



June 17, 2026

SOLICITATION

FOR THE

REPAIR AND PREVENTATIVE MAINTENANCE

OF THE

THIRD AVENUE PARKING GARAGE ROOF DECK

PUBLIC PARKING AUTHORITY OF PITTSBURGH
232 Boulevard of the Allies
Pittsburgh, PA 15222

David G. Onorato, PTMP
Executive Director

FORM OF ADVERTISEMENT

PUBLICATION DATE: **June 17, 2026**

1. The Public Parking Authority of Pittsburgh ("Authority") shall accept sealed bids for the performance of the work described below (the "Work") at its office at 232 Boulevard of the Allies, Pittsburgh, Pennsylvania, 15222, until **10:00 a.m.** local time on **Tuesday, July 7, 2026**.
2. **DESCRIPTION OF WORK:** The Project entails the Repair and Preventative Maintenance of the Third Avenue Parking Garage Roof Deck.
3. The Instructions to Bidders, including the Form of Bid, Form of Agreement, General Conditions, Plans and Specifications, and meeting information will be made available after **3:00 p.m.** local time on **Wednesday, June 17, 2026**, on the Authority's website at www.pittsburghparking.com.

A **Mandatory** pre-bid conference will be held in person on-site at 238 Fourth Avenue, Pittsburgh, Pennsylvania, 15222, at **10:00 a.m.** local time on **Tuesday, June 23, 2026**. The purpose of the pre-bid conference is to provide additional detail regarding the Work. The information provided at the pre-bid conference will be essential in preparing a bid to perform the Work. Persons or entities that intend to submit bids to perform the Work are required to attend the pre-bid conference with at least one representative who will understand the information presented at the pre-bid conference in a manner that allows such information to be incorporated in the preparation of the bid to perform the Work. It is expected that the representative who attends the pre-bid conference will be experienced in construction matters and employed by the bidder in a supervisory capacity. **In person Pre-bid attendance is mandatory, and each attendee must sign in on the project sign-in form.**

5. Sealed bids must be dropped off to the Public Parking Authority of Pittsburgh at 232 Boulevard of the Allies, Pittsburgh, PA 15222, no later than **10:00 a.m. on Tuesday, July 7, 2026**. Bids received prior to the deadline will be publicly opened and read **at that time**.
6. Each bid submitted must be accompanied by a bid guaranty of ten percent (10%) of the proposed bid in the form of a bid bond, certified cashier's or treasurer's check payable to the Authority.
7. The Authority reserves the right to in its sole discretion, (i) change, at any time prior to the bid deadline at **10:00 a.m.** local time on **Tuesday, July 7, 2026** the Contract Documents; (ii) waive any defect, irregularities, or informality in any or all submitted bids; and (iii) reject any or all submitted bids.

David G. Onorato
Executive Director

INSTRUCTIONS TO BIDDERS

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INSTRUCTIONS TO BIDDERS

Each bidder (“Bidder”) interested in bidding to perform the Work (as defined in the Agreement (the ‘Agreement’)) to be entered into by and between the Public Parking Authority of Pittsburgh (the ‘Authority’) and the successful Bidder for the performance of and payment for the Work, the form of which Agreement is attached as Exhibit B to these Instruction to Bidders must submit its bid (“Bid”) to perform the Work in accordance with these Instruction to Bidders.

1. Site Of Work.

Third Avenue Parking Garage
238 Fourth Avenue
Pittsburgh, PA 15222

2. Contract Documents.

The following contract documents (hereinafter the “Contract Documents”) are provided by the Authority to the Bidders with these Instructions to Bidders and are hereby incorporated herein:

- i. the Form of Advertisement;
- ii. these Instructions to Bidders
- iii. the Form of Bid;
- iv. the Performance Bond;
- v. the Labor and Material Bond;
- vi. the Warranty Bond;
- vii. any Addenda issued prior to the execution of the Form of Agreement
- viii. the Form of Agreement;
- ix. the General Conditions;
- x. the Special Conditions, if any;
- xi. the Minority Participation Forms;
- xii. the Plans;
- xiii. the Specifications;
- xiv. the Contractor Waiver of Liens

The Bidder must review the Contract Documents to ensure that the Bidder fully understands and can comply with the rights and duties described therein.

3. Defined Terms.

All capitalized terms not otherwise defined herein shall have the meanings ascribed to them in the Form of Agreement and General Conditions and are incorporated herein and made a part hereof.

4. Prevailing Wage Act.

Each Bidder is hereby put on notice that, if awarded the Contract (If the Contract exceeds a value of \$25,000) the Bidder will be required to pay to the workers employed in the

performance of the Contract the general prevailing minimum wage rates, including contributions for employee benefits, as shall have been determined by the Secretary of Labor and Industry of the Commonwealth of Pennsylvania ("Secretary"). The Contractor shall, and shall require all Subcontractors and Sub-subcontractors to: (i) pay no less than the wage rates as determined in the decision of the Secretary; (ii) comply with all conditions of the Pennsylvania Prevailing Wage Act, 43 P.S. §§ 165-1 - 165-17, as amended (the "Act"), and the regulations issued pursuant thereto (the "Regulations") to assure the full and proper payment of said rates; and (iii) submit certified payrolls in accordance Section 28.2(e) of the General Conditions. The Contract shall be read so as to include any provision required by the Act or the Regulations to be inserted in the Contract and not so inserted.

5. Pre-bid Conference.

A **Mandatory** pre-bid conference will be held in person in the Conference Room of the Public Parking Authority of Pittsburgh office located at 232 Boulevard of the Allies, Pittsburgh, Pennsylvania, 15222, at **10:00 a.m.** local time on **Tuesday, June 23, 2026**. The purpose of the pre-bid conference is to provide additional detail regarding the Work. The information provided at the pre-bid conference will be essential in preparing a bid to perform the Work. Persons or entities that intend to submit bids to perform the Work are required to attend the pre-bid conference with at least one representative who will understand the information presented at the pre-bid conference in a manner that allows such information to be incorporated in the preparation of the bid to perform the Work. It is expected that the representative who attends the pre-bid conference will be experienced in construction matters and employed by the bidder in a supervisory capacity. **In person Pre-bid attendance is mandatory, and each attendee must sign in on the project sign-in form.**

6. Receipt Of Bids.

The Authority will receive sealed and separate Bids at its office at 232 Boulevard of the Allies, Pittsburgh, Pennsylvania, 15222, until **10:00 a.m.** local time on **Tuesday, July 7, 2026**. Each Bid shall be delivered to the Authority in a blank opaque sealed envelope marked with the name of the project and appropriate contract number. Bids received after **10:00 a.m.** local time on **Tuesday, July 7, 2026**, will not be considered by the Authority.

7. Qualifications Of Bidders.

The Bidder shall have a minimum of five years of experience in performing work similar to that shown in the drawings and specifications. The Authority may request the Bidder to submit a list of five projects in which work similar in size and scope to that specified was successfully completed. This list shall contain the following for each of the projects:

- a. Project Name
- b. Owner of Project
- c. Owner's Representative, Address, and Telephone Number
- d. Brief Description of Work
- e. Cost of Portion of Work Similar to that Specified in this Section

- f. Total Restoration Cost of Project
- g. Date of Completion

The Authority shall review each Bid and evaluate each prospective Bidder. The final Selection of the Bidder for the performance of the Work shall be based upon the following factors: (i) the ability to meet the requirements set forth in the Contract Documents; (ii) the cost of the Work to the Authority; and (iii) the completeness of the Bidder's Bid. In addition, if a Bidder has previously performed construction work for the Authority, the Authority shall consider in its evaluation the quality of the prior construction work, including, without limitation, the ultimate cost to the Authority of the prior work.

The Authority shall also consider the following with regard to the City of Pittsburgh (the "City"). If the successful Bidder(s) is subject to the business privilege tax as specified in Chapter 243 of the Pittsburgh Code, failure to register with the City shall cause a Bidder to be disqualified from consideration for an award of the Contract. (Each Bidder should contact the City's Department of Finance to determine whether it is liable for the payment of the business privilege tax.) No contract will be awarded to any Bidder, who is from any cause, in arrears to the City (other than arrears which are the subject of a good faith dispute pursuant to which the Bidder has instituted appropriate legal action and has posted all necessary bonds and security) or who has failed in any former contract with the City to perform work satisfactorily, either as to the character of the work or the time consumed in its completion.

FAILURE OF A BIDDER, FOR ANY REASON WHATSOEVER, TO SUBMIT THE INFORMATION REQUIRED BY THESE INSTRUCTIONS OR A DULY SIGNED FORM OF BID (INCLUDING WITHOUT LIMITATION THE MBE/WBE FORMS), OR FAILURE TO QUALIFY AS A RESPONSIBLE BIDDER IN THE SOLE JUDGEMENT OF THE AUTHORITY, SHALL CONSTITUTE SUFFICIENT GROUNDS FOR REJECTION, OF THE BIDDER'S BID.

8. Inspections Of Site, Premises, and Contract Documents.

- a. It is crucial that Bidders visit the Work Site and fully inform itself as to the location, performance, completion and cost of the Work. Each Bidder is invited to tour the Work Site at any time the Work Site is open to the public. In addition, each Bidder should carefully examine the Contract Documents.
- b. Any failure of the successful Bidder to acquaint itself with all available information concerning the Work, the Work Site or the Contract Documents will not relieve it from sole responsibility for estimating properly the difficulty or cost of successfully performing the Work.

9. Addendum.

- a. No oral requests will be accepted, and no oral interpretations will be given to any Bidder, as to the meaning of the Contract Documents. If a written request is received, a written interpretation will be **e-mailed** to all Bidders in the form of an addendum and all such addenda shall become part of the Contract Documents.

No written requests will be accepted after **4:00 p.m.** local time on **Friday, June 26, 2026**. No addendum will be made after five (5) days before Bids are due. **No change to or clarification of the Contract Documents shall be effective unless in writing and sent to all Bidders via e-mail.**

- b. Each Bidder shall acknowledge the receipt of each addendum as set forth in the Form of Bid. **Failure to acknowledge receipt of an addendum may disqualify the Bidder from consideration.**

10. Errors Or Omissions.

Should a Bidder find errors in, or omissions from the Specifications and/or Plans, or have doubt as to their meaning, it should, before submitting a Bid, notify the Authority. Should a Bidder fail to give such notice, it shall, if awarded the Contract, be responsible for the results of such errors or omissions and the cost of rectifying same.

11. Bid Guaranty.

- a. No Bid will be considered unless accompanied by a Bid bond, or a certified check, bank cashier's check or treasurer's check payable to the Authority in the amount specified in the Form of Bid.
- b. With the exception of the Bid bond, certified, or bank check accompanying the Bid of the successful Bidder, all bonds and checks serving as Bid guaranties will be returned within thirty (30) days following the award of the contract.
- c. If the award is deferred longer than thirty (30) days after the opening of the Bids, all Bid guaranties except those of the three lowest responsible Bidders will be returned.
- d. Should no award be made within sixty (60) days, or longer if extension has been mutually agreed to, each Bid will be rejected and all guaranties returned.
- e. The Bid guaranty of the successful Bidder will be returned to it at the time it furnishes acceptable bonds as required in Section 12 of these Instructions to Bidders and executes the Form of Agreement.

12. Bonds Required.

- a. The Bidder to whom the Contract is awarded shall, within ten (10) days after the award, furnish a surety performance bond (the "Performance Bond"), in the amount of one hundred percent (100%) of the Contract Price and in form satisfactory to the Authority, guaranteeing security for the faithful performance of all covenants and agreements contained in the Contract.
- b. The Bidder to whom the Contract is awarded shall, within ten (10) days after the award, furnish an additional bond (the "Labor and Material Bond") in the amount of one hundred percent (100%) of the Contract Price and in form satisfactory to the Authority, guaranteeing that the Bidder will promptly pay for all materials furnished and labor supplied or performed in the execution of the Work.

- c. The Bidder to whom the Contract is awarded shall, within ten (10) days after the award, furnish a warranty bond (the "Warranty Bond"), in the amount of one hundred percent (100%) of the Contract Price and in form satisfactory to the Authority, guaranteeing the performance and quality of the Work.

13. Bids.

- a. Each Bid shall be delivered to the Authority in blank opaque sealed envelopes marked with the name of the project and appropriate contract number.
- b. Bids will be publicly opened and read at **10:00 a.m. local time on Tuesday, July 7, 2026 in person at the Authority's office at 232 Boulevard of the Allies, Pittsburgh, Pennsylvania, 15222.**
- c. All Bids shall conform strictly with all requirements set forth in these Instructions to Bidders, including, without limitation, the Form of Bid.

14. Irregular Bids.

A Bid may be rejected if it shows any omission, alteration of form, additions or deductions not called for, conditional or uninvited alternate bids or proposals, or other irregularities of any kind.

15. Withdrawal Of Bids.

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

16. Award Of Contract.

- a. The Authority reserves the right to, in its sole discretion, (i) change, at any time prior to the Bid deadline of **10:00 a.m. local time on Tuesday, July 7, 2026**, the Contract Documents; (ii) waive any defect, irregularities, or informalities in any or all submitted Bids; and (iii) reject all submitted Bids.
- b. If any award is made by the Authority, it will be to the lowest responsible Bidder, within sixty (60) days from the date of the opening of Bids, unless this time is extended by the written consent of the lowest Bidder.

17. Execution Of Contract.

The Bidder to whom the Contract is awarded shall properly execute and deliver the Form of Agreement and all other items required thereunder to be delivered within ten (10) days after notice of the award is sent to such Bidder. No Bids or awards shall be binding upon the Authority unless and until the Form of Agreement is properly executed.

18. Failure To Provide Information, Etc. Or Execute Contract.

If the Bidder to whom the Contract is awarded fails to give or complete, as the case may be, any or all bonds, forms, documents, insurance or information within the time

stipulated or requested by the Authority, the amount of its Bid guaranty shall be forfeited to the Authority, not as a penalty, but as liquidated damages, and the Authority shall have the right to award the Contract to the next lowest responsible bidder.

19. Schedule & Deadlines

EVENT	TIME AND/OR DATE
Solicitation Issued	Wednesday, June 17, 2026
Mandatory Pre-Bid Conference	Tuesday, June 23, 2026 at 10:00 a.m. EST
Site Visits	Immediately following the Mandatory Pre-Bid Conference.
Deadline for Respondents to Submit Questions and Requests for Clarification/Interpretation/ Modification ("Request for Clarification Due Date")	Friday, June 26, 2026 by 4:00 p.m. EST
Projected date that the Authority will respond to Request for Clarifications ("Final Addendum")	Tuesday, June 30, 2026 by 4:00 p.m. EST
Deadline for Receipt of Bids ("Bid Due Date")	Tuesday, July 7, 2026 at 10:00 a.m. EST
Public Bid Opening	Tuesday, July 7, 2026 at 10:00 a.m. EST
Anticipated Board Action	Thursday, July 16, 2026

Exhibit A
Form of Bid

(see attached)

FORM OF BID

Project: Repair and Preventative Maintenance of the
Third Avenue Parking Garage Roof Deck

Project No: TAG201-ROOF

Contract No: PM062026

PUBLIC PARKING AUTHORITY OF PITTSBURGH

1. The undersigned, on behalf of _____
(the "Bidder"), hereby certifies that the Bidder has carefully examined all available information relating to the work, generally described as: and further described in the Plans and Specifications provided to the Bidder (the "Work"), and the Bidder has fully examined the Contract Documents (as detailed in Section 2 of the Instructions to Bidders), which the successful Bidder shall enter into with the Public Parking Authority of Pittsburgh (the "Authority") for the performance of and payment for the Work.

2. Bidder by submitting this Form of Bid (the "Bid"), offers and agrees to provide all labor, equipment, materials, services, and anything else necessary to fully perform the Work to the satisfaction of the Engineer and the Authority, including, without limitation, the furnishing of the Performance Bond, the Labor and Material Bond and the Warranty Bond (as defined in the Instructions to Bidders), for the following amount (such amount is referred to herein as the "Base Bid"):

Unit Prices for Base Contract (Work Installed)

1. GENERAL CONDITIONS:

The General Conditions shall include general project costs that are not specifically enumerated elsewhere in this Bid Proposal Form including, but not limited to, project management, supervision, permits mobilization/demobilization (including Specification Section 01 11 00, Part 1.03A), shoring, miscellaneous costs including those defined in Specification Section 01 11 00, Part 1.03C. The General Conditions shall be billed by the Contractor proportionally to the amount of work complete.

LUMP SUM = \$ _____

2. STRUCTURAL CONCRETE REPAIRS:

- a. PARTIAL DEPTH SLAB REPAIR: Partial depth removal (4" avg.) of the conventionally reinforced structural concrete slab by approved methods at locations shown on the drawings, disposal of debris, sandblast clean existing reinforcing steel, installing supplemental or new epoxy-coated reinforcing steel as required, installation of slab dowels, providing support for existing/new reinforcing steel, and restoring the concrete slab surface by furnishing specified fiber reinforced concrete according to the Specifications and the details shown on the drawings. See Detail 1, Drawing S4.01.

\$ _____/SF x 20 SF = \$ _____

- b. PARTIAL DEPTH SLAB SOFFIT REPAIR: Partial depth removal (3" avg.) of the conventionally reinforced structural concrete slab soffit by approved methods at locations shown on the drawings, disposal of debris, sandblasting clean existing reinforcing steel, installing supplemental or new epoxy-coated reinforcing steel as required, and restoring the concrete slab soffit surface by furnishing and placing the specified form and pump or shotcrete repair material according to the Specifications and the details shown on the drawings. See Detail 1, Drawing S4.01. Paint repair locations to match existing according to the Specifications.

\$ _____/SF x 150 SF = \$ _____

- c. FULL DEPTH CURB REPAIR: Full depth removal (6" avg.) of the conventionally reinforced concrete curbs by approved methods at locations shown on the drawings, disposal of debris, sandblasting clean existing reinforcing steel, installing supplemental or new epoxy-coated reinforcing steel as required, and restoring the concrete surface by furnishing and placing the specified fiber reinforced concrete according to the Specifications and the details shown on the drawings. See Detail 5, Drawing S4.02.

\$ _____/SF x 10 SF = \$ _____

- c. FAÇADE CONCRETE LEDGE REMOVAL: Remove existing concrete ledge by approved methods at locations shown on the drawings, disposal of debris, grind smooth the existing surface and paint to match existing.

LUMP SUM = \$ _____

3. THERMAL AND MOISTURE PROTECTION:

- a. WP MEMBRANE REMOVAL & URETHANE WP WITH EPOXY WEAR COURSE REINSTALLATION: Remove the existing membrane system by approved methods, shotblast clean and prepare the new and existing concrete slab surfaces, and install a specified traffic bearing waterproofing membrane system at locations shown on the drawings according to the Specifications and details shown on the drawings. This item includes all necessary work to provide an acceptable surface condition to the installation contractor of the new traffic bearing waterproofing membrane system including complete removal of the existing membrane system and all preparatory work to the surface such as routing and sealing of cracks and construction joints. This work shall also include the removal and replacement of all existing joint, crack, and cove joint sealants within the removal area. See Detail 7, Drawing S4.03. Manufacturer and Engineer are to accept final surface preparation prior to the application of the new waterproofing system.

\$_____/SF x 37,800 SF = \$_____

4. PAINTING/COATING:

- a. STRIPING: Install striping in parking areas, directional markings in traffic areas, and safety markings at curbs, islands, stairs, elevation changes, ADA spaces, etc. according to the Specifications and drawings.

LUMP SUM = \$_____

5. MISCELLANEOUS REPAIR ITEMS:

- a. CAR STOP REMOVAL AND REPLACEMENT: Remove existing car stops at locations shown on the drawings, dispose of debris. Install New Sentry Parking Blocks or approved equal per the Manufacturer's recommendations.

\$_____/EACH x 2 EACH = \$_____

6. OWNER'S ALLOWANCE:

Perform miscellaneous work items as directed by the Owner/Engineer.

ALLOWANCE = \$_____10,000

TOTAL BASE CONTRACT AMOUNT \$_____

The Base Contract Amount covers all work in the Contract Documents and based on a TBD construction start date. Base contract will utilize the approved schedule submitted by the Contractor based on the Bid Documents and assumes 40-hour work weeks.

The bidder agrees to commence work under this contract on or before a date to be specified in a written "Notice to Proceed", and proposes to complete all Base Contract work within **90 calendar days** or no later than TBD, whichever is earlier, for the Base Contract from and after date of Notice to Proceed.

1. All capitalized terms not otherwise defined herein shall have the meanings ascribed to them in the Form of Agreement and General Conditions and are incorporated herein and made a part hereof.
2. Bidder understands and agrees that the Authority reserves the right to determine whether it shall contract for all or a portion of the Work or any one or more alternates described in the Plans and Specifications and, pursuant to such determination, to award the Contract on the basis of the Base Bid alone or on the basis of the Base Bid and any combination of alternate bids.
3. The undersigned hereby certifies that Bidder is the only person(s) interested in this Bid as principal, and that the Bid is made without collusion with any person, firm or corporation.
4. The undersigned hereby certifies that enclosed is a Bid bond, certified check, bank cashier's check or treasurer's check drawn to the order of the "Public Parking Authority of Pittsburgh" in an amount not less than ten percent (10%) of the total amount of the Base Bid.
5. The undersigned hereby certifies that enclosed is a completed experience questionnaire (the form of which is attached as Schedule 1 to this Bid) and the most current financial statement of the Bidder. The undersigned further certifies that the information contained in the Bidder's experience questionnaire and financial statement is true and correct. The undersigned agrees that, in the event the Authority requests additional information, the Bidder shall supply such information when and as requested by the Authority. The undersigned further understands that failure to submit such information when and as requested by the Authority may disqualify the Bidder from consideration to perform the Work.

6.

(a) The undersigned states on the Bidder's behalf and on behalf of any subcontractors used to complete the Work:

- (1) that applicants for employment are hired without regard to their race, color, religion, gender, ancestry, national origin, place of birth, disability, age or sexual orientation;
- (2) that employees are treated without regard to their race, color, religion, gender, ancestry, national origin, place of birth, disability, age or sexual

orientation;

- (3) that the No Discrimination provisions in Section 38 of the General Conditions shall be strictly adhered to; and
- (4) the Bidder proposes to attempt to provide that there will be minority group representation in all trades and in all phases of their operations in accordance with the applicable provisions of the Form of Agreement.

(Bidders are invited to consult with the Mayor's Commission on Human Relations, Contract Compliance Division, for information, advice and assistance in the preparation of their Bid.)

(b) The undersigned understands and agrees that the Mayor's Commission on Human Relations, or its representative may direct that any Bidder shall submit, as part of its Bid, a statement in writing, signed by an authorized officer or agent on behalf of any labor union or any agency referring workers or providing or supervising apprenticeship or other training, with which the Bidder, with supporting information, to the effect that the signer's practices and policies do not discriminate on the grounds of race, color, religion, gender, ancestry, national origin or place of birth, and that the signer will cooperate affirmatively in the implementation of the policy and provisions of the Contract in accordance with the purposes and provisions of the Contract. In the event that the union, or the agency, shall refuse to execute such a statement, the Bidder shall so certify and set forth what efforts have been made to secure such a statement and such additional factual material as the Mayor's Commission on Human Relations may require.

(c) The undersigned understands and agrees that the Contract will not be awarded to any corporation, firm or individual which has failed to perform satisfactorily any prior undertaking to insure minority group representation as required by the Mayor's Commission on Human Relations or which has not satisfied the Mayor's Commission on Human Relations that it has established and will carry out personnel and employment policies in compliance with the provisions of the Contract.

(d) The following forms / documents, which are attached as Schedule 2, and are hereby incorporated, are submitted as part of this Bid:

- (1) Certificate of MWDBE Participation.
- (2) Subcontractor Solicitation Statement.
- (3) Bidder's Previous MWDBE Participation History Form.
- (4) Minority and Women Business Commitment Statement.

Further information on Minority and Women Business Enterprises may be obtained from the City of Pittsburgh Office of Equal Opportunity Review Commission (EORC).

7. The undersigned hereby certifies that the Bidder is / is not [circle one] a Minority Business Enterprise ("MBE") Women's Business Enterprise ("WBE") or a Disadvantaged Business Enterprise ("DBE"). Bidder is certified as a _____ [state whether an MBE, WBE,

DBE or NA if not an MBE, WBE or DBE] by _____ [insert name of certifying agency].

8. The undersigned agrees that if awarded the Contract, within ten (10) days after notice of the award, it shall furnish to the Authority: (1) Certificates of insurance evidencing that the insurance required under Section 31 of the General Conditions has been obtained. (2) The schedule of values described in Section 28.1 of the General Conditions, and (3) The construction schedule described in Section 6 of the General Conditions.

9. If awarded the Contract, the undersigned agrees to execute and deliver the Form of Agreement and complete the Work or provide the materials, equipment or items under the Contract in accordance with the time schedule set forth in the Contract, with respective work or provision of materials, equipment or items to commence only after Contract is signed and notification is received from the Authority to proceed with the same.

10. If awarded the Contract, the undersigned agrees to commence the Work within fourteen (14) days of notification by the Authority to do so and complete the Work within five hundred fifteen (515) days as listed in the Form of Agreement.

11. (The following is to be completed only if addenda are issued):

The undersigned acknowledges receipt of the addenda hereinafter listed and agrees that the said addenda shall become a part of the Contract. (List below the number and the issuing dates of each addenda received).

_____	Date _____
_____	Date _____
_____	Date _____

14. The undersigned hereby certifies that the Bidder has taken all necessary action, whether a person, corporation or other entity, required for due authorization, execution and delivery of this Bid, Bidder is qualified to do business in the Commonwealth of Pennsylvania and that Bidder is legally bound to comply with the terms and conditions of this Bid if awarded the Contract.

Name of Bidder

By: _____
Signature of Authorized Officer, Partner
or Individual (as applicable)

Print Name of Person Signing

Title of Authorized Officer or Partner
(if applicable)

Bidder's City of Pittsburgh
Tax I.D. Number

Bidder's MWDBE Certification
Number (if applicable)

Schedule 1
Experience Questionnaire
(see attached)

Schedule 1
Experience Questionnaire

Bidders' Name _____

Primary Contact
Person's Name _____

Phone No. _____

No. Years
in Business _____

Aggregate Amount (In Dollars)
of Work Completed Within Last Twelve Months \$ _____

Bonding Company
(include address) _____

Phone No. _____

Bonding Limit \$ _____

List Three Architect and/or Engineer References

1. _____

Phone No. _____

2. _____

Phone No. _____

3. _____

Phone No. _____

List the Last Three Projects Completed by Bidder:

1. Project Name:

Name, Address and Phone No. of Owner

Contract Amount: _____

Date Project Completed: _____

Description of Project:

2. Project Name:

Name, Address and Phone No. of Owner

Contract Amount: _____

Date Project Completed: _____

Description of Project:

3. Project Name:

Name, Address and Phone No. of Owner

Contract Amount: _____

Date Project Completed: _____

Description of Project:

Schedule 2

MWDBE Forms

(See attached)

CERTIFICATE OF MWDBE BUSINESS PARTICIPATION

The undersigned ("Bidder") certifies that it understands and agrees to the requirement that Minority, Women and Disadvantaged Business Enterprises' participate in every contract awarded by the Public Parking Authority of Pittsburgh ("Authority") and the goal of the Authority is that Minority Business Enterprise participation be equal to a minimum of twenty-five (25%) percent and Women Business Enterprise participation be equal to a minimum of ten (10%) percent and Disadvantaged Business Enterprise participation be equal to a minimum of (5%) of the dollar volume of any contract awarded by the Authority.

The Authority is committed to the ideal of providing all citizens equal opportunity to participate in the Authority's contracting opportunities. It is therefore the Authority's goal to encourage increased participation of minority groups and women in all Authority contracts. The Authority requires that all respondents demonstrate good faith efforts to obtain the participation of Minority-Owned Business Enterprise (MBE's) and Women-Owned Enterprises (WBE's) work to be performed under Authority contracts. The levels of participation MBE and WBE participation will be monitored by the Authority's Department of Project Management. In order to ensure that there are opportunities for historically disadvantaged minority groups and woman to participate on Covered Contracts, and consistent with the Authority's current equal employment opportunity practice and goals, the Authority will review contracts to include an evaluation of a consultant's employment of minority groups and women, encourage goals of twenty-five (25) percent and ten (10) percent respectively. It is the Authority's goal to encourage participation by veteran-owned small businesses in all contracts. The Authority shall have an annual goal of not less than five (5) percent participation by disadvantaged small businesses in all contracts. The participation goal shall apply to the overall dollar amount expended with respect to the contracts. The levels of veteran-owned participation will be monitored by the Authority's Department of Project Management. Provide tangible evidence that your organization has made a good faith effort to satisfy these goals. Respondents can contact the Pennsylvania Unified Certification Program (PAUCP) at their website www.paucp.com for listings of certified professional services.

Failure of Firm to comply with these conditions or failure to sign and submit this Certificate with the Firm's Bid shall disqualify the Bid.

Name of Firm _____

By (Signed) _____

Title _____

Date _____

Project:

Department: _____

MWDBE SOLICITATION STATEMENT

Failure to complete this form and submit it with the Bid shall be sufficient cause for rejection of the Bid.

BIDDER'S FIRM:

ADDRESS:

TELEPHONE:

CONTACT PERSON:

PROPOSAL AND BID FOR:

List Certified MWDBE that you have solicited and those you have commitments to in reference to your Bid.

Company Name & Certification	Address	Telephone	M	W	D	Contact Person	Date Contacted		Type of Transaction	
			B E	B E	B E		Mail	Phone	Joint Venture	Sub-Contractor

Prepared by: _____

Title: _____

Telephone: _____

BIDDER'S PREVIOUS MWDBE PARTICIPATION HISTORY

BIDDER'S FIRM:
ADDRESS:
TELEPHONE:
CONTACT PERSON:
PROPOSAL AND BID FOR:

List below all contracts with the City of Pittsburgh or its agencies during the past three years and the MWDBE participation obtained.

Contract Title	Contract Date	Amount	<u>Percent Participation</u>			Comments
			MBE	WBE	DBE	

Prepared by: _____ Title: _____ Telephone: _____

PUBLIC PARKING AUTHORITY OF PITTSBURGH

MWDBE COMMITMENT STATEMENT

PROJECT:

Department:

BIDDER MAY UTILIZE THE SERVICES OF SUBCONTRACTOR(S) AND/OR SUPPLIER(S) FOR THE FOLLOWING CATEGORIES:

	<u>Total Estimated Subcontractor(s)</u>	<u>MBE Estimated Dollar Amount</u>	<u>WBE Estimated Dollar Amount</u>	<u>DBE Estimated Dollar Amount</u>
(Identify by name, Certification Number and Certifying Agency)				

	<u>Total Estimated Dollar Amount</u>	<u>MBE Estimated Dollar Amount</u>	<u>WBE Estimated Dollar Amount</u>	<u>DBE Estimated Dollar Amount</u>
Supplier(s) (Identify by name, Certification Number and Certifying Agency)				

BIDDER SHALL PROVIDE EMPLOYMENT FOR THE WORK AS FOLLOWS:

Estimated Compensation
All Employees

Estimated Compensation
MWDBE Employees

I, the undersigned do hereby certify that this form contains no misrepresentations or falsifications, omissions or concealment of material fact, and that the information given by me is true and complete to the best of my knowledge and belief. I am aware that all information on this form is subject to investigation.

Bidder Name _____

By (Signed) _____

Title _____

Date _____

MWDBE COMMITMENT STATEMENT

Additional Information

The Bidder wishes to present the following as additional and supplemental information to its MWDBE Solicitation and Commitment Statement:

Prepared by: _____ Title: _____ Telephone: _____

Schedule 3

Environmental Best Practices

(see attached)

SCHEDULE 3

ENVIRONMENTAL BEST PRACTICES

1. Environmentally Preferred Purchasing
 - a. The Contractor shall use commercially reasonable efforts to comply with Section 161.39(c) ("Environmentally Preferred Purchases") of the City of Pittsburgh Code of Ordinances ("Code").
2. Diesel Emissions Reduction Strategies
 - a. The Contractor shall use commercially reasonable efforts to use clean diesel practices for all on-road and off-road vehicles and equipment. The following are examples of such practices:
 - i. Reduce unnecessary idling through the use of auxiliary power units, electric equipment and strict enforcement of idling limits.
 - ii. Incorporate emissions-reducing technology such as hybrid drives and specific fuel economy standards in construction equipment.
 - iii. Use verified diesel emission control technology ("VDCE"), including verified diesel particulate filters ("DPFs") or diesel oxidation catalysts ("DOCs").
 - iv. Use cleaner fuels, such as ultra-low sulfur diesel ("ULSD"), biodiesel, liquid petroleum gas, or compressed natural gas.
 - v. Replace older engines with newer, cleaner models.
 - vi. Practice good engine maintenance to meet original standards, and properly train operators to run equipment efficiently.
 - vii. Maintain equipment according to manufacturers' specifications.
 - viii. Restrict idling of construction equipment and on-road heavy-duty trucks to a maximum of 5 minutes when not in use.
 - ix. Where applicable, work with City officials to improve traffic flow by signal synchronization.
 - x. Configure construction parking to minimize traffic interference.
 - xi. Prepare haul routes to minimize traversing through congested streets.
 - xii. Schedule construction activities that affect traffic flow on the arterial system to off-peak hours.
 - xiii. Use electric power in lieu of diesel power, where available.
3. Smart Energy Practices
 - a. The Contractor shall use commercially reasonable efforts to use smart energy practices during project design, construction and operation. The following are examples of such practices:
 - i. Use energy efficient products and practices.
 - ii. Purchase renewable energy from local utilities.
 - iii. Install on-site renewable energy or combined heat and power.
4. Green Construction Practices
 - a. The Contractor shall use commercially reasonable efforts to use green construction practices. The following are examples of such practices:

- i. Reuse and/or recycle construction and demolition debris.
 - ii. Reuse industrial materials in construction projects (such as concrete).
- 111. Require, at a minimum, compliance with all municipal, county, state and federal laws, rules and regulations concerning construction activities and their economic impact, with particular attention to:
 - 1. Noise – Code Section 917.02, and
 - 2. Air quality – Code Section 917.04
- b. For any project likely to have a substantial adverse effect on air quality, as determined by the Authority in its sole discretion, the Authority may require the Contractor to adopt mitigation measures, which may include, but are not limited to, the following:
 - i. The use of alternative technologies, including toxic air control technologies;
 - ii. Controlling dust sources with paving, landscaping, or other means;
 - iii. Benning (earth sheltering), buffering and screening;
 - iv. Landscaping and/or retention of existing vegetation; and
 - v. A reduction in size or scope of the project or operation.
- c. For any project likely to have a temporary adverse effect on noise, as determined by the Authority in its sole discretion, the Authority may require the Contractor to adopt mitigation measures, which may include, but are not limited to, the following:
 - i. Limiting the hours of construction;
 - ii. Specifying the time and duration of loud noise;
 - iii. Specifying a preferred type of construction impact; and
 - iv. Requiring sound buffering and barriers.
- d. For any project likely to have a temporary adverse effect on drainage, as determined by the Authority in its sole discretion, the Authority may require the Contractor to adopt mitigation measures, which may include, but are not limited to, the following:
 - i. Sedimentation traps and filters;
 - ii. Sedimentation tanks or ponds;
 - iii. Oil separators; and
 - iv. Retention facilities.
- e. For any project likely to have a temporary adverse effect on pedestrian circulation, as determined by the Authority in its sole discretion, the Authority may require the Contractor to adopt mitigation measures, which may include, but are not limited to, the following:
 - i. Covered sidewalks or alternate safe, convenient and adequate pedestrian routes; and

- ii. Limits on the duration of disruptions to pedestrian flow.
- f. For any project likely to have a temporary adverse effect on transportation, as determined by the Authority in its sole discretion, the Authority may require the Contractor to adopt mitigation measures, which may include, but are not limited to, the following:
 - i. A construction phase transportation plan which addresses the ingress and egress of construction equipment and construction worker vehicles at the project site;
 - ii. Traffic control and street maintenance in the vicinity of the construction site; and
- g. Re-routing of public vehicular and pedestrian circulation in the vicinity of the construction site.

Schedule 4

Contact Information

(see attached)



CONTACT INFORMATION FORM

TITLE: _____

DUE DATE: _____ **ADVERTISING DATE:** _____

DESCRIPTION: Proposal to provide _____ to
the Public Parking Authority of Pittsburgh.

The undersigned hereby offers to finish and deliver the articles or services as specified in strict accordance with the RFP and scope of proposal, all of which are made a part of this request.

FULL LEGAL COMPANY NAME: _____

STREET ADDRESS: _____

CITY, STATE AND ZIP CODE: _____

AUTHORIZED SIGNATURE: _____

PRINT NAME: _____

TITLE OF AUTHORIZED SIGNER: _____

TELEPHONE #: _____

FAX #: _____

E-MAIL ADDRESS: _____

(OF CONTACT REPRESENTATIVE)

**NOTE: THIS PAGE MUST BE SUBMITTED WITH YOUR PROPOSAL. ALL PAGES
REQUIRE A LIVE SIGNATURE SIGNED IN BLUE INK.**

**PITTSBURGH PARKING AUTHORITY
MWDBE AND MINORITY EMPLOYMENT
MONTHLY PROGRESS PAYMENT STATUS REPORT**

PROJECT NAME: _____

REQUEST FOR PAYMENT NO: _____

PRIME CONTRACTOR: _____

PERIOD: _____ **TO** _____

1	2	3	4	5	6	7
PRIME CONTRACT AMOUNT	PRIME PAYMENTS MADE TO-DATE	MWDBE SUBCONTRACTOR/SUPPLIER NAME, CERTIFICATION NO.	MWDBE PROJECTED PARTICIPATION AMOUNTS	% MWDBE PROJECTED PARTICIPATION 5 = (4/1)	MWDBE PAYMENTS TO-DATE	% MWDBE GOAL MET TO-DATE 7 = (6/1)
\$	\$		\$		\$	

INSTRUCTIONS:

- Any changes or substitutions of MWDBE must be submitted in writing.
- Assistance is available to identify MWDBE companies.
- When a change order increases the contract amount, Prime Contractor's are encouraged to increase MWDBE allocation goal accordingly.

MINORITY EMPLOYMENT FOR THE PROJECT

8	9	10	11
PROJECTED PAYROLL PAYMENTS	% PROJECTED PARTICIPATION 9 = (8/1)	PAYROLL PAYMENTS TO-DATE	% GOAL MET TO DATE 11 = (10/1)
\$		\$	

I, the undersigned do hereby certify that this form contains no misrepresentations or falsifications, omissions or concealment of material fact, And that the information given by me is true and complete to the best of my knowledge and belief. I am aware that all information on this Form is subject to investigation.

Contractor: _____

Title: _____

By (signed): _____

Date: _____

PLEASE ATTACH SUBCONTRACTOR INVOICES WITH THIS FORM

FORM OF AGREEMENT

FORM OF AGREEMENT

THIS FORM OF AGREEMENT (this "Agreement") made as of the _____ day of _____, 2026 is by and between _____ ("Contractor"), located at _____ and the Public Parking Authority of Pittsburgh ("Authority").

WHEREAS, the Authority solicited bids from contractors for the performance of the Work (hereinafter defined); and

WHEREAS, in response, the Contractor submitted to the Authority a Form of Bid (the "Bid"), a true and correct copy of which is attached to this Agreement as Exhibit A and made a part hereof ; and

WHEREAS, the Authority and Contractor desire to enter into this Agreement to set forth the terms and conditions, including those set forth in the General Conditions (the "General Conditions") which are attached as Exhibit B and made part hereof, under which the Contractor shall perform the Work.

NOW, THEREFORE, in consideration of the mutual covenants and conditions contained herein, and intending to be legally bound hereby, the parties hereto covenant and agree as follows:

1. Work. The term "Work" as used in this Agreement means the construction related to the work at the Third Avenue Parking Garage, Pittsburgh, Pennsylvania, generally described as Repair and Preventative Maintenance of the Third Avenue Parking Garage Roof Deck including partial depth concrete floor and soffit repairs and waterproofing membrane removal and replacement, as further described in the Plans and Specifications provided to the Bidder, in conjunction with all of the terms and specifications in the Bid, whether completed or partially completed, and includes all labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations under the Contract Documents (as defined below).

2. Definitions:

(a) The term "Contract Documents" means the documents listed below:

1. the Instructions to Bidders related to the Form of Bid;
2. the Form of Bid
3. this Agreement;
4. the Performance Bond;
5. the Labor and Material Bond;
6. the Warranty Bond;

7. any addenda issued prior to the execution of this Agreement;
8. the following modifications to the Contract issued after execution of this Agreement: (i) a written amendment to the Agreement signed by both parties, and (ii) a Change Order (as defined in the General Conditions);
9. the General Conditions;
10. the Special Conditions, if any;
11. the Minority Participation Forms attached as Schedule 3 to the Form of Bid;
12. the Plans (as defined in the General Conditions); and
13. the Specifications (as defined in the General Conditions).
14. the Contractor Waiver of Liens

(b) The term "Engineer" refers to the third party employed by the Authority to conduct the engineering duties or the employee of the Authority given the duty to conduct the functions of the Engineer. The Engineer will be acting as an agent of the Authority, and shall conform to the final decision of the Authority in any and all matters.

(c) The term "Labor and Material Bond" means the bond furnished by the Contractor prior to execution of this Agreement in the amount of one hundred (100%) percent of the Contract Price (hereinafter defined), guaranteeing that the Contractor will promptly pay for all materials furnished and labor supplied or performed in the prosecution of the Work.

