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November 14, 2024

EARLY CHILDHOOD CENTER AT TWO RIVERS SCHOOL
Snoqualmie Valley School District

A D D E N D U M N O. 1

Addendum no. 1 is hereby made a part of the Contract Documents for the EARLY CHILDHOOD CENTER AT TWO RIVERS SCHOOL Project, located in North Bend, for Snoqualmie Valley School District.

G E N E R A L I T E M S

Item 1 The best contact for questions pertaining to this project is the Architect, Scott Connor, at this number: **206-228-1014**.

S P E C I F I C A T I O N S

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Replace this specification section in its entirety. (Attached)
Changes are in RED.

Item 1 SECTION 01 57 13 - TESC

At 3.5, A: Change the words “Mukilteo School District” to read “Snoqualmie Valley School District”.

Item 2 SECTION 09 65 19 - RESILIENT TILE FLOORING

Two versions of this section were included in the specifications. This first section, starting with the line:

SECTION 09 65 19 - RESILIENT TILE FLOORING
Note this section added for **prep work only** – Final installation by others

is the correct version. The second section, without this line, is older. Please delete or cross out this second section.

Item 3 SECTION 21 13 13 - WET-PIPE SPRINKLER SYSTEMS

Add this specification section in its entirety. (Attached)

Item 4 SECTION 22 00 00 - GENERAL PLUMBING REQUIREMENTS

Add this specification section in its entirety. (Attached)

Item 5 SECTION 23 09 00 - INSTRUMENTATION AND CONTROL FOR HVAC

Add this specification section in its entirety. (Attached)

Item 6 SECTION 31 10 00 – SITE PREPARATION

At 1.6, A: Change the words “Mukilteo School District” to read “Snoqualmie Valley School District”.

At 3.10, E: Change the words “City of Mukilteo” to read “City of North Bend”.

At 3.10, F: Change the words “Mukilteo Water and Wastewater District Standards” to read “City of North Bend Standards”.

At 3.14, B: Change the words “Mukilteo School District” to read “Snoqualmie Valley School District”.

Item 7 SECTION 32 17 23 – PAVEMENT MARKINGS

At 2.2, A: Change the words “City of Mukilteo” to read “City of North Bend”.

Item 8 SECTION 33 30 00 - SANITARY SEWER

Add this specification section in its entirety. (Attached)

D R A W I N G S

Sheet A1.03 – SITE PLAN, NEW WORK

Item 1 Sewer line shown as indicated on original mechanical foundation drawing M1.00 and as added by addendum to civil drawings. Contractor to remove conc walks as required and patch after sewer work as called out on attached Addendum Drawings AA-01 and AA-02.

Sheet C400 – OVERALL STORM DRAINAGE AND UTILITY PLAN

Item 2 Sheet revised to show new and existing Sanitary Sewer. See revised sheet C400 attached.

Sheet C402 –STORM DRAINAGE AND UTILITY PLAN

Item 3 Sheet revised to show new and existing Sanitary Sewer. See revised sheet C402 attached.

END OF ADDENDUM NO. 1

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This section added per Addendum 1 in it's entirety.

SECTION 21 13 13
WET-PIPE SPRINKLER SYSTEMS

PART 1 – GENERAL

1.01 SUMMARY

A. Work Included: The work of this Section includes, but is not limited to, the design, provision, and testing of a complete fire protection system as described herein and as required by the Authorities having jurisdiction.

B. Section includes wet-pipe sprinkler system, system design, installation, and certification.

1.02 REFERENCES

A. National Fire Protection Association:

1. NFPA 13 - Installation of Sprinkler Systems.

1.03 SYSTEM DESCRIPTION

A. Provide complete fire protection systems as specified and as required by the Authorities Having Jurisdiction. Where there is conflict between local authority requirements or other standards, agency recommendations, and these drawings and specifications, conform with recommendations of standards agencies and requirements of local authorities. Design and install all systems in accordance NFPA 13 and all applicable codes, standards, and regulations.

B. Modify and expand the existing wet pipe sprinkler system to serve the remodeled areas and areas of the new addition as shown on the drawings.

C. System to provide coverage for building areas noted.

D. Provide hydraulically designed system to NFPA 13 light hazard occupancy requirements.

E. Determine volume and pressure of incoming water supply from water flow test data.

F. Interface system with building fire and smoke alarm system.

1.04 SUBMITTALS

A. Shop Drawings: Indicate layout of finished ceiling areas indicating sprinkler locations coordinated with ceiling installation. Indicate detailed pipe layout, hangers and supports, sprinklers, components and accessories. Indicate system controls.

B. Product Data: Submit data on sprinklers, valves, and specialties, including manufacturers catalog information. Submit performance ratings, rough-in details, weights, support requirements, and piping connections.

C. Design Data: Submit design calculations.

D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.05 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual locations of sprinklers and deviations of piping from drawings. Indicate drain and test locations.

B. Operation and Maintenance Data: Submit components of system, servicing requirements, record drawings, inspection data, replacement part numbers and availability, and location and numbers of service depot.

1.06 QUALITY ASSURANCE

A. Perform Work in accordance with NFPA 13.

B. Maintain one copy of each document on site.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Store products in shipping containers until installation.

B. Furnish piping with temporary inlet and outlet caps until installation.

1.08 EXTRA MATERIALS

A. Furnish extra sprinklers under provisions of NFPA 13.

B. Furnish suitable wrenches for each sprinkler type.

PART 2 – PRODUCTS

2.01 ABOVE GROUND PIPING

A. Steel Pipe: ASTM A53/A53M, Grade B Schedule 10 black.

1. Steel Fittings: ASME B16.9, wrought steel, butt welded; ASME B16.5, steel flanges and fittings; ASME B16.11, forged steel socket welded and threaded.
2. Cast Iron Fittings: ASME B16.1, flanges and flanged fittings; ASME B16.4, threaded fittings.
3. Malleable Iron Fittings: ASME B16.3, threaded fittings, ASTM 47.
4. Mechanical Grooved Couplings: Malleable iron housing clamps to engage and lock, "C" shaped elastomeric sealing gasket, steel bolts, nuts, and washers; galvanized for galvanized pipe.
5. Mechanical Formed Fittings: Carbon-steel housing with integral pipe stop and O-ring pocked and O-ring uniformly compressed into permanent mechanical engagement onto pipe.

B. Copper Tubing: ASTM 75; ASTM B88; Type M, hard drawn.

1. Fittings: ASME B16.22, wrought copper and bronze, solder joint, pressure type.
2. Joints: AWS A5.8 Classification BCuP-3 or BCuP-4 silver braze.

2.02 SPRINKLERS

A. Manufacturers:

1. Ansul Incorporated Model.
2. Automatic Sprinkler Corp.
3. Grinnell Corp.
4. Reliable Sprinkler Corp.
5. Tyco

B. Suspended Ceiling Type:

1. Type: Concealed pendant type with matching [push on] [clamp on] [screw on] escutcheon plate.
2. Finish: Chrome plated.
3. Escutcheon Plate Finish: Chrome plated.
4. Fusible Link: Glass bulb type temperature rated for specific area hazard.

C. Exposed Area Type:

1. Type: Standard upright type.
2. Finish: Chrome plated.
3. Fusible Link: Glass bulb type temperature rated for specific area hazard.

D. Side wall Type:

1. Type: Recessed horizontal side wall type with matching screw on escutcheon plate.
2. Finish: Chrome plated.
3. Escutcheon Plate Finish: Chrome plated.
4. Fusible Link: Glass bulb type temperature rated for specific area hazard.

2.03 PIPING SPECIALTIES

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install in accordance with NFPA 13.

B. Place pipe runs to minimize obstruction to other work.

C. Install piping in concealed spaces above finished ceilings.

D. Center sprinklers in two directions in ceiling tile and install piping offsets.

E. Hydrostatically test entire system.

F. Require test be witnessed by Authority having jurisdiction.

3.02 INTERFACE WITH OTHER PRODUCTS

A. Verify signal devices are installed and connected to fire alarm system.

3.03 CLEANING

A. Flush entire piping system of foreign matter.

3.04 PROTECTION OF INSTALLED CONSTRUCTION

A. Apply masking tape or paper cover to protect concealed sprinklers, cover plates, and sprinkler escutcheons not receiving field paint finish. Remove after painting. Replace painted sprinklers with new.

3.05 SCHEDULES

A. System Hazard Areas:

Location	System Type/Hazard
Offices, Classrooms	Light Hazard

END OF SECTION 21 13 13

This section added per Addendum 1 in it's entirety.

SECTION 22 00 00
GENERAL PLUMBING REQUIREMENTS

PART 1 – GENERAL

1.01 RELATED REQUIREMENTS

A. AIA Document A201 "General Conditions of the Contract for Construction" with supplements thereto, special conditions and applicable portions of Division 1 are hereby made a part of this division of the specifications and shall apply to work under this Division of the specifications.

1.02 WORK INCLUDED

A. The work of Division 22 consists of providing labor and products, and of performing all operations required for the complete operating installation of all mechanical systems as shown and specified, in strict accordance with this and all sections of these specifications, applicable drawings, terms, and conditions of the contract, and all applicable codes and ordinances governing installation of the various mechanical systems. Coordinate all work fully with the work of other crafts. Provide all systems complete and in proper operating order. This section of Division 22 is a part of all other sections of Division 22.

1.03 INTENT OF DRAWINGS

A. Drawings and specifications are complementary, each to the other; what is shown on one is as binding as if called for in both.

B. The drawings are partly diagrammatic and do not show all offsets in ducts or piping or exact location of piping, ducts, etc. Also, the drawings do not necessarily show in detail all features of the installation. It is the responsibility of the Contractor to provide equipment that fits into the space allotted and allows adequate acceptance clearances for installation, replacement, entry, servicing and maintenance.

C. Refer to details, diagrams and schematics, in addition to all Mechanical Specifications, for detailed requirements for isolating valves, drain valves, vents, instruments, flexible connectors and similar components.

D. If there appears to be insufficient space to install the mechanical work as shown, the A/E shall be notified prior to proceeding with the work. Failure to comply with this requirement will be considered sufficient cause to require altering the work, at no additional cost to the contract, as directed by the A/E.

1.04 CODES, PERMITS, STANDARDS, INSPECTIONS AND FEES

A. All materials furnished and all work installed shall comply with the current versions of the National Fire Codes of the National Fire Protection Association, International Building Code, International Mechanical Code, Uniform Plumbing Code, Washington State Energy Code, Federal, State and Local standards, with the requirements of local utility companies, and with the requirements of all governmental agencies and departments having jurisdiction.

B. All materials and equipment for the electrical portion of the mechanical systems shall bear the approval label, or shall be listed by the Underwriters' Laboratories, Inc.

C. The Contractor shall give all necessary notices, obtain all permits and pay all government sales taxes, fees and other costs, including utility connections or extensions, in connection with his work; file all necessary plans, arrange for all necessary inspections, prepare all documents and obtain all necessary approvals of all governmental departments having jurisdiction; obtain all required certificates of inspection for his work, and deliver three copies of same before request for acceptance and final payment for work.

D. The Contractor shall include in the work, without extra cost, any labor, materials, services, apparatus, drawings, in order to comply with all applicable laws, ordinances, rules and regulations.

E. Nothing in the Drawings or Specifications shall be construed as directing or permitting work which is not fully in conformance with Codes and Regulations.

