

ADDENDUM NO. 2
November 12, 2014

Contract B – Water Supply Pump Stations
Spirit Mountain Recreation Authority

SEH No. FOSJJ 129137

From: Short Elliott Hendrickson Inc.
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To: Document Holders

DOCUMENT HOLDERS on the above-named project are hereby notified that this document shall be appended to, take precedence over and become part of the original bidding documents dated October 2014, and previous Addenda dated October 28, 2014 for this work. Bids submitted for the construction of this work shall conform to this document.

This addendum consists of 2 pages and the following Drawings: B1A and Retaining Wall Detail; and Sections 27 10 05 & 28 23 00.

Changes to Project Manual:

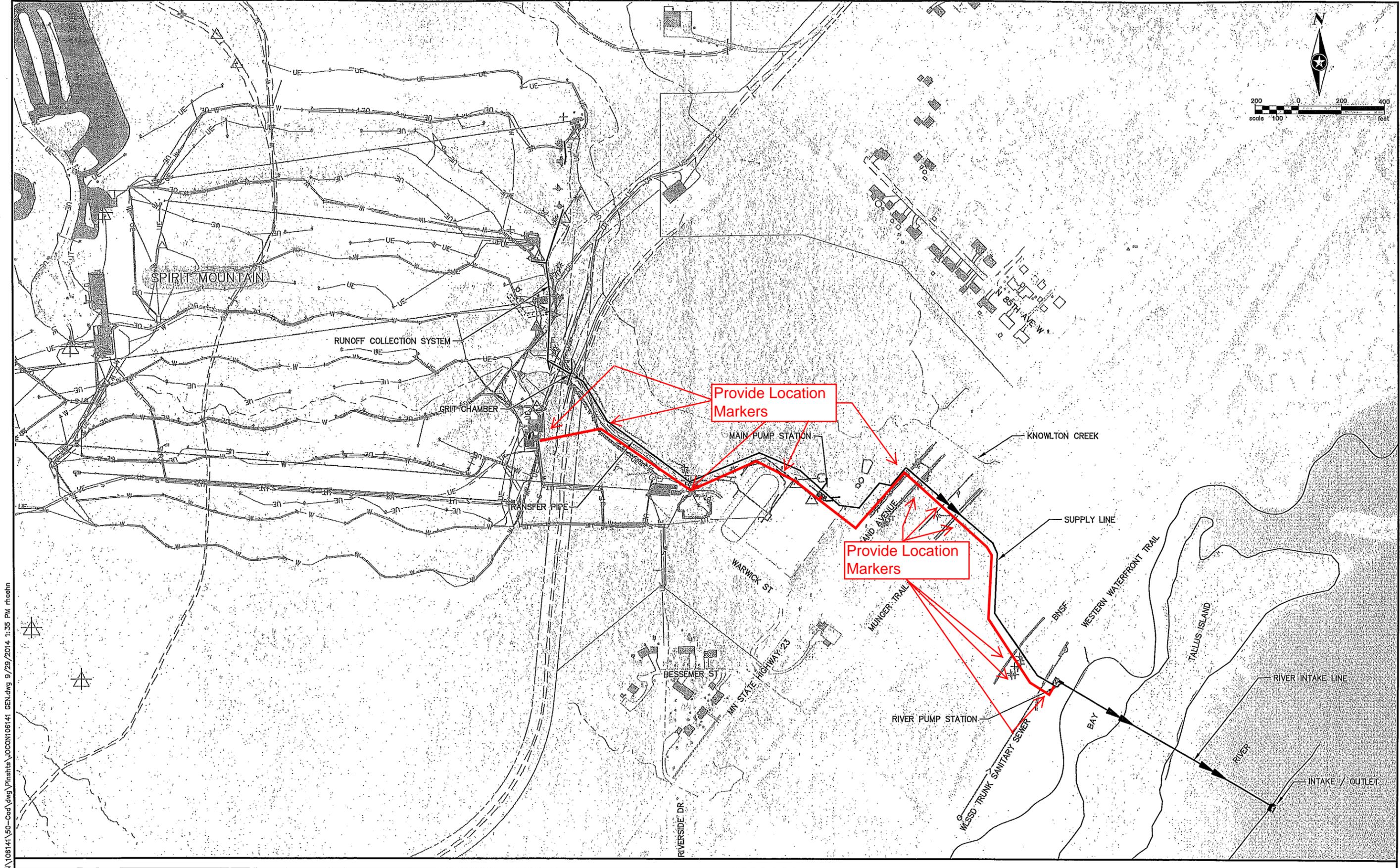
1. Table of Contents
 - a. Add Section 27 10 05 Structured Cabling for Data and Control
 - b. Add Section 28 23 00 Video Surveillance
2. Section 27 10 05 Structured Cabling for Data and Control
 - a. Include the attached section
3. Section 28 23 00 Video Surveillance
 - a. Include the attached section

