SECTION 32 11 00 MAINTENANCE AND PROTECTION OF TRAFFIC

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This work shall consist of maintaining pedestrian and vehicular traffic and protecting the public from damage to person and property within the limits of and for the duration of the contract.

B. Traffic shall be maintained over a reasonably smooth travel way which shall be marked by the use of flagman, traffic signs, barricades, lights and other devices and methods to maintain the safety of those persons coming in contact with the construction site, both day and night.

C. Coordination of trucks, equipment and parking for construction workers.

D. Removal of equipment and devices upon completion of the related work.

PART 2 PRODUCTS

2.01 SIGNS, LIGHTS AND DEVICES

A. Barricades, lights, signs, and fencing as required for the work of this section.

B. Traffic Cones and Drums, Flares and Lights: as required for the work of this section.

C. Flagman and flagman equipment as required for work of this section.

PART 3 EXECUTION

3.01 GENERAL

A. Maintain the surface condition of traveled ways. Existing pavements shall be kept in repair using materials compatible with the pavement.

B. Maintain the drainage facilities and other site elements, old or new, including that on detours.

C. Provide adequate protection for pedestrian traffic during construction.

D. Provide the necessary traffic control equipment and flagmen for adequate traffic control on the traveled way and in accordance with the plans.

E. Make all necessary repairs to existing pavements and wearing surfaces as required to provide a reasonably smooth traveled way where vehicle operation is maintained.

F. Protect the public from damage to person and property which may result directly or indirectly from the construction operations.

G. Schedule the work to keep to a minimum the amount of pavement and/or facilities that are destroyed or torn up at any one time.

H. Control dust and keep the traveled way free from materials spilled from hauling equipment. This shall also apply to dust control and spilled material resulting from the Contractor's operations in the areas outside the contract limits.

3.02 PROJECT SITE PATROL

A. The Contractor shall provide personnel to patrol the contract area as necessary to ensure that conditions on the site are adequate for public safety and convenience at all times.

3.03 CONSTRUCTION PARKING CONTROL

A. Control construction related vehicular parking to prevent interference with public traffic and access by emergency vehicles.

3.04 FLAGPERSONS

A. Provide trained and equipped flag persons to regulate and control traffic as required.

3.05 HAUL ROUTES

A. Consult with authority having jurisdiction, establish public thoroughfares to be used for haul routes and site access.

3.06 TEMPORARY TRAFFIC SIGNS

A. The Contractor shall furnish, install, move, remove and maintain construction signs, construction barricades, lights, fencing, drums and cones as required to maintain effective traffic control. Relocate as work progresses.

3.07 REMOVAL

A. Remove equipment and devices when no longer required.

END OF SECTION

SECTION 32 11 23
AGGREGATE BASE COURSE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Install aggregate subbase courses for all new pavements.

1.02 RELATED SECTIONS

A. Section 31 2200 – Earthwork and Site Grading.

B. Section 31 1100 – Aggregate materials and geotextiles.

1.03 REFERENCES

A. ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures.

B. ASTM D2167 - Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.

C. ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

D. ASTM D3017 - Test Methods for Moisture Content of Soil and Soil-Aggregate Mixtures.

E. ASTM C136 - Method for Sieve Analysis of Fine and Coarse Aggregates.

F. NYSDOT Standard Specifications (latest edition) section 203-3.12 compaction.

1.04 SUBMITTALS

A. Contractor shall submit gradation and mechanical analysis for each aggregate sub-base material to be used.

1.05 QUALITY ASSURANCE

A. Testing and Inspection Service: Contractor shall employ and pay for a qualified independent geotechnical testing and inspection service/laboratory to perform soil testing and inspection service during earthwork operations.

B. Testing Laboratory Qualifications: To qualify for acceptance, the geotechnical testing and inspection service/ laboratory must demonstrate to Director’s Representative satisfaction, based on evaluation of laboratory-submitted criteria conforming to ASTM E 699, that it has the experience and capability to conduct required field and laboratory geotechnical testing without delaying the progress of the work.

PART 2 PRODUCTS

2.01 MATERIALS

A. See Section 31 1100 – Aggregate materials, for Aggregate Subbase Course materials and geotextiles.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify substrate has been inspected, gradients and elevations are correct, including crowns and cross sections, and is dry.

3.02 PREPARATION

A. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.

B. Do not place fill on soft, muddy, or frozen surfaces.

C. Proof-roll subgrade with a smooth drum roller (with vibratory capability with a minimum static drum weight of 10 tons. A minimum of 3 passes shall be made in one direction, followed by 3 overlapping passes in a direction perpendicular to the first.

D. Install filtration and stabilization geotextiles in accordance with the plans and manufacturer's recommendation.

3.03 AGGREGATE PLACEMENT

A. Place aggregate sub-base on the prepared sub-grade in layers of uniform thickness, conforming to the cross-section and thickness indicated on the plans. Maintain the optimum moisture content for compacting the aggregate sub-base during placement operations.

B. When a compacted aggregate sub-base course is shown to be 6" thick or more, place the material in equal layers, except no single layer more than 8" or less than 3" in thickness when compacted.

C. Level and contour surfaces to elevations and gradients indicated. Place in such a manner to minimize segregation. No aggregate sub-base shall be placed under adverse weather conditions.

D. Compact and roll each layer of aggregate sub-base course to 95% maximum density.

E. All compaction requirements shall be in accordance with NYSDOT Standard Specification section 203-3.12. The depth of each sub-base course shall not exceed the compactor's capability. Each compactor lacking the original manufacturer identification plates, or with altered or illegible plates, will not be recognized as acceptable compaction equipment and shall be removed from the site.

F. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.

G. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

H. When the pavement sub-base becomes mixed with the sub-grade or any other material, it shall be removed and replaced with the appropriate material. The movement of any traffic over the fine graded aggregate sub-base is not recommended. When damage or contamination occurs, it must be repaired before paving begins.

3.04 TOLERANCES

A. Fine grading of the pavement sub-base finish course shall not vary more than 1/2 inch above or below true grade at any point.

B. Scheduled Compacted Thickness: Within 1/4 inch.

C. Flatness: Maximum variation of 1/2 inch measured with a 10 foot straight edge.

3.05 FIELD QUALITY CONTROL

A. Quality Control Testing during construction: Allow testing service to inspect, test and approve each aggregate sub-base layer before further backfill or construction work is performed. Testing service shall review and test material and determine optimum moisture at which maximum density can be obtained in accordance with ASTM D 1557, modified proctor.

B. Field Compaction testing will be performed in accordance with ASTM D1556 (sand cone method), ASTM D2167 (rubber balloon method), or ASTM D2922 (nuclear method). If tests indicate work does not meet specified requirements, remove work, replace and re-

test.

C. Frequency of Tests: Make at least one field density test for each layer of aggregate sub-base every 2,000 sq. ft.

3.06 MAINTENANCE AND CLEAN-UP

A. Protection of graded areas: Protect newly graded and compacted aggregate sub-base courses from traffic and erosion. Repair and re-establish grades in settled, eroded and rutted areas.

B. Remove all excess materials and debris from the Owner's property.

END OF SECTION

SECTION 32 14 10
CONCRETE PAVEMENT

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Furnish and install concrete slab for new shed, including thickened edges.

A. Furnish and install heated concrete slabs at Cottage entrances (2).

1.02 REFERENCES

A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International; 1991 (Reapproved 2002).

B. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International; 2000.

C. ACI 306R - Cold Weather Concreting; American Concrete Institute International; 1988 (Reapproved 2002).

D. ASTM A 185/A 185M - Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete; 2006.

E. ASTM A 497/A 497M - Standard Specification for Steel Welded Wire Reinforcement, Deformed, for Concrete; 2006.

F. ASTM C 33 - Standard Specification for Concrete Aggregates; 2003.

G. ASTM C 39/C 39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2005.

H. ASTM C 94/C 94M - Standard Specification for Ready-Mixed Concrete; 2007.

I. ASTM C 150 - Standard Specification for Portland Cement; 2005.

J. ASTM C 173/C 173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2001.

K. ASTM C 260 - Standard Specification for Air-Entraining Admixtures for Concrete; 2006.

L. ASTM C 309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2006.

M. ASTM C 494/C 494M - Standard Specification for Chemical Admixtures for Concrete; 2005a.

N. ASTM C 618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2005.

O. ASTM C 685/C 685M - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing; 2001.

P. ASTM D 1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (nonextruding and Resilient Bituminous Types); 2004.

1.03 SUBMITTALS

A. Product Data: Provide data on concrete mix, joint filler, joint sealant, steel reinforcing, admixtures, and curing compound.

