

BAYVIEW WATER AND SEWER DISTRICT

STANDARDS FOR PUBLIC WORKS CONSTRUCTION

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Prepared For:



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CHAPTER 1 GENERAL:

The Bayview Water and Sewer District (District) has adopted the 2020 Edition of the Idaho Standards for Public Works Construction (ISPWC). Prior to any development or construction, the contractors or developers shall review and comply with the District standards referenced in this document. The District has also made construction standards in conjunction with the ISPWC. These District standards include acceptable materials, construction practices, and other specified requirements, which may not be covered under the ISPWC standards.

The intention of these Construction Standards is not to conflict with the above stated standards but rather to supplement and specify construction methods, materials, sizes, and practices. If a question arises between the two because of a conflict, then this matter shall be brought to the attention of the District Engineer. When the following terms or titles are used in these Standards or in any document or instrument where these Standards govern, the intent and meaning shall be as herein defined below.

1. Definitions:

A. Best Management Practices (BMP's) – Shall mean schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the United States.

B. District Engineer – Shall mean the District Engineer of the Bayview Water and Sewer District or his/her designee.

C. Consulting Engineer – Shall mean any person, firm, partnership or corporation legally authorized to practice engineering in the State of Idaho who prepares land development/improvement plans and specifications for work with the District.

D. Design Professional – Any individual that is legally authorized / licensed to conduct work and prepare plans or reports related to their area of expertise.

E. Developer – Shall mean any person, firm, partnership, corporation or combination thereof, principally responsible for a land development/improvement project.

F. Development – Shall mean any act or process that changes the use or purpose of a parcel such as land grading, utility installation, street or building construction.

G. State Standards – Shall mean the latest edition of the Idaho Standards for Public Works Construction (ISPWC) and the Idaho State Standards governing water, wastewater and recycled water systems.

H. Contractor - Shall mean any person legally licensed by the Idaho Public Works Contractors Board in accordance with Title 54, Chapter 19, as amended, and is engaged in completing infrastructure projects for, associated with, or impacting the District.

2. Applicable standards: This section contains general guidance and requirements for the steps involved in starting a construction project and continuing all the way through to completion. The

Developer/Contractor shall construct all improvements in accordance with the plans and specifications approved by the District, and with the terms, covenants, and conditions, and conditions contained herein. The Developer/Contractor shall not incorporate any material or equipment into an improvement unless the District has approved its use. Unless the District specifically agrees otherwise in writing all materials, supplies, and equipment incorporated into an improvement shall be new.

If, in the course of construction, conditions appear which, in the exercise of reasonable engineering judgement, require a modification of, or substitution for, approved materials, equipment, plans, specification or contracts to meet an acceptable standard of performance, the developer shall make the modification or substitution. The District shall reasonably approve all such substitution that is deemed as equivalent to District standards.

The Developer/Contractor shall construct all facilities in the construction project, not otherwise subject to these standards for public works construction, in accordance with the applicable governing statutes, ordinances and specifications.

A. The current requirements of the following agencies and/or codes shall apply to general design requirements. Conflicts between these requirements and the agencies and documents listed below shall be resolved on a case-by-case basis.

1. State of Idaho, Department of Environmental Quality (IDEQ)
2. International Building Code
3. National Electrical Code
4. International Fire Code
5. Idaho State Plumbing Code
6. Idaho Standards for Public Works Construction (ISPWC)
7. Lakes Highway District Roadway Standards
8. IDAPA 58.01.08 Water
9. IDAPA 58.01.16 Sewer
10. AWWA (American Water Works Association)
11. Ten State Standards

B. All plans and specifications for land development/improvements which are to be owned and operated by the District shall be prepared, sealed and signed by the appropriately licensed Design Professional.

C. All complicated pumping facilities, treatment, and storage facilities will be designed by the District engineer including but not limited to well facilities, booster stations, water tanks, wastewater lift stations, and any wastewater treatment plant upgrades. Developer will be responsible for paying for the costs associated with the design and construction of these improvements. Utility plans will be the responsibility of the Developer.

