

# City of Cambridge

## Purchasing Department

Cynthia H. Griffin  
*Purchasing Agent*

**TO:** All Bidders  
**FROM:** City of Cambridge  
**DATE:** July 26, 2013  
**RE:** File No. 6159 –First & Green Street Garages 2013 Repairs- Addendum No. 1

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Please note the attached Addendum No. 1 which includes changes to the specifications and the attached sign in sheet for the Pre-bid meeting.

All other details remain the same.

  
CYNTHIA H. GRIFFIN  
PURCHASING AGENT

Addendum No. 1



# ADDENDUM NO. 001

## FIRST & GREEN STREET GARAGES 2013 REPAIRS



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DATE OF ISSUANCE: July 26, 2013  
OWNER: City of Cambridge  
CONTRACT FOR: First & Green Street Garages 2013 Repairs  
WALKER PROJECT #: 16-2336.03

The attention to bidders submitting proposals for the above project is called to the following addendum to the specifications and drawings. The items set forth herein, whether of omission, addition, substitution or clarifications are all to be included in and form part of the proposal submitted. This addendum shall take precedence or provide clarification.

The number of this addendum must be entered in the appropriate space on page one of the bid forms entitled 00300 – Form for General Bid.

### SPECIFICATIONS

Added Spec Section 013300 – Submittal Procedures

Revised Spec Section 020010 – Work Items for clarification and edits

Section 020010 – Work Items

#### **WI 8.0 PRECAST TEE BEAM REPAIR**

##### **B. Materials/Equipment**

1. ~~Pressure applied concrete repair materials shall be as specified in section "Shotcrete."~~
2. Trowel applied patching material shall be as specified in Section "Trowel Applied Mortar." This material may be used for shallow removal and repair Work Items only.
3. ~~Concrete repair materials shall be as specified in section "Latex Modified Concrete and Mortar" and/or Section "Cast in Place Concrete."~~
4. Chipping hammers shall be 15 lb or less unless directed by Engineer/Architect.

##### **C. Execution**

5. All steel exposed within cavities shall be cleaned to bare metal by sandblasting mechanical means as specified in Section "Surface Preparation for Patching," Article "Cleaning of Reinforcement within Delamination and Spall Cavities," and damaged reinforcement replaced as specified in Section "Surface Preparation for Patching," Article "Reinforcement and Embedded Materials in Repair Areas." Exposed steel shall be coated with approved corrosion inhibitor coating as specified in Section "Concrete Reinforcement."
9. ~~Contractor shall take care to protect adjacent areas from overspray if "Shotcrete" is used. Area subject to repair shall be cleaned to Owner's satisfaction prior to leaving site.~~

## ADDENDUM NO. 001

FIRST & GREEN STREET GARAGES 2013 REPAIRS



**WALKER**  
RESTORATION CONSULTANTS

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### WI 8.5 TEE FLANGE REPAIR - FULL DEPTH

#### C. Execution

2. ~~Contractor shall provide shoring from grade to tee flange being repaired. Submit shop drawings in accordance with Section "Submittals" and receive Engineer/Architect's approval prior to starting removal operations.~~
4. ~~Prior to sawcutting, Contractor shall verify position of prestressing strand in tee stems so that strand is not cut. Sawcut shall then be made approximately 3 in. from edge of cavity. This sawcut shall be to depth of 1 in. and all edges shall be straight. Underside of slab shall have its repair edge ground to depth of 1/2 in. Patches shall be as square or rectangular-shaped as practical. All concrete within sawcut shall be removed to minimum depth of 1 in. Also see Section "Surface Preparation for Patching," Article "Preparation."~~
7. ~~All steel exposed within cavities shall be cleaned to bare metal by sandblasting mechanical means according to Section "Surface Preparation for Patching," Article "Cleaning of Reinforcement within Delamination and Spall Cavities," and damaged and defective reinforcement replaced as specified in Section "Surface Preparation for Patching," Article "Reinforcement and Embedded Materials in Repair Areas." All exposed steel shall be coated with an approved corrosion inhibitor coating as specified in Work Item "Concrete Reinforcement."~~

### WI 10.0 EXPANSION JOINT REPAIR AND REPLACEMENT

#### B. Materials

2. ~~Concrete repair materials shall be as specified in Section "Latex Modified Concrete and Mortar"~~

### WI 96.1 INSTALL METAL COPING – PARAPET (FILED SUB-BID WORK- ROOFING)

#### A. Scope of Work

1. ~~Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to install coping assembly on top of existing wall. Refer to Detail 96.1 Series 96 for specific requirements.~~

#### C. Execution

1. ~~Contractor shall clean and prepare existing membrane around failure area according to membrane manufacturer's instructions.~~
2. ~~Install/lap in new piece(s) of repair membrane using approved bonding materials and methods. See manufacturer's repair details and follow accordingly.~~
3. ~~Perform roofing repairs only during fair weather period when rain or other weather conditions will not detrimentally affect or compromise the repair area.~~

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FIRST & GREEN STREET GARAGES 2013 REPAIRS



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### WI 96.5 REMOVE AND REPLACE ROOF DRAIN (FILED SUB-BID WORK – PLUMBING)

#### B. Materials

1. Materials for this Work are as shown on Detail 25.2/25.3 (or 96.5) and/or in Section "~~General Mechanical Requirements.~~" "Common Work Results for Plumbing."

### WI 96.6 REMOVE AND REPLACE ROOF DRAIN – PIPE AND HANGER (FILED SUB-BID WORK – PLUMBING)

#### B. Materials

1. Materials for this Work are as shown on Detail 25.3 and/or in Section "~~General Mechanical Requirements.~~" "Common Work Results for Plumbing."

### WI 96.7 INSTALL NEW SURFACE MOUNTED COUNTERFLASHING

#### A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to prepare existing reglet and install new counterflashing as shown on Drawings. Refer to Detail Series 96.7 96.4.

Section 025140 – Surface Preparation for Patching

### 3.5 CLEANING OF REINFORCEMENT WITH DELAMINATION AND SPALL CAVITIES

- B. All exposed steel shall be cleaned of rust to bare metal by ~~sandblasting~~ mechanical means. Cleaning shall be completed immediately before patch placement to insure that base metal is not exposed to elements and further rusting for extended periods of time. Engineer/Architect may require entire bar diameter be cleaned.

Added Spec Section 079233 – Concrete Joint Sealants

### DRAWINGS

Detail 3.1.1 on Sheet R-501 shows "TOOL AND SEAL JOINT, (TYP.) SEE DETAIL 11.4"

Detail 3.1.2 on Sheet R-501 shows "TOOL AND SEAL JOINT, (TYP.) SEE DETAIL 11.4"

Detail 3.6 on Sheet R-501 is NOT USED

Detail 8.4 on Sheet R-501 Note 1 has been edited for clarification

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## ADDENDUM NO. 001

FIRST & GREEN STREET GARAGES 2013 REPAIRS



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Detail 8.5 on Sheet R-501 Note 1 has been edited for clarification and shows "TOOL AND SEAL JOINT, (TYP.) SEE DETAIL 11.4"

Detail 11.7 on Sheet R-502 shows a precast-to-precast section

See below for attachments

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Spec Section 013300 – Submittal Procedures  
Spec Section 020010 – Work Items  
Spec Section 079233 – Concrete Joint Sealants  
Detail 3.1.1 – Floor Repair – Partial Depth  
Detail 3.1.2 – Floor Repair – Partial Depth  
Detail 3.6 – NOT USED  
Detail 8.4 – Tee Flange Repair – Partial Depth  
Detail 8.5 – Tee Flange Repair – Full Depth  
Detail 11.7 – Cove Sealant

## SECTION 013300 - SUBMITTAL PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.
- B. Related Sections include the following:
  - 1. Division 1 Section "Payment Procedures."
  - 2. Division 1 Section "Quality Control" for submitting test and inspection reports and Delegated-Design Submittals.
  - 3. Division 1 Section "Project Record Documents" for submitting Record Drawings.

#### 1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Engineer's responsive action.
- B. Informational Submittals: Written information that does not require Engineer's approval. Submittals may be rejected for not complying with requirements.

#### 1.4 SUBMITTAL PROCEDURES

- A. Contractor shall submit electronic copies of submittals required by individual Specification Sections directly to Owner. Owner will transmit copies to Engineer for review. Submit 5 hard copies of samples for selection of finishes.
- B. Resubmittals: Engineer will review each of Contractor's shop drawings and/or submittal data the initial time and, should resubmittal be required, one additional time to verify that reasons for resubmittal have been addressed by Contractor and corrections made. Resubmittal changes/revisions/corrections shall be circled. Engineer will review only circled items and will not be responsible for non-circled changes/revisions/corrections and additions. Should additional resubmittals be required, Contractor shall reimburse Owner for all costs incurred, including the cost of Engineer's services made necessary to review such additional resubmittals. Owner will in turn reimburse Engineer.
- C. General: Electronic copies of CAD Drawings of the Contract Drawings will not be provided by Engineer for Contractor's use in preparing submittals.
- D. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
  2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    - a. Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- E. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer's receipt of submittal.
1. Review: Allow 15 days for review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Engineer will advise Contractor when a submittal being processed must be delayed for coordination.
  2. If intermediate submittal is necessary, process it in same manner as initial submittal.
  3. Allow 15 days for processing each resubmittal.
  4. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
- F. Identification: Place a cover sheet on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
  2. Provide a space approximately 4 by 5 inches on label or beside title block to record Contractor's review and approval markings and action taken by Engineer.
  3. Include the following information on label for processing and recording action taken:
    - a. Project name.
    - b. Date.
    - c. Name and address of Engineer.
    - d. Name and address of Contractor.
    - e. Name and address of subcontractor.
    - f. Name and address of supplier.
    - g. Name of manufacturer.
    - h. Unique identifier, including revision number.
    - i. Number and title of appropriate Specification Section.
    - j. Drawing number and detail references, as appropriate.
    - k. Other necessary identification.
- G. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.
- H. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Owner will return submittals, without review, received from sources other than Contractor.
1. Transmittal Form: Provide locations on form for the following information:

- a. Project name.
  - b. Date.
  - c. Destination (To:).
  - d. Source (From:).
  - e. Names of subcontractor, manufacturer, and supplier.
  - f. Category and type of submittal.
  - g. Submittal purpose and description.
  - h. Remarks.
  - i. Signature of transmitter.
- I. Distribution: Contractor shall furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- J. Use for Construction: Use only final submittals with mark indicating action taken by Engineer in connection with construction.

## **PART 2 - PRODUCTS**

### **2.1 ACTION SUBMITTALS**

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
  2. Mark each copy of each submittal to show which products and options are applicable.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

### **2.2 INFORMATIONAL SUBMITTALS**

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
- B. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
1. Name, address, and telephone number of entity performing subcontract or supplying products.
  2. Number and title of related Specification Section(s) covered by subcontract.
  3. Drawing number and detail references, as appropriate, covered by subcontract.

- C. Contractor's Construction Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation."
- D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of Engineers and owners, and other information specified.
- E. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.
- F. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- G. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.
- H. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.
- I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.
- J. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- K. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
  - 1. Preparation of substrates.
  - 2. Required substrate tolerances.
  - 3. Sequence of installation or erection.
  - 4. Required installation tolerances.
  - 5. Required adjustments.
  - 6. Recommendations for cleaning and protection.
- L. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
  - 1. Name, address, and telephone number of factory-authorized service representative making report.