(d) The term "Performance Bond" means the surety performance bond furnished by the Contractor prior to execution of this Agreement in the amount of one hundred twenty (120%) percent of Contract Price for the Work set forth in this Agreement guaranteeing security for the faithful performance of all covenants and agreements contained in the Contract Documents, including without limitation, coverage against any additional costs incurred by the Authority in the event that the Authority must complete Work.

(e) The term "Warranty Bond" means the warranty bond furnished by the Contractor prior to execution of this Agreement in the amount of one hundred percent (100%) of the Contract Price for the Work set forth in this Agreement, guaranteeing the performance and quality of the Work.

3. Scope of the Work: The Contractor shall execute, perform and complete the Work and shall do everything required by the Contract Documents. The Contractor understands and agrees that time is of the essence of the Contract Documents wherein a definite and certain length of time is fixed for the performance of any act whatsoever.

4. Time of Completion: The Work shall be commenced within ten (10) days after notification by the Authority to commence the Work so and shall be completed within the time specified in the Construction Schedule as prescribed in the General Conditions. The time for completion of the Work set forth in the Construction Schedules, as amended from time to time by Change Orders executed in accordance with the General Conditions, shall hereinafter be referred to as the "Contract Time."

5. The Contract Price: The Authority shall pay the Contractor _____ (\$_____) in immediately available funds for the execution, performance and completion of the Work. The price to be paid by the Authority for the execution, performance and completion of the Work under this Section 5, as modified from time to time by Change Orders executed in accordance with the General Conditions, shall hereinafter be referred to as the "Contract Price."

6. Payment: Payment shall be made in accordance with the applicable provisions of the General Conditions.

7. Examination of Work Site. Execution of this Agreement by the Contractor is a representation that the Contractor has carefully examined the Contract Documents, visited the Work Site, become familiar with the location and field conditions under which the Work is to be performed and incorporated personal observations with the requirements of the Contract. Any failure of Contractor to acquaint itself with all available information concerning the Work will not relieve it from performing the Work within the Contract Time or for the Contract Price.

8. Liquidated Damages. If the Work is not completed to the satisfaction of the Authority within the Contract Time or as may be extended in accordance with the Contract, or the Contractor violates a Contract provision, which specifies the applicability of Liquidated Damages, the Authority shall, at its option:

(i) in the event that actual damages are speculative and difficult to ascertain, deduct from payments due and owing the Contractor, or the Contractor shall pay directly to the Authority, the sum of FIVE THOUSAND AND NO/100 DOLLARS (\$5,000) for:

(a) each calendar day of delay until the Work is completed to the satisfaction of the Engineer and the Authority; or

(b) each calendar day until the Contract violation is resolved to the satisfaction of the Authority; or

(ii) deduct from payments due and owing the Contractor, or the Contractor shall pay directly to the Authority, the sum of the actual damages sustained by the Authority due to the delay of completion of Work or Contract violation (hereinafter "Liquidated Damages").

9. Contractor Waiver of Liens. Contractor agrees that it will execute a Waiver of Liens, as provided by the Authority (the "Contractor Waiver of Liens"), whereby the Contractor will ensure that no mechanics' liens or claim or other lien or claim of any kind shall be filed against the Premises or the Authority. The Contractor shall not be permitted to commence the Work until the Waiver of Liens has been fully executed and properly recorded.

IN WITNESS WHEREOF the parties hereto have executed this Agreement the day and year first above written.

CONTRACTOR

ATTEST:

_____ By: _____
Name: _____
Title: _____

**PUBLIC PARKING AUTHORITY
OF PITTSBURGH**

ATTEST:

_____ By: _____
Name: _____
Title: _____

Exhibit B
General Conditions
(see attached)

Exhibit C

General Conditions

(see attached)

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GENERAL CONDITIONS

1. General Definitions.

- (a) The term "Agreement" shall have the meaning set forth in Section 1 (e) below.
- (b) The term "Authority" shall have the meaning set forth in the Form of Agreement (the "Agreement") by and between the Authority and the Contractor providing for performance of and payment for the Work and to which these General Conditions are attached as Exhibit C.
- (c) The term "Change Order" means an agreement signed by the Authority, the Engineer and the Contractor, stating their agreement as to (i) a change in the Work; (ii) the amount of the adjustment in the Contract Price, if any; and (iii) the extent of the adjustment in the Contract Time, if any.
- (d) The term "Construction Schedule" means a report that sets forth the proposed dates for the commencement and completion of each phase of the Work, including a description of each line item and estimated dollar amounts per line item that will commence or be completed during each phase. Each phase described shall include readily identifiable milestones from which progress can be gauged.
- (e) The term "Contract" means the Contract for the performance of the Work, which consists of all of the Contract Documents. The intent of the Contract Documents is to form the Contract and include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary and what is required by one shall be as binding as if required by all. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreement, whether written or oral.
- (e) The term "Contract Documents" shall have the meaning set forth in the Agreement.
- (f) The term "Contract Price" shall have the meaning set forth in the Agreement.
- (g) The term "Contract Time" shall have the meaning set forth in the Agreement.
- (h) The term "Contractor" shall have the meaning set forth in the Agreement.
- (i) The term "Plans" means the graphic and pictorial portions of the Contract issued by the Engineer, wherever located and whenever issued, showing the design, location and dimensions of the Work, generally including drawings, elevations, sections, details, schedules and diagrams.
- (j) The term "Emergency" means an event endangering the immediate safety of persons or property.
- (k) The term "Engineer" shall have the meaning set forth in the Agreement.

(l) The term "Form of Bid" means the Form of Bid required to be submitted by all contractors bidding to perform the Work.

(m) The term "Inspector" means the duly authorized representative of the Authority.

(n) The term "Labor and Material Bond" shall have the meaning set forth in the Agreement.

(o) The term "Overhead" means all costs not directly attributed to the completion of the Contract, and shall include without limitation, administrative costs incident to the management, supervision, or conduct of the Contractor (Subcontractor(s), Sub-subcontractor(s), or Suppliers) associated with completing the Contract.

(p) The term "Performance Bond" shall have the meaning set forth in the Agreement.

(q) The term "Reasonable Time" means the amount of time which a reasonably prudent person, aware of the obligations imposed by the Contract that the Work be completed within a specified time, would deem to be reasonable under the circumstances existing at the time. For example, if a Change is requested which will affect the progress of the Work, then Reasonable Time shall be a shorter length of time than in the case where the progress of the Work is not affected.

(r) The term "Specifications" means the portion of the Contract consisting of the written requirements issued by the Engineer for the materials, equipment, construction systems, standards and workmanship for the Work and performance of related services.

(s) The term "Subcontractor" means a person or entity that has a direct contract with the Contractor to perform a portion of the Work.

(t) The term "Sub-subcontractor" means a person or entity that has a direct contract with the Subcontractor to perform a portion of the Work.

(u) The term "Substantial Completion" means when the Work is sufficiently completed in accordance with the Contract so that the applicable governmental authority can and does issue a permanent Certificate of Occupancy (if applicable), and the Authority may occupy and/or fully use the Work for its intended use, as evidenced by a certificate to such effect from the Engineer.

(v) The term "Supplier" means a person or entity that is to furnish materials or equipment fabricated to a special design to perform any portion of the Work.

(w) The term "Warranty Bond" shall have the meaning set forth in the Agreement.

(x) The term "Work" shall have the meaning set forth in the Agreement.

2. **Contract Documents.** The Contract Documents shall not be construed to create a contractual relationship of any kind between (i) the Engineer and Contractor, (ii) the Authority and a Subcontractor or Sub-subcontractor, or (iii) any persons or entities other than the Authority and the Contractor.

3. **Engineer.**

(a) The Engineer will provide for the administration of the Contract as described in the Contract. The Engineer will have authority to act on behalf of the Authority only to the extent provided in the Contract, unless otherwise modified by written instrument signed by the Authority. The Engineer has authority to stop the Work whenever such stoppage may be necessary to insure the proper administration of the Contract and compliance with the Contract.

(b) In the event that no Engineer is retained by the Authority for the Work, the Authority shall perform the functions of the Engineer under this and every other section of the Contract.

4. **Inspector.**

(a) An Inspector may be put upon the Work by the Authority. The Inspector's duty will be to observe whether the Work is being performed according to the Plans and Specifications, and such other duties as the Authority may assign.

(b) The Inspector, the Authority and any of its other representatives, shall at all times have access to and the right to inspect the work site and the Work. If the Inspector, Authority or any other representative of the Authority observes any irregularities in the performance of the Work or any portion of the Work, he shall so notify the Engineer who shall take appropriate action as provided in the Contract.

(c) The Inspector shall in no case act as foreman, superintendent or project manager for the Contractor, nor interfere with the management of the Work by the Contractor.

5. **Subcontractors and Suppliers.**

(a) No more than eighty percent (80%) of the Work may be performed by Subcontractors or Sub-subcontractors. Further, Contractor shall not hire any Subcontractor or Sub-subcontractor who is listed on the most recent list as of the date of the Agreement produced by the Commonwealth of Pennsylvania's Department of Labor and Industry and listing persons or entities in violation of the Pennsylvania Prevailing Wage Act.

(b) As soon as practicable after the award of the Contract and before awarding any subcontracts, the Contractor shall provide the Engineer and the Authority with a listing of the Subcontractors and Suppliers proposed to perform any portion of the Work, by completing the Subcontractor/Supplier Information Sheet, attached as Exhibit D and made part of this Exhibit hereof. The Subcontractor/Supplier Information Sheet must be completed in full. The Engineer will reply within ten (10) days to the Contractor in writing stating whether or not the Authority

or Engineer has reasonable objection to any such proposed Subcontractor or Supplier. The Contractor shall not contract with any Subcontractor or Supplier to whom the Authority or Engineer has a reasonable objection and shall promptly supply the Engineer with an acceptable alternative Subcontractor or Supplier. Failure of the Engineer to reply within ten (10) days of receipt of any list shall constitute notice of no reasonable objection.

(c) Once the names of the Subcontractors and Suppliers are submitted, Subcontractors or Suppliers may not be changed nor may the dollar value of work/supplies be reduced, without prior written approval of the Authority. If the Contractor fails to obtain written approval from the Authority for any such change or reduction, the Authority shall have the option, at its sole discretion, to select one or more of the following remedies: stop the Work in accordance with Section 21 hereof, until the matter is resolved to the Authority's satisfaction; have the Contractor pay Liquidated Damages in accordance with Section 8 of the Form of Agreement; or terminate the Contract in accordance with Section 34 hereof.

(d) Notwithstanding the existence of any Subcontractor, Sub-subcontractor, or Supplier, Contractor shall be liable to the Authority for performance under the Contract as if no Subcontractor, Sub-subcontractor, or Supplier exists. No subcontract, sub-subcontract, or supply contract shall create any contractual relationship between any Subcontractor, Sub-subcontractor, or Supplier and the Authority or any obligation of the Authority to any Subcontractor, Sub-subcontractor, or Supplier.

(e) The Contractor is responsible and liable for the acts and omissions of its Subcontractors or Suppliers and their direct and indirect employees (including, without limitation, Sub-subcontractors and their direct and indirect employees), to the same extent as it (he/she) is responsible for the acts and omissions of its employees.

(f) For convenience of reference and to facilitate the letting of subcontracts, the Specifications are separated into titled sections. Such separations shall not, however, operate to make the Engineer an arbiter to establish limits of the contracts between the Contractor and Subcontractors or Suppliers.

(g) The Contractor shall pay all Subcontractors or Suppliers who have provided services or materials related to the Work and to whom payment is due and owing within five (5) business days after the Authority makes payment to the Contractor. Failure to make such payment, absent a good faith dispute regarding the amount owed to a Subcontractor or Supplier (it being understood that quality of work shall not be a basis upon which Contractor may withhold payment to a Subcontractor or Supplier of any amount which Contractor has received from Authority for such work), shall constitute a material breach of the Contract and the Authority shall have the option, at its sole discretion, to select one or more of the following remedies: have the Contractor pay Liquidated Damages in accordance with Section 8 of the Form of Agreement; or terminate the Contract in accordance with Section 34 hereof. In the event of a good-faith dispute between the Contractor and a Subcontractor or Supplier, any amount not in dispute shall not be withheld by the Contractor from the Subcontractor or Supplier.

6. Construction Schedule.

(a) The Contractor, within fifteen (15) days after notice of award by the Authority, shall prepare and submit to the Authority and Engineer a detailed Construction Schedule, as defined in Section 1 hereof, for the Work. This schedule shall be used as a basis for monitoring project progress and reviewing the Contractor's Applications for Payment.

(b) The Contractor shall provide the Authority with a monthly status report regarding the Construction Schedule with every monthly Application for Payment, or in the event that an Application for Payment will not be made during a month, a status report shall be provided on the first (1st) day of that month (hereinafter "Construction Schedule Update"). A Construction Schedule Update dated and signed by the Contractor shall certify:

(i) that the Work, and each phase thereof, is on schedule;

(ii) that the cost of each line item is within the proposed cost estimates in the Construction Schedule;

(iii) that each milestone from the Construction Schedule has been met in a timely fashion;

(iv) that all Work performed subsequent to the prior Construction Schedule Update has been performed in conformity with the Construction Schedule and those changes approved in writing by the Authority; and

(v) that the Subcontractors and Suppliers, previously approved by the Authority, have been engaged in conformity with the Subcontractor/Supplier Information Sheet, and those changes as approved in writing by the Authority.

(c) In addition to the foregoing, the Contractor shall not revise the Construction Schedule, regardless of whether the Contract Time is extended, unless and until the Contractor receives prior written approval from the Authority for such change. A lack of response from the Authority shall be considered a rejection of the requested change. If the Contractor makes any such change without obtaining the necessary written approval, the Authority shall have the option, at its sole discretion, to select one or more of the following remedies: stop the Work in accordance with Section 21 hereof until satisfactory corrections are provided; have the Contractor pay Liquidated Damages in accordance with Section 8 of the Agreement; or terminate the Contract in accordance with Section 34 hereof.

(d) In the event that the Authority is not satisfied, in its reasonable discretion, with the form or substance of a Construction Schedule Update, the Contractor shall have five (5) days to revise the Construction Schedule Update to the satisfaction of the Authority. If the Contractor fails to revise the Construction Schedule Update to the satisfaction of the Authority within said five (5) day time period, the Authority shall have the right, at its sole discretion, to institute the remedy of Liquidated Damages in accordance with Section 8 of the Form of Agreement. In addition, the Authority may, at its sole discretion, delay the approval of the Contractor's Application for Payment in accordance with Section 28.2(d) hereof.

(e) In addition to Construction Schedule Updates, the Contractor shall immediately notify the Authority when the Contractor believes that the cost of a particular line item will or may exceed the estimated costs in the Construction Schedule or the total line item cost as provided in the Bid, See Exhibit A. Upon providing said notice the Contractor shall utilize the Change Order process in Section 27, to attempt to revise the Contract. If the Contractor fails to inform the Authority under this provision, the Authority shall have the option, at its sole discretion, to select one or more of the following remedies: stop the Work in accordance with Section 21 hereof until satisfactory corrections are provided; have the Contractor pay Liquidated Damages in accordance with Section 8 of the Agreement; or terminate the Contract in accordance with Section 34 hereof. In addition, the Contractor shall have no right to receive compensation for Work completed in excess of any line item estimate, unless the Contractor has received written permission to proceed from the Authority pursuant to the Change Order process.

7. Shop Drawings.

The Contractor shall submit to the Engineer a sufficient number of sets, as determined by the Engineer, in its sole discretion, in accordance with the schedule referenced below the Contractor's shop drawings, settings, schedules and such other drawings as may be necessary for the performance of the Work in the shop and in the field as required by the Plans, Specifications or Engineer's instructions. Deviations from the Plans and Specifications shall be called to the attention of the Engineer at the time of the submission of shop drawings and other drawings for approval. The Engineer's approval of any shop drawings shall not release the Contractor from responsibility for such deviations.

Shop drawings, etc. shall be submitted according to the following schedule:

- (1) The requested number of shop drawings shall be submitted at least fourteen (14) days before the materials indicated thereon must be ordered in order to prevent delay of the Work, or earlier if required to prevent delay of the Work.
- (2) The Engineer shall, within fourteen (14) days of the submittal of any shop drawings, return one copy to the Contractor marked with all corrections and changes.

8. Copies Furnished.

The Engineer will furnish to the Contractor a sufficient number of sets of Plans and Specifications (including a set for the Record Documents), as determined by the Engineer, to be necessary for the execution and completion of the Work, but in no case to exceed seven (7) sets. Additional copies requested by the Contractor will be furnished to the Contractor by the Engineer at the cost of reproduction.

9. Ownership of Plans and Specifications.

All Plans, Specifications and copies thereof furnished by the Engineer are the property of the Engineer. They are not to be used on other work, and with the exception of the set

accompanying the signed Agreement, are to be returned to the Engineer upon completion of the Work.

10. Labor.

Only competent and first class workers and mechanics, who will work in harmony with other trades and crafts at the Work site, or adjacent thereto, shall be engaged in the Work. Should the Authority deem anyone employed on the Work incompetent or unfit for their duties and so certify, the Contractor, Subcontractor or Sub-subcontractor shall remove such worker or mechanic from performance of the Work, and shall not again, without the Authority's permission, employ or otherwise engage such person in performance of the Work.

11. Supervision.

(a) The Contractor must give as much personal attention to the Work as is necessary to secure consistent, regular and prompt prosecution of the Work. The Contractor shall employ a qualified superintendent or project manager and necessary assistants, with the knowledge and experience necessary to professionally complete the Work, who shall be in attendance at the site during performance of the Work. If in the opinion of the Authority or the Engineer, the Contractor fails to provide satisfactory individuals, the Authority shall have the option, at its sole discretion, to select one or more of the following remedies: stop the Work in accordance with Section 21 hereof until satisfactory individuals are provided; have the Contractor pay Liquidated Damages in accordance with Section 8 of the Form of Agreement; or terminate the Contract in accordance with Section 34 hereof.

(b) The superintendent or project manager shall represent the Contractor, and communications given to the superintendent or project manager shall be as binding as if given to the Contractor.

(c) The Contractor shall carefully study and compare all Plans, Specifications, and the other Contract Documents and shall report immediately to the Authority any error, inconsistency or omission which he may discover, but he shall not be held responsible for their existence or discovery.

12. Maintenance of Plans/Specifications.

The Contractor shall maintain at all times one (1) copy of all Plans and Specifications in good order, on the work site, available to the Authority or its representative.

13. Samples and Tests.

(a) Wherever samples or tests of materials are called for in the Specifications, or where it is desired to substitute another material or article for that specified, the Contractor shall submit samples in triplicate to the Engineer with all freight charges prepaid prior to the incorporation of the material in the Work. One sample will be returned to the Contractor at its expense, with letter stating that it is approved or rejected; provided, however, samples which are of value after testing will all be returned to and remain the property of the Contractor. The

Contractor shall perform no portion of the Work requiring samples or tests until the materials subject to such requirements have been approved by the Engineer. Contractor shall be solely responsible for delays due to samples not being submitted in time to allow for proper time to complete sampling or tests. All materials used in completing the Work shall be equal to the approved sample in every respect.

(b) Materials or portion of the Work requiring tests are so specified in the Specifications. Other material may be tested at the discretion of the Engineer. Tests shall be made under the supervision of, as directed by and at such places as may be convenient to the Engineer.

(c) All sampling and tests shall be conducted by a properly qualified person or testing laboratory, approved by the Engineer, who shall furnish the Engineer with certified reports, showing the results of sampling or tests, as the case may be, and stating that they were made in accordance with the Specifications and calling attention to deviations from the Specifications on the laboratory report. All tests, as well as sampling and preparation of samples, shall be in accordance with the standard as of the date of the test adopted by the standards organization set forth in the Specifications, or, if no organization is so stated, the A.S.T.M.

(d) Costs of initial sampling or testing materials called for in the Specifications shall be borne by the Authority, unless otherwise stated, but the cost of furnishing and preparing these materials for sampling or testing shall be borne by the Contractor. Costs of sampling or testing of materials substituted for previously accepted materials and re-sampling or re-testing made necessary by the failure to comply with the requirements of the Specifications shall be paid for by the Contractor.

(e) All tests of the completed Work shall be made at the expense of the Contractor, who shall repair all damage resulting from these tests, if they show defects from some fault of the Contractor. The Contractor shall not make any tests upon portions of construction already completed except with the written consent and under the direction and control of the Engineer.

14. Materials.

Where certain makes or brands are called for and mentioned as "Standard", others of equal quality may be used provided that the substitute/alternative material is specified in the bid. Unless substitutions or alternates are requested, no such deviation from the Specifications may be allowed. No delay or extra time to complete the Work will be allowed on account of a request for substitute/alternative makes or brands.

15. Temporary Equipment and Scaffolding.

(a) The Contractor shall provide and maintain, as approved by the Engineer, temporary stairs, ladders, barricades, runways, hoists, chutes, etc., as required for the proper performance of the Work by all trades.

(b) Contractor shall provide all necessary scaffolding for the performance of the Work. All scaffolding shall be constructed to meet all the requirements of all applicable building codes and laws.

16. Permits and Fees.

The Contractor shall secure and pay for all building and other permits, and governmental fees, licenses and inspections necessary for proper execution and completion of the Work and shall post bond as required by the same. Contractor shall furnish receipts for any fees to secure the foregoing to the Authority.

17. Taxes.

The Contractor shall pay sales, business privilege, consumer, use and similar taxes for the Work or portions thereof provided by the Contractor, Subcontractor and Sub-subcontractors.

18. Royalties and Patents.

The Contractor shall pay all royalties and license fees necessary for the Contractor's execution and completion of the Work and shall hold and save the Authority and its officers, agents, lessees, servants, and employees harmless from all costs, expenses, or liabilities of any nature or kind, including, without limitation, cost and expenses of defending legal actions, for or on account of the use of any patented or unpatented invention, process, article, or appliance manufactured or used in the performance of the Contract, including its use by the Authority, unless otherwise specifically stipulated in the Contract.

19. Compliance Required.

The Contractor shall give all notices required by and comply with all laws, ordinances, rules, regulations and lawful orders of public authorities bearing on the performance of the Work. If the Contractor performs any portion of the Work contrary to such laws, ordinances, rules, regulations or lawful orders, it shall bear all costs and expenses arising therefrom. In addition, the Contractor shall enforce and comply with the Authority's instructions regarding signs, advertisements, fires and smoking.

20. Warranty. Contractor warrants to the Authority that:

(a) the materials and equipment furnished under the Contract will be of good quality and new, unless otherwise permitted by the Contract;

(b) the materials and equipment furnished under the Contract will be under warranty for replacement of parts and labor costs for a minimum of one (1) year from the date the Authority receives certification from the Engineer that the Work has reached Substantial Completion, unless otherwise permitted by the Contract, **OR for a duration as defined in the technical specifications, whichever is longer.** The Authority shall have, at its sole discretion, the authority to request the assignment of any and all manufacturer or distributor warranties. Any assignment of a manufacturer or distributor warranty shall not relieve the Contractor of the one-

year warranty provided in this Section 20(b). If the manufacture or distributor provides a warranty in excess of the one-year warranty provided by the Contractor, the Contractor shall assign the remainder of said warranty to the Authority upon the expiration of the one-year term noted above;

- (c) the Work will be free from defects not inherent in the quality required or permitted;
- (d) the Work will conform with the requirements of the Contract; and
- (e) Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective.

21. Authority's Right to Stop Work.

If the Contractor fails to correct the Work or any portion of the Work that is not in accordance with the requirements of the Contract as required by Section 20 above or persistently fails to carry out the Work in accordance with the Contract, the Authority, by written order signed by the Authority, may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated. The Contractor may not claim any damages for injury caused by delay due to a stoppage of the Work in accordance with this Section 21.

22. Authority's Right to Carry Out Work.

If the Contractor defaults and neglects to carry out the Work in accordance with the Contract and fails within a three (3) day period after receipt of written notice from the Authority to commence and continue correction of such default or neglect with diligence and promptness, the Authority may after such three (3) day period give the Contractor a second written notice to correct such deficiencies within a second three (3) day period. If the Contractor fails to commence and continue to correct any deficiencies within such second three (3) day period, the Authority may, without prejudice to other remedies the Authority may have, correct such deficiencies. In such case the Authority shall deduct from payments then or thereafter due the Contractor the cost of correcting such deficiencies, including, without limitation, the cost of the Engineer's or other professionals' additional services and expenses made necessary by such default, neglect or failure. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Authority within thirty (30) days of notice from the Authority that such amounts are due and owing.

23. Other Contracts.

The Authority reserves the right to let other contracts in connection with the Work. The Contractor shall cooperate with the other contractors with regard to storage of materials and execution of their work, and shall properly connect and coordinate its work with theirs. If any part of the Work is dependent upon or is affected by the work of any other contractor, the Contractor shall inspect such work and promptly report to the Engineer any defects in the other contractor's work, including, without limitation, any discrepancy between the executed work and

the Plans or Specifications. Failure to so inspect and report defects shall constitute acceptance of the other contractor's work as satisfactory and proper for the reception of the Work, except as to defects which may develop in the other contractor's work after the execution of the applicable portion of the Work.

24. Work Performed by the Authority or Other Parties.

Wherever work being done by the Authority or its agents or by other contractors is contiguous to the Work, the respective rights of the various interests involved shall be established by the Engineer. The goal of the Engineer shall be to secure the completion of the various portions of the Work in general harmony.

25. Delays and Extension of Time.

If the Contractor is delayed in the performance and completion of the Work by an act or neglect of the Authority or Engineer, or an employee of either, or by fire, flood, or other causes beyond the control of the Contractor, or by other causes which the Engineer determines may justify delay, the deadline for the completion of the Work set forth in the Agreement may be extended by the Authority for a period equivalent to the actual number of calendar days lost by reason of any or all causes aforementioned if the request for extension is presented in writing to the Engineer within seven (7) calendar days after the commencement of the cause of the delay. The length of time of the extension shall be determined and fixed by the Engineer, subject to the approval of the Authority. The Contractor may not claim any damages for injury caused by a delay caused by an event described in this Section 25.

26. Concealed or Unknown Conditions.

If subsurface or other latent physical conditions are encountered at the Work site which (i) differ materially from the conditions expressly represented in the Contract; or (ii) if no express representation is made in the Contract, differ in such an extreme and unusual nature from what reasonably could have been anticipated, then notice by the Contractor shall be given to the Engineer promptly before conditions are disturbed and in no event later than fourteen (14) days after first observance of the conditions. The Engineer will promptly investigate such conditions to determine whether they differ materially from those conditions that were expressly represented in the Contract or which reasonably could have been anticipated, and shall notify the Contractor and the Authority of his or her determination. If the Engineer determines that the conditions at the work site are not materially different, the Engineer shall so notify the Authority and the Contractor in writing, stating his or her reasons. If the Engineer determines that the conditions at the work site are materially different and the Authority disagrees, the Authority shall promptly notify the Contractor and Engineer and the Authority, Contractor and Engineer shall attempt to reach a mutually agreeable determination. The Authority shall not be obligated to modify the Contract unless the parties reach such determination. If the Engineer determines and the Authority agrees that the conditions at the site are materially different and will materially affect the cost of performing the Work, the Contractor shall be entitled to a Change Order equitably adjusting the Contract Price or Contract Time, or both. In any request for a Change Order or other claim for an equitable adjustment in the Contract Price as a result of differing

work site conditions, the Contractor shall be required to document and substantiate the request or claim by producing the relevant portions of its bid sheets or estimates to show the amount he reasonably expected to pay for the Work based upon the conditions that were expressly represented in the Contract or which reasonably could have been anticipated.

27. Change Orders.

27.1 Restrictions on Ability to Undertake Change. Changes to the Work, including without limitation the increased cost of any line item in the Bid (Exhibit A) may be undertaken by the Contractor **only** upon receipt of a Change Order issued and executed by the Authority in accordance with Section 27. Notwithstanding the foregoing, in an Emergency, the Contractor, without obtaining a signed Change Order, may undertake only such changes to the Work as are necessary to alleviate the Emergency, after which time the Contractor shall immediately seek a Change Order pursuant to the procedures outlined in Section 27.2 (e) prior to undertaking any further changes to the Work. The parties understand and agree that the unit prices set forth in the Contract Documents shall be employed in determining whether to approve a Proposed Change Order.

27.2 Procedure to be Followed when Change to the Work is Required. The Authority, the Engineer and the Contractor shall follow the following procedures whenever a change to the Work is required.

(a) Notice of Change Required. Whenever any party determines that a change to the Work is required, that party shall immediately notify the Engineer in writing of the need for the change, describing in such notice in reasonable detail the nature and scope of the change required. It shall be the responsibility of the Engineer to notify the other parties of its receipt of any such notice.

(b) Preparation of Design and Proposed Change Order. Within a Reasonable Time after the Engineer receives the notice of change required, the Engineer shall evaluate the situation, prepare any needed designs for the requested change, and request that the Contractor prepare a Proposed Change Order which includes the Contractor's estimate of any additional costs, time required to complete the requested change and/or any extension of the Contract Time, or any credit to the Authority, based upon the design provided by the Engineer (the "Proposed Change Order"). Additional costs in the Contractor's Proposed Change Order must be limited to direct costs of any additional labor, materials, tools and equipment necessary to perform the change, plus a maximum amount of ten percent (10%) of the aforesaid additional costs to cover all other expenses to the Contractor, including without limitation insurance, bonding costs, Overhead, profit and taxes. If a Subcontractor or Sub-subcontractor will perform any of the Work included in the Change Order, the Subcontractor's and Sub-subcontractor's additional costs, including without limitation insurance, bonding costs, Overhead, profit and taxes, shall be limited to five percent (5%) of the cost of the Work to be performed by that Subcontractor or Sub-subcontractor.

(c) Submission of Proposed Change Order. The Contractor shall sign and submit to the Engineer the Proposed Change Order within a Reasonable Time following delivery of the design described in Section 27.2 (b).

(d) Review of Cost Estimate and Preparation of Change Order. If, in the Engineer's opinion, the amount of any additional costs and/or time requested by the Contractor in the Proposed Change Order is excessive or otherwise unreasonable, the Engineer shall have the right to request that the Contractor revise the Proposed Change Order before it is submitted to the Authority for approval.

(e) Process for Approval or Disapproval of Change Orders by the Authority. The following procedures shall be followed without exception whenever the approval of the Authority is required for a Change Order:

(i) Changes Less than \$10,000 or 5% of Contract Price. The Director of Contract Management of the Authority shall be authorized to approve and execute or disapprove on behalf of the Authority Change Orders reflecting a change to the original Contract Price of an amount less than \$10,000 or less than 5% of the original Contract Price, whichever amount is less; provided, however, that from and after the date that Change Orders have been approved on the Contract which, in the aggregate, total an amount equal to 10% of the original Contract Price, no additional Change Orders may be approved by the Director of Contract Management without approval of the Authority Board.

(ii) Changes Less than \$25,000 or 10% of the Contract Price. The Executive Director and the Director of Contract Management of the Authority jointly shall be authorized to approve and execute or disapprove on behalf of the Authority Change Orders reflecting a change to the original Contract Price of an amount less than \$25,000 or less than 10% of the original Contract Price, whichever amount is less; provided, however, that from and after the date that Change Orders have been approved on the Contract which, in the aggregate, total an amount equal to 10% of the original Contract Price, no additional Change Orders may be approved by the Executive Director and the Director of Contract Management without approval of the Authority Board. In the event of Change Orders approved under this Section 27.2(e)(ii), the signatures of both the Director of Contract Management and the Executive Director shall be required on the Change Order in order for it to be binding upon the Authority.

(iii) All Other Changes. The approval or disapproval of the Authority Board shall be required for (i) all Change Orders reflecting a change to the original Contract Price in excess of \$25,000 or more than 10% of the original Contract Price, whichever amount is less; and (ii) all Change Orders requested from and after the date that Change Orders have been approved on the Contract which, in the aggregate, total an amount equal to 10% of the original Contract Price.

(iv) Execution of Change Order. In the event the Authority approves a Change Order in accordance with this Section 27.2(e), the appropriate officers of the Authority shall execute and deliver the Change Order. The Contractor and Engineer by their execution hereof

are hereby notified of the procedures contained in this Section 27.2(e) and understand that no Change Order shall be binding upon the Authority unless approval is obtained as required herein.

(f) Time in which Authority must act upon Change Order Requests. The Authority shall either approve or disapprove a Proposed Change Order in accordance with the following schedule:

(i) If the Proposed Change Order requires only the approval of the Director of Contract Management and/or the Executive Director, the Proposed Change Order shall be approved or disapproved within seven (7) days after submission to the Authority by the Engineer.

(ii) If the Proposed Change Order requires the approval of the Authority Board, the Proposed Change Order shall be approved or disapproved within fourteen (14) days after submission to the Authority by the Engineer.

In the event that a Proposed Change Order must be approved sooner than the times set forth above in order to avoid a delay in the completion of the Work, Contractor immediately shall so notify the Authority. In such notice, Contractor shall include a detailed explanation of the reasons that the completion of the Work shall be delayed without an expedited review process, a request for an expedited approval of the Proposed Change Order and the time within which approval is required in order to complete the Work within the Contract Time. The Authority shall use reasonable efforts to comply with the Contractor's request.

(g) Event of Disapproval of a Change Order as Submitted by the Contractor. In the event the Authority disapproves a Proposed Change Order prepared by the Contractor, the Authority shall have the right to select one of the following procedures:

(i) The Authority, with the assistance of the Engineer, shall prepare, execute and issue its own Change Order stating the amount of additional costs and/or time required to complete the requested Change, and the Contractor shall proceed promptly to undertake the change to the Work described therein. All changes in the Work pursuant to Change Orders issued by the Authority shall be performed under applicable provisions of the Contract Documents and shall not invalidate the Contract. The Contractor shall be deemed to accept the additional costs and/or time set forth in the Change Order issued by the Authority unless the Contractor notifies the Authority in writing within seven (7) days of its receipt of the Change Order that the Work is being performed under protest. Contractor's protest shall not excuse Contractor from promptly undertaking the change to the Work described in such Change Order. The Contractor shall be entitled to bring a claim against the Authority for an equitable adjustment to the Contract for any Change Order the Contractor is required to perform under protest, but in no event may the Contractor recover damages on any such claim that exceed the difference between the additional costs in the Change Order issued by the Authority and the additional costs requested in the Contractor's Proposed Change Order; or

(ii) If the Change Order increases the contract price more than 20% or constitutes a substantial change in the Work ("Substantial Change Order"), the Authority shall

have the right, if not the duty under the Authority's enabling statute, to terminate the Contract. The Contractor recognizes that the Authority, under state law, may be obligated to terminate and re-bid this Contract upon the occurrence of a Substantial Change Order. Contractor agrees not to hold the Authority responsible for any losses or damages that it may incur due to a termination under this provision.

27.3 Unit Prices. If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are so changed in a Proposed Change Order that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Authority or the Contractor, the applicable unit prices shall be equitably adjusted.

28. Payment.

28.1 Schedule of Values. Upon notification of award, the Contractor must submit to the Engineer a schedule of values allocated to various portions of the Work, giving a complete breakdown of the price of the various items of the Work (the sum of which shall equal the total Contract Price) and otherwise prepared in such form and supported by such data to substantiate its accuracy as the Engineer may require. This schedule, unless objected to by the Engineer, shall be used as a basis for reviewing the Contractor's Applications for Payment.

28.2 Application for Payment.

(a) The Contractor shall submit to the Engineer once each calendar month an Application for Payment in accordance with the schedule of values for (i) operations completed as of the last day of the previous calendar month; and (ii) payments made on account of materials delivered and suitably stored and insured at the site for subsequent incorporation in the Work, provided such storage was approved in advance by the Authority. If approved in advance by the Authority, an Application for Payment may include payment for materials suitably stored off site at a location agreed upon in writing. "Suitably stored" as used in the preceding sentence shall mean that materials stored off site shall be stored in a bonded warehouse and clearly marked "Property of the Public Parking Authority of Pittsburgh." Notwithstanding anything to the contrary, in no event will the Authority pay more than eighty percent (80%) of Contractor's cost of stored materials (whether stored on or off site) until such materials are fully incorporated in the Work. An Application for Payment shall be supported by such data substantiating the Contractor's right to payment as the Engineer or the Authority may require.

(b) Applications for Payment may not include requests for payment of amounts that the Contractor does not intend to pay to a Subcontractor or Supplier because of a dispute or other reason.

(c) The Contractor warrants that title to the portion of the Work covered by an Application for Payment will pass to the Authority no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all portions of the Work for which Certificates for Payment have been previously issued and payments received from the Authority shall be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, Sub-subcontractors, material suppliers, or other persons

or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

(d) Every Application for Payment must include a Construction Schedule Update. If the Contractor fails to provide a Construction Schedule Update or there is a discrepancy concerning a Construction Schedule Update, as described in Section 6(d) hereof, the Authority may, at its sole discretion, delay the approval of the Contractor's Application for Payment until the Construction Schedule Update is provided or the discrepancy is resolved to the Authority's satisfaction.

(e) Every Application for Payment must include an adequate partial release, satisfaction and waiver of liens, satisfactory to the Authority, from all Subcontractors, Suppliers or other parties having a right to file a mechanic's or materialman's liens, with respect to all work, materials and services for which Application for Payment proceeds are being requested. The failure to provide adequate waivers and releases will delay payment until waivers and releases satisfactory to the Authority are provided;

(f) Every Application for Payment must include a certified payroll in accordance with the Pennsylvania Prevailing Wage Act, 43 P.S. § 165-10, stating the amounts due to the Contractor, Subcontractor(s), and Sub-subcontractor(s) for wages. This report shall include the name of each person who is due wages and the amount due to each person respectively. A failure to provide a certified payroll or a discrepancy concerning the certified payroll, will delay payment until a certified payroll is provided or the discrepancy is resolved to the Authority's satisfaction.

28.3 Certificates for Payment.

(a) The Engineer shall, not later than ten (10) days after receipt of an Application for Payment from the Contractor either issue to the Authority a Certificate for Payment, with a copy to the Contractor, for such amount as he or she determines to be properly due, or notify the Contractor and Authority in writing of his or her reasons for withholding the Certificate for Payment in whole or in part as provided in Section 28.4.

(b) The issuance of a Certificate for Payment by the Engineer constitutes a representation by the Engineer to the Authority, based on the Engineer's observations at the site and the data comprising the Application for Payment, that the Work has progressed to the point indicated and that, to the best of the Engineer's knowledge, information and belief, the quality of the Work is in accordance with the Contract. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified.

(c) The Authority shall pay, no later than fifteen (15) days after receipt of the Certificate for Payment from Engineer, unless payment shall otherwise be withheld under the Contract, the amount specified in the Certificate for Payment, subject to the following:

(i) ten (10%) percent of the value of the Certificate for Payment shall be retained by the Authority until the Contractor submits an application, certified by the Engineer, that the Work has reached Substantial Completion: whereupon

(ii) the Authority shall pay over to the Contractor fifty percent (50%) of amounts previously retained by the Authority unless such amounts are being otherwise retained by the Authority as provided in the Contract: and thereafter

(iii) the Authority shall retain only five (5%) percent of the value of each Certificate for Payment until Final Payment.

All amounts retained by the Authority and not otherwise held by the Authority or previously paid over to the Contractor shall be included in the Final Payment (hereinafter defined). Upon receipt of the applicable payment by the Authority, the Contractor shall promptly pay each Subcontractor and Supplier in accordance with Section 5(e) of these General Conditions.

(d) Neither the Authority nor the Engineer shall have an obligation to pay or to see to the payment of money to a Subcontractor except as may be otherwise required by law. Sections of this Contract that dictate payment by the Contractor to a Sub-contractor or Supplier are included to further the timely completion of the Work and shall not create or impose any liability upon the Authority or Engineer for said payments.

(e) No Certificate for Payment issued, nor payment made to the Contractor, shall constitute an acceptance of any portion of the Work that is not in accordance with the Contract.

28.4 Decisions to Withhold Certification.

(a) The Engineer may refuse to certify payment and may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Authority, if in the Engineer's opinion the representations to the Authority required by Section 28.3(b) cannot be made. If the Contractor and the Engineer cannot agree on a revised amount, the Engineer will promptly issue a Certificate for Payment for the amount which the Engineer is able to make such representation to the Authority.

(b) The Engineer may also refuse to certify payment and withhold a Certificate for Payment in whole or in part as may be necessary to protect the Authority from loss on account of:

(i) Defective work not remedied;

(ii) Third Party claims filed against the Authority or reasonable evidence indicating probable filing of such claims;

(iii) Failure of the Contractor to utilize the Subcontractor(s) and Supplier(s) indicated in the Construction Schedule;

(iv) Failure of the Contractor to make payment properly to Subcontractors or Suppliers for labor, equipment or materials in accordance with Section 5(g) hereof;

(v) A reasonable doubt that the Work can be completed (i) for the balance then unpaid, or (ii) within the Contract Time and the unpaid balance would be adequate to cover actual or liquidated damages for the anticipated delay;

(vi) Damage to the Authority or another contractor;

(vii) Payments improperly or incorrectly made to the Contractor; or

(viii) Persistent failure to carry out the Work in accordance with the Contract.

When the above problems recited are removed, payment shall be made for amounts withheld because of such grounds.

28.5 Closeout Submittals to the Authority.

A. Provide a set of Final Record Documents and Drawings, “As-Built”, that reflect actual construction conditions. Ensure the Record set of drawings is legibly marked.