D. All plans for the construction of water and sewer infrastructure to be owned by the District must be submitted to the District for review and approval prior to commencement of work.

E. Development/improvement or utility plans containing construction of or modifications to water systems, sanitary sewer systems, or recycled water systems require a review for compliance with state regulations. If the Developer wishes to use the District's Qualified Licensed Professional Engineer (QLPE) review service to conduct the required Idaho Department of Environmental Quality (IDEQ) review, an additional QLPE fee will be due before the plans are released to QLPE for review. The amount of the fee is based on the number of applicable pages reviewed. Any projects with recycled water systems, sewer lift stations, water wells, pressure reducing stations, pump stations or force mains may not be reviewed by the QLPE review service, and must be sent to IDEQ for review. If a developer does not wish to use the QLPE service, the developer is responsible for submitting the plans to IDEQ for review and approval.

F. A pre-construction meeting will be scheduled once all agency approvals have been obtained, and Lakes Highway District has approved the roadway portion of the Improvement Plans (if applicable).

G. Stormwater - Contractor will be responsible for all erosion and sediment controls, permits, and documentation for the project. Contractor is responsible for mitigating stormwater impacts to existing infrastructure. In the event stormwater is negatively impacting existing infrastructure contractor will be responsible for correcting at their own expense.

CONTRACTOR REQUIREMENTS

3. Contractor Requirements: This section contains general guidance and requirements for the contractors completing infrastructure projects or, associated with, or impacting the District.

A. **Public Works Contractors License Requirement**: The Contractor and subcontractors for projects must be licensed in the state of Idaho by the Idaho Public Works Contractors State License Board for the Class, Type and specified value of work in accordance with the provisions of Title 54, Chapter 19, Idaho Code as amended. Contractors and subcontractors must provide evidence of such licensing with the construction form package.

B. **Liability Insurance**: The Contractor shall have liability insurance that covers the work being performed and naming the District as an additionally insured in the amounts sufficient to satisfy the obligations of the District pursuant to the Idaho Tort Claims Act, but in no case less than (\$1,000,000) for property damage or bodily or personal injury, death, or loss as result of any one occurrence or accident regardless of the number of persons injured or the number of claimants.

- C. **Surety Bond:** Contractor to provide surety bond in favor of the District from a company qualified by law to act as a surety in the state of Idaho and approved by the District, that covers the cost of the work to be performed:
- a. A detailed breakdown of expenses must be submitted.
 - b. Bond must remain in place for a period of 2 years following the date of completion of the installation of the utility as warrant for the work that was completed.

GENERAL PLAN REQUIREMENTS

CHAPTER 2 WATER:

1. General:

All materials, construction, testing, and inspection shall be in accordance with the current ISPWC Divisions 300, 400, and all other applicable divisions therein. In addition, all proposed work and developments within the District shall conform to the pertinent sections of IDAPA 58.01.08 "Idaho Rules for Public Drinking Water Systems." All proposed developments shall be submitted to the District for approval.

2. Fire Flow Requirements:

A. The water distribution system shall provide, at a minimum, fire flows in accordance with IDEQ requirements and IDAPA.

Determination of fire flow requirements on an individual basis shall be based, as a minimum, on the requirements of the adopted edition of the International Fire Code and the proposed building site, configuration, size and type. Exceptions can be evaluated on a case-by-case basis and must be reviewed by the Timberlake Fire Protection District.

B. The District Engineer shall review the existing water system conditions and the proposed layout of the development to make recommendations as to the minimum water main line size, additional water source, and/or storage requirements to developer.

C. Fire Hydrant Spacing:

- i. Hydrant spacing shall be at no more than 600-foot intervals.
- ii. Hydrant Spacing shall be reviewed and approved by the District's Staff during the standard review required by District Ordinance.
- iii. Hydrant spacing shall be reviewed and approved by the Timberlake Fire Department.
- iv. All water mains installed on cul-de-sacs or similar dead-end streets shall have a flushing hydrant located at the end of the water line.
- v. All water main stubs and dead ends main stubbed for future development shall have a minimum of a 4-inch blow-off or flushing hydrant.