F. Where the Drawings or Specifications indicate materials or construction which exceeds the quality or size required by Codes and Regulations, the provisions of the Drawings or Specifications take precedence over the requirements of the Codes and Regulations.

G. Any variance from code requirements shall be promptly reported to the A/E. No work shall be installed which is not in accordance with Codes and Regulations.

1.05 <u>REVIEW OF MATERIAL AND EQUIPMENT SUBMITTALS</u>

A. General: Procedures and requirements for submittals are addressed in Division 1. In addition, comply with specific requirements of the individual sections and as noted herein.

B. Submittals: Provide submittals for all products and systems described in Division 22 and shown on the Drawings to demonstrate compliance with the requirements of the project. Furnish equipment submittals in the manner described elsewhere in these Specifications. In addition, include data for review, organized as noted below. No work shall begin, or products ordered until submittals are approved.

C. Data Required for Review: Mark submittal literature clearly, bind 8-1/2 x 11 literature in three-hole, hard-backed, loose-leaf binders by individual sets, and include all equipment and material shown on drawings and specified. Submittals not organized and prepared as follows will be returned to the Contractor for compliance prior to any detailed review. Indicate the following:

1. Table of Contents listed by specification index sections.

2. Individual tabs numbered by specification section.

3. Specification reference and/or drawing reference for which literature is submitted.

4. Manufacturer's name and address, and supplier's name, address and telephone number.

5. Catalog designation or model number.

6. Rough-in data and dimensions.

7. Performance curves and rated capacities.

8. Motor characteristics and wiring diagrams.

9. Operation characteristics.

10. Catalogs, pamphlets, or other documents submitted to describe items on which approval is being requested shall be specific, and identification in catalog, pamphlet, etc., of item submitted shall be clearly made. Data of a general nature will not be accepted. When equipment submitted is of a different size or weight, or has different access, service or installation clearances, than the designed equipment, the equipment submittals shall clearly note the differences.

11. Wiring diagrams for the specific system operation.

12. Working construction drawings (shop drawings).

D. Partial Submittals: If other than a complete submittal is made, the Contractor may make partial submittals separated into complete specification section classifications. Piece-meal submittals will be returned without review, except for special situations.

E. Submittal review is for general design and arrangement only and does not relieve the Contractor from any of the requirements of the Contract Documents. Submittals will not be checked for quantity, dimension, fit, or proper technical design of manufactured equipment. Where deviations of substitute product or system performance have not been specifically noted in the submittal by the Contractor, provision of a complete and satisfactory working installation is the sole responsibility of the Contractor.

F. Equipment Deviations:

1. Items of equipment or material designated in the plans or specifications by use of a specific manufacture and number are so noted to indicate a standard of design and not necessarily to be restrictive. Substituted equipment or materials shall be equivalent in capacities, acoustical performance and electrical requirements to the equipment used as the basis for the design. <u>Note that a manufacturer's product may be listed as an approved substitute but may still have different electrical requirements from the product listed as the basis for the design.</u>

2. Where the Contractor proposes to use an item of equipment other than that specified or detailed on the drawing which requires any redesign of the structure, partitions, foundations, piping, wiring or any other part of the mechanical, electrical or architectural layout, all such redesign, all new drawings and detailing required therefore, and all additional construction costs, shall be prepared by the Contractor at his own expense and approved by the A/E.

3. Where such approved deviation requires a different quantity and arrangement of ductwork, piping, wiring, conduit, and equipment from that specified or indicated on the drawings, the Contractor shall furnish and install any such ductwork, piping, structural supports, insulation, controllers, motors, starters, electrical wiring and conduit, and any other additional equipment required by the system, at no additional cost to the Contract. The submittals shall clearly indicate any difference in requirements of other trades from the product listed as the basis for the design.

4. If the dimensions or access requirements for equipment submitted differ from equipment dimensions or access requirements indicated on the drawings the submittals shall be clearly marked to indicate the differences. The Contractor shall be responsible for selecting equipment which fits the available space as well as being equivalent to the specified equipment.

5. All materials shall be furnished and installed in conformance with Codes and Regulations.

6. All equipment of the same type, such as valves, fittings, fixtures, fans, control components, etc., shall be products of the same manufacturer, used as recommended by the manufacturer.

1.06 SHOP DRAWINGS

A. Shop drawings shall be submitted in accordance with the requirements of Division 1 and as specified under each Section of the specifications.

B. Prepare and submit working construction drawings where required to demonstrate proper planning for installation and arrangement of all work for specified systems. Drawings shall be drawn to scale and show dimensions where accuracy of location is necessary for coordination or communication purposes. Show work of all trades which may be pertinent to proper and accurate coordination. Provide required shop drawings for all air systems, sprinkler systems, mechanical rooms, equipment supports, and any product which may be fabricated for the Contractor or by the Contractor. Shop drawings shall be prepared on reproducible paper, all of the same size. 24" x 36" is the preferred drawing size. Scale of drawings shall be as appropriate for the work shown, with 1/4"=1'-0" the minimum acceptable scale.

C. Combined or separate shop drawings shall be prepared, as required, indicating:

1. Location, size and elevation of ductwork, seismic bracing, grilles, diffusers and registers, HVAC equipment, equipment bases and stands, and access doors in ceilings and walls.

2. Location and elevation of piping, seismic bracing, valves, cleanouts, piping access doors and plumbing fixtures.

3. Location, size and elevation of sprinkler piping, hangers, earthquake bracing, and equipment.

4. Location and elevation of electrical panels, transformers, junction boxes, sound speakers, cable trays, large conduits, and electrical equipment where they may interfere with the mechanical installation.

5. Location, size and elevation of beams, trusses, framing members, soffits, skylights, roof openings, fire separations, ceiling heights and other general construction items where they may interfere with the mechanical installation.

D. Following completion of preliminary shop drawings, the Contractor and subcontractors shall review and coordinate the shop drawings, resolve any conflicts and modify the shop drawings. The completed shop drawings, for submittal to the A/E, shall represent all elements of the complete installation, in conformance with the Contract requirements.

E. Review of shop drawings is to confirm compliance with the Contract Documents and shall not be considered as a guarantee of measurements of building conditions and conflicts. Where drawings are reviewed, said review does not mean that the drawings have been checked in detail; said review does not in any way relieve the Contractor from his responsibility or necessity of furnishing material or performing work as required by the Contract Drawings and Specifications. The Contractor shall notify the A/E of any deviation from requirements of the Contract Documents.

F. Failure of the Contractor to submit drawings in ample time for checking shall not entitle him to an extension of contract time, and no claim for extension by reason of such default will be allowed.

1.07 SCHEDULE OF VALUES

A. The schedule of Values for Mechanical work shall be prepared in accordance with Division 1 requirements. The breakdown of Mechanical work shall include the following categories:

1. Mobilization and Demobilization
2. Air and Water Balancing, Testing
3. Water Piping, underground
4. Water Piping, above ground
5. Waste and Vent Piping, underground
6. Waste and Vent Piping, above ground
7. Plumbing Fixture rough-in and carriers
8. Plumbing Fixtures
9. Plumbing Piping Insulation

1.08 ABBREVIATIONS/DEFINITIONS

A/E	Architect/Engineer
AGA	American Gas Association
AISC	American Institute of Steel Construction
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute
ARI	Air-Conditioning and Refrigeration Institute
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
AWWA	American Water Works Association
CAGI	Compressed Air and Gas Institute
CISPI	Cast Iron Soil Pipe Institute
F	degrees, Fahrenheit

FRP	Fiberglass Reinforced Plastic
FM	Factory Mutual Engineering Corporation
ICBO	International Conference of Building Officials
MSS	Manufacturer's Standardization Society
NEMA	National Electrical Manufacturer's Association
NEC	National Electrical Code
NFPA	National Fire Protection
psig	pounds per square inch gage pressure
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
UL	Underwriters Laboratories, Inc.
v	Volts
wp	Working Pressure (psig)
wg	Water gage

1.09 SPECIFICATION TERMINOLOGY

A. Streamlining: In many instances, the products, reference standards, and other itemized specifications have been listed without verbiage. In these cases, it is implied that the Contractor shall provide the products and perform in accordance with the references listed.

B. "Provide", as used in this division of the specifications, means furnish all material, labor, sub-contracts, and appurtenances required, including mark-up, and install to a complete, operating, finished condition.

C. "Install", as used in this division of the specifications, means to set in place and connect, ready for use and in complete, operating, finished condition, material that has been furnished by other than the Mechanical Contractor.

D. "Rough-in and Connect Only" means provide an appropriate system connection such as supplies with stops, continuous wastes with traps, shut-off valves required, and all piping connections, testing, etc., for proper operation, and to connect equipment furnished by other than the Mechanical Contractor. Equipment furnished is received, uncrated, assembled and set in place by supporting crafts unless they make prior arrangements to hire the mechanical installer for this work.

E. "Accessible" means arranged so that an average size man may complete any service required without disassembly or damage to the surrounding installation.

F. "Serviceable" means arranged so that the component or product in question may be properly serviced without disassembly, destruction, or damage to the surrounding installation or item being serviced.

G. "Product" is a generic term which includes materials, equipment, fixtures and any physical item used on the project.

1.10 DEMOLITION

A. Demolition of existing mechanical work is not specifically noted on the Drawings. the exact extent of demolition required must be verified by on-site review. The scope of demolition required is as follows:

B. Remove all existing piping and tubing, including hangers, valves, insulation and fittings, which is not to be re-used.

C. Remove all existing ductwork, including hangers, insulation, fittings, grilles, registers, louvers and dampers, which is not to be re-used.

D. Remove all existing mechanical equipment, including bases, supports, foundations, frames, vents, piping, electrical devices, control devices, control panels, and accessories, which is not to be re-used.

E. Remove and replace or reinstall all equipment, piping, ductwork and accessories which must be moved or disassembled in order to accomplish the work shown.

F. Install new piping connections, valves, fittings, insulation, and hangers, as necessary on any piping which is to remain in service, to provide a complete and functional system. Materials shall match existing materials, where possible, or shall be made compatible with existing materials. Insulation thickness shall be in accordance with the insulation specified for new piping.

G. Where there is any question as to whether materials are to be removed or are to remain, the Architect or Engineer shall be consulted.

H. Where mechanical materials are removed and the surrounding surfaces are to remain, the surfaces shall be repaired, rebuilt and patched, with the quality of work and materials to be in conformance with the requirements of other sections of the Specifications. Fire rated construction shall be patched to maintain the fire rating.

I. The Owner has the right to retain ownership of any materials being removed. Other materials shall be the property of the Contractor and shall be promptly removed from the site.

J. Maximum precautions shall be taken to provide protection for the existing building and equipment from damage. Prevent water and dust from entering the existing building.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

3.01 COOPERATION WITH OTHER TRADES

A. This Contractor shall give full cooperation to other trades and shall furnish in writing to other contractors, with copies to the A/E, any information necessary to permit the work of all trades to be installed satisfactorily, with the least possible interference or delay, and with maximum headroom and clearance.

B. The Contractor shall furnish to other trades, as required, all necessary templates, patterns, setting plans, and shop details for the proper installation of work and for the purpose of coordinating adjacent work.

3.02 PROTECTION

A. The Contractor shall protect all work and material from damage by his work or workmen and shall be liable for all damage thus caused.