1. Upon award of the Contract, secure from the Authority, at no charge, one complete set of all Contract Documents to be used to produce the Final Record Documents.
2. The purpose of the Final Record Documents is to record the detail of all visible and concealed construction changes to enable future modification or design to proceed without additional measurement, investigation and/or examination.

B. Provide Operation and Maintenance Manuals for all new products used in a bound manual.

1. Assemble warranties, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers and subcontractors per Specifications.
2. Provide original signed product warranty, bond or service/maintenance contract in separate packet.

28.6 Final Payment.

(a) Upon receipt of written notice from the Contractor that the Work is ready for final inspection and acceptance, upon receipt of the Final Record Documents, and upon receipt of a final Application for Payment, the Engineer shall promptly inspect the Work. When the Engineer finds the Work acceptable under the Contract and the Contract fully performed, the Engineer will promptly issue a Final Certificate for Payment, stating that to the best of the Engineer's knowledge, information and belief, and on the basis of the Engineer's observations and inspections, the Work has been completed in accordance with the terms and conditions of the Contract and the entire balance found to be due the Contractor and noted in said Final Certificate for Payments is due and payable. The Engineer's Final Certificate for Payment will constitute a further representation that conditions listed in Section 28.5 (b) below as precedent to the Contractor's being entitled to Final Payment have been fulfilled.

(b) Neither Final Payment nor any remaining retained amounts shall become due until the Contractor submits to the Engineer and the Authority (i) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Authority or the Authority's property might be responsible or encumbered (less amounts retained by the Authority) have been paid or otherwise satisfied; (ii) a certificate evidencing that insurance required by the Contract will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Authority; (iii) consent of surety, if any, to Final Payment; (iv) a final Construction Schedule Update; and (v) adequate releases, satisfactions and waiver of liens, satisfactory to the Authority, from all Subcontractors, Suppliers or other parties having a right to file a mechanic's or materialman's liens, with respect to all work, materials and services for which Final Payment proceeds are being requested, accompanied by the Contractor's affidavit to the effect that to the best of its knowledge and information the releases and receipts cover all labor and materials supplied and all payments due Subcontractors. A failure to provide adequate waivers and releases will delay payment until waivers and releases satisfactory to the Authority are provided. If any Subcontractor or Sub-subcontractor refuses to furnish a release or receipt in full, the Contractor may furnish a bond satisfactory to the Authority to guarantee payment of the claim of such Subcontractor.

(c) Further, in accordance with Section 165-10 (a) of the Pennsylvania Prevailing Wage Act, neither Final Payment nor any remaining retained amounts shall become due until the Contractor, each Subcontractor and each Sub-subcontractor, respectively, submit to the Engineer and the Authority a statement in writing, in form satisfactory to the Secretary of Labor and Industry of the Commonwealth of Pennsylvania (the "Secretary"), certifying to the amounts then due and owing from such Contractor, Subcontractor and Sub-subcontractor, respectively, filing such statement to any and all workers for wages due on account of the Work, setting forth therein the names of the persons whose wages are unpaid and the amount due to each respectively, which statement so to be filed shall be verified by the oath of the Contractor, Subcontractor or Sub-subcontractor, as the case may be, that he or she has read such statement subscribed by him or her, knows the contents thereof and that the same is true of his or her own knowledge.

(d) If, after the Engineer has determined that the Work has reached Substantial Completion, final completion of the Work is materially delayed through no fault of the

Contractor or by issuance of Change Orders affecting final completion, and the Engineer so confirms, the Authority shall upon application by the Contractor and certification by the Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. Such payment shall be made under terms and conditions governing Final Payment, except that it shall not constitute a waiver of claims. If the remaining balance for the portion of the Work not fully completed or corrected is less than amounts retained by the Authority and not otherwise retained by the Authority as provided in the Contract, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Engineer prior to certification of such payment.

(e) Within thirty (30) days of receipt of the Final Certificate for Payment, if the Authority agrees that the Final Payment amount in the Final Certificate for Payment is true and correct, the Authority shall pay to the Contractor the balance stated to be due it in the Final Certificate for Payment ("Final Payment").

(f) Acceptance of Final Payment by the Contractor, a Subcontractor, Sub-subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of the final Application for Payment.

29. Protection of Persons and Property.

(a) The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract.

(b) The Contractor shall take all precautions necessary for the safety of, and shall provide protection to prevent damage, injury or loss to:

(i) its employees on the Work and other persons who may be effected thereby;

(ii) the Work and materials and equipment to be incorporated therein or used in connection therewith, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and

(iii) other property at the site or adjacent thereto, including, without limitation, trees, shrubs, lawns, walks, pavements, roadways, structures and utilities.

(c) The Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations and lawful order of public authorities bearing on the safety or persons or property or their protection from damage, injury or loss.

(d) The Contractor shall erect and maintain, as required by existing conditions and the Contract, safeguards for safety and protection, including, without limitation, posting danger

signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

(e) When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel and in accordance with local, state and federal laws and regulations.

(f) The Contractor shall designate a responsible member of the Contractor's organization at the work site whose duty shall be the prevention of accidents.

(g) In case any direct or indirect injury is done to existing streets or underground structures, sewers, or mains, conduits, etc., or to any public or private property of any kind, by or because of the Work, or in consequence of any act or omission on the part of the Contractor, its employees, or agents, the Contractor, at its own cost and expense, shall restore such structures, property, materials, etc., to a condition equal to that existing before such damage or injury was done, by repairing, rebuilding, replacing, or otherwise, as may be required, or shall make good such damage or injury in a manner satisfactory to the owner of the damaged property.

(h) The Contractor shall, if requested, furnish proof to the Authority of the settlement of any suits or actions arising out of the performance of the Work and involving possible liability on the part of the Authority, its officers, agents, lessees, employees, or the Engineer before Final Payment is made by the Authority for the Work.

30. Responsibility for Loss or Damage. The Contractor will be responsible for the protection of its materials, equipment and work. Contractor shall immediately and at its own expense make good any loss or damage due to loss, theft, vandalism or any other cause.

31. Assumption of Liability/Indemnification/Insurance.

(a) Except for the gross negligence or willful misconduct of the Authority, Contractor shall indemnify and hold the Authority, its successors and assigns and its directors, officers, agents, lessees, employees and authorized representatives harmless from and against any and all loss, damage and liability and for any and all claims for damages on account of or by reason of: (i) bodily injury, including death, which may be sustained or claimed to be sustained by any person, including employees of Contractor; (ii) all contractual disputes or liability not directly attributable to the Authority's acts or failure to act; and (iii) any and all damages to property, including the property of the Authority, its successors and assigns, caused by or arising out of or claimed to have been caused by or to have arisen out of any act, error or omission in connection with this Contract or the performance of the Work, whether or not occasioned by the negligence of the Authority, Contractor, or their respective agents, servants or employees. For purposes of enforcing this provision, Contractor hereby waives any or all immunities it may have under the Pennsylvania Workers' Compensation Act or otherwise.

(b) The Contractor shall maintain at all times until completion of the Work, the following insurance:

(i)	Worker's Compensation	Statutory (in conformance with Pennsylvania Worker's Compensation Act)	
(ii)	Employers Liability	Each Accident	\$500,000.00
		Disease – each employee	\$500,000.00
		Disease – policy limit	\$500,000.00
(iii)	Contractor's General Liability (Bodily Injury and Property Damage)	Per Occurrence	\$1,000,000.00
		Fire Damage (any one fire)	\$1,000,000.00
		Medical Expenses (any one person)	\$10,000.00
		Personal Liability and Advertising Injury	\$1,000,000.00
		Products and Completed Operations Aggregate Limit	\$2,000,000.00
		General Aggregate Limit (per project)	\$2,000,000.00
(iv)	Automotive Liability Property Damage and Bodily Injury (any auto, hired autos and non-owned autos)	Per Occurrence	\$1,000,000.00
(v)	Builders Risk/Renovation	Per occurrence	Equal to Contractor's Contract price
		Aggregate	Equal to Contractor's Contract price
(vi)	Riggers Liability (if applicable)	Per Occurrence	\$1,000,000.00
		Aggregate	\$2,000,000.00
(vii)	Asbestos & Lead Abatement (if applicable)	Per Occurrence	\$1,000,000.00
		Aggregate	\$1,000,000.00
(viii)	Professional Liability	Per Occurrence	\$1,000,000.00

(if applicable)		
	Aggregate	\$1,000,000.00
(ix)	Owners & Contractors Protective Liability	Per Occurrence
		\$1,000,000.00
	Aggregate	\$2,000,000.00
(x)	Umbrella Liability	
Projects Under \$100,000	Per Occurrence	\$1,000,000.00
	Aggregate	\$1,000,000.00
Projects Over \$100,000.00 to Under \$1,000,000.00	Per Occurrence	\$5,000,000.00
	Aggregate	\$5,000,000.00
Projects Over \$1,000,000.00	Per Occurrence	\$10,000,000.00
	Aggregate	\$10,000,000.00

(c) The Contractor shall provide the Authority, upon execution of this Contract, with a copy of each insurance policy, evidencing the required coverage. All policies must include, a provision providing direct and timely, sixty (60) day, notice of cancellation, non-renewal, or amendment to the Authority. Each policy shall also provide a verification that the carrier is "A" rated or better by AM Best.

(d) Each insurance policy shall include the following provisions, unless otherwise specified:

- (i) The Contractor shall at all times until the Work is completed, include the Authority, its successors, assigns, officers, directors, agents, lessees, employees and authorized representatives as an "Additional Insured" on the insurance listed in Sections 31 (b) (iii), (v), (vi) and (vii) above. Upon reviewing any policy, the Authority may require that additional language be added to a policy to ensure that the Authority is adequately protected as an Additional Insured;
- (ii) For insurance listed in Sections 31(b)(iii) and (x) the policy should indicate the aggregate limit is per location / per project or designate construction project general aggregate. Policy should also indicate that it includes contractual liability and coverage includes damages caused by explosion, collapse and underground causes;
- (iii) A Waiver of Subrogation clause; and
- (iv) To the extent that the Contractor is a joint venture, all such insurance policies shall be specifically endorsed to provide coverage for the joint venture.

(e) The Contractor shall provide the Authority with evidence of payment in full of any subsequent premiums at least 20 days prior to the expiration date of each policy.

(f) The Contractor shall obtain and maintain such other insurance as may be required from time to time by the Authority. The amounts, coverage and other terms and conditions of the insurance policies shall at all times be to the satisfaction of the Authority, in its sole discretion.

(g) If the Contractor shall not at any time comply with the insurance requirement terms of this Section, the Authority shall have the option, at its sole discretion, to select one or more of the following: cure such non-compliance and may purchase such insurance as it may elect whereupon Contractor shall reimburse the Authority on demand for any costs incurred by the Authority in connection with any such actions; stop the Work in accordance with Section 21 hereof until satisfactory insurance is provided; have the Contractor pay Liquidated Damages in accordance with Section 8 of the Form of Agreement; or terminate the Contract in accordance with Section 34 hereof.

(h) Contractor is responsible for requiring each of its subcontractors to obtain insurance of the same type and amount required of Contractor as stated above. Contractor is responsible for obtaining copies of insurance policies from each of its subcontractors, and shall make said copies available to the Authority upon demand.

(i) By specifying the above minimum insurance requirements, The Authority does not represent that coverage and limits will necessarily be adequate to protect Subcontractor, and such coverage limits will not be deemed as a limitation of Subcontractor's obligations hereunder.

32. Claims and Arbitration.

(a) All claims hereunder shall be submitted to and decided by an Arbitrator, in Pittsburgh, Pennsylvania until the aggregate amount of claims for damages hereunder reaches \$75,000. From and after the date that the aggregate amount of claims for damages exceeds \$75,000, all claims shall be handled in accordance with Subsection 32(e) hereunder. The Arbitrator shall be selected in accordance with Subsection 32(b) hereunder. The arbitration proceeding shall be conducted in accordance with the AAA Construction Industry Arbitration Rules, except that the "Expedited Procedures" shall not apply if either party notifies the Arbitrator, in writing with a copy to the other party, of its election to opt out of the "Expedited Procedures" within 10 days after the respondent's answering statement is due. The Arbitrator shall have no power to change the provisions of this Contract and the Arbitrator shall base his or her decision on the provisions of this Contract and, as appropriate, shall apply the law of the Commonwealth of Pennsylvania. The parties shall be permitted to conduct reasonable discovery in accordance with the Pennsylvania Rules of Civil Procedure on any claim or defense, and the failure of any party to respond to a reasonable discovery request shall be grounds for the arbitrator to disallow any claim or defense made by the defaulting party. The Arbitrator shall have no power to award punitive, consequential or exemplary damages. The Arbitrator shall submit his/her decision in writing within the later of: fourteen (14) days of the Arbitration hearing; or thirty (30) days of the Arbitrator's appointment. The arbitration shall occur in the

City of Pittsburgh at a site chosen by the Arbitrator. The parties shall share the expense of the arbitration equally.

(b) The Contractor or the Authority shall each choose an impartial arbitrator (collectively, the “Initial Arbitrators”) within ten (10) days of a written request from either party for arbitration and the two Initial Arbitrators shall choose a third impartial arbitrator within three (3) days of the date that both Initial Arbitrators are appointed (said third arbitrator shall be herein referred to as the “Arbitrator”) who shall alone decide the matter and whose decision shall be binding on the parties, be final, and shall not be subject to appeal. If the two Initial Arbitrators fail to agree on the third arbitrator within the required period, then within three (3) days after such period, the parties shall so notify the Chief Judge of the United States District Court for the Western District of Pennsylvania (the “District Court”) who will appoint the Arbitrator as soon as practicable but within five (5) business days of such notice. Should the Chief Judge not appoint the Arbitrator within such time period, then the parties shall immediately notify the Duty Judge then acting for the District Court, and the Duty Judge shall choose the Arbitrator. Should the Duty Judge not appoint the Arbitrator within five (5) business days after a request to do so, then the Arbitrator shall be appointed by such other judge of the District Court as the Initial Arbitrators shall agree (the “Judge”). Should the Initial Arbitrators not appoint a Judge or should such Judge not appoint the Arbitrator within five (5) business days of his or her appointment, then the Arbitrator shall be chosen in accordance with Section 14 of the Construction Industry Arbitration Rules. If any party fails to timely designate an Arbitrator, such dispute or disagreement shall automatically be deemed resolved by the single arbitrator appointed (who in such case shall be deemed the Arbitrator). The Arbitrator will have a minimum of ten (10) years experience in Pittsburgh, Pennsylvania, in the practice of construction law or in a profession related to the subject matter of the dispute and will use the then-prevailing Construction Industry Arbitration Rules of the American Arbitration Association (the “AAA Rules”) to govern the proceeding.

(c) No demand for arbitration by the Contractor shall be considered timely unless made within one year from the date the cause of action accrued on the claim, and any failure by the Contractor to meet this requirement shall be a complete defense to the claim.

(d) The Contractor shall not cause a delay in the Work during or as a result of any arbitration proceeding, except with the express written agreement of the Authority.

(e) Any suit over any claim not subject to arbitration shall be filed and maintained only in a court of competent jurisdiction located within Allegheny County, Pennsylvania.

33. Use of Site.

(a) The Contractor shall provide the Authority, five (5) days prior to the end of each month, a listing of Subcontractors, Sub-subcontractors and Suppliers that shall need access to the site during the next month. Individuals not directly associated with the Contractor or reported to the Authority in the aforementioned list shall not be granted access to the site.

(b) The Contractor shall confine its apparatus, storage of materials and the operation of its workers to limits indicated by law, ordinances, permits or directions by the Engineer and shall not unreasonably encumber the Work site with its materials.

(c) The Contractor shall not load or permit any part of the Work site to be loaded with a weight that will endanger its safety during construction.

(d) The Contractor shall comply with and enforce the Engineer's directions regarding signs, advertisements and smoking.

34. Authority's Right to Terminate Contract.

(a) The Authority may terminate the Contract if the Contractor (i) persistently or repeatedly refuses or fails to supply enough properly skilled workers or proper materials; (ii) fails to make prompt payment to Subcontractors for materials or labor in accordance with the respective agreements; (iii) fails to utilize the agreed to Subcontractor(s) or Supplier(s) in accordance with Section 5 hereof; (iv) fails to provide sufficient and qualified supervision of the Work in accordance with Section 11 hereof; (v) persistently disregards laws, ordinances, or the instructions of the Engineer; (vi) fails to obtain a required Change Order in accordance with Section 27 hereof; (vii) fails to notify the Authority of changes in line item cost estimates in accordance with Section 6 hereof; (viii) is adjudged bankrupt; (ix) makes a general assignment for the benefit of its creditors; (x) becomes insolvent and a receiver should be appointed on account of the Contractor's insolvency; or (xi) is otherwise guilty of a substantial breach of any provision of the Contract. In addition, the Authority may terminate the Contract upon the occurrence of a Substantial Change Order, in accordance with Section 27(g)(ii) hereof. Upon the certificate of the Engineer that any one of the above reasons for termination exists, the Authority may without prejudice to any other right or remedy and after giving the Contractor, and its surety if any, seven days' written notice, terminate the Contract and take possession of the premises and of all materials, tools and appliances thereon and finish the Work by whatever method the Authority may deem expedient. In such case the Contractor shall not be entitled to receive any further payment until the Work is finished.

(b) If the unpaid balance of the Contract Price exceeds the expense to the Authority of correcting all defects and finishing the Work, including compensation for additional architectural, engineering or professional consultants, such excess shall be retained by the Authority. If such expense and the amount of any damages incurred through the Contractor's default shall exceed such unpaid balance, the Contractor shall pay the difference to the Authority. The amount to be paid by the Contractor to the Authority shall be certified by the Engineer. The obligation to make payment under this section shall survive termination of the Contract.

35. Contractor's Right to Stop Work or Terminate the Contract.

(a) If the Work should be stopped under an order of any court, or other public authority, for a period of thirty (30) days or longer, through no act or fault of the Contractor or of anyone employed or subcontracted by him, then the Contractor may, upon seven (7) days' written notice to the Authority and the Engineer, terminate this Contract and recover from the Authority: (i) payment for all of the Work executed as of the date of such termination, and (ii) any demonstrated unavoidable loss sustained due to damage to any materials, equipment, tools and machinery.

(b) Should the Engineer fail to issue any Certificate for Payment through no fault of the Contractor, within fifteen (15) days after the Contractor's formal request for payment or if the Authority should fail to pay to the Contractor within thirty (30) days of its receipt of the Certificate for Payment, the Contractor may, upon seven (7) days' written notice to the Authority and the Engineer, stop the Work, terminate the Contract and receive from the Authority the amounts listed in the preceding section.

36. Registration with the City Finance Department. The Contractor shall maintain registration with the Department of Finance at 412-255-2582 of the City of Pittsburgh, and shall pay all taxes due and owing to the City of Pittsburgh. The Contractor understands and agrees that its failure to maintain such registration or pay such taxes shall be a breach of the Contract and entitle the Authority to immediately terminate the Contract. Such termination shall become effective upon Contractor's receipt of written notice from the Authority of such termination.

37. Requirements of the Pennsylvania Prevailing Wage Act. For contracts exceeding a value of twenty-five thousand dollars (\$25,000), the general prevailing minimum wage rates, including contributions for employee benefits, as shall have been determined by the Secretary must be paid to the workers employed in the performance of the Contract. The Contractor shall, and shall require all Subcontractors and Sub-subcontractors to, (i) pay no less than the wage rates as determined in the decision of the Secretary; (ii) comply with all conditions of the Pennsylvania Prevailing Wage Act, 43 P.S. §§ 165-1 - 165-17, as amended (the "Act"), and the regulations issued pursuant thereto (the "Regulations") to assure the full and proper payment of said rates; and (iii) submit certified payrolls in accordance Section 28.2(e) of these General Conditions. The Contract shall be read so as to include any provision required by the Act or the Regulations to be inserted in the Contract and not so inserted.

38. No Discrimination.

(a) The Contractor, Subcontractor(s) or any person acting on behalf of the Contractor or Subcontractor(s) will not discriminate against any employee or applicant for employment, who is qualified and available to perform the work to which the employment relates, because of race, color, religion, ancestry, national origin, gender, place of birth, disability, age or sexual orientation. The Contractor and Subcontractor(s) will take affirmative action in accordance with the terms outlined in the Form of Bid and the Contract to ensure that applicants are employed, and that employees are treated, without regard to their race, color, religion, ancestry, national

origin, place of birth, gender, or sexual orientation. The Contractor, Subcontractor(s) or any person acting on behalf of the Contractor or Subcontractor(s) shall not in any manner discriminate against or intimidate any employee hired for the performance of work under the Contract on account of race, color, religion, ancestry, national origin, gender, place of birth or sexual orientation.

(b) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, ancestry, national origin, place of birth, gender, or sexual orientation.

(c) The Contractor will send to each labor union or representative or workers with which he has a collective bargaining agreement or other contractor, a notice to be provided by the Authority, advising the labor union or workers' representative of the Contractor's commitments. In addition, the Contractor shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(d) The Contractor will comply with all provisions of the Fair Practices Ordinance, Ordinance No. 75, approved February 28, 1967, and of the rules, regulations and relevant orders of the City of Pittsburgh's Commission on Human Relations.

(e) If and when requested by the Authority or the Mayor's Commission on Human Relations, the Contractor shall file, and shall cause each of its Subcontractors to file, Compliance Reports with the Mayor's Commission on Human Relations. Compliance Reports shall contain such information as to the practice, policies, programs, and employment policies, programs and employment statistics of the Contractor and each Subcontractor, and shall be in such form as the Mayor's Commission on Human Relations may prescribe.

(f) The Contractor will furnish all information and reports required by this Contract, and by the rules, regulations and orders of the Mayor's Commission on Human Relations pursuant hereto, and will permit access to its books, records and accounts by the Mayor's Commission on Human Relations, or its representative, for purposes of investigation to ascertain compliance with this Contract and said rules, regulations and orders.

(g) In the event the Contractor fails to comply with the nondiscrimination provisions of the Contract, or with any of the rules, regulations or orders herein referred to, it is agreed that the Authority, at its sole discretion, may do any or all of the following:

(i) cancel or terminate the Contract in whole or in part, whereupon all the money due or to become due under the Contract may be forfeited by the Contractor;

(ii) suspend the Contract in whole or in part;

(iii) declare the Contractor ineligible for further Authority contracts;

(iv) recover from the Contractor, by set-off against the unpaid portion of the Contract Price, or otherwise pursuant to this Contract, the sum of \$200 per day, as liquidated

damages and not as a penalty, for each day that the Contractor shall fail to comply with these provisions of the Contract, as determined by the Mayor's Commission on Human Relations, in accordance with its rules and regulations, the said sum being fixed and agreed upon by and between the Contractor and the Authority because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages which the Authority would sustain in the event of such a breach of contract, and said amount is agreed to be the amount of damages which the Authority would sustain; and

(iv) such other sanctions as may be imposed by the Mayor's Commission on Human Relations or remedies as may be provided by law.

(h) The Contractor will include the provisions of Subsections (a)-(f) of this Section in every subcontract, so that such provisions will be binding upon each Subcontractor used to perform the Work. The Contractor will take such action with respect to any subcontracts as the Mayor's Commission on Human Relations may direct as a means of enforcing such provisions, including sanctions against the Subcontractor for non-compliance: Provided, however, that in the event the Contractor becomes involved in, or is threatened with, litigation with a Subcontractor as a result of such direction by the Mayor's Commission on Human Relations, the Contractor shall notify the Authority so that the Authority may enter into such litigation to protect its interests if it so desires.

39. **Assignment.** Neither party to the Contract shall assign the Contract without the written consent of the other, nor shall the Contractor assign monies due or to become due him hereunder, without the previous written consent of the Authority.

40. **Gender.** Words used in the Contract, regardless of the gender specifically used, shall be deemed and construed to include the other gender, masculine, feminine or neuter, as the context requires.

41. **Notice.** Notice under the Contract shall be deemed to have been duly given if in writing and (i) delivered in person to the individual, a member of the firm or entity or an officer of the corporation for which it was intended, or (ii) sent by registered or certified mail to the last business address of the party receiving notice known to the party giving notice.

42. **Section and Other Headings.** The section and other headings contained in the Contract are for reference purposes only and shall not affect the meaning or interpretation of the Contract.

43. **Governing Law.** Any controversy, dispute or claim arising out of or relation to the Contract, or the breach thereof, shall be governed by the laws of the Commonwealth of Pennsylvania.

PREVAILING WAGES

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project Name:	Repair & Preventative Maintenance of Third Avenue Parking Garage Roof Deck
General Description:	The project entails the repair and preventative maintenance of the Third Avenue Parking Garage roof deck and as more fully described in the project documents.
Project Locality	Central Business District (CBD)
Awarding Agency:	Public Parking Authority of Pittsburgh
Contract Award Date:	7/16/2026
Serial Number:	26-05715
Project Classification:	Building/Heavy/Highway
Determination Date:	6/11/2026
Assigned Field Office:	Pittsburgh
Field Office Phone Number:	(412)565-5300
Toll Free Phone Number:	(877)504-8354
Project County:	Allegheny County

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 26-05715 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Asbestos & Insulation Workers	8/1/2024		\$43.40	\$29.51	\$72.91
Asbestos & Insulation Workers	8/1/2025		\$45.10	\$30.31	\$75.41
Boilermakers	6/1/2016		\$40.90	\$27.61	\$68.51
Bricklayer	12/1/2025		\$42.00	\$26.59	\$68.59
Bricklayer	6/1/2026		\$42.65	\$26.94	\$69.59
Carpenters - Piledriver/Welder	1/1/2025		\$43.38	\$22.72	\$66.10
Carpenters - Piledriver/Welder	1/1/2026		\$44.63	\$23.47	\$68.10
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2024		\$41.49	\$19.93	\$61.42
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2025		\$43.34	\$19.93	\$63.27
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2026		\$42.11	\$23.36	\$65.47
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2027		\$43.26	\$24.35	\$67.61
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2028		\$44.45	\$25.19	\$69.64
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2029		\$45.72	\$26.01	\$71.73
Cement Masons	7/1/2024		\$34.57	\$25.09	\$59.66
Cement Masons	6/1/2025		\$35.52	\$25.64	\$61.16
Cement Masons	6/1/2026		\$36.02	\$26.14	\$62.16
Drywall Finisher	6/1/2024		\$34.01	\$24.63	\$58.64
Drywall Finisher	6/1/2025		\$35.16	\$25.98	\$61.14
Drywall Finisher	6/1/2026		\$36.59	\$27.30	\$63.89
Electricians & Telecommunications Installation Technician	12/27/2024		\$50.86	\$32.69	\$83.55
Electricians & Telecommunications Installation Technician	12/26/2025		\$53.11	\$33.72	\$86.83
Elevator Constructor	1/1/2025		\$61.07	\$40.05	\$101.12
Elevator Constructor	1/1/2026		\$63.71	\$40.89	\$104.60
Glazier	9/1/2024		\$37.06	\$31.89	\$68.95
Glazier	9/1/2025		\$38.70	\$33.75	\$72.45
Iron Workers	6/1/2025		\$41.50	\$37.36	\$78.86
Iron Workers	6/1/2026		\$43.50	\$37.91	\$81.41
Laborers (Class 01 - See notes)	1/1/2025		\$27.32	\$19.96	\$47.28
Laborers (Class 01 - See notes)	1/1/2026		\$27.82	\$20.46	\$48.28
Laborers (Class 02 - See notes)	1/1/2025		\$27.47	\$19.96	\$47.43
Laborers (Class 02 - See notes)	1/1/2026		\$27.97	\$20.46	\$48.43
Laborers (Class 03 - See notes)	1/1/2025		\$30.47	\$19.96	\$50.43
Laborers (Class 03 - See notes)	1/1/2026		\$30.97	\$20.46	\$51.43
Landscape Laborer (Skilled)	1/1/2025		\$25.79	\$18.78	\$44.57
Landscape Laborer (Skilled)	1/1/2026		\$26.79	\$19.03	\$45.82
Landscape Laborer (Tractor Operator)	1/1/2025		\$26.09	\$18.78	\$44.87
Landscape Laborer (Tractor Operator)	1/1/2026		\$27.09	\$19.03	\$46.12
Landscape Laborer	1/1/2025		\$25.37	\$18.78	\$44.15
Landscape Laborer	1/1/2026		\$26.37	\$19.03	\$45.40

BUREAU OF LABOR LAW COMPLIANCE PREVAILING WAGES PROJECT RATES

Project: 26-05715 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Millwright	6/1/2020		\$41.68	\$20.32	\$62.00
Operators (Class 01 - see notes)	6/1/2024		\$41.69	\$24.39	\$66.08
Operators (Class 01 - see notes)	6/1/2025		\$42.72	\$24.79	\$67.51
Operators (Class 01 - see notes)	6/1/2026		\$43.74	\$25.29	\$69.03
Operators (Class 02 -see notes)	6/1/2024		\$35.62	\$24.39	\$60.01
Operators (Class 02 -see notes)	6/1/2025		\$36.67	\$24.79	\$61.46
Operators (Class 02 -see notes)	6/1/2026		\$37.67	\$25.29	\$62.96
Operators (Class 03 - See notes)	6/1/2024		\$32.83	\$24.39	\$57.22
Operators (Class 03 - See notes)	6/1/2025		\$33.88	\$24.79	\$58.67
Operators (Class 03 - See notes)	6/1/2026		\$34.88	\$25.29	\$60.17
Painters Class 6 (see notes)	6/1/2024		\$32.14	\$24.93	\$57.07
Painters Class 6 (see notes)	6/1/2025		\$34.16	\$25.81	\$59.97
Painters Class 6 (see notes)	6/1/2026		\$35.26	\$26.51	\$61.77
Piledrivers	1/1/2025		\$41.88	\$22.72	\$64.60
Piledrivers	1/1/2026		\$43.13	\$23.47	\$66.60
Plasterers	6/1/2024		\$33.14	\$21.04	\$54.18
Plasterers	6/1/2026		\$34.59	\$22.59	\$57.18
plumber	6/1/2025		\$54.95	\$25.87	\$80.82
plumber	6/1/2026		\$58.05	\$25.87	\$83.92
plumber	6/1/2027		\$61.15	\$25.87	\$87.02
Pointers, Caulkers, Cleaners	12/1/2025		\$41.50	\$22.50	\$64.00
Pointers, Caulkers, Cleaners	6/1/2026		\$42.20	\$22.80	\$65.00
Roofers	12/1/2025		\$41.21	\$21.46	\$62.67
Roofers	6/1/2026		\$42.00	\$23.17	\$65.17
Sheet Metal Workers	7/1/2024		\$43.00	\$33.96	\$76.96
Sheet Metal Workers	7/1/2025		\$45.00	\$35.16	\$80.16
Sign Makers and Hangars	7/15/2024		\$32.32	\$25.82	\$58.14
Sign Makers and Hangars	7/15/2025		\$33.48	\$26.41	\$59.89
Sprinklerfitters	1/1/2025		\$44.79	\$27.05	\$71.84
Sprinklerfitters	1/1/2026		\$46.14	\$28.30	\$74.44
Steamfitters	6/1/2025		\$50.20	\$31.02	\$81.22
Steamfitters	6/1/2026		\$53.05	\$31.27	\$84.32
Stone Masons	12/1/2025		\$44.10	\$25.22	\$69.32
Stone Masons	6/1/2026		\$44.70	\$25.62	\$70.32
Terrazzo Finisher	12/1/2025		\$42.75	\$19.51	\$62.26
Terrazzo Finisher	6/1/2026		\$43.82	\$19.94	\$63.76
Terrazzo Mechanics	12/1/2025		\$42.15	\$21.76	\$63.91
Terrazzo Mechanics	6/1/2026		\$43.22	\$22.19	\$65.41
Tile Finisher	12/1/2025		\$33.99	\$18.71	\$52.70
Tile Finisher	6/1/2026		\$34.82	\$18.98	\$53.80
Tile Setter	12/1/2025		\$40.80	\$23.25	\$64.05
Tile Setter	6/1/2026		\$41.66	\$23.49	\$65.15
Truckdriver class 1(see notes)	1/1/2025		\$36.43	\$23.21	\$59.64
Truckdriver class 1(see notes)	1/1/2026		\$37.93	\$23.71	\$61.64

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 26-05715 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Truckdriver class 2 (see notes)	1/1/2025		\$36.89	\$23.52	\$60.41
Truckdriver class 2 (see notes)	1/1/2026		\$38.39	\$24.02	\$62.41
Window Film / Tint Installer	10/1/2019		\$25.00	\$2.63	\$27.63

BUREAU OF LABOR LAW COMPLIANCE PREVAILING WAGES PROJECT RATES

Project: 26-05715 - Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Carpenter	1/1/2025		\$41.35	\$22.09	\$63.44
Carpenter	1/1/2026		\$42.60	\$22.84	\$65.44
Carpenter Welder	1/1/2025		\$42.85	\$22.09	\$64.94
Carpenter Welder	1/1/2026		\$44.10	\$22.84	\$66.94
Carpenters - Piledriver/Welder	1/1/2025		\$43.38	\$22.72	\$66.10
Carpenters - Piledriver/Welder	1/1/2026		\$44.63	\$23.47	\$68.10
Cement Finishers	1/1/2024		\$35.14	\$26.30	\$61.44
Cement Finishers	1/1/2025		\$35.94	\$27.50	\$63.44
Cement Masons	1/1/2020		\$32.84	\$21.10	\$53.94
Electric Lineman	6/3/2024		\$53.97	\$31.05	\$85.02
Electric Lineman	6/2/2025		\$57.10	\$31.63	\$88.73
Electricians & Telecommunications Installation Technician	12/27/2024		\$51.76	\$31.80	\$83.56
Electricians & Telecommunications Installation Technician	12/26/2025		\$54.16	\$32.69	\$86.85
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	6/1/2025		\$41.50	\$37.36	\$78.86
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	6/1/2026		\$43.50	\$37.91	\$81.41
Laborers (Class 01 - See notes)	1/1/2025		\$33.70	\$26.00	\$59.70
Laborers (Class 01 - See notes)	1/1/2026		\$34.70	\$27.00	\$61.70
Laborers (Class 02 - See notes)	1/1/2025		\$33.86	\$26.00	\$59.86
Laborers (Class 02 - See notes)	1/1/2026		\$34.86	\$27.00	\$61.86
Laborers (Class 03 - See notes)	1/1/2025		\$34.25	\$26.00	\$60.25
Laborers (Class 03 - See notes)	1/1/2026		\$35.25	\$27.00	\$62.25
Laborers (Class 04 - See notes)	1/1/2025		\$34.70	\$26.00	\$60.70
Laborers (Class 04 - See notes)	1/1/2026		\$35.70	\$27.00	\$62.70
Laborers (Class 05 - See notes)	1/1/2025		\$35.11	\$26.00	\$61.11
Laborers (Class 05 - See notes)	1/1/2026		\$36.11	\$27.00	\$63.11
Laborers (Class 06 - See notes)	1/1/2025		\$31.95	\$26.00	\$57.95
Laborers (Class 06 - See notes)	1/1/2026		\$32.95	\$27.00	\$59.95
Laborers (Class 07 - See notes)	1/1/2025		\$34.70	\$26.00	\$60.70
Laborers (Class 07 - See notes)	1/1/2026		\$35.70	\$27.00	\$62.70
Laborers (Class 08 - See notes)	1/1/2025		\$36.20	\$26.00	\$62.20
Laborers (Class 08 - See notes)	1/1/2026		\$37.20	\$27.00	\$64.20
Millwright	6/1/2024		\$47.59	\$23.72	\$71.31
Millwright	6/1/2025		\$49.72	\$23.72	\$73.44
Operators (Class 01 - see notes)	1/1/2025		\$40.39	\$24.23	\$64.62
Operators (Class 01 - see notes)	1/1/2026		\$41.96	\$24.66	\$66.62
Operators (Class 02 -see notes)	1/1/2025		\$40.13	\$24.23	\$64.36
Operators (Class 02 -see notes)	1/1/2026		\$41.70	\$24.66	\$66.36
Operators (Class 03 - See notes)	1/1/2025		\$36.48	\$24.23	\$60.71
Operators (Class 03 - See notes)	1/1/2026		\$38.05	\$24.66	\$62.71
Operators (Class 04 - See notes)	1/1/2025		\$36.02	\$24.23	\$60.25
Operators (Class 04 - See notes)	1/1/2026		\$37.59	\$24.66	\$62.25
Operators (Class 05 - See notes)	1/1/2025		\$35.77	\$24.23	\$60.00

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 26-05715 - Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Operators (Class 05 - See notes)	1/1/2026		\$37.34	\$24.66	\$62.00
Operators Class 1-A	1/1/2025		\$43.39	\$24.23	\$67.62
Operators Class 1-A	1/1/2026		\$44.96	\$24.66	\$69.62
Operators Class 1-B	1/1/2025		\$42.39	\$24.23	\$66.62
Operators Class 1-B	1/1/2026		\$43.96	\$24.66	\$68.62
Painters Class 1 (see notes)	6/1/2022		\$34.45	\$22.82	\$57.27
Painters Class 2 (see notes)	6/1/2024		\$38.09	\$24.93	\$63.02
Painters Class 2 (see notes)	6/1/2025		\$40.36	\$25.81	\$66.17
Painters Class 3 (see notes)	6/1/2025		\$43.68	\$25.81	\$69.49
Painters Class 3 (see notes)	6/1/2026		\$45.08	\$26.51	\$71.59
Painters Class 4 (see notes)	6/1/2019		\$28.20	\$20.06	\$48.26
Painters Class 5 (see notes)	6/1/2019		\$22.91	\$20.06	\$42.97
Pile Driver Divers (Building, Heavy, Highway)	1/1/2025		\$62.82	\$22.72	\$85.54
Pile Driver Divers (Building, Heavy, Highway)	1/1/2026		\$64.70	\$23.47	\$88.17
Piledrivers	1/1/2025		\$41.88	\$22.72	\$64.60
Piledrivers	1/1/2026		\$43.13	\$23.47	\$66.60
Steamfitters (Heavy and Highway - Gas Distribution)	5/1/2022		\$48.43	\$40.28	\$88.71
Truckdriver class 1(see notes)	1/1/2025		\$36.43	\$23.21	\$59.64
Truckdriver class 1(see notes)	1/1/2026		\$37.93	\$23.71	\$61.64
Truckdriver class 2 (see notes)	1/1/2025		\$36.89	\$23.52	\$60.41
Truckdriver class 2 (see notes)	1/1/2026		\$38.39	\$24.02	\$62.41

BONDS

LABOR AND MATERIAL BOND

KNOW ALL MEN BY THESE PRESENTS, that we, _____

as Principal, and _____
_____, as Surety, are held and firmly bound unto the Public Parking Authority of Pittsburgh
(the "Authority"), its attorney, successors or assigns, in the sum of _____
(\$ _____) Dollars, lawful money of the United States, for the payment of
which we bind ourselves, our legal representatives, heirs, successors and assigns, jointly and
severally, firmly by these presents.

WHEREAS, the Principal has entered into a Contract with the Authority dated
_____, 2026, for the _____

_____,
(herein called the "Contract"), which Contract, together with all related contract documents (the
"Contract Documents"), shall be deemed a part hereof as fully as if set out herein.

NOW, THEREFORE, the condition of this obligation is such that if the Principal shall
promptly pay or cause to be paid all sums of money which may be due any person, co-
partnership, association or corporation for all materials furnished and labor supplied or
performed in the prosecution of the work under the contract, including rental for equipment and
services rendered by public utilities, whether or not said material or labor entered into or became
a component part of the work or improvement contemplated in the Contract, then this obligation
shall be null and void; otherwise it shall remain in full force and effect.

It is further agreed that any change, extension of time, alteration or addition to the terms of the Contract or Contract Documents or to the work to be performed or materials to be furnished thereunder and any forbearance by the Authority or the Principal to the other shall not in any way release the Principal or the Surety, or either of them, from their liability hereunder. The Surety does hereby waive notice of any such change, extension, alteration, addition or forbearance.

The Principal and Surety further jointly and severally agree with the Authority that every person, co-partnership, association or corporation, who, whether as subcontractor or otherwise, has furnished material or supplied or performed labor or rented equipment or furnished public utility services in the prosecution of the work and who has not been paid in full therefor before the expiration of a period of sixty (60) days after the date such payment was due, may sue in assumpsit on this Bond in the name of the Authority, for his, their or its use, prosecute the same to final judgement for such sums of money as may be justly due him, them or it, and have execution issued thereof, provided, however, that the Authority shall not be liable for the payment of any costs or expenses of any such suit. Suit and recovery by any such person, co-partnership, association or corporation hereunder shall be subject to the provisions of Section 11 of Act of General Assembly, approved June 5, 1947, P.L. 458, as amended, to the same extent as if said provisions were fully incorporated in the Bond.

It is further agreed that in case of default in and/or any action arising out of rights and liabilities secured by this obligation, any party hereto or any person claiming by or through either may use the purpose of establishing his, its or their claim a copy of this obligation, certified by the Authority and the action or actions, if any, arising on the within obligation, shall not be a bar

to any subsequent action that may arise through any liability incurred in any other action therein and based upon any other part of this obligation.

IN WITNESS WHEREOF, the Principal and Surety, intending to be legally bound, have executed this instrument and these presents have been duly signed by their undersigned representative pursuant to authority of their governing bodies.

