

# TOWN OF NEWTOWN, CONNECTICUT

## INVITATION TO BID

### **SITE WORK - #63 WASHINGTON CIRCLE**

The Town of Newtown, Connecticut, Public Works Department (Newtown PWD) is soliciting sealed bids for construction of an asphalt parking lot with associated concrete sidewalks, concrete curbing (extruded concrete), streetscape lighting and landscaping.

Sealed Bids will be received at the office of the Finance Director of the Town of Newtown, Newtown Municipal Center, 3 Primrose Street, Newtown, Connecticut 06470, Attention: Mr. Robert G. Tait, Financial Director, until but no later than **11:00 a.m.** prevailing time on **Tuesday, September 22, 2015**, at which time and place said Bids will be opened publicly and read aloud.

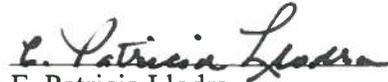
The contract Documents, including specifications and drawings, may be examined at the office of the Newtown PWD, located at 4 Turkey Hill Road in Newtown, Connecticut. Copies of the Contract Documents may be obtained at the Newtown PWD office location.

A mandatory pre-bid meeting will be held at the site at **10:00 a.m.** on **Monday, September 14, 2015**.

Bid security in the form of a surety bond, certified or bank check, or a letter of credit, payable to the Town of Newtown is required in the sum of ten percent (10%) of the base Bid. Bid security shall be subject to the condition provided in the instructions to Bidders. Upon award of the contract, the successful bidder must furnish a Performance bond and a Payment bond equal to one hundred percent (100%) of the contract price, in accordance with the Contract Documents.

No Bidder may withdraw his Bid for a period of sixty (60) days after the date of Bid opening.

The Town of Newtown reserves the right to accept or reject any or all Bids, or waive any technicality in any Bid or part thereof, if deemed to be in the best interest of the Town of Newtown. The Town of Newtown is an Affirmative Action Employer-MBE/WBE are encouraged to bid.



E. Patricia Llodra  
First Selectman



Robert G. Tait  
Financial Director

**PURCHASING AUTHORITY**

**TOWN OF NEWTOWN PURCHASING AUTHORITY**  
**INSTRUCTIONS TO BIDDERS**

1. Submit bids in a sealed envelope plainly marked to identify the particular bid. It is the sole responsibility of the bidder to see that the bid is in the hands of the proper authority prior to the bid opening time. Bidders may be present at the opening of the bids.
2. Withdrawals of, or amendments to bids received later than the time and date specified for bid opening will not be considered.
3. The Purchasing Authority of the Town of Newtown reserves the right to accept or reject any or all options, bids, or proposals; to waive any technicality in any bid, or part thereof, and to accept any bid deemed to be in the best interest of the Town of Newtown, Connecticut.
4. Bids may be held by the Town of Newtown for a period not to exceed sixty (60) days from the opening of the bids for the purpose of reviewing the bids and investigating the qualifications of bidders prior to the awarding of the contract.
5. Bids must be submitted on the "Sealed Bid Request" form enclosed at the end of this packet. All items must be filled in (unit cost, trade-in for each unit, etc.). Failure to comply with this requirement will automatically void the bid.
6. Trade-ins, when indicated, will be listed on the Sealed Bid Request form. The Town of Newtown reserves the right to trade all, some or none of the vehicles listed as deemed in the best interest of the Town. Bidders may submit a bid on the new vehicles with or without trade-ins or may submit bids on the trade-ins only, either individually or by lot. Trade-ins must be detailed individually as indicated on the Sealed Bid Request form. Trade-ins may be used in determining the lowest responsible bid.
7. The Town may consider proximity of the vendor's service as a factor in determining lowest price and reserves the right to award in whole or part to one or more vendors.
8. The Town agrees to pay for all equipment within thirty (30) working days after the equipment has been accepted and claim (invoice) presented.
9. Bid Security when required must be by a **certified check, letter of credit or surety bond** for ten percent (10%) of the total bid, payable to the Town of Newtown. If a surety bond is enclosed, it shall be written on AIA Document A310, Bid Bond, unless otherwise provided in the Bidding Documents, and the attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of the Power of Attorney.
10. The Town of Newtown reserves the right to retain the bid security of Bidders to whom an award is being considered until either: (a) the Contract has been executed and bonds, if required, have been furnished, or (b) the specified time has elapsed so that Bids may be withdrawn or (c) all bids have been rejected.