D. Materials:

- i. Fire Hydrants shall be psi (minimum) Waterous produced by American Flow Control and painted with two coats of approved red Hydrant Enamel. All fire hydrants shall have a Storz Coupler on the steamer port. Storz couplers shall be manufactured by Red Head Brass, or Angus Fire.
- ii. Fire Hydrants shall be in accordance with the current edition of the ISPWC Section 403.
- iii. Flushing hydrants shall be manufactured by Kupferle or equivalent and approved by the District.

Water Pipe, Fittings and Valves:

E. Materials: All Water Pipe, Fittings, and Valves shall be in accordance with current edition of the ISPWC Section 401.2 and 402.2. Water pipe, Fittings and Valves shall be District approved equivalent or the following:

i. Water Pipe:

- a. AWWA C900 PVC Class 150 DR 18 pipe or AWWA C909 PVC for diameters up to 12".
- b. AWWA C905 PVC 165 psi DR 25 pipe or AWWA C909 PVC for diameters larger than 12".
- c. HDPE for special cases may be allowed but must be approved by the District on a case by case basis.

ii. Fittings: Ductile Iron flanged fitting ANSI/AWWA C153.

iii. Valves:

- a. Ductile Iron flanged valves ANSI/AWWA C509 and color Blue.
- b. Tracer wire at all valves shall be located on the outside of the valve box and pass between the valve box and the slip top. The wire is not allowed to come into the valve box from the bottom. Wire to be 12 ga solid cord insulated wire (color blue).
- c. Water valves manufactured by American Flow Control or equal as approved by District Engineer.

F. Trench Backfill: Type A backfill according to the specifications set forth in the current edition of the ISPWC section 306.3.3.

G. Thrust Blocks: Thrust blocks shall be placed in dry conditions and in accordance to the specifications set forth in the current edition of the ISPWC, SD-403.

H. Testing: Water Mains shall be tested by the Contractor prior to permitting such water mains to be open to the distribution system. District personnel or designer shall be present during all water main testing. Failure to have District personnel present is sufficient reason for requirement to retest. Developer's engineer shall provide certification of testing and testing results to the District and District Engineer.

- i. Disinfection: Water mains shall be disinfected according to the specifications set forth in the current edition of the ISPWC section 401.3.9 prior to leak and pressure testing.
- ii. Pressure Testing: Water mains shall be pressure tested according to the specifications set forth in the current edition of the ISPWC section 401.3.6. exceptions are as follows:
 - a. If pressure during testing drops 5 psi or more the test is considered to have failed regardless of if leakage is below allowable. Contractor must obtain passing pressure tests and will be responsible for obtaining a passing pressure test.
 - b. All valves shall be exposed prior to any testing.
- iii. Trench Compaction Testing for installations outside of roadway right of way: Trench compaction testing shall be performed once every 300 linear feet of water line placed with a minimum of two test locations. Testing and retesting shall be in accordance with the specifications set forth in the current edition of the ISPWC section 306.3.3.8.
- iv. Trench Compaction Testing for installations inside roadway right of way: Trench compaction testing shall be performed in accordance with Lakes Highway District trench compaction requirements.

I. Location: Water mains shall be designed so a minimal number of non-potable water crossings occur in the construction for developments and that they generally follow the center line of streets as close as possible. All water line locations will be approved by the District or the District Engineer. Valves that are connected to the District main lines become District property and can only be operated by District personnel. In cases where water pipe crosses a non-potable water line constructed with water class pipe, water mains shall maintain a minimum clearance from all other utilities of at least 12 inches vertical and 4 feet horizontal, except non-potable water pipelines which shall maintain separation recommendations as set forth by the Idaho Rules for Public Drinking Water Systems.