(INDIVIDUAL PRINCIPAL SIGN HERE)

WITNESS:

(Individual Principal)

(Business Address)

(Individual Principal)

(Business Address)

(CORPORATE PRINCIPAL SIGN HERE)

ATTEST:

(Corporate Principal)

(Business Address)

By _____

(Title)

(Title)

(SURETY SIGN HERE)

ATTEST:

(Corporate Surety)

(Business Address)

By _____

(Title)

(Title)

The rate of premium on this Bond is _____ per thousand, total amount of premium charge, \$ _____.

(The above must be filled in by corporate surety).

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that we, _____

as Principal, and _____

_____, as Surety, are held and firmly bound unto the Public Parking Authority of Pittsburgh (the "Authority"), its attorney, successors or assigns, in the sum of _____ (\$ _____) Dollars, lawful money of the United States, for the payment of which we bind ourselves, our legal representatives, heirs, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a Contract with the Authority dated _____, 2026, for the _____, (herein called the "Contract"), which Contract, together with all related contract documents (the "Contract Documents"), shall be deemed a part hereof as fully as if set out herein.

NOW, THEREFORE, the condition of this obligation is such that if the Principal shall faithfully perform and keep all undertakings agreed by it to be performed and kept at the time and in the manner provided in the Contract and related contract Documents, as the same may be from time to time amended or altered, and shall indemnify and save harmless the Authority, its officers, agents and employees from any and all cost, damage, liens or demands by reasons of the Principal's failure to perform and keep its undertakings under the Contract, or by reason of the manner in which such undertakings are performed or kept, then this obligation shall be null and void; otherwise it shall remain in full force and effect. It is further agreed that any change,

extension of time, alteration or addition to the terms of the Contract or Contract Documents or to the work to be performed or materials to be furnished thereunder and any forbearance by the Authority or the Principal to the other shall not in any way release the Principal or the Surety, or either of them, from their liability hereunder. The Surety does hereby waive notice of any such change, extension, alteration, addition or forbearance.

Whenever the Principal shall be, and declared by the Authority to be in default under the Contract, the Authority having performed its obligations thereunder, the Surety shall: (i) promptly remedy the default; provided however that Surety shall not utilize Principal for such remedy without the approval of the Authority, which approval shall not be unreasonably withheld; (ii) promptly complete the Contract in accordance with its terms and conditions; provided, however, that Surety shall not utilize Principal to complete the Contract without the approval of the Authority, which approval shall not be unreasonably withheld; or (iii) promptly obtain a bid or bids for completing the work under the Contract in accordance with its terms and conditions and, upon determination of the Surety and Authority jointly of the lowest responsible bidder, make available as work progresses (even though there should be a default or a succession of default under the Contract or any contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion of the work under the Contract less the balance of the Contract Price (as defined in the Contract); provided, however, such funds shall not exceed the amount set forth in the first paragraph hereof. The term "Balance of the Contract Price", as used in this paragraph, shall mean the Contract Price less amounts properly paid by the Authority to the Principal.

It is further agreed that in case of default in and/or any action arising out of rights and liabilities secured by this obligation, any party hereto or any person claiming by or through either may use the purpose of establishing his, its or their claim a copy of this obligation certified by the Authority and the action or actions, if any, arising on the within obligation, shall not be a bar to any subsequent action that may arise through any liability incurred in any other action therein and based upon any other part of this obligation. This Bond shall not be amended or modified by the parties hereto without the prior written consent of the Authority.

IN WITNESS WHEREOF, the Principal and Surety, intending to be legally bound, have executed this instrument this _____ day of _____ 2026, and these presents have been duly signed by their undersigned representatives, pursuant to the authority of their governing bodies.

(INDIVIDUAL PRINCIPAL SIGN HERE)

WITNESS:

_____	_____
(Individual Principal)	
_____	_____

(CORPORATE PRINCIPAL SIGN HERE)

ATTEST:

(Corporate Principal)

(Business Address)

By _____

(Title)

(Title)

(SURETY SIGN HERE)

ATTEST:

(Corporate Surety)

(Business Address)

By _____

(Title)

(Title)

The rate of premium on this Bond is _____ per thousand, total amount of premium charge, \$ _____.

(The above must be filled in by corporate surety).

WARRANTY BOND

KNOW ALL MEN BY THESE PRESENTS, that we, _____

as Principal, and _____

_____, as Surety, are held and firmly bound unto the Public Parking Authority of Pittsburgh

(the "Authority"), in the sum of _____

(\$ _____) Dollars, lawful money of the United States of America, to be paid

to the Authority, or its successors and assigns, to the payment of which sum well and truly to be

made, do bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and

severally, firmly by these presents.

WHEREAS, the Principal has entered into a Contract with the Authority dated _____,

_____, 2026, for _____

(the "Contract"), which Contract, together with all related contract documents (the "Contract

Documents"), shall be deemed a part hereof as fully as if set out herein; and

WHEREAS, the Authority requires that these presents be executed on or before the final completion and acceptance of the work required under the contract or Contract Documents; and

WHEREAS, said work required under the Contract Documents was completed and accepted on the _____ day of _____, 2026.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if Principal shall remedy, without cost to the Authority, any defects in the work performed by Principal, its agents employees or subcontractors under the contract or Contract Documents, that may develop its agents, employees or subcontractors under the contract or Contract Documents,

that may develop during a period of one (1) year from the date of completion and acceptance of such work and are caused by defective or inferior materials or workmanship, then this obligation shall be void; otherwise it shall remain in full force and effect.

Whenever the Principal shall fail, and be declared by the Authority to have failed, to remedy any defects in the work performed by Principal, its agents, employees or subcontractors under the Contract or the Contract Documents that may develop during a period of one (1) year from the date of completion and acceptance of such work, and said defect is caused by defective or inferior materials or workmanship, the Surety shall promptly: (i) remedy the defect; provided however that Surety shall not utilize Principal for such remedy without the approval of the Authority, which approval shall not be unreasonably withheld; or (ii) promptly obtain a bid or bids for remedying the defect and, upon determination by the surety and Authority jointly of the lowest responsible bidder, make available, as work on the defect progresses, sufficient funds to pay the cost of remedying the defect; provided, however, all such funds shall not exceed in the aggregate the amount set forth in the first paragraph hereof.

IN WITNESS WHEREOF, the Principal and Surety, intending to be legally bound, have executed this instrument and these presents have been duly signed by their undersigned representatives pursuant to authority of their governing bodies.

(INDIVIDUAL PRINCIPALS SIGN HERE)

In the presence of:

_____	_____ (Individual Principal)
	_____ (Business Address)
_____	_____ (Individual Principal)
	_____ (Business Address)

(CORPORATE PRINCIPAL SIGN HERE)

ATTEST:

	_____ (Corporate Principal)
	_____ (Business Address)
_____	By _____
_____ (Title)	_____ (Title)

(SURETY SIGN HERE)

ATTEST:

(Corporate Principal)

(Business Address)

By _____

(Title)

(Title)

The rate of premium on this Bond is _____ per thousand, total amount of premium charge , \$ _____.

(The above must be filled in by corporate surety).

Exhibit D

Subcontractors/Suppliers Information Sheet

(See Attached)

LIST OF MATERIAL SUPPLIERS AND SUBCONTRACTORS

Note: All contractors shall fill in the following information prior to award of contract

	Name of Supplier and Address:	Products to Be Supplied:
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____
6.	_____	_____
7.	_____	_____
8.	_____	_____

	Name of Subcontractor and Address:	Anticipated Dollar Amount:	Service/Trade to Be Supplied:
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____
6.	_____	_____	_____
7.	_____	_____	_____
8.	_____	_____	_____

SECTION 01 11 00

SUMMARY OF WORK

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 INTENT OF PLANS AND SPECIFICATIONS

- A. The intent of the Plans and Specifications is to describe the work which the Contractor undertakes to do, in full compliance with the Contract, and it is understood that the Contractor will furnish, unless otherwise provided in the Contract, all materials, machinery, equipment, tools, supplies, transportation, labor, and all other incidentals necessary to the satisfactory prosecution and completion of the Work. The Plans and Specifications are complementary, and what is called for by either is as binding as if called for by both.
- B. The Special Conditions shall control where in conflict with the Standard Specifications. However, such portions of the Standard Specifications not in conflict or not rendered meaningless by the Special provisions shall remain in full force and effect and be binding on the parties hereto.
- C. In the event the Contractor discovers any error or discrepancy in the Contract Documents, he shall immediately call upon the Engineer for his decision. The Engineer shall then make such corrections and interpretations as may be deemed necessary for the fulfillment of the intent of the Specifications, Special Provisions, Plans and other Contract Documents, as construed by him and his decision shall be final.

1.03 SUMMARY OF WORK

- A. General Mobilization: This work consists of all labor, materials, tools and equipment required for setting-up general plant, storage/staging areas and facilities required by State Laws and City Ordinances; and the general mobilization of equipment required for the completion of the work shown on the Contract Documents. The cost of this item shall include all permits and fees required to perform the project, unless otherwise noted in the Contract Documents, and all expenses for the de-mobilization after the work has been completed. If a building permit is required, it will be the contractor's responsibility to get the necessary permit to perform the repair work, unless noted otherwise in the documents. This work shall also include the following items:
 - 1. Reviewing existing electrical layout and existing conditions for each phase of the work to identify all embedded conduits/wiring in the slabs. All existing mechanical and electrical services shall be maintained/restored by the Contractor for all work areas.
 - 2. Provide effective ventilation system to safely remove all dust and hazardous fumes generated from the concrete demolition and any surface treatment applications.
 - 3. Protection and/or relocation of fire protection system, if any, in order to implement repairs.
 - 4. Protection and/or relocation of existing mechanical and electrical systems, in order to implement repairs.

5. Removal of loose overhead concrete from the structural concrete members in the structure prior to the start of any demolition work.
 6. Coordinate and assist the security and property management personnel in respect to the security of commercial spaces during the repair work.
 7. Electricity (power) and water required for the completion of the work will not be furnished by the Owner. All costs associated with power and water are at the contractor's expense. Any costs associated with power/water must be included in the contractor's bid.
- B. Below is a summary of the work and may not include all work items that the contractor will be responsible for during the project. The work, in general, consists of the following areas:
1. Project mobilization and demobilization, including all permits as required.
 2. Implement repairs in a logical manner. The contractor shall submit phasing plans to the owner and engineer for approval.
 3. Design, installation, and maintenance of the entire shoring system. The owner and engineer do not take any responsibility for the determination of whether shoring is required for any repairs or not.
 4. Perform concrete slab repairs at locations designated on the drawings according to the specifications and the repair detail sheets.
 5. Partial depth soffit repairs at locations designated on the drawings according to the specifications and the repair detail sheets.
 6. Full depth curb repairs at locations designated on the drawings according to the specifications and repair detail sheets.
 7. Remove existing façade concrete ledge at locations designated on the drawings. Work includes removing the concrete ledge, grinding smooth the existing surface and paint to match existing.
 8. Remove and replace car stops at locations designated on the drawings according to the specifications.
 9. Remove existing waterproofing membrane and apply new waterproofing membrane at locations designated on the drawings according to the specifications and the repair detail sheets.
 10. Install striping in parking areas, directional markings in traffic areas, and safety markings in traffic areas, and safety markings at all curbs, islands, stairs, etc. affected by construction activities according to the specifications.
 11. Demobilize and sweep clean or powerwash all areas affected by the work. This includes cleaning all light fixtures, signage, parking equipment, stair towers, elevators, exhaust equipment, fire protection system, etc. That have been impacted by the repair process.
- C. Miscellaneous Items: This work consists of items not otherwise specifically indicated or shown on the plans, but which are ancillary to the specified scope of work. This work shall also include the following:

1. The Contractor shall furnish, install, maintain, relocate, and remove all construction fences, signs, barricades, cones, warning lights, and other safety control devices and temporary signage required for the proper execution of the project. The Engineer shall review the safety control device placement before work begins and also prior to the beginning of work on any subsequent construction stages. Any deficiencies in the location or arrangement of devices shall be corrected by the contractor before starting work.
2. The miscellaneous work shall include the cost of repairs to the non-functioning electrical/mechanical systems caused by the contractor's construction activities, for the entire work area. The contractor shall submit to the Engineer the documentation of all existing non-functioning electrical/mechanical systems in the entire work areas. This documentation should be based on the contractor's condition survey performed immediately prior to the scheduled mobilization. The contractor shall not start the mobilization until the Engineer approves the submittal. Repairs to non-functioning electrical/mechanical systems caused by the Contractor's construction activities shall be done by the Owner's Subcontractors at the Contractor's expense or as directed by the Owner or Engineer.
3. At repair areas, the contractor shall provide adequate protection and support systems, as required, for the existing mechanical, plumbing, and electrical installations to remain in-place and/or remove and re-install such items to implement repairs.
4. Work area enclosures: Floor-to-ceiling partitions/enclosures are to be utilized where the construction areas abut areas of the garage that are to remain open to the public. The lower 4'-0" of the partitions shall be plywood; the remaining upper portions to be either plywood or 10 mil polyethylene sheeting. At all other locations around the perimeter of the work area, primarily at the exterior elevations of the garage, the openings shall be sealed with 10 mil polyethylene sheeting. In work areas on the roof level and exposed to the sky, only 4'-0" high plywood partitions are required.

All doors, including elevator and stair tower doors, and any other opening to occupied space (windows, vents, louvers, intakes, etc.) that are near the construction area and may be subjected to construction dust and debris shall be sealed with polyethylene sheeting. The materials that are utilized to enclose the construction areas shall result in a near air-tight seal, which will control and prevent the dispersion of dust and debris. Contractor may be required to utilize expandable foams, clamps, and various adhesives to provide a near air tight enclosure. Equip partitions with dust resistant doors and security locks. All claims by customers of the facility due to dust, debris, and damage to cars will be passed on to the Contractor.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 22 00

UNIT PRICES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- B. Section specifies administrative and procedural requirements for unit prices.
 - 1. A unit price is an amount proposed by Bidders and stated on the Bid Form as a price per unit of measurement for materials and/or services that will be added to or deducted from the Contract Sum by Change Order in the event the estimated quantities of Work required by the Contract Documents are increased or decreased.
 - 2. Unit prices include all necessary labor, materials, equipment and incidentals, overhead, profit and applicable taxes.
 - 3. Refer to Construction Documents for construction activities requiring the establishment of unit prices. Methods of measurement and payment for unit prices are specified in the Construction Documents.
- C. The Owner reserves the right to reject the Contractor's measurement of work-in-place that involves use of established unit prices, and to have this Work measured by an independent surveyor acceptable to the Contractor. The Owner will pay the cost for the independent surveyor if the Contractor is found to have submitted accurate quantities. However, if the quantities differ the Contractor will be responsible for payment of independent surveyor.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 UNIT PRICE SCHEDULE

- A. Unit prices for all items are as shown in the Bid Forms shall be considered an integral part of this Section.

3.02 PAYMENT FOR EXTRA WORK

- A. Extra work which results from any of the changes as specified and for which no unit price is provided in the Contract, shall not be started until receipt of a written authorization or work order from the Owner, which authorization shall state the items of work to be performed and the method of payment for each item. The Contractor shall not be entitled to payment for work performed without such authorization.

- B If it is practicable to pay for Extra Work on the unit price, or lump sum basis, a fair and equitable sum shall be fixed by agreement of the parties and shown in an Extra Work Order Agreement. Work to be performed directly by the Contractor should be submitted showing a detailed breakdown of labor and material costs to which a 15 percent markup should be added for overhead and profit.
- C Work to be performed by the subcontractor should be submitted showing a detailed breakdown of labor and materials by the subcontractor to which a five percent markup should be added by the Contractor for overhead and profit.
- D When the Owner deems it impracticable to handle any Extra Work on the unit price or lump sum basis, or if agreement of the parties cannot be reached, the work may be ordered done and paid for on a Force Account basis, as follows:
1. Labor: The Contractor will be paid the actual amount of wages for all labor and foremen who are actually engaged in such work, to which cost shall be added 10 percent of the sum of such wages. A foreman shall not be used when there are less than three laborers employed, except with the written consent of the Engineer.
 2. Welfare and Pension Fund: The Contractor will receive the actual additional amount of contributions paid for regular and uniform health and welfare benefits, pension fund benefits or other benefits, to which 10 percent shall be added, when such amounts are required by collective bargaining agreement or other employment contract generally applicable to the class of labor employed on the Work.
 3. Insurance and Tax: The Contractor will receive the actual cost or increase in cost of Contractor's Public Liability and Property Damage insurance, Workmen's Compensation tax, and Social Security tax required for Force Account work. The Contractor shall furnish satisfactory evidence of the cost or rates paid for such insurance and tax.
 4. Materials: The Contractor will receive the actual cost for all materials, including freight charges as shown by the original paid invoices, which become an integral part of the finished work, to which shall be added 10 percent of the sum thereof.

The Contractor will be reimbursed for any materials used in the construction of such work as sheeting, falsework, form lumber, etc., which are not an integral part of the finished work. The amount of reimbursement shall be agreed upon in writing before such work is begun, and no percent shall be added. The salvage value of such materials shall be taken into consideration in the reimbursement agreed upon.

5. Equipment: For any machinery or special equipment (other than small tools), the use of which has been authorized by the Engineer, the Contractor will be paid as following:
 - a. For his own equipment, he will be paid by the monthly rate in accordance with the latest edition of Means Construction Cost Data.
 - b. For rental equipment, he will be paid for the actual invoice amount as shown by the original paid invoices.

The equipment shall be of a type and size reasonably required to complete the Extra Work. Compensation will not be allowed for transportation to or from The Work or for the time required for setting up and removing the equipment from The Work or for equipment of a type, size or condition unsuitable for The Work.

A It shall be in the sole judgment and sole discretion of the Engineer or its representatives to cancel or alter any or all portions of the Contract due to circumstances either unknown at the time of bidding or arising after the Contract was entered into. Should such actions result in elimination or non-completion of any portion of the Contract, payment shall be made as follows:

1. For the canceled work completed by the Contractor, payment shall be made to the Contractor for the actual number of units or items completed at the Contract unit or lump sum prices. For canceled work partially completed by the Contractor, payment shall be made to the Contractor for the partially completed units or items as specified in Payment for Extra Work.
2. For materials obtained by the Contractor for the unfinished (uncompleted) portions of the canceled work, that have been inspected, tested and accepted by the Engineer, and that have not been incorporated in the canceled work, payment shall be made to the Contractor for the actual costs for all such materials, including freight charges, as shown by the original paid invoices, to which shall be added 10 percent of the sums thereof. The materials, when so paid for by the Owner, shall become the property of the Owner.

3.04 PARTIAL PAYMENTS:

- A. The Engineer shall review the Contractor's pay request for materials in-place and completed, the amount of work performed, and the value thereof, at the Contract Unit Prices. From the amount so determined there shall be deducted ten percent to be retained until after the completion of the entire work to the satisfaction of the Engineer, and the balance certified to the Owner for payment. Notwithstanding the above, after 50 percent or more of the work is completed, the Engineer may certify the remaining partial payments or some of them without any further retention, provided that satisfactory progress is being made in accordance with the Contract requirements and continues to be made, and provided that the amount retained shall not be less than five percent of the total adjusted Contract Price.
- B. If stored matter is lost or damaged prior to incorporation in The Work, the materials shall be replaced or satisfactory repaired at the Contractor's expense. Where payment is made for materials in storage and not yet incorporated into The Work, the Contractor shall provide to the Owner, satisfactory evidence of insurance against loss by damage or disappearance. The Contractor shall pay and be responsible for cost of storage, if any, of said materials.

3.05 ADJUSTMENT OF UNIT PRICES BASED ON ACTUAL QUANTITIES PERFORMED

- A. For unit price bid items, the quantities as listed in the schedule of bid items are estimates only. The Contractor will be required to complete the work specified in accordance with the Contract and at the quoted unit prices, whether quantities greater or less than the estimated amounts are involved. Should the actual quantity of a unit price pay item vary from the original estimate, the following adjustments to the unit prices shall be made:
1. When the actual quantity of a unit price pay item is less than 75 percent of the original bid estimate, the Contract will be paid an amount equal to the actual quantity times the original unit price plus 10 percent of the difference between this amount and the original estimated quantity times the original unit price for that particular item.
 2. When the actual quantity of a unit price pay item is greater than 120 percent of the original bid estimate (based upon prior approval to exceed this quantity by the University and Engineer) the Contractor will be paid for the actual work performed in excess of the 120 percent of the original bid estimate at an adjusted unit price of 0.90 times the original unit

price. The first 120 percent of the bid estimate quantity will be paid at the original unit price.

- B. The foregoing provisions shall be instituted only after it can be accurately determined that the actual contract sum for the project (exclusive of all change orders unrelated to the original scope of work) will be greater than or less than the original contract sum by more than 5 percent. Until such time that this determination can be made, the Contractor will be paid at his base unit price for actual quantities of work performed. No associated adjustments will be made to lump sum items within the original contract sum due to changes in the actual quantities of unit price items and the Contractor shall not be entitled to an adjusted compensation for unit price items that are deleted in their entirety from the actual scope of work performed.

END OF SECTION

SECTION 01 31 00

PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:
 - 1. Coordination.
 - 2. Administrative and supervisory personnel.
 - 3. General installation provisions.
 - 4. Cleaning and protection.
- B. Requirements for the Contractor's Construction Schedule are included in Section "Submittals".

1.03 COORDINATION

- A. Coordination: Coordinate construction activities included under various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection, and operation.
 - 1. Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.
 - 2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Where necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.
 - 1. Prepare similar memoranda for the Owner and separate Contractors where coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of schedules.
 - 2. Installation and removal of temporary facilities.
 - 3. Delivery and processing of submittals.

4. Progress meetings.
 5. Project Close-out activities.
- D. **Conservation:** Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
1. Salvage materials and equipment involved in performance of, but not actually incorporated in, the Work. Refer to other sections for disposition of salvaged materials that are designated as Owner's property.

1.04 SUBMITTALS

- A. **Coordination Drawings:** Prepare and submit coordination Drawings where close and careful coordination is required for installation of products and materials fabricated off-site by separate entities, and where limited space availability necessitates maximum utilization of space for efficient installation of different components.
1. Show the interrelationship of components shown on separate Shop Drawings.
 2. Indicate required installation sequences.
 3. Comply with requirements contained in Section "Submittals."
- B. **Staff Names:** Within 10 days of Notice to Proceed, submit a list of the Contractor's principal staff assignments, including the Superintendent and other personnel in attendance at the site; identify individuals, their duties and responsibilities; list their addresses and telephone numbers.
1. Post copies of the list in the Project meeting room, the temporary field office, and each temporary telephone.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 GENERAL INSTALLATION PROVISIONS

- A. **Inspection of Conditions:** Require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.
- B. **Manufacturer's Instructions:** Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.
- C. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.
- D. Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and building movement.
- E. **Visual Effects:** Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain the best visual effect. Refer questionable choices to the Engineer for final decision.

- F. Recheck measurements and dimensions, before starting each installation.
- G. Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.
- H. Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.
- I. Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Engineer for final decision.

3.02 CLEANING AND PROTECTION

- A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- B. Construction activity that produces significant noise, such as the use of pneumatic hammers, shot-blasting, sand blasting, etc., shall only be permitted from the hours of 8:00 am to 5:00 pm.
- C. Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- D. Limiting Exposures: Supervise construction activities to ensure that no part of the construction completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:
 - 1. Excessive static or dynamic loading
 - 2. Excessively high or low temperatures
 - 3. Air contamination or pollution
 - 4. Water or ice
 - 5. Solvents
 - 6. Chemicals
 - 7. Puncture
 - 8. Abrasion
 - 9. Heavy traffic
 - 10. Soiling, staining and corrosion
 - 11. Bacteria
 - 12. Combustion
 - 13. Electrical current
 - 14. Unusual wear or other misuse
 - 15. Contact between incompatible materials
 - 16. Destructive testing
 - 17. Misalignment
 - 18. Excessive weathering
 - 19. Unprotected storage
 - 20. Improper shipping or handling
 - 21. Theft
 - 22. Vandalism

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements for submittals required for performance of the Work, including;
 - 1. Contractor's construction schedule
 - 2. Submittal schedule
 - 3. Daily construction reports
 - 4. Shop Drawings
 - 5. Product Data
 - 6. Material Safety Data Sheets (MSDS)
 - 7. Samples
- B. Administrative Submittals: Refer to other Division-1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to:
 - 1. Permits
 - 2. Applications for payment
 - 3. Performance and payment bonds
 - 4. Insurance certificates
 - 5. List of Subcontractors
- C. Inspection and test reports are included in Section "Quality Control."

1.03 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
 - 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 elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
 - a. The Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
 - 3. Processing: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for re-submittals.

- a. Allow two weeks for initial review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The Engineer will promptly advise the Contractor when a submittal being processed must be delayed for coordination.
 - b. If an intermediate submittal is necessary, process the same as the initial submittal.
 - c. Allow two weeks for reprocessing each submittal.
 - d. No extension of Contract Time will be authorized because of failure to transmit submittals to the Engineer sufficiently in advance of the Work to permit processing.
- B. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
 1. Provide a space approximately 4" x 5" on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.
 2. Include the following information on the 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. Number and title of appropriate Specification Section
 - i. Drawing number and detail references, as appropriate
- C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Engineer using a transmittal form. Submittals received from sources other than the Contractor will be returned without action.
 1. On the transmittal, record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including minor variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.
 2. Transmittal Form: Use AIA Document G 810.

1.04 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Phasing: Provide notations on the schedule to show how the sequence of the Work is affected by requirements for phased completion to permit Work by separate Contractors and partial occupancy by the Owner prior to Substantial Completion.
- B. Work Stages: Indicate important stages of construction for each major portion of the Work, including testing and installation.
- C. Distribution: Following response to the initial submittal, print and distribute copies to the Engineer, Owner, subcontractors, and other parties required to comply with scheduled dates. Post copies in the Project meeting room and temporary field office.
 1. When revisions are made, distribute to the same parties and post in the same locations.

Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.

1.05 SUBMITTAL SCHEDULE

- A. After development and acceptance of the Contractor's construction schedule, prepare a complete schedule of submittals. Submit the schedule within 10 days of the date required for establishment of the Contractor's construction schedule.
1. Coordinate submittal schedule with the list of subcontracts, schedule of values, and the list of products as well as the Contractor's construction schedule.
 2. Prepare the schedule in chronological order; include submittals required during the first 90 days of construction. Provide the following information:
 - a. Scheduled date for the first submittal
 - b. Related Section number
 - c. Submittal category
 - d. Name of subcontractor
 - e. Description of the part of the Work covered
 - f. Scheduled date for resubmittal
 - g. Scheduled date the Engineer's final release or approval
- B. Distribution: Following response to initial submittal, print and distribute copies to the Engineer, Owner, subcontractors, and other parties required to comply with submittal dates indicated. Post copies in the Project meeting room and field office.
1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.
- C. Schedule Updating: Revise the schedule after each meeting or activity, where revisions have been recognized or made. Issue the updated schedule concurrently with report of each meeting.

1.06 DAILY CONSTRUCTION REPORTS

- A. Prepare a daily construction report, recording the following information concerning events at the site; and submit duplicate copies to the Engineer at weekly intervals:
1. List of subcontractors at the site.
 2. Approximate count of personnel at the site.
 3. High and low temperatures, general weather conditions.
 4. Accidents and unusual events.
 5. Meetings and significant decisions.
 6. Stoppages, delays, shortages, losses.
 7. Meter readings and similar recordings.
 8. Emergency procedures.
 9. Orders and requests of governing authorities.
 10. Change Orders received, implemented.
 11. Services connected, disconnected.
 12. Equipment or system tests and start-ups.
 13. Partial Completions, occupancies.
 14. Substantial Completions authorized.

1.07 SHOP DRAWINGS

- A. Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered Shop Drawings.
- B. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Include the following information:
 - 1. Dimensions
 - 2. Identification of products and materials included
 - 3. Compliance with specified standards
 - 4. Notation of coordination requirements
 - 5. Notation of dimensions established by field measurement
 - 6. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2" x 11" but no larger than 36" x 48".
 - 7. Initial Submittal: Submit 2 blue- or black-line prints for the Engineer's review; one will be returned.
 - 8. Final Submittal: Submit 3 blue- or black-line prints and 2 additional prints where required for maintenance manuals, plus the number of prints needed by the Engineer for distribution. 2 prints will be retained; the remainder returned.
 - 9. Do not use Shop Drawings without an appropriate final stamp indicating action taken in connection with construction.
- C. Coordination drawings are a special type of Shop Drawing that show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or function as intended.
 - 1. Preparation of coordination Drawings is specified in section "Project Coordination" and may include components previously shown in detail on Shop Drawings or Product Data.
 - 2. Submit coordination Drawings for integration of different construction elements. Show sequences and relationships of separate components to avoid conflicts in use of space.

1.08 PRODUCT DATA

- A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information such as manufacturer's installation instructions, catalog cuts, roughing-in diagrams and templates, and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings."
 - 1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:
 - a. Manufacturer's printed recommendations
 - b. Compliance with recognized trade association standards
 - c. Compliance with recognized testing agency standards
 - d. Application of testing agency labels and seals
 - e. Notation of dimensions verified by field measurement
 - f. Notation of coordination requirements
 - 2. Do not submit Product Data until compliance with requirements of the Contract

Documents has been confirmed.

3. Preliminary Submittal: Submit a preliminary single-copy of Product Data where selection of options is required.
4. Submittals: Submit 5 copies of each required submittal. The Engineer will return to the Contractor a marked submittal with action taken and corrections or modifications required.
 - a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
5. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.
 - a. Do not proceed with installation until an applicable copy of Product Data applicable is in the installer's possession.
 - b. Do not permit use of unmarked copies of Product Data in connection with construction.

1.09 SAMPLES

- A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts, or containers of materials, color range sets, and swatches showing color, texture, and pattern.
 1. Mount, display, or package Samples in the manner specified to facilitate review of qualities indicated. Prepare Samples to match the Engineer's Sample. Include the following:
 - a. Generic description of the Sample
 - b. Sample source
 - c. Product name or name of manufacturer
 - d. Compliance with recognized standards
 - e. Availability and delivery time
 2. Submit Samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
 - a. Where variation in color, pattern, texture or other characteristics are inherent in the material or product represented, submit multiple units (not less than 3), that show approximate limits of the variations.
 - b. Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.
 - c. Refer to other Sections for Samples to be returned to the Contractor for incorporation in the Work. Such Samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of Sample submittals.

3. Preliminary submittals: Where Samples are for selection of color, pattern, texture, or similar characteristics from a range of standard choices, submit a full set of choices for the material or product. Preliminary submittals will be reviewed and returned with the Engineer's mark indicating selection and other action.
 4. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation and similar characteristics, submit 3 sets; one will be returned marked with the action taken.
 5. Maintain sets of Samples, as returned, at the Project site, for quality comparisons throughout the course of construction.
 - a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
 - b. Sample sets may be used to obtain final acceptance of the construction Engineer with each set.
- B. Distribution of Samples: Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work. Show distribution on transmittal forms.
1. Field Samples specified in individual Sections are special types of Samples. Field Samples are full-size examples erected on site to illustrate finishes, coatings, or finish materials and to establish the standard by which the Work will be judged.
 - a. Comply with submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.

1.10 ENGINEER'S ACTION

- A. Except for submittals for record, information, or similar purposes, where action and return is required or requested, the Engineer will review each submittal, mark to indicate action taken, and return promptly.
1. Compliance with specified characteristics is the Contractor's responsibility.
- B. Action Stamp: The Engineer will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:
1. Final Unrestricted Release: Where submittals are marked "Accepted," that part of the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.
 2. Final-But-Restricted Release: When submittals are marked "Accepted as Noted," that part of the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.
 3. Returned for Resubmittal: When submittal is marked "Not Accepted, Revise and Resubmit," do not proceed with that part of the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark. Do not permit submittals marked "Not Accepted, Revise and

Resubmit" to be used at the Project site, or elsewhere where Work is in progress.

4. Other Action: Where a submittal is primarily for information or record purposes, special processing, or other activity, the submittal will be returned, marked "Action Not Required."

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 35 29

SAFETY, HEALTH AND ENVIRONMENT

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. References: In addition to publications referenced in the Construction Contract Clauses, the following Code of Federal Regulations (CFR) publications designate and define hazardous materials and conditions, and establish procedures for handling these materials and conditions. Omission of any publication in this section does not remove any obligation or legal requirement on the part of the contractor to comply with all legal requirements for the location of the work.

1. 29 CFR, Part 1910: Occupational Safety and Health Administration (OSHA) General Industry and Health Standards
2. 29 CFR, Part 1926: OSHA Construction Industry Standards.
3. 40 CFR, Part 61: National Emission Standards for Hazardous Air Pollutants.
4. 40 CFR, Part 261: Environmental Protection Agency (EPA) Characteristics of Hazardous Waste.
5. 40 CFR, Part 761: EPA Polychlorinated Biphenyls (PCBs), Manufacturing, Processing, Distribution in Commerce and Use Prohibitions
6. 40 CFR, Part 763: EPA Asbestos.
7. Federal Standards 313A: Material Safety Data Sheets, Preparation and the Submission of.
8. NIH DES Instruction 1340-7: Precautions and Procedures for Entering Manholes or Other Below Grade Confined Spaces.
9. NIH DCAB publication "Standards for Temporary Construction," March 1988.

- B. Related Sections: This specification section is related to any and all specification sections with explicit or implicit reference to cutting and patching. Specific submittal requirements of these related specification sections are not included in this section. Related sections include but are not limited to the following specification sections:

1. Division 1 Section 01 11 00 "Summary of Work"
2. Division 1 Section 01 22 00 "Unit Prices"
3. Division 1 Section 01 31 00 "Project Management and Coordination"
4. Division 1 Section 01 33 00 "Submittal Procedures"
5. Division 1 Section 01 42 19 "Reference Standards"
6. Division 1 Section 01 45 00 "Quality Control"
7. Division 1 Section 01 50 00 "Temporary Facilities"
8. Division 1 Section 01 60 00 "Product Requirements"
9. Division 1 Section 01 73 29 "Cutting and Patching"
10. Division 1 Section 01 77 00 "Closeout Procedures"
11. Division 1 Section 01 78 36 "Extended Guarantees"
12. Division 2 Section 02 41 16 "Selective Demolition"

- C. Hazardous Materials: Some hazardous and toxic materials and substances are included in 29 CFR Part 1910, subparts H and Z, and in 29 CFR Part 1926 and others additionally defined in Federal Standard 313A. Commonly encountered hazardous materials include but are not limited to asbestos, PCBs, explosives and radioactive material.
 - 1. Asbestos may be found in spray-on fireproofing, insulation, boiler lagging, pipe coverings and other materials. See Division 1 Section "Asbestos Abatement" for removal requirements.
 - 2. PCBs may be contained in ballasts, transformers, capacitors, voltage regulators, oil switches, mechanical insulation and other materials.
- D. Acquisition of Publications: Referenced CFR publications may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

1.03 SUBMITTALS

- A. Contractor's Safety and Health Program: The contractor shall submit a written copy of the Company Safety and Health Program as well as the site specific safety and health plan for the project to the Owner's Representative within 14 calendar days of the Notice to Proceed or before work commences on the project site, whichever is earlier.
- B. Accident Reports: The Contractor must submit to the Owner's Representative a written report within three calendar days of any accident, fire, emergency, theft or incident in which any personal or property damage took place, regardless of any other notifications performed. Include a copy of each accident report that is submitted by the Contractor or Subcontractors to their insurance carriers, within seven calendar days after the date of the accident.
- C. Material Safety Data Sheets (MSDS): The contractor shall provide the Material Safety Data Sheets (MSDS's) for all products containing hazardous chemicals to the Owner's Representative within 14 calendar days of the Notice to Proceed or before work commences on the site. The MSDS's shall be maintained at the project site for workers, Owner personnel and government officials. MSDS's for new products shall similarly be submitted to the Owner Representative and be retained at the project site until completion of the project.

1.04 PRECONSTRUCTION SAFETY MEETING

- A. Prior to commencing construction, representatives of the Contractor, including the general superintendent and one or more safety representatives, shall meet with the Owner's Representative for the purpose of reviewing Contract safety and health requirements.
 - 1. The Contractor's Safety and Health Program and Site Specific Safety and Health Plan shall be reviewed, and implementation of safety and health provisions pertinent to the Work shall be discussed.
 - 2. The Contractor shall be prepared to discuss, in detail, the Contractor's Site Specific Safety and Health Plan including measures intended to control any unsafe or unhealthy conditions associated with the work to be performed under the contract.
 - 3. This meeting may be held in conjunction with the preconstruction conference, if so directed by the Owner's Representative. The conduct of this meeting is not contingent upon a general preconstruction meeting.

4. The level of detail for the safety meeting is dependent upon the nature of the work and the potential inherent hazards.

1.05 COMPLIANCE WITH REGULATIONS

- A. The work, including contact with or handling of hazardous materials, disturbance or dismantling of surfaces containing hazardous materials, and disposal of hazardous materials, shall comply with the applicable requirements of 29 CFR Parts 1910 and 1926, and 40 CFR Parts 61, 261, 761 and 763.
- B. Work involving disturbance or dismantling of asbestos or asbestos containing materials, demolition of structures containing asbestos and removal of asbestos, shall comply with 40 CFR Part 61, Subparts A and M, and 40 CFR Part 763.
- C. Work shall additionally comply with all applicable state and local safety and health regulations.
- D. In case of a conflict between applicable regulations, the more stringent requirements shall apply.
- E. Contractor Responsibility: The Contractor shall assume full responsibility and liability for compliance with all applicable codes, standards and regulations pertaining to the health and safety of personnel during execution of the Work, and shall hold the Owner harmless for any action on the Contractor's part, or that of the Contractor's employees or subcontractors, that result in illness, injury or death.
 1. The Contractor shall have written safety and health programs in compliance with 29 CFR Parts 1910 and 1926.
 2. Inspections, Tests, and Reports: The required inspections, tests and reports made by the Contractor, subcontractors, specially trained technicians, equipment manufacturers, and others as required, shall be at the Contractor's expense.

1.06 USE OF EXPLOSIVES AND EXPLOSIVE ACTUATED FASTENING TOOLS

- A. Use of explosives shall be prohibited.
- B. Explosive actuated fastening tools (ex. nail guns, etc.) shall not be used or brought to the project site without the permission of the Owner's Representative, including a safety plan for the use of this equipment.

1.07 WORK UNDERGROUND OR IN CONFINED SPACES

- A. Work underground or in confined spaces shall comply with the NIH Division of Engineering Services Instruction Manual 1340-7, "Precautions and Procedures for Entering Manholes or Other Below Grade Confined Spaces" (DES INST 1340-7). A copy of the instruction may be obtained from the University's Office of Environmental Health and Safety on request.
- B. Work shall also comply with appropriate MSHA and OSHA regulations including but not limited to 29 CFR 1910.146 and COMAR 09.12.32B.
- C. The Contractor shall remove water and debris and properly vent manholes before commencement and during execution of work in manholes.

1.08 ELECTRICAL

- A. Electrical arc welding equipment shall not be connected to the building power supply.

1.09 MATERIAL DELIVERIES

- A. Whenever practicable, deliveries shall be made during regular working hours and only when the Contractor's representative is available to receive them. Deliver material in approved containers and with properly licensed vehicles and operators. Open delivery vehicles are not permitted. Deliver materials in fully closed vehicles or tarp-covered vehicles. All dump trucks shall be fully covered while in transport to and from the unloading site. All loads shall be securely fastened until unloading. Engines shall not be left running while vehicles are loading, unloading, waiting or parked. Do not block roads, walks, building entrances/exits, fire hydrants and standpipes, exterior tanks or building gas connections.

1.10 HAZARDOUS MATERIAL

- A. The Contractor shall bring to the attention of the Engineer and the Owner's Representative, any material encountered during execution of the Work that the Contractor suspects is hazardous. The Owner's Representative shall have the Office of Environmental Health and Safety perform tests to determine if the material is hazardous.
- B. If the tested material is found to be hazardous, and/or if additional protective measures are required, a change to the Contract price may be provided, subject to the applicable provisions of the Contract.

1.11 ADDITIONAL SAFETY REQUIREMENTS

- A. No work shall be performed in any area occupied by the public or Owner employees unless approved by the Owner.
 - 1. Accident Treatment and Records: The Contractor shall post emergency first aid information.
 - 2. No person, regardless of position or authority, shall operate any switch, valve, or equipment that has an official lockout/tag out tag attached to it, nor shall such tag be removed except as provided in this section.
 - 3. When work is to be performed on electrical circuits, the work shall be performed only by qualified personnel following the required safety procedures.
 - 4. Identification markings on building light and power distribution circuit breakers shall not be relied on for establishing safe work conditions.
 - 5. Before clearance will be given on any equipment other than electrical (generally referred to as mechanical apparatus), the apparatus, valves, or systems shall be secured in a passive condition with the appropriate vents, pins, and locks.
 - 6. Pressurized or vacuum systems shall be vented to relieve differential pressure completely.
 - 7. Vent valves shall be lockout/tag out tagged open during the course of the work.
 - 8. Where dangerous gas or fluid systems are involved, or in areas where the environment may be oxygen deficient, systems or areas shall be purged, ventilated, or otherwise made safe prior to entry.

1.12 PERSONNEL PROTECTIVE EQUIPMENT

- A. Special facilities, devices, equipment and similar items used by the Contractor in execution of the work shall comply with 29 CFR, Part 1910, Subpart 1 and other applicable regulations.