11. Prior to awarding any contract exceeding \$25,000.00 for the construction, alteration, or repair for any public building or public work, a 100% performance bond and a labor or materialmen's bond must be furnished by the person to whom the contract is awarded.
12. Performance Bond when required must be by a **certified check, letter of credit or performance bond** for one hundred percent (100%) of the total bid. When submitting a performance bond, bonds must be written on AIA Document A312, Performance Bond and Payment Bond. Both bonds shall be written in the amount of the Contract Sum.
13. The successful bidder will be required to post a Certificate of Insurance, with the Town of Newtown named as additional insured, in an amount to be determined by the Town of Newtown.

**BASIS of PAYMENT**

**ROCK EXCAVATION**

**ROCK EXCAVATION.....Cubic Yard**

**The price bid for this item shall include the following:**

- 1) Clearing and grubbing of all affected areas.
- 2) All labor and materials necessary for the removal of rock within limits of the construction area.
- 3) Removal of rock from site.
- 4) It is the Contractor's responsibility to provide all means of breaking rock. The contractor is responsible for obtaining all necessary permits if blasting is done.

Before any rock is to be removed, an agent of the Town of Newtown will field verify volume of rock to be removed.

**BASIS of PAYMENT**

**ASPHALT CONCRETE PAVEMENT**

**ASPHALT CONCRETE PAVEMENT.....Ton**

**The price bid for this item shall include the following:**

- 1) All final preparation of base material.
- 2) Provide all labor and materials necessary for the placement of the asphalt concrete to the thickness as shown on the typical sections.
- 3) All tack coat for cut edges, joints and around basins.
- 4) All restoration of disturbed areas.

**BASIS of PAYMENT**

**CONCRETE SIDEWALK**

**CONCRETE SIDEWALK.....Linear Feet**

**The price bid for this item shall include the following:**

- 1) All layout, clearing and grubbing and excavation necessary for the placement/construction of the concrete sidewalk.
- 2) Preparation of subgrade and processed base course in areas to receive concrete sidewalk.
- 3) Provide all labor and materials necessary for the placement/construction of the concrete sidewalk as shown in the details and plans.
- 4) Restoration of all areas disturbed by this operation.

**BASIS of PAYMENT**

**ADA TILES, 4 FOOT X 2 FOOT, (YELLOW)**

**ADA TILES, 4 FOOT X 2 FOOT, (YELLOW).....Each**

**The price bid for this item shall include the following:**

- 1) Provide all labor and materials necessary for the installation of the ADA Tiles as shown on the plans. All work and material must conform to all current ADA Codes.
- 2) Restoration of all areas disturbed by this operation.

**BASIS of PAYMENT**

**3 FOOT X 7.5 FOOT X 6 INCH GRANITE STEPS**

**3 FOOT X 7.5 FOOT X 6 INCH GRANITR STEPS.....EACH**

**The price bid for this item shall include the following:**

- 1) Provide all labor and materials necessary for the replacement of the existing steps as shown on the plans. The new step is to match the existing step's line and grade.
- 2) Repair / replace existing base where new step is to be placed.
- 3) Restoration of all areas disturbed by this operation.

**BASIS of PAYMENT**

**CONCRETE CURB (EXTRUDED)**

**CONCRETE CURB (EXTRUDED).....LINEAR FEET**

**The price bid for this item shall include the following:**

- 1) All layout of areas to be curbed.
- 2) Preparation of asphalt base in areas to receive concrete curb.
- 3) Provide all labor and materials necessary for the placement of the concrete curb as shown in the details and plans.
- 4) Restoration of all areas disturbed by this operation.

**BASIS of PAYMENT**

**LIGHT FIXTURES-TYPE "A" INCLUDING CONCRETE BASE**

**LIGHT FIXTURES-TYPE "A" INCLUDING CONCRETE BASE.....Each**

**The price bid for this item shall include the following:**

- 1) Provide all labor and materials required for the placement of the light fixtures.
- 2) Placement of the light fixtures conforming to all current electrical codes.
- 3) Restoration of all areas disturbed by this operation.

**NOTE:** The concrete bases should match the bases that exist in the adjacent parking lot as closely as possible.

The Town will provide the light poles and fixtures for this project.