B. The Contractor shall be responsible for work and equipment until finally inspected, tested, and accepted; he shall protect work against theft, injury or damage; and shall carefully store material and equipment received on site which are not immediately installed. He shall close open ends of work with temporary covers or plugs during storage and construction to prevent entry of obstructing material.

3.03 SCAFFOLDING, RIGGING, HOISTING

A. The Contractor shall furnish all scaffolding, rigging, hoisting, and services necessary for erection and delivery into the premises of any equipment and apparatus furnished. Remove same from premises when no longer required.

3.04 ELECTRICAL WORK

A. The Electrical Contractor is responsible for providing motor starters and motor circuit protective devices for equipment included in Division 22 and 23 unless the starters are supplied as an integral part of the equipment or as specified otherwise.

B. The Electrical Contractor is responsible for providing power outlet boxes for each piece of equipment, installing electrical devices and connecting them to the equipment.

C. Electrical components provided with mechanical equipment shall be compatible with the electrical services to which they are to be connected.

D. Interconnecting wiring between components of Mechanical equipment, when the wiring is not a part of the power wiring to the equipment, shall be provided by the Mechanical Contractor.

E. All control equipment and wiring, interlock wiring between components, and control sequences shall be provided so that the equipment, including auxiliary devices, operates correctly and completely under all sequences. All control wiring circuits shall be on emergency power when the equipment controlled is on emergency power.

3.05 MATERIAL AND WORKMANSHIP

A. All materials and apparatus required for the work shall be new, of first-class quality, and shall be furnished, delivered, erected, connected and finished in every detail, and shall be so selected and arranged as to fit properly into the building spaces. Where no specific kind or quality of material is given, a first-class standard article as approved by the A/E shall be furnished.

B. The Contractor shall furnish the services of an experienced superintendent, who shall be constantly in charge of the installation of the work, together with all skilled workmen, fitters, metal workers, welders, helpers and labor required to unload, transfer, erect, connect-up, adjust, start, operate, and test each system.

C. Unless otherwise specifically indicated on the plans or specifications, all equipment and materials shall be installed with the approval of the A/E in accordance with the recommendations of the manufacturer. This includes the performance of such tests as the manufacturer recommends.

D. As required by requirements of the Mechanical Specifications, other portions of the Specifications, and Standards to which reference is made in the Specifications, or where prohibited by Codes, Regulations and Ordinances, no materials shall be installed which exceed the allowable limits of flame-spread or smoke-developed indexes, or which do not meet the requirements for Approved Plastic Materials as defined in the Uniform Building Code. (No exposed PVC materials shall be installed in the building.)

3.06 INSTALLATION

A. Cutting and Patching: Keep cutting and patching to a minimum. If required, all patching shall conform to specifications for the new General Construction work. Finish to match existing work. Conform to Division 1.

B. Measurements: Verify space availability by field measurement prior to submitting shop drawings for approval.

C. Roughing-In Dimensions: Obtain roughing-in dimensions for equipment from approved shop drawings or actual equipment measurements.

D. Manufacturer's Installation Instructions: Follow manufacturer's written instructions where furnished. If the details are in conflict with design drawings, notify the A/E prior to proceeding with the installation.

E. Accessibility: Install all equipment which requires periodic servicing or repairs, so it is readily accessible. Otherwise, obtain the A/E's approval of location.

F. Provision for Light Fixtures: In installing piping and ductwork, allow clearance for light fixtures. If interferences occur, move the piping or ducts and, if not possible, notify the A/E.

G. Delivery, Storage, and Handling.

1. Handle, store and protect equipment and materials to prevent damage before and during installation in accordance with the manufacturer's recommendations and as approved by the A/E. Replace damaged or defective items.

2. Factory finished equipment which is damaged shall be refinished as required to bring the equipment to a like-new condition in accordance with manufacturer's recommendations. If, in the opinion of the A/E, the equipment cannot be satisfactorily repaired, the equipment shall be replaced.

3.07 AS-BUILT DRAWINGS

A. Furnish one set of as-built drawings to the A/E in conformance with the requirements of Division 1.

B. As-built drawings shall show all buried piping and duct work, with dimensions given to permanent, easily identified building features.

C. As-built drawings shall indicate locations of all valves, dampers, and other access points which are above ceilings or concealed in walls. Valve numbers shall be indicated on the As-Built Drawings.

3.08 PRESSURE VESSEL CERTIFICATES

A. Construct and label to conform with the Boiler and Unfired Pressure Vessels Inspection Law of the State of Washington. Provide, for each item, a framed certificate under glass. Mount on wall near boiler or pressure vessel.

3.09 OPERATING AND MAINTENANCE INSTRUCTIONS AND MANUALS

A. Prepare three copies of an Operating and Maintenance Manual for all equipment provided under Division 22 in accordance with Division 1.

B. Contents:

1. Operating and Maintenance Manuals shall include operating information, maintenance information, control information, parts lists, filter information when applicable, lubrication information and exploded view diagrams when applicable.

2. Information shall be arranged in an orderly manner, generally in the sequence of the specifications.

3. An index shall list the contents of each section of the manual, with index tabs matching the index. The index page shall list the name, address, and telephone number of the mechanical contractor. The index page of each section shall list the name, address, and telephone number of the contractor or subcontractor responsible for the products included in that section of the manual.

4. The index page shall list the name, address, and telephone number of a 24-hour, seven-day emergency organization; either the contractor or a service organization authorized to represent the contractor.

5. The temperature control section shall include information for control components, control diagrams, sequences of operation, and As-Built drawings of the controls. When applicable, the control section shall include point-to-point test lists and other testing, adjusting and calibration documentation.

6. The manuals shall include Testing and Balancing Reports.

C. Manuals shall be provided in high quality, three-ring binders. The outside of the binders shall be printed or stamped with the name of the project, the names of the Owner, Consulting Engineer, and Contractor, and the year the project was completed. The identification shall be permanently attached, contrasting color to the binder and sized appropriately. Plastic tape labels will not be considered permanent labels.

D. Submit one preliminary copy of the manual for review by the A/E prior to assembling the final copies. This preliminary copy will be returned, and with any required additions and corrections, can be used as one of the final copies of the manual.

E. Submit the final manuals before requesting final payment.

3.10 GUARANTEES AND WARRANTIES

A. Submit written copies of all guarantees and warranties prior to requesting final payment.

3.11 COMPLETION OF WORK

A. When requesting final inspection, give ten days' notice. Submit written certification that the work has been fully completed in strict accordance with plans and specifications.

3.12 INSPECTION

A. Submit written certification of inspection from the governing building authority stating that all work has been inspected, accepted and approved as complying with existing governing ordinances and codes.

END OF SECTION 22 00 00

This section added per Addendum 1 in it's entirety.

SECTION 23 09 00
INSTRUMENTATION AND CONTROL FOR HVAC

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes control equipment for plumbing, and HVAC systems and components.

B. Related Sections include the following:

1. Section 230993 “Sequence of Operation for HVAC Controls.”

1.03 DEFINITIONS

A. DDC: Direct digital control.

B. I/O: Input/output.

C. MS/TP: Master slave/token passing.

D. PC: Personal computer.

E. PID: Proportional plus integral plus derivative.

F. RTD: Resistance temperature detector.

1.04 SYSTEM PERFORMANCE

A. Comply with the following performance requirements:

1. Graphic Display: Display graphic with minimum 20 dynamic point with current data within 10 seconds.

2. Graphic Refresh: Update graphic with minimum 20 dynamic points with current data within 8 seconds.

3. Object Command: Reaction time of less than two seconds between operator command of a binary object and device reaction.

4. Object Scan: Transmit change of state and change of analog values to control units or workstation within six seconds.

5. Alarm Response Time: Annunciate alarm at workstation within 45 seconds. Multiple workstations must receive alarms within five seconds of each other.

6. Program Execution Frequency: Run capability of applications as often as five seconds but selected consistent with mechanical process under control.

7. Performance: Programmable controllers shall execute DDC PID control loops, and scan and update process values and outputs at least once per second.

8. Reporting Accuracy and Stability of Control: Report values and maintain measured variables within tolerances as follows:

   a. Space Temperature: Plus or minute 1 deg. F.

   b. Ducted Air Temperature: Plus or minus 1 deg. F.

   c. Outside Air Temperature: Plus or minus 2 deg. F

   d. Dew Point Temperature: Plus or minus 3 deg F.

   e. Temperature Differential: Plus or minus 0.25 deg F.

   f. Relative Humidity: Plus or minus 5 percent.

   g. Airflow (Pressurized Spaces): Plus or minus 3 percent of full scale.

   h. Airflow (Measuring Stations): Plus or minus 5 percent of full scale.

   i. Airflow (Terminal): Plus or minus 10 percent of full scale.

   j. Air Pressure (Space): Plus or minus 0.01-inch wg.

   k. Air Pressure (Ducts): Plus or minus 0.1-inch wg.

   l. Carbon Dioxide: Plus or minus 50 ppm.

   m. Electrical: Plus or minus 5 percent of reading.

1.05 ACTION SUBMITTALS

A. Product Data: Include manufacturer’s technical literature for each control device. Indicate dimensions, capacities, performance characteristics, electrical characteristics, finishes for materials, and installation and startup instructions for each type of product indicated.

   1. Control System Software: Include technical data for operating system software, operator interface, color graphics, and other third-party applications.

   2. Controlled Systems: Instrumentation list with element name, type of device, manufacturer, model number, and product data.

B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

   1. Bill of materials of equipment indicating quantity, manufacturer, and model number.

   2. Schematic flow diagrams showing fans, pumps, coils, dampers, valves, and control devices.

   3. Wiring Diagrams: Power, signal, and control wiring.

4. Details of control panel faces, including controls, instruments, and labeling.

5. Schedule of dampers including size, leakage, and flow characteristics.

6. Schedule of valves including flow characteristics.

7. DOC System Hardware:

    a. Wiring diagrams for control units with termination numbers.

    b. Schematic diagrams and floor plans for field sensors and control hardware.

    c. Schematic diagrams for control, communication, and power wiring, showing trunk data conductors and wiring between operator workstation and control unit locations.

8. Control System Software: List of color graphics indicating monitored systems, data (connected and calculated) point addresses, output schedule, and operator notations.

9. Controlled Systems:

    a. Schematic diagrams of each controlled system with control points labeled and control elements graphically shown, with wiring.

    b. Scaled drawings showing mounting, routing, and wiring of elements including bases and special construction.

    c. Written description of sequence of operation including schematic diagram.

    d. Points list.

1.06 INFORMATIONAL SUBMITTALS

A. Data Communications Protocol Certificates: Certify that each proposed DOC system component complies with ASHRAE 135 (BACnet).

B. Qualification Data: For Installer:

    1. Installer that will perform the work shall have completed at least 5 control system installations of same type and design as specified system.

    2. Installer responsible for programming controllers shall have 2 years minimum experience programing controllers of same manufacturer.

C. Software Upgrade Kit: For Owner to use in modifying software to suit future systems revisions or monitoring and control revisions.

