Project:	**South Route 9A Medians– Landscape & Sprinkler Maintenance**	**Date:**	**7/29/16**
		RE:	**Addendum #3**
		# of Pages:	**17**

The following additional information is hereby provided with regard to the Request for Proposals for South Route 9A Medians – Landscape & Sprinkler Maintenance (the "RFP).

Clarifications:

- Attached are the irrigation specifications from New York State Department of Transportation referenced in Addendum #2 to the RFP issued on July 27 2016.

By signing the line below, I am acknowledging that all pages of Addendum #3 have been received, reviewed and understood and will be incorporated into the bid price submitted. This document must be attached to the Proposal for consideration.

Print Name	Signature	Date

Number of pages received: _____<fill in>

Item 950.1900 A (LS) – Remove and Replace Irrigation Equipment at W. Thames Street Vault
Item 950.1901 A (LS) – Remove and Replace Irrigation Equipment at Albany Street Vault

DESCRIPTION

Under this item, the Contractor shall remove and replace all irrigation system equipment and ancillary items, at the existing HRPT Irrigation System Vault located in the planted buffer area at the south-west corner of the West Thames Street and Route 9A intersection. In addition, the Contractor shall provide additional equipment and perform other items of work to modify the system as specified herein and as indicated on the drawings. Work under this item includes, but is not necessarily limited to, the following:

1) Dewater existing vault
2) Remove and dispose all existing damaged equipment and ancillary items from the vault.
3) Abandon the vault structure, work includes breaking up the bottom slab of the structure, removing the single leaf hatch, filling the vault with sand or flow-able fill, restore walkway pavement at existing castings, etc.
4) Confirm the existence and adequacy of existing telephone service lines.
5) Provide 60 Amp-3 Phase, 120/208 Volt electrical service, from existing service box and meter enclosure.
6) Provide and install replacement parts for Irrigation System equipment, including but not limited to removal of existing 3" backflow preventer enclosure at Albany Street, relocation of 3" RPZ at Albany street with new enclosure, booster pumps in enclosures, controllers, controller enclosures, concrete pads, rain sensors and the power supply for booster pumps and irrigation controllers.
7) Remove sump pump and associated dry well, vent pipe, etc. all as detailed on the drawings.
8) Remove vault venting system with exhaust fan and vent pipes.
9) Remove waterproof lighting within the vault.
10) Secure all Permits and pay related fees.
11) Replace any additional irrigation components found to need replacement.
12) Test all Irrigation System components to verify proper operation.
13) Provide "As-Built" Drawings and Irrigation System Operation Manuals.
14) Provide one-year maintenance and warranty for the system.

MATERIALS

Provide only new materials, without flaws or defects and of the highest quality of their specified class and the kind as specified and as shown on the plans. Contractor shall assure that all materials used in the installation of the Irrigation System meet the following established quality standards to the satisfaction of the Engineer.

1. Electrical Components, Devices, and Accessories shall be listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.
2. Comply with ASTM F 645, "Guide for Selection, Design, and Installation of Thermoplastic Water Pressure Piping Systems."
3. Comply with NFPA 70, "National Electrical Code" for electrical connections between wiring and electrically operated devices.

Approval: Where the terms "approve", "approval", "approved", and/or "approved equal" are used in this specification, they shall mean the approval of the Route 9A Landscape Architect in writing. The following are irrigation industry standard abbreviations for plastic materials used in the Irrigation System:

- PVC: Polyvinyl Chloride Plastic.
- PE: Polyethylene Plastic
- HDPE: High Density Polyethylene Plastic

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following or approved equals:

Paige Electric Corp.; Union, New Jersey — PRIMARY 120V POWER LIGHTING SURGE ARRESTOR
Tucor, Inc.; Wexford, Pennsylvania — SENSOR DECODER & PUMP DECODER
V.I.T. Products, Inc; Escondido, California — BACKFLOW PREVENTER ENCLOSURE
Watertronics; Hartland, Wisconsin — BOOSTER PUMP

For proper coordination of materials used in the irrigation system, all materials shall be purchased from the same supply source, although not necessarily the material of a single manufacturer. All materials shall be approved by the Engineer / Route 9A Landscape Architect.

Backflow Preventer Enclosure (Albany Street):

1. The backflow enclosure shall be of a vandal and weather resistant nature manufactured entirely of marine grade aluminum alloy 5052-H32, with a wall thickness of one eighth inch. The mounting base shall be manufactured entirely of stainless steel. The main housing shall be of solid sheet construction punched on the sides with a rectangular pattern for viewing backflow operation. The enclosure shall be a center split design having mounting lips on each end. Backflow preventer enclosure shall be model SBBC-75ALHP high profile, 18" x 75" x 39" high as manufactured by V.I.T. Products Inc.
2. Provide weather resistant heavy duty keyed lock with four (4) keys

Irrigation Booster Pump:

75 gpm

1. Package Booster Pump Station shall be rated for 283.91 LPM @ 0.31 MPa boost; 7.5 HP, 3600 RPM 208/3/60, model LST-7.5-208-3-2 as manufactured by Watertronics or approved equal. Sensor Decoder shall be a fully programmable direct bury decoder that provides a direct interface between the flowmaster controller and field sensor, programmable to operate with a 4-20 mA, analog or digital input. Sensor decoder shall be model SD-100 as manufactured by Tucor, Inc. or approved equal
3. Pump Decoder shall interface between the 2-wire path and booster pump motor start relay coil. Pump decoder shall be model PD-100 as manufactured by Tucor.

Power Supply Surge Protection to Irrigation Controller:

Primary 120V power lightning surge arrestor with visible green LED indicator to be Paige Electric model #250090LED. Provide Paige Electric model #250090BRKT mounting bracket or approved equal.

Irrigation Controller Enclosure:

1. Enclosure to be of a vandal and weather resistant nature and manufactured entirely of 304 grade stainless steel. Enclosure to be Strong Box model SB-24SS with Pedestal model PED-24SS or approved equal.

2. Enclosure to include keyed heavy duty weather resistant lock. Supply four (4) keys.

Irrigation Controller with Rain Sensor:

1. Controller shall consist of Tucor controller, with internal modem and cellular communication package. The existing controller shall be exchanged model TWC-NV EXCHANGE for a TWC-TWI-100 with communication card model WIN-200. as manufactured by Tucor, Inc or approved equal.