**BASIS of PAYMENT**

**GROUND RODS**

**GROUND RODS.....Each**

**The price bid for this item shall include the following:**

- 1) All excavation required for the placement of the ground rods.
- 2) Provide all labor and materials necessary for the installation of ground rods. All work and material must conform to all current electrical codes.
- 3) Restoration of all areas disturbed by this operation.

**BASIS of PAYMENT**

**ELECTRICAL CONDUIT SCHEDULE 40 PVC**

**ELECTRICAL CONDUIT SCHEDULE 40.....Linear Feet**

**The price bid for this item shall include the following:**

- 1) Clearing and grubbing of all affected areas.
- 2) All excavation necessary for the installation of the conduit.
- 3) Supplying and installing electrical conduit. (Size to be indicated on plans)
- 4) Conduit is to be bedded and backfilled with sand to a minimum depth of six (6) inches.
- 5) Restoration of all areas disturbed by this operation.

**BASIS of PAYMENT**

**ELECTRICAL WIRE**

**ELECTRICAL WIRE.....LINEAR FEET**

**The price bid for this item shall include the following:**

- 1) Provide all labor and materials necessary for the placement of the electrical wire. The installation and materials are to meet all current electrical codes.
- 2) Restoration of all areas disturbed by this operation.

**BASIS of PAYMENT**

**PAVEMENT STRIPING**

**PAVEMENT STRIPING.....LINEAR FOOT**

**The price bid for this item shall include the following:**

- 1) Provide all labor and materials necessary for the installation of the pavement striping as shown on the plans. Cross hatching as well as handicap symbols will be necessary for the handicap spaces. All striping must meet current ADA requirements.
- 2) Striping paint must be epoxy type.

**BASIS of PAYMENT**

**ADJUST EXISTING CATCH BASIN TOPS**

**ADJUST EXISTING CATCH BASIN TOPS.....EACH**

**The price bid for this item shall include the following:**

- 1) Provide all labor and materials necessary for the adjustment of the existing catch basin tops to line and grade as shown on the plans.
  
- 2) All restoration of disturbed areas.

**BASIS of PAYMENT**

**TREE REMOVAL**

**TREE REMOVAL .....Each**

**The price bid for this item shall include the following:**

- 1) Cutting and removal of all trees as specified in the contract.
- 2) Removal of all stumps and debris from the site.
- 3) All wood, stumps and debris is to be removed from the site and disposed of at a location approved by the Town.
- 4) All restoration of disturbed areas.

**BASIS of PAYMENT**

**TURF ESTABLISHMENT**

**TURF ESTABLISHMENT.....SQUARE YARDS**

**The price bid for this item shall include the following:**

- 1) Provide all labor and materials necessary for this item. Materials include but are not limited to topsoil, grass seed, mulch and fertilizer. All materials are to meet State specifications.
- 2) Topsoil thickness is to be 6” minimum. The topsoil is to be spread to proper grade and fine raked prior to placement of seed, mulch and fertilizer.

## CAST-IN-PLACE CONCRETE

### 1.1 SUMMARY

- A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mix design, placement procedures, and finishes.
- B. Related Sections include the following:
  - 1. Division 32 Section "Cement Concrete Paving" for concrete pavement and walks.

### 1.2 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume.

### 1.3 SUBMITTALS

- A. Product Data: For each type of manufactured material and product indicated.
- B. Design Mixes: For each concrete mix. Include alternate mix designs when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.
  - 1. Indicate amounts of mix water to be withheld for later addition at Project site.
- C. Steel Reinforcement Shop Drawings: Details of fabrication, bending, and placement, prepared according to ACI 315, "Details and Detailing of Concrete Reinforcement." Include material, grade, bar schedules, stirrup spacing, bent bar diagrams, arrangement, and supports of concrete reinforcement. Include special reinforcement required for openings through concrete structures.
- D. Material Certificates: Signed by manufacturers certifying that each of the following items complies with requirements:
  - 1. Cementitious materials and aggregates.
  - 2. Form materials and form-release agents.
  - 3. Steel reinforcement and reinforcement accessories.
  - 4. Admixtures.
  - 5. Waterstops.
  - 6. Curing materials.

7. Bonding agents.
8. Adhesives.
9. Epoxy joint filler.
10. Joint-filler strips.

#### 1.4 QUALITY ASSURANCE

- A. **Installer Qualifications:** An experienced installer who has completed concrete Work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. **Manufacturer Qualifications:** A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.
  1. Manufacturer must be certified according to the National Ready Mixed Concrete Association's Certification of Ready Mixed Concrete Production Facilities.
- C. **Source Limitations:** Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, each aggregate from one source, and each admixture from the same manufacturer.
- D. **ACI Publications:** Comply with the following, unless more stringent provisions are indicated:
  1. ACI 301, "Specification for Structural Concrete."
  2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle steel reinforcement to prevent bending and damage.