Changes to Drawings:

4. THE EXHAUST FANS (INCLUDING ASSOCIATED EQUIPMENT) AS WELL AS THE UNIT HEATERS (INCLUDING ASSOCIATED EQUIPMENT) ARE TO BE FURNISHED BY CONTRACTOR.
5. PROVIDE FIBER OPTIC CABLE IN CONDUIT TO THE RIVER PUMP HOUSE, MAIN PUMP HOUSE, AND SHOP AS INDICATED ON THE ATTACHED DRAWING B1A.
6. PROVIDE 1 CAMERA IN THE SHOP, 2 CAMERAS IN THE MAIN PUMP STATION AND 2 CAMERAS IN THE RIVER PUMP STATION TO BE LOCATED WITHIN THE BUILDING BY THE OWNER. THESE CAMERAS WILL BE CONNECTED TO THE FIBER OPTIC SYSTEM.
7. PROVIDE LOW VOLTAGE (CONTROL) CONNECTION FROM THE PATCH PANEL TO THE PLC.
8. APPROVAL OF ADDITIONAL PRODUCTS/SYSTEMS
 - a. The following manufacturers and their products have been approved for substitution; however, such prior approval in no way relieves the supplier from complying in every respect with the requirements of the Bidding Documents.
 - i. Louvers and Grilles; ALL LITE
9. Add Retaining Wall Detail, Gravity Wall to Plans.

Note: Receipt of this Addendum No. 2 (dated November 12, 2014) shall be acknowledged on Page 1 of the submitted Bid Form. Failure to do so may subject Bidder to disqualification.