2. Statement on condition of substrates and their acceptability for installation of product.
  3. Statement that products at Project site comply with requirements.
  4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
  5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
  6. Statement whether conditions, products, and installation will affect warranty.
  7. Other required items indicated in individual Specification Sections.
- M. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

### **2.3 REQUESTS FOR INFORMATION**

- A. Engineer reserves the right to reject, unprocessed, any Request for Information (RFI) that the Engineer, at its sole discretion, deems frivolous.
- B. Engineer reserves the right to reject, unprocessed, any RFI that the Engineer, at its sole discretion, deems already answered in the Contract Documents.
- C. RFI process shall not be used for requesting substitutions. Procedures for substitutions are clearly specified elsewhere in the Contract Documents.

## **PART 3 - EXECUTION**

### **3.1 CONTRACTOR'S REVIEW**

- A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

### **3.2 ENGINEER'S ACTION**

- A. General: Engineer will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Engineer/Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Engineer/Architect or its subconsultant will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:

1. Final Unrestricted Release: Where the submittal is marked "NO EXCEPTION TAKEN", the Work covered by the submittal may proceed provided it complies with the Contract Documents. Final acceptance will depend on that compliance.
  2. Final-but-Restricted Release: Where the submittal is marked "MAKE CORRECTIONS NOTED", the Work covered by the submittal may proceed provided it complies with both Architect's notations and corrections on the submittal and the Contract Documents. Final acceptance will depend on that compliance.
  3. Returned for Resubmittals: Where the submittal is marked "REVISE AND RESUBMIT", do not proceed with the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity for the product submitted. Revise or prepare a new submittal according to Architect's notations and corrections.
  4. Rejected: Where the submittal is marked "REJECTED", do not proceed with the Work covered by the submittal. Prepare a new submittal for a product that complies with the Contract Documents.
  5. Not Reviewed for Acceptance: Where the submittal is marked "SUBMITTAL NOT REQUIRED NO REVIEW PERFORMED", submittal is not required by specification or resubmittal was not required and Architect has not reviewed the shop drawings.
- C. Informational Submittals: Engineer will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Engineer will forward each submittal to appropriate party.
- D. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

**END OF SECTION 01330**

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## **SECTION 020010 - WORK ITEMS**

### **PART 1 - GENERAL**

#### **RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections apply to this Section.

### **PART 2 - PRODUCTS (NOT APPLICABLE)**

### **PART 3 - EXECUTION**

#### **WI 1.0 GENERAL REQUIREMENTS**

- A. Scope of Work

- 1. Work consists of performing all tasks, specifically required and incidental, which are not identified under separate Work Item designation, but necessary to perform the work identified in this project. This work includes, but is not limited to the following items:

- WI 1.1 - Mobilization
- WI 1.2 - Concrete Formwork
- WI 1.3 - Concrete Shores and Reshores
- WI 1.4 - Concrete Reinforcement
- WI 1.6 - Temporary Signage
- WI 1.7 - Temporary Facilities and Controls

#### **WI 1.1 PROJECT MOBILIZATION**

- A. Scope of Work

- 1. Work consists of coordinating, scheduling, obtaining and assembling at construction site all equipment, materials, permits, supplies, manpower and other essentials and incidentals necessary to perform Work defined in this Contract. Payment of lump sum amount for mobilization shall be according to following schedule and shall be based on percentage of original contract amount earned.

- B. Materials

- 1. None

- C. Execution

- 1. At execution of agreement by all parties, payment of not more than 25% of mobilization lump sum amount.
- 2. When amount earned is greater than 10% but less than 25% of original contract amount, an additional amount will be paid to bring total payment for mobilization to 50% of mobilization lump sum amount.

3. When amount earned is equal to or greater than 25% but less than 50% of original contract amount, an additional amount will be paid to bring total payment for mobilization to 75% of mobilization lump sum amount.
4. When amount earned is equal to or greater than 50% of original contract amount, an additional amount will be paid to bring total payment for mobilization to 100% of mobilization lump sum amount.

## **WI 1.2 CONCRETE FORMWORK**

### **A. Scope of Work**

1. Work consists of furnishing all labor, materials, equipment, supervision, and incidentals necessary to install shoring and formwork as required for cast-in-place concrete.

### **B. Materials**

1. Forms for Exposed Finish Concrete: Plywood, metal, metal-framed plywood faced, or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on Drawings.
  - a. Use overlaid plywood complying with U.S. Product Standard PS-1 "A-C or B-B High Density Overlaid Concrete Form," Class I
  - b. Use plywood complying with U.S. Product Standard PS-1 "B-B (Concrete Form) Plywood," Class I, Exterior Grade or better, mill-oiled and edge-sealed, with each piece bearing legible inspection trademark.
2. Forms for Unexposed Finish Concrete: Plywood, lumber, metal, or other acceptable material. Provide lumber dressed on at least 2 edges and one side for tight fit.
3. Form Coatings: Provide commercial formulation form-coating compounds with a maximum VOC of 350 mg/l that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces, including but not limited to water-curing, curing compound, stains, or paints.
4. Form Ties: Factory-fabricated, adjustable-length, removable or snap-off metal form ties, designed to prevent form deflection and to prevent spalling concrete upon removal. Provide units that will leave no metal closer than 1.5 in. to exposed surface.
  - a. Provide ties that, when removed, will leave holes not larger than 1.0 in. diameter in concrete surface.
5. Shores:
  - a. Nail Ellis clamps, if used with wood shores, to shores with minimum of two nails to prevent slipping.
  - b. Wedges: Hardwood or steel. Softwood wedges prohibited.

C. Execution

1. Work shall conform to requirements of ACI 301 "Standard Specifications for Structural Concrete," ACI 302.1 R "Guide for Concrete Floor Slab Construction," ACI 318 "Building Code Requirements for Reinforced Concrete," and ACI 347 "Recommended Practice for Concrete Formwork" except as modified by the following paragraphs.
2. Store all formwork and formwork materials clear of ground, protected, so as to preclude damage.
3. Construct forms to sizes, shapes, lines, and dimensions shown and to obtain accurate alignment, location, grades, level, and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide backup at joints to prevent leakage of cement paste.
4. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the like, for easy removal.
5. Provide temporary openings where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete. Securely brace temporary openings and set tightly to forms to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
6. Chamfer exposed corners and edges as indicated, using wood, metal, PVC, or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.
7. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses, and chases from trades providing such items. Accurately place and securely support items built into forms.
8. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, or other debris just before concrete is placed. Retighten forms and bracing before concrete placement as required to prevent mortar leaks and maintain proper alignment.
9. Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in finished slab surface. Provide and secure units sufficiently strong to support types of screed strips by use of strike-off templates or accepted compacting type screeds
10. Coat contact surfaces of forms with accepted, nonresidual, low-VOC form-coating compound before reinforcement is placed.
11. Coat steel forms with non-staining, rust-preventive form oil or otherwise protect against rusting. Rust-stained steel formwork not acceptable.
12. Formwork shall remain in place until concrete has reached minimum two-thirds of 28-day strength. Do not place additional loads on structure until concrete has been properly reshored.
13. Clean and repair surfaces of forms to be re-used in Work. Split, frayed, delaminated or otherwise damaged form facing material will not be acceptable

- for exposed surfaces. Apply new form coating compound as specified for new formwork.
14. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use "patched" forms for exposed concrete surfaces, except as acceptable to Engineer/Architect.

### WI 1.3 CONCRETE SHORES AND RESHORES

#### A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision, and incidentals necessary to install temporary floor slab shoring and to maintain shores in place until restoration Work requiring shores and associated concrete has properly cured.

#### B. Materials

1. Shores shall be steel, rated at 4,500 lb. at 12 ft. extension unless otherwise required by design.

#### C. Execution

1. Comply with ACI 301 and ACI 347 for shoring and reshoring in multi-story construction, except as modified in this Section.
2. For purpose of calculations: Construction load = 50 psf; dead load = 85 psf.
3. Shore/Reshore loads on the structure shall not exceed 50 psf distributed load on the slab, and concentrated loads shall not exceed posted wheel loads or 2,000 lbs., whichever is less. Concentrated bearing pressures shall not exceed 100 psi.
4. Shore/Reshore loads on concrete slab-on-grade shall not exceed 50 psf distributed load, and concentrated bearing pressures shall not exceed 1,500 psi.
5. Shore/Reshore loads shall be distributed horizontally and/or distributed to more than one level to meet shore/reshore load limitations.
6. Shore/Reshore loads shall be distributed to multiple framing members (beams/joists) and extend beyond the immediate work area to ensure proper distribution of loads throughout the structure.
7. Prior to installation of shores, Contractor shall submit shoring scheme prepared and sealed by licensed professional Engineer/Architect in Massachusetts.
8. Engineer/Architect will review shoring scheme for general conformance to requirements stated herein. If it does not conform, Contractor will be informed to resubmit another shoring scheme. See requirements of Division 1 for limits to resubmittals.
9. Remove shores and reshore in planned sequence to avoid damage to partially cured concrete. Locate and provide adequate reshoring to safely support Work without excessive stress or deflection.
10. Keep reshores in place as required until heavy loads due to construction operations have been removed.
11. If during construction, modifications are necessary to accommodate other trades, revise and resubmit erection plan to Engineer/Architect for review.

#### WI 1.4 CONCRETE REINFORCEMENT

##### A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision, and incidentals necessary to fabricate and install all mild steel reinforcement where supplementing is necessary due to corrosion or as directed by the engineer. Sizes of reinforcing bar vary from #3 thru #8, with the majority being #3, thru #5.

##### B. Materials

1. Reinforcement materials shall be as specified in ACI 301 "Standard Specifications for Structural Concrete."
2. Welded wire reinforcement: provide mats only. Roll stock prohibited.
3. Epoxy Coating for Existing Exposed Steel Reinforcement and repair site bonding agent:
  - a. "Emaco P24," BASF Construction Chemicals, Shakopee, MN.
  - b. "Armatec 110 EpoCem," Sika Corporation, Lyndhurst, NJ.

##### C. Execution

1. Contractor shall install reinforcement of size adequate to supplement lost cross-sectional area due to corrosion of 15% (10% if 2 or more consecutive parallel bars and/or tendons are affected).
2. Work shall conform to requirements of ACI 301 "Standard Specifications for Structural Concrete," ACI 315-80 "Details and Detailing of Concrete Reinforcement," ACI 318 "Building Code Requirements for Reinforced Concrete," and Concrete Reinforcing Steel Institute (CRSI), "Manual of Standard Practice."
3. Submittals required include: Product data for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, waterstops, joint systems, curing compounds, and others as requested by Engineer/Architect including, but not limited to:
  - a. Manufacturer's product data and installation instructions for proprietary form coatings, manufactured form systems, ties, and accessories.
  - b. Steel producer's certificates of mill analysis, tensile tests, and bend tests.
  - c. Manufacturer's product data, specifications, and installation instructions for proprietary materials, welded and mechanical splices, and reinforcement accessories.
  - d. Submit all materials and methods for concrete curing to Engineer/Architect for approval before beginning concreting Work. Include certification of curing compound allowable moisture loss.
4. Store concrete reinforcement materials at site to prevent damage and accumulation of dirt or excessive rust.
5. Reinforcement with any of following defects will be rejected:
  - a. Lengths, depths and bends exceeding CRSI fabrication tolerances.