2. Rain Sensor shall be Mini-Click II, model 502C with sensor guard as manufactured by Hunter or approved equal. Contractor shall make allowance for 30 m of rigid conduit to install the rain sensor.

Irrigation 2-Wire Path and Conduit:

1. Control Wire shall be double jacketed two (2) conductor cable specially designed for use with the 2-wire control system, suitable for direct burial. The conductors shall be tin coated, soft drawn, annealed, solid copper conforming to ASTM 33 with 1.5 mm thick PVC (polyvinyl chloride) insulation, conforming to UL Standard #493 for thermoplastic-insulated style UF (Underground Feeder), rated at 60 degree C.
2. Conduit for Control Wire shall conform to both the New York City Building Code and the New York City Electrical Code.
3. Junction Boxes shall be polymer concrete 280 mm x .5 m x .3 m Quazite # PC1118DG12 flush mounted with heavy duty polymer concrete cover, Quazite #PC1212HG00 neoprene gasketed and cover logo "Electric," or approved equivalent.

Pipe and Fittings:

1. Irrigation main line piping to be HDPE SDR-11 (160psi) (Butt Fusion) High Density Polyethylene Pipe (HDPE). Pipe shall be manufactured from a PE 3408/3608 resin listed with the Plastic Pipe Institute (PPI) as TR-4. The resin material will meet the specifications of ASTM D3350-05 with a cell classification of PE 345464C. Pipe shall be manufactured to the dimensions and requirements of ASTM F714. The pipe shall contain no recycled compounds except that generated in the manufacturer's own plant from resin of the same specification from the same raw material. All HDPE pipe shall be in straight lengths. Manufacturer should be ISO 9001:2008 certified or have a similar quality assurance and control program. The Pipe shall be manufactured by J.M Eagle or approved equal.
2. Piping for backflow preventer and booster pump to be Ductile iron pipe, where specified or shown, to be class 52 cement lined, mechanical joint, ANSI/AWWA C151/A21.51.
3. Cast iron fittings for backflow preventer and booster pump to be Standard Class 125 and made to ANSI B16.1 specifications. Flanges to have dimensions to conform to #WW F-406. Size to correspond to the pipe dimensions used.

Irrigation 2 - Wire Path Grounding Package:

1. Field Surge Protector shall be model SP-100 as manufactured by Tucor, Inc or approved equal.
2. Ground Rods shall be 16 mm by 2.5 m copper clad steel rods. Ground rod connectors to be of the Caldwell "one shot" fuse type - Model GR1-161G or GTl-161G or approved equal, as required.
3. Earth Grounding Wire (to the ground rods) shall be AWG #6/1 solid bare copper conductor. Ground wire from rod to rod to be AWG #6/l solid bare copper conductor.
4. Ground Rod Box shall be Carson/Brooks 150 mm Econo-box, Model 708 or approved equal.

Electrical System:

1. **Load Center shall be GE Model TLM-612RH with Type THQL-GFCI Plug-in breaker, or approved equal.**
2. **Fused Safety Switch shall be GE Model TH3221RH, or approved equal.**
3. **Ground Fault receptacle shall be Hubbell Model GF-5362 with WP-26 wall plate, or approved equal**
4. **Install all conduits, switches, breakers, receptacles and other electrical equipment per NFPA 70 (National Electric Code). All electrical materials shall be moisture proof and suitable for wet locations.**

ACCESSORY MATERIALS

Contractor shall furnish accessory materials as required including; crushed stone, geotextile fabric, Class A concrete where needed in accordance with Specifications Section 555, Structural Concrete.

EXISTING CONDITIONS/NECESSARY WORK

An inspection of the existing vault and equipment in the vault was performed in July 2015. At that time both vaults were filled with water and after further discussions with NYSDOT it was determined that a new Booster Pump and Irrigation Controller would be relocated above ground and that the vault abandoned.

The Contractor shall provide all new equipment and shall make the Irrigation System operational. This may necessitate adjustment of some or all of the existing valves, sprinkler heads, drip irrigation system components or other parts or equipment, to ensure a functional Irrigation System. If there is equipment or parts that needs to be replaced to make the system functional, the Contractor shall replace such part or equipment with similar and compatible part or equipment, as Ordered by the Engineer. Payment for replacement of ancillary parts or equipment shall be included under this Item.

CONSTRUCTION DETAILS

System Design

1. Working Pressures: The operating pressure requirement for the irrigation system is 300 Lpm at 0.50 mPa.

Quality Assurance:

The Contractor shall submit the following qualifications to the Engineer / Route 9A Landscape Architect for review and approval prior to ordering materials:

1. Qualifications: Irrigation System Equipment Replacement Subcontractor shall have at least five years of successful installation experience on projects with water distribution work similar to that required for the Project to the satisfaction of the Route 9A Landscape Architect. The work of this section shall be performed by a firm of established reputation which is regularly engaged in and which maintains a regular force of workmen skilled in the installation of the type of work specified in this section. Prior to the agreement to perform this work, the Contractor shall submit to the State a list of several comparable irrigation projects that have been completed by his proposed Irrigation System Equipment Replacement Subcontractor within the past five years. The Sub-Contractor shall list project names and locations, names of the owners, their telephone numbers and dates on which the work on each project was started and completed. If the Subcontractor is unacceptable to NYSDOT, the Contractor must submit alternative Subcontractors until accepted by NYSDOT.

Permits and Fees:

The Contractor shall obtain all permits and pay required fees to any governmental agency having jurisdiction over the work, at no additional cost to the State. Contractor shall arrange for all inspections required by local ordinances during the course of construction. On completion of the work, satisfactory evidence shall be furnished by the Contractor to show that all work has been installed in accordance with the local ordinances and code requirements to the satisfaction of the Route 9A Landscape Architect.

Rejection:

The State reserves the right to reject any material or work that does not conform to the Contract Documents. Rejected work shall be removed or corrected at no cost to the State.

Coordination:

1. Pre-Installation Conference: Before any work is started, a conference shall be held between the Contractor, Irrigation Subcontractor, Engineer and the Route 9A Landscape Architect concerning the work to be performed under these items.