END OF ADDENDUM



N:\108141\50-Cad\Drawings\Plans\JOCO\106141_GEN.dwg 9/29/2014 1:35 PM rfoehn

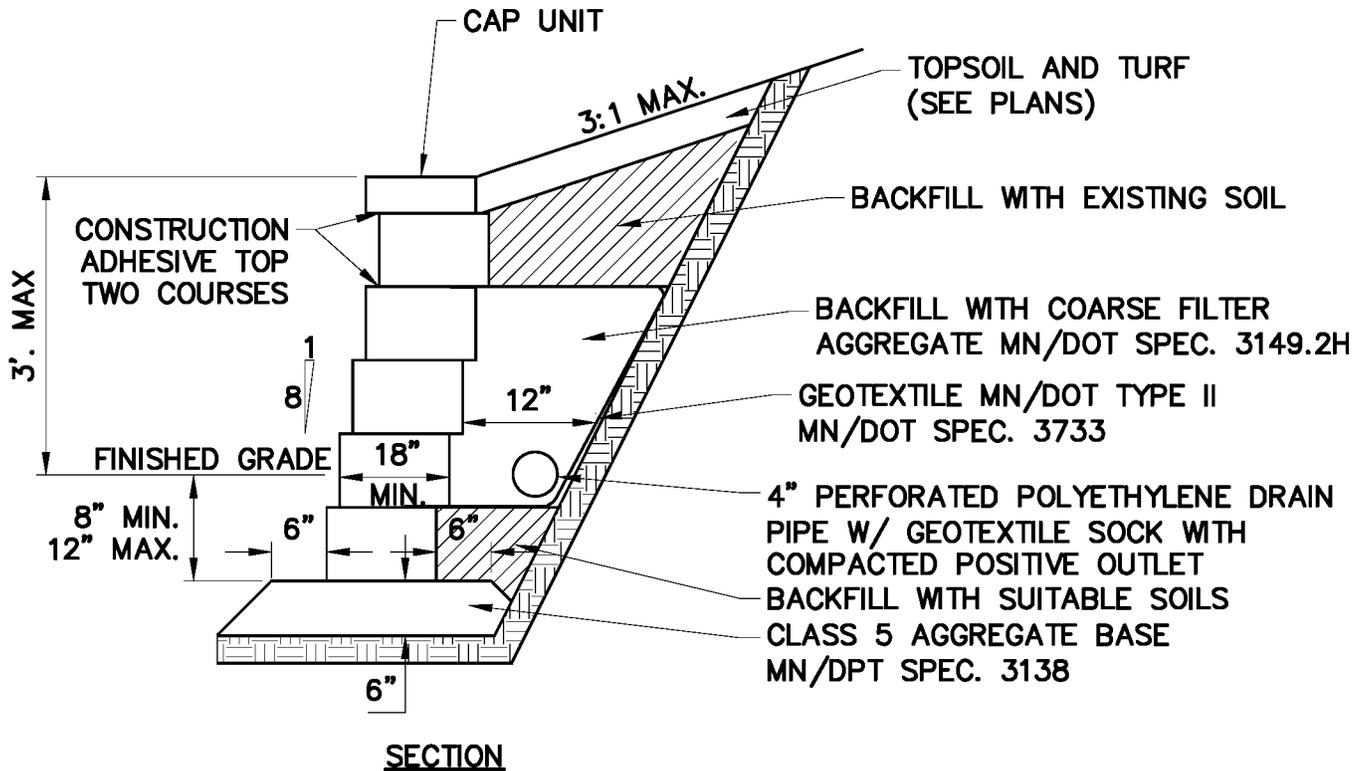
Provide Location Markers

Provide Location Markers

Drawing B1A

NOTES:

1. MAXIMUM EXPOSED HEIGHT NOT TO EXCEED 3 FEET. A SPECIFIC ENGINEERED DESIGN IS REQUIRED FOR WALLS WITH AN EXPOSED HEIGHT OVER 3 FEET.
2. FILL ALL VOID AREAS IN MODULAR BLOCK UNITS WITH COARSE FILTER AGGREGATE (Mn/DOT SPEC. 3149.2H) OR PEA GRAVEL AS APPROVED BY ENGINEER.
3. MODULAR BLOCK UNITS MUST HAVE INTERLOCKING LIP OR PIN CONNECTIONS.
4. RETAINING WALL LOCATION SHOWN ON PLANS.
5. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR PROPOSED MODULAR BLOCK UNITS.
6. OUTLET DRAIN PIPE TO A STORM SEWER CATCH BASIN OR MANHOLE OR THROUGH FACE OF WALL.



NTS



**RETAINING WALL DETAIL
GRAVITY WALL**

Revised:
Oct. 2011
SEH Plate No.
MISC-02

SECTION 27 10 05
STRUCTURED CABLING FOR DATA AND CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Communications system design requirements.
- B. Communications pathways.
- C. Copper cable and terminations.
- D. Fiber optic cable and interconnecting devices.
- E. Communications identification.

1.02 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate requirements for service entrance and entrance facilities.
 - 2. Coordinate the work with other trades to avoid placement of other utilities or obstructions within the spaces (including underground installations) dedicated for communications equipment.
 - 3. Coordinate arrangement of communications equipment with the dimensions and clearance requirements of the underground structures and materials to be installed.
 - 4. Notify Architect of any conflicts with or deviations from the contract documents. Obtain direction before proceeding with work.
- B. Preinstallation Meeting: Convene two weeks prior to commencing work of this section to review service requirements and details with Communications Service Provider representative.