B. Design Data: Indicate pavement thickness, designed concrete strength, reinforcement, and typical details.

1.04 QUALITY ASSURANCE

A. Perform work in accordance with ACI 301.

B. Obtain cementitious materials from same source throughout.

C. Follow recommendations of ACI 306R when concreting during cold weather.

1.05 ENVIRONMENTAL REQUIREMENTS

A. Do not place concrete when base surface temperature is less than 40 degrees F, or surface is wet or frozen.

PART 2 - PRODUCTS

2.01 FORM MATERIALS

A. Form Materials: Conform to ACI 301.

B. Wood form material, profiled to suit conditions.

2.02 JOINT FILLER

A. Preformed; non-extruding bituminous type (ASTM D 1751). Thickness: 3/8 inch, unless specified otherwise on the plans.

B. Joint sealant: Two component polyurethane sealant: Polyurethane-based, two part elastomeric sealant, complying with FS TT-S-00227, Class A, type 1 (self leveling) unless type 2 (non-sag) is recommended by the manufacturer for application shown.

2.03 REINFORCEMENT

A. Steel Welded Wire Reinforcement: Plain type, ASTM A 185/A 185M; in flat sheets; unfinished.

B. Dowels: ASTM A 615/A 615M Grade 40 (280); deformed billet steel bars; unfinished finish.

2.04 CONCRETE MATERIALS

A. Cement: ASTM C 150 Normal - Type I Portland type, grey color.

B. Fine and Coarse Mix Aggregates: ASTM C 33.

C. Fly Ash: ASTM C 618, Class C or F.

D. Water: Clean, and not detrimental to concrete.

E. Air Entrainment Admixture: ASTM C 260.

F. Chemical Admixtures: ASTM C 494/C 494M, Type A - Water Reducing, Type C - Accelerating, and Type G - Water Reducing, High Range and Retarding.

2.05 ACCESSORIES

A. Curing Compound: ASTM C 309, Type 1, Class A.

2.06 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.

B. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.

C. Concrete Properties:

1. Compressive Strength, when tested in accordance with ASTM C 39/C 39M at 28 days: 4000 psi.

2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.

3. Cement Content: Minimum 606 lbs. per cubic yard of concrete.

4. Water-Cement Ratio: Maximum 40 percent by weight.

5. Total Air Content: 4 percent, determined in accordance with ASTM C 173/C 173M.

6. Maximum Slump: 3 inches.

7. Maximum Aggregate Size: 1 inch.

2.07 MIXING

A. On Project Site: Mix in drum type batch mixer, complying with ASTM C 685. Mix each batch not less than 1-1/2 minutes and not more than 5 minutes.

B. Transit Mixers: Comply with ASTM C 94/C 94M.

2.08 HEATED CONCRETE SLAB

A. Product system shall be Danfoss GX dual conductor heating cable.

1. Conductor: Copper or copper alloy with nickel coating.

2. Insulation: FEP DuPont with an average thickness not less than 0.25mm and than layer of XLPE.

3. Shield: Tin coated drain wire combined with 0.050 mm aluminium foil coated with 0.012 PBT, 100% coverage.

4. Jacket: PVC with an average thickness not less than 0.75 mm.

5. Lead free ¼" round heating cable that is both flexible and UV protected.

6. Shall include 20' cold lead, single point connection.

7. Rated temperature: 220°F (105°C), maximum voltage 600V, up to 12 W/ft (40W/m) .

8. Shall be approved to applicable UL and CSA standards.

9. Heating cable circuit shall be protected by a ground fault device in accordance per NEC article 426 and 427.

B. Thermostat: The system shall be controlled by an ambient sensing thermostat Danfoss 088L3422 either directly or through an appropriate contactor.

1. Automatic Snow Controller shall be microprocessor-based to provide effective, economical, automatic control.

2. Automatic Snow Controller shall have dual zone capability.

3. Automatic Snow Controller shall have an adjustable timer providing up to ten hours of system operation after snowfall ceases for complete melting.

4. Automatic Snow Controller shall have the following modes a. Automatic b. Constant OFF b. Constant ON (manual timer)

5. Automatic Snow Controller shall have adjustable parameters a. Melting temperature (33.8°F to 49°F) b. Moisture sensibility 5 to 95 (5 being the most sensitive to moisture) b. Standby (slab) temperature (-4 °F to 32 °F)

6. Automatic Snow Controller shall be able to indicate the actual temperature and moisture levels for sensors.

7. Automatic Snow Controller shall have an info-button for help/information.

8. Automatic Snow Controller shall have self-diagnosis program, which will detect faults and give an alarm.

9. Automatic Snow Controller shall have individual LEDs to provide a visual indication of alarm and heater operation.

10. Automatic Snow Controller shall be capable of accepting four ground sensors.

11. Automatic Snow Controller shall have multi-language capabilities (English, Spanish and French).

12. Sensors shall include 50' lead.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify compacted sub-grade is acceptable and ready to support paving and imposed loads.

B. Verify gradients and elevations of base are correct.

3.02 AGGREGATE SUB-BASE COURSE

A. See Section 32 1215 for construction of aggregate sub-base course for work of this Section.

3.03 PREPARATION

A. Moisten sub-base to minimize absorption of water from fresh concrete.

B. Notify Director's Representative minimum 24 hours prior to commencement of concreting operations.

3.04 FORMING

A. Place and secure forms to correct location, dimension, profile, and gradient.

B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.

C. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

3.05 REINFORCEMENT

A. Place reinforcement as indicated.

B. Interrupt reinforcement at expansion joints.

C. Place dowels to achieve pavement and curb alignment as detailed.

3.06 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

B. Ensure reinforcement, inserts, embedded parts, formed joints are not disturbed during concrete placement.

C. Place concrete continuously over the full width of the panel and between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.

D. Place concrete to joint pattern.

3.07 JOINTS

A. Align curb and sidewalk joints.

B. Place 3/8 inch wide expansion joints where shown on the plans and to separate paving from fixed vertical surfaces and other components and in pattern indicated.

1. Form joints with joint filler extending from bottom of pavement to within 1/2 inch off finished surface.

2. Secure to resist movement by wet concrete.

3. Install joint sealant in accordance with manufacturer's recommendation.

C. Provide scored joints:

1. As shown on the plans and details.

3.08 FINISHING

A. Light broom, texture perpendicular to direction of travel with troweled and radiused edge 1/4 inch radius, and as shown on the plans.

B. Place curing compound on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.

3.09 TOLERANCES

A. Maximum Variation of Surface Flatness: 1/4 inch in 10 ft.

B. Maximum Variation from True Position: 1/4 inch.

3.10 FIELD QUALITY CONTROL

A. The Contractor shall employ an independent testing agency to perform field quality control tests and to submit test reports.

1. Provide free access to concrete operations at project site and cooperate with appointed firm.

2. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.

3. Tests of concrete and concrete materials may be performed at any time to ensure conformance with specified requirements.

B. Compressive Strength Tests: ASTM C 39/C 39M. For each test, mold and cure three concrete test cylinders. Obtain test samples for every 100 cu yd or less of each class of concrete placed.

1. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.

2. Perform one slump test for each set of test cylinders taken.

C. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.

3.11 PROTECTION

A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.

B. Do not permit pedestrian traffic over pavement for 7 days minimum after finishing.

END OF SECTION

SECTION 32 14 15
CONCRETE UNIT PAVERS

PART 1 GENERAL

1.01 SUMMARY

A. Section includes furnish and install concrete unit pavers and permeable concrete pavers.

B. Related Sections:

1. Aggregate subbase courses and sand setting bed are specified in Section 31 11 00 – Aggregate Materials.

1.02 REFERENCES

A. ASTM C902 – Specification for Pedestrian and Light Traffic Paving Brick.

1.03 SUBMITTALS

A. Product Data: Submit characteristics of paver unit, dimensions, and special shapes.

B. Shop Drawing: Provide pattern description.

C. Samples: Submit two samples of the paver, illustrating style, size, color range and surface texture of units being provided.

D. Manufacturer's Installation Instructions: Submit substrate requirements, installation methods, and material analysis.

PART 2 PRODUCTS

2.01 MATERIALS

A. Concrete unit paver product information:

1. Concrete Pavers as follows, or approved equal:
   a. “Series” paver, 7.875" x 3.875" x 2.75" (4” x 8” nominal) size. Standard surface finish.
2. Color: Ice Grey, installed in 45º herringbone pattern.
3. Manufactured by Unilock

   51 International Blvd.
   Brewster, NY 10509
   customerservice@unilock.com
   1-800-864-5625
   www.Unilolck.com

B. Permeable Concrete unit paver product information:

1. Permeable Concrete Pavers as follows, or approved equal:
   1) “Eco Priora” paver, 7.875" x 3.875" x 2.75" (4” x 8” nominal) size. Standard surface finish.
2. Color: Opal (field), installed in 45º herringbone pattern.
3. Color: Natural (striping), installed in running bond pattern.

4. Manufactured by Unilock

51 International Blvd.
Brewster, NY 10509
customerservice@unilock.com
1-800-864-5625
www.Unilolck.com

5. The specified products establish minimum requirements that substitutions must meet to be considered acceptable.
a. To obtain acceptance of unspecified products, submit written requests at least 14 days before the Bid Date.