2. Coordination: Contractor shall coordinate, and cooperate with all other Contractors on site to enable the work to proceed as efficiently as possible. Contractor shall coordinate all aspects of irrigation system installation with all other utility installations.

Warranty:

Warranty / Maintenance: All work shall have a one (1) year Warranty from date of acceptance against all defects in material, equipment and workmanship. Warranty shall also cover, during the 1-year period, repair of damage to any part of the premises, including all plant material resulting from leaks or other defects in material, equipment and workmanship to the satisfaction of the Engineer. Repairs to any parts of the system, if required, shall be performed promptly, at no cost to the State.

Project Site Conditions:

1. Inspection of Site: Contractor shall perform site survey, review record plans & public utility records, and verify existing utility locations. Excavation shall be performed with care. Should utilities, not shown on the plans, be found during excavation, promptly notify the Engineer for instructions as to further action. The Contractor is liable for damage to any existing utilities encountered on the site.
2. Existing Plant Material and Site Conditions: The Contractor shall take all necessary precautions to protect existing plant material and site conditions.
3. Vault Inspection: Prior to starting any work under this Item, the Contractor shall dewater the existing vault. The Contractor will inspect the existence and condition of the existing electrical and telephone service lines. The Contractor shall submit a report to the Engineer, highlighting the condition and adequacy of the existing service connections. The report shall contain drawings, sketches, photographs, computations, etc. to substantiate the Contractor's assertions regarding the service connections.

Submittals / Shop Drawings;

1. Shop Drawings: Contractor shall submit six paper copies of shop drawings. These shop drawings should include and highlight all information that either differs from or supplements that shown on the Contract Drawings.
2. Catalog Cuts: Contractor shall submit six copies of the Catalog Cuts of all components and equipment that the Contractor is to provide under this item of work, to the Engineer and must obtain written approval from the Engineer prior to installation.

3. Technical Product Data shall include pressure rating, rated capacity, settings, and electrical data of selected models for the following irrigation materials of this item and the related items including:

   Irrigation Booster Pump
   Power Supply to Booster Pump
   Irrigation Controller • Include wiring diagrams.
   Rain Sensor (If Required)
   Irrigation Wiring and Conduit
   Junction Boxes

4. The shop drawings shall indicate the layout of all equipment. Indicate all interconnections, wiring diagrams, piping diagrams, etc.

Construction Record Drawings:

1. Contractor shall submit one set of Construction Record Drawings for the Irrigation System showing all components of the actual completed construction. Construction Record Drawings for Irrigation System' shall be created from work progress sheets that will be legibly marked as work proceeds. Drawings shall identify field changes in dimension and detail, and all changes made because of Change Orders and/or by field directives of the Engineer. The work progress sheets shall be kept on-site and be available for review and ongoing / final approval by the Route 9A Landscape Architect. 'Construction Record Drawings for Irrigation Pumping System' shall be plotted at a drawing scale of 1" = 10' placed on 11" x 17" plan sheets.
2. The "Construction Record" drawings will show final location of all equipment and devices installed under this Item. The drawings shall also indicate approved substitutions of size, materials and manufacturer's names and catalog numbers. The "Construction Record Drawings for Irrigation Pumping System" shall be delivered to the State prior to final acceptance of the work and review/ punch list to be done by Rt. 9A Landscape Architect.
3. The Contractor shall accurately record on the "Construction Record Drawings", as each decoder is being installed, the address number of the decoder at that location. Contractor shall also indicate which remote control valves are controlled by each specified decoder.

Irrigation System Operations Manual:

Contractor shall submit two (2) Irrigation Pumping System Operations Manuals in hardcopy describing the full operation, care and maintenance of the entire Irrigation Pumping System with reference to Manufacturer's specifications, catalog cuts and technical data. Contractor shall index the Irrigation Pumping System Operations Manual in proper functional order. Contractor shall also submit one (1) copy of Operations Manual on CD-ROM to the Engineer.

Delivery, Storage and Handling:

Contractor shall comply with the following to the satisfaction of the Engineer:

1. Deliver the irrigation system components in the manufacturer's original undamaged and unopened containers with labels intact and legible.
2. Protect all materials from weather. Store indoors and maintain temperature higher than ambient dew-point temperature. Support off ground or pavement in watertight enclosures when outdoor storage is necessary.

Preparation and Layout:

1. The Contractor shall be responsible for full and complete layout of all equipment to the satisfaction of the Route 9A Landscape Architect and the Engineer.
2. Work shall include all necessary work, including but not limited to Basic Maintenance and

Protection of Traffic, Construction Signs, and Mobilization, for the restoration of the Irrigation Control System. This work shall be performed in accordance with the appropriate sections of the Standard Specifications.

3. All excavation shall be done by hand where indicated on the plans and/or as directed by the Engineer.
4. Coordinate irrigation work with plumbing, electrical, planting and sleeve work.
5. The Contractor is responsible for proper working of all the system components supplied and installed under this item of work.

Pipe Installation:

All pipe and fittings shall be installed as per the written specifications by manufacturer of the pipe. Pipe and fittings shall be thoroughly cleaned of dirt, dust and moisture before fusing pipe. Pipe may be assembled and fused on the surface. Snake pipe from side to side of trench bottom to allow for expansion and contraction. Make all connections between HDPE pipe and metal valves or D.I. with approved transition fittings.

Testing:

The entire system installed under this Item shall be hydrostatically and electrically tested and inspected. The Contractor shall notify the Engineer in writing at least forty-eight (48) hours in advance of testing. Testing to be accomplished at the expense of the Contractor and in the presence of the Engineer. The system shall be made fully operational to the satisfaction of the Route 9A Landscape Architect and the Engineer.

Backfill and Compacting:

After system is operating and required tests and inspections have been made, backfill excavations and trenches with clean soil, free of rubbish. Backfill for all trenches shall be compacted to minimum 90 percent density. Dress off all areas to finished grades.