- b. Bends or kinks not indicated on Drawings or final Shop Drawings.
  - c. Reduced cross-section due to excessive rusting or other cause.
6. General: Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars," for details and methods of reinforcement placement and supports and as herein specified.
- a. Avoiding cutting or puncturing vapor retarder during reinforcement placement and concreting operations.
  - b. Examine conditions under which concrete reinforcement is to be placed, and immediately notify Engineer/Architect in writing of unsatisfactory conditions. Do not proceed with Work until unsatisfactory conditions have been corrected in acceptable manner.
  - c. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials that reduce or destroy bond with concrete.
  - d. Fabricate reinforcement to conform to required shapes and dimensions, with fabrication tolerances complying with CRSI MSP. In case of fabricating errors, do not re-bend or straighten reinforcement in manner that will injure or weaken material.
  - e. Bends in reinforcement are standard 90° bends unless noted otherwise.
  - f. Reinforcement with any of following defects will be rejected:
    - 1) Lengths, depths and bends exceeding CRSI fabrication tolerances.
    - 2) Bends or kinks not indicated on Drawings or final Shop Drawings.
    - 3) Reduced cross-section due to excessive rusting or other cause.
  - g. Perform all welding of mild steel reinforcement, metal inserts and connections with low hydrogen welding electrodes in accordance with AWS D1.4.
  - h. Comply with ACI 301, Chapter 3 for placing reinforcement.
  - i. Use rebar chairs and accessories to hold all reinforcing positively in place. Provide rebar chairs at all formed surfaces, both vertical and horizontal, to maintain minimum specified cover. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces. Maximum spacing of chairs and accessories shall be per CRSI Manual of Standard Practice. In situations not covered by CRSI, provide support at 4 ft on center maximum each way.
  - j. Install welded wire reinforcement in as long lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.
  - k. Splices:
    - 1) Provide standard reinforcement splices by lapping ends, placing bars in contact, and tying tightly with wire. Comply with requirements of ACI 318 for minimum lap of spliced bars.
    - 2) For mechanical tension splices of reinforcement:
      - a) Column bar lengths shall not exceed 30 ft between splices. In any bar, no splices shall occur at any floor level.

- b) Exercise care to assure that no reduction of cross-sectional area of reinforcement occurs.
  - c) Use Barsplice Products, Inc., Bar-Grip or Grip-Twist, NMB Splice Sleeve, or Erico LENTON splices.
  - d) For all mechanical splices, perform splicing in strict accordance with manufacturer's requirements and instructions.
  - e) All splices to develop 125% of specified yield strength of bars, or of smaller bar in transition splices.
  - f) Stagger splices in adjacent bars.
  - g) Except where shown on Drawings, welding of reinforcement prohibited without prior written authorization by Engineer/Architect.
- 3) Compression splices: Mechanically coupled splices in accordance with ACI 318, Chapter 12.

#### **WI 1.6 TEMPORARY SIGNAGE**

##### **A. Scope of Work**

1. Work consists of furnishing all labor, materials, equipment and supervision necessary to provide and install and remove following completion of project, temporary signage as required for traffic control and user information during construction and as required by Owner/Engineer/Architect.

##### **B. Materials**

1. Temporary signage shall meet following minimum requirements:
  - a. Minimum size: 2'-0" x 3'-0"
  - b. Backing material: 0.5 in. medium density overlay plywood.
  - c. Colors:
    - 1) Background: white for pedestrian information; medium orange for traffic information.
    - 2) Symbols/Lettering: black
  - d. Lettering: silk screened or die-cut.
    - 1) Font Style: Helvetica or similar.
    - 2) Size: 2 in. high minimum for pedestrian information; 4 in. high minimum for traffic information.

##### **C. Execution**

1. Mounting height: 5 ft. to bottom of sign. Provide mounting brackets as required.
2. Contractor shall submit shop drawings detailing sign size, layout, colors, and mounting schemes for approval prior to fabricating signs and mounting brackets.
3. Typical regulatory signs (that is, STOP, YIELD, etc.) and "Handicap" signs shall conform to all Federal, state, and local requirements for sizes, materials, and colors.

## **WI 1.7 TEMPORARY FACILITIES AND CONTROLS**

### **A. Scope of Work**

1. Work consists of furnishing all labor, materials, equipment and supervision necessary to provide, install, move as needed during work, maintain and remove following completion of project, temporary construction barricades and temporary utility service as required during construction and as required by Owner and Engineer to provide positive barricading of Work areas from areas open to public and to prevent the need for washing cars parked adjacent to the work area.

### **B. Materials**

1. 4 ft. 0 in. high solid temporary barrier constructed of wood, painted safety yellow on side facing public operating side or 6 ft. 0 in. high temporary fencing with orange securely attached to side facing public operating side.
2. Translucent nylon reinforced laminated polyethylene or polyvinyl chloride, waterproof, fire-resistant, UL labeled tarpaulins with flame-spread rating of 15 or less, secured from floor to ceiling.

### **C. Execution**

1. Before work begins in any Phase, Contractor shall install temporary enclosure in locations indicated on Drawings.
2. Contractor shall remove temporary barricades after work in a Phase is complete.
3. Barricades can be reused provided they are still in "like new" condition.

## **WI 3.0 CONCRETE FLOOR REPAIR**

### **A. Scope of Work**

1. This Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate existing spalls and delaminations, remove delaminated and unsound concrete, prepare cavities and install patching material to restore floor slab and curbs to original condition and appearance. Refer to Detail Series 3.0 for specific requirements.

### **B. Materials**

1. Concrete repair materials shall be as specified in Section "Cast-in-Place Concrete" and/or Section "Trowel Applied Mortar."
2. Conventional steel reinforcement shall be as specified in Section "Cast-in-Place Concrete" and/or Work Item "Concrete Reinforcement."
3. Concrete formwork shall be as specified in Section "Cast-in-Place Concrete" and/or Work Item "Concrete Formwork."

### **C. Execution**

1. Contractor shall locate and mark all Work areas as specified in Section "Surface Preparation for Patching," Article "Inspection."

2. Contractor shall quantify and map repair locations on Field Drawings prior to the start of demolition.
3. Contractor shall confirm quantities with Owner and Engineer prior to the start of demolition.
4. Procedure for delaminated, spalled and unsound concrete removal shall be as specified in Section "Surface Preparation for Patching," Article "Preparation." Remove all unsound concrete within marked boundary prior to sawcutting and preparation of patch edges.
5. Engineer/Architect shall inspect all cavities for condition according to Section "Surface Preparation for Patching," Article "Inspection of Repair Preparation."
6. All steel exposed within cavities shall be cleaned to bare metal by mechanical methods as specified in Section "Surface Preparation for Patching," Article "Cleaning of Reinforcement within Delamination and Spall Cavities," and damaged and defective reinforcement replaced as specified in Section "Surface Preparation for Patching," Article "Reinforcement and Embedded Materials in Repair Areas."
7. Exposed steel and repair site shall be coated with an approved epoxy rebar coating and bonding agent as specified in Work Item "Concrete Reinforcement."
8. Contractor shall prepare cavities for patch placement as specified in Section "Surface Preparation for Patching," Article "Preparation of Cavity for Patch Placement."
9. Patch materials and associated reference specifications are listed in Work Item "Concrete Floor Repair," Article "Materials," above. Patch installation procedures shall be in accordance with referenced specifications for selected material.

**WI 3.1 FLOOR REPAIR - PARTIAL DEPTH (GREEN STREET)**

- A. Refer to Work Item "Concrete Floor Repair" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 3.1 for specific requirements.

**WI 3.2 FLOOR REPAIR – CROSSOVER REPAIR @ GRID D & G ( FIRST STREET)**

- A. Refer to Work Item "Concrete Floor Repair" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 3.2 for specific requirements.

**WI 3.3 FLOOR REPAIR - FULL DEPTH (GREEN STREET)**

- A. Refer to Work Item "Concrete Floor Repair" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 3.3 for specific requirements.

**WI 3.4 FLOOR REPAIR – CROSSOVER REPAIR @ GRID A (FIRST STREET)**

- A. Refer to Work Item "Concrete Floor Repair" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 3.4 for specific requirements.

**WI 3.5 FLOOR REPAIR - CURBS/WALKS**

- A. Refer to Work Item "Concrete Floor Repair" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 3.5 for specific requirements.

#### **WI 8.0 PRECAST TEE BEAM REPAIR**

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals including shoring necessary to locate, support and repair damaged or deteriorated tee beams. Refer to Detail Series 8.0 for specific requirements.

B. Materials/Equipment

1. ~~Pressure applied concrete repair materials shall be as specified in section "Shotcrete."~~
2. Trowel applied patching material shall be as specified in Section "Trowel Applied Mortar." This material may be used for shallow removal and repair Work Items only.
3. ~~Concrete repair materials shall be as specified in section "Latex Modified Concrete and Mortar" and/or Section "Cast in-Place Concrete."~~
4. Chipping hammers shall be 15 lb or less unless directed by Engineer/Architect.

C. Execution

1. Contractor shall locate and mark tee beam repairs indicated on Drawings according to Section "Surface Preparation for Patching," Article "Inspection."
2. Contractor shall provide shoring as required in accordance with Section "Cast-in-Place Concrete." Submit Shop Drawings according to Section "Submittals" and receive Engineer/Architect's approval prior to starting removal operations.
3. Procedure for delaminated, spalled and unsound concrete removal shall be as specified in Section "Surface Preparation for Patching," Article "Preparation."
4. Engineer/Architect shall inspect all cavities for condition according to Section "Surface Preparation for Patching," Article "Inspection of Repair Preparation."
5. All steel exposed within cavities shall be cleaned to bare metal by sandblasting mechanical means as specified in Section "Surface Preparation for Patching," Article "Cleaning of Reinforcement within Delamination and Spall Cavities," and damaged reinforcement replaced as specified in Section "Surface Preparation for Patching," Article "Reinforcement and Embedded Materials in Repair Areas." Exposed steel shall be coated with approved corrosion inhibitor coating as specified in Section "Concrete Reinforcement."
6. Contractor shall prepare cavities for patch placement in accordance with Section "Surface Preparation for Patching," Article "Preparation of Cavity for Patch Placement."
7. Patch materials and associated reference specifications are listed in Work Item "Precast Tee Beam Repair," Article "Materials," above. Patch installation procedures shall be in accordance with referenced specifications for selected material.

8. Contractor shall maintain forms and shores in place until concrete has attained at least 75% of 28-day strength.
9. ~~Contractor shall take care to protect adjacent areas from overspray if "Shotcrete" is used. Area subject to repair shall be cleaned to Owner's satisfaction prior to leaving site.~~

**WI 8.4 TEE FLANGE REPAIR - PARTIAL DEPTH / DEEP**

- A. Refer to Work Item "Precast Tee Beam Repair" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 8.4 for specific requirements.