1.03 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets for each product.
- C. Shop Drawings: Show compliance with requirements on isometric schematic diagram of network layout, showing cable routings, telecommunication closets, rack and enclosure layouts and locations, service entrance, and grounding, prepared and approved by BICSI Registered Communications Distribution Designer (RCDD).
- D. Field Test Reports.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: A company having at least 3 years experience in the installation and testing of the type of system specified, and:
 - 1. Employing a BICSI Registered Communications Distribution Designer (RCDD).
 - 2. Supervisors and installers factory certified by manufacturers of products to be installed.

1.05 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective Work within a 2 year period after Date of Substantial Completion.

PART 2 PRODUCTS

2.01 SYSTEM DESIGN

- A. Provide a complete permanent system of cabling and pathways for voice and data communications, including cables, fiber optic cable (including direct burial), conduits (including underground) and wireways, pull wires, support structures, enclosures and cabinets, and outlets.
 - 1. Provide fixed cables and pathways that comply with NFPA 70 and TIA-607 and are UL listed or third party independent testing laboratory certified.

2. Provide connection devices that are rated for operation under conditions of 0 degrees F at relative humidity of 0 to 95 percent, noncondensing.
- B. Cable and System Description:
 1. Building Entrance Cable: Fiber optic - 6 strand. cable. 50 micron, OM4.
 2. Backbones - Between Buildings: Fiber optic, 6 strand-fiber.
 3. Horizontal Cabling: Copper.
 - C. Main Distribution Frame (MDF): Centrally located support structure for terminating Fiber Optic Cable, functioning as point of presence to external service provider.
 1. For the entire campus there is one main distribution frame and for each building there is a building distribution frame (BDF) that functions as the main distribution frame (MDF) for that building.
 2. Capacity: As required to terminate all cables required by design criteria plus minimum 25 percent spare space.
 3. Provide a fiber optic Convertor (equal to Transition Network units) Patch Panel at each location.
 - D. Rack Mounted UPS
 - E. Network Switch
 - F. All Other materials to provide a complete and operating system

2.02 PATHWAYS

- A. Conduit: As specified in Section 26 05 34; provide pull cords in all conduit.
- B. Underground Service: _____.
 1. All Fiber Optic Cable to be installed in HDPE with Handholes (equal to Quazite) add 600 foot travails.
 2. HDPE flexible raceway (orange in color) where physical damage is possible.
 - a. Provide #12 Stranded conductor for locating purposes.

2.03 COPPER CABLE AND TERMINATIONS

- A. Copper Backbone Cable:
 1. Cable Type: TIA-568 Category 3 UTP (unshielded twisted pair); 24 AWG.
- B. Copper Cable Terminations: Insulation displacement connection (IDC) type using appropriate tool; use screw connections only where specifically indicated.
- C. Jacks and Connectors: Modular RJ-45, non-keyed, terminated with 110-style insulation displacement connectors (IDC); high impact thermoplastic housing; suitable for and complying with same standard as specified horizontal cable; UL 1863 listed.
 1. Performance: 500 mating cycles.
 2. Voice and Data Jacks: 8-position modular jack, color-coded for both T568A and T568B wiring configurations.

2.04 FIBER OPTIC CABLE INTERCONNECTING DEVICES

- A. Fiber Optic Interconnecting Devices:
 1. Connector Type: Type SC.
 2. Connector Performance: 500 mating cycles, when tested in accordance with TIA-455-21.
 3. Maximum Attenuation/Insertion Loss: 0.3 dB.

2.05 IDENTIFICATION PRODUCTS

- A. Comply with TIA-606.

2.06 ENCLOSURES

- A. Equipment Racks and Cabinets: CEA-310 standard 19 inch wide component racks.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

- A. Comply with latest editions and addenda of TIA-568 (cabling), TIA-569 (pathways), TIA-607 (grounding and bonding), NECA/BICSI 568, NFPA 70, and SYSTEM DESIGN as specified in PART 2.
- B. Grounding and Bonding: Perform in accordance with TIA-607 and NFPA 70.

