OR PONDING. ALL VALVE BOXES, GRATES, COVERS, VALVE PITS AND SURFACE UTILITY FEATURES SHALL BE ADJUSTED TO MATCH ASPHALT FINISH GRADE. ATB SHALL NOT BE PLACED UNTIL ALL BURIED UTILITIES HAVE BEEN INSTALLED BENEATH IT.
- 34. FINISH GRADE INFORMATION SHOWN ON DRAWINGS MAY BE INCOMPLETE OR INSUFFICIENT FOR CONSTRUCTION OF CONCRETE CURB/GUTTER AND ASPHALT STREET SURFACES. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING MISSING INFORMATION AND FOR RESOLVING INCONSISTENCIES SO THAT STREET ASPHALT AND GUTTER SURFACES RESULT IN SURFACE RUNOFF TO CONCRETE GUTTERS, ASPHALT THICKENED EDGES, AND STORM CATCH BASINS - NO PUDDLING/PONDING SHALL RESULT. NEW STREET ASPHALT AND/OR CONCRETE GUTTERS SHALL BE RE-GRADED AS REQUIRED TO ELIMINATE PUDDLES/PONDING.
- 35. SIDEWALKS IN ROW SHALL BE 3,000 PSI PORTLAND CEMENT CONCRETE, WITH FULL DEPTH EXPANSION JOINTS AT MAXIMUM 15 FEET ON CENTER. APPLY CURING COMPOUND. SIDEWALK AGGREGATE BASE SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY (MDD) PER ASTM D1557 (MODIFIED PROCTOR). CITY ENGINEER SHALL OBSERVE AND ACCEPT SUBGRADE AND AGGREGATE BASE COURSE BEFORE PLACEMENT OF CONCRETE. SIDEWALKS SHALL DRAIN TO SIDES — NO PUDDLES. SIDEWALK REPLACEMENT WORK SHALL BE PLANNED, SEQUENCED, AND PERFORMED IN SUCH MANNER AS TOO MINIMIZE AMOUNT OF TIME, BETWEEN SIDEWALK DEMOLITION AND SIDEWALK REPLACEMENT, TO LEAST AMOUNT NECESSARY TO PERFORM THE WORK. DURING SIDEWALK REPLACEMENT, INSTALL SIGNS AT EACH END NOTIFYING PUBLIC THAT SIDEWALK IS TEMPORARILY CLOSED. PROTECT CONCRETE SURFACES FROM DAMAGE - CRACKED CONCRETE WORK SHALL BE REPLACED.

# 36. PVC PIPE CONNECTIONS TO CONCRETE STRUCTURES SHALL HAVE SAND COLLARS OR APPROVED EQUAL MEANS OF CONNECTION.

### TEMPORARY EROSION AND SEDIMENTATION CONTROL

- 37. PREVENT SILT—LADEN (TURBID) RUNOFF FROM REACHING PUBLIC STORM DRAINS OR NEW INFILTRATION TRENCH. INFILTRATION TRENCH SHALL NOT BE USED AS A SEDIMENTATION FACILITY. PLUG INLET TO STORMFILTER STRUCTURE UNTIL ALL DRAINAGE BASIN SOILS ARE FINALLY STABILIZED AND STORMFILTER IS INSTALLED AND OPERATIONAL. DO NOT REMOVE PLUG UNTIL APPROVED BY CITY ENGINEER. COVER STORM DRAINS WITH STORM INLET PROTECTION CONFORMING TO WSDOT STD PLAN I-40.20-00, INSPECT DAILY, AND CLEAN INLETS TO PREVENT BYPASS OR OVERTOPPING.
- 38. STREETS AND SIDEWALKS SHALL BE KEPT FREE OF DUST, DIRT AND MUD AND STREET SHALL BE MECHANICALLY SWEPT DAILY OR AS OTHERWISE NEEDED.
- 39. BLOWING DUST SHALL BE PREVENTED. IF REQUIRED, A TANKER WATERING TRUCK SHALL BE UTILIZED TO KEEP DUST FROM FORMING.

40. SURVEY CONTROL AND LAYOUT STAKING SHALL BE PERFORMED BY LICENSED SURVEYOR AND SHALL CONFORM WITH APPROVED DRAWINGS. AS-BUILT LOCATIONS AND ELEVATIONS SHALL BE SURVEYED AND INCORPORATED INTO CONSTRUCTION AS-BUILT DRAWINGS PROVIDED TO THE CITY. STATIONING SHALL BE FIELD MARKED ON PAVEMENT AND MAINTAINED THROUGHOUT CONSTRUCTION.

# RECORD DRAWINGS

41. PROVIDE AS-BUILT DRAWINGS SHOWING LOCATION AND CONFIGURATION OF STREET AND PEDESTRIAN IMPROVEMENTS, UTILITIES, SIGNAGE AND TRAFFIC CONTROL.

# CLEANLINESS

42. ALL ROW WORK AREAS SHALL BE KEPT CLEAR OF DEBRIS ON A DAILY BASIS.

43. ALL STORM DRAIN STRUCTURES SHALL BE CLEANED BY VACTOR TRUCK, OR OTHER METHOD APPROVED BY CITY ENGINEER, BEFORE FINAL ACCEPTANCE.

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2. THE CONTRACTOR SHALL PERFORM ALL EXCAVATION OF EVERY DESCRIPTION AND WHATEVER SUBSTANCE ENCOUNTERED AND BOULDERS, ROCKS, ROOTS, AND OTHER OBSTRUCTIONS SHALL BE ENTIRELY REMOVED OR CUT OUT TO THE WIDTHS OF THE TRENCH AND TO A DEPTH 6 INCHES BELOW UTILITY PIPE GRADE. WHERE MATERIALS ARE REMOVED FROM BELOW UTILITY PIPE GRADE, THE TRENCH SHALL BE BACKFILLED TO GRADE WITH FOUNDATION GRAVEL AND THOROUGHLY COMPACTED.

3. TRENCHING AND SHORING OPERATIONS SHALL NOT PROCEED MORE THAN 100 FEET IN ADVANCE OF PIPE LAYING WITHOUT APPROVAL OF THE CITY, AND SHALL BE IN CONFORMANCE WITH WASHINGTON INDUSTRIAL SAFETY AND HEALTH ADMINISTRATION (OSHA) SAFETY STANDARD.

4. MATERIAL EXCAVATED FROM TRENCHES AND PILED ADJACENT TO THE TRENCH, OR IN A ROADWAY OR PUBLIC THOROUGHFARE, SHALL BE PILED AND MAINTAINED SO THAT THE TOE OF THE SLOPE OF THE MATERIAL IS AT LEAST 3 FEET FROM THE EDGE OF THE TRENCH. IT SHALL BE PILED IN SUCH A MANNER AS WILL CAUSE A MINIMUM OF INCONVENIENCE TO PUBLIC TRAVEL, AND PROVISIONS SHALL BE MADE FOR TRAFFIC CONTROL AS NECESSARY. FREE ACCESS SHALL BE PROVIDED TO FIRE HYDRANTS, WATER VALVES, AND METERS, AND CLEARANCE SHALL BE LEFT TO ENABLE FREE FLOW OF STORM WATER IN GUTTERS, OTHER CONDUITS, AND NATURAL WATERCOURSES.

5. OPEN-CUT TRANSVERSE CROSSINGS OF ROADWAYS AFTER FINAL PAVING ARE NOT TO BE PERMITTED UNLESS IT CAN BE SHOWN THAT ALTERNATIVES SUCH AS JACKING, AUGURING OR TUNNELING ARE NOT FEASIBLE OR UNLESS THE UTILITY CAN BE INSTALLED JUST PRIOR TO RECONSTRUCTION OR AN OVERLAY OF THE ROAD. SHOULD AN OPEN CUT BE APPROVED, ALL TRANSVERSE TRENCHES SHALL BE BACKFILLED WITH CRUSHED SURFACING OR CONTROLLED DENSITY FILL.

6. WHERE TRENCH EXCAVATION EQUALS OR EXCEEDS A DEPTH OF 4 FEET, THE DEVELOPER/CONTRACTOR SHALL PROVIDE, CONSTRUCT, MAINTAIN AND REMOVE, AS REQUIRED, SAFETY SYSTEMS THAT MEET THE REQUIREMENTS OF THE WASHINGTON INDUSTRIAL SAFETY AND HEALTH ACT, RCW 49.17, INCLUDING WAC 296–155. THE TRENCH SAFETY SYSTEMS SHALL BE DESIGNED BY A QUALIFIED PERSON, AND MEET ACCEPTED ENGINEERING REQUIREMENTS (SEE WAC 296–155–660).

7. THE CONTRACTOR SHALL ADEQUATELY SHORE TRENCHES TO PROTECT THE WORK, EXISTING PROPERTY, UTILITIES, PAVEMENT, ETC., AND TO PROVIDE SAFE WORKING CONDITIONS IN THE TRENCH. THE METHOD OF SHORING SHALL BE ACCORDING TO THE CONTRACTOR'S DESIGN. THE CONTRACTOR MAY ELECT TO USE A COMBINATION OF SHORING OR OVER BREAK, TUNNELING, BORING, SLIDING TRENCH SHIELDS, OR OTHER METHODS OF ACCOMPLISHING THE WORK, PROVIDED THE METHOD MEETS ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY CODES. DAMAGES RESULTING FROM IMPROPER SHORING OR FROM FAILURE TO SHORE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. REMOVAL OF ANY SHORING FROM THE TRENCH SHALL BE ACCOMPLISHED IN SUCH A MANNER AS TO ASSURE THAT NO DAMAGE IS DONE TO THE PIPE OR

8. WHERE WATER IS ENCOUNTERED IN THE TRENCH, IT SHALL BE REMOVED DURING PIPE—LAYING OPERATIONS AND THE TRENCH SO MAINTAINED UNTIL THE ENDS OF THE PIPE ARE SEALED AND PROVISIONS ARE MADE TO PREVENT FLOATING OF THE PIPE. TRENCH WATER OR OTHER DELETERIOUS MATERIALS SHALL NOT BE ALLOWED TO ENTER THE PIPE AT ANY TIME.

9. THE DEVELOPER/CONTRACTOR SHALL FURNISH, INSTALL, AND OPERATE ALL NECESSARY EQUIPMENT TO KEEP THE TRENCH ABOVE THE FOUNDATION LEVEL FREE FROM WATER DURING CONSTRUCTION, AND SHALL DEWATER AND DISPOSE OF THE WATER SO AS NOT TO CAUSE INJURY TO PUBLIC OR PRIVATE PROPERTY OR NUISANCE TO THE PUBLIC. SUFFICIENT PUMPING EQUIPMENT IN GOOD WORKING CONDITION SHALL BE AVAILABLE AT ALL TIMES FOR ALL EMERGENCIES, INCLUDING POWER OUTAGE, AND SHALL HAVE AVAILABLE AT ALL TIMES COMPETENT WORKERS FOR THE OPERATION OF THE PUMPING EQUIPMENT.

10. WHEN NATIVE MATERIAL AT THE TRENCH BOTTOM IS STONY OR OTHERWISE NON-UNIFORM, THE TRENCH SHALL BE OVER-EXCAVATED A MINIMUM OF 6 INCHES BELOW THE SPECIFIED GRADE AND A LAYER OF PIPE BEDDING MATERIAL SHALL BE FURNISHED AND PLACED BY THE CONTRACTOR TO THE SPECIFIED GRADE. AFTER THE PIPE IS IN PLACE ADDITIONAL HAND SELECTED NATIVE MATERIAL MEETING THE REQUIREMENTS FOR BEDDING MATERIAL SHALL BE PLACED AND TAMPED AROUND THE PIPE FOR A MINIMUM OF 6 INCHES ABOVE THE CROWN OF THE PIPE.

11. IF THE NATIVE MATERIAL AT THE TRENCH BOTTOM IS UNSUITABLE FOR FOUNDATION PURPOSES OR WILL HAVE DIFFICULTY PROVIDING UNIFORM BEARING FOR THE PIPE, SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH A MINIMUM OF 6 INCHES OF COMPACTED FOUNDATION MATERIAL.

12. BEDDING MATERIAL SHALL BE AS SPECIFIED ON THE APPROVED DRAWINGS OR NOTES. THE BEDDING 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. ALL BEDDING AND NATIVE MATERIAL SHALL

BE STORED AWAY FROM THE EDGES OF EXCAVATION AND OFF THE PAVED ROADWAY AND SHOULDER.

13. ALL TRENCH BACKFILL SHALL BE MECHANICALLY COMPACTED TO 95% OF MAXIMUM DENSITY (ASTM D 1557 MODIFIED PROCTOR TEST) WITHIN THE RIGHT—OF—WAY AND IN ALL AREAS (PAVED AND UNPAVED) WHERE STREETS, ROADWAY SHOULDERS, DRIVEWAYS, SIDEWALKS, OR PARKING LOTS WILL BE CONSTRUCTED OR RECONSTRUCTED OVER THE TRENCH EXCEPT FOR TRENCHES OVER 8 FEET IN DEPTH. WHEN THE TRENCH DEPTH EXCEEDS 8 FEET, TRENCH BACKFILL UP TO 4 FEET FROM THE TOP OF THE TRENCH MAY BE WATER SETTLED OR MECHANICALLY COMPACTED TO 90% OF THE MAXIMUM DENSITY. THE UPPER 4 FEET SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY.

14. BACKFILL SHALL BEGIN IMMEDIATELY AFTER INSPECTION AND APPROVAL OF THE INSTALLATION BY THE CITY. BACKFILL COMPACTION ON PRIVATE PROPERTY IS THE OWNER'S RESPONSIBILITY.

15. THE BOTTOM OF THE TRENCH SHALL BE FINISHED TO GRADE WITH HAND TOOLS IN SUCH A MANNER THAT THE PIPE WILL HAVE BEARING ALONG THE ENTIRE LENGTH OF THE BARREL. THE BELL HOLES SHALL BE EXCAVATED WITH HAND TOOLS TO SUFFICIENT SIZE TO MAKE UP THE JOINT.

16. SUITABLE NATIVE MATERIAL EXCAVATED DURING TRENCHING MAY BE USED FOR TRENCH BACKFILL OUTSIDE OF SIDEWALK AND PAVEMENT AREAS UNLESS NOTIFIED BY THE CITY THAT THE NATIVE MATERIAL IS UNSUITABLE. THE CITY OR REPRESENTATIVE WILL EXAMINE EXCAVATED NATIVE MATERIAL AT THE TIME OF EXCAVATION TO DETERMINE ITS SUITABILITY FOR USE AS BACKFILL. NATIVE MATERIAL WILL BE CONSIDERED SUITABLE FOR TRENCH BACKFILL IF IT IS:

(A) CAPABLE OF ATTAINING THE DEGREE OF COMPACTION SPECIFIED WITHIN REASONABLE TOLERANCE OF OPTIMUM MOISTURE CONTENT.

(B)REASONABLY FREE OF ORGANIC MATERIAL, CLAY, FROZEN LUMPS, ROCKS GREATER THAN 2 INCHES, OR OTHER DELETERIOUS MATTER.

17. UNSUITABLE BACKFILL MATERIAL SHALL BE REMOVED FROM THE SITE AND HAULED TO AN APPROVED DISPOSAL SITE. THE CITY SHALL BE PROVIDED WITH THE LOCATION OF ALL DISPOSAL SITES TO BE USED AND ALSO COPIES OF THE PERMITS AND APPROVALS FOR SUCH DISPOSAL SITES.
 18. PERPENDICULAR OPEN CUT CROSSINGS OF ANY PUBLIC RIGHT OF WAY SHALL REQUIRE CONTROLLED DENSITY

FILL (CDF) OR 100% IMPORT OF CRUSHED SURFACING BASE AND TOP COURSE UNLESS WAIVED BY THE CITY.

19. UNDER SIDEWALK OR PAVEMENT AREAS, IMPORTED MATERIAL SHALL MEET THE REQUIREMENTS OF CRUSHED SURFACING TOP COURSE (CSTC) AS SPECIFIED IN THE WSDOT STD. SPECS SECTION 9-03.9(3). IN OTHER AREAS, IMPORTED MATERIAL SHALL MEET THE REQUIREMENTS OF CSTC OR GRAVEL BORROW AS SPECIFIED IN THE WSDOT STD. SPECS SECTION 9-03.14(1). IN BACKFILLING THE TRENCH, THE CONTRACTOR SHALL TAKE

THE WSDOT STD. SPECS SECTION 9-03.14(1). IN BACKFILLING THE TRENCH, THE CONTRACTOR SHALL TAK ALL NECESSARY PRECAUTIONS TO PROTECT THE PIPE FROM ANY DAMAGE OR SHIFTING. THE CONTRACTOR SHALL BACKFILL FROM THE SIDE OF THE TRENCH TO A MAXIMUM UNIFORM DEPTH OF 1 FOOT ABOVE THE CROWN OF THE PIPE BEFORE STARTING MECHANICAL COMPACTION.

20. DURING ALL PHASES OF THE BACKFILLING OPERATIONS AND TESTING AS OUTLINED HEREIN, THE CONTRACTOR SHALL PROTECT THE PIPE INSTALLATION, PROVIDE FOR THE MAINTENANCE OF TRAFFIC AS MAY BE NECESSARY, AND PROVIDE FOR THE SAFETY OF PROPERTY AND PERSONS.

21. WHERE GOVERNMENTAL AGENCIES OTHER THAN THE CITY HAVE JURISDICTION OVER ROADWAYS, THE BACKFILL AND COMPACTION SHALL BE DONE TO THE SATISFACTION OF THE AGENCY HAVING JURISDICTION. IF SUITABLE BACKFILL MATERIAL IS NOT AVAILABLE FROM TRENCHING OPERATIONS OR TEMPORARY TRAFFIC CONTROL AND TRAFFIC SAFETY ISSUES EXIST, THE CITY MAY ORDER THE PLACING OF BEDDING AROUND THE WATER MAIN AND GRAVEL BASE OR CONTROLLED DENSITY FILL FOR BACKFILLING THE TRENCH.

22. CONTROLLED DENSITY FILL (CDF, AKA FLOWABLE FILL) SHALL BE A MIXTURE OF PORTLAND CEMENT, FLYASH (OPTIONAL), AGGREGATES, AND WATER. IT SHALL BE PROPORTIONED TO PROVIDE A GROUTY, NON-SEGREGATING, FREE FLOWING, SELF-CONSOLIDATING AND EXCAVATABLE MATERIAL THAT WILL RESULT IN A NON-SETTLING FILL WHICH HAS MEASURABLE UNCONFINED COMPRESSIVE STRENGTH. UNLESS OTHERWISE SPECIFIED, UNIT WEIGHTS SHALL RANGE FROM 125 LBS. PER CUBIC FOOT TO 155 LBS. PER CUBIC FOOT.

23. MATERIALS TESTING SHALL BE WITH UNCONFINED COMPRESSIVE TEST CYLINDERS. TEST DATA MAY BE EITHER LABORATORY TRAIL BATCH DATA OR FIELD TEST DATA.

24. SPECIFIC MIX DESIGNS MAY BE REQUIRED AT THE ENGINEER'S DISCRETION. APPROVED SOURCES ARE STONEWAY AND CADMAN.

25. THE UNCONFINED COMPRESSIVE STRENGTH AT 28 DAYS SHALL BE A MINIMUM OF 50 PSI AND A MAXIMUM OF 100 PSI. MATERIAL SHALL BE A SAND/GROUT SLURRY PROPORTIONED TO BE HAND-EXCAVATABLE AFTER LONG-TERM STRENGTH GAIN.

26. IF CDF IS USED FOR TRENCH BACKFILL ON DUCTILE IRON, STEEL, OR COPPER UTILITY MAINS OR SERVICES, THE MAINS AND SERVICES SHALL BE ENCASED IN POLYETHYLENE WRAP.

27. TRENCH BACKFILL SHALL BE SPREAD IN LAYERS AND BE COMPACTED BY MECHANICAL TAMPERS OF THE IMPACT TYPE APPROVED BY THE ENGINEER. WATER SETTLING WILL NOT BE PERMITTED. AFTER THE INITIAL BACKFILL IS PLACED THE REMAINING BACKFILL MATERIAL SHALL BE PLACED IN SUCCESSIVE LAYERS NOT EXCEEDING 1 FOOT IN LOOSE THICKNESS, AND EACH LAYER SHALL BE COMPACTED TO THE DENSITY SPECIFIED BELOW:

28. IMPROVED AREAS SUCH AS STREET AND SIDEWALK AREAS SHALL BE COMPACTED TO 95% OF MAXIMUM DRY DENSITY (MDD) PER ASTM D-1557 (MODIFIED PROCTOR). UNIMPROVED AREAS OF LANDSCAPE AREAS SHALL BE COMPACTED TO 90% OF MDD PER ASTM D-1557.

29. THE EXISTING ASPHALT SURFACE SHALL BE CUT ON A NEAT LINE BY SAW CUTTING, JACK—HAMMERING OR OTHER APPROVED METHOD PRIOR TO EXCAVATION TO PROVIDE A CONTINUOUS LINE. FOLLOWING PROPER BACKFILL AND COMPACTION OF THE TRENCH, THE EDGES OF THE SURFACING SHALL BE RETRIMMED (SAW CUT) 12 INCHES WIDER THAN THE EXCAVATION WITH STRAIGHT VERTICAL EDGES FREE FROM IRREGULARITIES. CRUSHED SURFACING TOP COURSE SHALL BE PLACED TO A COMPACTED THICKNESS OF 6 INCHES.

30. TEMPORARY RESTORATION OF TRENCHES SHALL BE ACCOMPLISHED BY USING 2-INCH LAYER OF HOT MIX ASPHALT CONCRETE PAVEMENT WHEN AVAILABLE OR 2-INCH LAYER OF MEDIUM-CURING (MC-250) LIQUID ASPHALT (COLD MIX), 2-INCH LAYER OF ASPHALT TREATED BASE (ATB), OR STEEL PLATES.

31. ATB USED FOR TEMPORARY RESTORATION MAY BE DUMPED DIRECTLY INTO THE TRENCH, BLADED AND ROLLED. AFTER ROLLING, THE TRENCH MUST BE FILLED FLUSH WITH THE EXISTING ASPHALT CONCRETE PAVEMENT TO PROVIDE A SMOOTH RIDING SURFACE.