C. Provide pavers meeting the minimum material and physical properties set forth in ASTM C 936, Standard Specification for Solid Concrete Interlocking Paving Units. Efflorescence is not a cause for rejection.
1. Average compressive strength 8000 psi (55MPa) with no individual unit under 7,200 psi (50 MPa).
Must conform to ASTM C140 for Absorption and Compressive Strength, ASTM C67 for Freeze-thaw Durability, ASTM C418 for Abrasion Durability.
2. Average absorption of 4% with no unit greater than 5% when tested according to ASTM C 140.
3. Resistance to 50 freeze-thaw cycles, when tested according to ASTM C1645, with no breakage greater than 1.0% loss in dry weight of any individual unit. Conduct this test method not more than 12 months prior to delivery of units.

D. Accept only pigments in concrete pavers conforming to ASTM C 979.

E. Dimensional Accuracy +/- 3/64″

F. Maximum allowable breakage of product is 5%.

G. Minimum solar reflectance index (SRI, calculated according to ASTM E 1980) value of 29, per USGBC Heat Island reduction guidelines.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that subbase is installed to correct gradient, smooth, capable of supporting pavers and imposed loads, and ready to receive Work of this section.

B. Verify gradients and elevations of base are correct.

3.02 INSTALLATION

A. Place paver units on setting bed, in patterns specified, from straight reference edge.

B. Maintain hand tight joints, sand swept.

C. Tamp and level paver units with mechanical vibrator with protective pad until units are firmly bedded, level, and to correct elevation and gradients. Do not tamp unrestrained edges.

3.03 SETTING BED

A. Screed setting bed to a nominal depth of 3/4”. The thickness of the bed shall be adjusted so that when the pavers are placed, the top surface of the paver will be at the required finish grade.

3.04 QUALITY CONTROL

A. Final surface elevations should not vary more than 3/8” under a 10 foot straightedge, unless otherwise stated. The top of the pavers should be 1/8” to 1/4” above the final elevations to compensate for possible minor settling.

END OF SECTION

SECTION 32 14 20

BLUESTONE PAVEMENT

PART 1 GENERAL

1.1 SUMMARY

A. Section includes salvaging and reusing, as well as furnishing new Bluestone, including installation.

B. Related Sections:

1. Aggregate base courses are specified in section 32 1123.

1.2 SUBMITTALS

A. Product Data: Submit characteristics of Bluestone, dimensions, and special shapes. Match existing sizes, color range, and shapes.

B. Samples: Submit two samples of the Bluestone, illustrating style, size, color range, and surface texture.

PART 2 PRODUCTS

2.1 MATERIALS

A. Bluestone pavement: Rectangular sizes to match existing bluestone walks. Existing walkway widths are typically 6’ wide; sizes and shapes vary for curved portions and area near manor. Stone should be 3” thick, ASTM testing S1 ranking. Material can have 1-4 sawn edges.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that subbase is installed to correct gradient, smooth, capable of supporting stone and imposed loads, and ready to receive Work of this section.

B. Verify gradients and elevations of base are correct.

3.2 INSTALLATION

A. Place Bluestone on 3/4” polymeric sand setting bed, over aggregate subbase material, in patterns to match existing, from straight reference edge.

B. Maintain hand tight joints.

C. Tamp and level with mechanical vibrator until units are firmly bedded, level, and to correct elevation and gradients. Do not tamp unrestrained edges.

3.3 SETTING BED

A. Screen polymeric sand setting bed to a nominal depth of 3/4”. The thickness of the bed shall be adjusted so that when the stone is placed, the top surface of the paver will be at the required

finished grade.

3.4 QUALITY CONTROL

A. Final surface elevations should not vary more than 3/8” under a 10-foot straightedge, unless otherwise stated. The top of the pavers should be 1/8” to 1/4” above the final elevations to compensate for possible minor settling.

END OF SECTION

SECTION 32 14 30

BRICK PATIO

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes salvaging and reusing, as well as furnishing new brick, including installation.

B. Clean existing salvaged brick prior to reuse.

C. Related Sections:

1. Aggregate base courses are specified in section 32 1123.

1.2 SUBMITTALS

A. Product Data: Submit characteristics of patio brick, dimensions, and special shapes. Match existing sizes and shapes.

B. Samples: Submit two samples of the patio brick, illustrating style, size, color range, and surface texture.

PART 2 PRODUCTS

2.1 MATERIALS

A. Patio Brick: Rectangular size, 2 1/4” wide x 8” long x 4” deep, laid on edge, to match characteristics of existing Garner red brick.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that subbase is installed to correct gradient, smooth, capable of supporting brick and imposed loads, and ready to receive Work of this section.

B. Verify gradients and elevations of base are correct.

3.2 INSTALLATION

A. Place red brick on 3/4” polymeric sand setting bed, over aggregate subbase material, on edge and in patterns to match existing, from straight reference edge.

B. Maintain hand tight joints.

C. Tamp and level brick with mechanical vibrator until units are firmly bedded, level, and to correct elevation and gradients. Do not tamp unrestrained edges.

3.3 SETTING BED

A. Screen polymeric sand setting bed to a nominal depth of 3/4”. The thickness of the bed shall be

adjusted so that when the brick is placed, the top surface of the paver will be at the required finished grade.

3.4 QUALITY CONTROL

A. Final surface elevations should not vary more than 3/8” under a 10-foot straightedge, unless otherwise stated. The top of the pavers should be 1/8” to 1/4” above the final elevations to compensate for possible minor settling.

END OF SECTION

SECTION 32 14 40

BLUESTONE CURBING

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Remove and salvage existing Bluestone Curbing for reuse.

B. Cast in place continuous concrete backing is specified in section 03 3000.

1.02 RELATED SECTIONS

A. Section 03 3000 - Cast-In-Place Concrete.

1.03 ENVIRONMENTAL REQUIREMENTS

A. Do not place concrete backing when temperature is less than 40 degrees F, or surface is wet or frozen.

PART 2 - PRODUCTS

2.01 STONE MATERIALS

A. Reuse existing Bluestone curbing. Clean curbing prior to reuse. Install curbing in accordance with the plans.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify that substrate is level, smooth, capable of supporting curb and imposed loads, and ready to receive work of this section.

B. Verify gradients and elevations of substrate are correct.

3.02 INSTALLATION

A. Set curb sections level and to the grades shown on the plans with continuous concrete backing.

3.03 TOLERANCES

A. Maximum variation from true position and elevation: 1/2 inch:10'

3.04 REPAIRS AND PROTECTION

A. Repair or replace broken or defective curb, as directed by Director’s Representative.

B. Protect curb from damage until final acceptance of work.

3.05 CLEAN-UP

A. Remove all excess materials and debris from Owner’s property.

END OF SECTION

SECTION 32 31 20

SITE FURNISHINGS

PART 1 - GENERAL

1.01 SECTION INCLUDES: Furnish and provide all labor, material equipment and services necessary to complete the installation of site furnishings as indicated on the drawings and as specified herein. Provide materials, labor, equipment, and services necessary to furnish, adapt, and install all work of this section as shown on the Construction Documents and/or as required by job conditions, including, but not limited to the following:

A. Benches (10)

B. Trash Receptacles (2)

C. Shed (1)

D. Bike Racks (4)

E. Bollard (1)

1.02 RELATED SECTIONS:

A. Section 03 3000 – Cast In Place Concrete

1.03 SUBMITTALS

A. Provide shop drawings, manufacturer's product data and installation requirements for each type of site furnishing.

1.04 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of site furnishing types and sizes required, whose products have been in satisfactory use in similar service for not less than five years.

B. Installer's Qualifications: Firm with at least three years of successful installation experience on projects with furnishing work similar to that specified for project.

PART 2 - PRODUCTS

2.01 BENCHES

A. Landscape Forms, Inc., 7800 E. Michigan Ave, Kalamazoo, Michigan 49048. Phone: (800) 521-2546. Fax (269) 381-3455. Website www.landscapeforms.com
E-mail: specify@landscapeforms.com

B. MODEL: Neoliviano NL 696-0272, 69" long with back, surface mount. As manufactured by Landscape Forms.

C. MATERIALS: Seat and back to be Domestically Sourced Thermally Modified Ash for Exterior use, with No Finish. Ends to be Aluminum, standard finish per manufacturer.

2.02 TRASH RECEPTACLE

A. Landscape Forms, Inc., 7800 E. Michigan Ave, Kalamazoo, Michigan 49048. Phone: (800) 521-2546. Fax (269) 381-3455. Website www.landscapeforms.com
E-mail: specify@landscapeforms.com

B. MODEL: "Plainwell" Litter Receptacles

C. Style: Side-Opening Top Style; Capacity: 35 gallons.

D. Mounting: Surface Mounted

E. Materials and Finishes: Receptacle sides to be metal panels. Metal to be Powdercoated Matte Black. Liner Color: Black.