D. Field quality-control test reports.

1.07 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For HVAC instrumentation and control system to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 01, include the following:

1. Maintenance instructions and lists of spare parts for each type of control device and compressed-air station.

2. Interconnection wiring diagrams with identified and numbered system components and devices.

3. Keyboard illustrations and step-by-step procedures indexed for each operator function.

4. Inspection period, cleaning methods, cleaning materials recommended, and calibration tolerances.

5. Calibration records and list of set points.

B. Software and Firmware Operational Documentation: Include the following:

1. Software operating and upgrade manuals.

2. Program Software Backup: On a magnetic media or compact disc, complete with data files.

3. Device address list.

4. Printout of software application and graphic screens.

5. Software license required by and installed for DOC workstations and control systems.

1.08 QUALITY ASSURANCE

A. Design Intent and Sequence of Operations Conference: After review of contract documents and prior to finalizing and submitting submittals, meet with Engineer at engineer's office to verify design intent and sequence of operations. Require the participation of the control system project manager. Provide seven days' advance notice of scheduled meeting time.

1. Agenda Items:

a. General questions.

b. Recommended sequence improvements.

c. Identified discrepancies.

B. Installer Qualifications: Automatic control system manufacturer's authorized representative who is trained and approved for installation of system components required for this Project.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

D. Comply with ASHRAE 135 for DOC system components.

1.09 DELIVERY, STORAGE, AND HANDLING

A. Factory-Mounted Components: Where control devices specified in this Section are indicated to be factory mounted on equipment, arrange for shipping of control devices to equipment manufacturer.

B. System Software: Update to latest version of software at Project completion.

1.10 COORDINATION

A. Coordinate location of thermostats, humidistats, and other exposed control sensors with plans and room details before installation.

B. Coordinate with Division 26 for supply of conditioned electrical branch circuits for control units and operator workstation.

C. Coordinate equipment with Division 28 to achieve compatibility with fire alarm system.

1.11 WARRANTY

A. General: Provide services, material and equipment necessary for the successful operation of control system during warranty period.

B. Support: Support services shall allow the control contractor to monitor and control the facility's building control system remotely. The remote connection shall be within two hours of the time that the problem is reported. If the problem cannot be resolved remotely, control contractor shall send appropriate personnel to the facility within 4 hours of time that the problem is reported. Support shall be available 24 hours a day, 7 days a week.

C. System Software: Update to latest version of software at end of warranty period.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.02 CONTROL SYSTEM

A. Manufacturers: For standardization, the owner has selected the following control systems and providers. No substitutions.

B. Honeywell.

C. Control system shall consist of sensors, indicators, actuators, final control elements, interface equipment, other apparatus, accessories, and software connected to distributed controllers operating in multiuser, multitasking environment on token-passing network and programmed to control mechanical systems. An operator workstation permits interface with the network via dynamic color graphics with each mechanical system, building floor plan, and control device depicted by point-and click graphics. Graphics, trends and alarms shall meet the existing owner standards.

D. Scope: Install BACnet based controls to the current district wide BACnet based Compass system. Provide an ACM controller (building level controller) to support BACnet for the controllers that are required for the project. The ACM controller shall be designed to support additional controllers as required to bridge any new BACnet controllers to the Compass system. This ACM shall be provided as part of a future control system.

2.03 DDC EQUIPMENT

A. System Control Units: Modular, comprising processor board with programmable, nonvolatile, random-access memory; local operator access and display panel; integral interface equipment; and backup power source.

1. Units monitor or control each 1/0 point; process information; execute commands from other control units, devices, and operator stations; and download from or upload to operator workstation or diagnostic terminal unit.

2. Stand-alone mode control functions operate regardless of network status. Functions include the following:

a. Global communications.

b. Discrete/digital, analog, and pulse 1/0.

c. Monitoring, controlling, or addressing data points.

d. Software applications, scheduling, and alarm processing.

e. Testing and developing control algorithms without disrupting field hardware and controlled environment.

3. Real Time Clock with UPS battery backup. UPS shall have capacity to maintain real time clock in event of power failure.

4. Standard Application Programs:

a. Electric Control Programs: Demand limiting, duty cycling, automatic time scheduling, start/stop time optimization, night setback/setup, on-off control with differential sequencing, staggered start, antishort cycling, PID control, DOC with fine tuning, and trend logging.

b. HVAC Control Programs: Optimal run time, supply-air reset, supply-water reset, and enthalpy switchover.

c. Programming Application Features: Include trend point; alarm processing and messaging; weekly, monthly, and annual scheduling; energy calculations; run-time totalization; and security access.

d. Remote communications.

e. Maintenance management.

f. Units of Measure: Inch-pound and Sl (metric).

5. Remote Communications:

a. Telecommunications port permitting remote communications.

b. Remote access shall provide full access to system.

c. Alarms communicated by email and by phone calls.

6. Local Communications:

a. Port permitting direct connection of Operator Workstation.

7. Memory

a. Modular data storage allowing additional memory to be added in the field.

b. 10 percent spare capacity.

8. Local operator interface provides for download from or upload to operator workstation or diagnostic terminal unit.

9. ASHRAE 135 Compliance: Control units shall use ASHRAE 135 (BACnet) protocol and communicate using ISO 8802-3 (Ethernet) datalink/physical layer protocol.

B. Local Control Units: Modular, comprising processor board with electronically programmable, nonvolatile, read-only memory; and backup power source.

1. Units monitor or control each I/O point, process information, and download from or upload to operator workstation or diagnostic terminal unit.

2. Stand-alone mode control functions operate regardless of network status. Functions include the following:

a. Global communications.

b. Discrete/digital, analog, and pulse 1/0.

c. Monitoring, controlling, or addressing data points.

3. Local operator interface provides for download from or upload to operator workstation or diagnostic terminal unit.

4. ASHRAE 135 Compliance: Control units shall use ASHRAE 135 (BACnet) protocol and communicate using ISO 8802-3 (Ethernet) datalink/physical layer protocol.

C. I/O Interface: Hardwired inputs and outputs may tie into system through controllers. Protect points so that shorting will cause no damage to controllers.

1. Binary Inputs: Allow monitoring of on-off signals without external power.

2. Pulse Accumulation Inputs: Accept up to 10 pulses per second.

3. Analog Inputs: Allow monitoring of low-voltage (0- to 1 0-V de), current (4 to 20 mA), or resistance signals.

4. Binary Outputs: Provide on-off or pulsed low-voltage signal, selectable for normally open or normally closed operation.

5. Analog Outputs: Provide modulating signal, either low voltage (0 - to 10-V de) or current (4 to 20 mA).

6. Tri-State Outputs: Provide two coordinated binary outputs for control of three-point, floating type electronic actuators.

7. Universal 1/0s: Provide software selectable binary or analog outputs.

D. Power Supplies: Transformers with Class 2 current-limiting type or overcurrent protection; limit connected loads to 80 percent of rated capacity. DC power supply shall match output current and voltage requirements and be full-wave rectifier type with the following:

1. Output ripple of 5.0 mV maximum peak to peak.

2. Combined 1 percent line and load regulation with 1 00-mic.sec. response time for 50 percent load changes.

3. Built-in overvoltage and overcurrent protection and be able to withstand 150 percent overload for at least 3 seconds without failure.

E. Power Line Filtering: Internal or external transient voltage and surge suppression for workstations or controllers with the following:

1. Minimum dielectric strength of 1000 V.

2. Maximum response time of 10 nanoseconds.

3. Minimum transverse-mode noise attenuation of 65 dB.

4. Minimum common-mode noise attenuation of 150 dB at 40 to 100Hz.

2.04 ELECTRONIC SENSORS

A. Description: Vibration and corrosion resistant; for wall, immersion, or duct mounting as required.

B. Thermistor Temperature Sensors and Transmitters:

1. Accuracy: Plus or minus 0.36 deg Fat calibration point.

2. Wire: Twisted, shielded-pair cable.

3. Insertion Elements in Ducts: Single point, 8 inches long; use where not affected by temperature stratification or where ducts are 3 sq. ft. and smaller.

4. Averaging Elements in Ducts: 1 ft length for every 2 sq. ft of duct, flexible; use where prone to temperature stratification or where ducts are larger than 3 sq. ft.

5. Room Sensors:

a. LCD Screen.

b. Set-Point Adjustment.

c. Set-Point Indication.

d. Temperature Sensor.

e. Override Button.

6. Outside-Air Sensors: Watertight inlet fitting, shielded from direct sunlight.

7. Room Security Sensors: Stainless-steel cover plate with insulated back and security screws.

a. Override Button: Exposed.

C. RTDs and Transmitters:

1. Accuracy: Plus or minus 0.2 percent at calibration point.

2. Wire: Twisted, shielded-pair cable.

3. Insertion Elements for Liquids: Brass socket with minimum insertion length of 2-1/2 inches.

D. Room sensor accessories include the following:

1. Insulating Bases: For sensors located on exterior walls.

2. Guards: Locking; heavy-duty, transparent plastic; mounted on separate base.

3. Adjusting Key: As required for calibration and cover screws.

E. Occupancy Sensor: Passive infrared, with time delay, daylight sensor lockout, sensitivity control, and180-degree field of view with vertical sensing adjustment; for flush mounting.

2.05 STATUS SENSORS

A. Status Inputs for Fans and Pumps: Current Transducers (Current Sensors). Monitors the current of motors. Self-powered with adjustable trip current, selected to match current and system output requirements. Adjust so sensor responds to motor operation under load as an on state.

B. Voltage Transmitter (1 00- to 600-V ac): Comply with ISA 50.00.01 , single-loop, self-powered transmitter, adjustable, with suitable range and 1 percent full-scale accuracy.

2.06 ACTUATORS

A. Electronic Actuators: Direct-coupled type designed for minimum 60,000 full-stroke cycles at rated torque.

1. Manufacturers:

a. Belimo.

b. Approved.

2. General: UL listed and labeled with NEMA 2 enclosure.

3. Valves: Size for torque required for valve close off at maximum pump differential pressure.

4. Dampers: Size for running torque calculated as follows:

    a. Parallel-Blade Damper with Edge Seals: 7 inch-lb/sq. ft. of damper.

    b. Opposed-Blade Damper with Edge Seals: 5 inch-lb/sq. ft. of damper.

    c. Parallel-Blade Damper without Edge Seals: 4 inch-lb/sq. ft of damper.

    d. Opposed-Blade Damper without Edge Seals: 3 inch-lb/sq. ft. of damper.

    e. Dampers with 2- to 3-Inch wg of Pressure Drop or Face Velocities of 1000 to 2500 fpm: Increase running torque by 1.5.

    f. Dampers with 3- to 4-Inch wg of Pressure Drop or Face Velocities of 2500 to 3000 fpm: Increase running torque by 2.0.

5. Coupling: V-bolt and V-shaped, toothed cradle.

6. Overload Protection: Electronic overload or digital rotation-sensing circuitry.

7. Position Indication: Visual indication.

8. Position Limit: Requires no limit switches and automatically stops when the end stop is reached.

9. Feedback Output: 2 to 10 VDC to determine damper position. Provide where indicated on drawings.

10. Fail-Safe Operation: Mechanical, spring-return mechanism. Provide spring return as indicated below and on drawings. Normally open and normally closed as indicated below to result in position under failure of power to device.

    a. HVAC Unit Outside Air Dampers: Spring return, fail closed.

    b. HVAC Unit Return Air Dampers: Spring return, fail open.

    c. HVAC Unit Heating Water Coil Control Valves when Unit has Outside Air Damper: Spring return, fail open.

11. Manual Override: Hex crank.

12. Power Requirements (Two-Position Spring Return): 24 -V ac for standard applications. 120 Vac for high torque applications.