**WI 8.5 TEE FLANGE REPAIR - FULL DEPTH**

- A. Scope of Work
  1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals, including shoring, necessary to locate and remove full depth unsound tee flange concrete, prepare cavity, and install patching material to restore tee flange and topping to original integrity and appearance. Refer to Detail 8.5 for specific requirements.
- B. Materials
  1. Cast-in-place concrete materials shall be as specified in Section "Cast-in-Place Concrete."
  2. Mild steel reinforcement shall be as specified in Section "Cast-in-Place Concrete" and/or Work Item "Concrete Reinforcement."
- C. Execution
  1. Contractor shall locate and mark all Work areas as specified in Section "Surface Preparation for Patching," Article "Inspection."
  2. ~~Contractor shall provide shoring from grade to tee flange being repaired. Submit shop drawings in accordance with Section "Submittals" and receive Engineer/Architect's approval prior to starting removal operations.~~
  3. Procedure for delaminated, spalled, and unsound concrete removal shall be as specified in Section "Surface Preparation for Patching," Article "Preparation."
  4. ~~Prior to sawcutting, Contractor shall verify position of prestressing strand in tee stems so that strand is not cut. Sawcut shall then be made approximately 3 in. from edge of cavity. This sawcut shall be to depth of 1 in. and all edges shall be straight. Underside of slab shall have its repair edge ground to depth of 1/2 in. Patches shall be as square or rectangular-shaped as practical. All concrete within sawcut shall be removed to minimum depth of 1 in. Also see Section "Surface Preparation for Patching," Article "Preparation."~~
  5. Repair areas shall be prepared using chipping hammers of 15 lb or less as directed by Engineer/Architect.

6. Engineer/Architect shall inspect all cavities for condition according to Section "Surface Preparation for Patching," Article "Inspection of Repair Preparation."
7. All steel exposed within cavities shall be cleaned to bare metal by sandblasting mechanical means according to Section "Surface Preparation for Patching," Article "Cleaning of Reinforcement within Delamination and Spall Cavities," and damaged and defective reinforcement replaced as specified in Section "Surface Preparation for Patching," Article "Reinforcement and Embedded Materials in Repair Areas." All exposed steel shall be coated with an approved corrosion inhibitor coating as specified in Work Item "Concrete Reinforcement."
8. Contractor shall prepare cavities for patch placement as specified in Section "Surface Preparation for Patching," Article "Preparation of Cavity for Patch Placement."
9. Installation of new epoxy coated reinforcement shall be in accordance with Section "Cast-in-Place Concrete."
10. Patch materials and associated reference specifications are listed in Work Item "Tee Flange Repair - Full Depth," Article "Materials," above. Patch installation procedures shall be in accordance with referenced specifications for selected material.

#### **WI 10.0 EXPANSION JOINT REPAIR AND REPLACEMENT**

##### **A. Scope of Work**

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to remove existing expansion joints, prepare adjacent concrete and furnish and install new expansion joint system. Refer to Detail Series 10.0 for specific requirements.

##### **B. Materials**

1. Expansion joint system materials shall be as specified in Section "Expansion Joints System," installed in strict accordance with manufacturer's recommendations.
2. ~~Concrete repair materials shall be as specified in Section "Latex Modified Concrete and Mortar"~~
3. Trowel applied material shall be as specified in Section "Trowel Applied Mortar."

##### **C. Execution**

1. Contractor shall remove existing expansion materials in manner that minimizes damage to adjacent concrete. Alterations to existing expansion joint blockout required for installation of new expansion joint system shall be performed in accordance with Work Item "Floor Repair - Provide Expansion Joint Blockout" and Section "Surface Preparation for Patching."
2. Joint materials and associated reference specifications are listed in Work Item "Expansion Joint Repair and Replacement," Article "Materials," above. Joint installation procedures shall be in accordance with referenced specifications and manufacturer's recommendations.

3. In-place testing: Prior to opening to traffic, test joint seal for leaks with 2 in. water depth maintained continuously for 12 hrs. Repair leaks revealed by examination of seal underside. Repeat test and repairs until all leaks stopped for full 12 hrs.

**WI 10.1 EXPANSION JOINT REPLACEMENT - PREMOLDED (FLOOR TO FLOOR)**

- A. Refer to Work Item "Expansion Joint Repair and Replacement" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 10.1 for specific requirements.

**WI 11.0 CRACK AND JOINT REPAIR**

**WI 11.1 SEAL CRACKS AND JOINTS**

- A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate, prepare and seal random cracks and unsealed construction joints in concrete floor and/or topping. Refer to Detail 11.1 for specific requirements.

- B. Materials

1. Approved materials for use in this Work are specified in Section "Concrete Joint Sealants."

- C. Execution

1. Contractor shall thoroughly clean and inspect concrete slabs and/or topping for cracks and unsealed construction joints. Those identified as either greater than 0.03 in. wide or showing evidence of water and/or salt staining on ceiling below shall be sealed. All cracks and joints identified for repair shall be marked with chalk to aid in precision routing. Obtain depths to top reinforcing bars and P-T tendons in area of repair by use of a pachometer. Determine depth of electrical conduit (metal or plastic). Do not exceed this depth of routing where the crack to be repaired crosses the embedded items. Damage to embedded items will require repair or replacement at no cost to the Owner.
2. Cracks and construction joints shall be ground or sawcut to an adequate width and depth as required by Work Item Detail. Routing shall be performed by mechanized device that has positive mechanical control over depth and alignment of cut. Hand held power grinders with abrasive disks shall not be used on control/construction joints, but may be used on random cracks.
3. Cavities shall be thoroughly cleaned by either sandblasting or grinding to remove all laitance, unsound concrete and curing compounds which may interfere with adhesion. Groove shall be air blasted to remove remaining debris.
4. Sealant materials and associated reference specifications are listed in Work Item "Seal Cracks and Construction Joints," Article "Materials," above. Sealant

installation procedures shall be in accordance with referenced specifications for selected material.

5. Traffic topping manufacturer shall specify joint sealant type compatible with traffic topping. Crack and joint sealant work shall be incidental to traffic topping system.

#### **WI 11.2 REPAIR EXISTING CRACK/JOINT SEALANT (INCIDENTAL)**

##### **A. Scope of Work**

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate and mark failed joint sealant, remove existing sealant, prepare edges and reseal joints and cracks. Refer to Detail 11.2 for specific requirements.

##### **B. Materials**

1. Approved materials for use in this Work are specified in Section "Concrete Joint Sealants."

##### **C. Execution**

1. Contractor shall locate failed crack/joint sealant by visual inspection.
2. Contractor shall remove existing sealant from joints and/or cracks.
3. When existing joint dimensions do not conform to Detail 11.2, joints shall be routed or sawcut to an adequate width and depth as required by Work Item Detail. Routing shall be performed by mechanized device that has positive mechanical control over depth and alignment of cut.
4. Cavities shall be thoroughly cleaned by either sandblasting or grinding to remove all remaining sealant and unsound concrete which may interfere with adhesion. Groove shall also be air blasted to remove remaining debris.
5. Install sealants in accordance with sealant manufacturer's instructions and the specification Section "Joint Sealants."
6. Traffic topping manufacturer shall specify joint sealant type compatible with traffic topping. Crack and joint sealant work shall be incidental to traffic topping system.

#### **WI 11.2.1 REPAIR EXISTING CRACK/JOINT SEALANT @ GRADEL LEVEL (ALTERNATE C - GREEN STREET)**

- A. Refer to Work Item "Repair Existing Crack/Joint Sealant" for scope of Work, materials and procedure associated with this Work Item.

#### **WI 11.4 TOOL AND SEAL PATCH PERIMETERS (INCIDENTAL)**

##### **A. Scope of Work**

1. Work consists of providing all labor, materials, equipment, supervision and incidentals necessary to provide sealed control joints in concrete repairs as shown on Drawings. Refer to Detail 11.4 for specific requirements.

B. Materials

1. Sealant materials shall be as specified in Section "Concrete Joint Sealants."

C. Execution

1. Contractor shall locate and provide control joints at all column grid lines and at all existing control and construction joints.
2. Control joints shall be tooled and formed in plastic concrete. Sawcutting joints after concrete sets will not be allowed.
3. Tooled joints shall be of proper dimension in plastic concrete.
4. Tool and seal patch perimeter shall be incidental to the concrete repair work.

**WI 11.5 REMOVE AND REPLACE TEE-TO-TEE JOINT SEALANT**

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate, remove existing sealant, prepare edges and install new joint sealant at precast tee-to-tee joints. Refer to Detail 11.5 for specific requirements.

B. Materials

1. Approved materials for use in this Work are specified in Section "Concrete Joint Sealants."

C. Execution

1. Contractor shall locate all failed, deteriorated, or damaged joints by visual inspection. Identified joints shall be verified and accepted by Engineer prior to start of work.
2. Contractor shall fully remove existing sealant from joints with mechanized device that has positive mechanical control over depth and alignment of cut in manor that does not increase the total joint width by more than 1/8". Sealant removal by hydro method will be considered based upon a successful trial demonstration of 200 lf of sealant removal as approved by the Engineer.
3. Existing precast tee edges shall be ground by mechanical methods to provide a consistent concrete edge.
4. Cavities shall be thoroughly cleaned by mechanical methods to remove all remaining sealant and unsound concrete which may interfere with bond line adhesion to the joints. Surface shall be air blasted prior to sealant installation to remove all dust and laitance.
5. Properly prepared joint edges shall be coated evenly and completely with joint primer material on each face in accordance with sealant manufacturer's recommendations. Primer application is required regardless of the manufacturer's accepted preconditions.
6. Sealant materials and associated reference specifications are listed in Work Item "Remove and Replace Tee-to-Tee Joint Sealant," Article "Materials," above.

Sealant installation procedures shall be in accordance with referenced specifications for selected material.

#### **WI 11.7 COVE SEALANT**

##### **A. Scope of Work**

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to prepare concrete surfaces and install cove sealant between floor and vertical surfaces as shown on Drawings. Refer to Detail 11.7 for specific requirements.

##### **B. Materials**

1. Joint sealant materials shall be as specified in Section "Concrete Joint Sealants."
2. Joint sealant material shall be compatible with traffic topping materials specified in Section "Traffic Coatings."

##### **C. Execution**

1. Wall-floor intersection to be sealed shall be thoroughly cleaned by mechanical methods to remove all contaminants and foreign material.
2. Entire Work area shall then be cleaned with compressed air to assure that all loose particles have been removed and that intersection is dry.
3. Properly prepared intersection shall be coated evenly and completely with joint primer material on each of intersecting faces in accordance with sealant manufacturer's recommendations.
4. After primer has cured, apply cove sealant to intersection such that sealant extends 0.75 in. onto each of intersecting faces.
5. Work cove sealant into joint so that all air is removed and tool to concave shape such that minimum throat dimension of no less than 0.5 in. is maintained.
6. Remove excess sealant and allow to cure.
7. Apply coating on horizontal and vertical surfaces where shown on Drawings in even layers in strict accordance with manufacturer's recommendations. Sealant material and associated reference specifications are listed in Work Item "Cove Sealant," Article "Materials," above for traffic topping coating materials and installation requirements.

#### **WI 15.0 PROTECTIVE SEALER**

##### **A. Scope of Work**

1. Work consists of providing all labor, materials, equipment, supervision and incidentals necessary to prepare surfaces and install protective sealer system on concrete surfaces exposed to vehicular and/or pedestrian traffic and on bumper walls, or other structural members as required.