2.03 SHED

A. MODEL: 12x16 Workshop with Smart Panel T111 Siding - Classic Shed Collection - Pressure treated skids – Shed to be installed on a concrete slab, provide pressure treated sill and anchors - 2x4 walls and trusses 16 O.C. - 6ft 6in high walls - Two 24x36 windows with screens and painted Z shutters. Two doors, one wooden classic 8ft double door with heavy duty hinges and one wooden classic 3ft single door with heavy hinges. 6/12 roof pitch - 8in overhang all around - 30 year architectural shingles. With continuous roof vent.

B. Manufactured by Sheds Unlimited, 2025 Valley Rd. Morgantown, PA 19543. Phone 717-442-3281

2.04 BIKE RACKS

A. MODEL:
Subject to compliance with provisions of this section, bike rack shall be model “Orion” #ORN-2-SF-B, two-bike capacity, round steel tubing, surface mount, black powder coat finish, as manufactured by Madrax (division of Graber Manufacturing, Inc.), 1080 Uniek Drive, Waunakee, WI 53597. Toll Free 800-448-7931. Phone 608-849-1080. Fax 608-849-1081. Email sales@madrax.com. Website: www.madrax.com or an approval equal.

B. DESCRIPTION:
Rack shall be constructed of 2 3/8” (60.4mm) diameter carbon steel tubing; 3/8” x 2” (9.6mm x 50.8mm) carbon steel bar; and ¼” x 2 ½” (6.4mm x 63.5mm) carbon steel bar. Model shall not include a lean bar.
Finish shall be powder coated: Triglycidyl isocyanurate (TGIC) powder, a polyester coating. Coating is applied so that the thickness is 3.5 to 4.5 mils.
Finish color: black. Surface mount rack per location and drilling of holes for inserts included by manufacturer.

2.05 BOLLARD

A. MODEL:
Decorative bollard is made of lightweight aluminum with decorative ornamental fluting, spherical top casting, Powder coated finish, color: black. 35 3/4” overall height, 5 7/8” dia., Model # R-7539-AL as manufactured by Reliance Foundry, www.reliance-foundary.com, or equal.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces on which site furnishings are to be installed are level, smooth, clean, and otherwise ready to receive the work of this section. Do not proceed until unsatisfactory conditions are corrected.

3.02 INSTALLATION

A. Install site furnishings where indicated on plans and as per manufacturer’s instructions.

3.03 PROTECTION

A. Protect all site furnishings from damage during construction. Repair or replace damaged items at no additional cost to the Owner.

3.04 CLEAN-UP

A. Remove excess materials. Leave area in a clean and neat condition.

END OF SECTION

SECTION 32 31 21

STEEL FENCE RESTORATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Steel Fence Restoration for the existing steel picket fencing. Some panels will be removed and some panels will be added in accordance with the new walk locations.

1.2 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing restoration specified in this section, with not less than three years of documented experience.

PART 2 PRODUCTS

2.1 NOT USED

PART 3 EXECUTION

3.1 RESTORATION

A. The contractor shall clean the steel fence in accordance with the following:

1. All field painting and paint removal shall be in strict accordance with the contract specifications and OSHA safety and health regulations.

2. Work shall include washing, scrubbing, power tool cleaning, sanding and painting. Provide all labor, material, tools and equipment.

3. Surface Preparation: Low pressure wash with bio-degradable detergent to remove all loose paint, dust, dirt, and contaminants. Scrubbing will be necessary. High pressure rinse with fresh water to remove any remaining contaminants and all detergent residue. Power tool clean to bare metal at all rusted areas. All surfaces shall be cleaned and dry before painting.

4. Three (3) layers shall be applied to the entire fence of zinc rich paint in situ. Color: black.

5. Provide new stainless steel hardware and fittings as required. Hardware shall receive same finish as fence panels.

6. Remove and replace fence panels as shown on the plan in accordance with new walk locations.

7. Clean up and remove all debris and litter as a result of work of this section

END OF SECTION

END OF SECTION

SECTION 32 31 22
CANTILEVER SLIDE GATE

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. The work in this section shall include furnishing all labor, materials, equipment and appliances necessary to complete the Cantiliever Gate System required for this project in strict accordance with this specification section and drawings.

B. The manufacturer shall supply a total industrial ornamental cantilever gate system of the Ameristar® TransPort II® Classic design. The system shall include all components (i.e., tracks, uprights, bracing, pickets, hardware, fittings, and fasteners) required.

1.02 REFERENCES:

A. ASTM F 1184 – Standard Specification for Industrial and Commercial Horizontal Slide Gates, Type II, Class 2. See 3.02 B.

B. American Welding Society AWS D1.2 Structural Welding Code. See 2.01 C.

C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.

D. ASTM B117 - Practice for Operating Salt-Spray (Fog) Apparatus.

E. ASTM B221 – Aluminum and Aluminum Alloy Extruded Bars, Shapes and Tubes

F. ASTM D523 - Test Method for Specular Gloss.

G. ASTM D714 - Test Method for Evaluating Degree of Blistering in Paint.

H. ASTM D822 - Practice for Conducting Tests on Paint and Related Coatings and Materials using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus.

I ASTM D1654 - Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments.

J. ASTM D2244 - Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.

K. ASTM D2794 - Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).

L. ASTM D3359 - Test Method for Measuring Adhesion by Tape Test.

1.03 SUBMITTALS:

A. Product Data:

1. . The manufacturer's submittal package shall be provided prior to installation.

2. Deliver two copies of operation and maintenance data covering the installed products.

1.04 STORAGE AND HANDLING

A. Upon receipt at the job site, all materials shall be checked to ensure that no damages occurred during shipping or handling. Materials shall be stored in such a manner to ensure proper ventilation and drainage, and to protect against damage, weather, vandalism and theft.

PART 2 - PRODUCTS:

2.01 CANTILEVER SLIDE GATE SYSTEM MANUFACTURERS:

A. All industrial ornamental cantilever gates shall conform to the Ameristar® TransPort II® gate system, Classic™, design, manufactured by Ameristar Perimeter Security USA Inc., in Tulsa, Oklahoma. The project gate schedule shall include the following additional information for each cantilever gate included in the project scope: (specify nominal opening size in feet) opening, (specific nominal height in feet) height, (specify direction of gate travel to the open position, right or left, viewing from outside fence line looking in) gate travel direction.

2.02 CANTILEVER SLIDE GATE:

A. The materials used for cantilever gate framing (uprights & diagonal bracing) shall be manufactured from ASTM B221 aluminum (designation 6063-T-6) with yield strength of 25,000 PSI, a tensile strength of 30,000 PSI and a standard mill finish. The TransPort™ enclosed tracks shall be manufactured from ASTM B221 aluminum (designation 6063-T-6) with a yield strength of 25,000 PSI, a tensile strength of 30,000 PSI and a standard mill finish.

B. Material for pickets shall be 1" square x 1/8" wall aluminum pickets on gate systems greater than 24' openings, gate systems less than 24' openings shall have 1" square x 16 ga. steel pickets. Picket on center spacing shall not exceed 5". Pickets shall be securely fastened to face of top and bottom enclosed track extrusions.

C. Material for gate uprights and diagonal bracing shall be 2" square x ¼" wall aluminum. The cross-sectional shape of the enclosed-track shall confirm to the manufacturers Fast-Trak™ design with as a single extrusion consisting of a 2" x 5" channeled support with integrated 2" x 2" enclosed-track raceway. Gates less than 24' openings shall be constructed as a single track system, gates greater than 24' openings shall be constructed as a dual track system.

D. Steel material for fence posts and pickets shall be galvanized prior to forming in accordance with the requirements of ASTM A653/A653M, with minimum yield strength of 45,000 psi (310 MPa). The steel shall be hot-dip galvanized to meet the requirements of ASTM A653/A653M with a minimum zinc coating weight of 0.90 oz/ft^2 (276 g/m^2), Coating Designation G-90. Material for gate support posts shall be 4" square x 11 Ga. tubing.

E. Suspension Rollers for enclosed tracks shall be used at each support post to track connection. Each truck assembly shall be capable of being adjusted vertically via threaded rod for fine-tune adjustment. Truck assembly shall be constructed in a way so that the primary housing for the truck rollers shall pivot via ball-bearing connection to threaded rod.

2.03 FABRICATION

A. Gate frame uprights and diagonal bracing shall be pre-fabricated and pre-punched to accept frame fasteners. Enclosed track shall be pre-punched to accept gate uprights. Pickets shall be precut to specified length and predrilled to accept picket to track fasteners. Posts shall be precut to specified lengths.

B. Top and bottom enclosed track extrusions shall be mechanically fastened to vertical gate uprights and intermediate supports, as required by assembly instructions. Diagonal bracing shall be mechanically fastened to vertical gate uprights and intermediate supports, as required by assembly instructions. Pickets shall be mechanically fastened to top and bottom enclosed track, as required by assembly instructions.