13. Power Requirements (Modulating): Maximum 10 VA at 24-V ac or 8 W at 24-V de.

14. Proportional Signal: 2- to 1 0-V de or 4 to 20 mA, and 2- to 1 0-V de position feedback signal. Floating point actuator not acceptable for modulating applications.

15. Temperature Rating: 40 to 104 deg F.

16. Temperature Rating (Smoke Dampers): Minus 22 to plus 250 deg F.

2.07 MOTORIZED CONTROL DAMPERS

A. Dampers, Rectangular:

1. Manufacturers:

a. Ruskin, Model CD50.

b. Tamco.

c. Approved.

2. Description: AMCA Class 1A leakage rated, airfoil shaped, parallel blade for two-position control, opposed blade for modulating control ; 0.125-inch- minimum thick, extruded-aluminum frames with holes for duct mounting; damper blades shall be extruded aluminum with maximum blade width of 6 inches and length of 60 inches.

a. Secure blades to 1/2-inch- diameter, plated steel hex, with molded synthetic blade bearings, blade-linkage hardware of zinc-plated steel and brass.

b. Operating Temperature Range: From minus 40 to plus 200 deg F.

c. Control Shaft: 1/2-inch- diameter, plated steel. Jackshaft supplied with all multiple section dampers.

d. Edge Seals: Extruded TPR or stainless-steel, rated for leakage at less than 4 cfm per sq. Ft. of damper area, at differential pressure of 1-inch wg when damper is held by torque of50 in. x lbf; when tested according to AMCA 500D.

e. Duct Mounting: Duct flange mounting type to maintain duct free area.

2.08 CONTROL WIRING

A. General:

1. Conform to Division 26, NFPA 70, and NEC requirements.

2. Conform to Division 26 for circuits operating above 100 Volts.

B. Control Wiring:

1. Sized for load, current, and voltage.

2. Approved or listed for the intended application by agencies such as UL, NEC, and CSA.

3. Copper.

4. As required by specified function and by equipment manufacturer.

5. Insulation rated for highest voltage circuit in conduit.

6. UL listed and labeled for plenum use.

2.09 AUXILIARY COMPONENTS

A. Control Panel Enclosures:

1. Standards: UL listed, NEMA 1.

2. Construction: 16 gauge, butt hinges, easily removable knockouts on all four sides, mounting holes on back and provisions for grounding.

3. Finish: Powder paint finish.

4. Accessories: Cylinder lock kit, grounding device.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that power supply is available to control units and operator workstation.

B. Verify that pneumatic piping and duct-, pipe-, and equipment-mounted devices are installed before proceeding with installation.

3.02 INSTALLATION

A. Install controllers in hinged control enclosures in accessible locations for maintenance personnel.

B. Install software in control units and operator workstation(s). Implement all features of programs to specified requirements and as appropriate to sequence of operation.

C. Connect and configure equipment and software to achieve sequence of operation specified.

D. Provide interposing relays and contactors required to accomplish the sequence of operation.

E. Provide RIB (Relay in Box) with HOA (Hand/Off/Auto) on exhaust fans, domestic circ pumps, water heaters, electric heaters, and lighting control.

F. Verify location of thermostats, humidistats, and other exposed control sensors with Drawings and room details before installation. Install devices 60 inches above the floor.

1. Install averaging elements in ducts and plenums in crossing or zigzag pattern.

G. Install guards on thermostats in the following locations:

1. Where indicated.

H. Motorized dampers shall be furnished by this contractor and installed by Section 233300 contractor.

I. Install damper motors on outside of duct in warm areas, not in locations exposed to outdoor temperatures.

J. Install control valves according to manufacturer's written instructions.

   1. Install actuator above the horizontal plane to prevent condensation or stem leaks from damaging the actuator.

K. Install labels and nameplates to identify control components according to Section 230553 “Identification for HVAC Piping and Equipment.”

L. Hydronic instrument wells, valves, and other accessories shall be installed by Section 232116 contractor. Wells shall be furnished by Section 232116 contractor.

M. Install control units and controllers located in exposed areas in control panel enclosures. Label control enclosures with equipment labels according to Section 230533.

N. Label emergency shutdown switch.

O. Install electronic and fiber-optic cables according to Section 271500 "Communications Horizontal Cabling."

P. Install field control devices furnished with split system air conditioners. Provide control wiring between field devices and split system control panels. Provide wiring between indoor unit and condensing unit.

3.03 VARIABLE FREQUENCY DRIVES INSTALLATION

A. General: Install variable frequency drives on field built metal framing systems. Power wiring connecting variable speed drive to motor shall not exceed manufacturer installation requirements.

B. Storage: Store in a clean, dry space. Maintain factory wrapping, or provide additional cover to protect units from dirt, water, construction debris and traffic. VFDs shall not be operated while covered.

C. Control: Provide the following BAS control interface:

   1. Speed Control Output: "Hard wired" current 4 to 20 mA or voltage 0 to 10 VDC.

   2. Start/Stop Control: "Hard wired" 2 wire dry contact closure.

   3. Speed Feedback: "Hard wired" analog or through serial communication.

   4. Alarm Input: "Hard wired" digital.

3.04 CONTROL WIRING AND CONNECTION INSTALLATION

A. General:

   1. Include wire and cable as required for complete and operable control system.

   2. Install wire and cable with sufficient slack and flexible connections to allow for vibration of piping and equipment.

   3. Number-code or color-code conductors for future identification and service of control system, except local individual room control cables.

4. Bundle and harness multiconductor instrument cable in place of single cables where several cables follow a common path.

5. Fasten flexible conductors, bridging cabinets and doors, along hinge side; protect against abrasion. Tie and support conductors.

6. Install wiring parallel or perpendicular to walls. Use right angle turns.

7. Do not install wiring in power circuit raceways.

8. Provide junction boxes. Do not use magnetic motor starters and disconnects as junction boxes.

9. Do not run wiring longer than 75% percent of maximum length or power consumption for wire size and application.

10. Number wires at each connection, termination, and junction box.

11. Arrange wiring within control panels in a neat and professional manner.

12. Install expansion joints where raceway crosses building expansion joints.

B. Power for Controls:

1. Coordinate location of power source with Division 26.

2. Provide power from electrical panel circuit breakers to control devices requiring line voltage power.

3. Provide power from electrical panel circuit breakers to control devices requiring low voltage power. Provide transformers.

4. Do not provide power from electrical circuits serving other equipment. Controls shall be fed by dedicated control circuits only.

5. Provide power from emergency power panel if available.

C. Raceway:

1. Conceal wiring, except in mechanical spaces and areas where other conduit and piping are exposed.

2. Install exposed wiring in electrical metallic tubing (EMT) raceway.

3. Install wiring above inaccessible ceilings in electrical metallic tubing (EMT) raceway.

4. Install wiring above accessible ceiling without electrical metallic tubing (EMT) raceway. Route in straight line supported by cable rings or support by mechanically fastening to piping or ductwork. Do not lay on top of ceiling tiles.

5. Do not fill raceway above 70 percent of maximum capacity.

3.05 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust field-assembled components and equipment installation, including connections, and to assist in field testing. Report results in writing.

B. Perform the following field tests and inspections and prepare test reports:

1. Operational Test: After electrical circuitry has been energized, start units to confirm proper unit operation. Remove and replace malfunctioning units and retest.

2. Test and adjust controls and safeties.

3. Test calibration of electronic controllers by disconnecting input sensors and stimulating operation with compatible signal generator.

4. Test each point through its full operating range to verify that safety and operating control set points are as required.

5. Test each control loop to verify stable mode of operation and compliance with sequence of operation. Adjust PID actions.

6. Test each system for compliance with sequence of operation.

7. Test software and hardware interlocks.

C. DDC Verification:

1. Verify that instruments are installed before calibration, testing, and loop or leak checks.

2. Check instruments for proper location and accessibility.

3. Check instrument installation for direction of flow, elevation, orientation, insertion depth, and other applicable considerations.

4. Check instrument tubing for proper fittings, slope, material, and support.

5. Check installation of air supply for each instrument.

6. Check flow instruments. Inspect tag number and line and bore size and verify that inlet side is identified and that meters are installed correctly.

7. Check pressure instruments, piping slope, installation of valve manifold, and self-contained pressure regulators.

8. Check temperature instruments and material and length of sensing elements.

9. Check control valves. Verify that they are in correct direction.

10. Check air-operated dampers. Verify that pressure gages are provided and that proper blade alignment, either parallel or opposed, has been provided.

11. Check DDC system as follows:

a. Verify that DDC controller power supply is from emergency power supply, if applicable.

b. Verify that wires at control panels are tagged with their service designation and approved tagging system.

c. Verify that spare 1/0 capacity has been provided.

d. Verify that DDC controllers are protected from power supply surges.

D. Replace damaged or malfunctioning controls and equipment and repeat testing procedures.

3.06 ADJUSTING

A. Calibrating and Adjusting:

1. Calibrate instruments.

2. Make three-point calibration test for both linearity and accuracy for each analog instrument.

3. Calibrate equipment and procedures using manufacturer's written recommendations and instruction manuals. Use test equipment with accuracy at least double that of instrument being calibrated.

4. Control System Inputs and Outputs:

a. Check analog inputs at 0, 50, and 100 percent of span.

b. Check analog outputs using milliampere meter at 0, 50, and 100 percent output.

c. Check digital inputs using jumper wire.

d. Check digital outputs using ohmmeter to test for contact making or breaking.

e. Check resistance temperature inputs at 0, 50, and 100 percent of span using a precision resistant source.

5. Flow:

a. Set differential pressure flow transmitters for 0 and 100 percent values with 3-point calibration accomplished at 50, 90, and 100 percent of span.

b. Manually operate flow switches to verify that they make or break contact.

6. Pressure:

a. Calibrate pressure transmitters at 0, 50, and 100 percent of span.

b. Calibrate pressure switches to make or break contacts, with adjustable differential set at minimum.

7. Temperature:

a. Calibrate resistance temperature transmitters at 0, 50 , and 100 percent of span using a precision-resistance source.

b. Calibrate temperature switches to make or break contacts.

8. Stroke and adjust control valves and dampers without positioners, following the manufacturer's recommended procedure, so that valve or damper is 100 percent open and closed.

9. Stroke and adjust control valves and dampers with positioners, following manufacturer's recommended procedure, so that valve and damper is 0, 50, and 1 00 percent closed.

10. Provide diagnostic and test instruments for calibration and adjustment of system.

11. Provide written description of procedures and equipment for calibrating each type of instrument. Submit procedures review and approval before initiating startup procedures.

B. Adjust initial temperature and humidity set points.

C. Occupancy Adjustments: When requested within 12 months of date of Final Completion, provide onsite assistance in adjusting system to suit actual occupied conditions. Provide up to three visits to Project during other than normal occupancy hours for this purpose.

3.07 POINTS LIST

	Hardware Points				Software Points					
Point Name	AI	AO	BI	BO	AV	BV	Sched	Trend	Alarm	Show On Graphic
Circ Pump CP-1										
Start/Stop				X			X			X
Status			X							X
DOAS-1										
Fan Start/Stop				X			X			X
Fan Status			X							X
OSA/RA Damper Positions				X			X			X
Exhaust Fan (EF-1)										

	Hardware Points				Software Points					
Point Name	AI	AO	BI	BO	AV	BV	Sched	Trend	Alarm	Show On Graphic
Fan Start/Stop				X			X			X
Fan status			X							X
Alarm			X							X
ACU-1										
Return Air CO2	X									X
ACU-1 Start/Stop				X			X			X
Supply Air Cooling Setpoint		X								X
Supply Air Heating Setpoint		X								X
Supply Air Temperature	X									X
Compressor Start/Stop				X						
Compressor Status				X						
Gas Heating Section Stage (1,2)				X						X
Air Filter Status				X						X
Alarm Message			X							X

3.08 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain HVAC instrumentation and controls.