32. ALL TEMPORARY PATCHES SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL SUCH TIME AS THE PERMANENT PAVEMENT PATCH IS IN PLACE. IF THE CONTRACTOR IS UNABLE TO MAINTAIN A PATCH FOR WHATEVER REASON, THE CITY WILL PATCH IT AT ACTUAL COST PLUS OVERHEAD AND MATERIALS.

33. TRENCH RESTORATION SHALL BE EITHER BY A HMA PATCH OR HMA PATCH PLUS OVERLAY AS REQUIRED BY THE CITY.

34. ALL TRENCH AND PAVEMENT CUTS SHALL BE MADE BY SPADE BLADED JACKHAMMER OR SAW CUTS. ALL CUTS SHALL BE A MINIMUM DISTANCE OUTSIDE THE TRENCH WIDTH OF 12 INCHES.

35. REPLACEMENT OF THE ASPHALT CONCRETE OR PORTLAND CONCRETE CEMENT SHALL BE OF EXISTING DEPTH PLUS 1 INCH OR 3 INCHES, WHICHEVER IS GREATER.

36. TACK SHALL BE APPLIED TO THE EXISTING PAVEMENT AND EDGE OF CUT AND SHALL BE EMULSIFIED ASPHALT GRADE CSS-1 AS SPECIFIED IN THE STANDARD SPECIFICATIONS. TACK COAT SHALL BE APPLIED AS SPECIFIED IN THE STANDARD SPECIFICATIONS.

37. HOT MIX ASPHALT SHALL BE PLACED ON THE PREPARED SURFACE BY AN APPROVED PAVING MACHINE AND SHALL BE IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF THE STANDARD SPECIFICATIONS, EXCEPT THAT LONGITUDINAL JOINTS BETWEEN SUCCESSIVE LAYERS OF ASPHALT CONCRETE SHALL BE DISPLACED LATERALLY A MINIMUM OF 12 INCHES UNLESS OTHERWISE APPROVED BY THE CITY. FINE AND COARSE AGGREGATE SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. ASPHALT CONCRETE OVER 2 INCHES THICK SHALL BE PLACED IN EQUAL LIFTS NOT TO EXCEED 2 INCHES EACH.

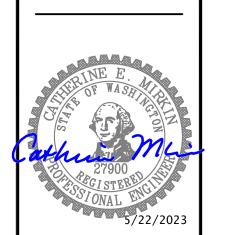
38. ALL STREET SURFACES, WALKS OR DRIVEWAYS WITHIN THE STREET TRENCHING AREAS AFFECTED BY THE TRENCHING SHALL BE FEATHERED AND LEVELED TO AN EXTENT THAT PROVIDES A SMOOTH-RIDING CONNECTION AND EXPEDITES DRAINAGE FLOW FOR THE NEWLY PAVED SURFACE. LEVELING AND FEATHERING AS REQUIRED BY THE CITY SHALL BE ACCOMPLISHED BY RAKING OUT THE OVERSIZED AGGREGATES FROM THE HMA AS APPROPRIATE.

39. SURFACE SMOOTHNESS SHALL BE PER THE STANDARD SPECIFICATIONS.

(A) ALL JOINTS SHALL BE SEALED USING EMULSIFIED ASPHALT.(B) WHEN TRENCHING WITHIN THE ROADWAY SHOULDER(S), THE SHOULDER SHALL BE RESTORED TO ITS ORIGINAL OR BETTER CONDITION.

(C)THE FINAL PATCH SHALL BE COMPLETED AS SOON AS POSSIBLE AND SHALL BE COMPLETED WITHIN 30 DAYS AFTER FIRST OPENING THE TRENCH. THIS TIME FRAME MAY BE ADJUSTED IF DELAYS ARE DUE TO INCLEMENT PAVING WEATHER, OR OTHER ADVERSE CONDITIONS THAT MAY EXIST. HOWEVER, DELAYING OF FINAL PATCH OR OVERLAY WORK IS ALLOWABLE ONLY SUBJECT TO THE CITY'S APPROVAL.

340 15th Ave East, Suite 305 Seattle, WA 98112 206-659-0612



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PROJECT NUMBER

22008
SUBMITTAL
BID SET
MAY 22, 2023

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- WATER MAINS, PARALLEL TO A SEWER, SHALL NORMALLY BE ABOVE AND SEPARATED BY A DISTANCE OF AT LEAST TEN FEET HORIZONTALLY. UNDER UNUSUAL CIRCUMSTANCES, THE HORIZONTAL SPACING MAY BE ADJUSTED, SUBJECT TO THE APPROVAL OF THE CITY. WATER MAINS CROSSING SEWERS SHOULD BE NOT LESS THAN 18 INCHES ABOVE THE SEWER. WHERE IT IS NECESSARY FOR A SEWER TO CROSS WITHIN 18 INCHES, OR OVER THE WATER MAIN, PROTECTIVE MEASURES PER THE DOE CRITERIA FOR SEWAGE WORKS DESIGN (ORANGE BOOK) SHALL BE TAKEN.
- 4. FIELD STAKING FOR SEWER LINE AND GRADE FOR SEWER VACUUM BRANCH MAIN AND VACUUM SEWER LATERALS SHALL BE PERFORMED BY LICENSED SURVEYOR.
- 5. PIPING, VALVES, VALVE PITS, AND APPURTENANCES SHALL NOT BE BURIED UNTIL OBSERVED AND ACCEPTED BY CITY REPRESENTATIVE. CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING AND SCHEDULING TIMELY SITE OBSERVATIONS BY CITY REPRESENTATIVE.
- TRENCHES SHALL BE EXCAVATED TO THE LINE AND DEPTH DESIGNATED BY THE PLANS TO PROVIDE THE COVER ON THE WATER SYSTEM OR SANITARY SEWER SYSTEM AS SPECIFIED BY THE CITY. PERFORM TRENCHING IN ACCORDANCE WITH THE GENERAL UTILITY PIPE TRENCHING AND TRENCH PATCHING NOTES ON SHEET C-1.1.
- 7. THE CITY HAS A VACUUM SEWER SYSTEM THAT OPERATES DIFFERENTLY THAN STANDARD GRAVITY SEWER. A BREAK IN THE MAINLINE, OR BETWEEN MAINLINE AND VALVE PITS, WILL SHUTDOWN THE ENTIRE TRUNKLINE, BETWEEN VACUUM STATION AND END USER. THE INSTALLATION OF ALL SANITARY SEWER FACILITIES SHALL BE DONE PER PLANS WHICH HAVE BEEN APPROVED BY THE CITY.
- 8. BEFORE INSTALLATION, MATERIAL SUBMITTALS SHALL BE SUBMITTED TO THE CITY ENGINEER FOR ACCEPTANCE FOR ALL MATERIALS TO BE INSTALLED. ALL MATERIALS SHALL BE NEW AND UNDAMAGED. ALL MATERIALS NOT SPECIFICALLY REFERENCED SHALL COMPLY WITH APPLICABLE SECTIONS OF ANSI, ASTM, AWWA, AND THE STANDARD SPECIFICATIONS.
- APPROVED MANUFACTURERS AND MODEL NUMBERS OF VARIOUS MATERIALS ARE LISTED IN APPROVED MATERIALS LIST INCLUDED IN THE CITY STANDARDS. WHEN SPECIFIC MANUFACTURERS OR MODELS ARE LISTED, NO SUBSTITUTIONS WILL BE ALLOWED WITHOUT PRIOR APPROVAL BY THE CITY.

- 10. VACUUM SEWER MAIN AND LATERALS SHALL BE CONSTRUCTED OF ASTM 2241 SDR 21 PVC, 200 PSI PRESSURE RATED. UNLESS OTHERWISE APPROVED BY CITY.
- 11. CONNECTIONS TO EXISTING VACUUM SEWER MAIN SHALL BE MADE WITH ROMAC 501 COUPLINGS OR APPROVED EQUAL
- 12. GRAVITY SEWERS AND SERVICES SHALL BE CONSTRUCTED OF ASTM 2241 SDR 21 PVC, ASTM 3034 SDR 35 PVC, OR CLASS 50 DUCTILE IRON PIPE CONFORMING TO SECTION 9-05.12 OF THE STANDARD SPECIFICATIONS UNLESS SHOWN OTHERWISE ON DRAWINGS. PVC GRAVITY SEWER SERVICE PIPE SHALL BE CONSIDERED FLEXIBLE CONDUIT. PVC COMPOUND SHALL MEET THE REQUIREMENTS OF ASTM D 1784 FOR CLASS 12454-B PVC. VENT PIPES SHALL BE PVC SDR 21 OR SCHEDULE 40 PVC WITH SOLVENT WELD JOINTS AS SHOWN ON THE STANDARD DETAIL. INSTALLATION OF TRACER TAPE OR WIRE OVER THE SIDE SEWER IS REQUIRED.
- 13. DUCTILE IRON PIPE (CLASS 50) MAY BE USED IN LIEU OF PVC PIPE PROVIDED THE DUCTILE IRON PIPE IS LINED WITH PROTECTO 401 CERAMIC-EPOXY OR APPROVED EQUAL. ALL LININGS SHALL BE APPLIED PER THE MANUFACTURER'S RECOMMENDATIONS.
- 14. THE INTERIOR OF THE PIPE SHALL BE KEPT CLEAN AND FREE FROM DIRT, CEMENT, OR ANY OTHER SUPERFLUOUS, AND EACH JOINT LEFT ENTIRELY FREE FROM ANY PROTRUDING MATERIAL ON THE INSIDE OF THE PIPE JOINT OR PIPE BARREL.

15. ONLY ROMAC, FERNCO COUPLINGS OR FORD FLEXIBLE COUPLINGS MAY BE USED. FERNCO COUPLINGS ARE ONLY ALLOWED AT THE BUILDING CONNECTION TO THE SIDE SEWER, NOT AT THE CONNECTION TO THE CITY SIDE SEWER. THEY SHALL BE INSTALLED AS PRESCRIBED BY THE MANUFACTURER OF THE COUPLING, AND IN A MANNER SATISFACTORY TO THE CITY.

### WYES, TEES AND CLEANOUTS

- 16. CLEANOUTS SHALL BE REQUIRED FOR ALL SIDE SEWERS LONGER THAN 100 FEET AS MEASURED FROM THE OWNER'S PROPERTY OR EASEMENT LINE AND THE BUILDING FOUNDATION. CLEANOUTS SHALL BE PROVIDED AT INTERVALS NOT TO EXCEED 100 FEET AND ARE ENCOURAGED AT CHANGES OF PIPE ALIGNMENT
- 17. WYES AND CLEANOUTS SHALL BE PLACED AT ANY LOCATION OR LOCATIONS WHICH. IN THE CITY'S OPINION. ARE REASONABLY NECESSARY TO ASSURE A PROPER INSTALLATION
- 18. ALL WYES TO BE INSTALLED FOR USE AS A PERMANENT CLEANOUT, AND ALL TEMPORARY OR FUTURE ENDS OF RUNS SHALL BE PLUGGED WITH A PLUG OF A TYPE SATISFACTORY TO THE CITY AND SHALL BE MADE COMPLETELY WATERTIGHT. IT IS THE INSTALLER'S RESPONSIBILITY TO ASSURE THAT SUCH PLUG WILL NOT BE BLOWN OUT OR MOVED BY THE TESTING PRESSURE IN THE SEWER SYSTEM. ANY SUCH MEANS OF PREVENTION SHALL BE EASILY REMOVABLE WITHOUT DAMAGE TO THE FITTING OR THE PLUG
- 19. NO SIDE SEWER SHALL BE COVERED OR BACKFILLED PRIOR TO THE FIELD INSPECTION BY THE CITY. ANY PERSON PERFORMING WORK SUBJECT TO THE PROVISIONS OF THIS POLICY SHALL NOTIFY THE CITY AS LEAST FORTY EIGHT (48) HOURS IN ADVANCE OF WHEN THE WORK WILL BE READY FOR INSPECTION AND TESTING, AND AN APPOINTMENT WILL BE ARRANGED FOR THE INSPECTION. THE OWNER OR CONTRACTOR MUST BE PRESENT DURING THE INSPECTION. IF AN APPOINTMENT HAS BEEN SCHEDULED AND THE INSPECTOR ARRIVES AND FINDS THAT, IN FACT, THE SIDE SEWER IS NOT READY FOR TESTING AND INSPECTION, A NEW APPOINTMENT MUST BE MADE AND A CHARGE MADE FOR THE SECOND VISIT AS ESTABLISHED BY THE CITY.

20. BENDS USED FOR VACUUM LINE DIRECTIONAL CHANGES, BRANCH TO MAIN CONNECTIONS. AND VALVE PIT TO BRANCH OR MAIN CONNECTIONS MAY NOT EXCEED 45 DEGREES. FITTINGS SHALL BE CONSTRUCTED OF ASTM 2241 SDR21 UNLESS OTHERWISE APPROVED BY CITY.

- 21. GATE VALVES USED FOR VACUUM SEWER SYSTEM SHALL CONFORM TO ANSI/AWWA C509-94. STANDARD FOR RESILIENT SEATED GATE VALVES, AS MANUFACTURED BY MUELLER OR M&H.
- 22. MECHANICAL JOINT CONNECTIONS WITH TRANSITION TO PVC GASKETS SHALL BE PROVIDED. ALL FLANGE FACES SHALL BE MACHINED AND DRILLED TO STRADDLE THE VERTICAL CENTERLINE
- 23. BURIED VALVES SHALL BE PROVIDED WITH VALVE BOXES AND THE OPERATING NUT SHALL BE EXTENDED TO WITHIN 9", PLUS OR MINUS 6", OF THE FINISHED GRADE. THE VALVE BOX COVER SHALL HAVE THE WORDS "SEWER" AND "OPEN" WITH A DIRECTIONAL ARROW CAST ON IT. LOCK DOWN SET SCREWS SHALL NOT BE USED ON VALVE OPERATING NUT EXTENSIONS
- 24. TWO (2) TEE KEYS SHALL BE PROVIDED FOR EACH VALVE SIZE REQUIRED.

### VALVE PIT

- 25. SHALL BE AS MANUFACTURED BY BILFIGER/AIR VAC, MODEL TO BE SPECIFIED ON DRAWINGS.
- 26. VALVE PIT COVERS SHALL BE MODEL R5900 BY NEENAH FOUNDRY OR EQUAL, AND SHALL BE DESIGNED FOR H-20 LOADING. CASTINGS SHALL MEET ASTM A-48, CLASS 30 GRAY CAST IRON. COVERS SHALL BEAR THE NAME "AIRVAC SEWER" ON ITS TOP IN 1" TALL RAISED LETTERS, UNLESS OTHERWISE DIRECTED BY CITY. RISER RINGS ARE NOT TO BE USED ON VALVE PITS UNLESS PRIOR APPROVAL IS OBTAINED FROM CITY.
- 27. VALVE PITS SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTION.
- 28. AN ELASTOMER SEAL/GROMMET SHALL BE PROVIDED FOR EACH PIPE PASSING THROUGH VALVE PIT, VALVE PIT BOTTOM AND SUMP TO PROVIDE A SEAL AGAINST GROUND WATER WITHOUT THE USE OF THREADED FASTENERS. IF THE VALVE PIT IS PROVIDED WITH AN INTEGRAL PLAIN END PORTION OF PIPE, THE GRAVITY SEWER TO VALVE PIT CONNECTION SHALL BE MADE USING A STANDARD GASKETED BELL END CONNECTION.

#### VALVE PIT BEDDING & BACKFILL

29. VALVE PITS SHALL BE FOUNDED ON A 3" LAYER OF CRUSHED SURFACING TOP COURSE (CSTC) PER WSDOT STD. SPEC. SECTION 9-03.9(3) AND BACKFILLELD WITH CSTC PER SAME STANDARD OR SAND PER WSDOT STD. SPEC. SECTION 9-03.13(1) OR CSTC. ALL VALVE PITS WITHIN ROW SHALL HAVE TOP 12" BACKFILLED WITH CRUSHED SURFACING BASE COURSE (CSBC) PER WSDOT STD. SPEC. SECTION 9-03.9(3). VALVE PIT BACKFILL SHALL BE MECHANICALLY COMPACTED TO 90% OF MAXIMUM DENSITY (MODIFIED PROCTOR TEST) AND 95% AT THE UPPER 4 FEET WITHIN THE ROW AND ALL AREAS (PAVED AND UNPAVED) WHERE STREETS, ROADWAY SHOULDERS, DRIVEWAYS, SIDEWALKS, OR PARKING LOTS WILL BE CONSTRUCTED OR RECONSTRUCTED, SPECIAL CARE SHALL BE TAKEN IMMEDIATELY ADJACANT TO VALVE PIT STRUCTURES WHILE COMPACTING AND THE CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGE INCURRED TO VALVE PITS DURING COMPACTION. SEE DETAIL FOR VALVE PIT INSTALLATION.

#### VACUUM SYSTEM AIR INTAKE

30. EACH BUILDING'S GRAVITY SEWER SERVICE SHALL BE FITTED WITH A 4" AIR VENT OR A 6" AIR TERMINAL SHALL BE PROVIDED FOR EACH VALVE PIT, PER CITY STANDARDS

#### PIPE BEDDING

- 31. PIPE BEDDING MATERIAL, SHALL BE CRUSHED SURFACING TOP COURSE (CSTC) PER WSDOT STD. SPEC. SECTION 9-03.9(3). NATIVE MATERIAL MAY BE USED FOR GRAVITY SIDE SEWER PIPE BEDDING IF IT IS SAND OR SMALL GRAVEL MATERIAL WITH STONES NO LARGER THAN 1 ½-INCH DIAMETER, ONLY AS APPROVED IN ADVANCE BY THE CITY.
- 32. HAND SELECTED AND PLACED NATIVE MATERIAL MAY BE USED ONLY IF IT IS FREE OF STONES LARGER THAN 1/3/ INCHES IN DIAMETER AND IS HAND PLACED AROUND THE PIPE TO AT LEAST 6 INCHES OVER THE TOP OF THE PIPE.
- 33. IF THE NATIVE MATERIAL IS NOT SUITABLE FOR GRAVITY SEWER PIPE BEDDING. THE IMPORTED PIPE BEDDING SHALL BE 5/8-INCH CRUSHED SURFACING. THE TOP OF THE PIPE AND ALL FITTINGS SHALL REMAIN EXPOSED FOR INSPECTION. THE LOWER PORTION OF THE BEDDING TO THE SPRING LINE SHALL BE COMPLETED BEFORE INSPECTION OR TESTING OF THE SIDE SEWER.
- 34. WHERE TRENCH BOTTOM IS IN QUICKSAND, MULCH, PEAT OR OTHER UNSTABLE MATERIAL, A STABLE FOUNDATION OF GRAVEL SHALL BE PROVIDED. THE RESPONSIBILITY FOR ADEQUATE PIPE BEDDING WILL REST ENTIRELY WITH THE CONTRACTOR. BEDDING MATERIAL SHALL BE SATISFACTORY TO THE CITY AND SO PLACED AS TO PRECLUDE THE POSSIBILITY OF LARGE ROCKS OR BOULDERS BEARING DIRECTLY AGAINST THE SEWER PIPE.
- SERVICE CONNECTIONS FROM VALVE PIT TO BRANCH OR MAIN LINES (INCLUDING FLEXIBLE CONNCECTOR PIPE) SHALL BE SET ON A COMPACTED BENCH OF BACKFILL MATERIAL CONSISTANT WITH VALE PIT BACKFILL REQUIREMNTS ABOVE. THIS SHALL ENCOMPASS PARTIALLY BACKFILLING THE VALVE PIT PRIOR TO INSTALLING THE SERVICE CONNECTION.

#### GRADE AND ALIGNMENT (MINIMUM AND MAXIMUM)

- 36. ALL SIDE SEWERS SHALL BE LAID TO A MINIMUM GRADE OF ONE AND ONE-HALF (1.5)% AND A MAXIMUM GRADE OF 2 FEET VERTICAL TO 1 FOOT HORIZONTAL (200%), UNLESS OTHERWISE EXPLICITLY AUTHORIZED IN WRITING BY THE CITY. SIDE SEWER GRADES OF 2% MINIMUM ARE RECOMMENDED. SIDE SEWERS SHALL BE CONSTRUCTED WITH A MAXIMUM PIPE DEFLECTION OF NOT MORE THAN 2 INCHES PER FOOT. THE MAXIMUM DEFLECTION PERMISSIBLE AT ANY ONE FITTING SHALL NOT EXCEED 45 DEGREES WITH MINIMUM OF 24 INCHES SEPARATION BETWEEN BENDS.
- 37. A MINIMUM HORIZONTAL SEPARATION OF 10 FEET AND A MINIMUM VERTICAL SEPARATION OF 18 INCHES BETWEEN ALL SEWER LINES AND WATER LINES MUST BE MAINTAINED, PER WASHINGTON DEPARTMENTS OF ECOLOGY'S ORANGE BOOK (2008, OR LATEST EDITION). ANY UNUSUAL CONDITIONS WHICH PREVENT THESE SEPARATIONS SHALL CONFORM TO ALL GUIDELINES WITHIN THE ORANGE BOOK AND SHALL UTILIZE APPLICABLE MITIGATION TECHNIQUES.

#### HDPE PIPE AND FITTINGS - FORCE MAINS ONLY

- 38. HDPE PIPING COMPONENTS SHALL BE MANUFACTURED FROM MATERIALS THAT MEET OR EXCEED THE REQUIREMENTS OF THE PLASTIC PIPING INSTITUTE DESIGNATION PE3408 AND THAT CONFORM TO THE REQUIREMENTS OF ASTM D3350 FOR A CELL CLASSIFICATION OF PE 345434C. PIPE MARKING SHALL CONFORM TO THE REQUIREMENTS OF AWWA C906.
- 39. BOLTS AND NUTS FOR BURIED MECHANICAL JOINING COMPONENTS SUCH AS FLANGES SHALL BE MADE OF NONCORROSIVE, HIGH-STRENGTH, LOW-ALLOY STEEL HAVING THE CHARACTERISTICS SPECIFIED IN ANSI/AWWA C111/A21, REGARDLESS OF ANY PROTECTIVE COATING.
- 40. PIPE SHALL HAVE THE NOMINAL DIMENSIONS SHOWN WITH AN IPS OUTSIDE DIAMETER BASIS AND THE DIMENSIONS AND TOLERANCES SPECIFIED IN AWWA C906. DR RATING SHALL BE 26 AND PRESSURE CLASS SHALL BE 64 PSI.
- 41. FITTINGS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AWWA C906 FOR THE JOINING METHODS SPECIFIED IN THIS SPECIAL PROVISION.
- 42. FOR PIPE BENDS 14 INCHES AND SMALLER AND WHERE LONG RADIUS BENDS ARE SPECIFIED FOR THE PIPING SYSTEM. PROVIDE ARCIM SWEEP BENDS MANUFACTURED BY PIPESTAR INTERNATIONAL, OR EQUAL. BEND RADIUS SHALL BE THREE TIMES THE PIPE DIAMETER, MEASURED TO THE CENTER LINE OF THE BEND FOR LONG-RADIUS BENDS. FLANGE FITTINGS SHALL BE FLANGE TYPE VR 955.