SYSTEM VERIFICATION

Verify that all required system components are in place and are operational. If any equipment or system component is not in place or is not functional, the same shall be provided to match existing or as required to make the system fully operational. The work shall be in conformance with the following:

Irrigation Booster Pump System:

The Contractor is responsible for providing all materials, equipment and labor necessary to install all items associated with the packaged pump station. When discharge piping, electrical connections and electrical inspection are completed and the irrigation system is capable of delivering one-hundred percent (100%) of the total system demand, Contact the pump station manufacturer for start-up and testing. Perform start-up and testing in the presence of Manufacturer's authorized representative. During start-up, test the complete pumping system for normal start, stop, start and stop under fully loaded operating conditions. During this, test the pump to demonstrate its ability to operate without undue vibration or overheating and to demonstrate without question its general fitness for service. Correct all defects and make adjustments as required. After the start-up has been completed, but before leaving the job site, a training session will be given. The training session will be given to the Engineer and Hudson River Park Trust (HRPT) representatives to familiarize them with the pumping system operation, maintenance and adjustments. Contractor shall be responsible for all wiring and associated equipment to connect power supply to the booster pump. All wiring shall be in accordance with all state and local codes. Install sensor decoder on Watertronics Flow Sensor and connect to the Tucor 2-wirc path in accordance with manufacturer's

specifications. Install pump decoder to Watertronics Booster Pump relay and to Tucor 2-wire path Controller to start booster pump. Install sensor decoder on flow sensor and connect to the Tucor 2-wire path in accordance with manufacturer's specifications.

Backflow Preventer Enclosure:

1. Backflow preventer enclosure to be mounted on concrete pad as shown in detail drawings. Pad surface to be one (1) inch above grade. The exposed edges and corners to be beveled 3/4". Contractor to produce a smooth finish free from water and air pockets, segregated material, or honeycomb. There to be created no concave surfaces in which water will be retained. The tread area of the pad surface to be then brushed with a course broom to create a non-skid surface.

Existing 3" Backflow Preventer (Albany Street):

1. The existing backflow preventer to be relocated and installed in a location Approved by the Owner's Representative.
2. Pipelines should be thoroughly flushed to remove foreign materials.
3. Install backflow preventer in accordance with ANSI/AWWA Standard C600 and the manufacturer's printed instructions. Backflow preventer shall be readily accessible for testing, repair or maintenance.
4. Install backflow preventer as per state and local codes.
5. Construct thrust blocks behind bends, tees, caps and plugs. Cast concrete against undisturbed earth and place support so it will not interfere with making joints. Use tie-rods for anchorage when required or approved.
6. Disinfect pipe and fittings in accordance with the local water authority's recommendations.
7. Upon completing the installation of the backflow preventer the Contractor to have, at no additional costs to the Owner, the backflow preventer inspected and tested by a certified tester recognized by the State of New York and the City of New York.

Power Supply to Booster Pump and Irrigation Controller:

1. Provide power to the controller from a dedicated circuit. Include one circuit with full time 110VAC GFCI outlet and 110VAC to the controller with on/off switch.
2. Contractor shall be responsible for all wiring and associated equipment to connect power supply from dedicated circuit to the controller.
3. Install all wiring in accordance with local, state and national codes.

Irrigation Controller Enclosure:

8. Controller enclosure to be mounted on concrete pad as shown in detail drawings. Pad surface to be one (1) inch above grade. The exposed edges and corners to be beveled 3/4". Contractor to produce a smooth finish free from water and air pockets, segregated material, or honeycomb. There to be created no concave surfaces in which water will be retained. The tread area of the pad surface to be then brushed with a course broom to create a non-skid surface.

Irrigation Controller:

1. Controller:
   a. Controller shall be mounted in stainless steel enclosure in a location approved by the Engineer, in accordance with manufacturer's specifications and connected so as to form an operational system. Contractor shall coordinate factory start up.
   b. Controller shall be installed on a dedicated circuit in accordance with local codes.

Rain Sensor:

Verify that the rain sensor is operational. If the Rain Sensor is not operational or is missing, provide a new Rain Sensor in a location approved by the Engineer in accordance with manufacturer's instructions. Install all wire inside conduit.

Irrigation 2-Wire Path and Conduit:

1. Conduit:
   a. Install electrical conduit for control wiring.
   b. Backfill and thoroughly compact around all conduit.
   c. All conduit shall have a minimum cover of .6 m.
2. Controller Grounding:
   a. Install a 16mm diameter copper clad steel ground rod, minimum 2.5 m long, 0.6 m from the controller. Bare AWG#6 Wire and a one-piece bronze clamp shall connect the controller to the ground rod.
   b. Ground rods must have 10 ohms or less resistance to the earth in which they are driven.
   c. Bare AWG #6 copper wires shall be tied to the system ground.
   d. Install another ground rod at the end of the #6 wire.
   e. Cover the ground rods with a Toro #850-00 cap, or approved equivalent.
   f. Install satellite pedestal and wire conduits in accordance with manufacturer's instructions.
   g. Install a circuit breaker on a 120 VAC line which feeds only to the satellite controller.
   h. No satellite station shall be connected until the ground is tested and found to be 10 ohms or less.
3. 2-Wire Path:
   a. Install conduit for 2-wire path at least 0.6 m below finish grade.
   b. Install Tucor control wires in conduit in mainline trenches. Place wires in trench adjacent to pipe.
   c. Provide expansion joints in wire at 61 m intervals along main line.
   d. Install conduit under pavements in PVC sleeves. Coordinate location of sleeve locations.
   e. Provide 0.9 m long wire loop with expansion joint at remote control valves in control boxes to allow raising the valve bonnet to the surface without disconnecting the wires when repair is required. At all splice and valve assemblies make 5-6 turns of the wire around a piece of 0.5 NPS PVC pipe to allow for thermal expansion and contraction.
   g. Connect each remote control valve to one line decoder and connect to two-wire path.
   h. Make all two-wire connections to automatic valves completely waterproof using DBY connector kits in strict accordance with the manufacturers recommendations.

Irrigation 2-Wire Path Grounding Package:

Install a 16 mm diameter copper clad steel ground rod, minimum 2.5 m long, 0.6 m from the controller. Bare #6 Wire and a one-piece bronze clamp shall connect the controller to the ground rod. Ground rods must have 10 ohms or less resistance to the earth in which they are driven. Bare AWG #6 copper wire shall be tied to the system ground. Install another ground rod at the end of the #6 wire. Cover the ground rods with a Toro #850-00 cap, or approved equivalent.