END OF SECTION 23 09 00

This section added per Addendum 1 in it's entirety.

SECTION 33 30 00 – SANITARY SEWER

PART 1 GENERAL

1.1 SUMMARY

A. Work includes but is not limited to the following:

1. Furnish and install sanitary sewer pipe, fittings, manholes, cleanouts and side sewers of the type and sizes designated.
2. Coordinate and provide connections to building plumbing.

1.2 RELATED SECTIONS

A. Coordinate related work specified in other parts of the Project Manual, including but not limited to the following:

1. Section 01 57 13 – TESC
2. Section 31 10 00 – Site Preparation
3. Section 31 22 00 – Earthwork
4. Section 31 41 33 – Trench Safety
5. Section 33 40 00 – Storm Drainage

1.3 REFERENCES

A. WSDOT - Standard Specifications for Road, Bridge and Municipal Construction, latest edition; Washington State Department of Transportation. Standard Plans, current edition.

B. City of North Bend Public Works Standards, June 2018.

C. Geotechnical Engineering Report prepared by Associated Earth Sciences, Inc for Two Rivers Montessori School Additions, dated April 11, 2023.

1.4 DIMENSIONS AND LAYOUTS

A. Furnish, set and mark all line location stakes. Assign a qualified layout engineer, surveyor, or technical specialist to do this work and be on site at all times when work requiring control is being performed. Furnish and maintain on site necessary equipment, supplies and instruments related thereto. Make this equipment and personnel available, at no additional cost to the Owner, for the purpose of verifying layout and certifying the accuracy of work on the site.

B. Protect the existing site improvements within the vicinity of the work. Choose equipment and methods to protect and minimize the disturbance of areas outside the limits of construction, including hand excavation if necessary. Immediately inform the Owner's Representative of any existing site improvements that will need to be removed prior to construction. Mark and coordinate trees or shrubs to be removed and replaced that are not noted on the plans. Replace damaged trees or shrubs not scheduled for removal at no additional cost to the Owner.

C. Review of Snoqualmie Valley School District, and City of North Bend records relating to the existing underground utilities. Avoid damage to these facilities and restore active utilities at no additional cost to owner.

D. Notify the Owner's Representative immediately of underground utilities encountered, which are not shown on the drawings or Owner's survey or record drawings.

1.5 SUBMITTALS

A. Comply with Section 01 33 00.

B. No installation of material shall be made prior to until written approval has been obtained from the Owner's Representative. Approval of material and equipment shall in no way preclude compliance with the plans and specifications.

C. Submit material product information including pipe, fittings, structures, etc. Submittal information shall be complete and well organized. Each product shall be clearly labeled to indicated where product to be used onsite. Incomplete or partial submittals will be rejected and not reviewed.

D. Submit shop drawings for trench drain installation.

E. Record Drawings:

1. One complete set of drawings shall be provided as record drawings which shall be separated, clean prints reserved for the purpose of showing a complete picture of the work as actually installed. The contractor shall coordinate the record drawing requirements with City of North Bend.
2. Record drawings shall also serve as work progress plans and the Contractor shall maintain daily a daily record of work progress with neat, legible notations. These drawings shall be kept at the job site and shall be available for inspection at all times.
3. All buried piping and indicated future connections exterior to the building shall be located both by depth and by location with respect to the project benchmark. All notations on record drawings of buried pipes shall be made before backfilling of that section of pipe is started. Show vertical elevations relative to finished grade at connection points, bends and grade breaks in the pipe. Show horizontal and vertical locations of other underground utilities encountered during the excavation and construction process.
4. At completion of the work, the Contractor shall sign, date, and provide the record drawings to the Owner's Representative, representing that it is an accurate depiction of the work completed.

F. As built Survey:

1. At the completion of the project, the Contractor is required to provide a complete underground utility survey (both PDF and AutoCAD) of all utilities installed as part of this project. This survey shall be performed, stamped and signed by a licensed surveyor, and shall be presented to Owner, Engineer and City of North Bend for review and acceptance. Any changes to the survey prior to acceptance are the responsibility of the Contractor.

PART 2 PRODUCTS

2.1 GRAVITY SEWER PIPE AND FITTINGS

A. Gravity Sewer Pipe and fittings shall be polyvinyl chloride pipe (PVC) conforming to the requirements of ASTM D3034, SDR 35, or better with rubber gasket joints.

2.2 CLEAN-OUTS

A. Cleanouts shall conform to the contract documents and sized to match connection pipe.

B. Cleanout covers for cleanouts within paved areas and for downspout connections shall be Olympic Foundry Part #M1007 D/T cast iron cover and ring marked “SEWER”.

2.3 BEDDING AND BACKFILL MATERIAL

A. Bedding and Backfill materials shall be in accordance with Section 31 22 00.

2.4 CONDUCTIVE WARNING TAPE

A. Conductive warning tape required over all sewer pipes and shall be per Section 31 22 00.

2.5 FOAM BLOCKING

A. Plastic Foam for pipe protection and separation between pipes shall meet the Federal Spec. PPP-C-1752B Type 1, Class 2 or approved equivalent.

2.6 CONDUCTIVE WARNING TAPE

A. Conductive warning tape shall be per Section 31 22 00.

PART 3 EXECUTION

3.1 COORDINATION WITH OTHER WORK

A. Verify existing utilities locations from the records of City of North Bend.

3.2 TRENCHING AND PIPE LAYING

A. Minimize the impact to the area surrounding the trenching and installation by using the minimum size of equipment required to perform the work and by using trench boxes for trenches greater than 4 feet in depth.

B. Excavate and prepare the trench in accordance with Section 31 10 00. Perform trenching in conformance with Section 31 22 00.

C. Excavate to the alignment, elevation, grade and slope as indicated on the drawings.

D. Lay pipes in conformance with WSDOT 7-08.3(2).

E. Within the building envelope, install pipe in accordance with the Uniform Plumbing Code. Use a licensed plumber to install pipe.

3.3 BEDDING AND BACKFILLING

A. Install bedding and backfill in accordance with Section 31 22 00 and the details in the Plans. Compact per City of North Bend Sanitary Sewer Specifications and Standard Details.

3.4 PIPE CROSSINGS

A. Where pipe crossings are separated by less than 6 inches, place foam blocking for separation and protection per manufacturer's recommendations.

3.5 INSPECTIONS, CLEANING, AND TESTING

A. Coordinate inspections as required by City of North Bend.

B. Perform cleaning and testing in per WSDOT 7-17.3(2).

3.6 AS-BUILTS

A. Prepare record documents per City of North Bend Requirements, Owner's standards, and Contract Documents.

END OF SECTION 33 30 00

Item 6 SECTION 31 10 00 – SITE PREPARATION

At 1.6, A: Change the words “Mukilteo School District” to read “Snoqualmie Valley School District”.

At 3.10, E: Change the words “City of Mukilteo” to read “City of North Bend”.

At 3.10, F: Change the words “Mukilteo Water and Wastewater District Standards” to read “City of North Bend Standards”.

At 3.14, B: Change the words “Mukilteo School District” to read “Snoqualmie Valley School District”.

Item 7 SECTION 32 17 23 – PAVEMENT MARKINGS

At 2.2, A: Change the words “City of Mukilteo” to read “City of North Bend”.

Item 8 SECTION 33 30 00 - SANITARY SEWER

Add this specification section in its entirety. (Attached)

D R A W I N G S

Sheet A1.03 – SITE PLAN, NEW WORK

Item 1 Sewer line shown as indicated on original mechanical foundation drawing M1.00 and as added by addendum to civil drawings. Contractor to remove conc walks as required and patch after sewer work as called out on attached Addendum Drawings AA-01 and AA-02.

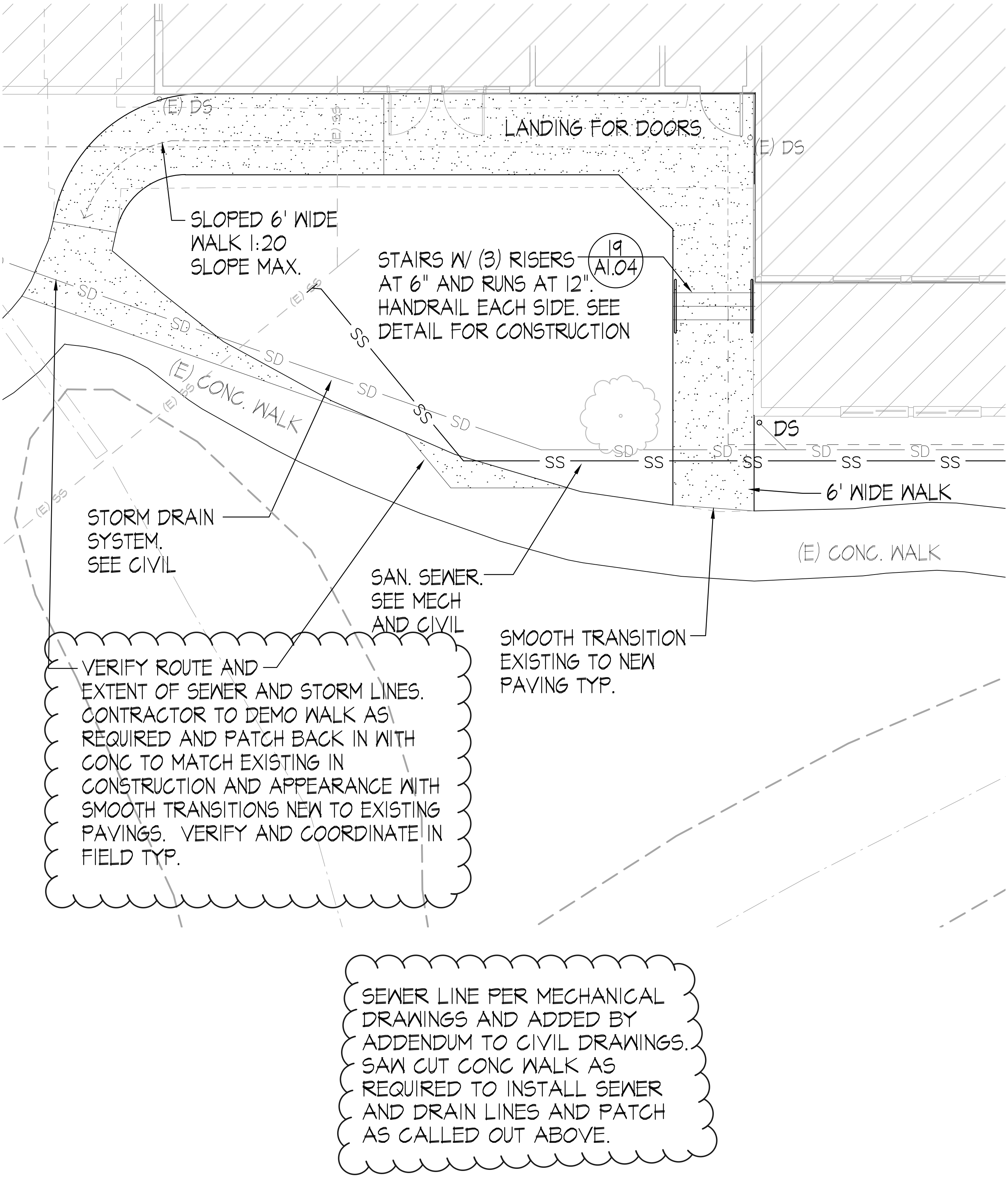
Sheet C400 – OVERALL STORM DRAINAGE AND UTILITY PLAN

Item 2 Sheet revised to show new and existing Sanitary Sewer. See revised sheet C400 attached.