C. The manufactured gate components shall be subjected to the Ameristar thermal stratification coating process (high-temperature, in-line, multi-stage, and multi-layer) including, as a minimum, a six-stage pretreatment/wash and an electrostatic spray application of a polyester finish. The topcoat shall be a “no-mar” TGIC polyester powder coat finish with a minimum thickness of 2 mils (0.0508mm). The color shall be (specify Black, Bronze, White, or Desert Sand). The stratification-coated framework shall be capable of meeting the performance requirements for each quality characteristic shown in Table 1.

2.04 WARRANTY:

A. The cantilever slide gate system shall be warranted by the manufacturer against manufacturing defects for a period of (3) three years from date of sale.

PART 3 - EXECUTION:

3.01 SITE INSPECTION:

A. Examine final grades and installation conditions.

B. Do not begin work until all unsatisfactory conditions are corrected.

3.02 INSTALLATION:

A. Cantilever support posts shall be set in concrete footers having a minimum depth of 48” (Note: In some cases, local restrictions of freezing weather conditions may require a greater depth). The “Earthwork” and “Concrete” sections of this specification shall govern material requirements for the concrete footer. Posts setting by other methods such as plated posts or grouted core-drilled footers are permissible only if shown by engineering analysis to be sufficient in strength for the intended application.

B. Gate to be installed per manufacturers gate installation instructions. Gate shall be installed in compliance with ASTM F2200 standards.

3.03 GATE INSTALLATION MAINTENANCE

A. When cutting/drilling posts adhere to the following steps to seal the exposed steel surfaces; 1) Remove all metal shavings from cut area. 2) Apply zinc-rich primer to thoroughly cover cut edge and/or drilled hole; let dry. 3) Apply 2 coats of custom finish paint matching fence color. Failure to seal exposed surfaces per steps 1-3 above will negate warranty. Ameristar spray cans or paint pens shall be used to prime and finish exposed surfaces; it is recommended that paint pens be used to prevent overspray. Use of non-Ameristar parts or components will negate the manufactures’ warranty.

3.04 GATE INSTALLATION

A. Gate posts shall be spaced according to the manufacturers’ drawings, dependent on clear opening. The manufacturers’ gate drawings shall identify the necessary gate hardware required for the application. Gate hardware shall be provided by the manufacture of the gate and shall be installed per manufacturer’s recommendations.

3.05 CLEANING

A. The contractor shall clean the jobsite of excess materials; post-hole excavations shall be scattered uniformly away from posts.

Table 1 – Coating Performance Requirements		
Quality Characteristics	ASTM Test Method	Performance Requirements
Adhesion	D3359 – Method B	Adhesion (Retention of Coating) over 90% of test area (Tape and knife test).
Corrosion Resistance	B117, D714 & D1654	Corrosion Resistance over 1,000 hours (Scribed per D1654; failure mode is accumulation of 1/8" coating loss from scribe or medium #8 blisters).
Impact Resistance	D2794	Impact Resistance over 60 inch lb. (Forward impact using 0.625" ball).
Weathering Resistance	D822 D2244, D523 (60˚ Method)	Weathering Resistance over 1,000 hours (Failure mode is 60% loss of gloss or color variance of more than 3 delta-E color units).

END OF SECTION

SECTION 32 31 23

FENCING AND GATES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. STEEL PICKET GATES (2): Furnish and install one (1) 12'-0" wide double leaf gate and one 6'-9" wide double leaf gate, fittings, and accessories, as shown on the plans. Powder coated finish, color: black. Removed and salvaged fence panels shall be reused and relocated as shown on the plans.

B. 6' VINYL SCREEN FENCING AND GATE: Furnish and install one (1), 6'-0" hgt., double leaf gate, fittings, and accessories as shown on the plans. Furnish and install 6'-0" hgt. vinyl fence panels, fittings, and accessories as shown on the plans.

C. Concrete for footings are specified in section 03-3300.

1.2 SUBMITTALS

A. Product Data: Provide data on fencing, posts, accessories, fittings, and hardware for all fences and gate systems.

B. Shop Drawings: Indicate plan layout, spacing of components, post foundation dimensions, hardware anchorage, and schedule of components for all fences and gate systems.

C. Project Record Documents: Accurately record actual locations of property perimeter posts relative to property lines and easements.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

PART 2 PRODUCTS

2.1 MATERIALS

A. STEEL PICKET: Steel material for gate and fence framework (i.e. tubular pickets, rails and posts), shall be galvanized prior to forming in accordance with the requirements of ASTM A653/A653M, with minimum yield strength of 45,000 psi (310 MPa). The steel shall be hot-dip galvanized to meet the requirements of ASTM A653/A653M with a minimum zinc coating weight of 0.90 oz/ft2 (276 g/m2), Coating Designation G-90.

B. Material for steel gate pickets shall be 3/4" square x 14 Ga. tubing. The cross-sectional shape of the rails shall have the double wall design with outside cross-section dimensions of 1.75" square and a minimum thickness of 14 Ga. Picket holes in the rail shall be spaced 5.0" o.c.. Picket retaining rods shall be 0.125" diameter galvanized steel. High quality PVC grommets shall be supplied to seal all picket-to-rail intersections.

2.2 VINYL SCREEN FENCE AND GATES

A. Fabricated from high density polyethylene to the shape and sizes as indicated on the plans. Wood grain finish, color: brown.

B. 3 Rail, tongue and groove interlocking pickets, 6” x 7/8” with 5” X 5” posts with gothic post cap. All fasteners and brackets shall be high density polyethylene.

C. Furnish and install 8’-0” double leaf swing gate, and hardware, including hinge assembly and ADA compliant latch assembly.

2. 3 FABRICATION

A. Steel Pickets, rails and posts shall be precut to specified lengths. Double-walled U-channel rails shall be prepunched to accept pickets. Pickets shall be predrilled to accept retaining rods.

B. Grommets shall be inserted into the prepunched holes in the rails and pickets shall be inserted through the grommets so that predrilled picket holes align with the internal upper raceway of the Double-walled U-channel rails (Note: This can best be accomplished by making an alignment jig). Retaining rods shall be inserted into each Double-walled U-channel rail so that they pass through the predrilled holes in each picket.

C. The manufactured galvanized framework shall be subjected to the thermal stratification coating process (high-temperature, in-line, multi-stage, multi-layer) including, as a minimum, a six-stage pretreatment/wash (with zinc phosphate), an electrostatic spray application of an epoxy base, and a separate electrostatic spray application of a polyester finish. The base coat shall be a thermosetting epoxy powder coating (gray in color) with a minimum thickness of 2 mils. The topcoat shall be a “no-mar” TGIC polyester powder coat finish with a minimum thickness of 2 mils. The color shall be Black.

D. Swing gates shall be fabricated using 1.75” x 14ga Double-walled U-channel rails, 2” sq. x 11ga. gate ends, and 1” sq. x 14ga. pickets. Gates that exceed 6’ in width will have a 1.75” sq. x 14ga. intermediate upright. All rail and upright intersections shall be joined by welding. All picket and rail intersections shall also be joined by welding.

2. 3 PADLOCKS

A. Furnish padlock for gate. Locks to be set up alike: Furnish five (5) keys for all.

B. Padlock case shall be of 13/4" extruded brass, cornered elliptical shape. The width of the case shall be 13/4", the depth 119/32" and the thickness 13/16". The shackle shall be of hardened steel cadmium plated with a diameter of 11/32". The width of the opening of shackle from the top of the case to the inside of the shackle shall be 29/32". The shackle shall lock at both the toe and the heel.

C. Cylinder shall be capable of being keyed individually, keyed alike, masterkeyed and sets and grandmaster keyed as will be directed.

D. Padlocks shall have 14 gage steel wire chains 9" long attached to lock and riveting pins with rivets and clevis. Chains, rivets, clevis and riveting pins shall be hot dipped galvanized or cadmium plated. Chains shall be galvanized after fabrication.

E. Stamp or cast the words, "Property of NYS OPRHP" on padlocks. Padlocks shall bear the manufacturer’s name, stamped or cast.

2. 4 CENTER DROP ROD

A. Furnish center drop rod assembly as shown on the plans.

PART 3 EXECUTION

3.1 GATE INSTALLATION

A. Gate posts shall be attached to the existing stone column using existing pre drilled holes. Type and quantity of gate hinges shall be based on the application; weight, height, and number of gate cycles. The manufacturers' gate drawings shall identify the necessary gate hardware required for the application. Gate hardware shall be provided by the manufacture of the gate and shall be installed per manufacturer's recommendations.

3.2 CLEANING

A. The contractor shall clean the jobsite of excess materials; post-hole excavations shall be scattered uniformly away from posts.