3.02 INSTALLATION OF PATHWAYS

- A. Install pathways with the following minimum clearances:
 - 1. 48 inches from motors, generators, frequency converters, transformers, x-ray equipment, and uninterruptible power systems.
 - 2. 12 inches from power conduits and cables and panelboards.

3.03 INSTALLATION OF EQUIPMENT AND CABLING

- A. Cabling:
 - 1. Do not bend cable at radius less than manufacturer's recommended bend radius; for unshielded twisted pair use bend radius of not less than 4 times cable diameter.
 - 2. Do not over-cinch or crush cables.
 - 3. Do not exceed manufacturer's recommended cable pull tension.
 - 4. When installing in conduit, use only lubricants approved by cable manufacturer and do not chafe or damage outer jacket.
 - 5. Install in conduit under roadways or similar structures. Confirm with applicable authorities for access.
 - 6. Bury cable between 26 and 33 inches below grade. Install in a separate trench 12" from the water pipe
 - 7. Provide clean fill in open cut area's.
- B. Service Loops (Slack or Excess Length): Provide the following minimum extra length of cable, looped neatly:
 - 1. At Distribution Frames: 120 inches.
- C. Copper Cabling:
 - 1. For 4-pair cables in conduit, do not exceed 25 pounds pull tension.
 - 2. Use T568B wiring configuration.
- D. Fiber Optic Cabling:
 - 1. Prepare for pulling by cutting outer jacket for 10 inches from end, leaving strength members exposed. Twist strength members together and attach to pulling eye.
 - 2. Support vertical cable at intervals as recommended by manufacturer.
- E. Identification:
 - 1. Use wire and cable markers to identify cables at each end.
 - 2. Use Orange Buried (warning) Identification tape that is 3 inches wide.

3.04 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements, for additional requirements.
- B. Comply with inspection and testing requirements of specified installation standards.
- C. Visual Inspection:
 - 1. Inspect cable jackets for certification markings.
- D. Testing - Fiber Optic Cabling:
 - 1. Multimode Backbone: Perform tests in accordance with TIA-526-14 Method B.

END OF SECTION

SECTION 28 23 00
VIDEO SURVEILLANCE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Video surveillance system requirements.
- B. Video recording and viewing equipment.
- C. Cameras.
- D. Accessories.

1.02 REFERENCE STANDARDS

- A. NECA 1 - Standard for Good Workmanship in Electrical Construction; National Electrical Contractors Association; 2010.
- B. NFPA 70 - National Electrical Code; National Fire Protection Association; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the placement of cameras with structural members, ductwork, piping, equipment, luminaires, diffusers, and other potential conflicts installed under other sections or by others.
 - 2. Coordinate the work with other installers to provide power for cameras and equipment at required locations.
 - 3. Notify Architect of any conflicts with or deviations from the contract documents. Obtain direction before proceeding with work.
- B. Preinstallation Meetings:
 - 1. Conduct meeting with facility representative to review camera and equipment locations and camera field of view objectives.
 - 2. Conduct meeting with facility representative and other related equipment manufacturers to discuss video surveillance system interface requirements.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Include plan views indicating locations of system components and proposed size, type, and routing of conduits and/or cables. Include elevations and details of proposed equipment arrangements. Include system interconnection schematic diagrams. Include requirements for interface with other systems.
- C. Product Data: Provide manufacturer's standard catalog pages and data sheets for each system component. Include ratings, configurations, standard wiring diagrams, dimensions, finishes, service condition requirements, and installed features.
- D. Maintenance contracts.

1.05 QUALITY ASSURANCE

- A. Comply with the following:
 - 1. NFPA 70
 - 2. Applicable TIA/EIA standards.
- B. Installer Qualifications: Company specializing in performing the work of this section with minimum three years experience with video surveillance systems of similar size, type, and complexity and providing contract maintenance service as a regular part of their business; authorized manufacturer's representative.
 - 1. Contract maintenance office located within 100 miles of project site.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.
- B. Store products in manufacturer's unopened packaging, keep dry and protect from damage until ready for installation.

1.07 FIELD CONDITIONS

- A. Maintain field conditions within manufacturer's required service conditions during and after installation.