##### **B. Materials**

1. Protective sealer system materials shall be as specified in Section "Water Repellents."

C. Execution

1. All surfaces scheduled to receive protective sealer system shall be identified by Contractor. Mark with chalk all areas other than floor surfaces which are to be treated.
2. Floor surfaces shall be prepared by shotblast in accordance with Section "Water Repellents."
3. All other surfaces to be treated shall be brushed, waterblasted, or sandblasted as required and then airblasted prior to application. Use of waterblasting on vertical or overhead surfaces requires adequate drying time before application to achieve proper penetration.
4. Sealer application shall be as specified in referenced specification section listed in Work Item "Protective Sealer," Article "Materials," above. Overhead and vertical surface application shall be by brush or pressure sprayer.

**WI 15.1 CONCRETE SEALER – FLOORS (ALTERNATIVE B – GREEN STREET S.O.G.)**

- A. Refer to Work Item "Protective Sealer" for scope of Work, materials and procedure associated with this Work Item.

**WI 16.0 TRAFFIC TOPPING**

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals, including installation of joint sealant materials, necessary to prepare existing floor surface and install traffic topping as shown on Detail 16.1 and Drawings. Coating of all vertical surfaces within Work area shall be incidental to installation of traffic topping.

B. Materials

1. Approved materials for use in this Work are as specified in Section "Traffic Coatings."

C. Execution

1. Floor surface preparation shall be performed by coating system applicator or under its direct supervision. Shotblast surface preparation is required for floors.
2. Traffic topping shall be installed by licensed applicators in strict accordance with manufacturer's recommendations and referenced specification section listed in Work Item "Traffic Topping," Article "Materials," above. Crack preparation, including installation of joint sealant material where required, is incidental to traffic topping work.
3. Coating system shall be thoroughly cured prior to Work areas being returned to service.

**WI 16.1 TRAFFIC TOPPING - VEHICULAR**

- A. Refer to Work Item "Traffic Topping" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 16.1 for specific requirements.

**WI 25.0 MECHANICAL – DRAINAGE (FILED SUB-BID)**

**WI 25.2 MECHANICAL – SUPPLEMENTAL FLOOR DRAIN (FILED SUB-BID)**

- A. Scope of Work
1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to replace existing floor drains. Work Item "Pipe and Hangers" is directly related to this Work Item. Refer to Detail 25.2 for specific requirements.
- B. Materials
1. Approved materials for this Work are as shown on Detail 25.2 and in Section "Common Work Results for Plumbing" and/or Section "Facility Storm Drainage Piping."
- C. Execution
1. Contractor shall locate and mark all areas where floor drains are to be replaced.
  2. Concrete preparation shall be as shown on Detail 25.2.
  3. Drains shall be installed as shown on Detail 25.2.

**WI 25.3 MECHANICAL - PIPE AND HANGERS (FILED SUB-BID)**

- A. Scope of Work
1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to supplement existing floor drain system by installing pipe and hangers.
- B. Materials
1. Approved materials for this Work are as specified in Section "Facility Storm Drainage Piping."
- C. Execution
1. Contractor shall locate and mark all areas where supplemental floor drain piping is to be installed.
  2. Contractor shall install supplemental floor drain piping and hangers.

**WI 35.0 BRICK/MASONRY REPAIR**

**WI 35.1 TUCKPOINTING**

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to tuckpoint defective, cracked, broken or eroded joints in existing brick work, and side vertical joints and top masonry joint where new brick abuts existing. Refer to detail 35.1 for specific requirements.

B. Materials

1. Portland Cement: ASTM C ISO, Type I or II.
2. Quicklime: ASTM C5; pulverized lime.
3. Hydrated Lime: ASTM C 207, Type N.
4. Aggregate for Mortar: ASTM C 144; except for joints less than 0.25 in., use aggregate graded with 100% passing the No. 16 sieve.
5. Water: Portable
6. Mortar shall match existing color.

C. Execution

1. Contractor shall locate and mark all Work areas. Engineer/Architect shall verify locations prior to start of Work.
2. All defective joints which are cracked, broken, or eroded to depth of 0.5 in. or more, and all vertical side joints and top masonry joints where new brick abuts existing shall be tuckpointed.
3. Joints to be tuckpointed shall be cut back to depth of 0.75 in., or to full depth of deterioration. Use mechanically operated blades only to perform cutting. Joint at back of cut shall have square shoulder. Remove all mortar from upper and lower surfaces and sides of mortar joint being prepared.
4. Contractor shall flush all mortar joints thoroughly with clean water under pressure prior to tuckpointing to remove all dust, dirt, and laitance. Brick shall be damp and free of excess water before tuckpointing commences. Take all necessary precautions to prevent water from entering cavity space during cleaning operations.
5. Tuckpointing shall be performed using Type N mortar in accordance with Section "Clay Masonry Restoration" unless otherwise directed by Engineer. Match existing mortar color. Mortar shall be dry and mixed thoroughly prior to adding sand. Add one-half required mixing water and allow to stand 1 hour, then add balance of mixing water.
6. Press mortar into prepared joint using pointing tool 0.125 in. smaller than width of joint until joint is packed full. Finish point joint with pointing tool at least 0.125 in. wider than prepared joint.
7. Prior to initial set of mortar, tool joints to match existing.
8. Allow 3 to 7 days for mortar to harden prior to cleaning of brick wall.
9. Dispose of all accumulated material and leave premises in clean condition.
10. Masonry surfaces that become dirty or smeared during joint cutting and repointing of joint surfaces shall be cleaned with bristle brushes and plain water.
11. Unnecessary damage to surrounding brick shall be repaired by Contractor at no cost to Owner.

**WI 35.2 REPLACE BRICK UNIT MASONRY**

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to remove existing deteriorated masonry brick and mortar and recourse the brick to original alignment and elevation. Refer to detail 35.2 for specific requirements.

B. Materials

1. Type S Mortar shall consist of:
  - a. Portland Cement: ASTM C 150, Type I or Type II, white or gray or both where required for color matching of exposed mortar.
  - b. Hydrated Lime: ASTM C 207, Type S.
  - c. Mortar Sand: ASTM C 144 unless otherwise indicated.
  - d. Water: Potable.

C. Execution

1. Contractor shall locate and mark all Work areas. Engineer/Architect shall verify locations prior to start of Work.
2. Contractor shall remove all existing loose or pliable brick masonry.
3. Flush cavity thoroughly with water to remove all dust and laitance prior to brick replacement. Take all necessary precautions to prevent water from entering cavity space during cleaning operations. Allow excess water to run off. New brick or existing brick removed from building shall be laid in full bed of mortar while wall is still damp. All brick repair work shall be flush with existing.
4. Install existing capstone in new bed of mortar.
5. Prior to initial set of mortar, tool joints to match existing.
6. Adequate weather protection shall be installed over all areas left open at completion of each day's work.
7. Allow 3 to 7 days for mortar to harden prior to cleaning of brick wall.
8. Dispose of all accumulated material and leave premises in clean condition.
9. Masonry surfaces that become dirty or smeared during joint cutting and repointing of joint surfaces shall be cleaned with bristle brushes and plain water.
10. Unnecessary damage to surrounding capstone or surrounding brick shall be repaired by Contractor at no cost to Owner.

**WI 35.3 REPLACE CMU BLOCKS**

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to replace missing or damaged CMU and mortar to original alignment and finish. Work is located on the second level 2 @ Grid line K.

B. Materials

1. Type S Mortar shall consist of:
  - a. Portland Cement: ASTM C 150, Type I or Type II, white or gray or both where required for color matching of exposed mortar.
  - b. Hydrated Lime: ASTM C 207, Type S.
  - c. Mortar Sand: ASTM C 144 unless otherwise indicated.
  - d. Water: Potable.
2. CMU block shall be standard 8 ½" x 11" concrete block.

C. Execution

1. Contractor shall locate and mark all Work areas. Engineer/Architect shall verify locations prior to start of Work.
2. Contractor shall remove all existing loose or pliable brick masonry.
3. Flush cavity thoroughly with water to remove all dust and laitance prior to brick replacement. Take all necessary precautions to prevent water from entering cavity space during cleaning operations. Allow excess water to run off. New brick or existing brick removed from building shall be laid in full bed of mortar while wall is still damp. All repair work shall be flush with existing.
4. Install existing capstone in new bed of mortar.
5. Prior to initial set of mortar, tool joints to match existing.
6. Dispose of all accumulated material and leave premises in clean condition.
7. Masonry surfaces that become dirty or smeared during joint cutting and repointing of joint surfaces shall be cleaned with bristle brushes and plain water.
8. Unnecessary damage to surrounding capstone or surrounding brick shall be repaired by Contractor at no cost to Owner.

**WI 45.0 PAINTING**

**WI 45.1 PAINT TRAFFIC MARKINGS**

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate, layout and paint parking stall stripes, traffic arrows, crosswalks, accessible stall access aisles, curbs, symbols, stop bars and all other existing pavement markings.
2. Stripes shall match all existing marks and be provided at same locations.
3. Remove existing stripes in those locations where they conflict with new striping layout.

B. Materials

1. Painting materials shall be chlorinated rubber based as specified in Section "Pavement Marking."

C. Execution

1. Contractor shall prepare drawing of existing parking layout in repair areas prior to starting with repairs. Contractor shall note stall width, angle of parking, directional traffic arrows and all other existing pavement markings.
2. Contractor shall submit striping plan for Engineer/Architect's approval.
3. Contractor shall locate and layout Work areas as indicated on Drawings and shall match existing pavement markings, except as directed otherwise by Engineer/Architect.
4. Where existing pavement markings conflict with new striping layout, remove conflicting pavement markings as indicated in Division 9 Section "Pavement Marking."
5. Engineer/Architect shall inspect all layout and surface preparation for conditions in accordance with Section "Pavement Marking."
6. Paint materials and associated referenced specifications are listed in Article "Materials," above. Procedures shall be in accordance with referenced specifications.

**WI 45.2 PAINT TRAFFIC MARKINGS (ALTERNATIVE A – GREEN STREET S.O.G.)**

**A. Scope of Work**

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate, layout and paint parking stall stripes, traffic arrows, crosswalks, accessible stall access aisles, curbs, symbols, stop bars and all other existing pavement markings.
2. Stripes shall match all existing marks and be provided at same locations.
3. Remove existing stripes in those locations where they conflict with new striping layout.

**B. Materials**

1. Painting materials shall be chlorinated rubber based as specified in Section "Pavement Marking."

**C. Execution**

1. Contractor shall prepare drawing of existing parking layout in repair areas prior to starting with repairs. Contractor shall note stall width, angle of parking, directional traffic arrows and all other existing pavement markings.
2. Contractor shall submit striping plan for Engineer/Architect's approval.
3. Contractor shall locate and layout Work areas as indicated on Drawings and shall match existing pavement markings, except as directed otherwise by Engineer/Architect.
4. Where existing pavement markings conflict with new striping layout, remove conflicting pavement markings as indicated in Division 9 Section "Pavement Marking."
5. Engineer/Architect shall inspect all layout and surface preparation for conditions in accordance with Section "Pavement Marking."

6. Paint materials and associated referenced specifications are listed in Article "Materials," above. Procedures shall be in accordance with referenced specifications.