### SIDE SEWER STUB SERVICE (RIGHT-OF-WAY CONSTRUCTION)

- NOTE: THE FOLLOWING SPECIFICATIONS ARE IN ADDITION TO THE REQUIREMENT OF ANY STUB SERVICE ROAD CUT PERMIT.
- 43. LARGER CHANGES IN DIRECTION SHALL BE MADE BY USE OF STANDARD 11-1/4 DEGREE OR 22-1/2 DEGREE BENDS. NO MORE THAN ONE BEND PER STUB SERVICE WILL BE ALLOWED.
- 44. GRADE AND ALIGNMENT SHALL BE PER OTHER SECTION OF THESE STANDARDS. EACH SIDE SEWER STUB SHALL
- TERMINATE WITH A 6 INCH CAP WITHIN 1 FOOT OF THE PROPERTY OR PERMANENT EASEMENT LINE. 45. THE CONTRACTOR MAY ELECT TO EXTEND THE SIDE SEWER STUB BY ONE LENGTH OF SIDE SEWER PIPE. ANY SUCH EXTENSION SHALL NOT EXCEED 12 FEET IN LENGTH FROM A TEE INSTALLED AT THE PROPERTY LINE. THE TEE, WITH A PUSH-IN PLUG, SHALL BE LAID IN SUCH A FASHION THAT THE BRANCH IS VERTICAL. SUCH
- LENGTH OF SIDE SEWER SHALL TERMINATE WITH A CAP, AND SHALL BE TESTED ALONG WITH THE STUB SERVICE. 46. ALL SIDE SEWER STUBS SHALL BE 6-INCH MINIMUM. COMMERCIAL OR MULTIFAMILY UNITS MAY REQUIRE LARGER SIDE SEWER STUBS AND WILL BE REVIEWED BY THE CITY.

### DIVISION VALVES & GAUGE TAPS

47. DIVISION VALVE AND GAUGE TAP INSTALLATION SHALL BE CONSTRUCTED PER CITY STANDARD DETAIL. ALL GATE VALVES AND FITTINGS SHALL BE DUCTILE IRON WITH ANSI MECHANCIAL JOINT ENDS. ALL EXISTING VALVES SHALL BE OPERATED BY CITY EMPLOYEES ONLY. THE DESIGN, MATERIALS, AND WORKMANSHIP OF ALL GATE VALVES SHALL CONFORM TO AWWA C515-01 (OR LATEST REVISION). GATE VALVES SHALL BE RESILIENT WEDGE NON-RISING STEM (NRS) WITH TWO INTERNAL O-RING STEM SEALS.

### **TESTING SPECIFICATIONS**

### VACUUM SEWER MAINS AND FITTINGS

- 48. TESTING OF ALL SEWER MAINS AND LATERAL CONNECTIONS SHALL BE PERFORMED DAILY IN ACCORDANCE TO THE FOLLOWING PROCEDURE:
- 49. PLUG ALL OPEN CONNECTIONS WITH RUBBER STOPPERS OR TEMPORARY CAPS, FITTED TO THE PIPE BY "NO-HUB" COUPLINGS. APPLY A VACUUM TO 22 INCHES HG TO THE PIPES AND ALLOW THE PRESSURE TO STABILIZE FOR 15 MINUTES. THERE SHALL BE NO LOSS OF VACUUM IN EXCESS OF 1% PER HOUR FOR A TWO-HOUR TEST PERIOD. THERE SHALL BE ABSOLUTELY NO WATER ALLOWED TO BE ADMITTED INTO THE PIPING NETWORK DURING THIS TEST. AS PIPE IS LAID THE NEW SECTION SHALL BE TESTED IN ADDITION TO THE PREVIOUSLY LAID PIPE ON THAT MAIN.
- 50. THE CONTRACTOR SHOULD LEAVE THE SEWER MAIN PIPE JOINTS UNCOVERED UNTIL AFTER THE DAILY VACUUM TEST IS COMPLETE SO THAT ANY LEAKS CAN BE EASILY LOCATED AND REPAIRED.

51. TESTING MODIFICATIONS MAY BE ALLOWED IF DEEMED APPROPRIATE AND SUFFICIENT BY THE CITY. ALL MODIFICATIONS MUST BE APPROVED BY CITY PRIOR TO USE IN THE FORM OF EXPLICIT WRITTEN CONSENT.

52. AFTER ACCEPTANCE OF VACUUM TESTING, FLUSH LINES TO REMOVE DEBRIS AND FOREIGN MATERIALS THAT ACCUMULATED IN THE LINES DURING CONSTRUCTION

#### SIDE SEWER TESTING

53. PRIOR TO BEING CONNECTED TO THE PREMISES ALL SIDE SEWERS SHALL BE TESTED BY ONE OF THE TWO FOLLOWING METHODS:

#### **EXFILTRATION:**

THE SIDE SEWER SHALL BE FILLED WITH WATER THROUGH A RISER THAT EXTENDS A MINIMUM OF 5 FEET ABOVE FINISHED GRADE AT THE INSTALLATION. THE RISER SHALL BE FILLED WITH WATER AND NO NOTICEABLE DROP IN THE WATER LEVEL SHALL BE ACCEPTED FOR A PERIOD OF NOT LESS THAN 10 MINUTES OF OBSERVATION. THE RISER MAY DOUBLE AS THE SIDE SEWER VENT PIPE. THE RISER SHALL BE CUT TO THE REQUIRED LENGTH FOR THE VENT PIPE AFTER THE SIDE SEWER PASSES THE EX-FILTRATION TEST.

#### AIR TEST

ALL EQUIPMENT REQUIRED TO MAKE SUCH TESTS, INCLUDING PLUGS, HOSES, BLOCKING, AIR PUMPS, WATER AND OTHER EQUIPMENT SHALL BE FURNISHED BY THE CONTRACTOR.

AIR TESTING SHALL MEET THE FOLLOWING REQUIREMENTS

### SECONDS PER LINEAL FOOT OF PIPE

1.0

DECOMPRESSION IS FROM 3.5 PSI TO 3.0 PSI. FOR HIGH GROUNDWATER TABLE CONDITIONS, ADD 0.5 PSI PER FOOT OF GROUND WATER ABOVE THE PIPE.

#### HDPE FORCE MAIN TESTING (IF APPLICABLE)

54. HDPE FORCE MAIN SHALL BE TESTED AT 60 PSI HYDROSTATIC FOR 3 MINUTES.

#### SIDE SEWER CONNECTIONS

55. NO MORE THAN ONE BUILDING MAY BE CONNECTED WITH THE SIDE SEWER UNLESS THE CITY ISSUES AN EXEMPTION FOR MULTIPLE CONNECTIONS. AN EXEMPTION WILL BE ISSUED ONLY UPON THE CONDITION THAT THE PERMITTEE HAS NO OTHER FEASIBLE OPTION BASED ON UTILITY CONFLICTS OR SPACE CONSIDERATIONS OR OTHER TECHNICAL ISSUE THAT PREVENTS INSTALLATION OF SEPARATE SIDE SEWERS. THE PERMITTEE SHALL HOLD THE CITY HARMLESS FROM ANY DAMAGES BY REASON OF SUCH INSTALLATION AND SUBJECT TO THE FOLLOWING REGULATIONS:

56. TWO HOUSES MAY BE CONNECTED TO A COMMON SIDE SEWER WHEN THE FOLLOWING CONDITIONS ARE MET: (1) AT THE END OF THE COMMON PORTION OF THE JOINT SIDE SEWER A CLEANOUT SHALL BE INSTALLED PER DETAIL FOR JOINT SIDE SEWER CLEANOUT; AND (2) A BACKWATER VALVE SHALL BE INSTALLED ON BOTH HOUSES.

#### BACKWATER VALVES

57. BACKWATER VALVES SHALL BE INSTALLED ON ALL BUILDINGS EXCEPT WHEN WAIVED BY THE CITY. BACKFLOW VALVES MAY BE USED AS THE CLEANOUT BETWEEN THE HOUSE PLUMBING AND SIDE SEWER AS OTHERWISE REQUIRED BY THESE STANDARDS. BACKFLOW VALVES MAY BE EITHER ALTERNATE NO. 1 OR NO 2 AS SHOWN ON THE STANDARD DETAILS.

### REQUIRED SIDE SEWER SIZE

58. SIDE SEWERS SHALL BE 6" UNLESS OTHERWISE APPROVED BY THE CITY

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PROJECT NUMBER MAY 22, 2023

5/19/2023

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GENERAL WATER CONSTRUCTION NOTES

WATER MAINS, PARALLEL TO A SEWER, SHALL NORMALLY BE ABOVE AND SEPARATED BY A DISTANCE OF AT LEAST TEN FEET HORIZONTALLY. UNDER UNUSUAL CIRCUMSTANCES, THE HORIZONTAL SPACING MAY BE ADJUSTED, SUBJECT TO THE APPROVAL OF THE CITY. WATER MAINS CROSSING SEWERS SHOULD BE NOT LESS THAN 18 INCHES ABOVE THE SEWER. WHERE IT IS NECESSARY FOR A SEWER TO CROSS WITHIN 18 INCHES, OR OVER THE WATER MAIN, PROTECTIVE MEASURES PER THE DOE

CRITERIA FOR SEWAGE WORKS DESIGN (ORANGE BOOK) SHALL BE TAKEN. PIPING, VALVES, AND APPURTENANCES SHALL NOT BE BURIED UNTIL OBSERVED AND ACCEPTED BY CITY REPRESENTATIVE.

CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING AND SCHEDULING TIMELY SITE OBSERVATIONS BY CITY REPRESENTATIVE. TRENCHES SHALL BE EXCAVATED TO THE LINE AND DEPTH DESIGNATED BY THE PLANS TO PROVIDE THE COVER ON THE WATER SYSTEM OR SANITARY SEWER SYSTEM AS SPECIFIED BY THE CITY. PERFORM TRENCHING IN ACCORDANCE WITH THE GENERAL UTILITY PIPE TRENCHING AND TRENCH PATCHING NOTES ON SHEET C-\_\_

BEFORE INSTALLATION, MATERIAL SUBMITTALS SHALL BE SUBMITTED TO THE CITY ENGINEER FOR ACCEPTANCE FOR ALL MATERIALS TO BE INSTALLED. ALL MATERIALS SHALL BE NEW AND UNDAMAGED. THE SAME MANUFACTURER OF EACH ITEM SHALL BE USED THROUGHOUT THE WORK. ALL MATERIALS NOT SPECIFICALLY REFERENCED SHALL COMPLY WITH APPLICABLE SECTIONS OF ANSI, ASTM, AWWA, AND THE STANDARD SPECIFICATIONS.

APPROVED MANUFACTURERS AND MODEL NUMBERS OF VARIOUS MATERIALS ARE LISTED IN APPROVED MATERIALS LIST INCLUDED WITH THESE STANDARDS. WHEN SPECIFIC MANUFACTURERS OR MODELS ARE LISTED, NO SUBSTITUTIONS WILL BE ALLOWED WITHOUT PRIOR APPROVAL BY THE CITY.

DUCTILE IRON PIPE

DUCTILE IRON PIPE SHALL CONFORM TO ANSI SPECIFICATION A21.51, 1976, AWWA C151-76, OR THE LATEST REVISION THEREOF AND SHALL BE OF THE THICKNESS CLASS 52 FOR PIPE UNLESS OTHERWISE SPECIFIED BY THE CITY. THE PIPE SHALL BE FURNISHED WITH RUBBER GASKETED PUSH-ON TYPE JOINTS EXCEPT WHERE FLANGED OR MECHANICAL JOINTS ARE SPECIFICALLY REQUIRED BY THE CITY. JOINT DETAILS SHALL BE AS SPECIFIED IN ANSI A21.11. PIPE WITH PUSH-ON FITTING JOINTS SHALL BE SUITABLE FOR USE WITH MECHANICAL JOINT FITTINGS. THE PIPES SHALL BE COATED AS SPECIFIED IN ANSI A21.51 AND BE FURNISHED WITH CEMENT MORTAR LINING AS SPECIFIED IN ANSI A21.4. THE CONTRACTOR SHALL FURNISH CERTIFICATION FROM THE MANUFACTURER OF THE PIPE AND GASKET BEING SUPPLIED THAT THE INSPECTION OF ALL THE SPECIFIED TESTS HAVE BEEN MADE AND THE RESULTS THEREOF COMPLY WITH THE REQUIREMENTS OF THE ABOVE-REFERENCED STANDARDS.

8. ALL FITTINGS FOR DUCTILE IRON PIPE SHALL BE DUCTILE IRON COMPACT (SHORT BODY) FITTINGS CONFORMING TO AWWA C153 OR CLASS 250 GRAY IRON CONFORMING TO AWWA C110 AND C111. ALL FITTINGS SHALL BE CEMENT MORTAR LINED CONFORMING TO AWWA C104. PLAIN END FITTINGS SHALL BE DUCTILE IRON IF MECHANICAL JOINT RETAINER GLANDS ARE INSTALLED ON THE PLAIN ENDS. ALL FITTINGS SHALL BE CONNECTED BY FLANGES OR MECHANICAL JOINTS. FLANGES SHALL BE CLASS 125, DRILLED IN ACCORDANCE WITH ANSI A21.10. GASKET FOR FLANGED FITTINGS SHALL BE NEOPRENE, BUNA N, CHLORINATED BUTYL, CLOTH-INSERTED RUBBER, OR APPROVED EQUAL. GASKETS FOR PUSH-ON TYPE AND MECHANICAL JOINTS SHALL CONFORM TO ANSI A21.11. RUBBER GASKETS FOR PUSH-ON JOINTS OR MECHANICAL JOINT (M.J.) SHALL BE IN ACCORDANCE WITH ANSI A21.11, AWWA C111. GASKET MATERIAL FOR FLANGES SHALL BE NEOPRENE, BUNA N, CHLORINATED BUTYL, OR CLOTH-INSERTED

9. JOINT RESTRAINT METHODS SHALL BE AS PER THE APPROVED MATERIALS LIST AND/OR THE STANDARD DETAILS. ACCEPTABLE JOINT RESTRAINT SYSTEMS ARE LIMITED TO: EBAA IRON (MEGALUG 1100), GRIFFIN PIPE PRODUCTS COMPANY (SNAP-LOK), ROMAC (GRIP RING), PACIFIC STATES RESTRAINED JOINT, US PIPE (TR FLEX), MUELLER (AQUA GRIP), ONE BOLT, FIELD LOK GASKETS.

10. POLYETHYLENE ENCASEMENT SHALL BE EIGHT MIL. TUBE OR SHEET STOCK AND SHALL BE FURNISHED WHERE THE TRENCH IS BACKFILLED WITH CDF, WHERE SOILS TESTING INDICATES THIS IS OF VALUE OR AS DIRECTED BY THE CITY. MATERIALS SHALL COMPLY WITH AWWA C105.

11. FLEXIBLE COUPLINGS AND TRANSITION COUPLING CAST COMPONENTS SHALL BE DUCTILE IRON. CENTER RINGS AND END RINGS SHALL BE DUCTILE IRON IN ACCORDANCE WITH ASTM 536-80, GRADE 65-45-12. GASKET MATERIAL SHALL BE VIRGIN SBR IN ACCORDANCE WITH ASTM D2000 3 BA715. BOLTS SHALL BE HIGH STRENGTH, LOW ALLOY STEEL TRACKHEAD BOLTS WITH NATIONAL COURSE ROLLED THREAD AND HEAVY HEX NUTS. STEEL SHALL MEET AWWA/ANSI C11/A21.11 COMPOSITION SPECIFICATIONS. COUPLINGS SHALL BE MANUFACTURED BY ROMAC OR DRESSER.

12. ADAPTERS SHALL BE ROMAC FLANGE COUPLING ADAPTERS.

BOLTS IN PIPING

13. BOLTS SHALL BE MALLEABLE IRON COR-TEN, OR STAINLESS STEEL. T-BOLTS SHALL BE MALLEABLE IRON COR-TEN IN ACCORDANCE WITH AWWA/ANSI C111/A21.11. STAINLESS STEEL BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A-307, GRADE A. SHACKLE RODS, NUTS, AND WASHERS SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH AASHTO M232 AND/OR COATED THOROUGHLY WITH COAL-TAR/ASPHALTIC MATERIAL. STAINLESS STEEL NUTS, BOLTS, AND WASHERS SHALL BE TYPE 304.

14. HYDRANTS SHALL BE THE "TRAFFIC MODEL" TYPE WITH APPROVED BREAKAWAY FEATURES. ALL HYDRANTS SHALL BE BRASS TO BRASS SUBSEAT, MINIMUM VALVE OPENING OF 5-1/4 INCHES "0" RING STEM SEAL, 6 INCH MECHANICAL SHOE CONNECTION, 1-1/4 INCH PENTAGONAL OPERATING NUT. FIRE HYDRANTS SHALL HAVE TWO, 2-1/2 INCH OUTLETS AND ONE 4-1/2-INCH PUMPER PORT OUTLET. ALL OUTPORT THREADS SHALL BE NATIONAL STANDARD THREAD. THE VALVE OPENING SHALL BE 5-1/4 INCH DIAMETER. THE HYDRANT SHALL HAVE A POSITIVE AND AUTOMATIC BARREL DRAIN. HYDRANT SHALL BE M & H 929 OR APPROVED EQUAL. ALL HYDRANTS SHALL BE BAGGED UNTIL SYSTEM IS APPROVED.

15. THE LEAD FROM THE SERVICE MAIN TO THE FIRE HYDRANT SHALL BE DUCTILE IRON CEMENT MORTAR LINED CLASS 52. NO LESS THAN 6 INCHES IN DIAMETER, WITH A MAXIMUM LENGTH OF 50 FEET. WHERE LEADS REQUIRE MORE THAN ONE LENGTH OF PIPE, FIELD LOK GASKETS ARE REQUIRED.

16. FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAILS. AT LOCATIONS AS SHOWN ON THE APPROVED PLANS. THEY SHALL BE PAINTED WITH 2 COATS OF HIGH GLOSS CATERPILLAR YELLOW PRESERVATIVE 43-616 TYPE PAINT.

17. ALL HOOK-UPS TO FIRE HYDRANTS FOR TEMPORARY WATER FOR WHATEVER PURPOSE SHALL BE APPROVED BY THE CITY. 18. HYDRANT VALVES INSTALLED IN UNPAVED AREAS SHALL HAVE A 4-INCH THICK. 2-FEET SQUARE ASPHALT CEMENT PAD PLACED

19. HYDRANTS SHALL STAND PLUMB, BE SET TO THE FINISHED GRADE PER THE STANDARD DETAIL WITH THE LOWEST OUTLET OF THE HYDRANT NO LESS THAN 18 INCHES ABOVE GRADE AND NO LESS THAN 36 INCHES OF CLEAR AREA ABOUT THE HYDRANT FOR CLEARANCE OF A HYDRANT WRENCH ON ALL OUTLETS AND ON THE CONTROL VALVE. THE PUMPER PORT SHALL FACE THE

STREET. WHERE THE STREET CANNOT BE CLEARLY DEFINED OR RECOGNIZED, THE PORT SHALL FACE THE MOST LIKELY ROUTE OF APPROACH AND LOCATION OF THE FIRE TRUCK WHILE PUMPING AS DETERMINED BY THE CITY.

20. ALL VALVES AND FITTINGS SHALL BE DUCTILE IRON WITH ANSI FLANGES OR MECHANICAL JOINT ENDS. ALL EXISTING VALVES SHALL BE OPERATED BY CITY EMPLOYEES ONLY.

21. ALL VALVES SHALL BE INSPECTED UPON DELIVERY IN THE FIELD TO ENSURE PROPER WORKING ORDER AND DAMAGE TO PROTECTIVE COATINGS BEFORE INSTALLATION AND SHALL BE FREE OF ALL RUST AND DIRT. THEY SHALL BE SET AND JOINTED TO THE PIPE IN THE MANNER AS SET FORTH IN THE AWWA STANDARDS FOR THE TYPE OF CONNECTING ENDS FURNISHED. NO VALVES SHALL BE LOCATED IN SUCH POSITION AS TO PLACE THE VALVE CHAMBER OR BOX IN ANY ROADSIDE DITCH, DRAINAGE

22. GATE VALVES SHALL BE USED ON ALL 4-INCH TO 12-INCH LINES, UNLESS DEPTH RESTRICTIONS NECESSITATE INSTALLATION OF BUTTERFLY VALVE. THE DESIGN, MATERIALS, AND WORKMANSHIP OF ALL GATE VALVES SHALL CONFORM TO EITHER AWWA C509-01 (OR LATEST REVISION) OR AWWA C515-01 (OR LATEST REVISION). GATE VALVES SHALL BE RESILIENT WEDGE NON-RISING STEM (NRS) WITH TWO INTERNAL O-RING STEM SEALS.

23. BUTTERFLY VALVES SHALL BE USED ON ALL LINES 14 INCHES AND LARGER UNLESS DESIGNATED BY THE CITY. BUTTERFLY VALVES SHALL CONFORM TO ANSI/AWWA C504, CLASS 150, WITH CAST IRON SHORT BODY AND "O" RING STEM SEAL. VALVES IN CHAMBERS SHALL HAVE A MANUAL CRANK OPERATION. BURIED VALVES SHALL HAVE A STEM EXTENSION WITH AWWA 2-INCH OPERATING NUT AND SUITABLE VALVE BOX.