Sheet C402 –STORM DRAINAGE AND UTILITY PLAN

Item 3 Sheet revised to show new and existing Sanitary Sewer. See revised sheet C402 attached.

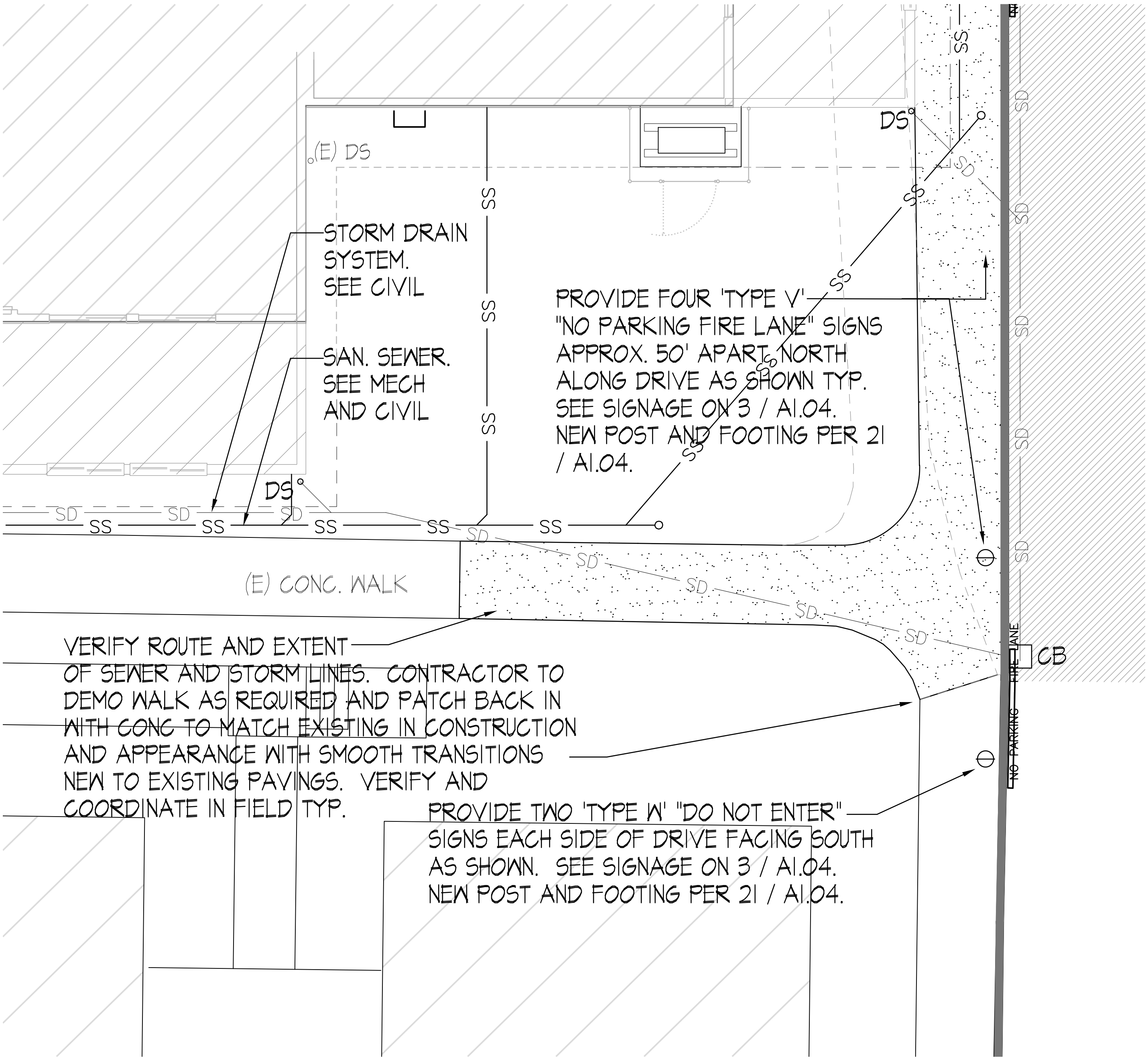
END OF ADDENDUM NO. 1



SCR | Architects

EARLY CHILDHOOD CENTER
AT TWO RIVERS SCHOOL
SNOQUALMIE VALLEY SCHOOL DISTRICT

ADDENDUM DRAWING #	AA-01
SCALE:	1" = 10'
REFERENCE:	A1.03
DATE	11 / 16 / 2024
ARCH.JOB NO.	1919



SEWER LINE PER MECHANICAL DRAWINGS AND ADDED BY ADDENDUM TO CIVIL DRAWINGS. SAW CUT CONC WALK AS REQUIRED TO INSTALL SEWER AND DRAIN LINES AND PATCH AS CALLED OUT ABOVE.

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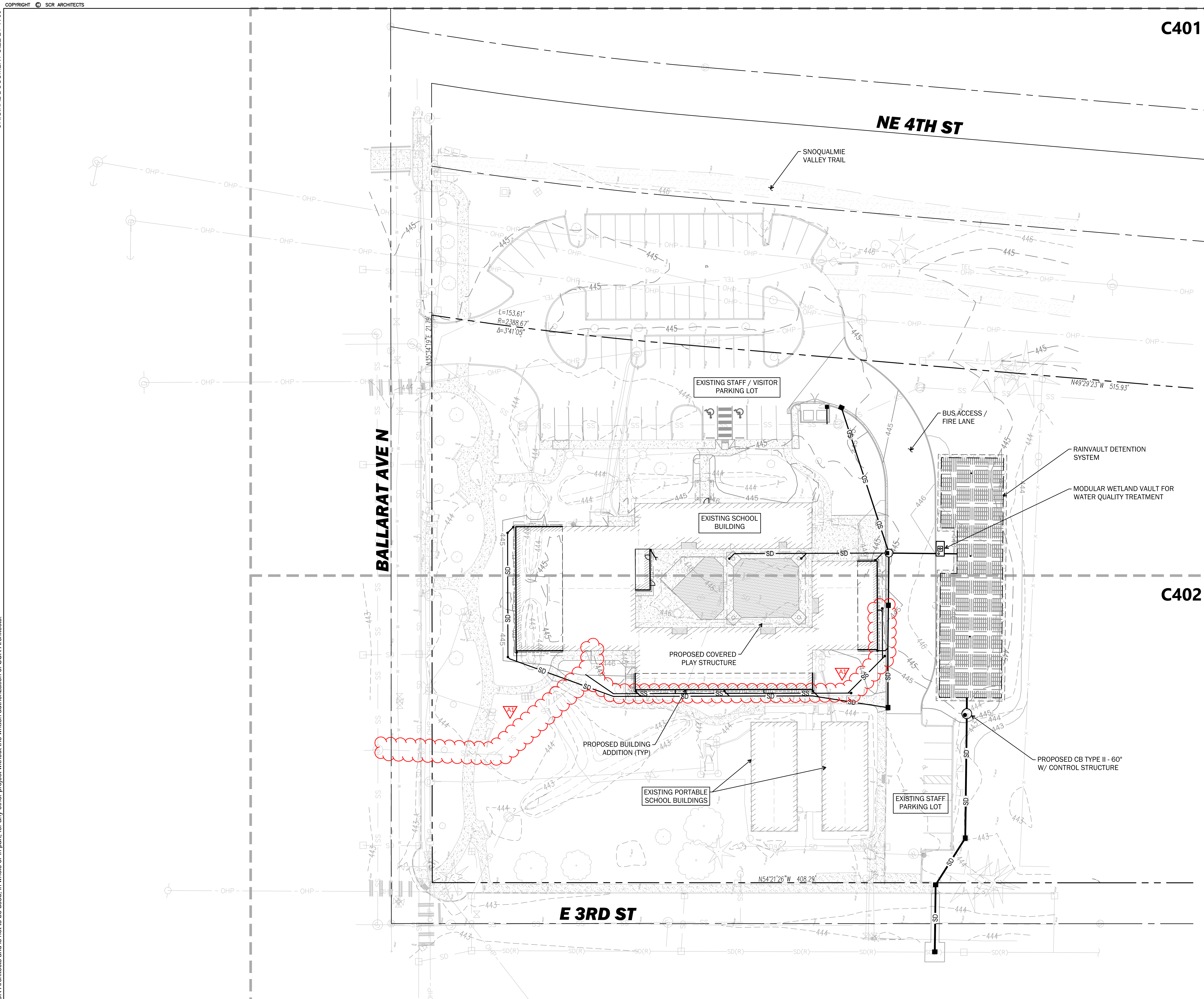
EARLY CHILDHOOD CENTER
AT TWO RIVERS SCHOOL
SNOQUALMIE VALLEY SCHOOL DISTRICT

ADDENDUM DRAWING #	AA-02
SCALE:	1" = 10'
REFERENCE:	A1.03
DATE	11 / 16 / 2024
ARCH.JOB NO.	1919

NE1/4 OF SECTION 09, TOWNSHIP 23 NORTH, RANGE 08 EAST, W.M.



Call before you Dig. 8-1-1 or 1-800-424-5555 UNDERGROUND SERVICE (USA)

0 15 30 60

SCALE 1"=30'

LEGEND

PROPERTY LINE	N 79°33'06" E - 46.81'
STORM DRAINAGE PIPE	SD
CB TYPE 2/CB TYPE 1/ AREA DRAIN/SDCO	
DETENTION VAULT	
DOWNSPOUT	DS
FOOTING DRAIN	FTG
SANITARY SEWER	SS
SANITARY CLEANOUT	•

A1

STORM DRAINAGE NOTES

1. PROOF OF LIABILITY INSURANCE SHALL BE SUBMITTED TO CITY OF NORTH BEND PRIOR TO THE CONSTRUCTION OF THE DRAINAGE FACILITIES, PREFERABLY AT THE PRECONSTRUCTION MEETING.

2. ALL PIPE AND APPURTENANCES SHALL BE LAID ON A PROPERLY PREPARED FOUNDATION IN ACCORDANCE WITH WSDOT SPECIFICATIONS. THIS SHALL INCLUDE LEVELING AND COMPACTING THE TRENCH BOTTOM, THE TOP OF THE FOUNDATION MATERIAL, AND ANY REQUIRED PIPE BEDDING, TO A UNIFORM GRADE SO THAT THE ENTIRE PIPE IS SUPPORTED BY A UNIFORMLY DENSE UNYIELDING BASE.

3. STEEL PIPE SHALL BE ALUMINIZED, OR GALVANIZED WITH ASPHALT TREATMENT #1 OR BETTER INSIDE AND OUTSIDE.

4. ALL DRAINAGE STRUCTURES, SUCH AS CATCH BASINS AND MANHOLES, NOT LOCATED WITHIN A TRAVELED ROADWAY OR SIDEWALK, SHALL HAVE SOLID LOCKING LIDS. ALL DRAINAGE STRUCTURES ASSOCIATED WITH A PERMANENT RETENTION/DETENTION FACILITY SHALL HAVE SOLID LOCKING LIDS.