PART 2 – PRODUCTS

- 2.01 Safety and Health Programs: The Contractor shall submit copies of the written site specific project safety and health plan and emergency action procedures, as applicable to the work scope, as required as a result of the safety meeting, or as required by OSHA 29 CFR, Part 1926 including but not necessarily limited to the procedures and programs that support the requirements of the following:

- A. Designation of Safety Competent Person
- B. Occupational Noise Exposure
- C. Fall Protection
- D. Personnel Protective Equipment
- E. Control of Hazardous Energy
- F. Hazardous Materials Waste Management Plan (draft if final plan has not been accepted)
- G. Electrical Safety Related Work Practices
- H. Lead
- I. Asbestos
- J. Respirator Protection
- K. Confined spaces
- L. Emergency evacuation and reporting
- M. Hot Work

- 2.02 Contractor's Safety and Health Plan: In addition to specific safety and health programs applicable to the project, Contractor shall submit to the Owner a copy of the firms' general Safety and Health Plan listing emergency procedures and contact persons with home addresses and telephone numbers.

- 2.03 Permits: If hazardous materials are disposed of off-site, submit copies of shipping manifests and permits from applicable federal, state or local authorities and disposal facilities, and submit certificates that the material has been disposed of in accordance with regulations.

PART 3 – EXECUTION

3.01 EMERGENCY SUSPENSION OF WORK

- A. When the Contractor is notified by the Engineer or the Owner's Representative, of noncompliance with the safety or health provisions of the Contract, the Contractor shall immediately, unless otherwise instructed, correct the unsafe or unhealthy condition.
 - 1. If the Contractor fails to comply promptly, all or part of the work will be stopped by notice from the Engineer.
 - 2. When, in the opinion of and by notice given by the Engineer and or the Owner's Representative, satisfactory corrective action has been taken by the Contractor, work shall resume.
 - 3. The Contractor shall not be allowed any extension of time or compensation for damages in connection with a work stoppage for an unsafe or unhealthy condition.

3.02 PROTECTION OF PERSONNEL

- A. The Contractor shall take all necessary precautions to prevent injury to the public, occupants, or damage to property of others. The public and occupants includes all persons not employed by the Contractor or a subcontractor.
- B. Wherever practical, the work area shall be fenced, barricaded or otherwise blocked off from the public or occupants to prevent unauthorized entry into the work area.
 - 1. Provide traffic barricades and traffic control signage where construction activities occur in vehicular areas.
 - 2. Corridors, aisles, stairways, doors and exit ways shall not be obstructed or used in a manner to encroach upon routes of ingress or egress utilized by the public or occupants, or to present an unsafe or unhealthy condition to the public or occupants.
 - 3. Store, position and use equipment, tools, materials, scraps and trash in a manner that does not present a hazard to the public or occupants by accidental shifting, ignition or other hazardous activity.
 - 4. Store and transport refuse and debris in a manner to prevent unsafe and unhealthy conditions for the public and occupants. Cover refuse containers, and remove refuse on a frequent regular basis acceptable to the Owner's Representative. Use tarpaulins or other means to prevent loose transported materials from dropping from trucks.
- C. Alternate Precautions: When the nature of the work prevents isolation of the work area and the public or building occupants may be in or pass through, under or over the work area, alternate precautions such as the posting of signs, the use of signal persons, the erection of barricades or similar protection around particularly hazardous operations shall be used as appropriate.
- D. Public Thoroughfare: When work is to be performed over a public thoroughfare such as a sidewalk, roadway or other site access way, the thoroughfare shall be closed, if possible, or other precautions taken such as the installation of screens or barricades. When the exposure to heavy falling objects exists, as during the erection of building walls or during demolition, special protection of the type detailed in 29 CFR, Parts 1910 and 1926 shall be provided.

3.03 ENVIRONMENTAL PROTECTION

- A. Dispose of solid, liquid and gaseous contaminants in accordance with local codes, laws, ordinances and regulations.
- B. Comply with applicable federal, state and local noise control laws, ordinances and regulations, including but not limited to 29 CFR, Part 1910.95 and 29 CFR, Part 1926.52.

END OF SECTION

SECTION 01 42 19

REFERENCE STANDARDS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SPECIFICATION FORMAT AND CONTENT EXPLANATION

- A. Specification Format: These Specifications are organized into Divisions and Sections based on the Construction Specifications Institute's 2004 format.
- B. Specification Content: This Specification uses certain conventions in the use of language and the intended meaning of certain terms, words, and phrases when used in particular situations or circumstances. These conventions are explained as follows:
 - 1. Abbreviated Language: Language used in Specifications and other Contract Documents is the abbreviated type. Words and meanings shall be interpreted as appropriate. Words that are implied, but not stated shall be interpolated as the sense required. Singular words will be interpreted as plural and plural words interpreted as singular where applicable and the context of the Contract Documents so indicates.
 - 2. Imperative and streamlined language is used generally in the Specifications. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the text, for clarity, subjective language is used to describe responsibilities that must be fulfilled indirectly by the Contractor, or by others when so noted.
 - a. The words "shall be" shall be included by inference wherever a colon (:) is used within a sentence or phrase.

1.03 INDUSTRY STANDARDS

- A. Applicability of Standards: Except where the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with the standard in effect as of the date of the Contract Documents.
- C. Conflicting Requirements: Where compliance with two or more standards is specified, and the standards may establish different or conflicting requirements for minimum quantities or quality levels, refer requirements that are different, but apparently equal, and uncertainties to the Engineer for a decision before proceeding.
 - 1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. In complying with these requirements, indicated numeric values are

minimum or maximum, as appropriate for the context of the requirements. Refer uncertainties to the Engineer for a decision before proceeding.

- D. Copies of Standards: Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to that entity's construction activity. Copies of applicable standards are not bound with the Contract Documents.
1. Where copies of standards are needed for performance of a required construction activity, the Contractor shall obtain copies directly from the publication source.
- E. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where such acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards generating organization, authority having jurisdiction, or other entity applicable to the context of the text provision. Refer to the "Encyclopedia of Associations," published by Gale Research Co., available in most libraries.
- F. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. The following acronyms or abbreviations, as referenced in Contract Documents, are defined to mean the associated names. Names and addresses are subject to change and are believed to be, but are not assured to be, accurate and up to date as of date of Contract Documents.

AASHTO American Association of State Highway and Transportation Officials
444 North Capitol St., Suite 225
Washington, DC 20001
(202) 624-5800

ACI American Concrete Institute
P.O. Box 19150
Detroit, MI 48219
(313) 532-2600

ACIL American Council of Independent Laboratories
1725 K St., NW
Washington, DC 20006
(202) 887-5872

AI Asphalt Institute
P.O. Box 14052
Lexington, KY 40512
(606) 288-4960

AIA American Institute of Architects
1735 New York Ave., NW
Washington, DC 20006
(202) 626-7300

APA American Plywood Association
P.O. Box 11700
Tacoma, WA 98411
(206) 565-6600

ASC	Adhesive and Sealant Council 1627 K Street, NW, Suite 1000 Washington, DC 20006 (202) 452-1500
ASPE	American Society of Plumbing Engineers 3617 Thousand Oaks Blvd., Suite 210 Westlake, CA 91362 (805) 495-7120
ASTM	American Society for Testing and Materials 1916 Race St. Philadelphia, PA 19103 (215) 299-5400
AWS	American Welding Society 550 LeJeune Road, NW P.O. Box 351040 Miami, FL 33135 (305) 443-9353
BHMA	Builders' Hardware Manufacturers Association 355 Lexington Ave., 17th Floor New York, NY 10017 (212) 661-4261
BIA	Brick Institute of America 11490 Commerce Park Drive, Suite 300 Reston, VA 22091 (703) 620-0010
CRSI	Concrete Reinforcing Steel Institute 933 Plum Grove Rd. Schaumburg, IL 60173 (312) 517-1200
EJMA	Expansion Joint Manufacturers Association 25 N. Broadway Tarrytown, NY 10591 (914) 332-0040
HPMA	Hardwood Plywood Manufacturers Association 1825 Michael Farraday Drive P.O. Box 2789 Reston, VA 22090 (703) 435-2900
IEEE	Institute of Electrical and Electronic Engineers 345 E. 47th St. New York, NY 10017 (212) 705-7900

NAPA	National Asphalt Pavement Association Calvert Building, Suite 620 6811 Kenilworth Ave. Riverdale, MD 20737 (301) 779-4880
NCMA	National Concrete Masonry Association P.O. Box 781 Herndon, VA 22070 (703) 435-4900
NEC	National Electric Code (from NFPA)
NECA	National Electrical Contractors Association 7315 Wisconsin Ave. Bethesda, MD 20814 (301) 657-3110
NFPA	National Fire Protection Association One Batterymarch Park P.O. Box 9101 Quincy, MA 02269-9101 (617) 770-3000
NPCA	National Paint and Coatings Association 1500 Rhode Island Ave., NW Washington, DC 20005 (202) 462-6272
PCA	Portland Cement Assoc. 5420 Old Orchard Road Skokie, IL 60077 (312) 966-6200
PDI	Plumbing and Drainage Institute c/o Sol Baker 1106 W. 77th St., South Dr. Indianapolis, IN 46260 (317) 251-6970
RMA	Rubber Manufacturers Association 1400 K St., NW Washington DC 20005 (202) 682-4800
SSPC	Steel Structures Painting Council 4400 Fifth Ave. Pittsburgh, PA 15213 (412) 268-3327

WRI Wire Reinforcement Institute
1760 Reston Parkway, Suite 403
Reston, VA 22090
(703) 790-9790

- G. Federal Government Agencies: Names and titles of federal government standard or Specification producing agencies are often abbreviated. The following acronyms or abbreviations referenced in the Contract Documents indicate names of standard or Specification producing agencies of the federal government. Names and addresses are subject to change but are believed to be, but are not assured to be, accurate and up to date as of the date of the Contract Documents.

CE Corps of Engineers
(U.S. Department of the Army)
Chief of Engineers - Referral
Washington, DC 20314
(202) 272-0660

CFR Code of Federal Regulations
Available from the Government Printing Office
N. Capitol St. between G and H St. NW
Washington, DC 20402
(202) 783-3238
(Material is usually first published in the "Federal Register")

CPSC Consumer Product Safety Commission
5401 Westbard Ave.
Bethesda, MD 20816
(800) 638-2772

CS Commercial Standard
(U.S. Department of Commerce)
Government Printing Office
Washington, DC 20402
(202) 377-2000

DOC Department of Commerce
14th St. and Constitution Ave., NW
Washington, DC 20230
(202) 377-2000

DOT Department of Transportation
400 Seventh St., SW
Washington, DC 20590
(202) 366-4000

EPA Environmental Protection Agency
401 M St., SW
Washington, DC 20460
(202) 382-2090

FAA	Federal Aviation Administration (U.S. Department of Transportation) 800 Independence Ave., SW Washington, DC 20590 (202) 366-4000
NIST	National Institute of Standards and Technology (U.S. Department of Commerce) Gaithersburg, MD 20899 (301) 975-2000
OSHA	Occupational Safety and Health Administration (U.S. Department of Labor) Government Printing Office Washington, DC 20402 (202) 523-6091
PS	Product Standard of NBS (U.S. Department of Commerce) Government Printing Office Washington, DC 20402 (202) 783-3238

1.04 GOVERNING REGULATIONS/AUTHORITIES

- A. The Engineer has contacted authorities having jurisdiction where necessary to obtain information necessary for preparation of Contract Documents. Contact authorities having jurisdiction directly for information and decisions having a bearing on the Work.
- B. Copies of Regulations: Obtain copies of the applicable regulations and retain at the Project Site, available for reference by parties who have a reasonable need for such reference.

1.05 SUBMITTALS

- A. Permits, Licenses, and Certificates: For the Engineer's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence, and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 45 00

QUALITY CONTROL

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements for quality control services.
- B. Quality control services include inspections and tests and related actions including reports, performed by independent agencies, governing authorities, and the Contractor. They do not include contract enforcement activities performed by the Engineer.
- C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve the Contractor of responsibility for compliance with Contract Document requirements.
- D. Requirements of this Section relate to customized fabrication and installation procedures, not production of standard products.
 - 1. Specific quality control requirements for individual construction activities are specified in the Sections that specify those activities. Those requirements, including inspections and tests, cover production of standard products as well as customized fabrication and installation procedures.
 - 2. Inspections, testing, and related actions specified are not intended to limit the Contractor's quality control procedures that facilitate compliance with Contract Document requirements.
 - 3. Requirements for the Contractor to provide quality control services required by the Engineer, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.03 RESPONSIBILITIES

- A. Contractor Responsibilities: The Contractor shall provide inspections, tests and similar quality control services, specified in individual Specification Sections and required by governing authorities, except where they are specifically indicated to be the Owner's responsibility, or are provided by another identified entity; these services include those specified to be performed by an independent agency and not by the Contractor. Costs for these services shall be included in the Contract Sum.
 - 1. The Contractor shall employ and pay an independent agency, to perform specified quality control services.
 - 2. The Owner will engage and pay for the services of an independent agency to perform inspections and tests specified as the Owner's responsibilities.

- a. Where the Owner has engaged a testing agency or other entity for testing and inspection of a part of the Work, and if the Contractor is also required to engage an entity for the same or related element, the Contractor shall not employ the entity engaged by the Owner, unless otherwise agreed in writing with the Owner.
3. Retesting: The Contractor is responsible for retesting where results of required inspections, tests or similar services prove unsatisfactory and do not indicate compliance with Contract Document requirements, regardless of whether the original test was the Contractor's responsibility.
 - a. Cost of retesting construction revised or replaced by the Contractor is the Contractor's responsibility, where required tests were performed on original construction.
1. Associated Services: The Contractor shall cooperate with agencies performing required inspections, tests and similar services and provide reasonable auxiliary services as requested. Notify the agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include but are not limited to:
 - a. Providing access to the Work and furnishing labor and facilities necessary to facilitate inspections and tests.
 - b. Taking adequate quantities of representative samples of materials that require testing or assisting the agency in taking samples.
 - c. Providing facilities for storage and curing of test samples, and delivery of samples to testing laboratories.
 - d. Providing the agency with a preliminary design mix proposed for use for materials mixes that require control by the testing agency.
 - e. Security and protection of samples and test equipment at the Project site.
- B. Duties of the Testing Agency: The independent testing agency engaged to perform inspections, sampling and testing of materials and construction specified in individual Specification Sections shall cooperate with the Engineer and Contractor in performance of its duties, and shall provide qualified personnel to perform required inspections and tests.
 1. The agency shall notify the Owner, Engineer and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. The agency is not authorized to release, revoke, alter or enlarge requirements of the Contract Documents, or approve or accept any portion of the Work.
 3. The agency shall not perform any duties of the Contractor.
- C. Coordination: The Contractor and each agency engaged to perform inspections, tests and similar services shall coordinate the sequence of activities to accommodate required services with a minimum of delay. In addition the Contractor and each agency shall coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.
 1. The Contractor is responsible for scheduling times for inspections, tests, taking samples and similar activities.

1.04 SUBMITTALS:

- A. The independent testing agency shall submit a certified written report of each inspection, test or similar service, to the Engineer, Owner and Contractor.
 - 1. Report Data: Written reports of each inspection, test, or similar service shall include, but not be limited to:
 - a. Date of issue
 - b. Project title and number
 - c. Name, address, and telephone number of testing agency
 - d. Dates and locations of samples and tests or inspections
 - e. Names of individuals making the inspection or test
 - f. Designation of the Work and test method
 - g. Identification of product and Specification Section
 - h. Complete inspection or test data
 - i. Test results and interpretations of test results
 - j. Ambient conditions at the time of sample-taking and testing
 - k. Comments or professional opinion as to whether inspected or tested Work complies with Contract Document requirements.
 - l. Name and signature of laboratory inspector
 - m. Recommendations on retesting

1.05 QUALITY ASSURANCE

- A. Qualification for Service Agencies: Engage inspection and testing service agencies, including independent testing laboratories, which are prequalified as complying with "Recommended Requirements for Independent Laboratory Qualification" by the American Council of Independent Laboratories, and which specialize in the types of inspections and tests to be performed.
 - 1. Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the state where the work is to take place.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 REPAIR AND PROTECTION

- A. General: Upon completion of inspection, testing, sample-taking and similar services, repair damaged construction and restore substrates and finishes to eliminate deficiencies. Comply with Contract Document requirements for "Cutting and Patching."
- B. Protect construction exposed by or for quality control service activities, and protect repaired construction.
- C. Repair and protection is the Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing or similar services.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section specifies requirements for temporary services and facilities, including utilities, construction and support facilities, security and protection.
- B. Temporary utilities required include but are not limited to:
 - 1. Water service and distribution
 - 2. Temporary electric power and light
 - 3. Telephone service
- C. Temporary construction and support facilities required include but are not limited to:
 - 1. Temporary heat.
 - 2. Field offices and storage sheds.
 - 3. Sanitary facilities, including drinking water.
 - 4. Temporary enclosures.
 - 5. Temporary Project identification signs and bulletin boards.
 - 6. Waste disposal services.
 - 7. Rodent and pest control.
 - 8. Construction aids and miscellaneous services and facilities.
- D. Security and protection facilities required include but are not limited to:
 - 1. Temporary fire protection
 - 2. Barricades, warning signs, lights
 - 3. Sidewalk bridge or enclosure fence for the site
 - 4. Environmental protection

1.03 SUBMITTALS

- A. Temporary Utilities: Submit reports of tests, inspections, meter readings and similar procedures performed on temporary utilities.
- B. Implementation and Termination Schedule: Submit a schedule indicating implementation and termination of each temporary utility within 15 days of the date established for commencement of the Work.

1.04 QUALITY ASSURANCE

- A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to:

1. Building Code requirements
 2. Health and safety regulations
 3. Utility company regulations
 4. Police, Fire Department, and Rescue Squad rules
 5. Environmental protection regulations
- B. Standards: Comply with NFPA Code 241, "Building Construction and Demolition Operations", ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition", and NECA Electrical Design Library "Temporary Electrical Facilities."
1. Refer to "Guidelines for Bid Conditions for Temporary Job Utilities and Services", prepared jointly by AGC and ASC, for industry recommendations.
 2. Electrical Service: Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service in compliance with National Electric Code (NFPA 70).
- C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.05 PROJECT CONDITIONS

- A. Temporary Utilities: Prepare a schedule indicating dates for implementation and termination of each temporary utility. At the earliest feasible time, when acceptable to the Owner, change over from use of temporary service to use of the permanent service.
- B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities, or permit them to interfere with progress. Do not allow hazardous dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. General: Provide new materials; if acceptable to the Engineer, undamaged previously used materials in serviceable condition may be used. Provide materials suitable for the use intended.
- B. Lumber and Plywood:
1. For job-built temporary offices, shops and sheds within the construction area, provide UL labeled, fire treated lumber and plywood for framing, sheathing and siding.
 2. For signs and directory boards, provide exterior type, Grade B-B High Density Concrete Form Overlay Plywood conforming to PS-1, of sizes and thickness indicated.
 3. For fences and vision barriers, provide exterior type, minimum 3/8" thick plywood.
 4. For safety barriers, sidewalk bridges, and similar uses provide minimum 5/8" thick exterior plywood.
- C. Paint: Comply with requirements of Division-9 Section "Painting."

1. For job-built temporary offices, shops, sheds, fences and other exposed lumber and plywood, provide exterior grade acrylic-latex emulsion over exterior primer.
 2. For sign panels and applying graphics, provide exterior grade alkyd gloss enamel over exterior primer.
 3. For interior walls of temporary offices, provide two coats interior latex flat wall paint.
- D. Tarpaulins: Provide waterproof, fire-resistant, UL labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures provide translucent nylon reinforced laminated polyethylene or polyvinyl chloride fire retardant tarpaulins.
- E. Water: Provide potable water approved by local health authorities.
- F. Mesh Fencing: Provide heavy duty square mesh fencing with maximum 2" x 2" openings 6-feet high with galvanized steel pipe posts, 1-1/2" I.D. for line posts and 2-1/2" I.D. for corner posts. Secure opaque visual screen to entire length and height of fencing.

2.02 EQUIPMENT

- A. General: Provide new equipment; if acceptable to the Engineer, undamaged, previously used equipment in serviceable condition may be used. Provide equipment suitable for use intended.
- B. Water Hoses: Provide 3/4" heavy-duty, abrasion-resistant, flexible rubber hoses 100 ft. long, with pressure rating greater than the maximum pressure of the water distribution system; provide adjustable shut-off nozzles at hose discharge.
- C. Electrical Outlets: Provide properly configured NEMA polarized outlets to prevent insertion of 110-120 volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button and pilot light, for connection of power tools and equipment.
- D. Electrical Power Cords: Provide grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas where construction activities are in progress.
- E. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered glass enclosures, where exposed to breakage. Provide exterior fixtures where exposed to moisture.
- F. Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM or another recognized trade association related to the type of fuel being consumed.
- G. Temporary Offices: Provide prefabricated or mobile units or similar job-built construction with lockable entrances, operable windows and serviceable finishes. Provide heated and air-conditioned units on foundations adequate for normal loading.
- H. Temporary Toilet Units: Provide self-contained single-occupant toilet units of the chemical, aerated recirculation, or combustion type, properly vented and fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material.
- I. First Aid Supplies: Comply with governing regulations.
- J. Fire Extinguishers: Provide hand-carried, portable UL-rated, class "A" fire extinguishers for

temporary offices and similar spaces. In other locations provide hand-carried, portable, UL-rated, class "ABC" dry chemical extinguishers, or a combination of extinguishers of NFPA recommended classes for the exposures.

1. Comply with NFPA 10 and 241 for classification, extinguishing agent and size required by location and class of fire exposure.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed, or are replaced by authorized use of completed permanent facilities.

3.02 TEMPORARY UTILITY INSTALLATION

- A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where the company provides only part of the service, provide the remainder with matching, compatible materials and equipment; comply with the company's recommendations.
 1. Arrange with the company and existing users for a time when service can be interrupted, where necessary, to make connections for temporary services.
 2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
 3. Obtain easements to bring temporary utilities to the site, where the University's easements cannot be used for that purpose.
 4. Use Charges: Cost or use charges for temporary facilities are not chargeable to the Owner or Engineer, and will not be accepted as a basis of claims for a Change Order.
- B. Temporary Water Service: The contractor shall make arrangements with the Owner for temporary water from existing sources at the facility. The Contractor shall be responsible for all hoses, connections, etc., required from the point of water source at the facility. The water usage may be metered and billed to the Contractor. Contractor is responsible to contact Owner's utility services to set it up water usage.
- C. Temporary Electric Power Service: The Contractor shall make all arrangements for and shall install and pay for the temporary electric service. The Contractor shall furnish, install and maintain all temporary and power facilities required by the work. Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload protected disconnects, automatic ground-fault interrupters and main distribution switch gear.
 1. Power Distribution System: Install wiring overhead, and rise vertically where least exposed to damage. Where permitted, wiring circuits not exceeding 125 Volts, AC 20 ampere rating, and lighting circuits may be nonmetallic sheathed cable where overhead and exposed for

surveillance.

D. Temporary Lighting:

1. Install and operate temporary lighting that will fulfill security and protection requirements, without operating the entire system, and will provide adequate illumination for construction operations and traffic conditions.

E. Temporary Telephones: Provide temporary telephone service for all personnel engaged in construction activities, throughout the construction period. Install telephone on a separate line for each temporary office and first aid station. Where an office has more than two occupants, install a telephone for each additional occupant or pair of occupants.

1. At each telephone, post a list of important telephone numbers.

F. Sewers and Drainage: If sewers are available, provide temporary connections to remove effluent that can be discharged lawfully. If sewers are not available or cannot be used, provide drainage ditches, dry wells, stabilization ponds and similar facilities. If neither sewers nor drainage facilities can be lawfully used for discharge of effluent, provide containers to remove and dispose of effluent off the site in a lawful manner. Weekly EPA reports are required to be filed with FOD/EHS. All fines are the responsibility of the Contractor.

1. Filter out excessive amounts of soil, construction debris, chemicals, oils and similar contaminants that might clog sewers or pollute waterways before discharge.
2. Connect temporary sewers to the municipal system as directed by the sewer department officials.
3. Maintain temporary sewers and drainage facilities in a clean, sanitary condition. Following heavy use, restore normal conditions promptly.

G. Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of storm water from heavy rains.

3.03 TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES INSTALLATION

A. Locate storage sheds, sanitary facilities and other temporary construction and support facilities for easy access at locations approved by the University.

1. Maintain temporary construction and support facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the University.

B. Provide incombustible construction for offices, shops and sheds located within the construction area, or within 30 feet of building lines. Comply with requirements of NFPA 241.

C. Temporary Heat: Provide temporary heat required by construction activities, for curing or drying of completed installations or protection of installed construction from adverse effects of low temperatures or high humidity. Select safe equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce the ambient condition required and minimize consumption of energy.

D. Heating Facilities: Except where use of the permanent system is authorized, provide vented self-contained LP gas or fuel oil heaters with individual space thermostatic control.

1. Use of gasoline-burning space heaters, open flame, or salamander type heating units is prohibited.
- E. Field Offices: The Contractor will provide and pay for temporary offices of sufficient size to accommodate required office personnel at the Project site. Keep the office clean and orderly for use for small progress meetings.
- F. Storage and Fabrication Sheds: Install storage and fabrication sheds, sized, furnished and equipped to accommodate materials and equipment involved, including temporary utility service. Sheds may be open shelters or fully enclosed spaces within the building or elsewhere on the site as approved by the Owner.
- G. Sanitary facilities include temporary toilets, wash facilities and drinking water fixtures. Comply with regulations and health codes for the type, number, location, operation and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs.
 1. Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Provide covered waste containers for used material.
- H. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted.
- I. Drinking Water Facilities: Within temporary office, provide containerized tap-dispenser bottled-water type drinking water units, including paper supply.
- J. Temporary Enclosures: Provide temporary enclosure for protection of construction in progress and completed, from exposure, foul weather, other construction operations and similar activities.
 1. Where heat is needed and the permanent building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
 2. Install tarpaulins securely, with incombustible wood framing and other materials. Close openings of 25 square feet or less with plywood or similar materials.
 3. Where temporary wood or plywood enclosure exceeds 100 square feet in area, use UL-labeled fire-retardant treated material for framing and main sheathing.
- K. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F (27 deg C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material in a lawful manner.

3.04 PROTECTION FACILITIES INSTALLATION

- A. Temporary Fire Protection:
 1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell.

2. Store combustible materials in containers in fire-safe locations.
 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.
 4. Provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.
- B. Barricades, Warning Signs and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed provide lighting, including flashing red or amber lights.
- C. Security Enclosure and Lockup:
1. Storage: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.
- D. Environmental Protection: Provide protection, operate temporary facilities and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable effects might result. Avoid use of tools and equipment which produce harmful noise. Restrict use of noise making tools and equipment to hours that will minimize complaints from persons or firms near the site.

3.05 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation and similar facilities on a 24-hour day basis where required to achieve indicated results and to avoid possibility of damage.
 2. Protection: Prevent water filled piping from freezing.
- C. Termination and Removal: Unless the Owner requests that it be maintained longer, remove each temporary facility when the need has ended, or when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces and replace construction that cannot be satisfactorily repaired.
1. Materials and facilities that constitute temporary facilities are property of the Contractor.
 2. Where the area is intended for landscape development, remove soil and aggregate fill that does not comply with requirements for fill or subsoil in the area. Remove materials contaminated with substances which might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at the temporary entrances, as

required by the governing authority.

3. At Substantial Completion, clean and renovate permanent facilities that have been used during the construction period, including but not limited to:
 - a. Replace air filters and clean inside of ductwork and housings.
 - b. Replace significantly worn parts and parts that have been subject to unusual operating conditions.

END OF SECTION

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements governing the Contractor's selection of products for use in the Project.
- B. The Contractor's Construction Schedule and the Schedule of Submittals are included under Section "Submittals."
- C. Standards: Refer to Section "Reference Standards and Definitions" for applicability of industry standards to products specified.
- D. Administrative procedures for handling requests for substitutions made after award of the Contract are included under Section "Product Substitutions."

1.03 DEFINITIONS

- A. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms such are self-explanatory and have well recognized meanings in the construction industry.
 - 1. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. Note that some product specifications require job specific purchase of the materials versus use from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - a. "Named Products" are items identified by manufacturer's product name, including make or model designation, indicated in the manufacturers published product literature that is current as of the date of the Contract Documents.
 - 2. "Materials" are products that are substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
 - 3. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping.

1.04 SUBMITTALS

- A. Product List Schedule: Prepare a schedule showing products specified in a tabular form acceptable to the Engineer. Include generic names of products required. Include the manufacturer's name and proprietary product names for each item listed.

1. Coordinate the product list schedule with the Contractor's Construction Schedule and the Schedule of Submittals.
2. Form: Prepare the product listing schedule with information on each item tabulated under the following column headings:
 - a. Related Specification Section number
 - b. Generic name used in Contract Documents
 - c. Proprietary name, model number, and similar designations
 - d. Manufacturer's name and address
 - e. Supplier's name and address
 - f. Installer's name and address
 - g. Projected delivery date, or time span of delivery period
3. Initial Submittal: Within 30 days after date of commencement of the Work, submit 3 copies of an initial product list schedule. Provide a written explanation for omissions of data, and for known variations from Contract requirements.
 - a. At the Contractor's option, the initial submittal may be limited to product selections and designations that must be established early in the Contract period.
4. Completed Schedule: Within 60 days after date of commencement of the Work, submit 3 copies of the completed product list schedule. Provide a written explanation for omissions of data, and for known variations from Contract requirements.
5. Engineer's Action: The Engineer will respond in writing to the Contractor within 2 weeks of receipt of the completed product list schedule. No response within this time period constitutes no objection to listed manufacturers or products, but does not constitute a waiver of the requirement that products comply with Contract Documents. The Engineer's response will include the following:
 - a. A list of unacceptable product selections, containing a brief explanation of reasons for this action.

1.05 QUALITY ASSURANCE

- A. Source Limitations: To the fullest extent possible, provide products of the same kind, from a single source.
 1. When specified products are available only from sources that do not or cannot produce a quantity adequate to complete project requirements in a timely manner, consult with the Engineer for a determination of the most important product qualities before proceeding. Qualities may include attributes relating to visual appearance, strength, durability, or compatibility. When a determination has been made, select products from sources that produce products that possess these qualities, to the fullest extent possible.
- B. Compatibility of Options: When the Contractor is given the option of selecting between two or more products for use on the Project; the product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.06 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store and handle products in accordance with the manufacturer's recommendations, using

means and methods that will prevent damage, deterioration and loss, including theft.

1. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other losses.
3. Deliver products to the site in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.
4. Inspect products upon delivery to ensure compliance with the Contract Documents, and to ensure that products are undamaged and properly protected.
5. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.
6. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.
7. Store products subject to damage by the elements above ground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

PART 2 - PRODUCTS

2.01 PRODUCT SELECTION

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, unused at the time of installation.
 1. Provide products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.
 2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.
- B. Product Selection Procedures: Product selection is governed by the Contract Documents and governing regulations, not by previous Project experience. Procedures governing product selection include the following:
 1. Proprietary Specification Requirements: Where only a single product or manufacturer is named, provide the product indicated. No substitutions will be permitted.
 2. Semi-proprietary Specification Requirements: Where two or more products or manufacturers are named, provide one of the products indicated. No substitutions will be permitted.
 - a. Where products or manufacturers are specified by name, accompanied by the term "or equal," or "or approved equal" comply with the Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed

product.

3. Non-Proprietary Specifications: When the Specifications list products or manufacturers that are available and may be incorporated in the Work, but do not restrict the Contractor to use of these products only, the Contractor may propose any available product that complies with Contract requirements. Comply with Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.
4. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.
5. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product is specified for a specific application.
 - a. Manufacturer's recommendations may be contained in published product literature, or by the manufacturer's certification of performance.
6. Compliance with Standards, Codes, and Regulations: Where the Specifications only require compliance with an imposed code, standard or regulation, select a product that complies with the standards, codes or regulations specified.
7. Visual Matching: Where Specifications require matching an established Sample, the Engineer's decision will be final on whether a proposed product matches satisfactorily.
 - a. Where no product available within the specified category matches satisfactorily and also complies with other specified requirements, comply with provisions of the Contract Documents concerning "substitutions" for selection of a matching product in another product category, or for noncompliance with specified requirements.
8. Visual Selection: Where specified product requirements include the phrase "...as selected from manufacturer's standard colors, patterns, textures..." or a similar phrase, select a product and manufacturer that complies with other specified requirements. The Engineer will select the color, pattern and texture from the product line selected.
9. Allowances: Refer to individual Specification Sections and "Allowance" provisions in Division-1 for allowances that control product selection, and for procedures required for processing such selections.

PART 3 - EXECUTION

3.01 INSTALLATION OF PRODUCTS:

- A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated.
 1. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION

SECTION 01 73 29

CUTTING AND PATCHING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements for cutting and patching.
- B. Refer to other Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.
 - 1. Requirements of this Section apply to existing plumbing and electrical installations.
- C. Demolition of selected portions of the building for alterations is included in Section "Selective Demolition."

1.03 SUBMITTALS

- A. Cutting and Patching Proposal: Where approval of procedures for cutting and patching is required before proceeding, submit a proposal describing procedures well in advance of the time cutting and patching will be performed and request approval to proceed. Include the following information, as applicable, in the proposal:
 - 1. Describe the extent of cutting and patching required and how it is to be performed; indicate why it cannot be avoided.
 - 2. Describe anticipated results in terms of changes to existing construction; include changes to structural elements and operating components as well as changes in the structure's appearance and other significant visual elements.
 - 3. List products to be used and firms or entities that will perform Work.
 - 4. Indicate dates when cutting and patching is to be performed.
 - 5. List utilities that will be disturbed or affected, including those that will be relocated and those that will be temporarily out-of-service. Indicate how long service will be disrupted.
 - 6. Where cutting and patching involves addition of reinforcement to structural elements, submit details and Engineer's calculations to show how reinforcement is integrated with the original structure.
 - 7. Approval by the Engineer to proceed with cutting and patching does not waive the Engineer's right to later require complete removal and replacement of a part of the Work found to be unsatisfactory.

1.04 QUALITY ASSURANCE

- A. Requirements for Structural Work: Do not cut and patch structural elements in a manner that would reduce their load-carrying capacity or load-deflection ratio.
1. Obtain approval of the cutting and patching proposal before cutting and patching the following structural elements:
 - a. Foundation construction
 - b. Bearing and retaining walls
 - c. Structural concrete
 - d. Structural steel
 - e. Lintels
 - f. Timber and primary wood framing
 - g. Structural decking
 - h. Stair systems
 - i. Miscellaneous structural metals
 - j. Exterior curtain wall construction
 - k. Equipment supports
 - l. Piping, ductwork, vessels, and equipment
- B. Operational and Safety Limitations: Do not cut and patch operating elements or safety related components in a manner that would result in reducing their capacity to perform as intended, or result in increased maintenance, or decreased operational life or safety.
1. Obtain approval of the cutting and patching proposal before cutting and patching the following operating elements or safety related systems:
 - a. Shoring, bracing, and sheeting
 - b. Primary operational systems and equipment
 - c. Air or smoke barriers
 - d. Water, moisture, or vapor barriers
 - e. Membranes and flashings
 - f. Fire protection systems
 - g. Noise and vibration control elements and systems
 - h. Control systems
 - i. Communication systems
 - j. Conveying systems
 - k. Electrical wiring systems
- C. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces, in a manner that would, in the Engineer's opinion, reduce the building's aesthetic qualities, or result in visual evidence of cutting and patching. Remove and replace Work cut and patched in a visually unsatisfactory manner.
1. If possible retain the original installer or fabricator to cut and patch the following categories of exposed Work, or if it is not possible to engage the original installer or fabricator, engage another recognized experienced and specialized firm:
 - a. Processed concrete finishes.
 - b. Stonework and stone masonry.
 - c. Ornamental metal.
 - d. Matched-veneer woodwork.
 - e. Preformed metal panels.
 - f. Window wall system.

- g. Stucco and ornamental plaster.
- h. Acoustical ceilings.
- i. Terrazzo.
- j. Finished wood flooring.
- k. Fluid-applied flooring.
- l. Carpeting.
- m. Aggregate wall coating.
- n. Wall covering.
- o. Swimming pool finishes.
- p. HVAC enclosures, cabinets or covers.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Use materials that are identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials whose installed performance will equal or surpass that of existing materials.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Before cutting existing surfaces examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. Take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered.
 - 1. Before proceeding, meet at the site with parties involved in cutting and patching. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

3.02 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.
- C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Take all precautions necessary to avoid cutting existing pipe, conduit or ductwork serving the building, but scheduled to be removed or relocated until provisions have been made to bypass them.

3.03 PERFORMANCE

- A. General: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.
 - 1. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore

surfaces to their original condition.

- B. Cutting: Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible review proposed procedures with the original installer; comply with the original installer's recommendations.
 - 1. In general, where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots neatly to size required with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Cut through concrete and masonry using a cutting machine such as a carborundum saw or diamond core drill.
 - 4. Comply with requirements of applicable Sections of Division-2 where cutting and patching requires excavating and backfilling.
 - 5. By-pass utility services such as pipe or conduit, before cutting, where services are shown or required to be removed, relocated or abandoned. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.
- C. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.
 - 1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
 - 2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
 - 3. Where removal of walls or partitions extends one finished area into another, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary to achieve uniform color and appearance.
 - a. Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken containing the patch, after the patched area has received primer and second coat.
 - 4. Patch or repair existing ceilings as necessary to provide an even plane surface of uniform appearance.

3.04 CLEANING

- A. Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Restore damaged pipe covering to its original condition.

END OF SECTION

SECTION 01 77 00

CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements for project closeout, including but not limited to:
 - 1. Inspection procedures
 - 2. Project record document submittal
 - 3. Operating and maintenance manual submittal
 - 4. Submittal of warranties
 - 5. Final cleaning
- B. Closeout requirements for specific construction activities are included in the appropriate Sections.

1.03 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request.
 - 1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.
 - a. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.
 - 2. Advise Owner of pending insurance change-over requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents.
 - 4. Obtain and submit releases enabling the Owner unrestricted use of the Work and access to services and utilities; include occupancy permits, operating certificates, and similar releases.
 - 5. Submit record drawings, maintenance manuals, final project photographs, damage or settlement survey, property survey, and similar final record information.
 - 6. Deliver tools, spare parts, extra stock, and similar items.
 - 7. Make final change-over of permanent locks and transmit keys to the Owner. Advise the Owner's personnel of change-over in security provisions.

8. Complete start-up testing of systems, and instruction of the Owner's operating and maintenance personnel. Discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.
 9. Complete final clean up requirements, including touch-up painting. Touch-up and otherwise repair and restore marred exposed finishes.
- B. Inspection Procedures: On receipt of a request for inspection, the Engineer will either proceed with inspection or advise the Contractor of unfilled requirements. The Engineer will prepare the Certificate of Substantial Completion following inspection, or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.
1. The Engineer will repeat inspection when requested and assured that the Work has been substantially completed.
 2. Results of the completed inspection will form the basis of requirements for final acceptance.

1.04 FINAL ACCEPTANCE

- A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List any exceptions in the request.
1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
 2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
 3. Submit a certified copy of the Engineer's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance and the list has been endorsed and dated by the Engineer.
 4. Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Substantial Completion, or when the Owner took possession of and responsibility for corresponding elements of the Work.
 5. Submit consent of surety to final payment.
 6. Submit a final liquidated damages settlement statement.
 7. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Reinspection Procedure: The Engineer will reinspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Engineer.
1. Upon completion of reinspection, the Engineer will prepare a certificate of final acceptance, or advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.

2. If necessary, reinspection will be repeated.

1.05 RECORD DOCUMENT SUBMITTALS

- A. General: Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Engineer's reference during normal working hours.
- B. Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
 1. Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of the Work.
 2. Mark new information that is important to the Owner, but was not shown on Contract Drawings or Shop Drawings.
 3. Note related Change Order numbers where applicable.
 4. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates, and other identification on the cover of each set.
- C. Record Specifications: Maintain one complete copy of the Project Manual, including addenda, and one copy of other written construction documents such as Change Orders and modifications issued in printed form during construction. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information and Product Data.
 1. Upon completion of the Work, submit record Specifications to the Engineer for the Owner's records.
- D. Record Product Data: Maintain one copy of each Product Data submittal. Mark these documents to show significant variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the site, and from the manufacturer's installation instructions and recommendations. Give particular attention to concealed products and portions of the Work which cannot otherwise be readily discerned later by direct observation. Note related Change Orders and mark-up of record drawings and Specifications.
 1. Upon completion of mark-up, submit complete set of record Product Data to the Engineer for the Owner's records.
- E. Record Sample Submitted: Immediately prior to the date or dates of Substantial Completion, the Contractor will meet at the site with the Engineer and the Owner's personnel to determine which of the submitted Samples that have been maintained during progress of the Work are to be transmitted to the Owner for record purposes. Comply with delivery to the Owner's Sample storage area.
- F. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of

miscellaneous record-keeping and submittals in connection with actual performance of the Work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Engineer for the Owner's records.