Surge Protection:

All Surge Protection, Grounding and Installation of equipment, therefore specified, to be installed in strict compliance with the manufacturer's recommendations and in accordance with local, State and Federal codes and requirements. Install the lightning (LED) surge arrestor in the controller enclosure according to

the manufacturer's written recommendations. Surge protection SP-100 shall be installed at every line termination point. Install first SP-100 within 30 m of central control system. Additional installations of SP-100's are needed after every additional 180 m of wire cable, located at the nearest line decoder. The SP-100 ground wires to be connected to a single grounding rod. Measure with Vibra-Ground or similar type instrument OHM reading at each grounding location. The Grounding Network to measure not more than 15 OHMS. Record OHM readings at each grounding location on "Construction Record Drawings".

Connections:

Connect piping to valves1 sprinklers, and specialties as required. Tighten electrical connectors and terminals according to the Manufacturer's published torque tightening values. If manufacturer's torque values are not provided, use those specified in UL 486A and UL 486B.

Testing and Adjustment:

Adjust automatic control valves to provide flow rate at rated operating pressure required for each sprinkler circuit.
Adjust lawn sprinklers so they will be flush with finish grade. Adjust settings of controller. Adjustment of the sprinkler equipment is to be done upon completion of the installation to provide optimum performance and to assure that all sprinklers are properly set to grade. Adjust all automatic valves by means of the flow control stem and verify sprinkler discharge pressure on each lateral zone, with a pilot tube and gauge, to obtain optimum sprinkler performance. Notify the Engineer and the Route 9A Landscape Architect seventy-two (72) hours prior to testing.

Clean-Up:

Remove and legally dispose of all excess materials resulting from the work operations of this section. Accumulation of materials for disposal is not permitted. Disposal is to be made as fast as materials accumulate. Job site must be left clean and repaired as per Contract specifications and the Engineer's approval.

Demonstration:

After the system has been installed and prior to final review, test the entire system and demonstrate to the Route 9A Landscape Architect that the automatic controls function properly. Review maintenance information.
Provide seven (7) days advance written notice of demonstration.

Final Review and Acceptance:

Upon completion of demonstration of the system operation and when the "Construction Record Drawings" have been submitted, a final review of the irrigation system will be made by the Route 9A Landscape Architect upon written notice requesting such a review. Submit the written notice at least seven (7) days prior to the anticipated review. Upon final review and acceptance, the State will notify the Contractor, in writing, as to final acceptance of the irrigation system equipment. Date of the final acceptance by the State is the date beginning the warranty period for the new equipment installed under this Item. Any irrigation system equipment item required under this Contract that is malfunctioning or in need of repair is to be removed and replaced. All replacements are to be of equipment and/or material originally specified. The cost of replacement is to be borne by the Contractor. All adjacent materials/grade must be restored upon completion of repair/testing of the system to the satisfaction of the Engineer. Upon acceptance of the entire system, instruct the Route 9A Landscape Architect in the complete operation of the entire system.

METHOD OF MEASUREMENT

Measurement for the Remove and Replace Irrigation System Equipment at the Existing Vaults will be on a Lump Sum basis for a satisfactorily completed Irrigation System equipment installed (at each location) made operational, documented, warranted and maintained in accordance with this specification. The price bid shall include the cost of all work and equipment specified herein, noted on the plans, and required for the satisfactory operation of the irrigation system, including, equipment foundation pads, ancillary parts as required, etc. The price bid shall include the cost of all testing and adjustment of the entire Irrigation System components. Measurements and payment for providing and installing any additional equipment or system part not listed in the specifications or shown on the drawings shall be made under the Extra Work provisions of the Contract.

Seventy five percent of the bid price will be paid in proportion to the total amount of work satisfactorily completed as determined by the Engineer.

- 10% after removal and disposal all existing damaged equipment and to abandon & fill the vault space.
- 35% for Procurement of Materials (ie: Booster Pump, Irrigation Control Equipment & Enclosures).
- 25% After Installation of Booster Pump, Irrigation Control Equipment & Enclosures.

The remaining twenty five percent will be paid upon testing and acceptance of the system.

BASIS OF PAYMENT

Payment will be made at the Lump Sum bid price for Remove and Replace Irrigation System Equipment at Existing Vault which shall include the cost of all labor, materials and equipment necessary to complete the work of furnishing and installing an operational irrigation system equipment as shown on the plans and in accordance with these specifications and directions by the Engineer. Payment at the Lump Sum bid shall also include the cost of preparing "as-built" plans, operational/instruction manuals for the system, providing training and providing a one (1) year Warranty with maintenance as specified.

RPZ (ALBANY)