- i. The water mains shall be shown in the plan view and must identify pipe size, pipe material, location of valves, fire hydrants, existing water lines, air release/vacuum valves, blow-offs, water services, and all other appurtenances public or private including easements. Water mains shall be shown in the profile view where potential conflicts with other utilities exist.

- J. Size: Water main sizes shall be the following except when otherwise recommended by the District Engineer for fire flows or other system conditions:
- i. Minimum size is 8" in diameter.
 - ii. 10" diameter lines shall be placed when water mains are placed on or adjacent to quarter section lines.
 - iii. 12" diameter lines shall be placed when water mains are placed on or adjacent to section line and on and water improvements along Perimeter Road.
- K. Valve configuration shall be as follows:
- i. All tees as a minimum shall have valves on all legs of tee.
 - ii. All crosses shall have valves on all legs.
 - iii. When connecting new water line to an existing water line that is 10" or greater, a valve at all branches (except at a hydrant) is required.
- L. Cover: Water mains shall have minimum of five feet cover and maximum cover of six feet. Cover greater than six feet may be allowed where obstructions occur, but must be approved by the District.
- M. Dead-end Water Mains:
- i. Dead end mains shall be avoided whenever possible.
 - ii. Dead end water mains shall only be permitted when phased development is approved and water service scheduled to continue along the water main run, or on approved cul-de-sacs.
 - iii. Dead-end water mains shall terminate with a valve followed by at least 10 feet of water line with an end cap and thrust block clearly marked at the surface.
 - iv. Dead end water mains shall have a Fire Hydrant/blow-off within 10 feet of the termination of the main.
 - v. A water valve shall be placed at the nearest tee, cross, or other on the leg of the dead-end run.
 - vi. Water mains that are allowed to remain in the ground after abandonment shall have each end filled with cement grout. The grout plug shall extend 20-feet into the pipe. The size and type of water main to be abandoned shall be noted on the plans with a requirement for the contractor to verify.

N. Water Main Stubs: No water services shall be installed on water mainstubs to future developments.

O. Water Mains shall be extended to the furthest property boundary.

P. Water Valves shall be anchored to tees or crosses when appropriate with all-thread bolts (stainless steel or galvanized) or strapped to thrust blocks with galvanized straps and approved by the District.

Q. At all times, when laying pipe is not in progress, open-end pipe shall be closed by watertight plug.

R. Contractors working in the District are not to open, close, or tamper with any valve. The contractor shall provide 72 hours' notice to the District when a valve needs to be opened or closed.

3. Water Services:

A. Service Lines: Service lines shall be minimum 1" 200 psi poly pipe with tracer wire from water meter to water main.

B. Saddle: Saddles for water mains shall be double strapped stainless steel, A.Y. McDonald or Ford or District approved equivalent. Saddle required at all main line connections.

C. Corporation Stop: Corporation stops shall be AY MacDonald, Ford, or District approved equivalent. Corporation stops required at all main line connections.

D. Curb Stop: Curb stops shall be A.Y. Macdonald or Ford or District approved equivalent. A curb stop is required at the base of the meter setter on the water main side. Ductile iron Tyler Union Valve risers are required, or District approved equivalent.

E. Meter Setter: Meter setters shall be a 1" Coil Pit A. Y. McDonald NL Coil Setter – 790-448KPPP 440x18, or District approved equivalent, and have a dual check valve with thermal packs, cast iron lid with 2" hole for meter antenna. A five (5) foot section of 200 psi poly pipe with tracer wire shall be extended on the customer side of the meter vault. Meter setter shall be centered in meter vault.

F. Meters: All water meters shall be a one-inch (1") Metron-Farnier LTE Cellular Read Water Meter as approved by the District.

G. Location: Water services shall be located within the District's right of way approximately one foot (1') from the property line unless otherwise approved by the District or the District Engineer. A one-inch (1") diameter electrical conduit shall be provided between meter vaults that adjoin a common property lot line.