- G. Maintenance Manuals: Organize operating and maintenance data into suitable sets of manageable size. Bind properly indexed data in individual heavy-duty 2-inch, 3-ring vinyl-covered binders, with pocket folders for folded sheet information – submit at least three copies. Mark appropriate identification on front and spine of each binder. Include the following types of information:

1. Emergency instructions
2. Spare parts list
3. Copies of warranties
4. Wiring diagrams
5. Recommended "turn around" cycles
6. Inspection procedures
7. Shop Drawings and Product Data
8. Fixture lamping schedule

- H. The Engineer will compile all Record Documents and submit to the Owner as one submittal. Record Documents will be in both electronic and hard copy format.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 CLOSEOUT PROCEDURES

- A. Operating and Maintenance Instructions: Arrange for each installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. If installers are not experienced in procedures, provide instruction by manufacturer's representatives. Include a detailed review of the following items:

1. Maintenance manuals
2. Record documents
3. Spare parts and materials
4. Tools
5. Lubricants
6. Fuels
7. Identification systems
8. Control sequences
9. Hazards
10. Cleaning
11. Warranties and bonds
12. Maintenance agreements and similar continuing commitments

- B. As part of instruction for operating equipment, demonstrate the following procedures:

1. Start-up
2. Shutdown
3. Emergency operations

4. Noise and vibration adjustments
5. Safety procedures
6. Economy and efficiency adjustments
7. Effective energy utilization

3.02 FINAL CLEANING

- A. General: General cleaning during construction is required by the General Conditions and included in Section "Temporary Facilities".
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion.
 1. Remove labels that are not permanent labels.
 2. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compound and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.
 3. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films, and similar foreign substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.
 4. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.
 5. Clean the site, including landscape development areas, of rubbish, litter and other foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.
- C. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.
- D. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.
 1. Where extra materials of value remaining after completion of associated Work have become the Owner's property, arrange for disposition of these materials as directed.

END OF SECTION

SECTION 01 78 36

EXTENDED GUARANTEES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section specifies general administrative and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturer's standard warranties on products and special warranties.
 - 1. Refer to the General Conditions for terms of the Contractor's special warranty of workmanship and materials.
 - 2. Specific requirements for warranties for the Work and products and installations that are specified to be warranted are included in the individual Sections of Divisions 2 through 9.
 - 3. Certifications and other commitments and agreements for continuing services to the Owner are specified elsewhere in the Contract Documents.
- B. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

1.03 DEFINITIONS

- A. Standard Product Warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.
- B. Special Warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

1.04 WARRANTY REQUIREMENTS

- A. Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.
- B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding; reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents.

The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.

- D. Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.
 - 1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.
- E. The Owner reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.

1.05 SUBMITTALS

- A. Submit written warranties to the Engineer prior to the date certified for Substantial Completion. If the Engineer's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Engineer.
 - 1. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Engineer within fifteen days of completion of that designated portion of the Work.
- B. When a special warranty is required to be executed by the Contractor, or the Contractor and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner through the Engineer for approval prior to final execution.
- C. Forms for special warranties are included at the end of this Section. Prepare a written document utilizing the appropriate form, ready for execution by the Contractor, or the Contractor and subcontractor, supplier or manufacturer. Submit a draft to the Owner through the Engineer for approval prior to final execution.
 - 1. Refer to individual Sections of Divisions 2 through 9 for specific content requirements, and particular requirements for submittal of special warranties.
- D. Form of Submittal: At Final Completion compile three copies of each required warranty and bond properly executed by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual.
- E. Bind warranties and bonds in heavy-duty, commercial quality, durable 3-ring vinyl covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2" by 11" paper.
 - 1. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address and telephone number of the installer.

2. Identify each binder on the front and the spine with the typed or printed title "WARRANTIES AND BONDS, the Project title or name, and the name of the Contractor.
3. When operating and maintenance manuals are required for warranted construction, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 SCHEDULE OF WARRANTIES

- A. Schedule: Provide warranties on products and installations as specified below:
 1. The General Contractor shall provide a 5-year warranty for all repairs performed to conform to the specifications in addition to specific warranties for individual products.

END OF SECTION

SECTION 02 41 16

SELECTIVE DEMOLITION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Description

1. Furnish labor, materials, equipment, and transportation necessary to do all concrete demolition, as shown on drawings and as specified herein, including but not necessarily limited to the following:
 - a. Removal of existing deteriorated concrete as directed by the Engineer.
 - b. Dust and water control.
 - c. Removal and disposal of all debris.
 - d. Disconnecting and relocating/reinstalling any existing utility lines on the site which interferes with the repairs.
 - e. Protection of all existing electrical systems, mechanical equipment, light fixtures, overhead piping, fire protection system etc. scheduled to remain.
2. Contractor shall provide barricades with warning lights, enclose the construction area and take all precautions necessary to ensure public and employee safety.
3. All work shall be done in accordance with the requirements of all local and state agencies.

B. Quality Assurance

1. Demolition Contractor's Qualifications: Minimum of 5 years experience on comparable projects.
2. Comply with all pertinent codes and regulations which apply to this type of work and with requirements of insurance carriers providing coverage for this work. Dispose of debris in a legal manner off site daily. Do not allow to accumulate on site.

C. Job Conditions

1. Dust and Water Control: Contractor shall contain particular debris generated by his work activities from polluting the atmosphere or waterways.
2. On-site burning shall not be permitted.
3. Use all means necessary to protect existing facilities, utilities, and appurtenances within the project areas.

1.03 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Submit schedule indicating proposed sequence of operations for selective demolition work to the Owner and Engineer for review prior to start of work. Include coordination for shutoff, capping, and continuation of utility services as required, together with details for dust and noise control protection.
 - 1. Provide detailed sequence of demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.
 - 2. Coordinate with Owner's continuing use of portions of existing building.
- C. Photographs of existing conditions of structure surfaces, equipment, and adjacent improvements that might be misconstrued as damage related to removal operations. File with Owner's Representative prior to start of work.

1.04 JOB CONDITIONS

- A. Occupancy: Conduct selective demolition work in manner that will minimize need for disruption of Owner's continuing operations. Provide minimum of 72 hours advance notice to Owner of demolition activities that will affect Owner's continuing operations.
- B. Condition of Structures: The Owner assumes no responsibility for actual condition of items or structures to be demolished.
 - 1. Conditions existing at time of inspection for bidding purposes will be maintained by the Owner insofar as practicable. However, minor variations within structure may occur prior to start of selective demolition work.
- C. Partial Demolition and Removal: Items indicated to be removed but of salvageable value to Contractor may be removed from structure as work progresses. Transport salvaged items from site as they are removed.
 - 1. Storage or sale of removed items on site will not be permitted.
- D. Protections: Provide temporary barricades and other forms of protection to protect the Owner's personnel and general public from injury due to selective demolition work.
 - 1. Provide protective measures as required to provide free and safe passage of Owner's personnel and general public to occupied portions of the project.
 - 2. Erect temporary covered passageways as required by authorities having jurisdiction.
 - 3. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished and adjacent facilities or work to remain.
 - 4. Protect from damage existing finish work that is to remain in place and becomes exposed during demolition operations.
 - 5. Protect floors with suitable coverings when necessary.

6. Construct temporary insulated dust resistant partitions where required separating areas where noisy or extensive dirt or dust operations are performed. Equip partitions with dust resistant doors and security locks.
 7. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces and installation of new construction to ensure that no water leakage or damage occurs to structure or interior areas of existing building.
 8. Remove protections at completion of work.
- E. Damages: Promptly repair damages caused to adjacent facilities by demolition work.
- F. Traffic: Conduct selective demolition operations and debris removal to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.
1. Do not close, block, or otherwise obstruct streets, walks, or other occupied or used facilities without written permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
- G. Flame Cutting: Do not use cutting torches for removal until work area is cleared of flammable materials. At concealed spaces, such as interior of ducts and pipe spaces, verify condition of hidden space before starting flame-cutting operations. Maintain portable fire suppression devices during flame-cutting operations.
- H. Utility Services: Maintain existing utilities in service and protect them against damage during demolition operations.
1. Do not interrupt utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities.
 2. Maintain fire protection services during selective demolition operations.
- I. Environmental Controls: Use water sprinkling, temporary enclosures, and other methods to limit dust and dirt migration. Comply with governing regulations pertaining to environmental protection.
1. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT

- A. Use appropriate materials and proper equipment to complete the work of this Section. Provide all necessary barricades, warning devices, enclosures, etc. as required to comply with governing safety regulations.

PART 3 - EXECUTION

3.01 PREPARATION

- A. General: Provide interior and exterior shoring, bracing, or support to prevent movement,

settlement, or collapse of areas to be demolished and adjacent facilities to remain.

1. Cease operations and notify Owner's Representative immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations.
 2. Cover and protect equipment and fixtures from soilage or damage when demolition work is performed in areas where such items have not been removed.
 3. Erect and maintain dust resistant partitions and closures as required to prevent spread of dust or fumes to occupied portions of the building.
 - a. Where selective demolition occurs immediately adjacent to occupied portions of the building or temporary passageways, drive aisles, and parking spaces, construct dust resistant partitions of minimum 4-inch studs and ½-inch fire-retardant plywood on demolition side.
 - b. Provide weatherproof closures for exterior openings resulting from demolition work.
 4. Locate, identify, stub off, and disconnect utility services that are not indicated to remain due to abandonment or new system installation.
- B. Provide bypass connections as necessary to maintain continuity of service to occupied areas of building. Provide minimum of 72 hours advance notice to Owner if shutdown of service is necessary during demolition or changeover.

3.02 DEMOLITION

- A. General: Perform selective demolition work in a systematic manner. Use such methods as required to complete work indicated on Drawings in accordance with demolition schedule and governing regulations.
1. Demolish concrete in small sections. Cut concrete and masonry at junctures with construction to remain using power-driven masonry saw or hand tools; do not use power-driven impact tools.
 2. Locate demolition equipment throughout structure and promptly remove debris to avoid imposing excessive loads on supporting walls, floors, or framing.
 3. Provide services for effective air and water pollution controls as required by local authorities having jurisdiction.
- B. If unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit a report to the Engineer, written in accurate detail. Pending receipt of a directive from the Engineer, rearrange selective demolition schedule as necessary to continue overall job progress without undue delay.

3.03 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove from site debris, rubbish, and other materials resulting from demolition operations. Transport and legally dispose off site.

1. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.
2. Burning of removed materials is not permitted on project site.

3.04 CLEANUP AND REPAIR

- A. General: Upon completion of demolition work, remove tools, equipment, and demolished materials from site.
 1. Repair demolition performed in excess of that required. Return elements of construction and surfaces to remain to condition existing prior to start operations. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

END OF SECTION

SECTION 03 10 00

CONCRETE FORMWORK

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide formwork for concrete repairs as indicated on the Drawings and specified herein.
- B. Work includes formwork and shoring for concrete repairs, and installation into formwork of items such as anchor bolts, anchorages, inserts, and other items to be embedded in concrete.

1.02 QUALITY ASSURANCE

- A. Reference Standards:
 - 1. American Concrete Institute (ACI):
347: Recommended Practice for Concrete Formwork
 - 2. American National Standards Institute (ANSI):
A199: Construction and Industrial Plywood
- B. Allowable Tolerances:
 - 1. Construction formwork to provide completed cast-in-place concrete structures complying with the tolerances specified in ACI 347.
 - 2. Before concrete placement check the lines and levels of erected formwork. Make corrections and adjustments to ensure proper size and locations of concrete members and stability of forming systems.
 - 3. During concrete placement check formwork and related supports to ensure that forms are not displaced and that completed work will be within specified tolerances.

1.03 SUBMITTALS

- A. Manufacturer's Data:
 - 1. Submit manufacturer's data and installation instructions for materials including form coatings, manufactured form systems, ties and accessories.
- B. Shop Drawings:
 - 1. Submit shop drawings for fabrication and erection of formwork for finished concrete surfaces. Show the general construction of forms including jointing, special formed joints for reveals, location and pattern of form tie placement, and other items which affect the exposed concrete visually.
 - 2. Design of formwork & shoring for structural stability and sufficiency is the Contractor's responsibility.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Forms for Exposed Finish Concrete:

1. Unless otherwise shown or specified, construct formwork for exposed concrete surfaces with plywood, metal, metal-framed plywood-faced or other panel type materials acceptable to the Engineer, to provide continuous, straight, smooth as-cast surfaces. Furnish in largest practicable sizes to minimize number of joints. Forms shall be mortar-tight, sufficiently rigid to prevent distortion due to the wet concrete mix and other loads incident to construction operations, including vibration, and so constructed and maintained to prevent warping and opening of the joints due to shrinkage of the form material. Molding strips shall be placed in the corners of forms so as to produce beveled edges on permanently exposed concrete corners.
 - a. Plywood Forms: Use overlaid plywood complying with ANSI A 199.1, B-High Density Concrete Form Overlay, Class I.

B. Forms for Concrete Not Exposed:

1. Form concrete surfaces which will not be exposed in the finished structure with plywood, lumber, metal, or other acceptable material. Use lumber that is dressed on at least 2 edges and 1 side for tight fit.

C. Form Ties:

1. Use factory-fabricated, adjustable-length, removable or snap off metal form ties, designed to prevent form deflection, and to prevent spalling concrete surfaces upon removal.
2. Unless otherwise shown, use ties so that portion remaining within concrete after removal of exterior parts is at least 1 inch from the outer concrete surface. Unless otherwise shown, use form ties which will not leave a hole larger than 1 inch diameter in the concrete surface.
3. For exposed finish concrete, use plastic cones and coil ties where indicated on the drawings.

D. Forms Coating:

1. Use commercial formulation form-coating compounds that will not bond with, stain, nor adversely affect concrete surfaces, and will not impair subsequent treatment of concrete surfaces requiring bond or adhesion, nor impede the wetting of surfaces to be cured with water or curing compounds.
 - a. Coat forms for exposed finish concrete with a co-polymer resin compound equal to nox-Crete "Pre-Form" Concrete Form Sealer.
 - b. Provide a release agent equal to Nox-Crete "Form Coating".

E. Metal Inserts:

1. Use metal insets for anchorage of materials or equipment to concrete construction as required for the work.

2. Use threaded inserts of malleable cast iron, furnished complete with full-depth bolts; 3/4 inch bolt size, unless otherwise shown.

2.02 DESIGN OF FORMWORK

- A. Design, erect, support, brace, and maintain formwork so that it will safely support vertical and lateral loads that might be applied, until such loads can be supported by the concrete structure. Carry vertical and lateral loads to ground by formwork system and in place construction that has attained adequate strength for that purpose.
- B. Support form facing materials by structural members spaced sufficiently close to prevent deflection. Fit forms placed in successive units for continuous surfaces to accurate alignment, free from irregularities and within allowable tolerances.
- C. Design formwork to be readily removable without impact, shock, or damage to cast-in-place concrete surfaces and adjacent materials.
- D. Use shores and struts with positive means of adjustment capable of taking up formwork settlement during concrete placing operations, using wedges or jacks or a combination thereof. Use trussed supports when adequate foundations for shores and struts cannot be secured.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Examine the conditions under which concrete formwork is to be erected. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 FORM CONSTRUCTION

- A. Construct forms to be the exact sizes, shapes, lines and dimensions shown, and as required to obtain accurate alignment, location, grades, levels, and plumb work in finish structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustifications, reglets, chamfers, blocking screeds, bulkheads, anchorage's and inserts, and other features required. Use selected materials to obtain required finishes.
- B. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Use crush plates or wrecking plates where stripping may damage cast concrete surfaces. Kerf wood inserts for forming keyways, reglets, recesses, and the like, to prevent swelling and assure ease of removal.
- C. Provide temporary openings where interior area of formwork is inaccessible for clean out, for inspection before concrete placement, and for placement of concrete. Brace temporary closures and set tightly to forms to prevent loss of concrete mortar. Locate temporary openings on forms in as inconspicuous location as possible; consistent with project requirements.
- D. Construct formwork sufficiently tight to prevent leakage of cement paste during concrete placement. Solidly butt joints and provide backup material at joints as required to prevent leakage and fins.
- E. Falsework:
 1. Erect falsework and support, brace, and maintain it to safely support vertical, lateral,

and asymmetrical loads applied until such loads can be supported by in-place concrete structures. Construct falsework so that adjustments can be made for take-up and settlement.

2. Use wedges, jacks or camber strips to facilitate vertical adjustments. Carefully inspect falsework and formwork during and after concrete placement operations to determine abnormal deflection or signs of failure; make necessary adjustments to produce work of required dimensions.

F. Forms for Exposed Concrete:

1. Drill forms to suit ties used and to prevent leakage of concrete mortar around tie holes. Do not splinter forms by driving ties through improperly prepared holes.
2. Do not use metal cover plates for patching holes or defects in forms.
3. Provide chamfered corners at intersecting planes, without visible edges or offsets. Back joints with extra studs or girts to maintain true, intersections.
4. Use extra studs, walers, and bracing to prevent bowing of forms between studs and to avoid bowed appearance in concrete.
5. Place ties and spreaders symmetrically in plumb tiers and level rows.
6. Place pouring strips in the forms wherever horizontal construction joints are made.
7. Assemble forms so they may be readily removed without damage to exposed concrete surfaces.
8. Form molding shapes, recesses and projections with smooth-finish materials, and install in forms with sealed joints to prevent displacement.

G. Corner Treatment:

1. Form exposed corners to produce smooth, solid, unbroken lines, except as otherwise shown.
2. Form chamfers with 3/4 inch x 3/4 inch strips unless otherwise noted. Extend terminal edges to required limit and miter chamfer strips at changes in direction.
3. Unexposed corners may be formed either square or chamfered.

H. Edge Forms and Screed Strips for Slabs: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in the finished slab surface. Provide and secure units to support types of screeds required.

I. Provision for Other Trades: Provide openings in concrete formwork to accommodate work of others. Accurately place and securely support items to be built into forms.

J. Cleaning and Tightening:

1. Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, or other debris just before concrete is to be placed. Retighten forms immediately after concrete placement as required to eliminate mortar leaks.

3.03 FORM COATINGS

- A. Apply coating to form surfaces, for exposed finish concrete, with form coating compound to provide a smooth glossy form surface. Apply material and cure panels in compliance with manufacturer's instructions.
- B. Prior to each concrete pour, treat form surfaces with a suitable release agent. Do not allow excess material to accumulate in the forms or to come into contact with surfaces which will be bonded to fresh concrete.

3.04 INSTALLATION OF EMBEDDED ITEMS

- A. General: Set and build into the work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of the items to be attached thereto.

3.05 SHORES AND RESHORES

- A. Comply with ACI 347 for shoring and reshoring in multistory construction, and as herein specified.
- B. Space out shoring in such a manner that no floor or member will be excessively loaded or will induce stress in concrete members where no reinforcing steel is provided. Extend shores beyond minimums if required to ensure the proper distribution of loads throughout the structure.
- C. Remove shores and reshore in a planned sequence to avoid damage to partially cured concrete. Locate and provide adequate reshoring to safely support the work without excessive stress or deflection.

3.06 REMOVAL OF FORMS

- A. Formwork not supporting concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50 degrees F. for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operation, and provided that curing and protection operations are maintained.
- B. Formwork supporting weight of concrete, such as beam soffits, roof slabs and other structural elements shall not be removed until concrete has attained a minimum compressive strength of 4,000 psi or 80% of its design compressive strength.

3.07 RE-USE OF FORMS

- A. Clean and repair surfaces of forms to be re-used in the work. Split, frayed, delaminated, or otherwise damaged form facing material will not be acceptable. Apply new form coating compound material to concrete contact surfaces as specified for new formwork.
- B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close all joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces, except as acceptable to the Engineer.

END OF SECTION

SECTION 03 20 00

CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 DESCRIPTION

- A. Furnish, fabricate and install reinforcement and associated items required or indicated on the drawings for concrete repairs, including, but not necessarily limited to, conventional and epoxy-coated bars, welded wire fabric, ties, and supports.

1.03 WORK SPECIFIED ELSEWHERE

- A. Furnishing and placement of inserts, anchorages, and other embedded items as specified in other sections.

1.04 QUALITY ASSURANCE

- A. Unless otherwise shown or specified, fabrication and placement of all concrete reinforcement and related items shall conform to the following codes and standards:
 - 1. American Concrete Institute, ACI 318, "Building Code Requirements for Reinforced Concrete."
 - 2. American Concrete Institute, ACI 315, "Manual of Standard Practice for Detailing Reinforced Concrete Structures."
 - 3. Concrete Reinforcing Steel Institute, "Manual of Standard Practice."

1.05 SUBMITTALS

- A. Shop Drawings: Submit shop drawings for fabrication, bending, and placement of concrete reinforcement. Comply with the ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures." Show bar schedule, stirrup spacing, diagrams of bent bars, arrangements, and assemblies, for the fabrication and placement of concrete reinforcement.

1.06 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver reinforcement to the Project Site bundled, tagged, and marked. Use metal tags indicating bar size, lengths, and other information corresponding to markings shown on placement diagrams.

Protection: Use all means necessary to protect concrete reinforcement before, during, and after installation and to protect the materials and installed work of all trades. Take all necessary precautions to maintain identification of fabricated bars after bundles are broken.

Storage: Store concrete reinforcement materials at the site to prevent damage and accumulation of

dirt or excessive rust. Epoxy-coated reinforcing bars shall be stored on protective cribbing.

Epoxy-coated reinforcing bars: Coating damage due to handling, shipment and placing need not be repaired where the damaged area is 0.1 square inches or smaller; damaged areas larger than 0.1 square inches shall be repaired with Section 2.01 C; the maximum amount of damage including repaired and unrepaired areas shall not exceed 2 percent of the surface area of each bar.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Reinforcing Bars: ASTM A615, Grade 60, deformed.
- B. Weldable Reinforcing Bars: ASTM A706, Grade 60, deformed.
- C. Welded Wire Fabric: ASTM A82 and ASTM A185.
- D. Epoxy-Coated Reinforcing Bars: ASTM A775. When required, damaged epoxy coating shall be repaired with patching material conforming to ASTM A775 and done in accordance with the material manufacturer's recommendations. Reinforcing bars to be coated shall conform to Section 2.01-A.
- E. Bar Supports: Bar supports and spacing of same shall be per recommendations set forth by Chapter 3 of the "CRSI Manual of Standard Practice." Epoxy coated reinforcing bars supported from formwork shall rest on coated wire bar supports, or on bar supports made of dielectric material or other acceptable materials. Wire bar supports shall be coated with dielectric material, compatible with concrete, for a minimum distance of 2 inches from the point of contact with epoxy-coated reinforcing bars. Reinforcing bars used as support bars shall be epoxy-coated.
- F. Tie Wire: Wire shall be 16 gauge or heavier, black-annealed. Epoxy-coated reinforcing bars shall be tied with plastic coated, epoxy coated, or nylon-coated tie wire or other acceptable materials.
- G. For reinforcing steel dowels, use the "Hilti HIT Injection Adhesive Anchor System" supplied by Hilti Fastening Systems, or approved equal. Follow manufacturer's directions for installation and required surface preparation.

2.02 FABRICATION

- A. General Requirements: Fabricate reinforcing bars to conform to required shapes and dimensions, with fabrication to tolerances complying with CRSI Manual of Standard Practice. In case of fabricating errors, do not rebend or straighten reinforcement in a manner that will injure or weaken the material.
- B. Unacceptable Workmanship: Reinforcement with any of the following defects will not be permitted in the work:
 - 1. Bar lengths, depths, and bends exceeding specified fabrication tolerances.
 - 2. Bends or kinks not indicated on drawings or final shop drawings.
 - 3. Bars with reduced cross-section due to excessive rusting or other cause.
- C. When epoxy-coated reinforcing bars are cut in the field, the ends of the bars shall be coated with the same material used for repair of coating damage.

PART 3 - EXECUTION

3.01 PLACING REINFORCEMENT

A. General Requirements:

1. All reinforcing bars shall be placed in accordance with CRSI "Recommended Practice for Placing Reinforcing Bars."
2. Bars shall be placed to the tolerance specified in ACI 318.
3. Place all reinforcement according to the approved placement drawings. Use sufficient bar supports, tie anchors, additional reinforcing bars, if required, and other accessories to hold all bars securely in place.

B. Concrete Coverage: Place reinforcement to obtain the minimum coverages specified on the drawings for concrete protection. Arrange, space, and securely tie bars and bar supports together with 16 gauge wire to hold reinforcement accurately in position during concrete placement operation. Set wire ties so that twisted ends are directed away from exposed concrete surfaces.

C. Cleaning Reinforcement: Steel reinforcement, at the time concrete is placed around it, shall be free from loose rust and mill scale, oil, grease, paint, earth, ice and all coatings, which would reduce or destroy bond between steel and concrete. Clean reinforcement as necessary prior to, during, or after placement to achieve this result. When bars project from construction joints, all cement mortar clinging to the bars from previous concreting shall be removed before the ensuing enveloping concrete is placed.

3.02 REINFORCING BAR LAP SPLICES

- A.** New slab reinforcing bars may be spliced to existing bars by lapped splices if adequate lengths of exposed existing bars are available. Provide reinforcement lap splices by placing bars in contact and tying with wire tightly. Comply with the requirements of ACI 318, latest edition, for minimum required length of bar for lap splices. Alternatively, the contractor can follow the values provided below for lap splice lengths based on the following guidelines:

LAP SPLICE LENGTHS FOR BARS IN TENSION (IN INCHES)

<u>Bar Size</u>	<u>Uncoated Reinforcement</u>	<u>Epoxy-Coated Reinforcement</u>
3	17	25
4	22	33
5	28	41
6	33	50
7	48	72
8	55	83
9	62	93

Note: 1. Based on Class B splice = $1.3 l_d$ (l_d = tensile development length)
Normal weight concrete
 f'_c = 5,000 psi min.
Grade 60 reinforcement

Note: 2. Lap splice lengths for epoxy-coated steel based on clear concrete cover equal to or

greater than 1 bar diameter and clear spacing between bars equal to or greater than 2 bar diameters.

- B. Do not make splices at points of maximum stress if possible. Consult Engineer if needed to determine best possible splice locations.
- C. Stagger all splices, and in horizontal wall reinforcement separate at least five feet longitudinally in alternate bars of opposite tiers.
- D. Stubs and dowels required to receive and engage subsequent work shall extend a sufficient length to develop the strength of the bar according to the table in section 3.02.A. Place dowel and stub bars in the forms and secure against displacement during the placing of concrete. Where stub steel and dowels extend through construction joints in walls, they shall be thoroughly cleaned of adhering particles of concrete, before continuing the placing of any subsequent concrete.
- E. Where development length is insufficient, either additional concrete removal or mechanical bar splicing shall be implemented at the direction of the Engineer.

3.03 REINFORCING BAR MECHANICAL SPLICES

- A. Bars to be spliced by the mechanical splicing process shall be free of paint, oil, rust, scale or other foreign material. The splice shall be done in accordance with the manufacturer's recommendations which shall be submitted to the Engineer for approval.

The mechanical splice shall meet full tension requirement of 100% of the yield strength (fy). The mechanical splices shall be performed using the Quick Wedge system manufactured by Erico Products, Inc. (800)248-2677, MBT Bar Lock System (800) 755-4888, or approved equal.

Test assemblies shall include the same bars, couplers and anchors. The same equipment shall be used to make these assemblies as to be used on the project.

- B. Unskilled operators must be trained and indoctrinated by an authorized representative of the system manufacturer. Upon satisfactory completion of the training, a certificate will be issued by the system manufacturer to show the splicer's name, badge, number/Social Security Number and date certified.
- C. Test splices should be made on the size, type and grade of rebar to be used in production. If a change of size, type of grade or rebar occurs, new test results should be obtained.

Minimum rebar deformation heights and spacing within the splice must conform to the requirements of ASTM A625, or ASTM A706 as appropriate. If minimum deformation heights and spacing requirements cannot be satisfied, the system's manufacturer may at its option offer and get an approval for alternate splicing procedure to meet the specified splicing strength requirements.

- D. The frequency of test splices shall be as follows:

First Fifty (50) - One Test

Next Fifty (50) - One Test

Thereafter, every one hundred (100) - One Test

The test splice shall be a SISTER SPLICE (removable splice made in-place and in sequence adjacent to production splices by the same operator and under same conditions.)

- E. If any splice used for testing fails to meet the design code strength requirements, two splices in-place shall be cut from the previous lot and tested. If these sister splices fail, the contractor shall at his

own expense, test as many splices as directed by the Engineer and re-splice all test and failed splices.

END OF SECTION

SECTION 03 24 00

FIBROUS REINFORCEMENT IN CONCRETE

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SCOPE OF WORK

- A. All concrete work used in this project shall be fiber reinforced as specified herein.

1.03 STANDARDS

A. Testing:

- 1. Slump - Perform conventional slump test in accordance with ASTM C143 prior to adding the fibrous reinforcement.
- 2. Test Specimens - Fiber-reinforced concrete test specimens prepared for quality control/material acceptance shall be vibrated externally as opposed to internal rodding per the recommendations of ACI 544.

B. Submittals:

- 1. Sufficient data shall be submitted verifying all fibrous reinforcement physical properties as specified in Section 2.01.C inert polypropylene, twisted fibrillated bundles, length, specific gravity, modulus of elasticity, tensile strength as well as volume used as specified.
- 2. Acceptable submittals shall be manufacturer's Sweets Engineering Catalogue and/or C.S.I. Spec-Data covering all data as specified.

C. Acceptable Manufacturers:

- 1. "FORTA CR" as manufactured by the FORTA Corporation.
- 2. "MasterFiber F 100" as manufactured by Master Builders Solutions.
- 3. "Grace Microfiber" as manufactured by Grace Construction Products.

PART 2 - PRODUCTS

2.01 MATERIAL

- A. General Description - Synthetic fibrous reinforcement shall be used as secondary/temperature reinforcement in the Portland cement concrete.
- B. Areas of Use - Fibrous reinforcement to be used in new ready-mixed concrete.

C. Physical Properties

1. Chemical: Fibrous reinforcement shall be chemically and alkali inert, virgin polypropylene.
2. Configuration: Fibrous reinforcement shall be in collated fibrillated (connected screen) form and also in twisted bundle form.
3. Length: The fibrous bundle length shall be a minimum of 0.75".
4. Specific Gravity: 0.91
5. Modulus of Elasticity: 0.70E6 psi
6. Tensile Strength: 70,000 psi minimum

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Volume - The fibrous reinforcement shall be used at the rate of 1.5 pounds (minimum) per cubic yard of concrete.
- B. Addition and Mixing - The fibrous reinforcement shall be added directly into the concrete either at the batch plant or at the job site. If added at the batch plant with the aggregates, typically no additional site mixing time is required. If a superplasticizer is used, the fibrous reinforcement shall be added first. If the mixing drum contains less than 50% of capacity (i.e. 4 cubic yards in a 10 cubic yard capacity drum), back the concrete up to the top of discharge and empty the fibrous reinforcement directly on top of the concrete before mixing.
- C. Placement - Fibrous reinforced concrete shall be moved and placed per standard ACI recommendations. Tined rakes are prohibited as a means of moving the fibrous concrete.
- D. Finishing - Standard ACI recommended finishing practices apply for fibrous concrete with the following additional considerations:
 1. Hard-Trowel Finish - Avoid Wood trowels and floats which are abrasive to the surface - use steel/magnesium tools.
 2. Textured Finish - use stiff-bristled broom (bristles stiffer than the fibers themselves) and brush in only one direction.
 3. Cure and joint properly per ACI standard recommendations.
- E. It should be noted that fibrous reinforced concrete bleeds less and slightly slower than unreinforced concrete which should be considered during the finishing process.

END OF SECTION

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section specifies cast-in-place concrete, including formwork, mix design, placement procedures, and finishes.

1.03 SCOPE OF WORK

- A. This work shall consist of full/partial depth removal of concrete slabs at locations indicated on the drawings using approved methods. New, low water-cementitious materials ratio, fiber-reinforced, air-entrained structural concrete is to be placed according to the Specifications.

1.04 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for proprietary materials and items, including forming accessories, admixtures, patching compounds, bonding grout/agent, joint systems, curing compounds, and others as requested by the Engineer.
- C. The Contractor shall submit trial mix proportion with compressive strength test results to the Engineer for approval.
- D. The Testing Agency shall submit test results of cylinders for each day's testing.
- E. The Contractor shall submit the proposed pouring sequence and construction joint layout for approval by the Engineer.
- F. Minutes of pre-construction conference.

1.05 QUALITY ASSURANCE

- A. Codes and Standards: Comply with provisions of following codes, specifications, and standards, except where more stringent requirements are shown or specified:
 - 1. ACI 318, "Building Code Requirements for Structural Concrete," or AASHTO specifications.
- B. Materials and installed work may require testing and retesting at any time during progress of work. Retesting of rejected materials for installed work, shall be done at Contractor's expense.
- C. Pre-Construction Conference: Conduct conference at Project site to comply with requirements of Division 1 Section 01 33 00 – Submittal Procedures, and Section 01 45 00 - Quality Control.

- D. At the onset of the project start or at least 30 days prior to the first concrete pour, the contractor shall conduct a meeting to review the proposed mix designs and to discuss the required methods and procedures necessary to achieve the required concrete quality. The meeting will review requirements for submittals, status of coordinating work, and availability of materials. It will also establish preliminary work progress schedule and procedures for materials inspection, testing, and certifications. Representatives of each entity directly concerned with cast-in-place concrete should attend the meeting, including, but not limited to, the following:

1. Contractor's superintendent
2. Laboratory responsible for concrete design mixes
3. Laboratory responsible for field quality control
4. Ready-mix concrete producer
5. Concrete subcontractor, if any
6. Primary admixture manufacturers
7. Engineer or Owner's representative

The minutes shall include a statement by the concrete contractor indicating that the proposed mix design and placing techniques will produce the concrete quality required by these specifications.

- E. Placement of concrete during cold weather is to be in accordance with the latest version ACI 306. Cold weather concreting is required when a period for more than three successive days the average daily air temperature drops below 40 degrees Fahrenheit and stays below 50 degrees Fahrenheit for more than one-half of any 24 hour period.

1.06 APPLICATOR'S QUALIFICATIONS

- A. The Contractor shall have a minimum of five years of experience in performing work similar to that shown in the drawings and specifications.
- B. The Contractor may be requested to submit a list of five projects in which similar work to that specified was successfully completed. This list shall contain the following for each of the five projects.
1. Project Name
 2. Owner of Project
 3. Owner's Representative, Address and Telephone Number
 4. Brief Description of Work
 5. Cost of Portion of Work Similar to that Specified in this Section
 6. Total Restoration Cost of Project
 7. Date of Completion

PART 2 - PRODUCTS

2.01 FORM MATERIALS

- A. Forms for Exposed Finish Concrete: N/A
- B. 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.
- C. Form Coatings: Provide commercial formulation form-coating compounds that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete

surfaces.

- D. 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 1-1/2 inches to exposed surface.

1. Provide ties that, when removed, will leave holes not larger than 1-inch diameter in concrete surface.

2.02 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, Type I, non air-entraining, of recent manufacture and free of lumps.

1. Use one brand of cement throughout project unless otherwise acceptable to Engineer.
2. Pozzolanic materials (fly ash or slag) may be substituted for a portion of the cement when reviewed and approved by the Engineer or Owner's representative. Submittals must indicate testing to prove its suitability in combination with the intended cement and aggregate.
3. Additional, sustained moist curing of the concrete is required when pozzolans are used.

- B. Normal Weight Aggregates: ASTM C-33 and as herein specified. Provide aggregates from a single source for exposed concrete. Coarse aggregates shall be clean, sound crushed stone or crushed gravel. Maximum size of coarse aggregate shall be 3/4 inch. No chert shall be permitted.

- C. Water: Potable water.

- D. Sand: ASTM C-33. Sand shall be clean and sharp.

- E. Admixtures, General: Provide admixtures for concrete that are free from chloride ions.

- F. Air-Entraining Admixture: ASTM C-260, certified by manufacturer to be compatible with other required admixtures.

1. Available Products: Subject to compliance with requirements, products that may be incorporated in the work include, but are not limited to, the following:

2. Products: Subject to compliance with requirements, provide one of the following:

- a. "Air-Mix" or "AEA-92," Euclid Chemical Co.
- b. "Darex AEA" or "Daravair," W.R. Grace & Co.
- c. "MB-VR" or "Micro-Air," Master Builders, Inc.
- d. "Sealtight AEA," W.R. Meadows, Inc.
- e. "Sika AER," Sika Corp.

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

1. Available Products: Subject to compliance with requirements, products that may be incorporated in the work include, but are not limited to, the following:

2. Products: Subject to compliance with requirements, provide one of the following:

- a. "Eucon WR-75," "WAR-91" or "Eucon MR," Euclid Chemical Co.

- b. "WRDA with Hycol," or "Daracem 65," W.R. Grace & Co.
 - c. "Pozzolith 322" or "Polyheed 997," Master Builders, Inc.
 - d. "Plastocrete 161," Sika Corp.
- H. High-Range Water-Reducing Admixture (Super Plasticizer):
ASTM C 494, Type F or Type G.
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated in the work include, but are not limited to, the following:
 - 2. Products: Subject to compliance with requirements, provide one of the following:
 - a. "Eucon 37," "Eucon 1037," or "Plastol 5000," Euclid Chemical Co.
 - b. "Rheobuild 1000," Master Builders, Inc.
 - d. "Sikament 300," Sika Corp.
- I. Water-Reducing, Retarding Admixture: ASTM C 494, Type D.
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated in the work include, but are not limited to, the following:
 - 2. Products: Subject to compliance with requirements, provide one of the following:
 - a. "Eucon Retarder 75," Euclid Chemical Co.
 - b. "Daratard-17," W.R. Grace & Co.
 - d. "Pozzolith 100XR," Master Builders, Inc.
 - e. "Plastiment," Sika Corporation.
- J. Certification: Written conformance to the above-mentioned requirements and the chloride ion content of admixtures will be required from the admixture manufacturer prior to mix design review by the Associate.
- K. Fibrous Reinforcement:
 - 1. Subject to compliance with requirements, provide fibrous reinforcement as per specification Section 03 24 00.

2.03 RELATED MATERIALS

- A. Reglets: Where resilient or elastomeric sheet flashing or bituminous membranes are terminated in reglets, fill reglet or cover face opening to prevent intrusion of concrete or debris.
- B. Moisture-Retaining Cover: Burlap and plastic complying with ASTM C 171.
- C. Moist Curing: Curing shall be accomplished by wet curing only. A curing membrane shall only be used in floor areas if approved in writing by the Engineer or Owner's representative.
- D. Liquid Curing and Sealing Compound (VOC compliant, 350 g/l): The compound shall have 30% solids content minimum and will have a maximum moisture loss of 0.039 grams/sq. cm. when applied at a coverage rate of 250 sq. ft./gallon. Product shall be "Super Aqua-Cure VOX," or "Super Diamond Clear VOX" by the Euclid Chemical Co.

or

Curing and Sealing Compound (VOC compliant, 700 g/l): Liquid type membrane-forming curing compound, clear styrene acrylate type, complying with ASTM C1315, Type I, Class B, 25% solids content minimum. Moisture loss shall be not more than 0.30 Kg/sq. m. when applied at 300 sq. ft./gal. Manufacturer's certification is required. Subject to project requirements provide one of the following products: "Super Rez Seal" by the Euclid Chemical Company, "Masterseal 30" by Master Builders or "Kure N Seal 30" by Sonneborn.

2.04 PROPORTIONING AND DESIGN OF MIXES

- A. Prepare design mixes for concrete by laboratory trial batch or field experience methods as specified in ACI 301, Section 4.2.3. Use an independent testing facility acceptable to the Engineer for preparing and reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing.
- B. Submit written reports to the Engineer of each proposed mix at least 15 days prior to start of work. Do not begin concrete production until proposed mix designs have been reviewed and approved by the Engineer. All mix designs shall be submitted on a Mix Design Submittal Form.
- C. Design mix to provide structural concrete with the following properties;
 - 1. 5000-psi, 28-day compressive strength, structural normal or lightweight (to match existing concrete); W/C ratio, 0.38 maximum; fiber reinforcement as per Section 03 24 00.

2.05 ADMIXTURES

- A. Use high-range water-reducing admixture (Superplasticizer) in concrete for placement and workability.
- B. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having total air content of 6.0% with a tolerance of plus or minus 1.0 percent.
- C. Use admixtures for water reduction and set control in strict compliance with manufacturer's directions.
- D. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:
 - 1. 3" $\pm$ ½" prior to addition of superplasticizing admixture.
 - 2. Not more than 8" final slump after addition of superplasticizing admixture.

2.06 CONCRETE MIXING

- A. Provide batch ticket for each batch discharged and used in work, indicating project identification name and number, date, mix type, mix time, quantity, and amount of water introduced.
- B. Ready-Mix Concrete: Comply with requirements of ASTM C 94, and as specified.
 - 1. When air temperature is between 85 deg F (30 deg C) and 90 deg F (32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.01. PREPARATION

- A. Remove concrete members as indicated on the drawing. The removal of concrete shall be performed using approved methods and prepare the concrete surfaces to receive new concrete as shown on plans and as directed by the Engineer in the field.

3.02 FORMS

A. General:

1. The Contractor shall submit detailed drawings for form work for examination by the Engineer. If such drawings are not satisfactory to the Engineer, the Contractor shall make such changes in them as may be required, but it is understood that the Engineer's examination of the drawings as submitted or corrected shall in no way relieve the Contractor of responsibility for obtaining satisfactory results.
2. All forms shall be so constructed and maintained that the finished concrete will be true to line and grade and of the shape and dimensions shown on the Plans. The forms shall be constructed so that they can be removed without injury to the concrete.
3. Forms shall be mortar-tight, sufficiently rigid to prevent distortion due to the wet concrete mix and other loads incident to construction operations, including vibration, and so constructed and maintained to prevent warping and opening of the joints due to shrinkage of the form material. Molding strips shall be placed in the corners of forms so as to produce beveled edges on permanently exposed concrete corners.
4. The interior of forms shall be treated with non-staining form oil before concrete is placed to prevent adhesion of the concrete to the form.
5. All lumber in contact with concrete shall be free from knot holes, loose knots, cracks, splits, warps or any other defects which would mark the appearance of the finished structure. Any lumber which had defects affecting its strength shall not be used.
6. In designing forms, concrete shall be considered as a liquid weighing 150 pounds per cubic foot for vertical loads and for computing the hydrostatic head for horizontal pressure. In addition, a live load allowance of 50 pounds per square foot shall be used on horizontal projections of surfaces. Forms shall be designed so that no member will develop a dead load deflection of more than 1/270th of the span.
7. Spreader blocks and non "stay-in-place" bracing shall be removed from forms before concrete is placed. In no case, shall any portion of wood be left in the concrete.