1.08 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. Provide minimum one year manufacturer warranty covering repair or replacement due to defective materials or workmanship.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Video Recording and Viewing Equipment - Basis of Design: Exacqvision
- B. Video Recording and Viewing Equipment - Other Acceptable Manufacturers:
 - 1. Bosch Security Systems: www.boschsecurity.us.
 - 2. avigilon. avigilon.com
- C. Cameras - Basis of Design: Panasonic.
- D. Cameras - Other Acceptable Manufacturers:
 - 1. Bosch Security Systems: www.boschsecurity.us.
 - 2. aviligilon.avigilon.com
- E. Products other than basis of design are subject to compliance with specified requirements and prior approval of Engineer. By using products other than basis of design, Contractor accepts responsibility for costs associated with any necessary modifications to related work, including any design fees.
- F. Source Limitations: Where possible, furnish system components and accessories produced by a single manufacturer and obtained from a single supplier.

2.02 VIDEO SURVEILLANCE SYSTEM

- A. Provide new video surveillance system consisting of all required equipment, conduit, boxes, wiring, connectors, hardware, supports, accessories, software, system programming, etc. as necessary for a complete operating system that provides the functional intent indicated.
- B. System Description: IP system with connection to network (IP) cameras.
 - 1. Video Storage Capacity: Suitable for storing video from all cameras for 30 days.
 - 2. System Battery Backup: Provide batteries/uninterruptible power supplies (UPS) as required for 60 minutes full operation.
- C. Video Recording and Viewing Equipment Required:
 - 1. See article "VIDEO RECORDING AND VIEWING EQUIPMENT" below for product descriptions.
 - 2. Locations indicated on the plans:
 - a. Network Video Recorder (NVR) exacqVision "A" Series: Provide one in the Eveleth High School, one in Franklin (Eveleth) School and one in the Gilbert School. Each Unit to be installed in the main Server Rooms of each School..
 - b. Each NVR shall be capable of storing 30 camera's at 5 FPS for 30 days.
 - 1) Mouse and keyboard.
 - 3. Monitors: Wall Mounted.:
 - a. Public View Monitor(s): a 32 inch in each school office.
 - 1) Provide Wall Mounting Bracket.

- D. Provide products listed, classified, and labeled by Underwriter's Laboratories Inc. (UL), Intertek (ETL), or testing firm acceptable to authority having jurisdiction as suitable for the purpose indicated.
- E. Electromagnetic Interference/Radio Frequency Interference (EMI/RFI) Limits: Comply with FCC requirements of CFR, Title 47, Part 15, for Class B, consumer application.

2.03 VIDEO RECORDING AND VIEWING EQUIPMENT

- A. Provide video recording and viewing equipment compatible with cameras to be connected.
- B. Computers:
 - 1. Workstation Computers: Unless otherwise indicated, workstation computer hardware not furnished by video surveillance system manufacturer to be provided by Contractor as part of work of this section, meeting video surveillance system equipment manufacturer's minimum requirements.
 - 2. Servers: Unless otherwise indicated, server hardware not furnished by video surveillance system manufacturer to be provided by Contractor as part of work of this section, meeting video surveillance system equipment manufacturer's minimum requirements.
- C. Software:
 - 1. Unless otherwise indicated, provide all software and licenses required for fully operational system.
 - 2. Basis of Design: Exacqvision Pro Video Management System:
- D. Monitors:
 - 1. Unless otherwise indicated, monitors to be provided by Contractor as part of work of this section.
 - 2. Monitor: 24 inch TFT active-matrix LCD.
 - a. Resolution: Up to 1280 x 1024 (SXGA).
 - b. Manufacturers:
 - 1) Comercial Grade.