24. ALL VALVES SHALL HAVE A STANDARD APWA CAST IRON WATER VALVE BOX SET TO GRADE WITH TWO-PIECE, EXTENSION TYPE CAST IRON RISER FROM VALVE. VALVE BOX SHALL HAVE A LUG TYPE COVER, 18" OR 8" TOP AND 24" BOTTOM PER THE STANDARD DETAIL. VALVE BOX LIDS SHALL HAVE THE WORD "WATER" CAST IN THE UPPER SURFACE AND THE VALVE BOX EARS

SHALL BE SET IN DIRECTION OF FLOW. 25. IF VALVES ARE NOT SET IN PAVED AREA, A 2-FOOT BY 2-FOOT BY 4-INCH ASPHALT CONCRETE PAD SHALL BE SET AROUND EACH VALVE BOX AT FINISHED GRADE. IN AREAS WHERE VALVE BOX FALLS IN ROAD SHOULDER, THE DITCH AND SHOULDER SHALL BE GRADED BEFORE PLACING ASPHALT OR CONCRETE PAD. THE VALVE AND VALVE BOX SHALL BE SET PLUMB WITH THE VALVE BOX CENTERED ON THE OPERATOR NUT. VALVE BOXES SHALL BE SET FLUSH IN PAVEMENT OR ROAD SHOULDER. SEE STANDARD DETAILS.

26. OPERATING VALVE NUT EXTENSION. A VALVE STEM EXTENSION SHALL BE INSTALLED WHENEVER THE VALVE OPERATING NUT IS MORE THAN 3 FEET BELOW FINISHED GRADE. EXTENSIONS ARE TO BE A MINIMUM OF 1 FOOT WITH ONLY ONE EXTENSION PER VALVE. THE OPERATOR NUT EXTENSION SHALL EXTEND INTO THE TOP SECTION OF THE VALVE BOX AND SHALL CLEAR THE BOTTOM OF THE LID BY A MINIMUM OF 10 INCHES. SEE STANDARD DETAILS.

CITY'S SERVICE CONNECTIONS

27. ALL SERVICE CONNECTIONS RELATING TO NEW DEVELOPMENT SHALL BE INSTALLED BY THE DEVELOPER AT THE TIME OF MAINLINE CONSTRUCTION. AFTER THE LINES HAVE BEEN CONSTRUCTED, TESTED, APPROVED, AND A LETTER OF ACCEPTANCE HAS BEEN ISSUED, THE OWNER MAY APPLY FOR A WATER METER. THE CITY WILL INSTALL A WATER METER AFTER THE APPLICATION HAS BEEN MADE AND ALL APPLICABLE FEES HAVE BEEN PAID. WATER METERS WILL BE SET ONLY AFTER THE SYSTEM IS INSPECTED AND APPROVED.

28. WHEN WATER IS DESIRED TO A PARCEL FRONTING AN EXISTING MAIN, BUT NOT SERVED BY AN EXISTING METER. AN APPLICATION MUST BE MADE TO THE CITY. UPON APPROVAL OF THE APPLICATION AND PAYMENT OF ALL APPLICABLE FEES, THE CITY WILL ALLOW TAPPING OF THE MAIN, AND INSTALLATION OF THE METER, BOX, AND SETTER.

29. CORPORATION STOP SHALL BE ALL BRONZE ALLOY AND SHALL BE FORD, MUELLER, OR APPROVED EQUAL IN ACCORDANCE WITH AWWA STANDARD C800 WITH IRON PIPE THREAD (IP) THREAD INLET BY COMPRESSION FITTING OUTLET FOR HI-MOL PLASTIC, CL

30. CORPORATION STOPS FOR 1-INCH TAPS SHALL BE BALL VALVE TYPE WITH I.P. INLET AND COMPRESSION OUTLET. CORPORATION STOPS FOR 1-1/2-INCH AND 2-INCH TAPS SHALL BE THE BALL VALVE TYPE WITH I.P. THREAD INLET AND OUTLET.

31. ALL JOINTS WITH PLASTIC PIPE SHALL BE MADE UTILIZING STAINLESS STEEL INSERTS WITH COUPLINGS OR ADAPTERS 32. SERVICE CONNECTIONS FOR ANY SERVICE SHALL BE INSTALLED WITH ROMAC OR APPROVAL EQUAL PIPE SADDLES. THE MINIMUM ACCEPTABLE TAP SIZE SHALL BE 1 INCH.

33. SERVICE SADDLE SHALL BE ROMAC 202BS, ALL BRONZE WITH STAINLESS STRAPS AND (IP) THREAD OR APPROVED EQUAL. ALL CLAMPS SHALL HAVE RUBBER GASKET AND IRON PIPE THREADED OUTLETS.

34. SERVICE LINES SHALL BE POLYETHYLENE MEETING THE REQUIREMENTS OF AWWA C901, WITH HIGH MOLECULAR MASS WITH AT LEAST 200 PSI RATING, AND HAVE A 16 GAUGE COPPER TRACER WIRE WRAPPED ALONG ITS ENTIRE LENGTH (ONE WRAP PER

35. 3/4" AND 1" POLYETHYLENE TUBING SHALL BE IRON PIPE SIZE (IPS) - ID ASTM D2239 - SIDR 7 (PE 3408).

36. METER SETTER. METER SETTERS (1 INCH AND SMALLER) SHALL BE 12 INCHES IN HEIGHT WITH HORIZONTAL INLET AND OUTLET, DOUBLE PURPOSE COUPLINGS, UNLESS OTHERWISE SPECIFIED, ANGLE BALL VALVE WITH DRILLED WINGS FOR PADLOCK, AND ANGLE CHECK VALVE FOR THE SIZE METER TO BE INSTALLED, PER THE STANDARD DETAIL

37. METER BOX. MID-STATES HDPE METER BOX SHALL BE COMPLETE WITH LID AS SPECIFIED IN THE STANDARD DETAILS.

38. ANY PLUMBING IN A RESIDENTIAL OR NONRESIDENTIAL FACILITY PROVIDING WATER FOR HUMAN CONSUMPTION, WHICH IS CONNECTED TO A PUBLIC WATER SYSTEM, SHALL BE LEAD FREE. WITH RESPECT TO SOLDERS AND FLUX, LEAD FREE SHALL MEAN NO MORE THAN 0.2% LEAD, AND WITH RESPECT TO PIPES AND PIPE FITTINGS NO MORE THAN 8% LEAD.

<u>TURN ON - NEW INSTALLATION FOR OWNER</u>

39. WHEN NEW WATER SERVICE CONNECTIONS ARE INSTALLED BY THE CITY OR DEVELOPER'S CONTRACTOR FOR ANY PREMISES THE VALVE AT THE METER SHALL BE TURNED TO THE "OFF" POSITION AND REMAIN OFF UNTIL A TURN-ON IS APPLIED FOR AND AN ORDER SHALL BE ISSUED BY THE CITY UPON WRITTEN APPLICATION THEREFORE BY THE OWNER OF THE PREMISES TO BE SUPPLIED AFTER INSPECTION AND APPROVAL BY THE CITY, AND AFTER THE CITY PLUMBING INSPECTOR HAS ISSUED A CERTIFICATE THAT ALL PROVISIONS OF THE APPLICABLE PLUMBING CODE HAVE BEEN COMPLIED WITH.

OWNER'S SERVICE PIPE SPECIFICATIONS

40. ALL WATER SERVICE LINE PIPING LEADING FROM THE METER TO THE PREMISES, SHALL BE LAID NOT LESS THAN 18 INCHES BELOW THE SURFACE OF THE GROUND. WATER SERVICE LINE PIPES OR ANY UNDERGROUND WATER PIPES SHALL NOT BE LAID IN THE SAME TRENCH WITH BUILDING SEWER OR DRAINAGE PIPING. WATER SERVICE LINE PIPES, PARALLEL TO BUILDING SEWERS OR DRAINAGE PIPING, SHALL NORMALLY BE ABOVE AND SEPARATED BY A DISTANCE OF AT LEAST TEN FEET HORIZONTALLY, UNLESS

OTHERWISE APPROVED BY THE CITY. 41. SHUTOFF VALVES OF APPROVED FULL-FLOW PATTERN WITH KEY OR HAND WHEEL SHALL BE INSTALLED IN THE WATER SERVICE PIPE LEADING FROM THE CITY METER TO THE BUILDING, WITHIN THE PREMISES SERVED, IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODE. SHUTOFF VALVES WHERE BURIED SHALL BE PROPERLY ENCLOSED IN A MINIMUM SIX-INCH DIAMETER PIPE, OR BOX, OF CONCRETE, PLASTIC, OR IRON WITH AN APPROVED COVER, PROTECTED FROM FREEZING AND READILY ACCESSIBLE. VALVES INTERNAL TO THE STRUCTURE ARE RECOMMENDED.

42. CUSTOMER-OWNED VALVES OR EQUIPMENT ARE NOT PERMITTED TO BE INSTALLED WITHIN THE CITY'S METER BOX 43. SERVICE CONNECTIONS AND EXTENSION PIPES LAID UNDERGROUND SHALL BE SIZED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE IBC AS ADOPTED BY THE CITY.

OWNER'S PLUMBING SPECIFICATIONS

44. ALL PERSONS INSTALLING FIXTURES OR APPLIANCES TO BE SUPPLIED WITH WATER FROM THE CITY SYSTEM SHALL BE SUBJECT TO THE REQUIREMENTS OF THE APPLICABLE PLUMBING CODE OF THE CITY. PERSONS INSTALLING PLUMBING IN NEW BUILDINGS SHALL LEAVE THE VALVE AT THE METER IN THE OFF POSITION UPON COMPLETION OF THEIR WORK. THE CITY SHALL HAVE THE RIGHT TO REFUSE WATER SERVICE OR DISCONTINUE WATER SERVICE IN ANY SITUATION WHERE IT IS DISCOVERED THAT APPLICABLE CITY STANDARDS AND CODES HAVE NOT BEEN COMPLIED WITH IN MAKING THE INSTALLATION.

45. AN IRRIGATION SYSTEM CONNECTED TO A DOMESTIC, OR COMMERCIAL CONNECTION SHALL BE EQUIPPED WITH AN APPROVED BACKFLOW DEVICE PER APPENDIX A AND THE WSDOH LIST OF APPROVED CROSS CONNECTION CONTROL DEVICES. THE APPROVED DEVICE SHALL BE PLACED AT A HEIGHT AS PROVIDED IN THE APPLICABLE PLUMBING CODE

46. IF A FIRE HYDRANT IS NOT LOCATED AT THE END OF A DEAD END MAIN, A BLOWOFF ASSEMBLY SHALL BE REQUIRED. ON WATER MAINS WHICH WILL BE EXTENDED IN THE FUTURE, PROVIDE TEE AND BLOCKING AS SHOWN ON STANDARD DETAILS.

CONCRETE BEDDING AND BLOCKING

ADJACENT PIPE LINES, AND TOPOGRAPHY.

47. BEDDING, BLOCKING, ENCASEMENT, OR SLOPE ANCHOR CONCRETE SHALL BE PREMIXED BAGS OF CONCRETE OR CONCRETE MIXED FROM MATERIALS ACCEPTABLE TO THE ENGINEER AND SHALL HAVE A 30-DAY COMPRESSIVE STRENGTH OF NOT LESS THAN 2,500 PSI. THE MIX SHALL CONTAIN FIVE SACKS OF CEMENT PER CUBIC YARD AND SHALL BE OF SUCH CONSISTENCY THAT THE SLUMP IS BETWEEN 1 INCH AND 5 INCHES. ALL CONCRETE SHALL BE MIXED PRIOR TO INSTALLATION.

48. CONCRETE THRUST BLOCKING, AS INDICATED ON THE STANDARD DETAILS, SHALL BE PLACED AT BENDS, TEES, DEAD ENDS,

CROSSES. AND AS DESIGNATED BY THE ENGINEER. 49. LOCATION OF THRUST BLOCKING SHALL BE SHOWN ON PLANS. THRUST BLOCK CONCRETE SHALL BE POURED AGAINST UNDISTURBED EARTH. A PLASTIC BARRIER SHALL BE PLACED BETWEEN ALL THRUST BLOCKS AND FITTINGS. SEE STANDARD DETAILS FOR THRUST BLOCK LOCATIONS AND CALCULATIONS. ALL BLOCKING AS SHOWN ON THE STANDARD DETAILS ARE CONSIDERED AS MINIMUMS, AND CONSIDERATION SHALL BE GIVEN TO UNUSUAL CIRCUMSTANCES SUCH AS UNSTABLE SOIL,

**BACKFLOW PREVENTION** 

50. ALL WATER SYSTEM CONNECTIONS TO SERVE BUILDINGS OR PROPERTIES WITH DOMESTIC POTABLE WATER, FIRE SPRINKLER SYSTEMS, OR IRRIGATION SYSTEMS SHALL COMPLY WITH THE MINIMUM BACKFLOW REQUIREMENTS AS ESTABLISHED BY THE DEPARTMENT OF HEALTH (DOH) AND THE CITY.

51. WHEN UTILITY SERVICES OCCUPY THE SAME SPACE AS THE NEW WATER MAIN, THE CONTRACTOR SHALL DO ALL NECESSARY EXCAVATION TO FULLY EXPOSE SUCH SERVICES. THE CONTRACTOR SHALL PROTECT SAID SERVICES AND WORK AROUND THEM DURING EXCAVATING AND PIPE LAYING OPERATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES TO THE SERVICES DUE TO HIS OPERATION AND SHALL IMMEDIATELY NOTIFY THE CITY AND OTHER UTILITY AND ARRANGE FOR REPLACEMENT

52. THE CONTRACTOR SHALL MAINTAIN A MINIMUM OF 18 INCHES OF VERTICAL SEPARATION AND 10 FEET OF HORIZONTAL SEPARATION BETWEEN SANITARY SEWERS AND WATER MAINS. THE MINIMUM COVER FOR WATER MAIN OF 42 INCHES MAY BE REDUCED TO 30 INCHES UPON APPROVAL BY THE CITY TO PROVIDE FOR AS MUCH VERTICAL SEPARATION AS POSSIBLE

53. THE LONGEST STANDARD LENGTH OF WATER PIPE SHALL BE INSTALLED SO THAT THE JOINTS WILL FALL EQUIDISTANT FROM ANY SEWER CROSSING. IN SOME CASES WHERE MINIMUM SEPARATION CANNOT BE MAINTAINED, IT MAY BE NECESSARY TO ENCASE THE WATER PIPE AND/OR SEWER SERVICE IN A CARRIER PIPE OR CONTROL DENSITY FILL. NO CONCRETE SHALL BE INSTALLED UNLESS SPECIFICALLY DIRECTED BY THE CITY.

54. ALL SURVEYING AND STAKING SHALL BE PERFORMED BY AN ENGINEERING OR SURVEYING FIRM CAPABLE OF PERFORMING SUCH WORK. THE ENGINEER OR SURVEYOR DIRECTING SUCH WORK SHALL BE LICENSED AS A PROFESSIONAL ENGINEER OR

PROFESSIONAL LAND SURVEYOR BY THE STATE OF WASHINGTON. 55. A PRECONSTRUCTION MEETING SHALL BE HELD WITH THE CITY PRIOR TO COMMENCING STAKING. ALL CONSTRUCTION STAKING

SHALL BE INSPECTED BY THE CITY PRIOR TO CONSTRUCTION.

56. THE MINIMUM STAKING OF WATERLINES SHALL BE AS DIRECTED BY THE CITY OR AS FOLLOWS:

57. STAKE CENTERLINE ALIGNMENT EVERY 50 FEET WITH CUT OR FILL TO INVERT OF PIPE MAINTAINING 42 INCHES OF COVER OVER PIPE. CUTS ARE NORMALLY NOT REQUIRED WHEN ROAD GRADE HAS BEEN BUILT TO SUBGRADE ELEVATION. 58. STAKE ALIGNMENT OF ALL FIRE HYDRANTS, TEES, WATER METERS, SETTERS AND OTHER FIXTURES AND MARK CUT OR FILL TO

MINIMUM COVER

HYDRANT FLANGE FINISHED GRADE.

59. MINIMUM COVER FOR ALL WATER MAINS FROM TOP OF PIPE TO FINISH GRADE SHALL BE 36 INCHES FOR ALL PIPES 8 INCHES DIAMETER AND SMALLER, AND 48 INCHES FOR ALL PIPES GREATER THAN 8 INCHES DIAMETER, AND MAXIMUM DEPTH OF 60 INCHES, UNLESS OTHERWISE APPROVED BY THE CITY.

60. THE INSTALLATION OF ALL WATER MAINS AND APPURTENANCES SHALL BE IN ACCORDANCE WITH THE CONSTRUCTION PLANS AS APPROVED BY THE CITY FOR THE PROJECT. ANY DEVIATION OR CHANGES ARE TO BE APPROVED BY THE CITY BEFORE THE

CHANGES ARE INCORPORATED INTO THE WORK. 61. DIRT OR OTHER FOREIGN MATERIAL SHALL BE PREVENTED FROM ENTERING THE PIPE OR PIPE JOINT DURING HANDLING OR LAYING OPERATIONS, AND ANY PIPE OR FITTING THAT HAS BEEN INSTALLED WITH DIRT OR FOREIGN MATERIAL IN IT SHALL BE REMOVED, CLEANED, AND RE-LAID. WHEN PIPE LAYING IS NOT IN PROGRESS, THE OPEN ENDS OF THE PIPE SHALL BE CLOSED BY WATERTIGHT PLUGS OR BY OTHER MEANS APPROVED BY THE CITY.

62. PIPE SHALL BE STACKED IN SUCH A MANNER AS TO PREVENT DAMAGE TO THE PIPE. TO PREVENT DIRT AND DEBRIS FROM ENTERING THE PIPE, AND TO PREVENT ANY MOVEMENT OF THE PIPE. THE BOTTOM TIERS OF THE STACK SHALL BE KEPT OFF THE GROUND ON TIMBERS, OR OTHER SIMILAR SUPPORTS.

63. CUTTING PIPE - WHENEVER IT BECOMES NECESSARY TO CUT A LENGTH OF PIPE, THE CUT SHALL BE MADE BY ABRASIVE SAW OR BY PIPE CUTTER. ALL PIPE ENDS SHALL BE SQUARE WITH THE LONGITUDINAL AXIS OF THE PIPE AND THE OUTSIDE SHALL BE BEVELED AND OTHERWISE SMOOTHED SO THAT GOOD CONNECTIONS CAN BE MADE WITHOUT DAMAGE TO THE GASKET. THREADS SHALL BE CLEANLY CUT. OXYACETYLENE TORCH CUTTING OF DUCTILE IRON WILL NOT BE ALLOWED.

64. PIPE BEDDING MATERIAL, SHALL BE CRUSHED SURFACING TOP COURSE CSTC PER WSDOT STD. SPEC. SECTION 9-03.9(3).

BEDDING IS DEFINED AS 6 INCHES BELOW THE PIPE, AROUND THE PIPE, AND 12 INCHES ABOVE THE PIPE. 65. THE AMOUNT OF DEFLECTION AT EACH PIPE JOINT WHEN PIPE IS LAID ON A HORIZONTAL OR VERTICAL CURVE SHALL NOT EXCEED HALF THE MANUFACTURER'S PRINTED MAXIMUM RECOMMENDED DEFLECTIONS. WHERE FIELD CONDITIONS REQUIRE DEFLECTION OR CURVES NOT ANTICIPATED IN THE DRAWINGS, THE ENGINEER WILL DETERMINE THE METHODS TO BE USED. WHEN RUBBER GASKETED PIPE IS LAID ON A CURVE, THE PIPE SHALL BE JOINTED IN A STRAIGHT ALIGNMENT AND THEN DEFLECTED TO THE CURVED ALIGNMENT. TRENCHES SHALL BE MADE WIDER ON CURVES FOR THIS PURPOSE.

66. THE CITY OR ITS REPRESENTATIVE WILL INSPECT AND OBSERVE THE HYDROSTATIC TEST OF THE PIPE WITHIN 48 HOURS AFTER NOTIFICATION BY THE CONTRACTOR THAT A SECTION IS READY FOR INSPECTION AND TEST. THE CONTRACTOR SHALL CONTACT THE CITY AT LEAST 48 HOURS IN ADVANCE OF THE COMPLETION OF STERILIZATION AND FLUSHING AND THE CITY WILL TAKE THE REQUIRED WATER SAMPLES. THE CONTRACTOR SHALL PAY FOR THE COST OF THE WATER QUALITY TESTS.

67. PRIOR TO THE ACCEPTANCE OF THE WORK, THE INSTALLATION SHALL BE SUBJECTED TO A HYDROSTATIC PRESSURE TEST AND ANY LEAKS OR IMPERFECTIONS DEVELOPING UNDER SAID PRESSURE SHALL BE REMEDIED BY THE CONTRACTOR BEFORE FINAL ACCEPTANCE OF THE WORK. THE CONTRACTOR SHALL PERFORM A PRELIMINARY TEST TO ASSURE THAT THE EQUIPMENT TO BE USED FOR THE TEST IS ADEQUATE AND IN GOOD OPERATING CONDITION AND THE AIR IN THE LINES HAS BEEN RELEASED BEFORE REQUESTING THE CITY WITNESS THE TEST. THE CITY OR HIS REPRESENTATIVE SHALL WITNESS THE TEST; IF THE TEST DOES NOT PASS INSPECTION FOR ANY REASON, ADDITIONAL TRIPS REQUIRED TO WITNESS THE TEST SHALL BE DONE AT THE CONTRACTOR'S

68. NO AIR WILL BE ALLOWED IN THE LINES. THE MAINS SHALL BE TESTED BETWEEN VALVES. INSOFAR AS POSSIBLE, NO HYDROSTATIC PRESSURE SHALL BE PLACED AGAINST THE OPPOSITE SIDE OF THE VALVE BEING TESTED. TEST PRESSURE SHALL BE MAINTAINED WHILE THE ENTIRE INSTALLATION BEING TESTED IS INSPECTED. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY EQUIPMENT AND SHALL PERFORM ALL WORK CONNECTED WITH THE TEST. TESTS SHALL BE MADE BEFORE ALL VALVED CONNECTIONS HAVE BEEN MADE. AT UNVALVED CONNECTION POINTS, A TEMPORARY PLUG (OR 2" BLOW-OFF ASSEMBLY ON LINES WITHOUT HYDRANTS) SHALL BE INSTALLED AT THE END OF THE NEW MAIN. THIS SHALL INCLUDE CONCRETE BLOCKING AND/OR RESTRAINED JOINTS NECESSARY TO WITHSTAND PRESSURES ENCOUNTERED DURING THE HYDROSTATIC TEST

69. ONCE THE NEW LINE IS SUCCESSFULLY TESTED AND DISINFECTED, THE PLUG (BLOW-OFF) SHALL BE REMOVED AND THE CONNECTION TO THE EXISTING MAIN COMPLETED.