H. The developer shall provide and install all materials for water services except the water meter. The District shall provide water meter and be reimbursed for the cost by the developer.

4. Construction:

A. By licensed plumber and/or public works license.

B. By authorization of Superintendent of District.

5. Pressure Reducing Valve (PRV) Stations: Pressure Reducing Valve Stations maybe required for development that occurs at or near planned pressure zone boundaries. Determinations for requiring PRVs will be made by the Engineer through modeling and fire flow demands. If a PRV is required to serve a new development, the District will purchase and install the PRV, interior piping, valves and telemetry equipment needed to operate the new PRV. The developer will be responsible for the following:

A. Providing for the location of the PRV vault. Landscaped areas are preferred to street installations.

B. Providing an easement for installations outside of the public right- of-way.

C. Purchasing and installing the concrete vault as required by the District per specifications provided by Engineering Division.

D. Providing electrical service to the vault. Coordinate location and electrical requirements with the Engineering Division.

E. Providing conduit run per standard detail to a suitable site for antenna.

F. Stubbing the water mainline to the inside of the vault and installing PVC water pipe between the ductile iron spools where the PRV valves and appurtenances will be installed by the District at a later date.

With approval of the District Engineer, the developer may construct the entire PRV vault including valves and appurtenances and seek reimbursement from the District. An agreement outlining the terms and conditions for reimbursement must be entered into prior to construction.

Note – the PRV plans and specifications will need to be submitted by the District to the Department of Environmental Quality for approval.

6. Booster Stations: Booster Stations may be required for development that occurs at or near a pressure zone boundary. Booster stations shall meet the requirements found in the Idaho Rules for Public Drinking Water Systems. Required pumping capacity for booster stations shall be determined by the District Engineer through modeling for the service area and planning period. Booster station pumping facilities will be designed, constructed, and managed by the District Engineer. Individual booster stations will be evaluated on an individual basis and IDEQ approval. The developer will be responsible for the following:

- A. Providing for the suitable location of the booster station site by providing a deed. Minimum lot size shall be 140 feet by 140 feet.
- B. Providing 14-foot wide paved access to the booster station site.
- C. Providing three-phase electrical service to the site. Coordinate location and electrical requirements with the District Engineer.
- D. Stubbing the water mainlines and service lines to the site, providing easements as required.
- E. If architectural and landscape features other than a chain link fence, minimum landscaping requirements per District's development requirements, and split face block building with metal roof are desired to screen and otherwise blend into the neighboring surroundings, the developer will be required to coordinate with and compensate the District for these additional expenses.
- F. Backup power will be required for any pump facilities.

Note –the booster station plans and specifications will need to be submitted by the District to the Department of Environmental Quality for approval.

7. Wells and Well Lots: Test wells, production wells, buildings and pumping facilities will be designed and constructed through capital projects managed by the Engineering Division. The developer will be responsible for the following:

- A. Providing for the suitable well site by providing a deed. Minimum lot size shall be 140 feet by 140 feet.
- B. Providing 14-foot wide paved access to the well site.
- C. Providing three-phase electrical service to the site. Coordinate location and electrical requirements with the Engineering Division.
- D. Stubbing the water main and service line to the site. Provide easements as required. Whenever possible, wells should be located near creeks or drains that allow for flushing.
- E. Providing an easement for a flush line, or a flush line and easement if development occurs prior to the District capital project.
- F. If architectural and landscape features other than a chain link fence, minimum landscaping requirements per District's development requirements, and split face block building with metal roof are desired to screen and otherwise blend into the neighboring surroundings, the developer will be required to coordinate with and compensate the District for these additional expenses.

Note –the well plans and specifications will need to be submitted by the District to the Department of Environmental Quality for approval. Additionally, the well development process can take multiple years for permitting, testing, development,

design and construction.