### PART 2 - PRODUCTS

#### 2.1 FORM-FACING MATERIALS

- A. **Smooth-Formed Finished Concrete:** Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
  1. Plywood, metal, or other approved panel materials.
- B. **Chamfer Strips:** Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.

- C. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
  - 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- D. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
  - 1. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of the exposed concrete surface.
  - 2. Furnish ties that, when removed, will leave holes not larger than 1 inch in diameter in concrete surface.
  - 3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

## 2.2 STEEL REINFORCEMENT

- A. Steel Reinforcement: ASTM A 615/A 615M, Grade 60, deformed.
- B. Plain-Steel Welded Wire Fabric: ASTM A 185, fabricated from plain steel wire into flat sheets.

## 2.3 REINFORCEMENT ACCESSORIES

- A. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of greater compressive strength than concrete, and as follows:
  - 1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected or CRSI Class 2 stainless-steel bar supports.
- B. Joint Dowel Bars: Plain-steel bars, ASTM A 615/A 615M, Grade 60. Cut bars true to length with ends square and free of burrs.

## 2.4 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, Type I/II.
  - 1. Fly Ash: ASTM C 618, Class C or F.
- B. Normal-Weight Aggregate: ASTM C 33 uniformly graded, and as follows:
  - 1. Class: Severe weathering region, but not less than 3S.

2. Nominal Maximum Aggregate Size: 3/4 inch.

C. Water: Potable and complying with ASTM C 94.

## 2.5 ADMIXTURES

A. General: Admixtures certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material and to be compatible with other admixtures and cementitious materials. Do not use admixtures containing calcium chloride.

B. Air-Entraining Admixture: ASTM C 260.

C. Water-Reducing Admixture: ASTM C 494, Type A.

D. Water-Reducing and Accelerating Admixture: ASTM C 494, Type E

E. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.

## 2.6 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.

F. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, 18 to 22 percent solids.

## 2.7 RELATED MATERIALS

A. Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber, or ASTM D 1752, cork or self-expanding cork.

B. Epoxy Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Shore A hardness of 80 per ASTM D 2240.

- C. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- D. Epoxy-Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class and grade to suit requirements, and as follows:
  - 1. Type II, non-load bearing, for bonding freshly mixed concrete to hardened concrete.
  - 2. Types I and II, non-load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.
  - 3. Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

## 2.8 CONCRETE MIXES

- A. Prepare design mixes for each type and strength of concrete determined by either laboratory trial mix or field test data bases, as follows:
  - 1. Proportion normal-weight concrete according to ACI 211.1 and ACI 301.
- B. Use a qualified independent testing agency for preparing and reporting proposed mix designs for the laboratory trial mix basis.
- C. Cast-in-Place Concrete: Proportion normal-weight concrete mix as follows:
  - 1. Compressive Strength (28 Days): 4,500 PSI
  - 2. Maximum Slump: 5 inches.
- D. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
  - 1. Fly Ash: 25 percent.
  - 2. Combined Fly Ash and Pozzolan: 25 percent.
  - 3. Ground Granulated Blast-Furnace Slag: 50 percent.
  - 4. Combined Fly Ash or Pozzolan and Ground Granulated Blast-Furnace Slag: 50 percent portland cement minimum, with fly ash or pozzolan not exceeding 25 percent.
  - 5. Silica Fume: 10 percent.
  - 6. Combined Fly Ash, Pozzolans, and Silica Fume: 35 percent with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.

7. Combined Fly Ash or Pozzolans, Ground Granulated Blast-Furnace Slag, and Silica Fume: 50 percent portland cement minimum, with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.
- E. Maximum Water-Cementitious Materials Ratio: As indicated.
- F. Air Content: Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content as follows within a tolerance of plus 1 or minus 1.5 percent, unless otherwise indicated:
  1. Air Content: 6 percent for 3/4-inch- nominal maximum aggregate size.
- G. Do not air entrain concrete to trowel-finished interior floors and suspended slabs. Do not allow entrapped air content to exceed 3 percent.
- H. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
- I. Admixtures: Use admixtures according to manufacturer's written instructions.
  1. Use water-reducing admixture in concrete, as required, for placement and workability.
  2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
  3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.