70. THE CONTRACTOR SHALL PROVIDE SPECIAL PLUGS AND BLOCKING NECESSARY IN THOSE LOCATIONS WHERE IT WOULD BE NECESSARY TO TEST AGAINST BUTTERFLY VALVES TO ENSURE THAT THE PRESSURE RATING OF THESE VALVES IS NOT EXCEEDED

71. ALL WATER MAINS AND APPURTENANCES SHALL BE HYDROSTATICALLY TESTED AS SPECIFIED IN THE STANDARD SPECIFICATIONS.

<u>STERILIZATION AND FLUSHING OF WATER MAINS</u>

72. STERILIZATION OF WATER MAINS SHALL BE ACCOMPLISHED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE HEALTH DEPARTMENT AND IN A MANNER SATISFACTORY TO THE CITY. THE SECTION TO BE STERILIZED SHALL BE THOROUGHLY FLUSHED AT MAXIMUM FLOW ESTABLISHED BY THE CITY PRIOR TO CHLORINATION, NO LESS THAN 2.5 FT/S. FLUSHING PERIOD MUST BE APPROVED BY THE CITY. SECTIONS WILL ORDINARILY BE STERILIZED BETWEEN ADJACENT VALVES UNLESS, IN THE OPINION OF THE CITY, A LONGER SECTION MAY BE SATISFACTORILY HANDLED. CHLORINE SHALL BE APPLIED BY SOLUTION FEED AT ONE END OF THE SECTION WITH A VALVE OR HYDRANT AT THE OPPOSITE END OPEN SUFFICIENTLY TO PERMIT A FLOW THROUGH DURING CHLORINE APPLICATION. THE CHLORINE SOLUTION SHALL BE FED INTO THE PIPELINE ALREADY MIXED BY AN AUTOMATICALLY PROPORTIONING APPLICATOR SO AS TO PROVIDE A STEADY APPLICATION RATE OF NOT LESS THAN 50 PPM CHLORINE. HYDRANTS ALONG THE CHLORINATED SECTION SHALL BE OPEN DURING APPLICATION UNTIL THE PRESENCE OF CHLORINE HAS DEFINITELY BEEN DETECTED IN EACH HYDRANT RUN. WHEN A CHLORINE CONCENTRATION OF NOT LESS THAN 50 PPM HAS BEEN ESTABLISHED THROUGHOUT THE LINE, THE VALVES SHALL BE CLOSED AND THE LINE LEFT UNDISTURBED FOR 24

73. AS AN ALTERNATIVE, THE CONTRACTOR MAY USE GRANULATED CHLORINE. GRANULATED CHLORINE (DRY CALCIUM HYPOCHLORITE AT 65% - 70% CHLORINE) SHALL BE PLACED IN THE PIPE TO YIELD A DOSAGE OF NOT LESS THAN 50 PPM. THE NUMBER OF OUNCES OF 65% TEST CALCIUM HYPOCHLORITE REQUIRED FOR A 20-FOOT LENGTH OF PIPE EQUALS .00843LD, IN WHICH "D" IS THE DIAMETER IN INCHES. THE LINE SHALL THEN BE THOROUGHLY FLUSHED AND WATER SAMPLES TAKEN FOR APPROVAL BY THE LOCAL HEALTH AGENCY. FLUSHING PERIOD MUST BE APPROVED BY THE CITY. THE CONTRACTOR SHALL EXERCISE <u>SPECIAL CARE</u> IN FLUSHING TO AVOID DAMAGE TO SURROUNDING PROPERTY. 74. SHOULD THE INITIAL TREATMENT RESULT IN AN UNSATISFACTORY BACTERIOLOGICAL TEST, ADDITIONAL CHLORINE USING THE FIRST

PROCEDURE SHALL BE REPEATED BY THE CONTRACTOR UNTIL SATISFACTORY RESULTS ARE OBTAINED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF TREATED WATER FLUSHED FROM MAINS AND AT NO TIME SHALL CHLORINATED WATER FROM A NEW MAIN BE FLUSHED INTO A BODY OF FRESH WATER. THIS IS TO INCLUDE LAKES, RIVERS, STREAMS, STORM DRAINAGE

SYSTEMS AND ANY AND ALL OTHER WATERS WHERE FISH OR OTHER NATURAL WATER LIFE CAN BE EXPECTED. 75. DECHLORINATION OF THE TREATED WATER THAT IS FLUSHED FROM THE MAIN IS REQUIRED. ALLOWABLE CHEMICALS ARE ASCORBIC

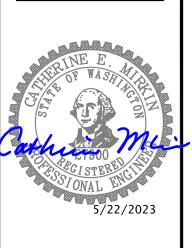
ACID OR OTHER CHEMICAL IF APPROVED BY THE CITY. 76. MAIN EXTENSIONS SHALL NOT BE CONNECTED TO THE CITY WATER SYSTEM UNTIL PRESSURE AND BACTERIOLOGICAL TESTS HAVE PASSED ALL REQUIRED STANDARDS.

CHLORINE DOSAGE 77. REFERENCES IN SECTION 7-09.3(24) OF THE WSDOT STANDARD SPECIFICATIONS TO AN INITIAL CHLORINE CONTENT OF THE WATER

OF NOT LESS THAN 50 MG/L IS AS FOLLOWS. 78. THE AMOUNTS OF CHLORINE (CL2) REQUIRED TO PROVIDE 50 MG/L FOR 100-FOOT LENGTHS OF VARIOUS DIAMETER OF PIPE

> AMOUNTS OF CHLORINE REQUIRED FOR 50 MG/L DOSAGE

|           | 500,102            |                     |                      |
|-----------|--------------------|---------------------|----------------------|
|           | VOLUME OF WATER    | HOUSEHOLD<br>BLEACH | COMMERCIAL<br>BLEACH |
| PIPE SIZE | PER 100 FT. LENGTH | 5-1/4%              | 12-1/2%              |
| (INCHES)  | (GALLONS)          | (GALLONS)           | (GALLONS)            |
| 4         | 65.3               | 0.06                | 0.03                 |
| 6         | 146.5              | 0.14                | 0.06                 |
| 8         | 261.0              | 0.26                | 0.11                 |
| 10        | 408.0              | 0.40                | 0.16                 |
| 12        | 588.7              | 0.60                | 0.24                 |
|           |                    |                     |                      |



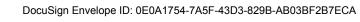
. PROJECT NUMBER MAY 22, 2023

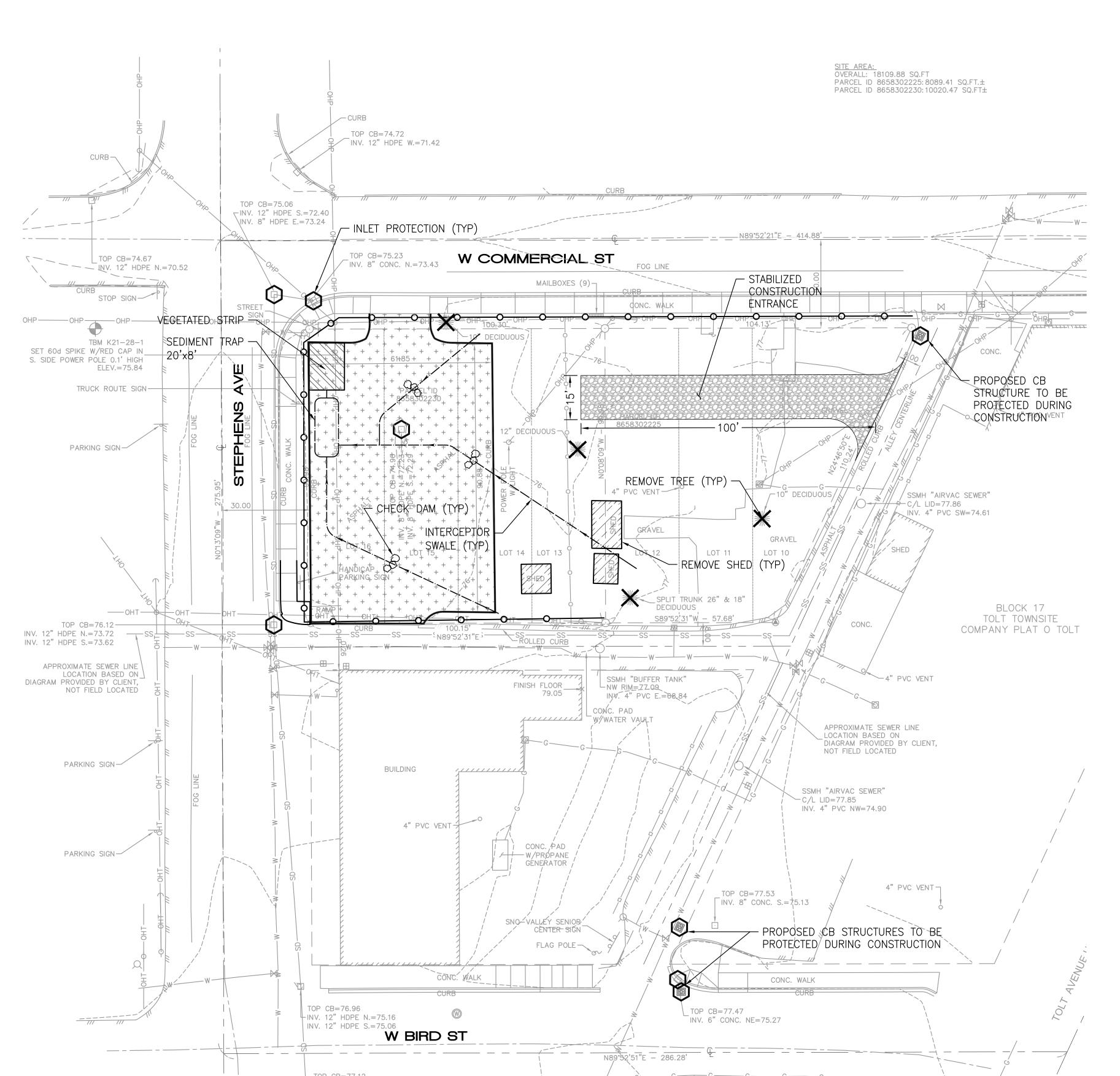
DESIGN DRAFT CHECK DATE 5/19/2023

SHEET C1.3

SCALE

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### CONSTRUCTION SEQUENCING

- 1. PRECONSTRUCTION MEETING.
- 2. FLAG OR FENCE CLEARING LIMITS.
- 3. POST SIGN WITH NAME AND PHONE NUMBER OF ESC SUPERVISOR.
- 4. INSTALL CATCH BASIN PROTECTION.
- 5. GRADE AND INSTALL CONSTRUCTION ENTRANCE(S).
- 6. INSTALL PERIMETER PROTECTION (SILT FENCE, BRUSH BARRIER, ETC).
- CONSTRUCT SEDIMENT TRAP.
- GRADE AND STABILIZE CONSTRUCTION ROADS.
- CONSTRUCT SURFACE WATER CONTROLS (INTERCEPTOR DIKES, SWALES, ETC. SIMULTANEOUSLY WITH CLEARING AND GRADING.
- 10. MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH CITY OF CARNATION STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.
- 11. RELOCATE SURFACE WATER CONTROLS AND EROSION CONTROL MEASURES OR INSTALL NEW MEASURES SO THAT AS SITE CONDITIONS CHANGE, THE EROSION AND SEDIMENT CONTROL IS ALWAYS IN ACCORDANCE WITH THE CITY OF CARNATION EROSION AND SEDIMENT CONTROL STANDARDS.
- 12. COVER ALL AREAS THAT WILL BE UNWORKED FOR MORE THAN SEVEN DAYS DURING THE DRY SEASON OR TWO DAYS DURING THE WET SEASON WITH STRAW, WOOD FIBER MULCH, COMPOST, PLASTIC SHEETING OR EQUIVALENT.
- 13. STABILIZE ALL AREAS THAT REACH FINAL GRADE WITHIN SEVEN DAYS.
- 14. SEED OR SOD ANY AREAS TO REMAIN UNWORKED FOR MORE THAN 30 DAYS.
- 15. UPON COMPLETION OF THE PROJECT, ALL DISTURBED AREAS MUST BE STABILIZED AND BMP'S REMOVED IF APPROPRIATE.

### GEOTECHNICAL RECOMMENDATIONS

- 1. IT IS RECOMMENDED THAT CONSTRUCTION TAKES PLACE IN THE DRIER SUMMER MONTHS. IF WET CONDITIONS ARE ENCOUNTERED, ALTERNATIVE SITE STRIPPING AND GRADING TECHNIQUES MIGHT BE NECESSARY. THE SUBGRADE SHOULD NOT BE COMPACTED AS THIS COULD CAUSE FURTHER SUBGRADE DISTURBANCE. THE PREPARED SUBGRADE SHOULD BE PROTECTED FROM CONSTRUCTION TRAFFIC AND SURFACE WATER SHOULD BE DIVERTED AROUND AREAS OF PREPARED SUBGRADE. IF CONSTRUCTION TAKES PLACE DURING THE WET SEASON, ADDITIONAL EXPENSES AND DELAYS SHOULD BE EXPECTED DUE TO WET CONDITIONS.
- 2. AREAS DISTURBED BY CONSTRUCTION SHOULD BE PROTECTED FROM EROSION. DISTURBED AREAS SHOULD BE PLANTED AS SOON AS PRACTICAL, AND THE VEGETATION SHOULD BE MAINTAINED UNTIL ESTABLISHED.

### **LEGEND**

FILTER FABRIC FENCE

REMOVE TREE

CATCH BASIN PROTECTION

INTERCEPTOR SWALE

CHECK DAM



CONSTRUCTION ENTRANCE



EX SHED REMOVAL

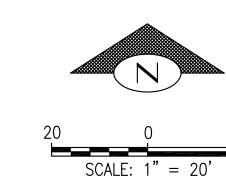


VEGETATED STRIP

--- EX CURB REMOVAL

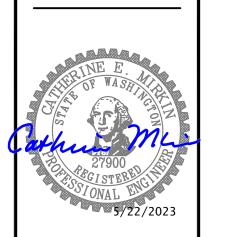


REMOVE ASPH CONC PAVEMENT



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PROJECT NUMBER

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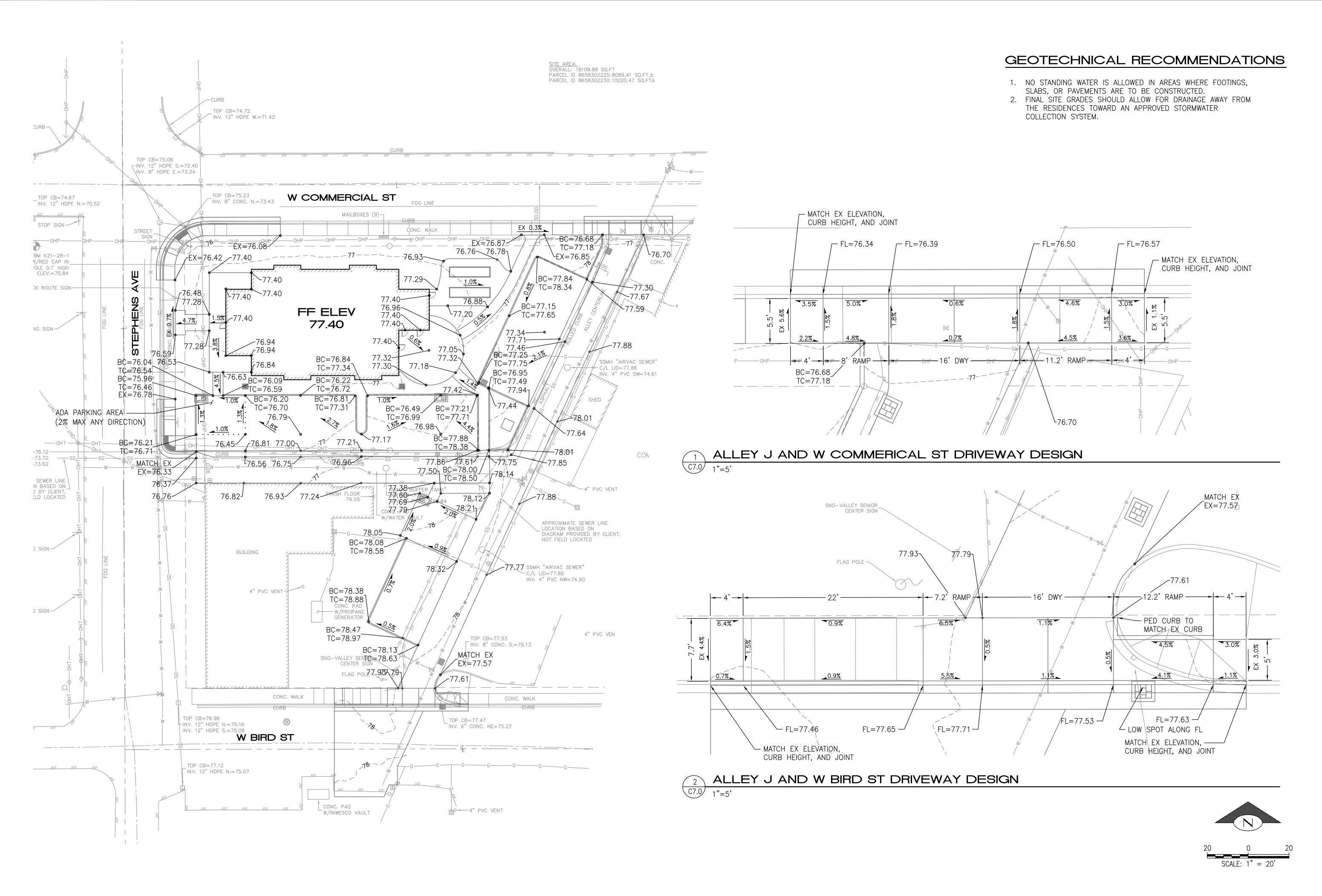
SUBMITTAL MAY 22, 2023

DESIGN DRAFT CHECK

DATE 5/19/2023 SCALE

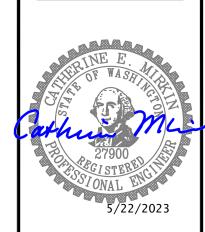
1"=20' SHEET

C2.0



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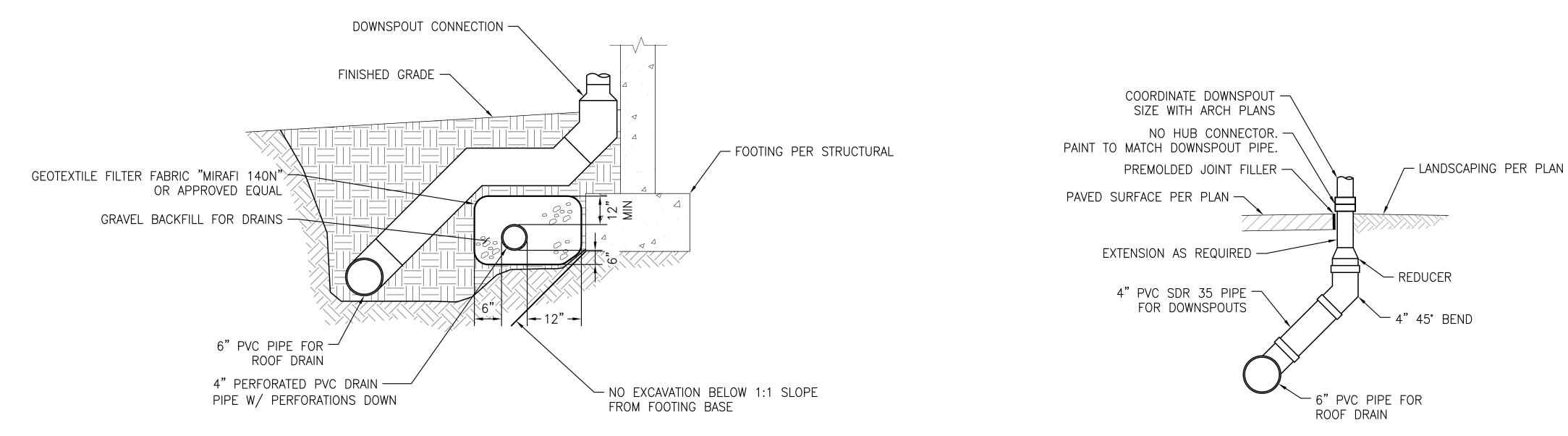
PROJECT NUMBER MAY 22, 2023

SNO-VALLEY SENIOR HOUSING IS W COMMERCIAL ST. CARNATION, WA 98 DESIGN

DRAFT CHECK DATE 5/19/2023 SCALE

1"=10' SHEET

C3.0







### CONSTRUCTION NOTES

- 1. SEE DRAINAGE PLAN SHEET C5.0 FOR CATCH BASIN CONNECTIONS.
- 2. FOOTING AND ROOF DRAIN PIPES SHALL BE PLACED WITH 0.5% SLOPE, UNLESS OTHERWISE NOTED.
- 3. SEE ARCHITECTURAL PLANS FOR ROOF DRAIN DOWNSPOUT CONNECTION LOCATIONS.
- 4. CLEANOUTS SHALL BE PER DETAIL 5/C8.2

### GEOTECHNICAL RECOMMENDATIONS

- 1. FINAL SITE GRADES SHOULD ALLOW FOR DRAINAGE AWAY FROM THE RESIDENCES TOWARD AN APPROVED STORMWATER COLLECTION SYSTEM.
- 2. IF GROUNDWATER IS ENCOUNTERED DURING CONSTRUCTION, IT IS RECOMMENDED THAT THE CONTRACTOR SLOPE THE BOTTOM OF THE EXCAVATION AND COLLECT THE WATER INTO DITCHES AND SMALL SUMP PITS WHERE THE WATER CAN BE PUMPED OUT AND ROUTED INTO A PERMANENT STORM DRAIN.
- 4. UNDERGROUND UTILITIES SHOULD BE BEDDED WITH A MINIMUM SIX INCHES OF PEA GRAVEL PRIOR TO BACKFILLING THE TRENCH.
- 5. FOOTING DRAINS SHOULD BE INSTALLED AT LEAST ONE FOOT BELOW PLANNED FINISHED FLOOR ELEVATION.