5. ALL CATCH BASIN GRATES SHALL CONFORM TO CITY STANDARDS, WHICH INCLUDES THE STAMPING "OUTFALL TO STREAM, DUMP NO POLLUTANTS".

6. DRAINAGE OUTLETS (STUB-OUTS) SHALL BE PROVIDED FOR EACH INDIVIDUAL LOT, EXCEPT FOR THOSE LOTS APPROVED FOR INFILTRATION BY CITY OF NORTH BEND. STUB-OUTS SHALL CONFORM TO THE FOLLOWING:
   a. EACH OUTLET SHALL BE SUITABLY LOCATED AT THE LOWEST ELEVATION ON THE LOT, SO AS TO SERVICE ALL FUTURE ROOF DOWNSPOUTS AND FOOTING DRAINS, DRIVEWAYS, YARD DRAINS, AND ANY OTHER SURFACE OR SUBSURFACE DRAINS NECESSARY TO RENDER THE LOTS SUITABLE FOR THEIR INTENDED USE. EACH OUTLET SHALL HAVE FREE-FLOWING, POSITIVE DRAINAGE TO AN APPROVED STORMWATER CONVEYANCE SYSTEM OR TO AN APPROVED OUTFALL LOCATION.
   b. OUTLETS ON EACH LOT SHALL BE LOCATED WITH A FIVE-FOOT-HIGH, 2" X 4" STAKE MARKED "STORM" OR "DRAIN". THE STUB-OUT SHALL EXTEND ABOVE SURFACE LEVEL, BE VISIBLE, AND BE SECURED TO THE STAKE.
   c. PIPE MATERIAL SHALL CONFORM TO UNDERDRAIN SPECIFICATIONS DESCRIBED IN CITY OF NORTH BEND PUBLIC WORKS STANDARDS AND, IF NON-METALLIC, THE PIPE SHALL CONTAIN WIRE OR OTHER ACCEPTABLE DETECTION.
   d. DRAINAGE EASEMENTS ARE REQUIRED FOR DRAINAGE SYSTEMS DESIGNED TO CONVEY FLOWS THROUGH INDIVIDUAL LOTS.
   e. THE APPLICANT/CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE LOCATIONS OF ALL STUB-OUT CONVEYANCE LINES WITH RESPECT TO THE UTILITIES (E.G. POWER, GAS, TELEPHONE, TELEVISION).
   f. ALL INDIVIDUAL STUB-OUTS SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE LOT OWNER.

7. ALL DISTURBED PERVIOUS AREAS (COMPACTED, GRADED, LANDSCAPED, ETC.) OF THE DEVELOPMENT SITE MUST DEMONSTRATE ONE OF THE FOLLOWING, IN ACCORDANCE WITH CITY OF NORTH BEND PUBLIC WORKS STANDARDS AND THE LOW IMPACT DEVELOPMENT (LID) COMPONENTS OF THE APPROVED SITE PLAN: THE EXISTING DUFF LAYER SHALL BE STAGED AND REDISTRIBUTED TO MAINTAIN THE MOISTURE CAPACITY OF THE SOIL, OR; AMENDED SOIL SHALL BE ADDED TO MAINTAIN THE MOISTURE CAPACITY.

8. SEASONAL CLEARING IS LIMITED BETWEEN OCTOBER 1 AND APRIL 30 INCLUSIVE, UNLESS OTHERWISE APPROVED WITH A WRITTEN DECISION BY THE REVIEWING AGENCY.

9. IMPROVEMENTS AND/OR BUILDINGS SHALL NOT BE INSTALLED UNTIL DRAINAGE FACILITIES ARE "IN OPERATION".

CITY OF NORTH BEND PERMIT#__________

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

SCR | Architects
1221 E. Pike St. Suite 205
Seattle, WA 98122

JERALD A. JACOBSON, STATE OF WASHINGTON, REGISTERED PROFESSIONAL ENGINEER, 43667
11/13/2024

DRAWN BY: DJD/AJJ
CHECKED BY: SSE
APPROVED BY: SSE

PROJECT NAME: EARLY CHILDHOOD CENTER AT TWO RIVERS SCHOOL

SNOQUALMIE VALLEY SCHOOL DISTRICT

PROJECT ADDRESS: 8001 SILVA AVE SE/PO BOX 400 SNOQUALMIE, WA 98065

PROJECT NO. 1919

ISSUE DATE 10-31-2024

CURRENT REVISION BID SET

DRAWING PLOT DATE

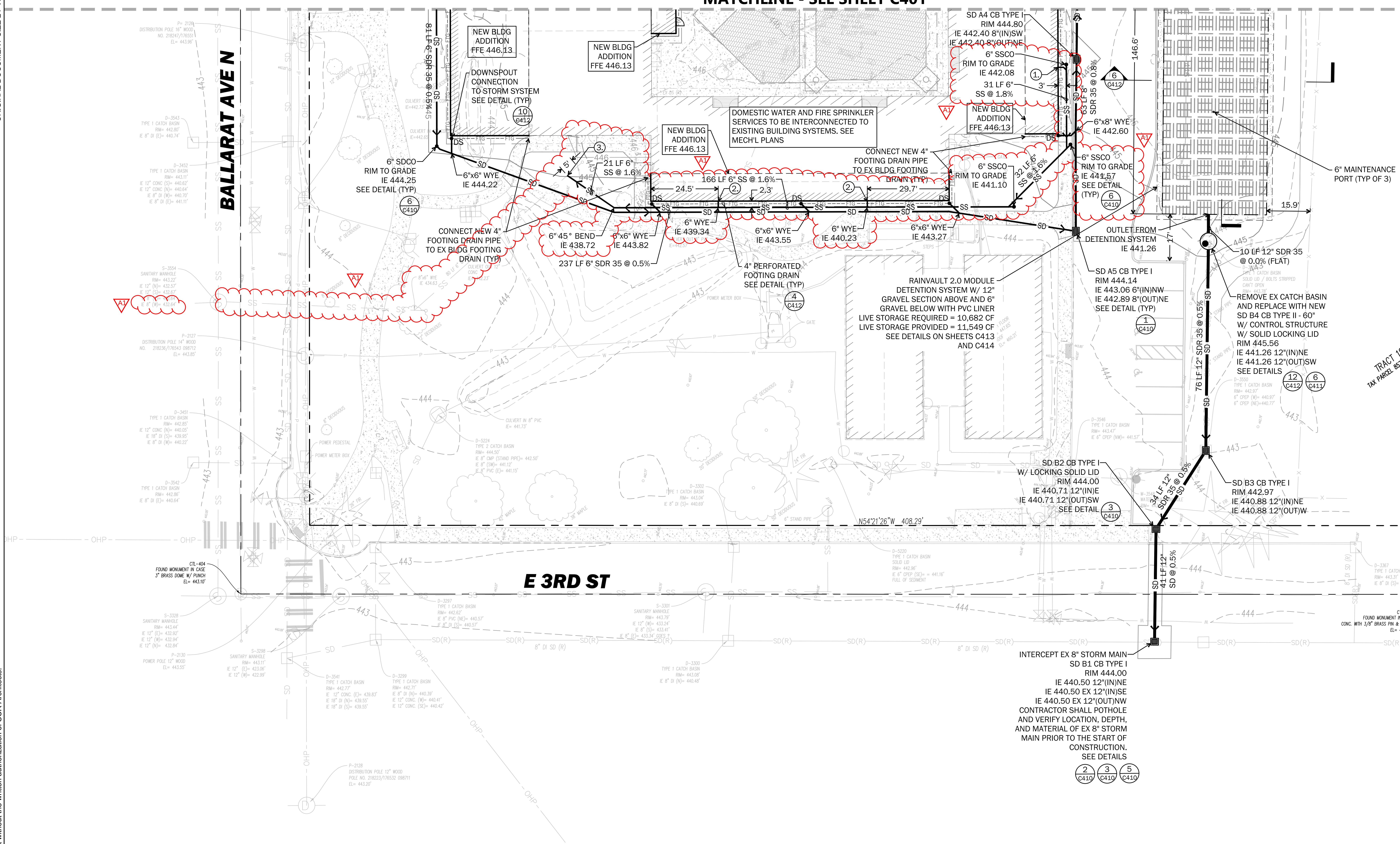
REVISION	DATE
BID SET	10/31/24
A1 ADDENDUM 1	11/14/24

OVERALL STORM DRAINAGE AND UTILITY PLAN

C400

NE1/4 OF SECTION 09, TOWNSHIP 23 NORTH, RANGE 08 EAST, W.M.

MATCHLINE - SEE SHEET C401



SCALE 1"=20'

Call before you Dig. 8-1-1 or 1-800-424-5555 UNDERGROUND SERVICE (USA)

LEGEND

- PROPERTY LINE
- STORM DRAINAGE PIPE
- CB TYPE 2/CB TYPE 1/ AREA DRAIN/SDCO
- DETENTION VAULT
- DOWNSPOUT
- FOOTING DRAIN
- SANITARY SEWER
- SANITARY CLEANOUT

ALL CATCH BASINS SHALL HAVE LOCKING HERRINGBONE GRATES, UNLESS NOTED OTHERWISE. SEE DETAIL 4/C410.

ALL STORM AND SEWER PIPE MATERIAL ON-SITE SHALL BE D3034 SDR 35, UNLESS NOTED OTHERWISE

FOR STORM AND SEWER PIPE BEDDING AND TRENCHING SEE DETAIL 1/C411

KEYNOTES:

1. 6" SS POC IE 442.13 SEE MECH'L PLANS FOR CONTINUATION CONTRACTOR SHALL CONFIRM INVERT AT POC PRIOR TO CONSTRUCTION AND NOTIFY CIVIL ENGINEER IF CONFLICT
2. 6" SS POC IE 440.33 SEE MECH'L PLANS FOR CONTINUATION CONTRACTOR SHALL CONFIRM INVERT AT POC PRIOR TO CONSTRUCTION AND NOTIFY CIVIL ENGINEER IF CONFLICT
3. CONNECT TO EX 6" SS IE 438.38 CONTRACTOR SHALL POTHOLE AND VERIFY DEPTH, LOCATION, AND MATERIAL OF EX 6" SIDE SEWER PRIOR TO STARTING CONSTRUCTION.

CITY OF NORTH BEND PERMIT#

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

SCR | Architects
1221 E. Pike St. Suite 205
Seattle, WA 98122

GERALD A. JACOBSEN, STATE OF WASHINGTON, REGISTERED PROFESSIONAL ENGINEER 43667

DRAWN BY: DJD/AJJ
CHECKED BY: SSE
APPROVED BY: SSE

PROJECT NAME: EARLY CHILDHOOD CENTER AT TWO RIVERS SCHOOL

SNOQUALMIE VALLEY SCHOOL DISTRICT

PROJECT ADDRESS: 8001 SILVA AVE SE/PO BOX 400 SNOQUALMIE, WA 98065

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ISSUE DATE 10-31-2024
CURRENT REVISION BID SET
DRAWING PLOT DATE

REVISION	DATE
BID SET	10/31/24
A1 ADDENDUM 1	11/14/24

STORM DRAINAGE AND UTILITY PLAN

C402