## 2.9 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

## 2.10 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.

## PART 3 - EXECUTION

### 3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until concrete structure can support such loads.

- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual, as follows:
  - 1. Class B, 1/4 inch.
- D. Construct forms tight enough to prevent loss of concrete mortar.
- E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical. Kerf wood inserts for forming keyways, reglets, recesses, and the like, for easy removal.
  - 1. Do not use rust-stained steel form-facing material.
- F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- H. Chamfer exterior corners and edges of permanently exposed concrete.
- I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

### 3.2 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use Setting Drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  - 1. Install anchor bolts, accurately located, to elevations required.

### 3.3 REMOVING AND REUSING FORMS

- A. General: Formwork, for sides of beams, walls, columns, and similar parts of the Work, that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete provided concrete is hard enough to not be damaged by form-removal operations and provided curing and protection operations are maintained.
- B. Leave formwork, for beam soffits, joists, slabs, and other structural elements, that supports weight of concrete in place until concrete has achieved the following:
  - 1. 28-day design compressive strength.
  - 2. At least 70 percent of 28-day design compressive strength.
  - 3. Determine compressive strength of in-place concrete by testing representative field- or laboratory-cured test specimens according to ACI 301.
  - 4. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
- C. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- D. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Engineer.

### 3.4 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

1. Shop- or field-weld reinforcement according to AWS D1.4, where indicated.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire fabric in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

### 3.5 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Engineer.
  1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
  2. Form from preformed galvanized steel, plastic keyway-section forms, or bulkhead forms with keys, unless otherwise indicated. Embed keys at least 1-1/2 inches into concrete.
  3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
  4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
  5. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
  6. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Dowel Joints: Install dowel sleeves and dowels or dowel bar and support assemblies at joints where indicated.
  1. Use dowel sleeves or lubricate or asphalt-coat one-half of dowel length to prevent concrete bonding to one side of joint.

### 3.6 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

- B. Do not add water to concrete during delivery, at Project site, or during placement, unless approved by Engineer.
- C. Before placing concrete, water may be added at Project site, subject to limitations of ACI 301.
  - 1. Do not add water to concrete after adding high-range water-reducing admixtures to mix.
- D. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation.
- E. Deposit concrete in forms in horizontal layers no deeper than 24 inches and in a manner to avoid inclined construction joints. Place each layer while preceding layer is still plastic, to avoid cold joints.
  - 1. Consolidate placed concrete with mechanical vibrating equipment. Use equipment and procedures for consolidating concrete recommended by ACI 309R.
  - 2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the vibrator. Place vibrators to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mix constituents to segregate.
- F. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
  - 1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
  - 2. Maintain reinforcement in position on chairs during concrete placement.
  - 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
  - 4. Slope surfaces uniformly to drains where required.
  - 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, free of humps or hollows, before excess moisture or bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

- G. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
  2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
  3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators, unless otherwise specified and approved in mix designs.
- H. Hot-Weather Placement: Place concrete according to recommendations in ACI 305R and as follows, when hot-weather conditions exist:
1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
  2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
  3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

### 3.7 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defective areas repaired and patched. Remove fins and other projections exceeding ACI 347R limits for class of surface specified.
- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defective areas. Remove fins and other projections exceeding 1/8 inch in height.
1. Apply to concrete surfaces exposed to public view or to be covered with a coating or covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, or painting.
  2. Do not apply rubbed finish to smooth-formed finish.
- C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture

matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

### 3.8 FINISHING FLOORS AND SLABS

- A. General: Comply with recommendations in ACI 302.1R for screeding, restraighening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes.
  - 1. Apply scratch finish to surfaces indicated and to surfaces to receive concrete floor topping or mortar setting beds for ceramic or quarry tile, portland cement terrazzo, and other bonded cementitious floor finishes.
- C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraighening until surface is left with a uniform, smooth, granular texture.
  - 1. Apply float finish to surfaces indicated, to surfaces to receive trowel finish, and to floor and slab surfaces to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.
- D. Trowel Finish: After applying float finish, apply first trowel finish and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
  - 1. Apply a trowel finish to surfaces indicated and to floor and slab surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin film-finish coating system
  - 2. Finish and measure surface so gap at any point between concrete surface and an unveled freestanding 10-foot- long straightedge, resting on two high spots and placed anywhere on the surface, does not exceed the following:
    - a. 3/16 inch.
- E. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.
  - 1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Engineer before application.