CHAPTER 3 SANITARY SEWER:

1. General:

All materials, construction, testing, and inspection shall be in accordance with the current edition of the ISPWC Divisions 300, 500, and all other applicable divisions therein. All proposed developments shall be submitted to the District according to District Ordinance. Sanitary Sewer pipe shall extend to the boundaries of the development.

2. Sanitary Sewer Pipe:

A. **Materials:** Sewer pipe shall be PVC C-900 or HDPE pipe or District approved equivalent. Trench Backfill shall be Type A backfill according to the specifications set forth in the current edition of the ISPWC section 306.3.3. Trench shall include nonmetallic tape identifying the Sanitary Sewer pipe.

B. **Testing:** Sanitary Sewer Mains shall be tested by the Contractor prior to permitting such sewer main to be open to the collection system. District personnel or designated representative shall be present during sewer main testing. Failure to have District personnel or designated representative present during all testing is sufficient reason for requirement to retest. Developer's engineer shall provide certification of testing and testing results to the District and District Engineer.

C. **Pressure Testing:** Sanitary Sewer mains shall be pressure tested according to the specifications set forth in the current edition of the ISPWC.

D. **Visual Test:** A televised video of all sections of sewer mains shall be provided to the District. All visible leaks shall be repaired, even though the leakage may be below allowable limits. All repairs shall be inspected by the District prior to backfilling.

E. **Trench Compaction Testing:** Trench compaction testing shall be once every 300 linear feet of sewer line placed with a minimum of two test locations. Testing and retesting shall be in accordance with the specifications set forth in the current edition of the ISPWC.

F. At all times, when installing pipe is not in progress, open-end pipe shall be closed by watertight plug.

G. Terminate pipeline with manhole when stub extends greater than 100 feet unless otherwise approved by District.

H. Lines shall be extended to furthest property boundary.

3. Manholes:

A. **Materials:** Sewer manholes shall be constructed in accordance with current edition of the ISPWC.

B. Testing: Sanitary sewer manholes shall be tested prior to permitting such sewer manhole to be open to the collection system. Testing shall be in accordance with current edition of the ISPWC. District personnel or designated representative shall be present during testing. Failure to have District personnel or designated representative present during all testing is sufficient reason for requirement to retest. Developer's engineer shall provide certification of testing and testing results to the District.

C. Location: Sewer manholes shall be located within 5'-0" of the centerline of the street unless otherwise approved by the District or the District Engineer.

D. Grade rings: Cast in place concrete blocks shall be installed in place of grade rings. The block shall not exceed 12" in height and shall be grouted to the cone section of the manhole and to the manhole frame.

E. External sealing system: All manholes shall be watertight. An external sealing system shall be required to be installed on the outside of the manhole at the barrel joints in addition to the joint sealing system specified in the current edition of the ISPWC. The external sealing system shall be Inti-Shield manufactured by Sealing Systems Inc., or District approved equivalent.

F. Connection into an existing manhole or construction of a drop manhole or special manhole shall not be accepted without full time inspection by approved District staff or the District Engineer.

4. Pressure Sewer Pipes:

A. Materials: All pressure sewer pipes shall be in accordance with the current edition of the ISPWC. Pressure sewer pipe shall be District approved equivalent or the following:

- i. HPDE Pipe pressure class dependent on pumping design.
- ii. AWWA C900 PVC Class 150 DR 18 pipe or AWWA C909 PVC.
- iii. Air Relief/Clean-out stations shall be provided every 600 feet.

B. Testing: Sanitary sewer pressure mains shall be tested prior to permitting such sewer main to be open to the collection system. Testing shall be in accordance with current edition of the ISPWC. District personnel or designated representative shall be present during testing. Failure to have District personnel or designated representative present during all testing is sufficient reason for requirement to retest. Developer's engineer shall provide certification of testing and testing results to the District and District Engineer. Trench compaction testing shall be completed once every 300 linear feet of pressure line placed with a minimum of two test locations. Testing and retesting shall be in accordance with the specifications set forth in the current edition of the ISPWC.