END OF SECTION

SECTION 32 31 30

EXTERIOR SIGNAGE

PART 1 - GENERAL

1.01 SECTION INCLUDES: Furnish and provide all labor, material, equipment, and services necessary to complete the installation of exterior signage as indicated on the drawings and as specified herein. Provide materials, labor, equipment and services necessary to furnish, adapt and install all work of this section as shown on the Construction Documents and/or as required by job conditions, including, but not limited to the following:

A. Entrance Sign (1)

B. Welcome and Wayfinding Sign (1)

C. Interpretive Sign (2)

D. Wayfinding Sign (1)

E. HC Sign (1)

F. Wayfinding Panel on south stair gate (1)

1.02 RELATED SECTIONS:

A. Section 03 3000 – Cast In Place Concrete

1.03 SUBMITTALS

A. Provide shop drawings, manufacturer’s product data and installation requirements for each type of sign.

1.04 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of signage types and sizes required, whose products have been in satisfactory use in similar service for not less than five years.

B. Installer's Qualifications: Firm with at least three years of successful installation experience on projects with signage work similar to that specified for project.

PART 2 - PRODUCTS

2.01 HC SIGN

A. Panel: 0.80 mm thick aluminum sign panel. Sign face to be high density grade decals adhered with heat activated adhesive. Size, graphics and color as indicated on the plans and conforming to FHA Manual of Traffic Control Devices.

B. Post: Galvanized and painted black steel flanged U-channel sign post weighing 4 lbs. per linear ft, with breakaway coupling.

2.02 SIGNAGE - GENERAL

A. 4” square steel tube sign posts with powder coated finish, color: black. Embed in concrete footing as shown on the plans. Coordinate installation of sign panels and mounting brackets with Amaze Design plans.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that surfaces on which exterior signage is to be installed are level, smooth, clean, and otherwise ready to receive the work of this section. Do not proceed until unsatisfactory conditions are corrected.

3.02 INSTALLATION

A. Install signage where indicated on plans and as per manufacturer's instructions.

3.03 PROTECTION

A. Protect all signage from damage during construction. Repair or replace damaged items at no additional cost to the Owner.

3.04 CLEAN-UP

A. Remove excess materials; leave area in a clean and neat condition.

END OF SECTION

SECTION 32 92 18

LANDSCAPE GRADING

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes spreading topsoil and providing finish grade for lawn sodding. Existing topsoil may be stripped and stockpiled for reuse, or import topsoil as required to meet project requirements.

PART 2 – PRODUCTS

2.01 TOPSOIL

A. In accordance with Section 31 1000 – Soil Materials.

2.02 SOURCE QUALITY CONTROL

A. Topsoil material shall consist of material complying with the specifications contained herein. Existing and re-used topsoil shall be tested and amended as necessary to comply with specifications.

B. If testing and analysis indicate topsoil materials do not meet specified requirements, amend material and retest.

C. Provide materials of each type from same source throughout the Work.

D. If soils fail 2 X, remove and replace with acceptable soils.

PART 3 – EXECUTION

A. Verify earthwork and site grading has been completed and inspected.

B. Verify sub-grade has been contoured and compacted.

3.01 SUBGRADE PREPARATION

A. Eliminate uneven areas and low spots.

B. Remove debris, roots, branches, stones, in excess of ½ inch in size. Remove subsoil contaminated with petroleum products.

C. Scarify surface to depth of 12 inches where topsoil is scheduled. Scarify in areas where equipment used for hauling and spreading topsoil has compacted subsoil.

D. Arborist shall be present when root pruning occurs.

3.02 PLACING TOPSOIL

A. Place topsoil in areas where sodding is required to a thickness of 4 inches or as indicated on the plans. Place topsoil during dry weather.

B. Fine grade topsoil to eliminate rough or low areas. Maintain profiles and contour of sub-grade.

C. Remove roots, weeds, rocks, and foreign material while spreading.

D. Manually spread topsoil close to existing vegetation to prevent plant damage.

E. Leave stockpile area and site clean and raked, ready to receive seeding.

F. Prevent compaction of soils, use wide track bobcat and appropriate landscape equipment.

3.03 TOLERANCES

A. Top of Topsoil: Plus or minus ½ inch.

3.04 PROTECTION

A. Protect landscaping and other features remaining as final work.

3.05 CLEAN-UP

A. Remove all excess materials and debris from Owner's property.

END OF SECTION

SECTION 32 92 19

SODDING

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes the following:

1. See section 31 1000 for topsoil materials.
2. Sod mixture for permanent sodding, fertilizing and maintenance until final acceptance.
3. Temporary seeding for erosion control, if required, is specified in Section 31 2501 – Erosion and Sediment Control.

1.02 DEFINITIONS

A. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

1.03 SUBMITTALS

A. Submit sod vendor's certified statement for sod mixture required, stating botanical and common names, percentage of sod mix, year of production, net weight, date of packaging, and location of packaging.

B. Submit fertilizer manufacturer’s product and application data.

1.04 QUALITY ASSURANCE

A. Time of sodding: Sod lawn areas between April 1 and May 31 or August 15 and October 15, or as otherwise approved in writing by the Owner’s Representative.

B. Provide sod in rolls or pallets showing percentage of sod mix, year of production, net weight, date of packaging, and location of packaging.

C. Installer Qualifications: Company specializing in installing sod on at least 3 projects, documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

C. Store all products in a cool, dry and secure location.

D. Deliver fresh sod in rolls recently cut within the last 24 hours.

PART 2 – PRODUCTS

2.01 SOD MIXTURE

A. Provide fresh, clean, sod mixed in the proportions specified for species and variety, and conforming to state and federal standards.

B. Acceptable material in a sod mixture other than pure live seed consists of nonviable seed, chaff, hulls, live seed of crop plants and inert matter. The percentage of weed seed shall not exceed 0.1% by weight.

C. Sod Lawn areas:

1. 90% Turf Type Tall Fescue, Festuca arundinacea
2. 10% Kentucky Bluegrass, Poa pratensis

2.02 ACCESSORIES

A. Fertilizer:

1. Refer to seeding preplant fertility schedule (see 3.03 F. below) for specific seed or sod areas. The Contractor is responsible for adding fertilizer to all areas that will be grassed with seed or sod.

2. Lime or Calcium Application
   a. Lime or Calcium shall be applied to all areas to be seeded or sodded based on test result rates prior to seeding that the Contractor submitted to Dr. Norm Hummel for testing. Lime shall be ground limestone containing not less than 85% of total carbonates and shall be ground to such fineness that at least forty percent (40%) will pass through a #8 mesh sieve.
   b. The Contractor is responsible for testing to see if the topsoil needs a lime or calcium amendment. The Contractor shall make at least one test per every ten acres of the proposed seeding and sodding areas before starting the grassing process.

D. Water: Clean, fresh and free of substances or matter which could inhibit vigorous growth of lawn or wildflowers.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that prepared topsoil is true to grade, has been rolled and is ready to receive the work of this section. Do not proceed with the work until unsatisfactory conditions have been corrected in an acceptable manner.

3.02 SUBSOIL PREPARATION

A. Scarify subgrade soils 3” depth in all lawn areas and planting beds.

3.03 FERTILIZING

A. Apply fertilizer to lawn areas in accordance with manufacturer's instructions. More frequent applications at a lower rate are more desirable. Water all fertilizers after application.

B. Apply after smooth raking of topsoil and prior to roller compaction.

C. Mix thoroughly into upper 2 inches of topsoil.

D. Lightly water to aid the dissipation of fertilizer.

E. Pre-Sod Fertility Schedule

Lawn Areas – Tyler 14-14-14	8 lbs./1,000 SF

3.04 SODDING

A. Apply sod evenly in rows.

B. Roll sodded area with roller not exceeding 112 lbs.

C. Apply water with a fine spray immediately after each area has been sodded. Saturate the top 4 inches of soil.

Sod shall consist of live, growing plants secured from sources where the soil is a mineral soil with sandy loam and shall have a healthy, viable root system or dense, thickly matted roots throughout the soil of the sod for a minimum of one inch. No sod grown on peat shall be used. The Engineer and Golf Course Architect have the right to reject any sod seen as inferior.

Sod must be kept moist for protection and to facilitate handling. Sod shall be rolled in tight rolls or laid on boards or planks and lifted and transported to storage piles or carried to the point of installation without breaking. Dumping from vehicles will not be permitted.

All sod shall be cut as required and shall be laid immediately. In no case shall sod remain in storage piles longer than 24 hours, and it shall be protected from wind and rain during such period. Any sod permitted to dry out or rot may be rejected if, in the judgment of the Engineer and Golf Course Architect, its survival after placement is doubtful.

Before placing sod, thoroughly moisten all areas to receive sod and slightly compact. When surface dries to a degree of only slightly moist then place the sod on the prepared surface with the edges in close contact and alternate courses staggered. Any required top dressing of edges or filling of interstices will be the responsibility of the Contractor. Edges of sod adjacent to non-sodded areas shall be set flush with adjacent finished grades. Roll sodded areas level with a lawn roller. On all slopes exceeding 3:1, the sod shall be secured by pegging it with 6-inch wooden pegs or approved bio degradable stakes. Always lay sod horizontally cross the slope.