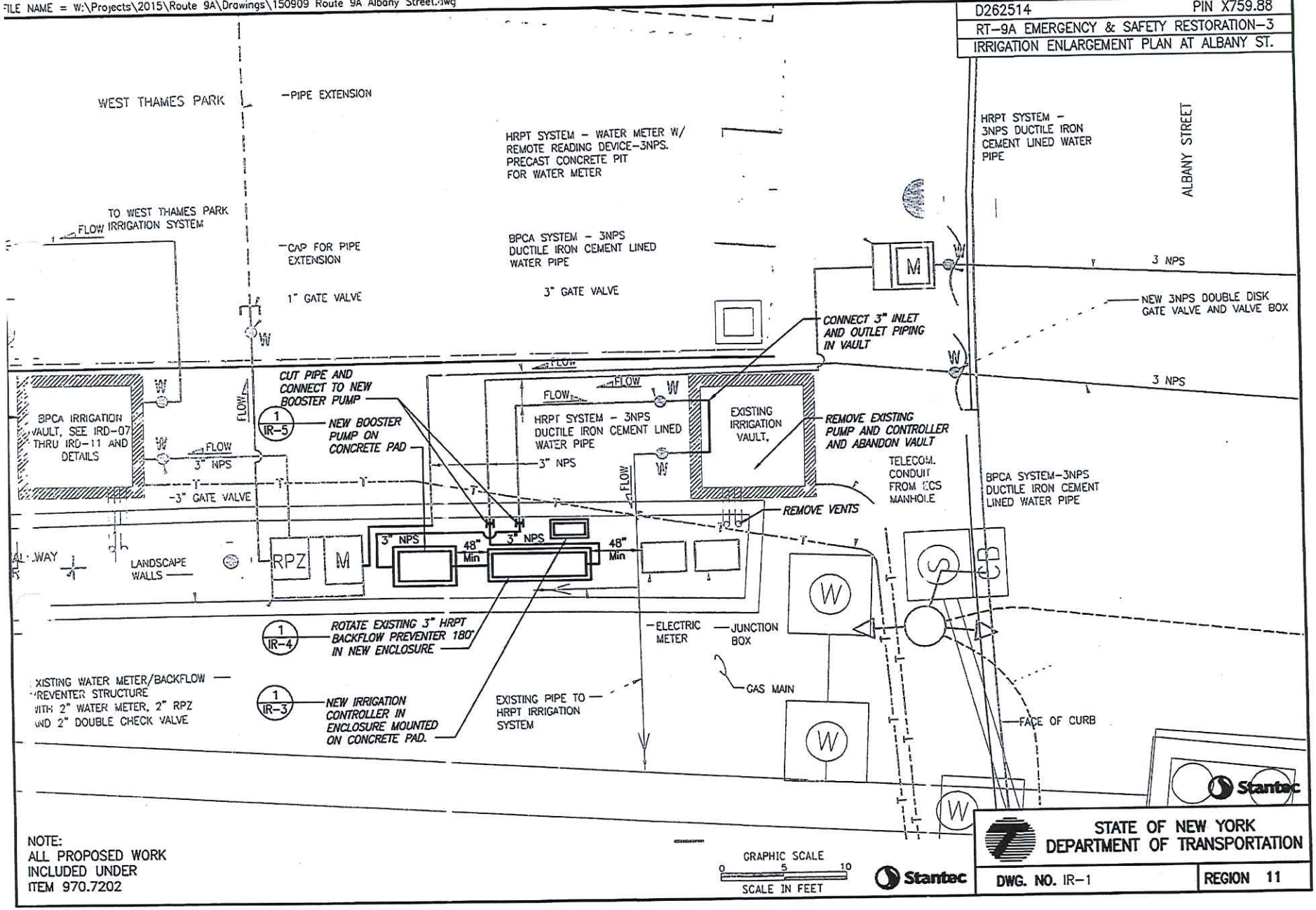
FILE NAME = W:\Projects\2015\Route 9A\Drawings\150909 Route 9A Albany Street.dwg

DATE/TIME = Sep 10, 2015 - 5:09pm

D262514 PIN X759.88

RT-9A EMERGENCY & SAFETY RESTORATION-3

IRRIGATION ENLARGEMENT PLAN AT ALBANY ST.



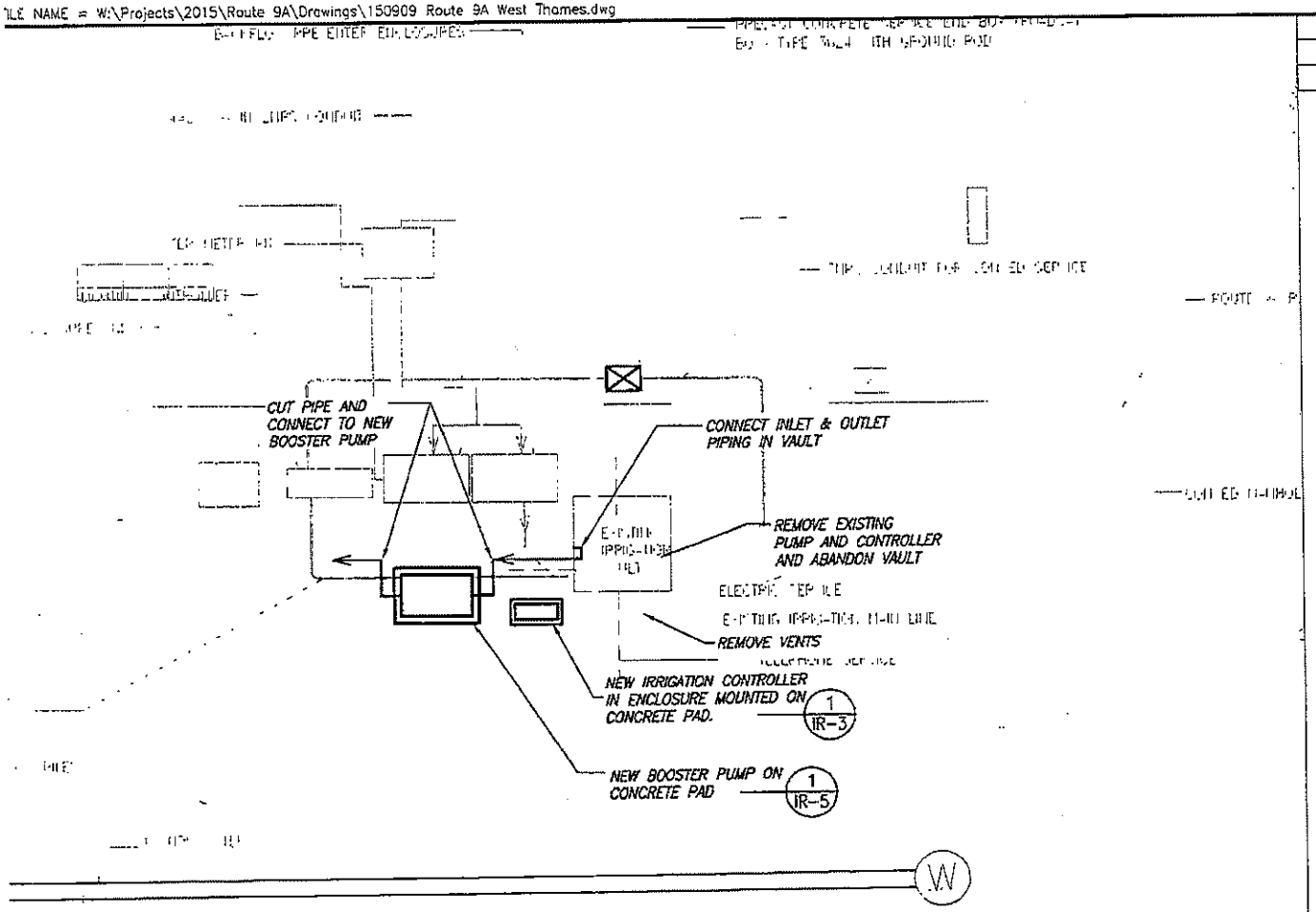
NOTE:
ALL PROPOSED WORK INCLUDED UNDER ITEM 970.7202