C. Locating Wire Boxes: Shall be in accordance current edition of the ISPWC. Locating wire boxes shall be installed on pressure sewer mains at a maximum spacing of 400 feet.

D. Cover: Pressure sewer mains shall have a minimum of 48" cover and a maximum cover of 60". Cover greater than 60" may be allowed where obstructions occur but must be approved by the District.

5. Sewer Services:

A. Connection to Mains: Service wyes or tees shall be used on new main installations. Saddles are not acceptable. All sewer services shall be connected to the sewer main. In the event that a service is connected to a main line by means of a manhole, the service flow direction shall be pointed downstream and at an angle of less than 45 degrees to the direction of flow.

B. Sewer Service Shut-off: A tee in the sewer service line shall be located behind the sidewalk to allow for the insertion of a sewer plug on the service line. The tee shall be installed in accordance with ISPWC SD- 506A.

C. Service Markers: In addition to requirements set forth in the current edition of the ISPWC, sewer services shall also be marked with a 4-foot long 3/8-inch rebar and with a permanent stamp in the sidewalk. (with tracer wire) as approved by the district.

6. Sewage Lift Station:

A. District Review and Acceptance:

- i. All sewer lift stations shall be reviewed by the District and District Engineer prior to final plat submittal.
- ii. The District's Staff and the District Engineer shall approve the selected sanitary sewer lift station mechanical components, electrical components, and construction materials used in the proposed lift station prior to final plat approval.
- iii. The Developer's Engineer shall provide the District with a complete Operation and Maintenance Manual for the lift station prior to issuance of occupancy permits.
- iv. The Developer's Engineer shall provide for the District's Staff operation training prior to issuance of occupancy permits.

B. Wet Well:

- i. Wet wells shall have a minimum diameter of 6' made of precast concrete or District approved equivalent.
- ii. Wet well volume shall be at the minimum large enough to service the design area as defined by the District. Wet well volume requirements shall be determined using "The Ten States Standards" and the appropriate design parameters as defined by the District.
- iii. External sealing system: All manholes shall be watertight. An external sealing system shall be required to be installed on the outside of the manhole at the barrel joints in addition to the joint sealing system specified in the current edition of the ISPWC. The external sealing system shall be Infi-Shield manufactured by Sealing Systems Inc., or District approved equivalent.
- iv. Wet well shall have an access cover for the pump chamber. The cover shall be one size larger than required by the pumps, but not less than 36" x 48". The access hatch shall be aluminum and traffic rated.
- v. Wet well vents shall be no less than 4" in diameter and be covered with a mushroom carbon filter.
- vi. Wet wells shall have a drop manhole type influent for reduction of turbulence in wet well. The drop pipe shall be properly placed to prevent turbulence in pump cavities.
- vii. Wet wells shall have the pipe necessary for a minimum of a duplex pump system with surface bypass pumping capabilities.
- viii. Wet wells shall have an interior coating or liner approved by the District.

C. Valve Vault:

- i. A valve vault is required to house the valving and pipe necessary for a minimum of a duplex pump system with surface bypass pumping capabilities.
- ii. Vault shall meet all regulating agencies' requirements.
- iii. Valve vault shall have a floor drain with a shut off valve to drain accumulated water back to the wet well.
- iv. Access cover in valve vault shall have dimensions not less than 36" x 48". The access cover shall be made of aluminum and be lockable. The cover shall be traffic rated.

D. Sewer Lift Pumps:

- i. As a minimum, the station shall be sized for a duplex pumpingsystem.
- ii. Lift Pumps shall be designed for minimum solids handling capacityof 3".
- iii. Impeller shall be a non-clog grinder type impeller with adjustable wear plate.
- iv. Lift pumps shall be ABS or District approved equivalent.
- v. Stainless steel guide rails with a minimum diameter of 2".
- vi. Stainless steel lifting chain or ring sized for the specific pumps.
- vii. Stainless steel anchor bolts.
- viii. Stainless steel bolt packs with full face gaskets inside the wet well.
- ix. Explosion proof pumps.
- x. Pipe and cam lock fitting to pump back into discharge during powerlosses.
- xi. Variable frequency pumps shall be a minimum of 5 hp.
- xii. All pumps shall be soft start pumps. If required a phase converter will be incorporated due to not having three phase power or VFD pumps.