### 3.9 MISCELLANEOUS CONCRETE ITEMS

- A. **Filling In:** Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete Work.
- B. **Equipment Bases and Foundations:** Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates of manufacturer furnishing machines and equipment.

### 3.10 CONCRETE PROTECTION AND CURING

- A. **General:** Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and with recommendations in ACI 305R for hot-weather protection during curing.
- B. **Evaporation Retarder:** Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. **Formed Surfaces:** Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing by one or a combination of the following methods:
- D. **Unformed Surfaces:** Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces, by one or a combination of the following methods:
  - 1. **Moisture Curing:** Keep surfaces continuously moist for not less than seven days with the following materials:
    - a. Water.
    - b. Continuous water-fog spray.
    - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
  - 2. **Moisture-Retaining-Cover Curing:** Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive.

Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

- a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
- b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
- c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer recommends for use with floor coverings.

3.

### 3.11 JOINT FILLING

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.
  1. Defer joint filling until concrete has aged at least six months. Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.
- C. Install semirigid epoxy joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

### 3.12 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Engineer. Remove and replace concrete that cannot be repaired and patched to Engineer's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
  1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension in solid concrete but not less than 1 inch in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact

- with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
  3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Engineer.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
  2. After concrete has cured at least 14 days, correct high areas by grinding.
  3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
  4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
  5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
  6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least 3/4 inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mix as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
  7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off

dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

- E. Perform structural repairs of concrete, subject to Engineer's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Engineer's approval.

### 3.13 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to sample materials, perform tests, and submit test reports during concrete placement. Sampling and testing for quality control may include those specified in this Article.
- B. Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
  - 1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mix exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
    - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mix, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
  - 2. Slump: ASTM C 143; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mix. Perform additional tests when concrete consistency appears to change.
  - 3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; ASTM C 173, volumetric method, for structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mix.
  - 4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
  - 5. Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one set of four standard cylinder specimens for each composite sample.
    - a. Cast and field cure one set of four standard cylinder specimens for each composite sample.

6. Compressive-Strength Tests: ASTM C 39; test one laboratory-cured specimens at 7 days and two at 28 days.
  - a. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at age indicated.
- C. Strength of each concrete mix will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
- D. Test results shall be reported in writing to Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-and 28-day tests.
- E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Engineer but will not be used as sole basis for approval or rejection of concrete.
- F. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Engineer. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42 or by other methods as directed by Engineer.

END OF SECTION 033000

The Contractor is to be responsible to protect all underground and overhead utilities and shall have a cleared starting date by "CALL BEFORE YOU DIG" prior to doing any site work.

**CONSTRUCTION ITEMS:**

ITEM	UNIT
1. Rock Excavation	Cubic Yard
2. Asphalt Pavement, Class I	Ton
3. Asphalt Pavement, Class II	Ton
4. 5 Foot Wide Concrete Sidewalk	Linear Foot
5. 4 Foot Wide Concrete Sidewalk	Linear Foot
6. 3 Foot X 7.5 Foot X 6 Inch Granite Step	Each
7. ADA Tiles, 4' X 2', (Yellow)	Each
8. Concrete Curb (Extruded)	Linear Foot
9. Light Fixtures, Type "A" Including Concrete Bases, (Exclude cost of light pole and fixture. Town will provide light pole and fixture as specified for project.)	Each
10. Ground Rods	Each
11. 1 ¼" Conduit, Schedule 40 PVC	Linear Foot
12. #AWG 1/0 Wire	Linear Foot
13. #8 CV Ground	Linear Foot
14. Pavement Striping	Linear Foot
15. Adjust Existing Catch Basin Top	Each
16. Tree Removal	Each
17. Turf Establishment	Square Yards
18. Mobilization	Lump Sum

**PROJECT DESCRIPTION:**

This project consists of the construction of an asphalt parking lot with associated concrete sidewalks, concrete curbing (extruded concrete), streetscape lighting and landscaping. The work includes furnishing, installing and incorporating all materials and equipment into the project as well as performing or providing all labor and services. All materials and construction methods must meet all requirements of Form 816 or its successors.