2.04 CAMERAS

- A. Provide cameras and associated accessories suitable for operation under the service conditions at the installed location. Provide additional components (e.g. enclosures, heaters, blowers, etc.) as required and scheduled.
- B. Where not factory-installed, provide additional components (e.g. lenses, mounting accessories, etc.) as necessary for complete installation.
- C. Network (IP) Cameras:
 - 1. Signal-to-Noise Ratio: Not less than 50 dB.
 - 2. Provide the following standard features:
 - a. Automatic electronic shutter.
 - b. Automatic gain control.
 - c. Automatic white balance.
 - d. Automatic Back Focus.
 - e. Web-based interface for remote viewing and setup.
 - 3. Network (IP) Indoor Fixed Dome Camera:
 - a. Camera Type: True day/night with IR cut filter.
 - b. Image Sensor: 1/4 inch CMOS.
 - c. Resolution: Up to 720p (1280 x 720).
 - d. Frame Rate: Up to 5 FPS.
- D. Camera Enclosures and Mounting Brackets:
 - 1. Where not factory-installed, provide accessory camera enclosures suitable for operation under the service conditions at the installed location.
 - 2. Where not factory-installed, provide accessory camera mounting brackets necessary for installation.

2.05 ACCESSORIES

- A. Provide components as indicated or as required for connection of video surveillance system to devices and other systems indicated.
- B. Provide network switches as required for network connections to system components.
 - 1. Product(s):
 - a. Switches to be 10/100/1000 with POE.
- C. Provide cables as indicated or as required for connections between system components.
 - 1. Data Cables for IP Network Connections: Unshielded twisted pair (UTP), minimum Category 5e, complying with Section 27 10 05.
- D. Provide accessory racks/cabinets as indicated or as required for equipment mounting.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install video surveillance system in accordance with NECA 1 (general workmanship) and NECA 303.
- B. Provide required support and attachment in accordance with Section 26 05 29.
- C. Wiring Method: Unless otherwise indicated, use wiring in conduit. Confirm Cable color with the Owner.
- D. Install cable as indicated below
 - 1. Use suitable listed cables in wet locations, including underground raceways.
 - 2. Use suitable listed cables for vertical riser applications.
 - 3. Install wiring in conduit for the following:
 - a. Where required for rough-in.
 - b. Where required by authorities having jurisdiction.
 - c. Where exposed to damage.
 - d. Where installed outside the building.
 - e. For exposed connections from outlet boxes to cameras.
 - 4. Include service loop cable lengths to allow relocation of cameras within 20 ft of installed location.
- E. Provide grounding and bonding.
- F. Identify system wiring and components.

3.02 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements, for additional requirements.
- B. Prepare and start system in accordance with manufacturer's instructions.
- C. Adjust cameras to provide desired field of view and produce suitable images under all service lighting conditions.
- D. Program system parameters according to requirements of Owner.
- E. Test for proper interface with other systems.
- F. Correct defective work, adjust for proper operation, and retest until entire system complies with contract documents.

3.03 CLOSEOUT ACTIVITIES

- A. Demonstration: Demonstrate proper operation of system to Owner, and correct deficiencies or make adjustments as directed.
- B. Training: Train Owner's personnel on operation, adjustment, and maintenance of system.
 - 1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
 - 2. Provide minimum of four hours of training.
 - 3. Instructor: Manufacturer's authorized representative.
 - 4. Location: At project site.

3.04 PROTECTION

- A. Protect installed system components from subsequent construction operations.

3.05 MAINTENANCE

- A. See Section 01 70 00 - Execution Requirements, for additional requirements relating to maintenance service.
- B. Provide to Owner, a proposal as an alternate to the base bid, a separate maintenance contract for the service and maintenance of video surveillance system for two years from date of Substantial Completion; Include a complete description of preventive maintenance, systematic examination, adjustment, cleaning, inspection, and testing, with a detailed schedule.
- C. Conduct site visit at least once every three months to perform inspection, testing, and preventive maintenance. Submit report to Owner indicating maintenance performed along with evaluations and recommendations.
- D. Provide trouble call-back service upon notification by Owner:
 - 1. Include allowance for call-back service during normal working hours at no extra cost to Owner.
 - 2. Owner will pay for call-back service outside of normal working hours on an hourly basis, based on actual time spent at site and not including travel time; include hourly rate and definition of normal working hours in maintenance contract.

END OF SECTION