E. Station Piping and Valves:

- i. Piping into and out of the lift station and valve vault shall be ductile iron for a minimum of 10 feet.
- ii. Valves shall be stainless steel resilient ball valves or resilient swing check valves. Isolation valves shall be 3 turn resilient wedge plug valves, Mueller or District approved equivalent.
- iii. Piping and valving shall be designed such that the wastewater within the wet well can be re-circulated from the pressure main back into the wet well and/or through lift station pumps.

F. Back-Up Generator:

- i. A back-up generator shall be required and installed for all pumping facilities. Generators shall be fueled by natural gas or propane.

G. Site Requirements:

- i. The lift station lot shall be dedicated to the District.
- ii. Lift station yard shall be fenced using chain-link with privacy slats or other District-approved fencing material. Two access gates shall be provided with the following dimensions, 36"-man gate and 14'-0" vehicular gate.
- iii. Fenced lift station yard shall have a yard light with motion detector.
- iv. Site shall be fronted with District-approved buffering landscaping.
- v. Control building: The following shall be supplied with the control building:

- a. Premanufactured fiberglass or built-in place construction.
- b. Minimum interior dimension of 6' x 6'.
- c. An interior door light and an exterior motion light.
- d. Adjustable and on/off interior heating.
- e. SCADA System antenna mounting supports.
- f. Supports and mounts for the control system of the liftstation.
- g. Lift station slab shall be a 6" thick continuous fiber-mesh reinforced concrete slab sloped to approved floor drain.
- h. A streetlight shall be provided adjacent to the access road to the lift station.
- i. Station access shall be an approved gravel road 15 feetwide with 2-foot shoulder.
- j. A stainless-steel adjustable lift pump hoist shall be provided, Halliday D38368 or District approved equivalent.
- k. A stainless-steel embedded socket base shall be provided and installed to the District specifications for the lift pump hoist, Halliday or District approved equivalent.
- l. All access doors, gates, and hatches to have locks reviewed and approved by the District.

H. Controls:

- i. Control panel shall have a dead front enclosure.
- ii. Submerged transducers suited for sewage supported with removable stainless steel cable system.
- iii. Programmable level control with alternating or fixed relays.
- iv. Hand, Off, and Auto switches shall be provided for each pump.
- v. Elapsed time meters for each pump.
- vi. Accessible junction box above-ground with removable seals located on all cables entering the wet wells.
- vii. Manual transfer switch with generator receptacle.
- viii. 500-watt heater with thermostat in panel.
- ix. Seal fail indication on each pump.
- x. High Level/ Low Level alarm light with manual reset.
- xi. Outside alarm beacon illuminated when above alarms occur.
- xii. Automatic 4-channel real voice telephone dialer with 6-hour batteryback-up.
- xiii. U.L. listed control panel by same manufacturer as pumps with full electronic read-out.
- xiv. Gasketed cover on outer door.
- xv. Laminated schematic on inside of front door with panel serialnumber.
- xvi. Night light for panel repair at site.
- xvii. Lift station shall be remote radio and SCADA system control compatible. Facility to have adequate ventilation and humidity control to prevent corrosion to equipment.

I. Spares Parts:

- i. 1 each spare pump and motor.
- ii. 5 each spare fuses of each size.
- iii. 1 each spare relay of each size.
- iv. 1 each spare transducer with cable.

J. Local Service & Warranty:

- i. 5-year pro-rated warranty on pumps and 1 year on control panel.
- ii. Local factory authorized warranty repair facility within 100 miles of station location.

K. Construction:

- i. By licensed plumber and/or public works license.
- ii. By authorization of Superintendent of Public Works.