**WI 96.0 ROOFING AND COPING**

**WI 96.1 INSTALL METAL COPING – PARAPET (FILED SUB-BID WORK- ROOFING)**

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to install coping assembly on top of existing wall. Refer to Detail 96.4 Series 96 for specific requirements.

B. Materials

1. Coping shall be "PERMASNAP" as manufactured by Hinkman Ashville, NC 28813 ph: 828-676-1700. Color shall be selected by the Owner.
  - a. All joints in coping and flashing shall be as shown on the details or if contractor uses prefabricated, proprietary units, joints must meet specifications of section "Sheet Metal Flashing and Trim." Contractor must also submit details of joints and terminations of proprietary systems, if approved for use.
2. Isolation sheet can be adhered waterproofing membrane with polystyrene sheet, building felts or rosin paper as outlined in Section "Sheet Metal Flashing and Trim."

C. Execution

1. Contractor shall prepare area as required to facilitate installation of coping and flashing with a minimum of seams and joints. Protect all adjacent areas from damage during cutting operations.
2. Coping and counterflashing shall be installed as shown on the Drawings and Details per Section "Sheet Metal Flashing and Trim." Corner pieces shall be fabricated to provide continuous coping at corners.
3. Counterflash and terminate at vertical terminations as shown on Detail with counterflashing material to match coping.
4. Owner shall give final approval of color of coping and flashing.

C. Execution

1. ~~Contractor shall clean and prepare existing membrane around failure area according to membrane manufacturer's instructions.~~
2. ~~Install/lap in new piece(s) of repair membrane using approved bonding materials and methods. See manufacturer's repair details and follow accordingly.~~

3. ~~Perform roofing repairs only during fair weather period when rain or other weather conditions will not detrimentally affect or compromise the repair area.~~

**WI 96.3 REMOVE SINGLE-PLY ROOF MEMBRANE SYSTEM @ LEVEL 2 & STAIR NO.2 (FILED SUB-BID WORK - ROOFING)**

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to remove all existing in place roofing materials including but not limited to the ballast, steel curb plates, EPDM roofing membrane, all roof insulation, wall flashing, deteriorated wood blocking and associated metal counter flashings, etc., down to the structural concrete roof slab in preparation for a new single-ply membrane roof system. Refer to drawing R-106 detail Series WI 93.3 for further information,

B. Materials

1. None.

C. Execution

1. The existing roof system consists of a EPDM roofing system with metal or concrete deck. The existing roof system is not under warranty. Cutting and demolition of the existing roof shall be done carefully as not to cause leaks or damage to the existing interior spaces below. Contractor shall not demolish more roof that can be protected within the same work day. Contractor shall maintain all mechanical system penetrations into the roof areas. Damage to mechanical equipment will be at contractor's expense.
2. Contractor shall remove existing roof membrane and components down to the structural concrete slab, including removal of insulation, deteriorated or damaged wood blocking, flashings, (concealed and exposed) and existing metal counter flashings down to original roof decks.
3. Existing roof drain basins shall be replaced along with a portion of the drain line per Work Item 96.6.
4. All roofing membrane materials removed from the roof areas shall be properly disposed of off-site by the contractor.
5. All existing conditions and project dimensions shall be verified by the Contractor.

**WI 96.4 REPLACE SINGLE-PLY ROOF MEMBRANE SYSTEM @ LEVEL 2 AND STAIRTOWER NO. 2 (FILED SUB-BID WORK - ROOFING)**

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to prepare the roof slab and install new roof insulation and EPDM single-ply membrane roof complete with flashing and terminations.

B. Materials

1. Roofing materials shall be as specified in Section "Ethylene Propylene Diene Monomer (EPDM)."
2. Sheet metal flashing and trim shall be as specified in Section "Sheet Metal Flashing And Trim."

C. Execution

4. Contractor shall provide new vertical flashings and seal all mechanical roof penetrations.
5. Existing concrete roof slab shall be covered with tapered roof insulation as specified before application of new roof system. Install insulation to resist specified amount of uplift force, with corresponding number of fasteners per square foot or with corresponding application of roof membrane manufacturer's specified adhesive.
6. Cover insulation with approved high-density wood fiber board. Install to resist specified uplift force, with corresponding number of fasteners per square foot or with corresponding application of roof membrane manufacturer's specified adhesive.
7. New single-ply membrane shall be applied to the high density wood fiber board per the manufacturer's specifications.
8. Membrane flashing and termination of roof membrane at roof edge shall be generally as shown in the Details, but comply with the National Roofing Contractors Association (NRCA) Roofing and Waterproofing manual latest editions.

**WI 96.5 REMOVE AND REPLACE ROOF DRAIN (FILED SUB-BID WORK - PLUMBING)**

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to remove and replace existing roof drain. Perform this Work Item in conjunction with Work Item "Remove and Replace Roof Drain - Pipe and Hangers". Refer to Detail 96.5 for specific requirements.

B. Materials

1. Materials for this Work are as shown on Detail 25.2/25.3 (or 96.5) and/or in Section ~~"General Mechanical Requirements."~~ "Common Work Results for Plumbing."

C. Execution

1. Contractor shall locate all areas where replacement roof drains are to be installed. Contractor shall coordinate the removal and reinstallation of new roof drains with roofing contractor.

2. Remove abandoned roof drains to accommodate new drain bowl installations as indicated on the drawing.
3. Contractor shall verify condition of existing roof and roof slab for positive drainage slope and install new drains at the existing drain low point locations. Contractor shall verify low point by ponding or elevation survey prior to removing existing drain. If existing drain location is not optimal, notify Engineer.
4. All interior ceiling work required for removal of abandon roof drains and installation of the new roof drains shall be performed by the contractor and at no additional cost to the Owner. Ceiling grids and tiles shall match existing as close as possible.

**WI 96.6 REMOVE AND REPLACE ROOF DRAIN – PIPE AND HANGER (FILED SUB-BID WORK – PLUMBING)**

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to disconnect the existing roof drain lines approximately 5 feet from the existing roof drain locations, install new replacement drain line and reconnect to existing drain pipe and new roof drains. Work includes the installation of new hangers. Work Item "Remove and Replace Roof Drain" is directly related to this Work Item. Refer to Detail 25.3 similar for specific requirements.

B. Materials

1. Materials for this Work are as shown on Detail 25.3 and/or in Section "~~General Mechanical Requirements.~~" "Common Work Results for Plumbing."

C. Execution

1. Contractor shall verify proper installation of new replacement roof drain prior to proceeding with pipe and hanger installation work. Existing interior piping shall be utilized for tie connection to existing drain line system.
2. Connect new drain bowls to existing plumbing, as required, to make new drains fully functional and watertight.
3. Unless noted otherwise, all pipe connections shall be made using approved "no-hub" connectors.
4. Use proper approved fittings at all pipe connections, direction changes and pipe diameter changes. Do not force connections between dissimilar materials.
5. Do not bend or twist new pipe and hanger to meet existing end conditions; properly align all work and install with required fittings so pipe hangs in stress-free neutral position.

**WI 96.7 INSTALL NEW SURFACE MOUNTED COUNTERFLASHING**

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to prepare existing reglet and install new counterflashing as shown on Drawings. Refer to Detail Series ~~96.7~~ 96.4.

B. Materials

1. Pre-formed reglets and surface mounted counterflashing shall be as specified in Section "Sheet Metal Flashing and Trim."
2. Sealant and associated materials shall be as specified in Section "Sheet Metal flashings and Trim."

C. Execution

1. Contractor shall locate and mark all areas where reglet/counterflashing assembly installation is required.
2. Remove existing reglet/counterflashing assembly (if present). Contractor shall take care not to damage existing construction, adjacent masonry or architectural features during removal and/or preparation.
3. Reglet attachment/installation location shall be thoroughly cleaned by grinding to remove all dirt, residual joint sealant materials, excess mortar, etc. to sound, uniform and clean substrate. Joint shall be air-blasted to remove remaining debris.
4. Damage to surrounding façade shall be repaired by Contractor at no cost to Owner.
5. Contractor shall install new reglet/counterflashing assembly in accordance with Details and manufacturer's recommendations.
6. Sealed joints shall be neat in appearance. Poorly sealed or improperly sealed control joints shall be removed and replaced at Contractor's expense.

**END OF SECTION 02000**

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## **SECTION 079233 – CONCRETE JOINT SEALANTS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. This Section includes the following:
  - 1. Control and Construction Joints in the following horizontal traffic bearing surfaces:
    - a. Construction joints in cast-in-place concrete.
    - b. Control joints in cast-in-place concrete.
    - c. Perimeter of all concrete floor patches.
    - d. Perimeter of all floor drains.
- B. Related Sections: Following Sections contain requirements that relate to this Section.
  - 1. Division 3 Section, "Cast-in-Place Concrete."
  - 2. Division 3 Section, "Trowel Applied Mortar."
  - 3. Division 16 Section, "Traffic Coating."

#### **1.3 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination:
  - 1. Materials shall be compatible with materials or related Work with which they come into contact, and with materials covered by this Section.
  - 2. Distribute reviewed submittals to all others whose Work is related.
- B. Make submittals in accordance with requirements of Division 01 Section, "Submittal Procedures:"
  - 1. See requirements of Division 01 Section, "Submittal Procedures," Part 1 heading, "Submittal Procedures," for limits to resubmittals.
  - 2. See requirements of Division 01 Section, "Submittal Procedures," Part 2 heading, "Requests for Information," for RFI constraints.
- C. Submittals and Resubmittals: Engineer will review each of Contractor's shop drawings and/or submittal data the initial time and, should resubmittal be required, one additional time to verify that reasons for resubmittal have been addressed by Contractor and corrections made. Resubmittal changes/revisions/corrections shall be circled. Engineer will review only circled items and will not be responsible for non-circled

changes/revisions/corrections and additions. Should additional resubmittals be required, Contractor shall reimburse Owner for all costs incurred, including the cost of Engineer's services made necessary to review such additional resubmittals. Owner shall in turn reimburse Engineer.

**D. Requests For Information**

1. Engineer reserves the right to reject, unprocessed, any Request for Information (RFI) that the Engineer, at its sole discretion, deems frivolous.
2. Engineer reserves the right to reject, unprocessed, any RFI that the Engineer, at its sole discretion, deems already answered in the Contract Documents.
3. RFI process shall not be used for requesting substitutions. Procedures for substitutions are clearly specified elsewhere in the contract documents.

**1.4 SUBMITTALS**

**A. Product Data:** For each system indicated.

1. Product description, technical data, appropriate applications and limitations.
2. Primer type and application rate

**B. Sample Warranty.**

**1.5 QUALITY ASSURANCE**

**A. Manufacturer's Qualifications:** Owner retains right to reject any manufacturer.

**B. Installer's Qualifications:** Owner retains right to reject any manufacturer.

**1.6 DELIVERY, STORAGE, AND HANDLING**

**A. Deliver all materials to site in original, unopened containers, bearing following information:**

1. Name of product.
2. Name of manufacturer.
3. Date of preparation.
4. Lot or batch number.

**B. Store materials under cover and protect from weather. Replace packages or materials showing any signs of damage with new material at no additional cost to Owner.**

**1.7 FIELD CONDITIONS**

**A. Weather and Substrate Conditions:** Proceed with work only when existing and forecast weather and temperature of concrete substrate will permit work in accordance with manufacturer's recommendations.