GRAPHIC SCALE
0 5 10
SCALE IN FEET

Stantec

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION

DWG. NO. IR-1 | REGION 11



NOTE:
ALL PROPOSED WORK INCLUDED UNDER ITEM 970.7201

GRAPHIC SCALE
0 5 10
SCALE IN FEET

Stantec

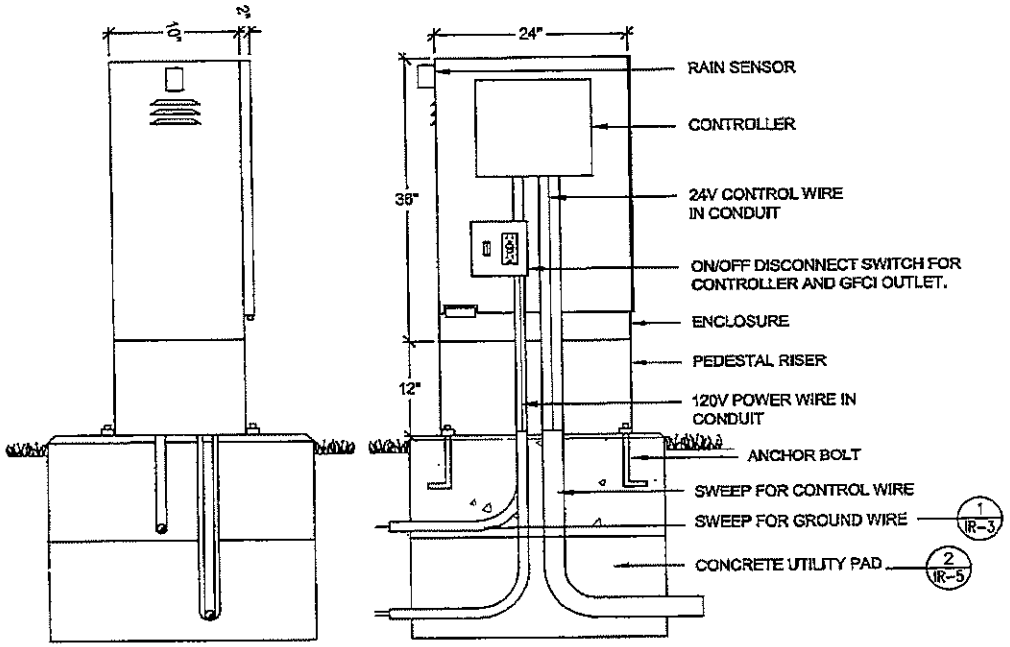
D262514 PIN X759.88
RT-9A EMERGENCY & SAFETY RESTORATION-3
IRRIGATION ENLARGEMENT PLAN WEST THAMES ST.