Sod shall be placed when the ground is in workable condition and temperatures are less than eighty - five (85) or above forty (40) degrees Fahrenheit. Sod shall not be laid when the sod or ground surface is frozen or during an extended drought.

After sodding has been completed, clean up and thoroughly moisten by sprinkling the newly sodded areas.

Sod that has died during installation shall be replaced by the Contractor at no cost to the Owner. Care and watering of the sod after installation has been approved by the Directors Representative shall be the responsibility of the owner.

3.05 SOD PROTECTION

A. Identify sodded areas and take necessary precautions to minimize traffic in sod areas.

3.06 MAINTENANCE

A. Water to prevent sod and soil from drying out.

B. Maintenance of all properly sodded areas when approved by the Director's Representative becomes the Owner's responsibility. Any sodded areas damaged or eroded by an act of God, may be repaired, at the Owner's request by the Contractor at an approved unit price cost.

C. Install temporary 10 gauge range fencing to keep all activity off lawns.

3.07 CLEAN-UP

A. Remove all excess materials and debris from the owner's property.

END OF SECTION

SECTION 32 92 22

LANDSCAPE PLANTING

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes the following:

1. Furnish and install new Landscape Plantings and Accessories.
2. Furnish and install double ground, hardwood shredded bark mulch.
3. Maintenance duration two (2) years.
4. See planting plans for additional notes and specifications for landscape planting.

1.02 DEFINITIONS

A. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

B. Plants: Living trees, plants, and ground cover specified in this Section.

1.03 SUBMITTALS

A. Submit list of plant sources, data for fertilizer and other amendments.

B. Operation and Maintenance Data: include pruning objective, types and methods; types, application, frequency and recommended coverage of fertilizer.

1.04 QUALITY ASSURANCE

A. Nursery Qualifications: Company specializing in growing and cultivating the plants with eight years documented experience.

B. Installer Qualifications: Company specializing in installing and planting the plants with five years documented experience and approved by nursery.

C. Maintenance Services: Performed by Installer.

1.05 REGULATORY REQUIREMENTS

A. Comply with regulatory agencies for fertilizer and herbicide composition.

B. Plant Materials: Certified by state department of agriculture described by ASTM Z60.1; free of disease or hazardous insects.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Protect and maintain plant life until planted.

B. Deliver plant life materials immediately prior to placement. Keep plants moist.

C. Plant material which has been damaged by delivery, storage or handling will be rejected.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Do not install plant life when ambient temperatures may drop below 35 degrees F or rise above 90 degrees F. Generally plant plants from April 15 to June 15 and from September 15 to November 15.

B. Do not install plant life when wind velocity exceeds 30 mph.

1.08 WARRANTY

A. Warranty: Include coverage for two (2) years beginning at the Date of Substantial Completion. Replace dead or unhealthy plants as directed by Director's Representative.

B. Replacements: Plants of same size and species as specified, planted in the next growing season, with a new warranty commencing on date of replacement.

PART 2 – PRODUCTS

2.01 TREES, SHRUBS AND GROUNDCOVERS

A. Planting Stock:

1. All plants shall be true to type and name in accordance with the latest edition of Standardized Plant Names, official code of the American Joint Committee on Horticulture Nomenclature, and each bundle or each plant, when not tied in bundles, shall be labeled properly.

2. All plants shall have a well-branched, vigorous and balanced root and top growth and, unless otherwise specified, shall be No. 1 Grade conforming to “American Standard for Nursery Stock” of the American Association of Nurserymen (AAN). They shall be free from disease, injurious insects, mechanical wounds, broken branches, decay or any other defect. Trees shall have reasonably straight trunks with well-balanced tops and a single leader. Deciduous plants, other than those specified as container grown, shall be dormant.

B. Trees, Shrubs and Groundcovers: Species, size and variety identifiable in plant schedule shown on the plans, grown in climatic conditions similar to those in locality of the Work.

C. Caliper trees up to 4 inches in caliper at a point 6 inches above the ground. Caliper trees 4 inches and over in caliper 12 inches above the ground.

D. Supply trees which have been transplanted or root pruned in a uniform circle of 360 degrees about the root system at least once in interval of from one to three years prior to date of this contract.

E. Provide balled and burlapped plants from soil that will hold a firm natural ball. Do not prune plants before delivery.

2.02 PLANTING SOIL MATERIALS

A. Planting Soil: The same material as Topsoil, as specified in Section 31 1000.

2.03 SOIL AMENDMENT MATERIALS

A. If soil tests indicate soil amendment, apply soil conditioners/fertilizers to amend soil to specified conditions.

B. Peat Moss.

C. Water: Clean, fresh, and free of substances or matter which could inhibit vigorous growth of plants.

2.04 MULCH MATERIALS

A. Mulching Material: Double ground, hard wood shredded bark mulch, free of growth or germination inhibiting ingredients and deleterious materials. Suitable for top dressing of trees and plant beds. Dyed and raw wood chips are not acceptable.

2.05 SOURCE QUALITY CONTROL AND TESTS

A. Provide testing and analysis of imported topsoil.

B. Analyze to ascertain percentage of nitrogen, phosphorus, potash, soluble salt, organic matter and pH value.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that finish grades have been prepared and are ready to receive work.

B. Percolation Test: Prior to planting, saturate plant pits with water to test drainage. Notify Director's Representative of any drainage problems/concerns.

3.02 PREPARATION OF SUBSOIL

A. Prepare subsoil to eliminate uneven areas. Maintain profiles and contours. Make changes in grade gradual. Blend slopes into level areas.

B. Remove foreign materials, weeds and undesirable plants and their roots. Remove contaminated subsoil.

C. Scarify subsoil to a depth of 3 inches (75 mm) where plants are to be placed. Repeat cultivation in areas where equipment, used for hauling and spreading topsoil, has compacted subsoil.

D. Dig pits and beds 12 inches (300 mm) larger than plant root system.

3.03 PLACING TOPSOIL

A. Mix the following soil amendments with topsoil at the rates specified Delay mixing of fertilizer if planting will not follow the placing of topsoil within a few days. 3.5 bushels of peat moss per cubic yard of topsoil and 1.25 lbs. of fertilizer per cubic yard of topsoil.

B. Install amended topsoil intended for plant root balls, as specified on the plans.

3.04 FERTILIZING

A. Apply fertilizer in accordance with manufacturer's instructions.

B. Lightly water to aid the dissipation of fertilizer.

3.05 PLANTING

A. Place plants for best appearance for review and final orientation by Saratoga Associates.

B. Set plants vertical.

C. Remove non-biodegradable root containers.

D. Set plants in pits or beds, partly filled with prepared plant mix, at a minimum depth of 6 inches (150 mm) under each plant. Remove burlap, ropes, and wires, from the root ball.

E. Place bare root plant materials so roots lie in a natural position. Backfill soil mixture in 6 inch (150 mm) layers. Maintain plant life in vertical position.

F. Saturate soil with water when the pit or bed is half full of topsoil and again when full.

3.06 TREE PRUNING

A. Perform pruning of trees as recommended in ANSI A300.

B. Prune newly planted trees as required to remove dead, broken, and split branches.

3.07 FIELD QUALITY CONTROL

A. When landscape work is completed, including maintenance, Owner's representative will make an inspection to determine acceptability. When inspected work does not comply with requirements, replace rejected work and continue specified maintenance until reinspected by Owner's representative and found to be acceptable. Remove rejected plants and materials promptly from the site.

B. Plants will be rejected if a ball of earth surrounding roots has been disturbed or damaged prior to or during planting.

C. End of two (2) year Warranty Inspection: Remove and replace all dead, unhealthy or badly impaired plants according to original specification, if so directed by the Owner's representative. Replace planting during the next planting season if conclusion of warranty period is not within planting season.

3.08 MAINTENANCE

A. Furnish maintenance until end of two year warranty period.

B. Irrigate sufficiently to saturate root system and prevent soil from drying out.

C. Remove dead or broken branches and treat pruned areas or other wounds.

D. Neatly trim plants where necessary.

E. Immediately remove clippings after trimming.

F. Water to prevent soil from drying out.

G. Use an integrated pest management system to control weeds and insects. No herbicides or pesticides shall be used.

H. Replace mulch when deteriorated.

I. Maintain wrappings, guys, turnbuckles, and stakes. Adjust turnbuckles to keep guy wires tight. Repair or replace accessories when required.

END OF SECTION

SECTION 32 94 00
STAINLESS STEEL CABLE PLANT SUPPORT SYSTEM

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Stainless Steel Wire Rope Assemblies
   2. Stainless Steel Fittings, Anchors, Hardware, and Accessories

B. Related Sections:
   1. Section 4 - Masonry Anchoring and Reinforcing

1.02 SYSTEM DESCRIPTION

A. Performance Requirements: Provide Stainless Steel Cable Railing System and mounting hardware which have been manufactured and installed to meet or exceed manufacturer’s and project performance criteria.

1.03 SUBMITTALS

A. Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures Section.