**1.8 WARRANTY**

- A. System Manufacturer: Furnish Owner with written total responsibility Joint and Several Warranty, detailing responsibilities of manufacturer and installer with regard to warranty requirements (Joint and Several). The warranty shall provide that system will be free of defects, water penetration and chemical damage related to system design, workmanship or material deficiency, consisting of:
  - 1. Any adhesive or cohesive failures.
  - 2. Weathering.
  - 3. Abrasion or tear failure resulting from normal traffic use.
- B. If material surface shows any of defects listed above, supply labor and material to repair all defective areas and to repaint all damaged line stripes.
- C. Warranty period shall be a **5 year** Joint and Several Warranty commencing with date of acceptance of work.
- D. Perform any repair under this warranty at no cost to Owner.
- E. Address the following in the terms of the Warranty: length of warranty, change in value of warranty – if any- based on length of remaining warranty period, transferability of warranty, responsibilities of each party, notification procedures, dispute resolution procedures, and limitations of liability for direct and consequential damages.
- F. Snowplows, vandalism, and abnormally abrasive maintenance equipment are not normal traffic use and are exempted from warranty.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Manufacturer: Subject to compliance with requirements, provide products of 1 of following, only where specifically named in product category:
  - 1. Lymtal International Inc. (Lymtal), Lake Orion, MI.
  - 2. Pecora Corporation (Pecora), Harleysville, PA.
  - 3. Sika Corporation (Sika), North Canton, OH.

### **2.2 MATERIALS, JOINT SEALANT SYSTEM**

- A. Provide complete system of compatible materials designed by manufacturer to produce waterproof, traffic-bearing control joints as detailed on Drawings.
- B. Compounds used for sealants shall not stain masonry or concrete. Aluminum pigmented compounds not acceptable.
- C. Color of sealants shall match adjacent surfaces.
- D. Closed cell or reticulated backer rods: Acceptable products:
  - 1. "Sof Rod," Nomaco Inc., 501 NMC Drive, Zebulon, NC 27597. (800) 345-7279 ext. 341.

2. "ITP Soft Type Backer Rod," Industrial Thermo Polymers Limited, 2316 Delaware Ave., Suite 216, Buffalo, NY 14216. (800) 387-3847.
  3. "Sonneborn Soft Type Backer Rod," Sonneborn, Minneapolis, MN.
- E. Bond breakers and fillers: as recommended by system manufacturer.
- F. Primers: A primer is required to be applied to the substrate. Use a primer that is recommended by sealant manufacturer.**
- G. Acceptable sealants are listed below. Sealants shall be compatible with all other materials in this Section and related work.
- H. Acceptable polyurethane sealants (traffic bearing):
1. Sikaflex-2c NS, Sika.
  2. Dynatred, Pecora.
  3. Iso-flex 881, Lymtal.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Examine surfaces to receive Work and report immediately in writing to Engineer/Architect any deficiencies in surface which render it unsuitable for proper execution of Work.
- B. Coordinate and verify that related Work meets following requirements before beginning installation
1. Concrete surfaces are finished as acceptable for system to be installed.
  2. Curing compounds used on concrete surfaces are compatible with system to be installed.
  3. Concrete surfaces have completed proper curing period for system selected.

#### **3.2 PREPARATION**

- A. Seal all openings to occupied space to prevent cleaning materials, solvents and fumes from infiltration. All protective measures and/or ventilating systems required to prevent infiltration are incidental to this Work.
- B. Correct unsatisfactory conditions before installing sealant system.
- C. Acid etching is prohibited.
- D. Grind joint edges smooth and straight with beveled grinding wheel before sealing. All surfaces to receive sealant shall be dry and thoroughly cleaned of all loose particles, laitance, dirt, dust, oil, grease or other foreign matter. Obtain written approval of method from system manufacturer before beginning cleaning.
- E. Check preparation of substrate for adhesion of sealant.

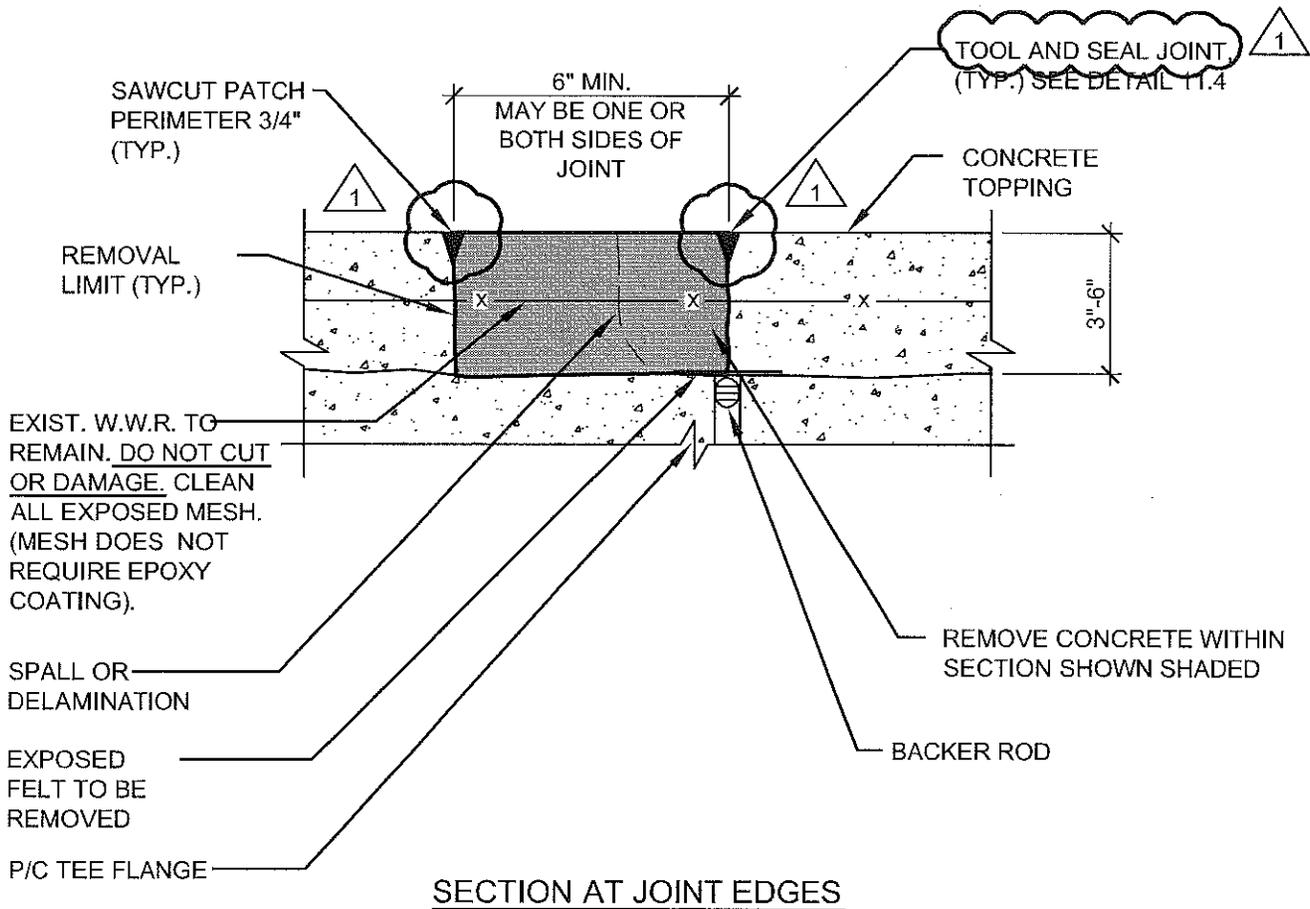
- F. Prime and seal joints. **A primer is required for all systems.**
- G. Protect as required until sealant is fully cured.

### **3.3 INSTALLATION/APPLICATION**

- A. Do all Work in strict accordance with manufacturer's written instructions and specifications including, but not limited to, moisture content of substrate, atmospheric conditions (including relative humidity and temperature), thicknesses and texture, and as shown on Drawings.
- B. Completely fill joint without sagging or smearing onto adjacent surfaces.
- C. Fill horizontal joints slightly recessed to avoid direct contact with wheel traffic.
- D. Clean off excess material and material smears adjacent to joints as work progresses using methods and materials approved by manufacturers.
- E. Cease material installation under adverse weather conditions, or when temperatures are outside manufacturer's recommended limitations for installation, or when temperature of work area or substrate are below 40°F.

### **END OF SECTION 071010**

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**NOTE:**

1. SEE DETAIL 3.1 FOR REMAINING INFORMATION.

# FLOOR REPAIR - PARTIAL DEPTH

3.1.1

(GREEN STREET GARAGE)



20 Park Plaza  
Suite 1202  
Boston, MA 02116  
617.350.5040 Ph  
617.350.5048 Fax  
www.walkerrestoration.com

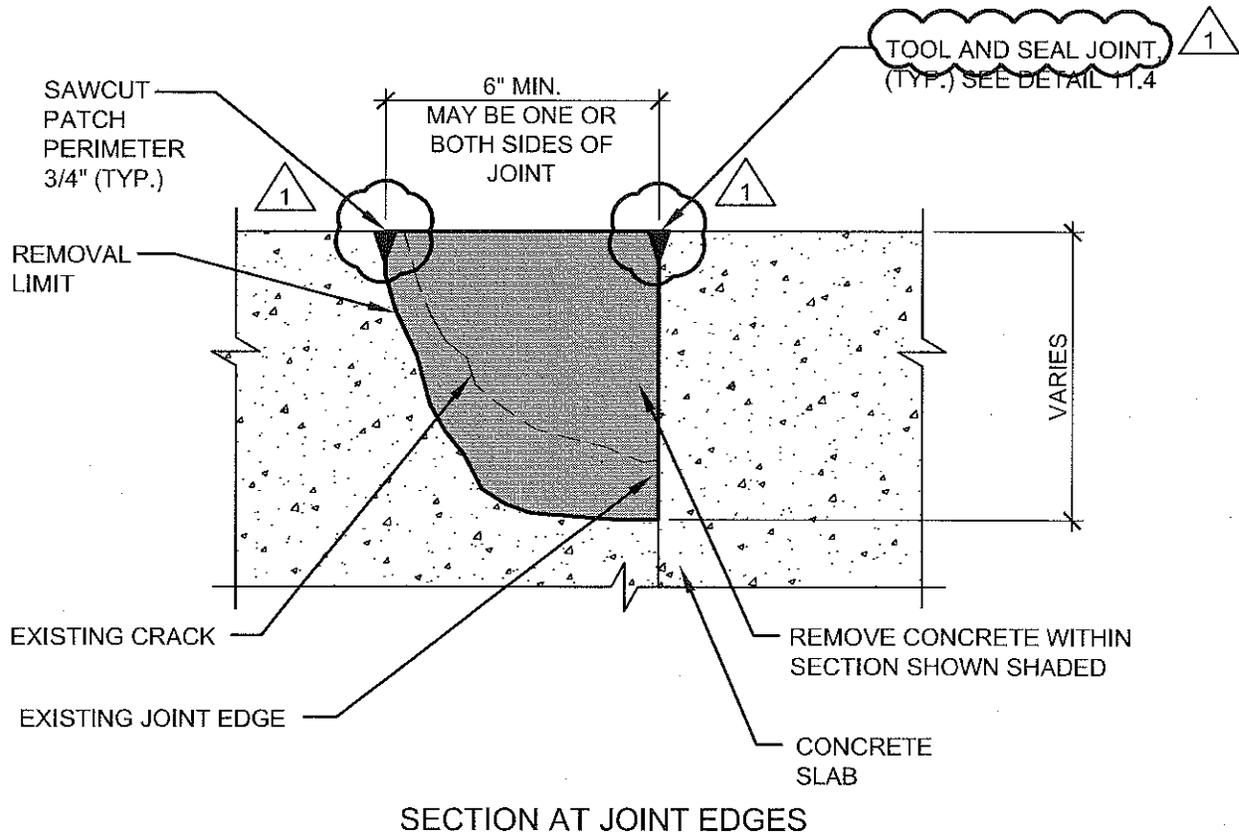
Job: FIRST & GREEN STREET GARAGES

Job No: 16-2336.03

Date: July 26, 2013

No.