### LEGEND

CLEANOUT

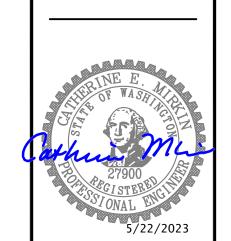
DOWNSPOUT

- — 4" PVC PERFORATED FOOTING DRAIN

STORM DRAIN CONNECTION

— — 6" PVC ROOF DRAIN

CATCH BASIN TYPE 1 W/ SOLID LOCKING COVER



. . . . . PROJECT NUMBER

22008

MAY 22, 2023

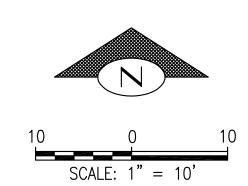
SENIOR HOUSING ST. CARNATION, WA 98

DESIGN CFG DRAFT CHECK

DATE . . . . SCALE 1"=10

SHEET C4.0

BEFORE YOU DIG! 1-800-424-5555



CALL 2 BUSINESS DAYS

### CONSTRUCTION NOTES

1. SEE ROOF AND FOOTING DRAIN PLAN SHEET C4.0 FOR CATCH BASIN INVERTS AND CONNECTIONS FROM ROOF AND FOOTING DRAINS.

### GEOTECHNICAL RECOMMENDATIONS

- 1. FINAL SITE GRADES SHOULD ALLOW FOR DRAINAGE AWAY FROM THE RESIDENCES TOWARD AN APPROVED STORMWATER COLLECTION SYSTEM.
- 2. IF GROUNDWATER IS ENCOUNTERED DURING CONSTRUCTION, IT IS RECOMMENDED THAT THE CONTRACTOR SLOPE THE BOTTOM OF THE EXCAVATION AND COLLECT THE WATER INTO DITCHES AND SMALL SUMP PITS WHERE THE WATER CAN BE PUMPED OUT AND ROUTED INTO A PERMANENT STORM DRAIN.
- 3. THE DEPTH OF FINE-GRAINED ALLUVIAL DEPOSITS WITH GRAVELLY SOILS ARE IN THE RANGE OF 12 TO 20 FEET BELOW THE EXISTING GROUND SURFACE.
- 4. UNDERGROUND UTILITIES SHOULD BE BEDDED WITH A MINIMUM SIX INCHES OF PEA GRAVEL PRIOR TO BACKFILLING THE TRENCH.

### **LEGEND**

— SD — 6" PERFORATED PVC UNDERDRAIN PIPE

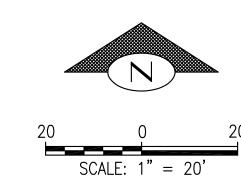
SOLID WALL PVC PIPE UNLESS SPECIFIED OTHERWISE

CATCH BASIN TYPE 1

INFILTRATION TRENCH

CONTECH STORMFILTER

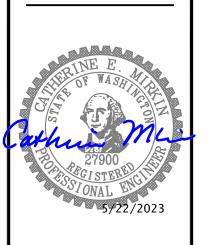
INFILTRATION DRYWELL



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CM





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PROJECT NUMBER 22008 SUBMITTAL BID SET MAY 22, 2023

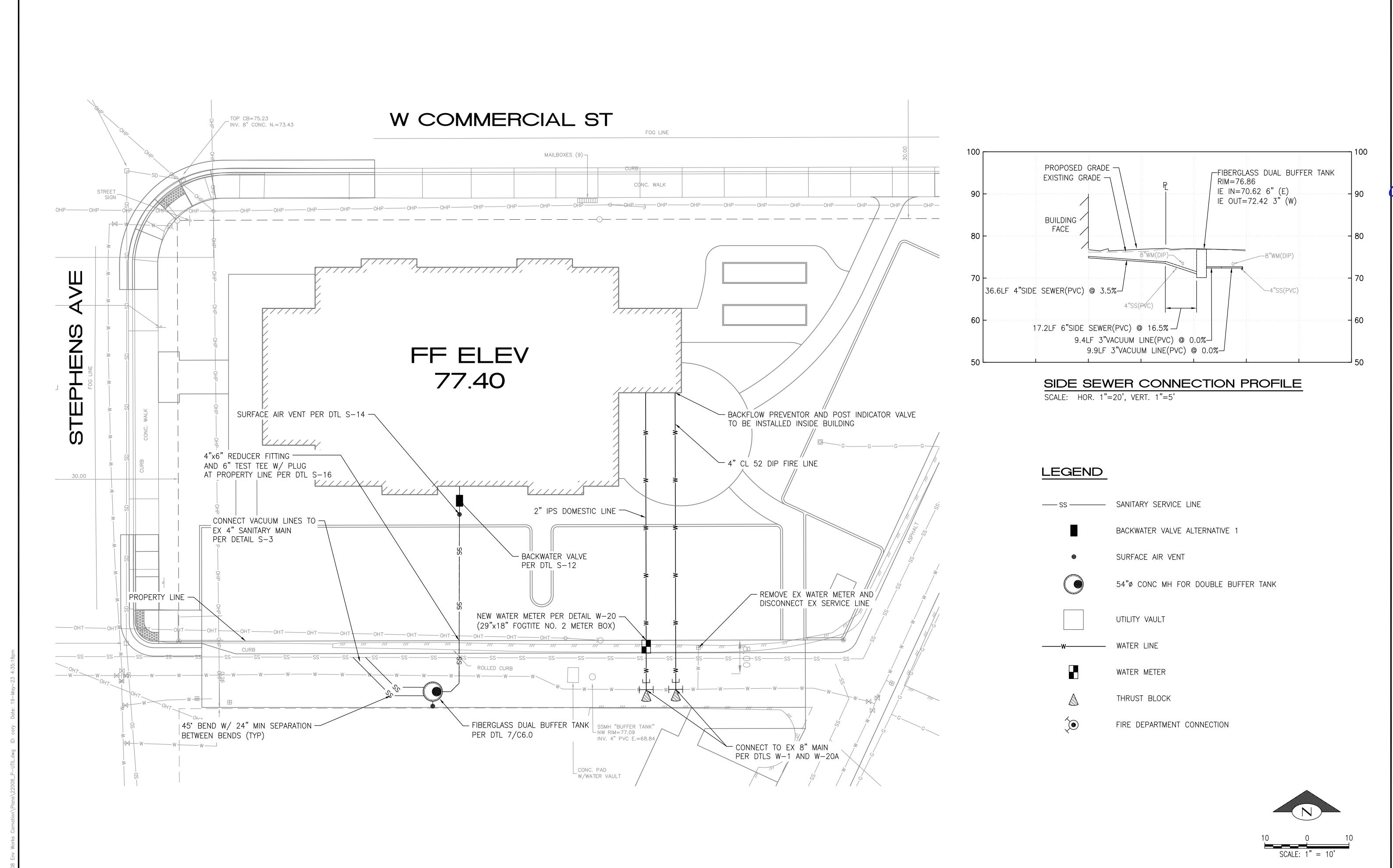
DESIGN DRAFT CHECK

DATE 5/19/2023

SCALE 1"=10'

SHEET C5.0

1-800-424-5555



PROJECT NUMBER

MAY 22, 2023

DESIGN CFG DRAFT CHECK

DATE 5/19/2023

. . . . SCALE 1"=10'

C6.0

SHEET

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### CONSTRUCTION NOTES

- 1. SEE LANDSCAPE PLANS FOR ALL DECORATIVE PAVER SURFACING AND
- SURFACE OUTSIDE PARKING LOT, ROADS, AND SIDEWALKS. 2. PAINT CURBS ON INTERSECTING STREET OF ALLEY FOR A DISTANCE
- OF 20' ON BOTH DIRECTIONS FROM THE ALLEY INTERSECTION. USE HIGH VISIBILITY INDUSTRIAL ENAMEL SAFETY YELLOW.

## GEOTECHNICAL RECOMMENDATIONS

- 1. THE PAVEMENT SUBGRADE SHOULD BE PROOF-ROLLED WITH A HEAVY, RUBBER-TIRED PIECE OF EQUIPMENT, TO IDENTIFY SOFT OR YIELDING AREAS THAT REQUIRE REPAIR. THE PAVEMENT SECTION SHOULD BE UNDERLAIN BY A STABLE SUBRGADE AND OVERLAIN BY
- 2. FOR PAVED PARKING AREAS, FINAL SUBGRADE ELEVATION SHOULD BE OVEREXCAVATED BY A MINIMUM OF 12 INCHES.
- PREPARED SUBGRADE SHOULD BE PROTECTED FROM CONSTRUCTION TRAFFIC AND SURFACE WATER SHOULD BE DIVERTED AROUND AREAS OF PREPARED SUBGRADE.
- 4. IF WET CONDITIONS ARE ENCOUNTERED AND CONSTRUCTION IS ATTEMPTED IN WET WEATHER, THE SUBGRADE SHOULD NOT BE COMPACTED TO AVOID FURTHER SUBGRADE DISTURBANCE.

# **LEGEND**

\_\_\_\_\_ CEM CONC CURB











6" HMA OVER 4" CSTC OVER 4" CSBC

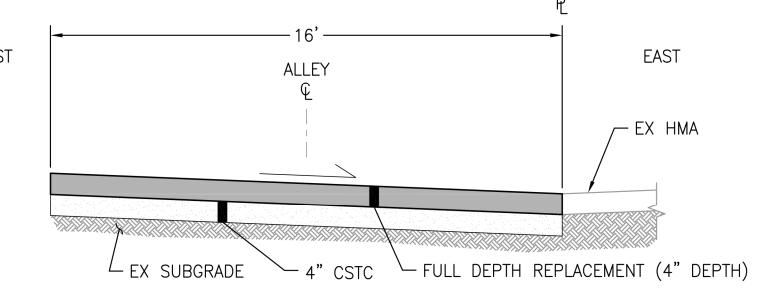


CEM CONC SIDEWALK

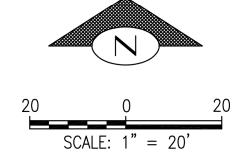
PAVERS PER LANDSCAPE PLAN



OFFSITE WORK - NW CORNER OF W ENTWISTLE ST + STEPHENS AVE SCALE: 1"=20'







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DESIGN

 $\cdot \quad \cdot \quad \cdot \quad \cdot$ 

. . . . PROJECT NUMBER 22008 SUBMITTAL MAY 22, 2023

SNO-VALLEY SENIOR HOUSING 845 W COMMERCIAL ST. CARNATION, WA 98 HORIZONTAL PLAN

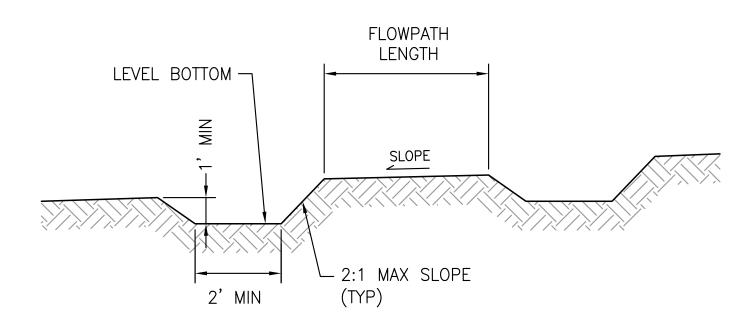
AVING DESIGN DRAFT CHECK DATE

5/19/2023 SCALE 1"=20

SHEET C7.0

INGRESS/EGRESS AREA

\_\_ 2:1 SLOPE 2"-4" ROCK (TYP) "L" EQUALS THE DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION



#### HORIZONTAL SPACING

| SLOPE  | FLOWPATH<br>LENGTH |  |
|--------|--------------------|--|
| 3-5%   | 300'               |  |
| 5-10%  | 200'               |  |
| 10-25% | 100'               |  |
| 25-50% | 50'                |  |

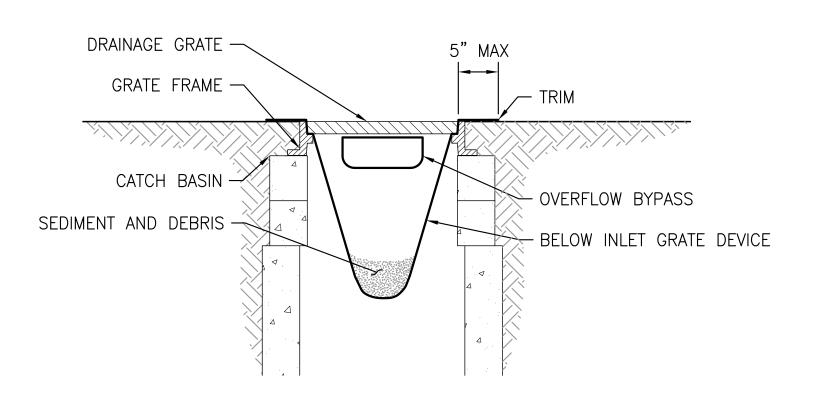
INTERCEPTOR SWALE

# STABILIZED CONSTRUCTION ENTRANCE

CROWNED SO THAT RUNOFF DRAINS OFF

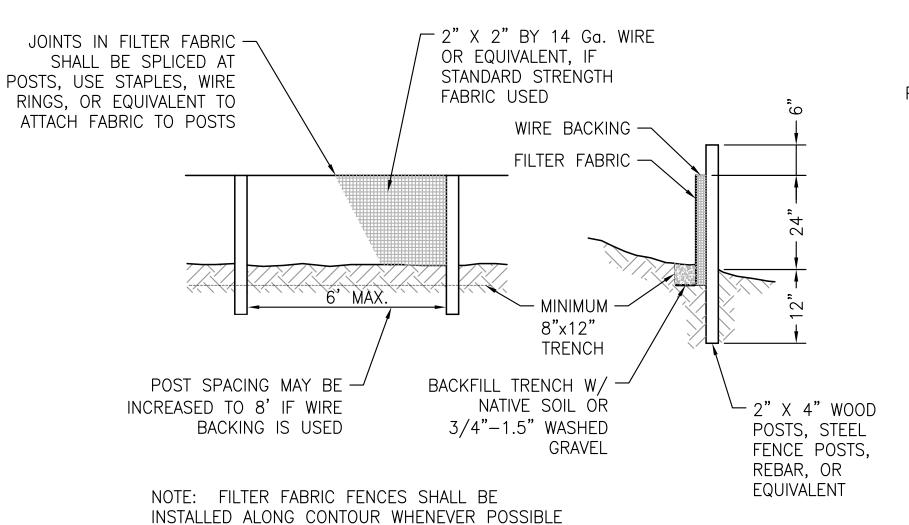
THE PAD.



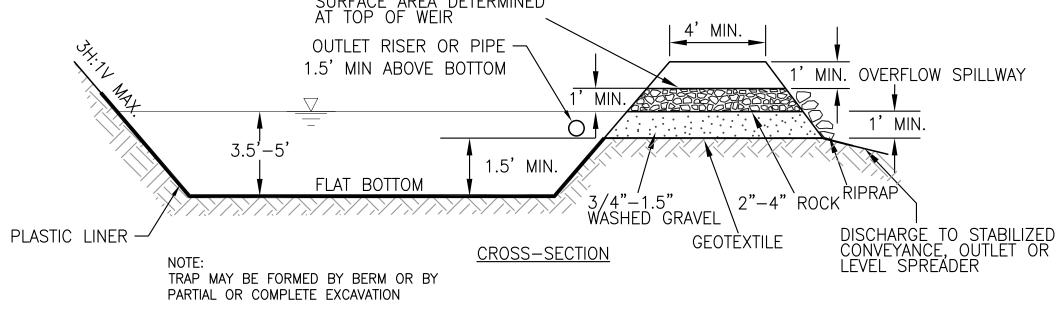


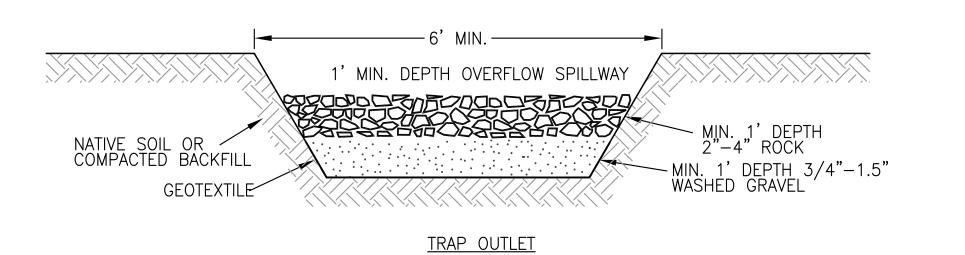
- 1. SIZE THE BELOW INLET GRATE DEVICE (BIGD) FOR THE STORM WATER STRUCTURE IT WILL SERVICE.
- 2. THE BIGD SHALL HAVE A BUILT-IN HIGH-FLOW RELIEF SYSTEM (OVERFLOW BYPASS).
- 3. THE RETRIEVAL SYSTEM MUST ALLOW REMOVAL OF THE BIGD WITHOUT SPILLING THE COLLECTED MATERIAL.

CATCH BASIN PROTECTION C2.0 NTS



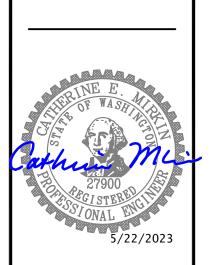
FILTER FABRIC FENCE C2.0 NTS





NOTES: 1. REMOVE SEDIMENT FROM TRAP WHEN IT REACHES APPROXIMATELY 1 FT IN DEPTH. 2. DISPOSE OF SEDIMENT AT AN APPROVED OFF SITE DUMP OR STABILIZE ON SITE.

SEDIMENT TRAP



PROJECT NUMBER MAY 22, 2023

CONTROL SNO-VALLEY SENIOR HOUSING 31845 W COMMERCIAL ST. CARNATION, WA 98104 EMPORARY EROSION DETAILS

DESIGN CFG DRAFT CHECK

DATE 5/19/2023 . . . . SCALE

> SHEET **C8.0**

1. CATCH BASIN TO BE IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS. AS AN ACCEPTABLE ALTERNATE TO REBAR, WELDED WIRE FABRIC HAVING A MINIMUM AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A 497 (AASHTO M 221). WIRE FABRIC SHALL NOT BE PLACED IN THE KNOCKOUTS.

2. THE BOTTOM OF THE PRE CAST BASE MAY BE ROUNDED. PRE CAST BASES SHALL BE FURNISHED W/ CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM. KNOCKOUTS MAY BE ON ALL 4 SIDES W/ MAXIMUM DIAMETER OF 20". KNOCKOUTS MAY BE EITHER ROUND OR "D" SHAPE. PIPE TO BE INSTALLED IN FACTORY SUPPLIED KNOCKOUTS. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS CATCH BASIN WALL THICKNESS.

3. THE MAXIMUM DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5'-0". THE TAPER ON THE SIDES OF THE PRE CAST BASE SECTION & RISER SECTION SHALL NOT EXCEED 1/2" PER FT.

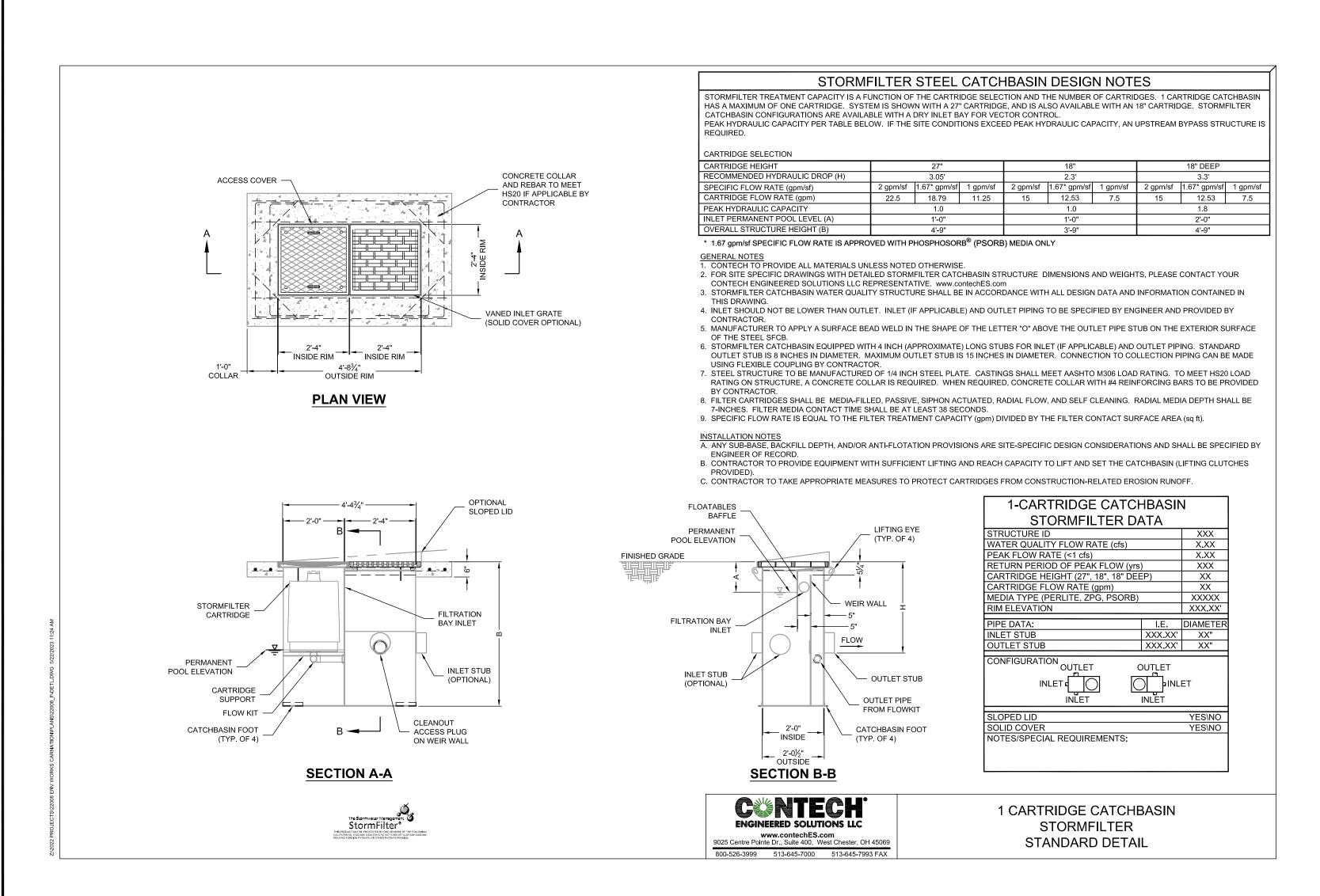
CATCH BASIN FRAME & GRATE SHALL BE IN ACCORDANCE W/ STANDARD SPECIFICATIONS & MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT. FRAME & GRATE SHALL BE INSTALLED W/ FLANGE DOWN, CATCH BASIN FRAME AND GRATES SHALL BE 18"x24" VANED UNLESS OTHERWISE SHOWN OR INDICATED.