Stantec

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION

DWG. NO. IR-2 | REGION 11

D262514	PIN X759.88
RT-9A EMERGENCY & SAFETY RESTORATION-3	
IRRIGATION DETAILS	

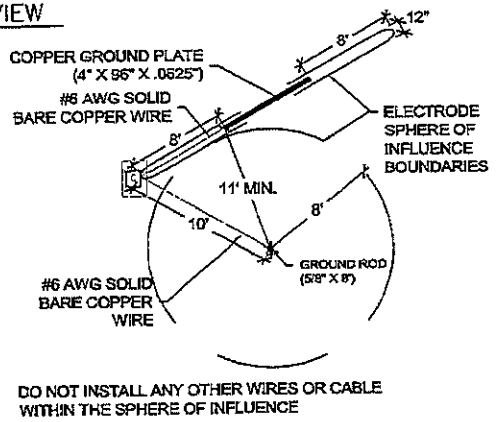


ITEM 950.7201 & 950.7202

2 IRRIGATION CONTROLLER ENCLOSURE

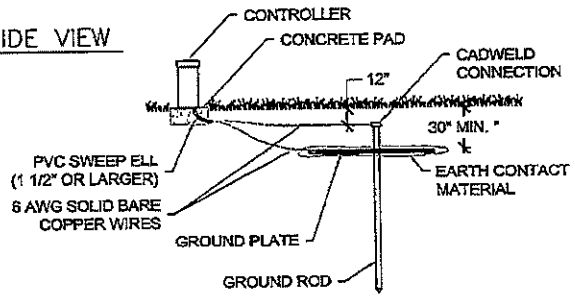
NOT TO SCALE

TOP VIEW



DO NOT INSTALL ANY OTHER WIRES OR CABLE WITHIN THE SPHERE OF INFLUENCE

SIDE VIEW



ITEM 950.7201 & 950.7202

1 IRRIGATION CONTROLLER GROUNDING

NOT TO SCALE

ITEM 950.7201 & 950.7202

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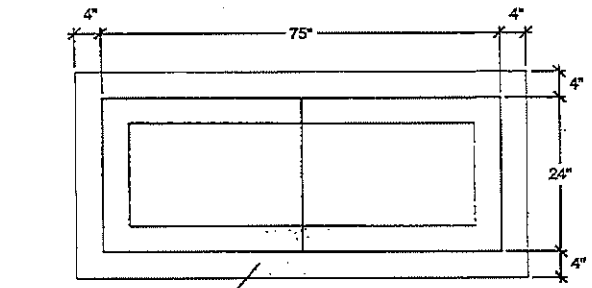
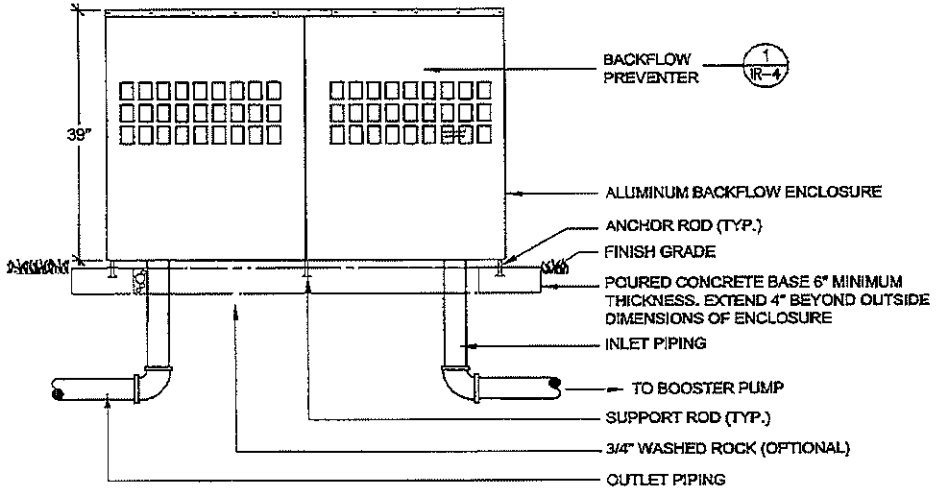
DWG. NO. IR-3 | REGION 11

D262514	PIN X759.88
RT-9A EMERGENCY & SAFETY RESTORATION-3	
IRRIGATION DETAILS	

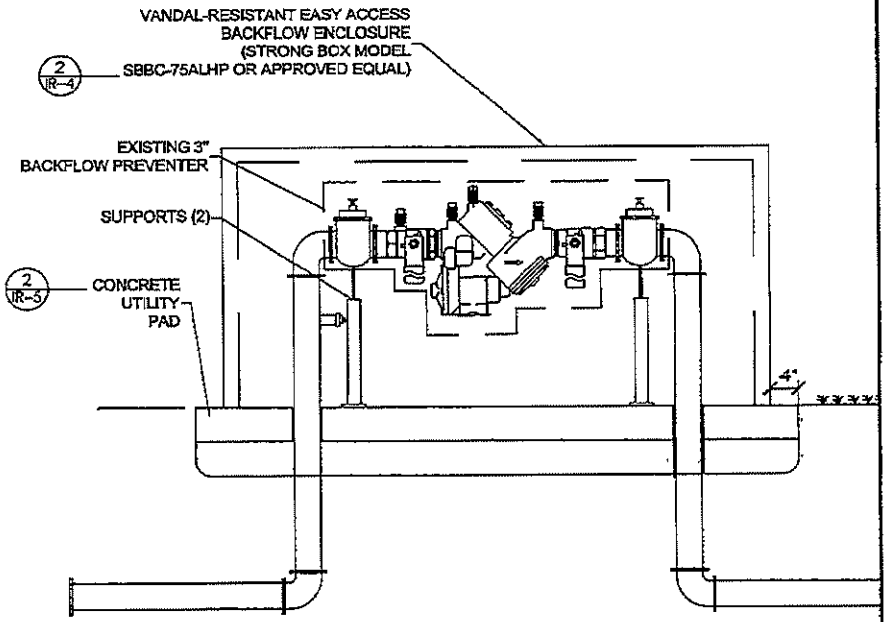


PLAN VIEW



SECTION VIEW

ITEM 950.7202
2 BACKFLOW PREVENTER ENCLOSURE
NOT TO SCALE



NOTE: ALL JOINTS ON BACKFLOW PREVENTER SHALL TO BE RESTRAINED JOINTS

ITEM 950.7202
1 BACKFLOW PREVENTER
NOT TO SCALE

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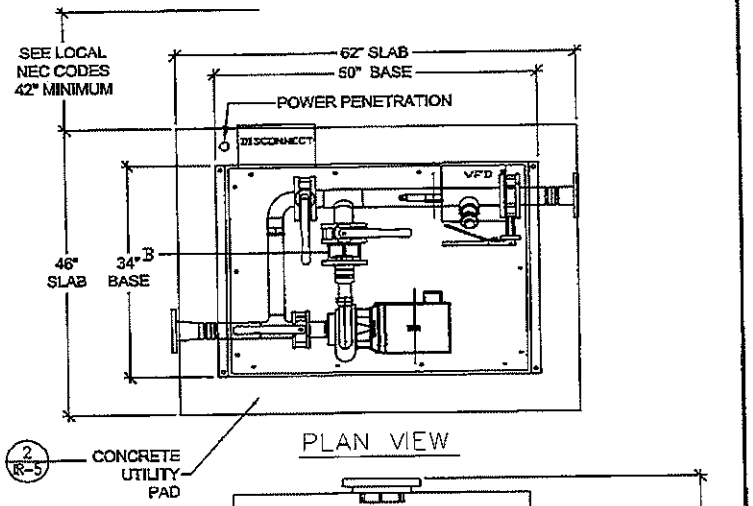
DEPARTMENT OF TRANSPORTATION

DWG. NO. IR-4	REGION 11

D262514 PIN X759.88

RT-9A EMERGENCY & SAFETY RESTORATION-3

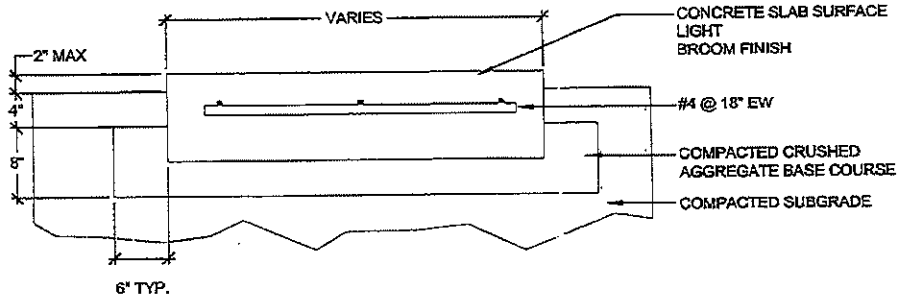
IRRIGATION DETAILS



ITEM 950.7201 & 950.7202

1 BOOSTER PUMP

NOT TO SCALE



ITEM 950.7201 & 950.7202

2 CONCRETE SLAB - TYPICAL

NOT TO SCALE

ITEM 950.7201 & 950.7202

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