**STARTING TIME, PROJECT DURATION AND LIQUIDATED DAMAGES:**

The Contractor is required to start the work within fifteen (15) working days\* of receiving confirmation of award of bid. The Contractor is required to work continuously until project completion. The project is to be completed within sixty (60) working days\* from the start date. Extension of this time must be by Change Order and will only be granted at the Town’s discretion. In the event the Contractor fails to complete the project within the required time without just cause, there will be a fine of \$100.00 per day for liquidated damages. Liquidated damages will be deducted from payment of monies owed to the Contractor.

\*Working days are defined as Monday through Friday, exclusive of Town Holidays.

**UNIT ADJUSTMENTS:**

The Town may order additions, deletions or revisions to the work. If such increases or decreases to the work occur, the prices shown below (for items complete, in-place and ready for service) will be used to adjust the contract price by Change Order. The Contractor shall not proceed with any extra work without an authorized Change Order.

ITEM	UNIT FOR ADJUSTMENT	ADJUSTMENT PRICE/UNIT
1. Rock Excavation	Cubic Yard	\$ _____
2. Asphalt Pavement, Class I	Ton	\$ _____
3. Asphalt Pavement, Class II	Ton	\$ _____
4. 5 Foot Wide Concrete Sidewalk	Linear Foot	\$ _____
5. 4 Foot Wide Concrete Sidewalk	Linear Foot	\$ _____
6. 3 Foot X 7.5 Foot X 6 Inch Granite Step	Each	\$ _____
7. ADA Tiles, 4’ X 2’ (Yellow)	Each	\$ _____
8. Concrete Curb, (Extruded Concrete)	Linear Foot	\$ _____
9. Light Fixtures, Type “A” Including Concrete Bases, (Exclude cost of light pole and fixture. Town will provide light pole and fixture as specified for project.)	Each	\$ _____
10. Ground Rods	Each	\$ _____
11. 1 ¼ Inch Conduit, Schedule 40 PVC	Linear Foot	\$ _____
12. #AWG 1/0 Wire	Linear Foot	\$ _____
13. #8CV Ground Wire	Linear Foot	\$ _____
14. Turf Establishment	Square Yards	\$ _____

**GENERAL SPECIFICATIONS:**

Prior to beginning work the Contractor shall submit a certificate of insurance showing adequate coverage for workman’s compensation, bodily injury liability and property damage liability.

The Contractor shall maintain the site of the construction in a neat and orderly condition. Suitable access to the property in the area of construction shall be maintained at all times. Adequate provisions for the passage of vehicular traffic normally using the roads/driveways shall be made.

The Contractor will be responsible for all sedimentation and erosion control measures. These measures include but are not limited to silt fence and hay bales.

**TOWN OF NEWTOWN**  
**SEALED BID REQUEST**

**BID OPENING DATE:** Tuesday, September 22, 2015 **TIME:** 11:00 am

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**LOCATION:** Finance Dept., Newtown Municipal Center, 3 Primrose Street, Newtown, CT 06470

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**BID TITLE:** SITE WORK-#63 WASHINGTON CIRCLE-AFFH

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**SECURITY REQUIRED:** Ten Percent (10%) Bid Security. One Hundred percent (100%) Performance & Employees and Materialmen Security

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**DATED IN NEWTOWN:** September 8, 2015

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**BID SECURITY** \$ \_\_\_\_\_  
(CERTIFIED CHECK, LETTER OF CREDIT OR BID BOND)

**PLEASE NOTE: ONE (1) ORIGINAL AND ONE (1) COPY OF SEALED BID and UNIT PRICING MUST BE SUBMITTED.**

Is your company a MBE/WBE business: \_\_\_\_\_  
(YES) (NO)

TOTAL BID: \$ \_\_\_\_\_

**NOTE: Attach unit pricing sheet with this form.**

\_\_\_\_\_  
**COMPANY**

\_\_\_\_\_  
**SIGNATURE**

\_\_\_\_\_  
**ADDRESS**

\_\_\_\_\_  
**SIGNED BY (Print or Type)**

\_\_\_\_\_  
**ADDRESS 2**

\_\_\_\_\_  
**TITLE**

\_\_\_\_\_  
**ADDRESS 3**

\_\_\_\_\_  
**FAX NO.**

\_\_\_\_\_  
**TELEPHONE NO.**

\_\_\_\_\_  
**DATE**

\_\_\_\_\_  
**TAX ID NUMBER**

\_\_\_\_\_  
**E-MAIL (Please include for our records)**