B. Forms for Permanently Exposed Surfaces:

1. Forms for concrete surfaces that will be permanently exposed to view shall be constructed of plywood or of metal panels. Wood or metal linings for forms shall be of such kind and quality, or shall be so treated or coated, that there will be no chemical deterioration or discoloration of the formed concrete surface. The type and condition of form linings, and the construction of the forms, shall be such that form surfaces will be even and uniform.
2. Plywood sheets less than five-eighth inch in thickness shall be placed against a solid wood backing of three-quarter inch sheathing. Plywood sheets five-eighth inch or more in

thickness may be used without backing, provided the forms are constructed to withstand pressure developed during placing of concrete without producing visible waviness between studs. Plywood sheets shall be placed so that joints are tight and with the long dimension horizontal.

3. Metal for forms shall be of such thickness that the forms will remain true to shape. Clamps, pins, or other connecting devices shall be such that they will hold the forms rigidly together in place and allow removal without injury to the concrete. Metal forms which do not present a smooth surface or line up properly shall not be used. All metal forms shall be kept free from rust, grease, or other foreign material which would discolor the concrete.
4. Form panels, either of wood or metal, shall be constructed and assembled so as to result in tight joints between the panels.

C. Form Anchorage:

1. Forms shall be securely tied together with approved rods, and braced in a substantial and unyielding manner. In general, tie rods shall be designed to also act as struts or spreader. Wood struts will not be permitted to remain in the concrete.
2. For concrete surfaces that will be permanently exposed to view, metal ties or anchorages within the forms shall be constructed so as to permit their removal to a depth of at least one and one-half inches from the face without injury to the concrete. The cavities on both sides of the concrete resulting from the removal of the end of form ties shall be filled with dry-pack Portland cement mortar having the same proportions of cement and sand as the mortar in the body of the concrete. The surface of the filling shall be left sound, smooth and, even and shall match, insofar as practicable, the color of the adjacent concrete.
3. Devices which, when removed, will leave an opening entirely through the concrete will not be permitted. Wire ties shall not be used. Any parts of metal supports or spacers for reinforcement that are left in place within one and one-half inches of an exposed surface of the concrete shall be of non-rusting metal or have a non-rusting coating. If such parts are galvanized, the weight of zinc coating shall average not less than two ounces per square foot of actual surface.

D. Inspection of Forms:

1. All dimensions of forms in place shall be carefully checked before concrete is placed. Immediately prior to placing concrete, any warpings or bulging shall be corrected and all dirt, sawdust, shavings, or other debris removed. In narrow walls where the bottom of the forms are otherwise inaccessible, the lower boards or panels shall be left loose on the back side so that extraneous material can be removed just prior to placing concrete.
2. If during placing of the concrete, the forms show signs of bulging or sagging, they shall be properly realigned and securely braced, and, if necessary to make proper correction, the portion of the concrete affected shall be removed.
3. When forms are unsatisfactory in any way, either before or during the placing of concrete, the placing shall be suspended until the defects are corrected.
4. If the forms develop any defects, such as bulging, sagging, leakage or irregular surfaces after the concrete has been poured, that portion of the work shall be removed, reconstructed or repaired as directed by the Engineer without additional compensation to the Contractor.

3.03 PLACING FINISHING AND CURING

A. Bonding Grout:

1. After the existing concrete surface has been cleaned, it shall be uniformly saturated by pre-wetting for 2 hours minimum. Surface must be wet to saturated surface dry (SSD) condition, and any freestanding water shall be completely removed prior to placing the bonding grout. Immediately before placing concrete, a thin coating of bonding grout shall be scrubbed into the properly prepared surface of the existing concrete. Proper workmanship shall be exercised to insure that all existing surfaces receive a thorough, even coating and that no excess grout is permitted to collect in pockets. The rate of progress in applying grout shall be limited so that the grout does not become dry before it is covered with new concrete.
2. Bonding grout for patching concrete to existing concrete shall consist of equal parts by weight of Portland cement and sand mixed in a portable mechanical mixer with sufficient water to form a stiff slurry. The consistency of this slurry shall be such that it can be applied with a stiff brush or broom to the old concrete in a thin, even coating that will not run or puddle in low spots.
3. Should the bonding grout dry before the concrete is placed, the Contractor will remove the dried grout and sandblast clean the grouted surface, at his expense, before placing fresh bonding grout.

B. Placing and finishing: After the bonding grout has been applied, concrete shall be placed, consolidated by vibration, and shall be finished by screening and bull floating to bring the finished surface to specified elevation. The surface shall then receive a light broom finish, as directed by the Engineer. The reinforcing steel shall have a minimum concrete cover as required by ACI 318 or as shown on plans. The finished concrete shall be suitably protected, until the completion of the required curing period. Provide tooled joints between new and existing concrete surfaces.

C. Curing: The recommendations of ACI 308 Standard Practice for Curing Concrete shall be followed. When water is required to wet the surface of the newly placed concrete, it shall be applied as a fine spray so that it will not mark or pond on the surface. Except where otherwise specified, the curing period shall be at least 72 hours. If high early strength concrete is approved by the Engineer, the curing period may be reduced as directed by the Engineer. If fly ash or slag is approved in the mix by the Engineer, the curing time will be extended. Curing shall be accomplished by wet curing only. The curing and sealing compound shall only be used on floor and slab areas approved by the Engineer.

1. The surface of the newly poured concrete shall be covered with wetted burlap as soon as the concrete has hardened sufficiently to prevent marring of the surface. The burlap shall overlap six inches. At least two layers of wetted burlap shall be placed on the finished surface. The burlap shall be kept saturated by means of a mechanically operated sprinkling system. In place of the sprinkling system, two layers of burlap may be substituted for one layer of burlap and impermeable covering.

The burlap sheets shall be placed so that they are in contact with the vertical faces of concrete slabs after removal of slab forms, and that portion of the material in contact with those faces shall be kept saturated with water.

2. Membrane Curing Method. Membrane curing will not be permitted unless approved in writing by the Engineer. Concrete at these locations shall be cured by another method as specified above.

After the concrete has been finished, the surface shall be cured with the specified curing compound. The seal shall be maintained for the specified curing period. The vertical faces of concrete slabs shall, likewise, be sealed immediately after the forms are removed. This high solids curing and sealing compound shall be applied at a maximum coverage rate of 250 square feet per gallon. These applications shall be made with mechanical equipment.

At locations where the coating is discontinuous or where pin holes show or where the coating is damaged due to any cause and on areas adjacent to sawed joints, immediately after sawing is completed, an additional coating of membrane curing compound shall be applied at the rate of one gallon per 250 square feet.

3. The Engineer may order curing by another method specified herein if unsatisfactory results are obtained with a curing compound. Prior to starting The Work, the Contractor shall have available, at the site of The Work, supply of one of the other approved curing materials sufficient for curing one day's production.
4. The Contractor's construction operations including the management of traffic, shall be such as to avoid damage to the coatings of curing compound for period of not less than the curing period specified. Any curing compound that is damaged or that peels from the concrete surface within the curing period specified shall be repaired by the Contractor without delay and in an approved manner. No additional compensation will be allowed to the Contractor for performance of this work.

3.04 REMOVAL OF FORMS

- A. General: Formwork may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 72 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form-removal operations, and provided curing and protection operations are maintained.

3.05 REUSE OF FORMS

- A. Clean and repair surfaces of forms to be reused 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.
- B. 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.

3.06 CONCRETE SURFACE REPAIRS

- A. Patching Defective Areas: Repair and patch defective areas with bonding grout or proprietary repair products immediately after removal of forms, when acceptable to Engineer.
 1. Cut out honeycomb, rock pockets, voids over 1/4 inch in any dimension, and holes left by tie rods and bolts, down to solid concrete but in no case to a depth of less than 1 inch. Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and brush-coat the area to be patched with specified bonding agent. Place patching mortar before bonding grout has dried.
 2. For exposed-to-view surfaces, blend white Portland cement and standard Portland cement so that, when dry, patching mortar will match surface texture of surrounding concrete. Provide test areas at inconspicuous location to verify mixture and color match before

proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.

- B. Repair of Concrete Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Engineer. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets, fins and other projections on surface, and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes, fill with dry-pack mortar, or precast cement cone plugs secured in place with bonding agent.
 - 1. Repair concealed formed surfaces, where possible, that contain defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.

3.07 QUALITY CONTROL TESTING DURING CONSTRUCTION

- A. General: The Contractor will employ and pay for a testing laboratory to perform tests and to submit test reports.
- B. Sampling and testing for quality control during placement of concrete may include the following, as directed by Engineer.
- C. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.
 - 1. Slump: ASTM C 143; one test at point of discharge for each truck delivering the concrete; additional tests when concrete consistency seems to have changed.
 - 2. Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231 pressure method for normal weight concrete; one for each truck of air-entrained concrete.
 - 3. Concrete Temperature: Test hourly when air temperature is 40 deg F (4 deg C) and below, when 80 deg F (27 deg C) and above, and each time a set of compression test specimens is made.
 - 4. Compression Test Specimen: ASTM C 31; one set of 6 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory-cured test specimens except when field-cure test specimens are required.
 - 5. Compressive Strength Tests: ASTM C 39; one set for each day's pour plus additional sets for every 50 cu. yds. after the first 25 cu. yds. of each concrete class placed in any one day; one specimen tested at 3 days, two specimen tested at 7 days, 2 specimens tested at 28 days, and one specimen retained in reserve for later testing if required.
 - 6. When frequency of testing will provide fewer than 5 strength tests for a given class of concrete, conduct testing from at least 5 randomly selected batches or from each batch if fewer than 5 are used.
 - 7. When total quantity of a given class of concrete is less than 50 cu. yds., Engineer may waive strength test if adequate evidence of satisfactory strength is provided.
 - 8. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.
 - 9. Strength level of concrete will be considered satisfactory if averages of sets of three

consecutive strength test results equal or exceed specified compressive strength, and no individual strength test result falls below specified compressive strength by more than 500 psi.

- D. Test results will be reported in writing to the Engineer, Ready-Mix Producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for 7-day tests and 28-day tests.
- E. Nondestructive 3-day Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.
- F. Additional Tests: The testing service will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Engineer. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed. Contractor shall pay for such tests when unacceptable concrete is verified.

END OF SECTION

SECTION 03 30 20

CONCRETE REPAIR USING FAST SET MATERIALS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SCOPE OF WORK

- A. This work shall consist of the removal of existing delaminated concrete and the installation of a fast-setting, high-strength concrete at locations to be re-opened to traffic the following morning or designated by the Engineer. Materials in this specification may also be appropriate when the scope of concrete work is limited and it is not practical to use ready-mixed concrete.

1.03 QUALITY ASSURANCE

- A. Placement of concrete during cold weather is to be in accordance with the latest version ACI 306. Cold weather concreting is required when a period for more than three successive days the average daily air temperature drops below 40 degrees Fahrenheit and stays below 50 degrees Fahrenheit for more than one-half of any 24 hour period.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. The fast-setting concrete repairs must achieve a compressive strength of 3,500 psi within 3 hours.
- B. The concrete shall resist freeze/thaw damage and scaling in compliance with ASTM Test Procedures C-666 and C-672. The products approved under this section shall be:
 - 1) "SikaEmaco 1060 or 1061" as manufactured by Sika Corporation (800) 933-7452.
 - 2) "SikaQuick 1000 or 2500" as manufactured by Sika Corporation (800) 933-7452.
 - 3) "Planitop 18, 18 TG, or 18 ES" as manufactured by Mapei (888) 876-2734.

PART 3 - EXECUTION

3.01 SURFACE PREPARATION

- A. The exact location of spalled concrete to be repaired will be determined in the field by tapping of slab with a sounding rod, chain drag or hammer. An outline of the area to be repaired will be marked with chalk.
- B. The areas of the spalled concrete to be removed will be outlined by making a sawcut around the perimeter of the spalled area. The minimum depth of sawcut shall be 1/2 inch. Do not, under any circumstances, cut existing reinforcing bars.

- C. All loose unsound concrete shall be removed with pneumatic or electric jack hammer weighing no more than 15 lbs. may be used for removing concrete around mild steel reinforcement. Where unsound concrete is below reinforcement, removal to 3/4 inch below reinforcement is required.
- D. All deteriorated reinforcing steel bars which have lost more than 20% (or more) of their cross-sectional areas or selected by the Engineer shall be replaced. New reinforcing steel bars shall be furnished and placed in accordance with Section 03200 of the technical specifications and under the directions of the Engineer.
- E. The deck surface shall be blown clean with compressed air to assure that all loose or hollow concrete is removed. The reinforcing steel shall be sand blasted to remove all rust.

3.02 PLACING, FINISHING AND CURING

- A. Place and properly mixed concrete into the prepared area from one side to the other. Do not place concrete in lifts. Work the material firmly into the bottom and sides of the patch to assure good bond. Do not retemper or finish material after initial set.
- B. For maximum performance and minimal shrinkage, wet curing shall be performed for a minimum of 3 hours followed by the application of an approved curing compound.

3.03 TESTING:

- A. A qualified testing laboratory will be retained to inspect the work. All costs associated with testing agency will be paid by the Contractor. The services of the testing laboratory will include any portion of the Contractor's work plus the following:

Neat Placed Material

- 1. Cast five 2" cubes for each test of all other proprietary products used. **NOTE: Brass cube molds must be utilized for all sampling meeting ASTM C109 requirements – plastic molds and inserts are prohibited.**
- 2. One set of cubes shall be taken for the first batch (20 c.f. or less) plus an additional set for every 20 c.f. after the first batch, or one every fourth batch (20 c.f. or less) which every yields more tests. At a minimum, test samples shall be taken for each day of placement.
- 3. Test one cube at one day, one cube at three days, one cube at seven days, one at 28 days, and keep one as a reserve.
- 4. Furnish all molds, labor, materials, and equipment necessary to complete testing specified herein.
- 5. Use applicable procedures:

Compression test sampling: ASTM C172
Making and curing specimens: ASTM C31
Testing of cubes: ASTM C109
Slump test: ASTM C143
Air content: ASTM C173
Testing of cylinders: ASTM C39.

6. Submit certified reports on the same day that tests are made. The reports shall include the description of the mix tested, location of the pour, weather conditions, other pertinent data, and any non-compliance with project requirements. Provide copies of the reports to the Owner, the Engineer, the Contractor, and the concrete supplier.
7. All testing is to meet or exceed properties (compressive strength, perm value, etc.) listed in the manufacturer's Technical Data sheet (including compressive strength values for 1 day, 3 day, 7 day, 28 day, etc.).

Extended/Pre-Extended Material

1. Cast five 3" x 6" cylinders for each test of all other proprietary products used. **NOTE: All sampling shall meet ASTM C39 requirements.**
 2. One set of cylinders shall be taken for the first batch (20 c.f. or less) plus an additional set for every 20 c.f. after the first batch, or one every fourth batch (20 c.f. or less) which every yields more tests.
 3. Test one cylinder at one day, one cylinder at three days, one cylinder at seven days, one at 28 days, and keep one as a reserve.
 4. Furnish all molds, labor, materials, and equipment necessary to complete testing specified herein.
 5. Use applicable procedures:

Compression test sampling: ASTM C172
Making and curing specimens: ASTM C31
Slump test: ASTM C143
Air content: ASTM C173
Testing of cylinders: ASTM C39.
 6. Submit certified reports on the same day that tests are made. The reports shall include the description of the mix tested, location of the pour, weather conditions, other pertinent data, and any non-compliance with project requirements. Provide copies of the reports to the Owner, the Engineer, the Contractor, and the concrete supplier.
 7. All testing is to meet or exceed properties (compressive strength, perm value, etc.) listed in the manufacturer's Technical Data sheet (including compressive strength values for 1 day, 3 day, 7 day, 28 day, etc.).
- B. The use of testing services shall in no way relieve this Contractor of his responsibility to furnish materials and construction in full compliance with the project Drawings and Specifications.
- C. Additional testing will be required if the 28-day tests show strengths less than that which is required. The cost of these tests shall be borne by the Contractor and may include breaking the spare test cylinder, core tests, and also the use of mechanical, electrical, or electronic testing devices. All additional testing shall be in accordance with the most recent ACI standards.
- D. Additional testing will also be required if there is evidence of faulty workmanship, frozen concrete, or any violation of project requirements. This additional testing shall be as directed by the Engineer and costs therefrom shall be borne by the Contractor. All additional testing shall be in accordance with the most recent ACI standards.

- E. Cost of trial mix design and materials shall be paid by the Contractor.
- F. This Contractor shall cooperate with and assist the testing laboratory in performing all tests and inspections required for the concrete work, and shall:
 - 1. Advise the testing laboratory sufficiently in advance of all operations to allow for completion of quality tests and for the assignment of personnel.
 - 2. Furnish labor, as is necessary, to obtain and handle samples at the project site or at other locations of sources of materials.
 - 3. Provide adequate approved facilities on the project site for proper storing and curing of test cubes/cylinders for the first 24 hours in accordance with ASTM C31, after which the cylinders shall be transferred to the testing laboratory.
- G. The patched areas shall be sounded with a hammer after 7 days after concrete placement; any hollowness detected shall be corrected by the Contractor by removing and replacing the patch at no extra cost to the Owner. The contractor shall provide access, at their expense, for the Engineer to sound all repaired areas.

3.04 METHOD OF MEASUREMENT

This work will be measured for payment in square feet. The quantity of repair area will be computed from areas marked by the Contractor and approved by the Engineer.

END OF SECTION

SECTION 03 37 16

FORM AND PUMP CONCRETE REPAIR MORTAR

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and general provisions of the contract, including General and Supplementary Conditions and all Divisions of the Specifications apply to this Section.

1.02 SCOPE OF WORK:

- A. This work shall consist of the removal of existing unsound concrete to required depth and the installation of a prepackaged pump and pour repair mortar at locations indicated on drawings and/or at other locations designated by the Engineer.

1.03 QUALITY ASSURANCE

- A. Placement of concrete during cold weather is to be in accordance with the latest version ACI 306. Cold weather concreting is required when a period for more than three successive days the average daily air temperature drops below 40 degrees Fahrenheit and stays below 50 degrees Fahrenheit for more than one-half of any 24 hour period.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. The pump and pour repair mortar shall achieve a minimum compressive strength of 5,000 psi in 28 days, and/or meet or exceed values listed in the manufacturer's technical data sheet, whichever is greater. The products approved under this section are as follows.
 - 1. "SikaEmaco S440/S440MC" as manufactured by Sika Corporation (800) 933-7452
(Use SikaEmaco N 420 for rub-out of repair areas per manuf. recommendations)
 - 2. "SikaQuick FNP" as manufactured by Sika Corporation (800) 933-7452
(Use SikaQuick VOH for rub-out of repair areas per manuf. recommendations)
 - 3. "Planitop 15 or Planitop FD" as manufactured by Mapei (888) 876-2734.
(Use Planitop X for rub-out of repair areas per manuf. recommendations)
 - 4. "ChemPatch Form & Pour" as manufactured by ChemMasters (800) 486-7866.
(Use ChemRub for rub-out of repair areas per manuf. recommendations)

PART 3 - EXECUTION

3.01 SURFACE PREPARATIONS:

- A. Saw cut the perimeter of the repair area to a minimum depth of 3/8".
- B. All loose and unsound concrete shall be removed with small chipping hammers to provide a minimum 1/4" substrate profile. Remove concrete a minimum of 3/4" beyond the reinforcing steel.

- C. The surface shall be blown clean with compressed air to assure that all loose and hollow concrete is removed. The reinforcing steel shall be sandblasted to remove all rust. All measures must be taken to prevent flash rusting from occurring to the reinforcing steel.
- D. Forms shall be watertight. Apply a suitable form release to the forms.

3.02 PLACING, FINISHING, AND CURING:

- A. Apply patching material as follows and in accordance with manufacturer's recommendations.
- B. Mix the repair mortar according to manufacturer's recommendations. Follow the manufacturer's guidelines for extending the repair mortar by adding aggregate as required.
- C. Saturate the surface dry with water so that it maintains a dark gray color one half hour before placing.
- D. Vibrate form while pumping repair mortar using a variable pressure pump. Do not overpump so that the forms deflect.
- E. Cure the repaired area as recommended by the repair mortar manufacturer.
- F. All repairs are to be compliant with ACI 306.1 Standard Specification for Cold Weather Concrete, which includes temperatures associated with substrate, mixing, and placement/curing. Provide artificial heat and/or temporary housings, coverings and insulation to maintain a cure temperature on all sides of the freshly placed concrete at either 55 degrees F for 24 hours minimum or a duration until a compressive strength of 4,000 psi is achieved, whichever is greater.

3.03 TESTING:

- A. A qualified testing laboratory will be retained to inspect the work. All costs associated with testing agency will be paid by the Contractor. The services of the testing laboratory will include any portion of the Contractor's work plus the following:

Neat Placed Material

- 1. Cast five 2" cubes for each test of all other proprietary products used. **NOTE: Brass cube molds must be utilized for all sampling meeting ASTM C109 requirements – plastic molds and inserts are prohibited.**
- 2. One set of cubes shall be taken for the first batch (20 c.f. or less) plus an additional set for every 20 c.f. after the first batch, or one every fourth batch (20 c.f. or less) which every yields more tests. At a minimum, test samples shall be taken for each day of placement.
- 3. Test one cube at one day, one cube at three days, one cube at seven days, one at 28 days, and keep one as a reserve.
- 4. Furnish all molds, labor, materials, and equipment necessary to complete testing specified herein.
- 5. Use applicable procedures:

Compression test sampling: ASTM C172

Making and curing specimens: ASTM C31

Testing of cubes: ASTM C109

Slump test: ASTM C143

Air content: ASTM C173

Testing of cylinders: ASTM C39.

6. Submit certified reports on the same day that tests are made. The reports shall include the description of the mix tested, location of the pour, weather conditions, other pertinent data, and any non-compliance with project requirements. Provide copies of the reports to the Owner, the Engineer, the Contractor, and the concrete supplier.
7. All testing is to meet or exceed properties (compressive strength, perm value, etc.) listed in the manufacturer's Technical Data sheet (including compressive strength values for 1 day, 3 day, 7 day, 28 day, etc.).

Extended/Pre-Extended Material

1. Cast five 3" x 6" cylinders for each test of all other proprietary products used. **NOTE: All sampling shall meet ASTM C39 requirements.**
2. One set of cylinders shall be taken for the first batch (20 c.f. or less) plus an additional set for every 20 c.f. after the first batch, or one every fourth batch (20 c.f. or less) which every yields more tests.
3. Test one cylinder at one day, one cylinder at three days, one cylinder at seven days, one at 28 days, and keep one as a reserve.
4. Furnish all molds, labor, materials, and equipment necessary to complete testing specified herein.
5. Use applicable procedures:

Compression test sampling: ASTM C172
Making and curing specimens: ASTM C31
Slump test: ASTM C143
Air content: ASTM C173
Testing of cylinders: ASTM C39.
6. Submit certified reports on the same day that tests are made. The reports shall include the description of the mix tested, location of the pour, weather conditions, other pertinent data, and any non-compliance with project requirements. Provide copies of the reports to the Owner, the Engineer, the Contractor, and the concrete supplier.
7. All testing is to meet or exceed properties (compressive strength, perm value, etc.) listed in the manufacturer's Technical Data sheet (including compressive strength values for 1 day, 3 day, 7 day, 28 day, etc.).

- B. The use of testing services shall in no way relieve this Contractor of his responsibility to furnish materials and construction in full compliance with the project Drawings and Specifications.
- C. Additional testing will be required if the 28-day tests show strengths less than that which is required. The cost of these tests shall be borne by this Contractor and may include breaking the spare test cylinder, core tests, and also the use of mechanical, electrical, or electronic testing devices. All additional testing shall be in accordance with the most recent ACI standards.

- D. Additional testing will also be required if there is evidence of faulty workmanship, frozen concrete, or any violation of project requirements. This additional testing shall be as directed by the Engineer and costs therefrom shall be borne by this Contractor. All additional testing shall be in accordance with the most recent ACI standards.
- E. Cost of trial mix design and materials shall be paid by the Contractor.
- F. This Contractor shall cooperate with and assist the testing laboratory in performing all tests and inspections required for the concrete work, and shall:
 - 1. Advise the testing laboratory sufficiently in advance of all operations to allow for completion of quality tests and for the assignment of personnel.
 - 2. Furnish labor, as is necessary, to obtain and handle samples at the project site or at other locations of sources of materials.
 - 3. Provide adequate approved facilities on the project site for proper storing and curing of test cylinders for the first 24 hours in accordance with ASTM C31, after which the cubes/cylinders shall be transferred to the testing laboratory.
- G. The patched areas shall be sounded with a hammer after 7 days after concrete placement; any hollowness detected shall be corrected by the Contractor by removing and replacing the patch at no extra cost to the Owner. The contractor shall provide access, at their expense, for the Engineer to sound all repaired areas.

END OF SECTION

SECTION 07 18 16

TRAFFIC BEARING WATERPROOFING MEMBRANE

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SCOPE OF WORK

This work shall consist of shotblasting or other approved methods of cleaning on horizontal concrete surfaces, cleaning of vertical surfaces and installation of a thin waterproofing membrane system as specified on floor slabs at locations shown on plans. No substitutions to proposed systems in bid proposals other than the waterproofing membranes specified hereinafter shall be allowed unless approved in writing by the Consultant.

1.03 GENERAL

- A. The work of this Section includes, but is not limited to, surface preparation, installation of a liquid applied elastomeric membrane system to provide a waterproof, chemical and abrasion resistant non-skid traffic bearing topping.
- B. Examine existing surfaces and verify existing conditions. Determine acceptability of the concrete surfaces and notify, in writing, the General Contractor and the Consultant of acceptance. Verify dimensions as no extras will be allowed for inconsistency in dimensions.
- C. Cleaning and preparation of existing surfaces to receive materials shall be the Contractor's responsibility. Prepare surfaces as specified hereinafter and as recommended by manufacturer of the material selected.
- D. Provide and maintain barricades and traffic control at special coating areas during installation and curing period for vehicular and pedestrian traffic.

1.04 QUALIFICATIONS

- A. Work specified herein shall be performed by and be the responsibility of the Installation Contractor authorized, approved and qualified by the manufacturer of materials used; having necessary equipment and facilities to fulfill requirements of the manufacturer and this section.
- B. Manufacturer Qualifications: Manufacturer shall provide evidence showing that the specified materials have been manufactured by the same source and successfully installed on a yearly basis for a minimum of ten years on projects of similar scope and complexity. Manufacturer to be ISO 9001 certified.
- C. Installer Qualifications: Waterproofing installer shall demonstrate qualifications to perform the work of this Section by submitting the following documentation:
 - 1. Licensing by the waterproofing manufacturer as an applicator of the product to be used.

2. List of at least five projects (with reference names and phone numbers) satisfactorily completed under the current company name, of similar scope and complexity to this project. Previous experience submittal shall correspond to specific membrane system proposed for use by applicator.
3. A minimum of five (5) years in business under the same name.

1.05 SUBMITTALS

- A. Manufacturer's Data: Submit specifications, installation instructions and general recommendations by the manufacturer of fluid applied waterproofing materials. Include manufacturer's certified test data showing compliance with the requirements. Provide copy of license agreement between manufacturer and installer indicating division of warranty responsibility.
- B. Shop Drawings: Submit shop drawings showing large scale details of all edge terminations, joint treatments, penetration or projections and flashing conditions.
- C. Samples: Submit complete samples of each membrane system to be used. Sample shall be applied to plywood or similar rigid material.
- D. As-Built Information: Upon completion of the work and prior to final payment, submit two (2) maintenance manuals identified with the project name, location and date, types of coating systems applied and drawings indicating the types of coating systems and their location in the structure. Include a schematic drawing of each membrane type which clearly identified the successive coats or layers of the membrane system. Identify each coat or layer by dry film thickness or application rate and by manufacturer's reference number or name which specifically identifies the product used for each coat. Include recommendations for routine care and maintenance. Provide list of contractors nearest the project location who are qualified to perform repairs to the membrane. Identify common causes of damage and include instructions for temporary patching until permanent repairs can be made by qualified personnel.
- E. VOC Requirements: Where applicable, the manufacturers shall ensure that all components of specified products do not exceed volatile organic compound (VOC) limits of 400 g/l. Projects in the following locations are known to be affected by this requirement.

Maricopa County (Arizona), California (excluding LA, Orange, San Bernadino and Riverside Counties), Connecticut, Delaware, Illinois, Indiana, Maine, Maryland, Massachusetts, New York, New Jersey, New Hampshire, Ohio, Pennsylvania, Rhode Island, Washington DC and Arlington County, Alexandria, Fairfax County, Fairfax, Loudoun County, Falls Church, Prince William County, Manassas, Manassas Park, Stafford County (all northern Virginia).

1.06 DELIVERY AND STORAGE

- A. Deliver materials to project site in sealed, original packages or containers bearing name and brand of manufacturer. Each container shall have manufacturer's printed label. Materials shall be stored in the area designated by the General Contractor or Consultant.
- B. Upon delivery, notify the Consultant. Only materials brought to area and approved may be used.
- C. Store materials in single place designated by Owner and/or Consultant. Keep storage place neat and clean. Cleaning rags and waste materials shall be deposited in metal containers having tight covers or removed from the garage each night. Every precaution shall be taken to avoid danger

of fire. Provide dry chemical or CO2 fire extinguishers in areas. Allow no smoking or open containers or solvents. Store solvents in safety cans.

- D. Empty containers used on job shall have labels canceled and shall be marked as to reuse.

1.07 JOB CONDITIONS

- A. A specified coating shall not be applied if weather is too cold, raining, snowing or if any other conditions exist that will not permit proper application or curing of coating. Follow manufacturer's written directions. Humidity should not deviate from acceptable ranges during application and curing. Protection required for proper installation and curing shall be the responsibility of the Coating Contractor and shall be reflected in Bid.
- B. Protect adjacent surfaces and materials with covering, duct tape and drop cloths as required to keep adjacent surfaces free of coating. Upon completing, remove protection and clean. Surfaces soiled or damaged by special coating shall be cleaned or replaced at no extra cost to Owner.
- C. Proceed with the installation of waterproofing only after the substrate construction has been completed and cured and after penetrating components have been installed, so that the membrane will not be penetrated or damaged by subsequent work.
- D. When payment for elastomeric deck coating is based on area of application, the area used in calculations shall be horizontal surfaces only.

1.08 WARRANTY

- A. Materials Manufacturer and Installation Contractor shall be jointly and severally responsible and shall submit an affidavit signed by both parties warranting the installed system for a minimum period of five years from date of final completion. The Installer shall repair or replace membrane which leaks water, deteriorates excessively, wears prematurely or otherwise fails to perform as required within the guarantee period, due to failure of materials or workmanship. The guarantee shall include an agreement to remove and replace other work which has been superimposed on elastomeric waterproofing work as required to repair or replace the waterproofing system.

PART 2 - PRODUCTS

2.01 SOURCE OF MATERIALS

- A. The waterproofing membrane system shall be a complete system of compatible materials, designed by the manufacturer to produce a waterproofing, traffic-bearing and chemical resistance surface. Systems approved for use under this section shall be one of the following:

Category C – Odor and Volatile Organic Compound (VOC) Sensitive Applications
and/or Fast Cure Applications: Epoxy Wear Course

Application of systems within this category are designed for parking structures that are integral with adjacent commercial, residential, institutional or hospital operations and or other locations where the release of solvents with strong odors would be objectionable. The following systems have also been designed to accept vehicular traffic after an application time typically involving a three-day period, most often associated with weekends and on associated holiday the day before or after a weekend. Check with manufacturer and installer regarding specific size areas and time frames which are possible with these systems.

1. "Auto-Gard E," as manufactured by Neogard (www.neogard.com).

The system consists of the following:

Primer

Product: 70714/70715 or 7797/7798

WMT: N/A

DMT: N/A

Base Coat

Product: FC7500/FC7960

WMT: 25

DMT: 25

Wear Coat

Product: 70714/70715-09

Aggregate Broadcast: 50 lbs/100 sf (#12 Sieve Size Aluminum Oxide)

WMT: 17

DMT: 17

Lock Coat

Product: FC7540/FC7964

WMT: 20

DMT: 18

Total DMT: 60

The system consists of a primer applied to the cleaned concrete surface no more than 24 hours prior to base coat application. When cured apply FC7500/7960 urethane base coat. When cured apply 70714/70715-09 wear coat and broadcast aggregate. When cured apply FC7540/FC7964 lock coat.

2. "Iso-Flex 750EU Low Odor Coating System," as manufactured by Lym-Tal (www.lymtal.com).

The system consists of the following:

Primer

Product: 757

WMT: NA

DMT: NA

Base Coat

Product: 750

WMT: 27

DMT: 25

Wear Coat

Product: Epoxy 200

Aggregate Broadcast: 50 lbs/100 sf (#12 Sieve Size Aluminum Oxide)

WMT: 20

DMT: 20

Lock Coat
Product: 760TCAL
WMT: 15
DMT: 15

Total DMT: 60

The system consists of a primer applied to the cleaned concrete surface no more than 24 hours prior to base coat application. When cured apply 750 urethane base coat. When cured apply Epoxy 200 wear coat and broadcast aggregate. When cured apply 760 TCAL lock coat.

3. "Sikalastic Traffic 2530," as manufactured by Sika Corporation (www.sikausa.com).
The system consists of the following:

Primer
Product: Sikalastic P 255
WMT: NA
DMT: NA

Base Coat
Product: Sikalastic M 265
WMT: 25
DMT: 25

Wear Coat
Product: Sikalastic 350
Aggregate Broadcast: 50 lbs/100 sf (#12 Sieve Size Aluminum Oxide)
WMT: 20
DMT: 20

Lock Coat
Product: Sikalastic TC 295
WMT: 15
DMT: 15

Total DMT: 60

The system consists of a primer applied to the cleaned concrete surface no more than 24 hours prior to base coat application. When cured apply Sikalastic M 265 urethane base coat. When cured apply Sikalastic 350 and broadcast aggregate. When cured apply Sikalastic TC 295 lock coat.

4. "Sikalastic 22 Lo Mod Broadcast" as manufactured by Sika Corporation (www.sikausa.com).

The system consists of the following:

Primer
Product: Sikalastic Primer

WMT: NA

DMT: NA

Base Coat

Product: Sikalastic 720

WMT: 25

DMT: 25

Wear Coat

Product: Sikadur 22 Lo Mod

Aggregate Broadcast: 50 lbs/100 sf (#12 Sieve Size Aluminum Oxide) to Refusal

WMT: 20

DMT: 20

Lock Coat

Product: Sikalastic 745

WMT: 15

DMT: 15

Total DMT: 60

The system consists of a primer applied to the cleaned concrete surface no more than 24 hours prior to base coat application. When cured apply Sikalastic 720 urethane base coat. When cured apply Sikadur 22 LoMod and broadcast aggregate. When cured apply Sikalastic 745 lock coat.

5. "Qualideck Coating System," as manufactured by APT (www.Qualideck.com).

The system consists of the following:

Primer

Product: 152

WMT: NA

DMT: NA

Base Coat

Product: 252

WMT: 25

DMT: 25

Wear Coat

Product: 552 Epoxy

Aggregate Broadcast: 30 lbs/100 sf (#12 Sieve Size Aluminum Oxide)

WMT: 20

DMT: 20

Lock Coat

Product: 582

WMT: 15

DMT: 15

Total DMT: 60

The system consists of a primer applied to the cleaned concrete surface no more than 24 hours prior to base coat application. When cured apply 252 urethane base coat. When cured apply 552 Epoxy wear coat and broadcast aggregate. When cured apply 582 lock coat.

B. WATERPROOFING MEMBRANE (Base Coat)

- (1) The base coat (membrane) shall meet the following minimum performance criteria:
 - (a) Minimum Tensile Strength (ASTM D412):
Base Coat - 1,000 psi
Top Coat – 2,000 psi
 - (b) Minimum Elongation (ASTM D412):
Base Coat - 350%
 - (c) Minimum Adhesion – one of the following:

ASTM D903: Base Coat - 20 psi
ASTM C794: Base Coat – 25 psi
ASTM D4541: Base Coat – 250 psi
ACI 503: Failure occurs in concrete when $f_c < 6000$ psi
 - (d) A light application of primer compatible with the elastomeric seal coat shall be applied onto the clean, dry concrete surface. The elastomeric coating shall be applied uniformly to the primed surface. The elastomeric base coat shall be applied in strict accordance with manufacturer's requirements for the system and verified by wet mil thickness testing (minimum one test per 1,000 square feet). The coating shall be allowed to cure adequately. Special treatment shall be provided at all construction joints, cove joints and at all cracks over 1/16" in width. This special treatment shall be included in the bid price for the waterproofing membrane installation. The coating shall also be applied at base of columns, walls and curbs to produce a 4" minimum high base.
- (2) Minimum System Thickness (Dry Mills): As herein specified.

C. WEARING COURSE (CATEGORY A, B, & F)

- (1) A compatible wearing course shall be applied over the base coat in accordance with the manufacturer's instructions. A selected aggregate shall be broadcast evenly over the surface and fall on the surface in vertical direction so as not to displace uncovered coating. **The aggregate shall be 12/20 mesh sand approved by the Engineer and broadcast evenly over the surface, unless noted otherwise.**
- (2) A compatible second wearing course, when specified herein, shall be applied over the base coat in accordance with the manufacturer's instructions. A selected aggregate shall be broadcast evenly over the surface and fall on the surface in vertical direction so as not to displace uncovered coating. **The aggregate shall be 12/20 mesh sand approved by the Engineer and broadcast evenly over the surface, unless noted**

otherwise.

- (3) Aggregates should be spread to an excess thickness until surface appears dry. After the coating has sufficiently cured, the excess aggregates shall be removed and the tie coat shall be applied to the surface.

CATEGORY C & E

- (1) A compatible wearing course shall be applied over the base coat in accordance with the manufacturer's instructions. A selected aggregate shall be broadcast evenly over the surface and fall on the surface in vertical direction so as not to displace uncovered coating. **The aggregate shall be #12 Aluminum Oxide approved by the Engineer and broadcast evenly over the surface, unless noted otherwise.**
- (2) A compatible second wearing course, when specified herein, shall be applied over the base coat in accordance with the manufacturer's instructions. A selected aggregate shall be broadcast evenly over the surface and fall on the surface in vertical direction so as not to displace uncovered coating. **The aggregate shall be #12 Aluminum Oxide approved by the Engineer and broadcast evenly over the surface, unless noted otherwise.**
- (3) Aggregates should be spread to an excess thickness until surface appears dry. After the coating has sufficiently cured, the excess aggregates shall be removed and the tie coat shall be applied to the surface.

D. LEVELING COURSE (IF REQUIRED)

- (1) A compatible leveling course shall be applied directly onto the concrete surface after cleaning and prior to application of the primer. The leveling course is intended to fill and smooth pop-outs, scaling, depressions and pitting in the concrete surface due to abrasion, finishing problems or other existing conditions. Products listed below should be confirmed with the manufacturer's instructions.

Neogard:

Leveling of the concrete surface prior to membrane system application in order to achieve a suitable substrate shall be performed using a Neogard 70714/70715-09 epoxy and sand mixture or FC base coat, depending on profile of concrete.

Lym-Tal:

Leveling of the concrete surface prior to membrane system application in order to achieve a suitable substrate shall be performed using Iso-Flex 750 base coat extended with sand.

Sikalastic:

Leveling of the concrete surface prior to membrane system application in order to achieve a suitable substrate shall be performed using Sikalastic 350 two component, fast-setting 100% solids epoxy, extended with sand as needed.

Sika:

Leveling of the concrete surface prior to membrane system application in order to achieve a suitable substrate shall be performed using either the Sikalastic 720 base coat with a mixture of sand, or by using the Sikadur 21 Lo-Mod with a mixture of sand as needed.

APT:

Leveling of the concrete surface prior to membrane system application in order to achieve a suitable substrate shall be performed using 252 base coat or 152 primer extended with sand.

E. MOISTURE VAPOR REDUCER (IF REQUIRED)

1. A compatible moisture vapor reducer pre-primer shall be applied directly onto the concrete surface prior to the application of the specified waterproofing systems. Products listed below should be confirmed with the manufacturer's instructions.

Neogard:

Consult with manufacturer for recommended products.

Lym-Tal:

Iso-Flex 650 HD Two Component Epoxy Barrier Coat shall be applied directly to the concrete surface. Apply one coat – at a rate of 100 – 150 sf/gallon depending upon conditions and allowed to cure. The application of the 650 HD takes the place of primer application as long as correct open times observed. Concrete surface shall be shot blasted, clean, and free of contaminants. Barrier coat is to be applied when test results from ASTM F1869 “Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloors Using Anhydrous Calcium Chloride” are greater than 3 lbs but less than 7 lbs.