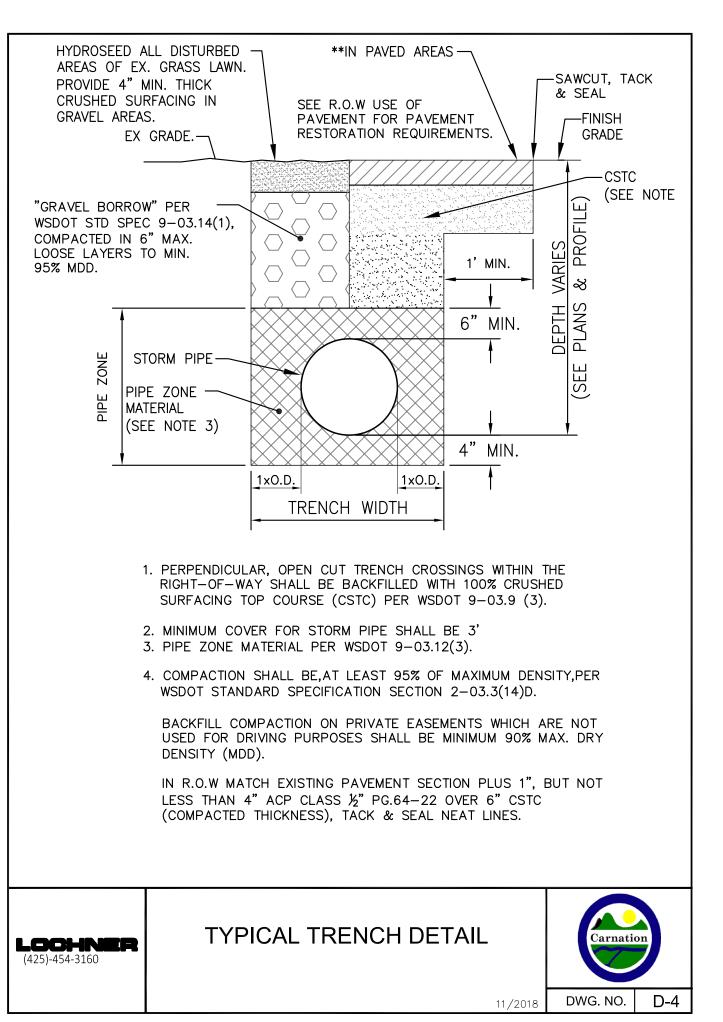
2" HMA — -19' PARKING STALL -16' ALLEYWAY [is] -1 ½" - ¾" WASHED ROCK 6" STORM DRAIN — @ 0.5% MIN SLOPE NOTES: BOTTOM OF TRENCH SHALL BE FLAT. - CONTECH STORMFILTER CATCHBASIN └─ TRENCH (SEE NOTES FOR DETAILS) SEE SHEET C5.0 2. ALL PIPES WITHIN THE DRYWELL SHALL BE 6" SCHEDULE 40 SLOTTED PIPES LAID FLAT.

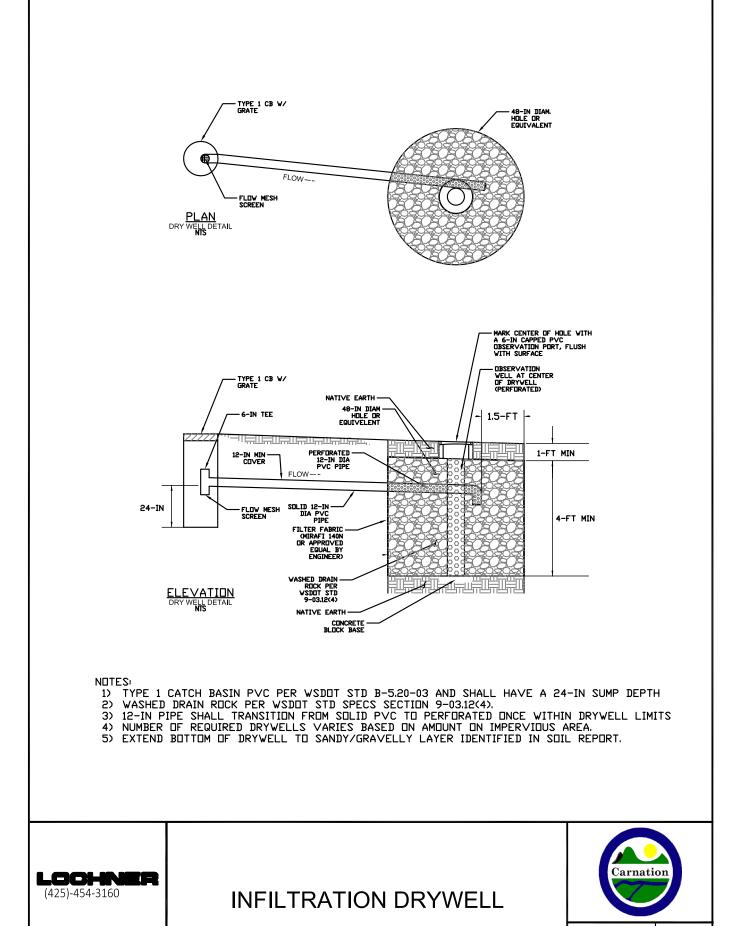
INFILTRATION TRENCH SECTION

6" PVC SLOTTED DRAIN PIPE (0% SLOPE):

**CATCH BASIN TYPE 1** 







STORM PIPE TRENCH



CALL 2 BUSINESS DAYS BEFORE YOU DIG! 1-800-424-5555

DWG. NO. | DR-2





. . . . .

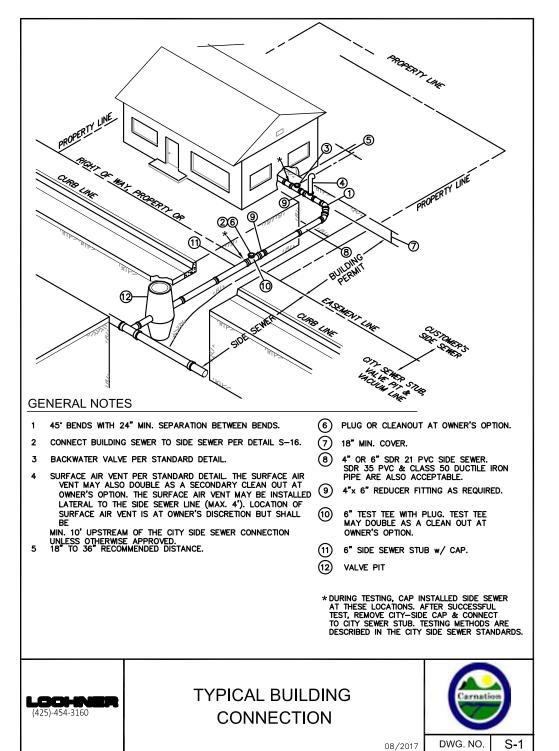
PROJECT NUMBER MAY 22, 2023

DESIGN DRAFT CHECK

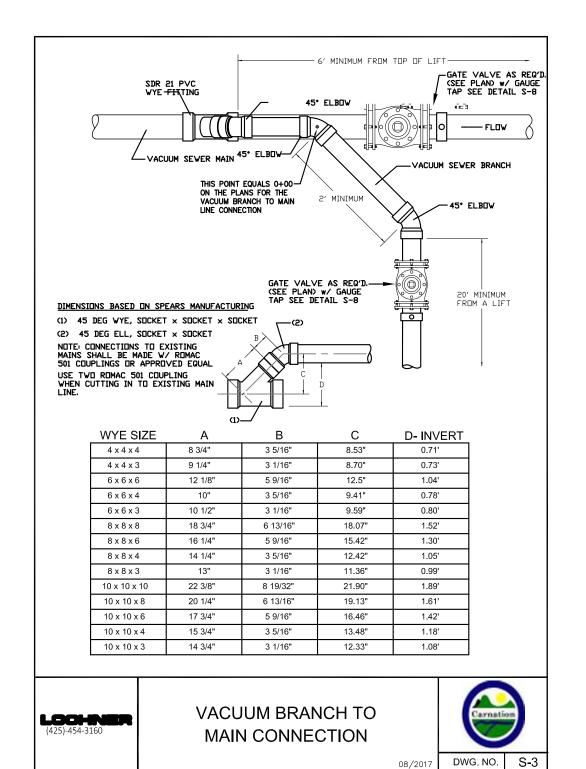
DATE 5/22/2023 SCALE

SHEET

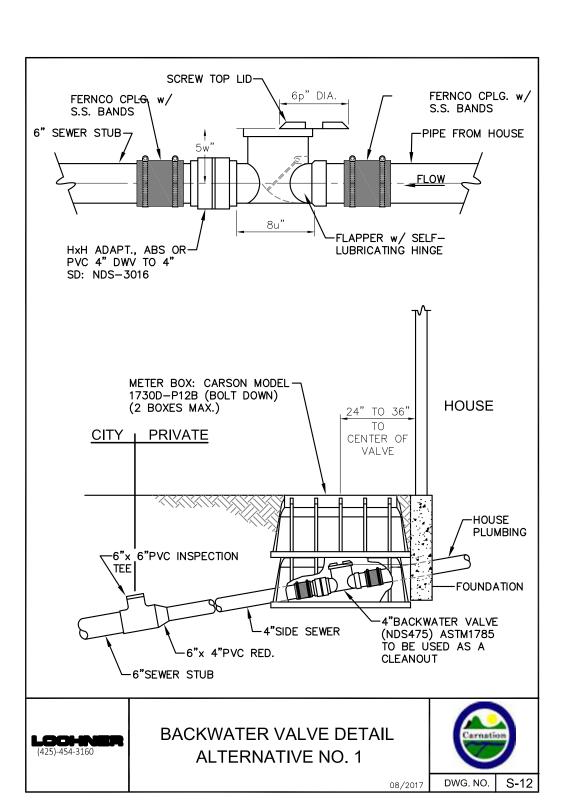
CONTECH STORM FILTER



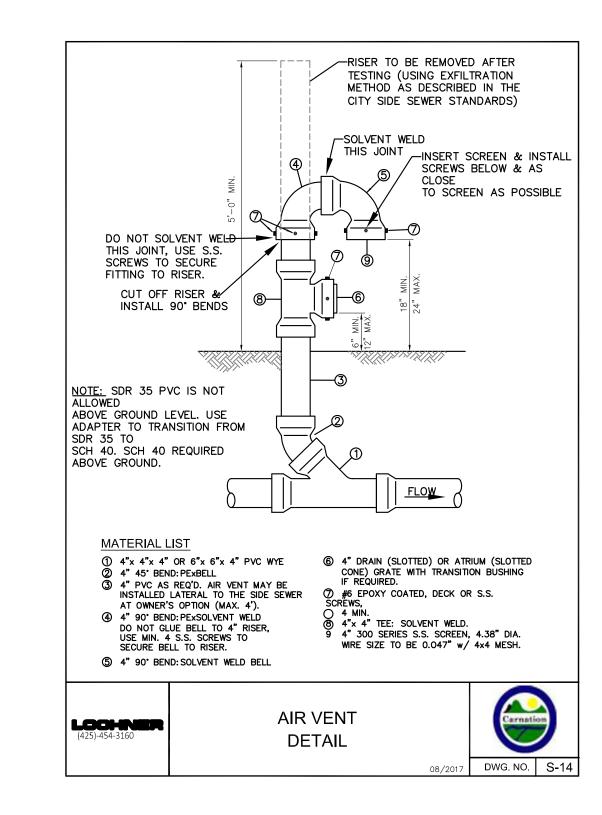




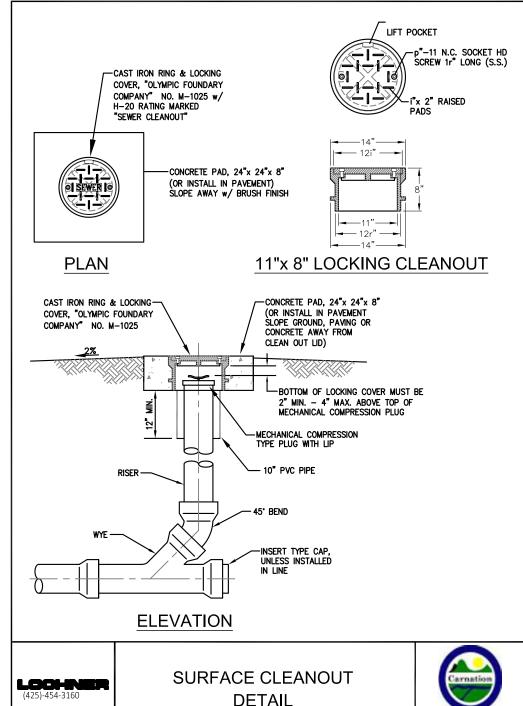




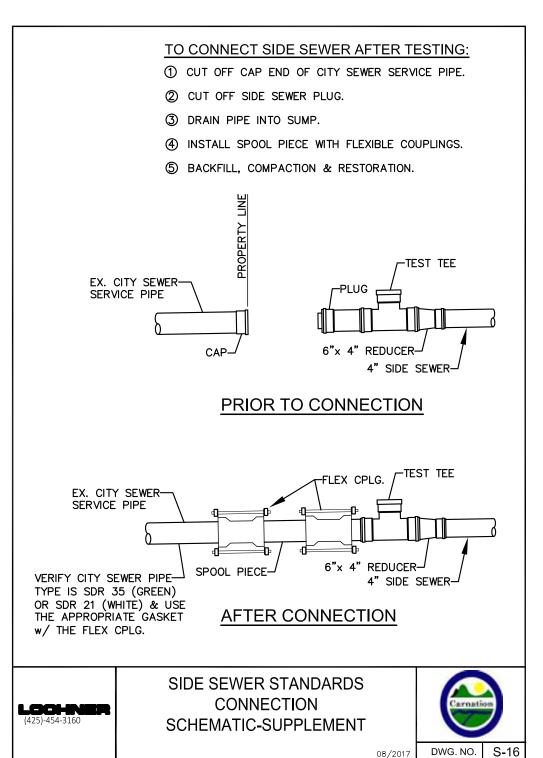




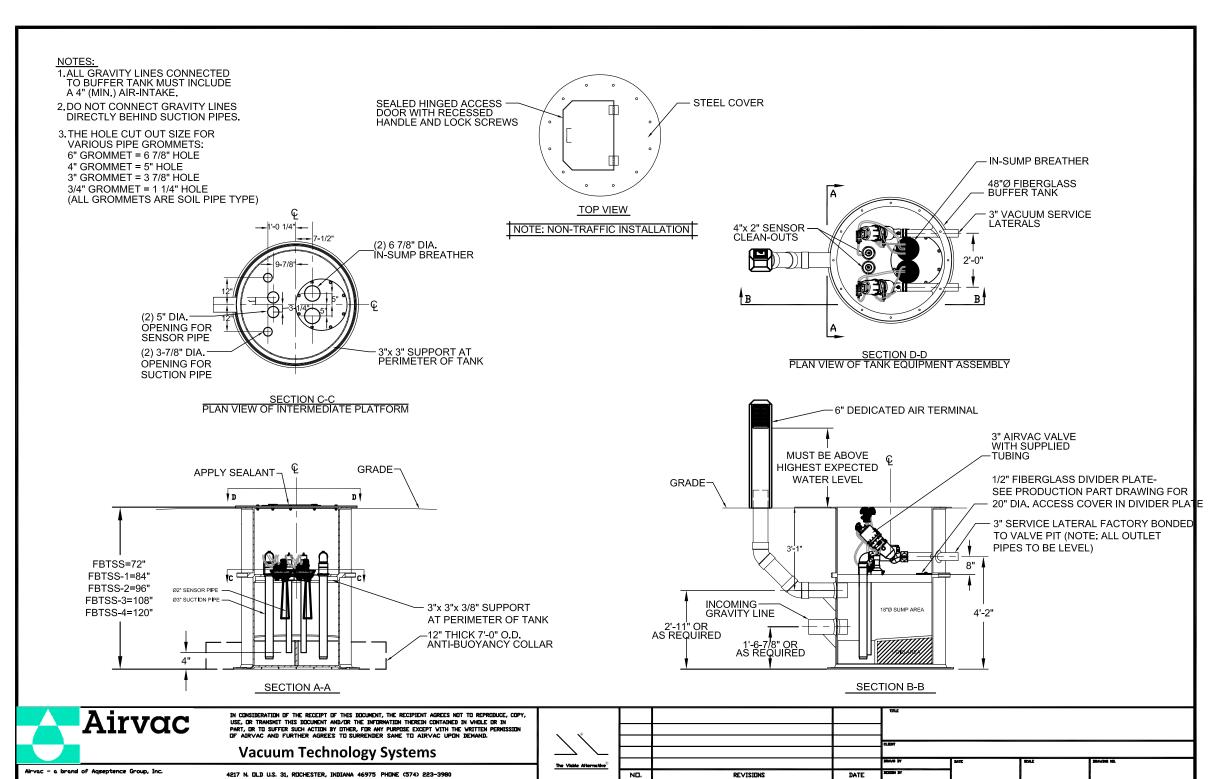












FIBERGLASS DUAL BUFFER TANK

SCALE C8.2

CALL 2 BUSINESS DAYS BEFORE YOU DIG! 1-800-424-5555

. . . .

22008

PROJECT NUMBER

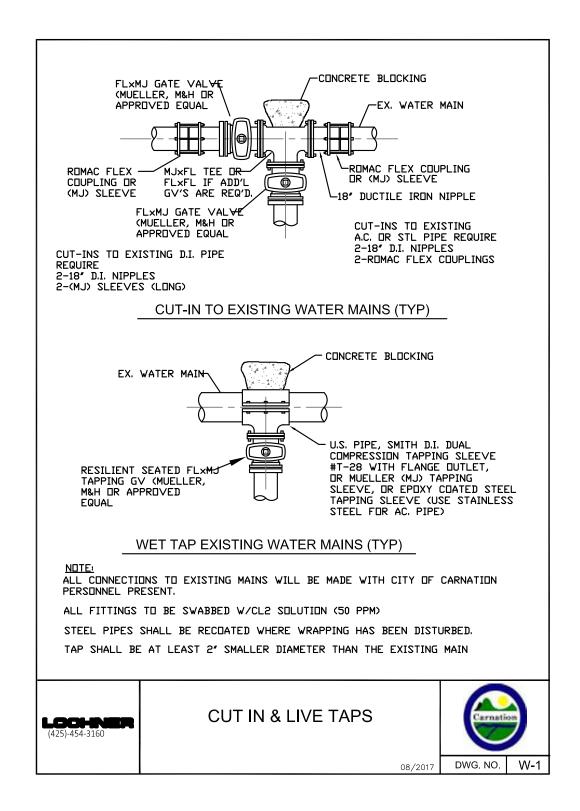
MAY 22, 2023

SUBMITTAL

DESIGN DRAFT CHECK DATE 5/19/2023

SHEET

NTS



CUT IN AND LIVE TAPS



LOCHNER

-3" AC PAVING IN PAVED AREAS 4" CEMENT CONCRETE COLLAR IN UNPAVED AREAS

└-4 1/4" DIA. X 1/8" MIN. THICKNESS

─1" METAL STOCK, 1/8" MIN. THICKNESS (LENGTH AS REQUIRED)

DWG.NO. W-3

- 2 1/4" CUBE (INSIDE MEASUREMENTS) 1/8" MINIMUM THICKNESS

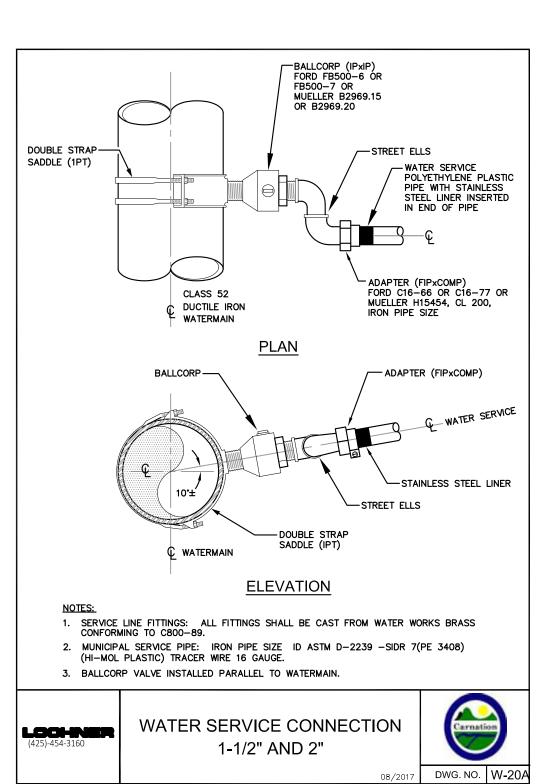
(LENGTH AS REQUIRED)

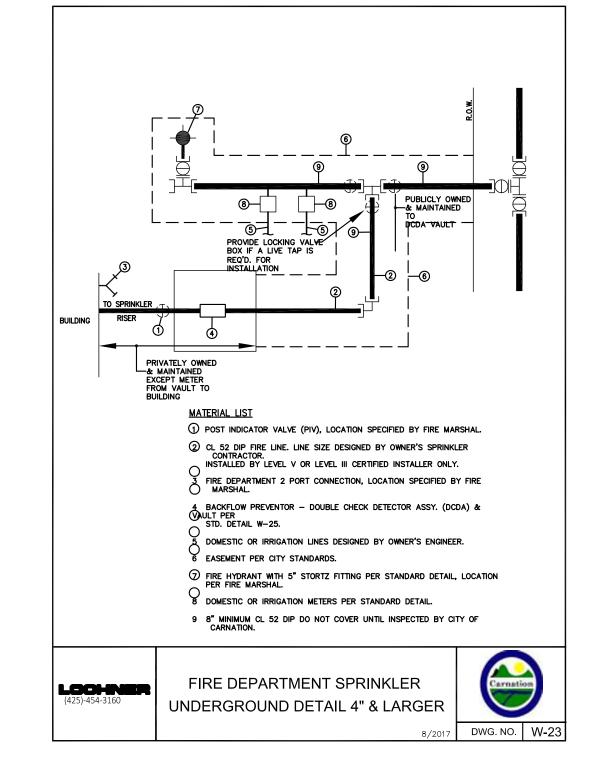
LENGTH AS REQUIRED TO PUT OPERATING NUT BETWEEN 18 AND 24 INCHES FROM SURFACE. EXTENSIONS ARE REQUIRED WHEN THE VALVE NUT IS MORE 30 INCHES BELOW FINISHED GRADE. ONE EXTENSION IS TO BE USED PER VALVE.