B. Product Data: Submit Manufacturer’s product data sheet for specified products.

C. Shop Drawings: Show layout, sizes, dimensions, details, and installation of railing frame components. Include Details of rope attachment, tensioning methods, hardware, and tensioning and mounting methodology.

D. Samples: Submit samples of rope and/or hardware, as required by specifier.

E. Quality Assurance/Control Submittals:
   1. Test reports: Submit any test report demonstrating compliance with intended use and code requirements.
   2. Certificates: Submit manufacturer’s certificate that product meets or exceeds specified requirements

F. Closeout Submittals: Submit the Following:
   1. Warranty: Submit manufacturer’s standard warranty documents
   2. Maintenance Data: Include manufacturer’s standard cleaning and maintenance instructions to avoid detrimental actions to finishes and performance.

1.04 QUALITY ASSURANCE

A. Qualifications:
   1. Installer Qualifications: Installer should be experienced in performing work of this section and should have specialized in installation of work similar to that required for this project.

B. Mock-Ups: Install at project site or appropriate location a job mock-up using acceptable products and manufacturer approved installation methods. Obtain Director's Representative's approval of product, application, and workmanship standards. Comply with Division 1 Quality Control (Mock-Up Requirements) Section.
   1. Mock-Up Size: 4' x 4' area displaying the wire rope assembly including the fittings, anchors, hardware and accessories.
   2. Maintenance and Disposal: Maintain mock-up during construction for workmanship comparison.
      a. Removal: Remove and legally dispose of mock-up when no longer required.

C. Pre-Installation Meetings: Conduct with Director's Representative, Fabricator, Installer and any other subcontractors whose work involves cable railing system to verify project requirements,

framing and support conditions, mounting surfaces, manufacturer's installation instructions, and warranty requirements. Comply with Division 1 requirements.

1.05 DELIVERY, STORAGE, AND HANDLING

A. General: Comply with Division 1 Product Requirements Sections Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

B. Delivery: Deliver in manufacturer's original, unopened, undamaged containers, identification labels intact.

C. Storage and Protection: Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer. Store cartons and panels in a secure location in a dry place at the project site.

1.06 WARRANTY

A. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official.

PART 2 PRODUCTS

2.01 FACADESCAPE™ STAINLESS STEEL CABLE PLANT SUPPORT SYSTEM

A. Manufacturer Basis of Design: Carl Stahl DécorCable Innovations, Inc., 8080 South Madison Street, Burr Ridge, IL USA 60527. Tel: 312-474-1100, Fax: 312-474-1789, E: sales@decorcable.com, Web: www.decorcable.com.

B. FacadeScape™ Brand Stainless Steel Cable Plant Support System, or approved equal.
   1. Material:
      a. Cable: Type 316 4mm Ø 4mm stainless steel 7x7 wire rope.
      b. Fittings, Anchors, Hardware, and Accessories: AISI 304, 316 or 316L stainless steel.
   2. Rope End Fittings, Terminals, and Tensioners:
      a. External Thread-Swaged RH Stock #850, LH Stock #855.
      b. External Thread F30 Hammer Swaged-RH Stock #950, LH Stock#951
      c. External Thread F50 Hammer Swaged-RH Stock #948, LH Stock#949
      d. External Thread-Field Installed RH Stock #850, LH Stock #850.
      e. Internal Thread-Swaged RH Stock #860, LH Stock #861.
      f. Internal Thread-Field Installed RH Stock #860, LH Stock #860.
      g. Swaged Fork (Clevis) -Stock #881
      h. Fork with Internal Thread-Swaged RH Stock #812, LH Stock #811.
      i. Fork and Swage w/Turnbuckle -Stock #870
      j. Swaged Eye-Stock #880
      k. Eye with Internal Thread-Swaged RH Stock #814, LH Stock #813.
      l. Eye and Swage w/Turnbuckle -Stock #889
      m. Compressed Loop w/o Thimble-Stock #801/803
      n. Compressed Loop w/ Thimble-Stock #802/804
      o. Loop Clamp w/ Thimble-Stock #874
      p. Turnbuckle with Swaged External Thread ends Stock #829
      q. Turnbuckle with F30 Hammer Swaged External Thread ends Stock #829
   3. Support Components:
      a. Spacer Bar w/M8 Internal Thread-Specify Length-Stock #919.
      b. Cross Clamp-Specify Length-Stock #919.
      c. Spacer Bar-Unthreaded 8mm Internal Bore-Specify Length-Stock #919.
      d. Spacer Bar Support Link-Stock #834
      e. Clamp Screw for M8 Spacer Bars-Specify Size-Stock #923
      f. Ground Plate- Unthreaded-Stock #836
      g. Cover Disk with Internal M8 Threads -Stock #836

h. Eye Bolt-Stock #837
i. Eye Nut-Stock #838
j. Fork Bracket-Stock #834
k. SS Adjustable Support to for EIFS facades-Stock #897
l. Plastic Pipe Support for EIFS facades-Stock #897-0690
m. Sealing Disk for Pipe Support-Stock #897-9
n. Sealing Ring for Pipe Support-Stock #897-8

4. Clamps and Plant Supports:
   a. 90° Cross Clamp-Stainless Steel-Stock #858
   b. Adjustable Cross Clamp-Stainless Steel-Stock #858
   c. Adjustable Cross Clamp w/Internal Threads-Stainless Steel-Stock #858
   d. Cross Clamp-UV Resistant Plastic-Stock #920
   e. CS Cross Clamp for Large Ropes-Stock #858
   f. Radial Disk with M6 Internal Threads-Stock #897
   g. Climber Stud-UV Resistant Plastic-Stock #924
   h. Rod/Rope Interface with M6 Internal Thread for 8mm Rod-Stock #921-0600-12
   i. Stainless Steel Rod-Ø 4mm-Stock #922-0400
   j. Stainless Steel Rod-Ø 8mm-Stock #922-0800
5. Anchors and Hardware:
   a. Washer-Specify Type-Stock #896
   b. Hex Nut-Specify Type-RH Stock #892, LH Stock #893
   c. Dome Nut-RH -Stock #894
   d. Hex Head Bolt-Stock #843
   e. Socket Head Bolt-Stock #844
   f. Pan Head Screw-Stock #890
   g. Dual Thread Screw-RH Stock #878, LH Stock #877
   h. Rampa Nut for Wood, Stock #803
   i. Threaded Rod (Headless Screw)-RH Stock #882, LH Stock #883
   j. Wall Anchor for Masonry with Internal Thread RH Stock #803
   k. Wall Anchor for Masonry with External Thread RH Stock #803
6. Length:
   a. Provide optimum adjustment in both directions by calculating final tendon lengths with allowance for tensioning fittings with 2/3 open and with 1/3 of thread length engaged.
   b. Measure tendon length from center of pin to center of pin, or center of eye to center of eye.

2.02 PRODUCT SUBSTITUTIONS

A. Substitutions: No substitutions permitted.

2.03 FITTINGS AND ACCESSORIES

A. Accessories: Provide grommet, bushings, nuts, washers, turnbuckles, fittings and other components as required for system installation

2.04 FABRICATION

A. Stainless Steel Cables and Fittings shall be dimensioned and fabricated to specified size and labeled according to shop drawings and installer’s specifications.

B. Preassemble items in shop to greatest extent practicable to minimize assembly at project site. Disassemble units only to extent necessary for shipping and handling limitations. Mark units for reassembly.

PART 3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions and product carton instructions for installation.

3.02 EXAMINATION

A. Site Verification of Conditions: Verify mounting condition of previously installed surfaces to ensure it is acceptable for product installation in accordance with manufacturer's instructions. Do not begin installation until backup surfaces are in satisfactory condition.

3.03 PREPARATION

A. Supply items required to be cast into concrete or embedded in masonry with setting templates, to appropriate sections.

B. Take field measurements after permanent end terminations are in place and prior to preparation of shop drawings and fabrication, to ensure fitting of work.

3.04 INSTALLATION

A. Install cable plant support system in accordance with manufacturer's instructions and the approved shop drawings.

B. Provide anchorage devices and fittings to secure to in-place construction; including threaded fittings for concrete inserts, toggle bolts and through-bolts. Install all rope assemblies plumb, level, square, and taut.

C. Anchor system to mounting surfaces as indicated on the drawings.

D. Separate dissimilar materials with bushings, grommets or washers to prevent electrolytic corrosion.

E. Use manufacturer's supplied mounting hardware.

F. Terminate and tension cable system in accordance with manufacturer's instructions.

G. Ensure ropes are clean, and without kinks or sags.

H. After final adjustment provide tamper resistant locktight materials on all fittings.

3.05 CLEANING

A. Remove temporary coverings and protection of adjacent work areas.

B. Clean installed products in accordance with manufacturer's instructions before owner's acceptance. Do not use chlorine-based or abrasive cleaners.

C. Remove from project site and legally dispose of construction debris associated with this work.

3.06 PROTECTION

A. Protection: Protect installed product from damage during subsequent construction activities.

END OF SECTION