3.1.1/R-501



NOTE:  
 1. SEE DETAIL 3.1 FOR REMAINING INFORMATION.

## FLOOR REPAIR - PARTIAL DEPTH

3.1.2

(GREEN STREET GARAGE)



20 Park Plaza  
 Suite 1202  
 Boston, MA 02116  
 617.350.5040 Ph  
 617.350.5048 Fax  
 www.walkerrestoration.com

Job: FIRST & GREEN STREET GARAGES

Job No: 16-2336.03

Date: July 26, 2013

No.

3.1.2/R-501

NOT USED

1



20 Park Plaza  
Suite 1202  
Boston, MA 02116  
617.350.5040 Ph  
617.350.5048 Fax  
[www.walkerrestoration.com](http://www.walkerrestoration.com)

Job: FIRST & GREEN STREET GARAGES

Job No: 16-2336.03

Date: July 26, 2013

No.

3.6/R-501

REMOVE CONCRETE  
WITHIN SECTION SHOWN

INSTALL 1/4" FASTENER W/  
CORROSION RESISTANT  
COATING @ 8" OC EMBED 3"  
INTO EXIST CONC EXTEND  
MIN 1 1/2" INTO REPAIR.

SPALL OR DELAMINATION

EXIST CONCRETE TOPPING

EXISTING SHEAR  
CONNECTOR  
(NOTE 1)

6" MIN

3/4" SAWCUT  
@ SPALL  
PERIMETER

1 1/2"-2"

EXIST P/C TEE  
(TYP)

**NOTE:**

1. SANDBLAST, REWELD AS REQ'D, AND APPLY CORROSION INHIBITOR TO ALL TEE FLANGE SHEAR CONNECTORS. TEE REINFORCEMENT SHOWN MAY DIFFER FROM ACTUAL FIELD CONDITIONS.



8.4

## TEE FLANGE REPAIR-PARTIAL DEPTH



20 Park Plaza  
Suite 1202  
Boston, MA 02116  
617.350.5040 Ph  
617.350.5048 Fax  
www.walkerrestoration.com

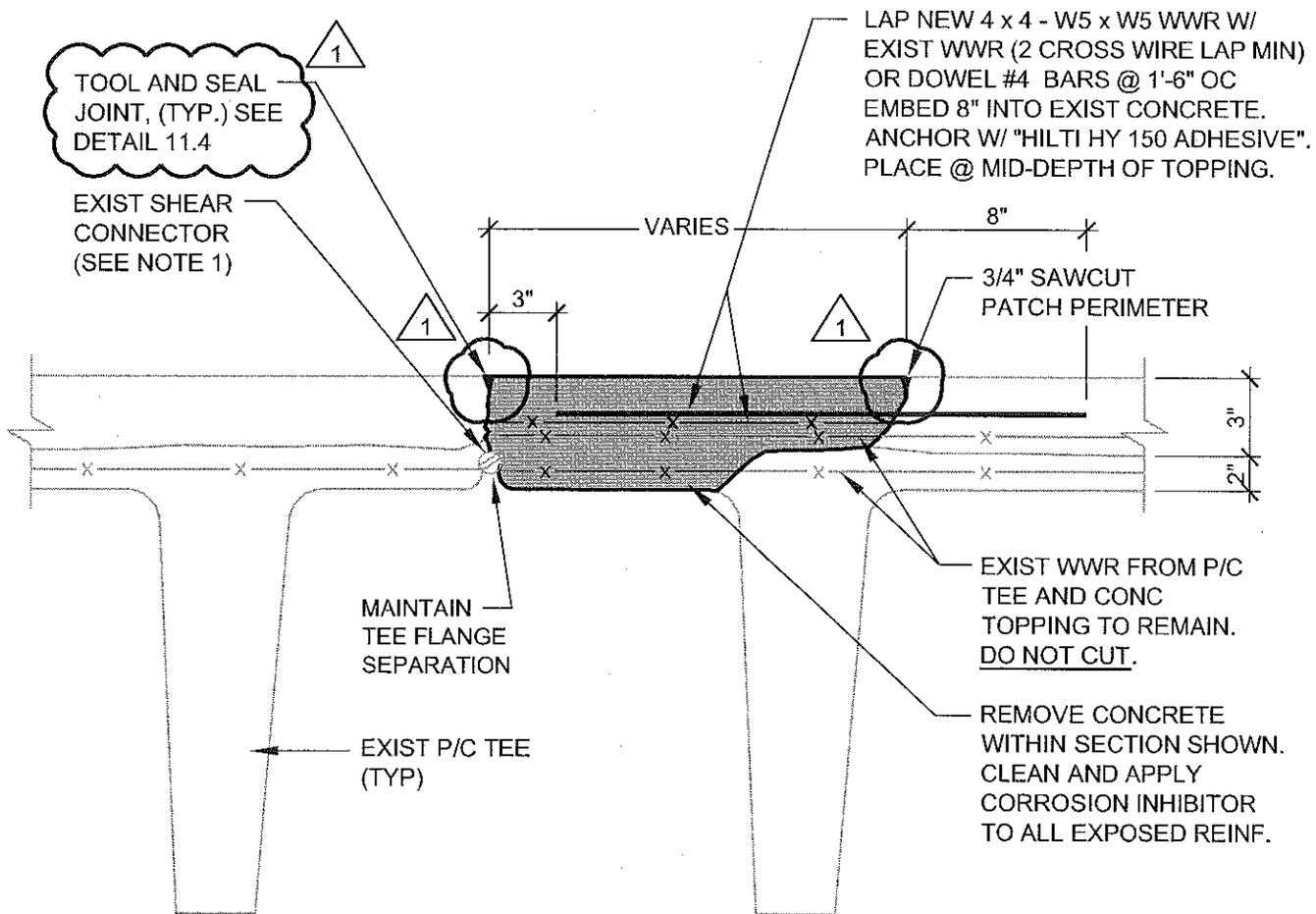
Job: FIRST & GREEN STREET GARAGES

Job No: 16-2336.03

Date: July 26, 2013

No.

8.4/R-501



**NOTE:**

1. SANDBLAST, REWELD AS REQ'D, AND APPLY CORROSION INHIBITOR TO ALL TEE FLANGE SHEAR CONNECTORS. TEE REINFORCEMENT SHOWN MAY DIFFER FROM ACTUAL FIELD CONDITIONS.

## TEE FLANGE REPAIR-FULL DEPTH

8.5



20 Park Plaza  
Suite 1202  
Boston, MA 02116  
617.350.5040 Ph  
617.350.5048 Fax  
www.walkerrestoration.com

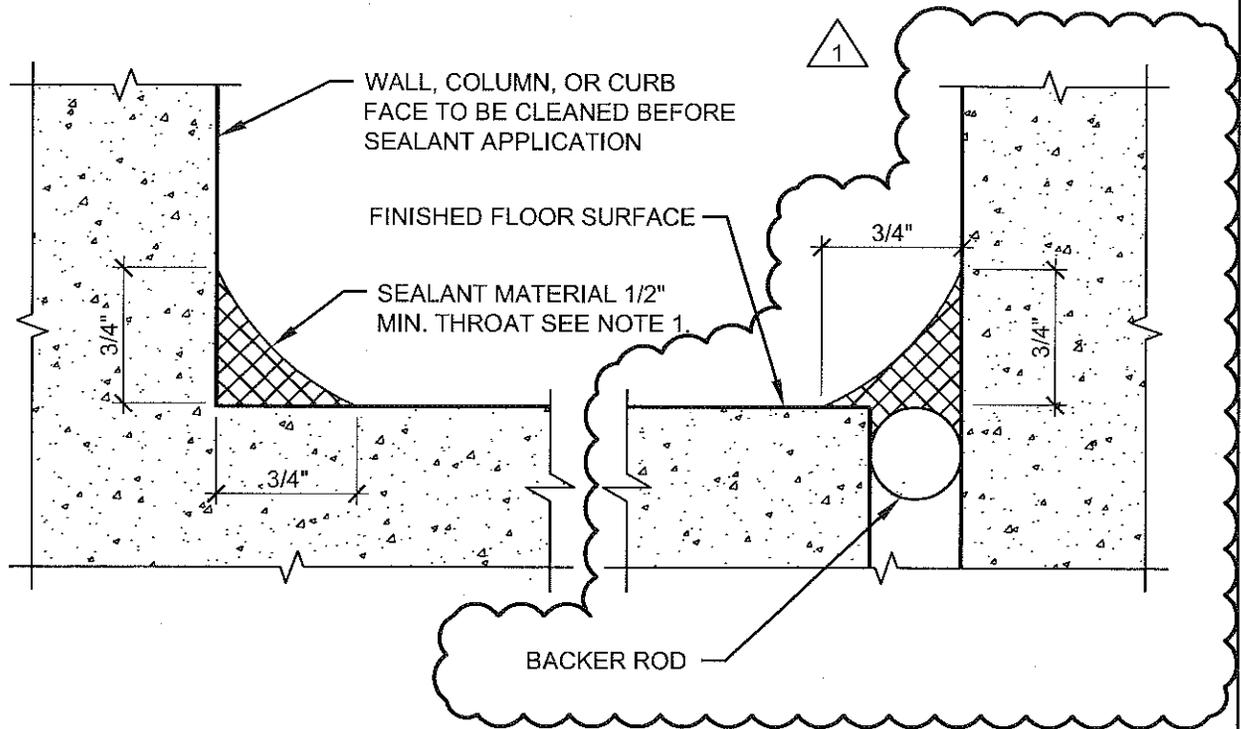
Job: FIRST & GREEN STREET GARAGES

Job No: 16-2336.03

Date: July 26, 2013

No.

8.5/R-501



**NOTE:**

1. REMOVE EXISTING COVE SEALANT MATERIAL IF PRESENT. PREPARE SURFACE PER SPECIFICATIONS.
2. ALL JOINTS SHALL BE PRIMED PRIOR TO SEALANT INSTALLATION.

11.7

# COVE SEALANT

(INCIDENTAL TO W.I. 16.1)



20 Park Plaza  
Suite 1202  
Boston, MA 02116  
617.350.5040 Ph  
617.350.5048 Fax  
www.walkerrestoration.com

Job: FIRST & GREEN STREET GARAGES

Job No: 16-2336.03

Date: July 26, 2013

No.

11.7/R-502