ALL EXTENSIONS ARE TO BE MADE OF STEEL, SIZED AS NOTED, AND HOT DIPPED GALVANIZED.

**VALVE OPERATING NUT** 

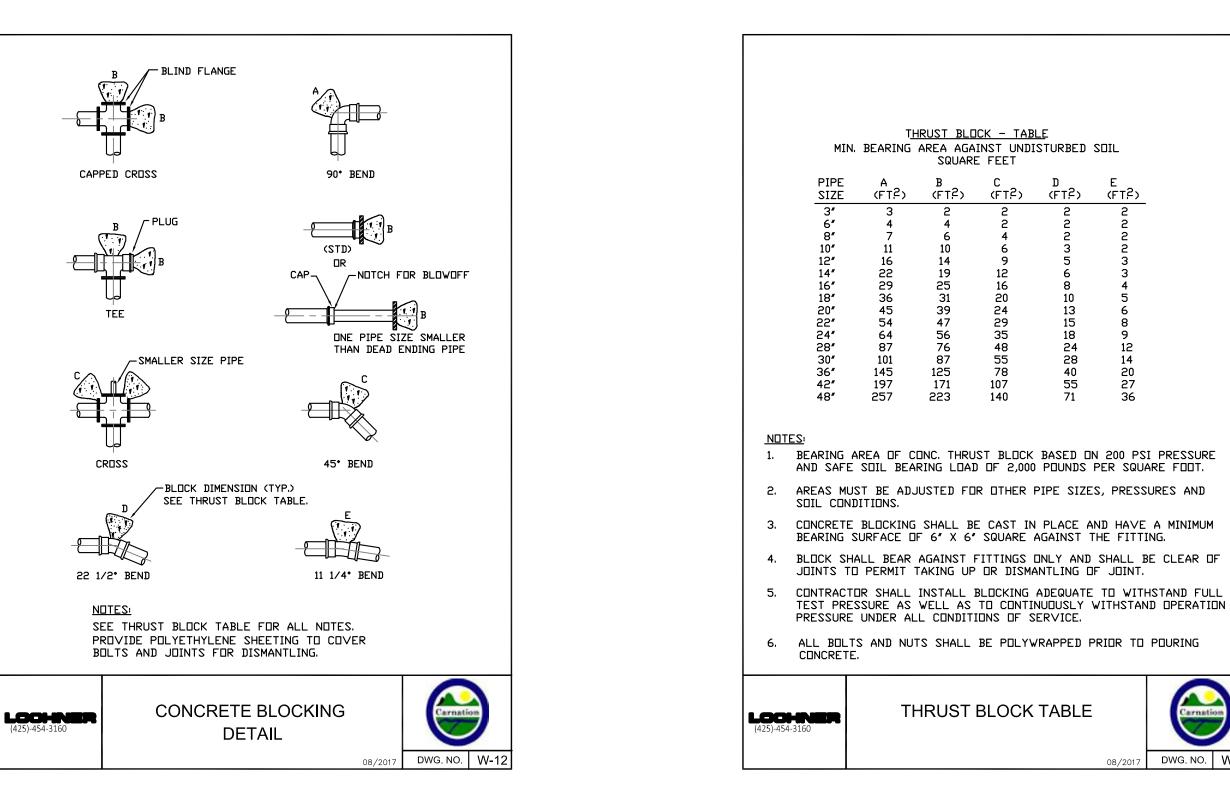
**EXTENSTION DETAIL** 

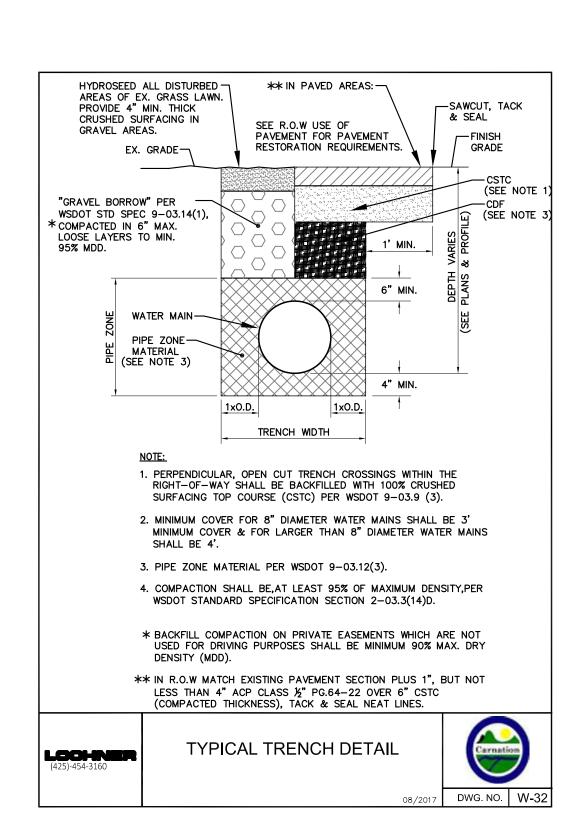




CONCRETE BLOCKING

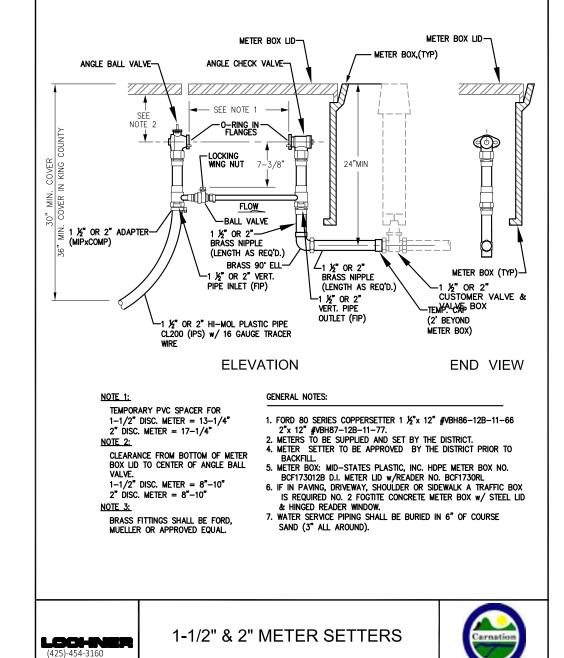






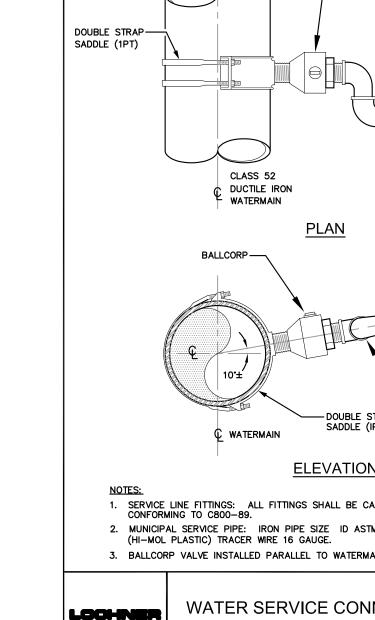
DWG. NO. | W-13

WATER MAIN TRENCH



08/2017 DWG NO. W-20

1-1/2" AND 2" WATER SERVICE



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. . . . PROJECT NUMBER

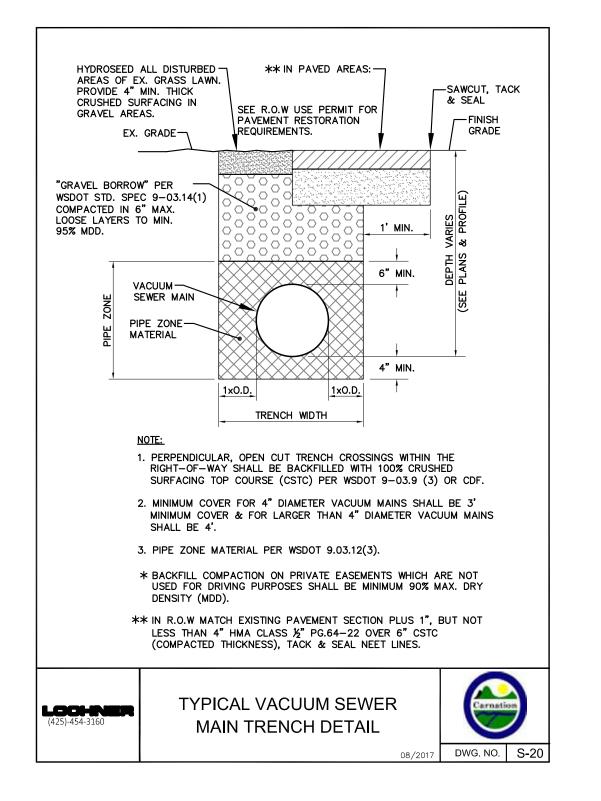
SUBMITTAL MAY 22, 2023

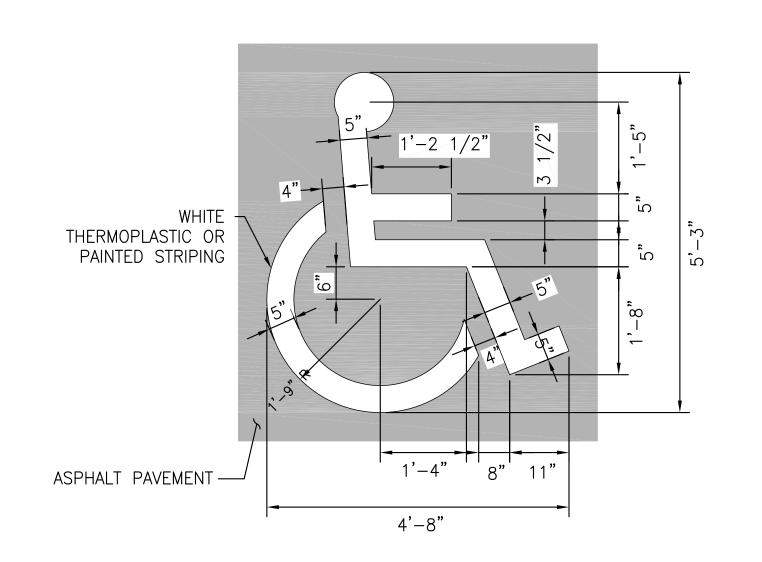
DESIGN DRAFT

CHECK DATE 5/19/2023 SCALE

NTS SHEET

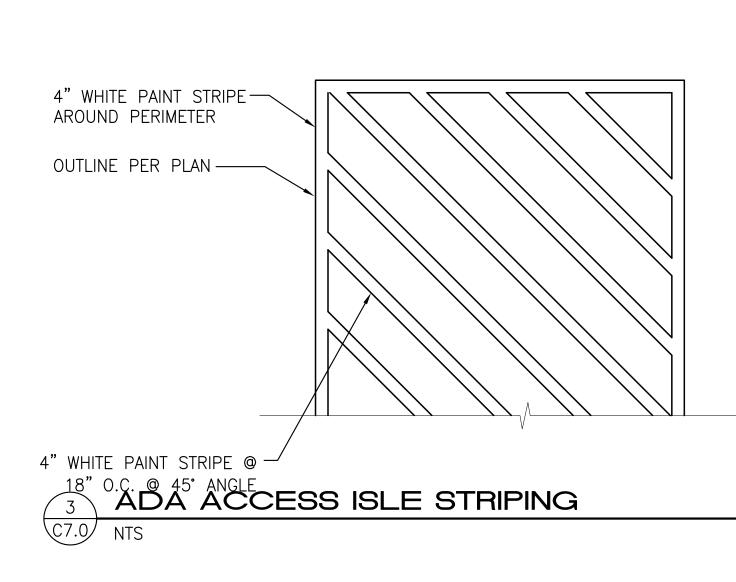
**C8.3** 

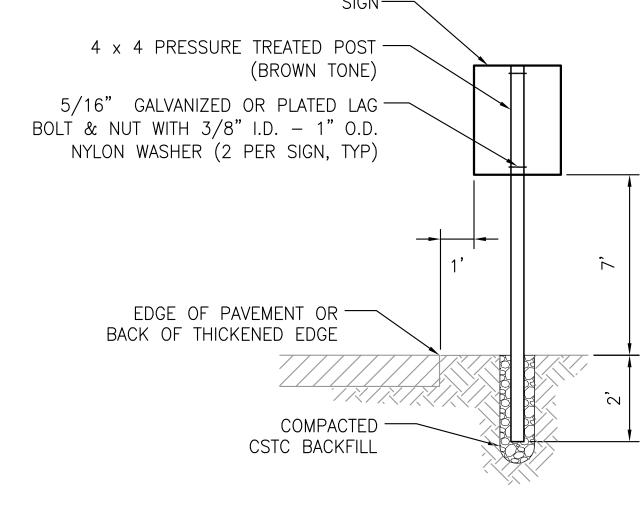




ADA SYMBOL

C7.0 NTS



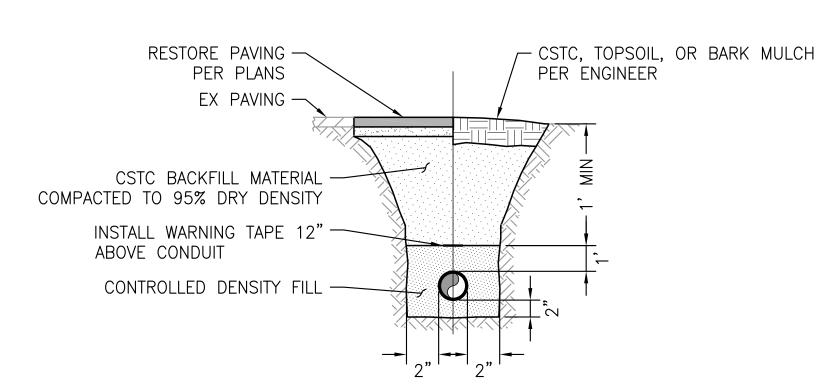


SIGN SHALL BE ATTACHED WITH TOP EDGE OF SIGN FLUSH WITH TOP OF POST.

SIGN INSTALLATION

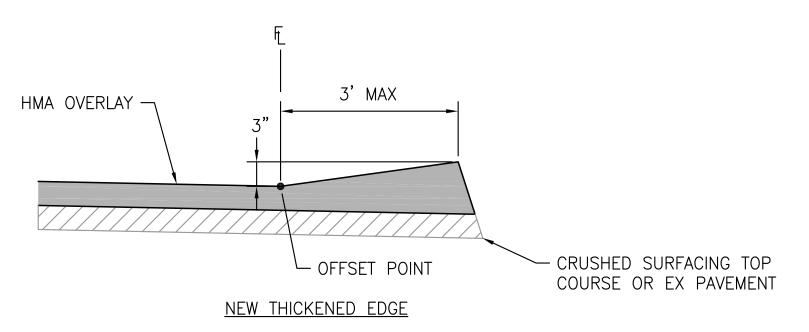
VACUUM SEWER MAIN TRENCH



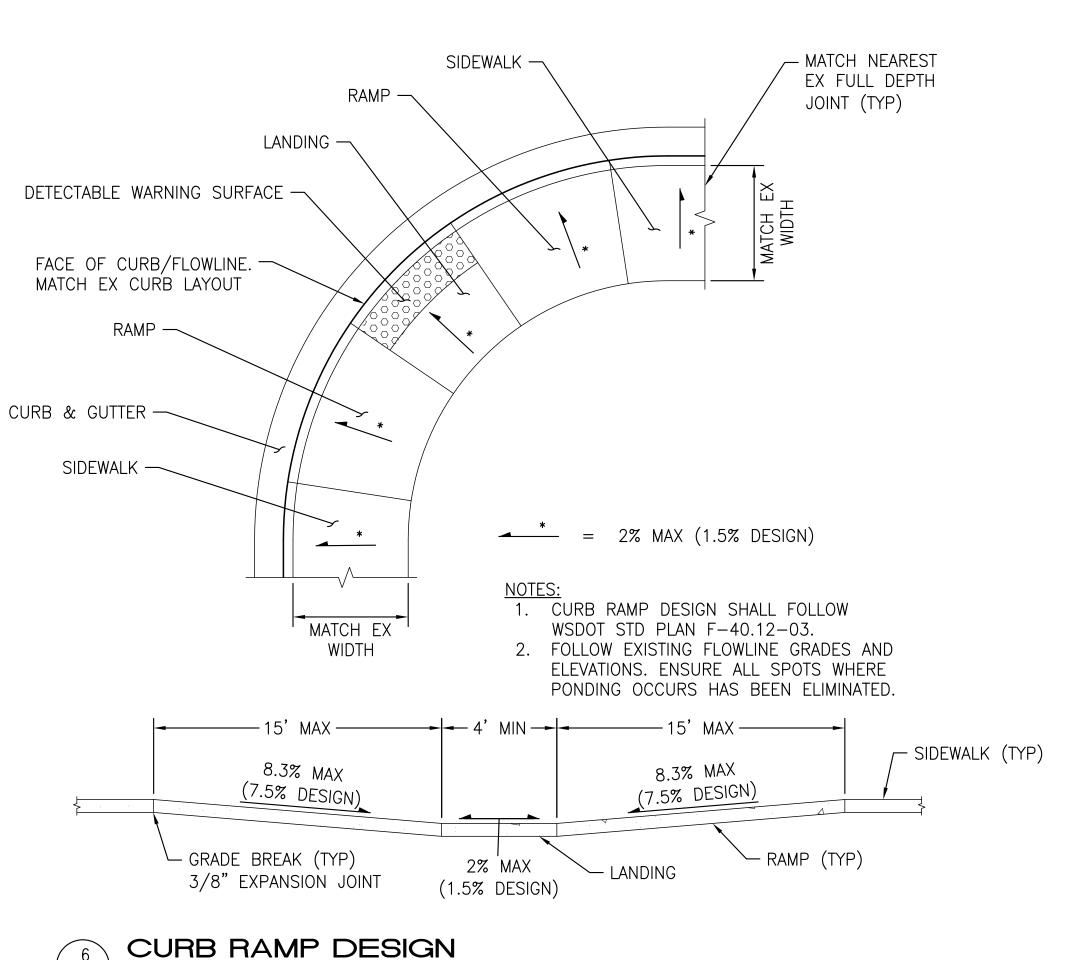


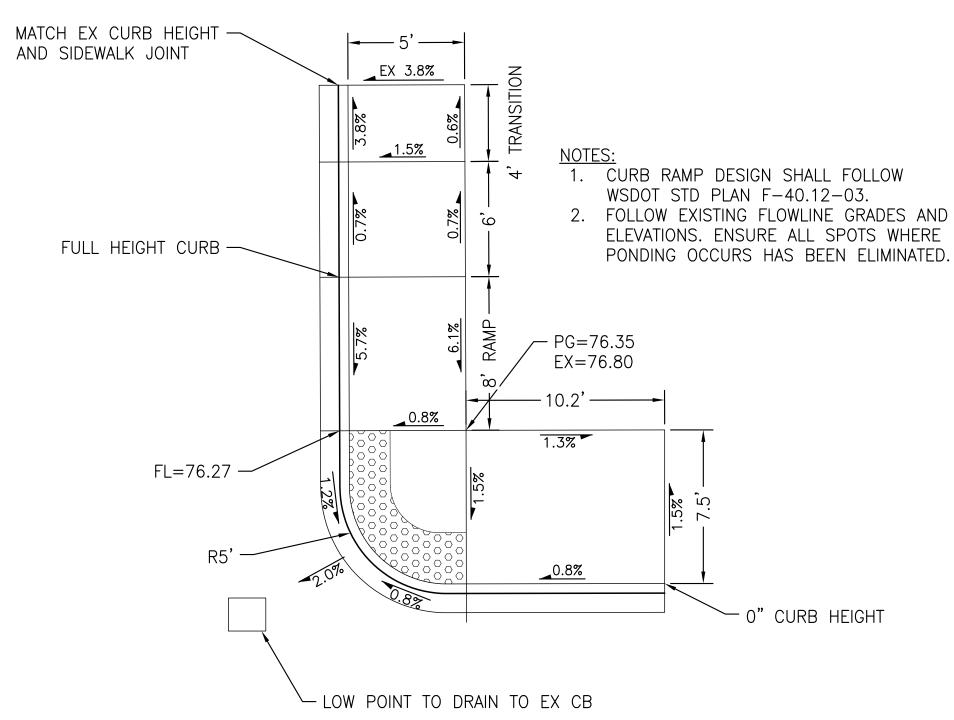
ALL CDF CONDUIT BEDDING AND CSTC BACKFILL PAID FOR PER TON BY CDF AND CSTC BID ITEMS.

TYPICAL TRENCH SECTION C7.0 NTS



THICKENED EDGE C7.0 NTS





CURB RAMP DESIGN

C7.0 NTS

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. . . . PROJECT NUMBER SUBMITTAL MAY 22, 2023 SENIOR HOUSING ST. CARNATION, WA 98

DESIGN CFG DRAFT CHECK DATE 5/19/2023 . . . . SCALE

SHEET

C8.4