When test results from ASTM F1869 “Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloors Using Anhydrous Calcium Chloride” are greater than 7 lbs but less than 25 lbs, Aquafin Vaportight Coat SG3 Two Component Low Viscosity Epoxy shall be applied directly to the concrete surface at an application rate of 80 square feet per gallon or per manufacturer’s recommendation. Prior to application of primer, concrete surface shall be shot blasted, clean, and free of contaminants. Values above 25 lbs will require venting of the deck.

Sikalastic:

Sikalastic 350 Two Component Rapid Set Epoxy shall be applied directly to the concrete surface at a wet mil thickness of 20 mils with silica sand broadcast to refusal. Application of the Sikalastic 350 will be installed in-lieu of the Sikalastic P 255. The Sikalastic 350 is to be installed when test results from ASTM F1869 “Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloors Using Anhydrous Calcium Chloride” are greater than 5 lbs but less than 8 lbs. Values above 8 lbs will require venting of the deck.

Sika:

Consult with manufacturer for recommended products.

APT:

Qualipur 182 MVB Two Component Epoxy Barrier Coat shall be applied directly to the concrete surface. Apply one coat – at a rate of 90 sf/gallon and allowed to cure. The application of the 182 takes the place of primer application as long as correct open times observed. Concrete surface shall be shot blasted, clean, and free of contaminants.

Barrier coat is to be applied when test results from ASTM F1869 “Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloors Using Anhydrous Calcium Chloride” or “RH” are greater than 4 lbs.

PART 3 - EXECUTION

3.01 QUALITY CONTROL TESTING

A. General:

1. The Contractor will employ and pay for a testing laboratory to perform tests and to submit test reports.
2. All testing shall be performed by a qualified independent testing agency, which shall be submitted to the Engineer/Owner for approval.
3. All test reports shall include date, time, and existing site conditions (temperature, rain, fog, cloudy, etc.). All reports are to be submitted to the Engineer/Owner and manufacturer within one working day.
4. At the preconstruction meeting, a representative from an approved Testing Agency and a representative from the manufacturer must be present. During this meeting the scope of the testing program will be discussed.
5. Any test results that do not meet the specified requirements are to be reported immediately to the contractor. Immediate actions shall be taken by the contractor to address the non-compliant test result to insure that the system installed is as specified.

B. Moisture Emission Testing (If Required or when specified by Engineer/Owner)

1. Within one week of the installation of the waterproofing membrane system, the contractor shall conduct testing in accordance with ASTM F1869 "Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloors Using Anhydrous Calcium Chloride." A minimum of one test shall be performed per 10,000 s.f. of slab area or per the manufacturer's recommendation. Test results are to be directly forwarded to the Engineer/Owner and manufacturer within one working day.
2. Within 48 hours of the installation of the waterproofing membrane system, the contractor shall conduct testing in accordance with ASTM D 4263-83(2005) "Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method." A minimum of one test shall be performed per 10,000 s.f. of slab area or per the manufacturer's recommendation. Test results are to be directly forwarded to the Engineer/Owner and manufacturer within one working day.

C. Mil Thickness Readings

1. Wet Mil thickness readings shall be taken during the installation of the pre-primer (if required), primer, basecoat, wear course, additional wear course, lock coat, etc. One reading shall be performed per 1,000 s.f. and recorded, with a minimum of three tests for less than 1,000 s.f. Test results recorded shall include material being measured (primer, basecoat, etc.), measured thickness, location (column lines, level, etc.). Test results are to be directly forwarded to the Engineer/Owner and manufacturer within one working day.
2. Dry Mil thickness reading shall be taken between 2 to 3 days after the completion of the installation of the entire system. A minimum of one test shall be performed per 10,000 s.f. of slab area or per the manufacturer's recommendation, whichever is more frequent. For sampling locations, testing agency will be required to install coupons (duct tape) on deck prior to installation of waterproofing membrane allowing a piece to extend above the finished surface. Once system is

fully cured, each location shall be cut out and sent to lab for evaluation. Test results recorded shall include measured thickness and location (column lines, level, etc.). All sampling areas shall be repaired by contractor and shall receive entire waterproofing system.

D. Adhesion Testing

1. Adhesion testing of the system shall be performed per ASTM D-7234 no sooner than one week after the installation of the system. A minimum of one test shall be performed per 10,000 s.f. of slab area or per the manufacturer's recommendation, whichever is more frequent. Test results recorded shall include the recorded value in PSI and test location (column lines, level, etc.). Test results are to be directly forwarded to the Engineer/Owner and manufacturer within one working day. All sampling areas shall be repaired by contractor and shall receive entire waterproofing system. Test results shall meet or exceed the requirements recommended by the manufacturer.

- E. A manufacturer's representative shall be required to visit the site at least once per week during the installation process to inspect and evaluate surface preparation, material storage, installation procedures, testing, overall workmanship, etc. and any other factor(s) influencing the quality of the installation. A field report shall be issued and submitted to the Engineer/Owner summarizing the visit.

- F. Additional Tests: The testing service will make additional tests at no cost to the Engineer/Owner when test results indicate specified characteristics have not been attained, as directed by the Engineer. Testing service may conduct tests to determine DMT, proper adhesion (to both the substrate and/or intermediate coats), chemical composition of individual components (primer, basecoat, topcoat), or other methods as directed. Contractor shall pay for such tests.

3.02 CONDITION OF SUBSTRATE

- A. Examine the substrate and the conditions under which the elastomeric waterproofing work is to be applied. Do not proceed with the work until unsatisfactory conditions have been corrected and approved by the manufacturer's representative.

- (1) Installation of products constitutes Installers and Manufacturer's acceptance of existing construction.

3.03 PREPARATION OF SUBSTRATE

- A. Existing Deck Coating Removal:

- (1) When the existing deck coating is scheduled to be removed, the removal shall be such that 95% of the deck coating shall be completely removed (resulting in concrete exposure) from all surfaces (vertical and horizontal) and/or the removal shall meet the manufacturer's recommendations, whichever is greater.
- (2) Means & Methods for removal of existing deck coatings are at the contractor's discretion but are to be approved by the Engineer/Owner.

- B. Clean the substrate of protrusions, dust, debris, oily materials and other substances detrimental to the work, as recommended by the waterproofing system's manufacturer.

- (1) Shot blast horizontal surfaces to remove contaminants and to provide a clean uniform textured surface. Any other proposed cleaning methods must be submitted and

approved by the Engineer.

- (2) Clean vertical surfaces of column bases, spandrels, walls, protrusions, etc., to provide a clean uniform textured surface.
- (3) Existing striping, traffic markings, curb markings, etc., shall be removed such that 95% of the material is completely removed (resulting in concrete exposure) and/or the removal shall meet the manufacturer's recommendations, whichever is greater.

- B. Install cant strips and similar accessories as shown and as recommended by the waterproofing manufacturer (even though not shown) in the manner recommended by the manufacturer.

3.03 FLASHINGS, PRIMERS AND JOINT CONTROL

- A. Cracks/Construction Joints: At locations of possible movement in the substrate construction, including cracks which have developed and construction joints, prepare the substrate to increase the fluid applied waterproofing capability for bridging the movement without failure. Use only products which have been determined to be compatible with the elastomeric waterproofing.
- B. Fill voids and non-moving cracks and joints in the substrate with sealant or other compounds as recommended by the waterproofing manufacturer for compatibility. Fill rough areas of substrate (rough within limitations specified by the manufacturer) with a feathered-out coating of elastomeric waterproofing, squeegee-applied to form a smooth top surface.
- C. Prime substrate as recommended by the waterproofing system's manufacturer.
- D. Mask off adjoining surfaces not to receive fluid applied waterproofing, to effectively prevent the spillage or migration of materials outside the membrane area.

3.04 INSTALLATION

- A. Manufacturer's Technical Representative: Start the installation of elastomeric waterproofing membrane, only in the presence and with the advice of the manufacturer's technical representative. A series of four (4) wet mill gauge tests shall be conducted for every 1000 sq. ft. on the first day of installation in the presence of the representative to ensure proper coverage rate.
- B. General: Comply with manufacturer's instruction, except where more stringent requirements are shown or specified, and except where project conditions require extra precautions or provisions to ensure satisfactory performance of the work.
- C. Mix separately packaged components in accordance with manufacturer's instructions.
- D. Apply the elastomeric membrane to the primed deck within the time specified by the manufacturer.
- E. Apply a uniform coating of cold applied elastomeric waterproofing to the substrate and adjoining surfaces indicated to receive the membrane.
 - (1) Apply coating by hand, complying with manufacturer's recommendations regarding horizontal and vertical surfaces.

- (2) Provide waterproof membrane at base of columns, spandrels, to produce a 4" minimum high base. Curb surfaces shall be considered floors and waterproofed unless otherwise noted.
- F. Wearing Surface: Apply top coat in one or two applications to achieve the specified dry mil thicknesses.
 - (1) While coating is still fluid, uniformly broadcast aggregate over the surface at the rate specified.
 - (2) After top coat has cured, remove all excess aggregate from the deck surface.
 - (3) Apply a tie coat to the cured surface to encapsulate the top layer of aggregate.
- G. Permit cold applied membrane to cure without delay, and under conditions which will not contaminate or deteriorate the fluid applied waterproofing material. Block off traffic and protect membrane from physical damage.

3.05 CLEAN-UP

- A. Upon completion of work, carefully examine entire installation. Correct all defective or damaged work.
- B. Upon completion, or at such other times as directed, remove all surplus materials, cartons, rubbish and debris resulting from these operations and legally dispose of off-site.

3.06 PERFORMANCE REQUIREMENTS

- A. It is required that traffic topping be watertight and not deteriorate excessively under normal weather exposure and for normal traffic conditions in applications indicated, not under manufacturer-recommended cleaning procedures, for period of warranty.
- B. It is required that traffic topping work not deteriorate under spillage of motor oil, transmission fluids, and other motor vehicle operating compounds, nor for exposure to normal ice/snow melting substances not specifically excluded by manufacturer's product information.

3.07 PROTECTION

- A. Provide protection to ensure that work will be without damage or deteriorations at time of final acceptance.
- B. All areas where fluid applied flooring system is applied shall not be opened to vehicular traffic for a period of 72 hours after completion of installation or per manufacturer's recommendation, whichever is longer.

END OF SECTION

SECTION 07 92 13

JOINT SEALANTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

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

1.02 SCOPE OF WORK:

- A. Furnish labor, materials (including backer rods when required) and equipment for sealing and caulking of cracks, construction joints, control joints, and cove joints in the reinforced concrete structural slabs, at designated spandrel beam-to-column interfaces, at designated wall-to-wall interfaces, and at designated flashing locations or designated by the Engineer. Where applicable, the sealant shall be compatible with any specified waterproofing membrane base coat material.

1.03 JOB CONDITIONS:

- A. The sealant shall be installed in floor cracks, construction and/or control joints, and cove joint in the reinforced concrete structural slabs, at designated spandrel beam-to-column interfaces, at designated wall-to-wall interfaces, and at designated flashing locations in the areas shown on drawings or designated by the Architect/Engineer. At locations that were previously sealed or filled with other materials, the existing sealant material shall be raked out and the exposed concrete cleaned by sandblasting or grinding at those locations designated for repair.

1.04 FULL RESPONSIBILITY:

- A. System manufacturer will have the full responsibility for: (1) Instructing the Contractor on the required configuration of joints and (2) Reviewing and approving tooled joints constructed as a part of surface preparation prior to installing the sealant.

1.05 GUARANTEE:

- A. The Contractor shall provide a single source performance guarantee that the joint system repaired, including related work in the slab installed by the Contractor, will not leak water or de-bond from adjacent concrete for a 5 year period starting from the date of substantial completion. Any repairs required during the guarantee period starting from the date of substantial completion shall be performed by the Contractor at no additional cost to the Owner.

1.06 APPLICATOR QUALIFICATIONS:

- A. The Contractor shall have a minimum of three years of experience in performing work similar to that shown in the drawings and specifications.
- B. The Contractor shall submit a list of five projects in which similar work to that specified hereinbefore was successfully completed. The list shall contain the following for each of the five projects:
 - 1. Project Name
 - 2. Owner of Project

3. Owner's Representative, Address and Telephone Number
4. Brief Description of Work
5. Cost of Portion of Work Similar to that Specified in this Section
6. Total Restoration Cost of Project
7. Date of Completion of Work

The sum of the costs of the five projects provided shall be a minimum of \$50,000.

- C. A full time on-site supervisor shall be provided by the contractor for the duration of the sealant and caulking work. This supervisor shall have had a minimum of 2 years documented supervisory experience with the products to be used.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. The sealant to be used shall meet or exceed the requirements of Interim Federal Specification TT-S0027-E, Sealants Class A, Type 1 and 2. The sealant shall not de-bond or fail while elongated 25 percent in a water immersion test, according to Federal Specification TT-S-0027-E. When tested according to Paragraph 4.3.5. of Federal Specification TT-S-0027-E, weight loss shall not be greater than 5 percent. Shore A hardness under standard conditions shall be 25-30.

- B. Tee-To-Tee Joints, Control Joints, Construction Joints, & Cracks:

The joint sealant to be used for cracks, control joints, and construction joints shall be two component polyurethane sealants of the chemically curing type containing no asphalt, coal tar, or plasticizers. The sealant shall be used with a compatible primer specified by the manufacturer. Approved products for use are:

1. "Sikaflex SL2" as manufactured by Sika Corporation (800) 933-7452
2. "Iso-Flex 880GB Sealant" as manufactured by LymTal International, Inc. (800) 373-8100
3. "Sikaflex - 2C-SL," as manufactured by Sika Corporation (800)933-SIKA

- C. The sealant to be used shall meet or exceed the requirements of Interim Federal Specification TT-S0027-E, Sealants Class A, Type 1 and 2. The sealant shall not de-bond or fail while elongated 25 percent in a water immersion test, according to Federal Specification TT-S-0027-E. When tested according to Paragraph 4.3.5. of Federal Specification TT-S-0027-E, weight loss shall not be greater than 5 percent. Shore A hardness under standard conditions shall be 25-30.

- D. Cove Joints:

The cove sealant at designated spandrel beam-to-column interfaces, at designated wall-to-wall interfaces, floor slab to curb interfaces, column penetrations, and at designated flashing locations shall be a non-sag, multi-component polyurethane sealant of the chemically curing type containing no asphalt, coal tar, or plasticizers. The joint sealant shall comply with Federal Specification TT-S-00227E, Type II, Class A, Corporation of Consultants CRD-C-506-72; ASTM C-920-79, Type M, Grade NS, Class 25. Depending on the width and time of application, an accelerator may be required by the manufacturer. Any additional cost associated with the use of an accelerator shall be included in the contractor's submitted pricing, as listed in the bid form.

Approved Sealants are as follows:

1. "Sikaflex NP2" as manufactured by Sika Corporation (800) 933-7452
2. "Iso-Flex 881 NS Sealant" as manufactured by LymTal International, Inc. (810) 373-8100
3. "Sikaflex - 2C-NS," as manufactured by Sika Corporation (800)933-SIKA

- E. The sealant to be utilized for masonry joints, including coping stone joints, horizontal relief joints vertical joints, etc., shall consist of a one component, neutral-cured, 100% silicone sealant.

Approved Sealants are as follows:

1. DOWSIL 756 SMS Building Sealant as manufactured by Dow Corning.
2. Or Approved Equal

- F. The manufacturer of the sealant system used in this project shall share responsibility for all sealant work and joint preparation work.

PART 3 - EXECUTION

3.01 TYPICAL SURFACE PREPARATION:

The Contractor shall either grind the surface of all cracks and construction joints designated for repair with sealant to the shape of ½" x ½" v-groove or sawcut a square ½" x ½" groove, grind sharp corner of groove and apply bond breaker to bottom horizontal surface. Edges of cracks or joints to be sealed shall be of sound concrete. Prior to installing sealant, surfaces shall be cleaned of foreign materials and debris, V-groove ground and primed.

3.02 RECORD OF SEALED CRACK AND JOINT LOCATIONS AND TYPES:

After determining the cracks and joints to be sealed and the detail types required, the Contractor shall prepare scale shop drawings showing the sealed crack and/or joint locations and submit them to the Architect/Engineer for his approval. The Shop Drawings submitted shall be reviewed by the Architect/Engineer for the condition of the existing cracks/joints, the size/shape of the routed crack, and the type of detail selected.

3.03 QUALITY CONTROL TESTING

A. General:

1. The Contractor will employ and pay for a testing agency to perform tests and to submit test reports.
2. All testing shall be performed by a qualified independent testing agency, which shall be submitted to the Engineer/Owner for approval.
3. All test reports shall include date, time, existing site conditions (temperature, rain, fog, cloudy, etc.), and test locations shown on a field drawing. All reports are to be submitted to

the Engineer/Owner and manufacturer within one working day.

4. At the preconstruction meeting, a representative from an approved Testing Agency and a representative from the manufacturer must be present. During this meeting the scope of the testing program will be discussed.

B. Adhesion Testing

1. Once the sealant is completely cured, adhesion testing shall be performed in accordance with ASTM C 1521 "Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints", "Destructive Procedure", Tail Procedure, Method A.
2. One test for every 100 ft in first 1,000 ft of sealant applied. If no test failure is observed in the first 1,000 ft of sealant applied, perform procedure every 1,000 ft thereafter. Once a failure occurs, the frequency shall revert to one test for every 100 ft in first 1,000 ft of sealant applied until no test failures occur, at which time the frequency can change to one test every 1,000 ft.
3. At failed test locations, two additional tests shall be performed along the length a continuous sealant installation (i.e. tee-to-tee joint, cover joint, etc.). When more than two failed tests occur along the length of a continuous sealant installation, the joint shall be removed in its entirety, the joint prepared, and new joint sealant installed at no additional cost.
4. All sampling areas shall be repaired in-kind by contractor and per the manufacturer's recommendation at no additional cost.

END OF SECTION

SECTION 09 91 00

PAINTING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 DESCRIPTION OF WORK

- A. The extent of painting work is shown on the drawings and specified herein to include, but not be limited to, the following:
 - 1. Paint parking lines, traffic markings, handicap symbols and curb/island edges using a specified pavement marking paint throughout the entire parking deck.
 - 2. Paint concrete and masonry.
 - 3. Paint structural steel using a specified high performance coating.
 - 4. Paint miscellaneous metals using a specified high performance coating.

1.03 QUALITY ASSURANCE

- A. Paint Coordination:

Provide finish coats which are compatible with the prime paints used. Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of the total coatings system for the various substrates.

1.04 SUBMITTALS

- A. Manufacturer's Data:

- 1. Submit manufacturer's technical information in standard printed published form, including performance criteria and application instructions for each material proposed for use.
- 2. List each material and cross-reference to the specific paint and finish system and application. Identify by manufacturer's catalog number and general classification.

- B. Samples:

- 1. Submit samples of each color required, for Engineer's review.
- 2. Color shall be as herein specified or as selected by the Owner and Engineer prior to the start of work.

1.05 OWNER'S INVENTORY

- A. Provide one gallon of each color used, to Owner, for maintenance purposes.

1.06 DELIVERY AND STORAGE

- A. Deliver all paint to site in manufacturer's sealed and labeled containers. Labels shall bear manufacturer's name, brand, type of paint, Federal spec. number (if applicable), color of paint, and instructions for reducing.
- B. Store materials and equipment in a designated storage space on the site. Keep storage space neat, clean and accessible at all times. Protect floors from paint spillage.

1.07 PROTECTION

- A. Place paint or solvent-soaked rags, waste, or other materials which might constitute a fire hazard in metal containers and remove from premises at the close of each day's work. Take every precaution to avoid damage by fire.
- B. Provide foam type 2-1/2 gallon capacity fire extinguishers for each paint storage space.
- C. Protect the work of all other trades against damage, marking or injury by suitable covering during the progress of the painting and finishing work.

1.08 JOB CONDITIONS

- A. Examine all surfaces to receive coatings and report to the Engineer any condition which is not acceptable. Commencement of work and in any area constitutes acceptance of conditions and places the responsibility for a workmanlike job on this Section.
- B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and the surrounding air temperatures are between 50 degrees F. and 95 degrees F., unless otherwise permitted by the paint manufacturer's printed instructions.
- C. Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85%; or to damp or wet surfaces; unless otherwise permitted by the paint manufacturer's printed instructions.

1.09 WARRANTY

- A. Materials Manufacturer and Installation Contractor shall warrant the installed system for a minimum period of five years from date of final completion, with the exception of pavement marking, which shall be warranted for a minimum period of one year from the date of final completion. The Installer shall repair or replace coatings that are debonded, peeling, prematurely faded, deteriorates excessively, wears prematurely, or otherwise fails to perform as required within the guarantee period, due to failure of materials or workmanship.

PART 2 - PRODUCTS

2.01 MATERIAL QUALITY

- A. Provide only absolutely pure linseed oil, turpentine, shellac, and other like materials that are of the highest quality, with identifying labels intact and seals unbroken. Use no thinners other than those specified by the manufacturer.

- B. Use only primers and undercoaters that are suitable for each surface to be covered and that are compatible with the finish coat required.
- C. Use products of the same manufacturer for succeeding coats.
 - 1. Where shop primed materials are to be finish painted and/or prime coat materials are by a different manufacturer than the finish coat materials, confirm compatibility of the primers with the manufacturer of the finish coat paints.
 - 2. Where existing previously painted surfaces are to be finish painted, confirm compatibility of existing painted surfaces with the manufacturer of the succeeding new paints.
- D. All materials shall comply with Environmental Protection Agency Pt. 59, Subpt. D, Table 1 of Section 40CFR Parts 53-59, Volume 5, 2004 Edition.

2.02 METALS

- A. Structural Steel/Miscellaneous Metals (UNO): High Performance Coating:
 - 1. Primer (bare metal locations same day as surface preparation)
 - a. Macropoxy 646 , Sherwin Williams
 - b. PPG Pitt-Guard 97-148 Series Epoxy
 - 2. High Build Epoxy
 - a. Macropoxy 646; Sherwin Williams
 - b. PPG Pitt-Guard 97-148 Series Epoxy
 - 3. Gloss Aliphatic Urethane Finish
 - a. Acrolon 218 HS; Sherwin Williams
 - b. PPG Pitthane Ultra 95-812 Series Gloss Urethane
- B. Exterior Metal Grilles and Screens: High Performance/Industrial Finish (all types of metal surfaces): Basecoat/topcoat over factory-applied primer coating. Provide barrier coat as required by compatibility testing.
 - 1. First Coat (Shop Applied): Epoxy finish applied at a spreading rate recommended by the manufacturer or as required to achieve a total dry film thickness of not less than 4 mils (whichever is greater). If total basecoat dry film thickness is not achievable with a single coat, provide additional coat(s) as required by system properties to achieve required thickness.
 - a. GP: Devoe Coatings Devran 201H Universal Epoxy Primer #201H series
 - b. Moore: Super Spec HP Polyamide Epoxy Primer #P33
 - c. PPG: HPC/Industrial Maintenance Coatings, Pitt-Guard Polyamide Epoxy Coating #97-145 Series
 - d. S-W: Macropoxy 646 Fast Cure Epoxy, B58-610 Series

- e. Tnemec: Hi-Build Epoxoline II Epoxy Coating #N69
 - f. Approved equal.
2. Second and Third Coats (Field Applied): Polyurethane/urethane finish applied at a spreading rate recommended by the manufacturer or as required to achieve a total topcoat dry film thickness of not less than 2 mils (whichever is greater). Provide semi-gloss sheen if available.
- a. GP: Devoe Coatings Devthane Acrylic Urethane #378 Series
 - b. Moore: Super Spec HP Acrylic Urethane #P74
 - c. PPG: HPC/Industrial Maintenance Coatings, Pitthane, Urethane Enamel #95-8800 Series
 - d. S-W: Acrolon 218 Acrylic Polyurethane, B65 Series
 - e. Tnemec: Endura-Shield Polyurethane Finish #73 Series

2.03 CONCRETE & MASONRY COATINGS

A. INTERIOR GARAGE/STAIR TOWERS

1. Concrete/CMU
- a. Primers/Fillers
 - i. Sika Thorocoat 749 as manufactured by Sika (800) 933-7452
 - ii. Neogard 7031-100 or 3090 Multi-Grip TM II Primer/Neogard 3781 Block Filler as manufactured by Neogard (214) 353-1600
 - iii. Elastocolor WB as manufactured by Mapei (888) 876-2734
 - iv. Sikagard 552W Primer or SikaLatex R as manufactured by Sika (800) 933-7452
 - b. Top Coat/Finish Coat
 - i. Sika Thorocoat 200 LR as manufactured by Sika (800) 933-7452
 - ii. Neocrylic LR 7051 as manufactured by Neogard (214) 353-1600
 - iii. Elastocolor as manufactured by Mapei (888) 876-2734
 - iv. Sikagard 550W Elastocolor as manufactured by Sika (800) 933-7452
2. Glazed Brick
- a. Primers/Fillers/Bonding Coat
 - i. UMA Bonding Primer, as manufactured by XIM Products, Inc., 800-262-8469.

b. Top Coat/Finish Coat

i. Aquapon WB 98-1 Series – Semi-Gloss Sheen, as manufactured by PPG Industries, 800-441-9695

ii. PRO INDUSTRIAL™ PRE-CATALYZED WATER BASED EPOXY as manufactured by Sherwin Williams, 800-368-2026

B. EXTERIOR GARAGE/FACADE

1. Concrete/CMU

a. Primers/Fillers

i. Sika Thorocoat FL 749 as manufactured by BASF (800) 933-7452

ii. Neogard 7031-100 or 3090 Multi-Grip TM II Primer/Neogard 3781 Block Filler as manufactured by Neogard (214) 353-1600

iii. Elastocolor WB as manufactured by Mapei (888) 876-2734

iv. Sikagard 552W Primer or SikaLatex R as manufactured by Sika (800) 933-7452

b. Top Coat/Finish Coat

i. Sika Thorocoat 400 as manufactured by BASF (800) 933-7452

ii. Neocrylic HB as manufactured by Neogard (214) 353-1600

iii. Elastocolor as manufactured by Mapei (888) 876-2734

iv. Sikagard 550W Elastocolor as manufactured by Sika (800) 933-7452

2. Glazed Brick

a. Primers/Fillers/Bonding Coat

i. UMA Bonding Primer, as manufactured by XIM Products, Inc., 800-262-8469.

b. Top Coat/Finish Coat

i. Aquapon WB 98-1 Series – Semi-Gloss Sheen, as manufactured by PPG Industries, 800-441-9695

ii. PRO INDUSTRIAL™ PRE-CATALYZED WATER BASED EPOXY as manufactured by Sherwin Williams, 800-368-2026

2.04 PAVEMENT MARKING PAINT

A. Parking lines, arrows, handicap symbols and curb edges shall be yellow pavement marking paint, conforming to U.S. Bureau of Public Roads colors, unless otherwise noted.

Bare Concrete/Asphalt Surfaces:

1. ZONELINE Traffic and Zone Marking Latex, 11-54 Yellow by PPG Industries;
2. SETFAST Acrylic Latex Traffic Marking Paint, TM2161 Yellow by Sherwin Williams, 800-368-2026;
3. Hotline Fast Dry Latex Traffic Marking Paint – Yellow TM2153 as manufactured by Sherwin Williams, 800-368-2026;
4. Promar Low VOC Acrylic Copolymer Traffic Marking Paint – Yellow TM5713 as manufactured by Sherwin Williams, 800-368-2026.

Thin Traffic Bearing Membrane Systems:

1. Acrylithane HS2 by Neogard;
2. Sikalastic TC295 Tint Base by Sika;
3. IsoFlex 630 by LymTal International;
4. Qualipur 582 by APT.

2.05 PAINT SYSTEMS

A. Metals: Provide the following paint systems for the various substrates, as indicated.

1. Structural Steel/Miscellaneous Metals
 - a. 1st Coat - High Build Epoxy (3.0-5.0 mils dft)
 - b. 2nd Coat - High Build Epoxy (4.0-6.0 mils dft)
 - c. 3rd Coat - Gloss Aliphatic Urethane (3.0-5.0 mils dft)
2. Metal Grilles/Screens
 - a. 1st Coat - Epoxy (4.0 mils dft)
 - b. 2nd Coat – Polyurethane/Urethane (2.0 mils dft)

B. Concrete & Masonry Coating:

1. INTERIOR GARAGE/STAIR TOWERS
 - a. Concrete/CMU
 - i. 1st Coat - Primer (4.0-8.0 mils dft) If necessary and/or as recommended by manufacturer.
 - ii. 2nd Coat – Top Coat (4.0-8.0 mils dft) Note: Multiple top coats may be required to achieve specified dft.

- ii. 3rd Coat – Top Coat (4.0-8.0 mils dft) Note: Multiple top coats may be required to achieve specified dft.

Note: Minimum full system dft: 12.0-16.0 dft

a. Glazed Brick

- i. 1st Coat – Primer/Bonding Agent (1.0 mils to 2.0 mils dft)
- ii. 2nd Coat – Top Coat (2 to 4 mils dft) Note: Multiple top coats may be required to achieve specified dft.

2. EXTERIOR GARAGE/FACADE

a. Concrete/CMU

- i. 1st Coat - Primer (4.0-8.0 mils dft) If necessary and/or as recommended by manufacturer.
- ii. 2nd Coat – Top Coat (4.0-8.0 mils dft) Note: Multiple top coats may be required to achieve specified dft.
- iii. 3rd Coat – Finish Coat (4.0-8.0 mils dft) Note: Multiple top coats may be required to achieve specified dft.

Note: Minimum full system dft: 12.0-16.0 dft

b. Glazed Brick

- i. 1st Coat – Primer/Bonding Agent (1.0 mils to 2.0 mils dft)
- ii. 2nd Coat – Top Coat (2 to 4 mils dft) Note: Multiple top coats may be required to achieve specified dft.

C. Pavement Markings:

Bare Concrete/Asphalt Surfaces:

- 1. Two coats-Traffic Paint as specified in Section 2.04; 14 to 15 mil wet film thickness each coat.

Thin Traffic Bearing Waterproofing Membrane Surfaces:

- 1. Two coats of Neogard Acrylithane HS2, install @ 300 SF per gallon per coat (Approx 5 wet mils per coat);
- 2. One coat of Sikalastic TC295, install at 15 wet mils;
- 3. Two coats of IsoFlex 630, install @ 400 SF per gallon per coat (approximately 9 wet mils per coat);
- 4. One coat of Qualipur 582, install @ 15 wet mils.

PART 3 - EXECUTION

3.01 QUALITY CONTROL TESTING

A. General:

1. The Contractor will employ and pay for a testing laboratory to perform tests and to submit test reports.
2. All testing shall be performed by a qualified independent testing agency, which shall be submitted to the Engineer/Owner for approval.
3. All test reports shall include date, time, and existing site conditions (temperature, rain, fog, cloudy, etc.). All reports are to be submitted to the Engineer/Owner and manufacturer within one working day.
4. At the preconstruction meeting, a representative from an approved Testing Agency and a representative from the manufacturer must be present. During this meeting the scope of the testing program will be discussed.

B. Metals:

1. Dry mil thickness reading shall be taken in accordance with ASTM D7091, *Standard Practice for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to Ferrous Metals and Nonmagnetic, Nonconductive Coatings Applied to Non-Ferrous Metals*. The frequency of the testing will be performed in accordance with SSPC-PA2, *Procedure for Determining Conformance to Dry Coating Thickness Requirements*. Based on SSPC-PA2, readings are to be taken at 5 spots for the first 1,000 s.f. painted area and then one spot for each additional 1,000 s.f. A minimum of 3 readings will be obtained per spot. All data will be recorded and shown on field drawings for identification purposes. This process will be followed on a per Phase basis. Atmospheric conditions (i.e. surface temperature, ambient temperature, humidity, dew point, etc.), as well as other conditions per the manufacturer's recommendations, shall be obtained and recorded for each day of coating application.
2. The manufacturer shall conduct a walk-thru of the finished product on a per Phase basis and issue an observation report.
3. Surface preparation shall be evaluated by a NACE Certified Inspector prior to the application of coatings for each application process, or as determined by the Engineer. A field report shall be issued for each evaluation.

C. Concrete and Masonry Materials:

1. Record wet film thickness readings every 1,000 s.f. or per manufacturer's recommendations, whichever is less square footage. Regardless of application area, a minimum of three readings shall be obtained.
2. Minimum dry film thickness shall be 6.0-8.0 mils per coat and/or per the manufacturer's recommendation.
3. Conduct adhesion testing per ASTM D3359. One test shall be performed every 5,000 s.f. or per manufacturer's recommendations, whichever is less square footage. A minimum of three tests shall be obtained.

3.02 SURFACE PREPARATION

A. General:

1. Perform all preparation and cleaning procedures in strict accordance with the paint manufacturer's instructions and as herein specified, for each particular substrate condition.
2. Clean surfaces to be completely dry prior to applying primers, paints or surface treatments. Remove oil and grease with clean cloths and cleaning solvents. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to the formation of a durable paint film.
3. Before applying succeeding coats, primers and undercoats shall be completely integral and shall perform the function for which they are specified. Properly prepare and touch up all scratches, abrasions or other disfigurements and remove any foreign matter before proceeding with the following coat. All spot-priming or spot-coating shall be featheredged into adjacent coatings to produce a smooth and level surface.

B. Metals:

1. For existing paint system being restored, power wash using approved cleaning solvents and minimum pressures of 2,500 to 5,000 PSI at a flow of 4 to 14 gallons per minute in accordance with SSPC-WJ4. Mechanical abrasion may be needed in order to ensure adhesion (i.e.sanding or powerwashing with sand injection)
2. For all other existing metals scheduled to be painted, sandblast clean to SSPC-SP6 or power tool according to SSPC SP 15 Commercial Grade Power Tool Cleaning.

C. Concrete and Masonry Materials:

1. Prepare surfaces of concrete and masonry (except glazed brick – see item 3.01.C.2) to be painted by using approved cleaning solvents (if necessary) and high-pressure power washing with a 15 degree tip at 14" or less from surface with a minimum pressure of 300 to 600 PSI for an existing coating and 1,500 to 3,000 PSI for bare concrete/masonry substrate and in accordance with SSPC SP1 to thoroughly remove all efflorescence, chalk, dust, dirt, grease, oils, and by roughening as required to remove glaze, or provide sufficient bite on existing painted surfaces per the manufacturer's recommendation.
2. For glazed brick, the surface shall be thoroughly cleaned, scuff sand the brick with 80 grit sanding sponges, then final wipe down with clean rags and denatured alcohol.

D. Pavement Markings:

1. For bare concrete surfaces, locations where new pavement markings do not match the existing location, the existing markings are to be completely removed utilizing hand grinders.
2. For traffic bearing waterproofing membrane surfaces, locations where the new pavement markings do not match the existing location, the existing markings are to be removed utilizing a high-pressure power washing with a 15 degree tip at 14" or less from the

surface with a minimum pressure of 300 to 600 PS. These locations are then to be coated with a 3" overlap with an approved wear coat/top coat, as specified in Specification 07 18 16.

3. At locations where new pavement markings match existing pavement marking locations and/or where no existing pavement markings exist, prepare surfaces to be painted by using approved cleaning solvents (if necessary) and high-pressure power washing with a 15 degree tip at 14" or less from surface with a minimum pressure of 300 to 600 PSI for an existing coating and 1,500 to 3,000 PSI for bare concrete substrate and in accordance with SSPC SP1 to thoroughly remove all efflorescence, chalk, dust, dirt, grease, oils, and by roughening as required to remove glaze, or provide sufficient bite on existing painted surfaces per the manufacturer's recommendation.

3.03 MATERIALS PREPARATION

- A. Mix and prepare painting materials in strict accordance with the manufacturer's directions.
- B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing, and application of paint in a clean condition, free of foreign materials and residue.
- C. Stir all materials before application to produce a mixture of uniform density, and as required during the application of the materials.

3.04 APPLICATION

- A. Apply paint with brush, roller, spray, or other acceptable practice in accordance with the manufacturer's directions.
- B. Spread all materials evenly and smoothly without runs, sags or other defects. Make edges of paint adjoining other materials or colors sharp and clean, without overlapping.
- C. The number of coats and paint film thickness required is the same regardless of the application method. Do not apply succeeding coats until the previous coat has completely dried. Sand between each enamel coat application with fine sandpaper, or rub surfaces with pumice stone where required to produce an even, smooth surface in accordance with the coating manufacturer's directions.
- D. Apply additional coats when undercoats, stains, or other conditions show through the final coat of paint, until the paint film is of uniform finish, color and appearance. Give special attention to insure that all surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a film thickness equivalent to that of flat surfaces.
- E. For each coat of paint use slightly different shade than preceding coat. Tint final undercoat to color of finish coat.
- F. Paint directional arrows, parking stalls, marking lines, handicap symbols, etc., to be as detailed on the Drawings. Unless otherwise detailed, single line width to be four (4") inches wide. Striped areas shall be four (4) inch wide lines eighteen (18) inches on center. Lay out all painted lines and define with chalk markings for approval before proceeding with painting.

3.05 APPLICATION OF CONCRETE/MASONRY COATING

- A. Prior to application record surface moisture content and pH of substrate. Surface moisture content must be 12% or lower. Refer to manufacturer for pH requirements.
- B. Apply mock-up in a 36" x 36" square after surface is properly prepared.
- C. Allow mock-up to cure for 5 days at a substrate temperature of 50 degree F or higher.
- D. Conduct adhesion testing per ASTM D3359. A Classification of Adhesion Test Result of 4B or better is required, per Figure 1 of ASTM D3359.
- E. Once mock-up meets or exceeds testing requirements and approval of Owner and Engineer, apply coating in accordance with manufacturer's printed instructions, employing technically trained personnel, using equipment specifically designed for this purpose.
- F. Apply coating in two applications with a fine texture to match approved sample.
- G. Finished work shall match approved samples; be uniform in sheen, color and texture and be free from defects detrimental to appearance or performance.
- H. Verify dry film thickness of completed surfacing system in the field, at random, using a Tooke Inspection Gauge. Minimum thickness shall be as specified excluding foundation or fill coats. Conduct tests in presence of Engineer or his representative. A minimum of three readings are to be obtained or per manufacturer's recommendation, whichever is greater.

3.06 CLEAN-UP

- A. During the progress of the work, remove from the site all discarded paint materials, rubbish, cans and rags at the end of each work day.
- B. Upon completion of painting work, clean paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.
- C. At the completion of work of other trades, touch-up and restore all damaged or defaced painted surfaces.

END OF SECTION

REPAIR AND PREVENTATIVE MAINTENANCE OF THE THIRD AVENUE PARKING GARAGE ROOF DECK PITTSBURGH, PENNSYLVANIA

JUNE 17, 2026

SCOPE OF WORK

NOTE: THIS IS A SUMMARY OF THE WORK AND MAY NOT INCLUDE ALL WORK ITEMS
THAT THE CONTRACTOR WILL BE RESPONSIBLE FOR DURING THE PROJECT.

1. PROJECT MOBILIZATION & DEMOBILIZATION, INCLUDING ALL PERMITS AS REQUIRED.
2. IMPLEMENT REPAIRS IN A LOGICAL MANNER. THE CONTRACTOR SHALL SUBMIT PHASING PLANS TO THE OWNER AND ENGINEER FOR APPROVAL.
3. DESIGN, INSTALLATION, AND MAINTENANCE OF THE ENTIRE SHORING SYSTEM. THE OWNER AND ENGINEER DO NOT TAKE ANY RESPONSIBILITY FOR THE DETERMINATION OF WHETHER SHORING IS REQUIRED FOR ANY REPAIRS OR NOT.
4. PERFORM CONCRETE SLAB REPAIRS AT LOCATIONS DESIGNATED ON THE DRAWINGS ACCORDING TO THE SPECIFICATIONS AND THE REPAIR DETAIL SHEETS.
5. PARTIAL DEPTH SOFFIT REPAIRS AT LOCATIONS DESIGNATED ON THE DRAWINGS ACCORDING TO THE SPECIFICATIONS AND REPAIR DETAIL SHEETS.
6. FULL DEPTH CURB REPAIRS AT LOCATIONS DESIGNATED ON THE DRAWINGS ACCORDING TO THE SPECIFICATIONS AND REPAIR DETAIL SHEETS.
7. REMOVE EXISTING FACADE CONCRETE LEDGE AT LOCATIONS DESIGNATED ON THE DRAWINGS. WORK INCLUDES REMOVING THE CONCRETE LEDGE, GRINDING SMOOTH THE EXISTING SURFACE AND PAINT TO MATCH EXISTING.
8. REMOVE AND REPLACE CAR STOPS AT LOCATIONS DESIGNATED ON THE DRAWINGS ACCORDING TO THE SPECIFICATIONS.
9. REMOVE EXISTING WATERPROOFING MEMBRANE AND APPLY NEW WATERPROOFING MEMBRANE AT LOCATIONS DESIGNATED ON THE DRAWINGS ACCORDING TO THE SPECIFICATIONS AND REPAIR DETAIL SHEETS.
10. INSTALL STRIPING IN PARKING AREAS, DIRECTIONAL MARKINGS IN TRAFFIC AREAS, AND SAFETY MARKINGS AT ALL CURBS, ISLANDS, STAIRS, ETC. AFFECTED BY CONSTRUCTION ACTIVITIES ACCORDING TO THE SPECIFICATIONS.
11. DEMOBILIZE AND SWEEP CLEAN OR POWERWASH ALL AREAS AFFECTED BY THE WORK.

SHEET INDEX

S0.00 COVER SHEET

S0.01 GENERAL NOTES

S1.01 LEVEL TWO SOFFIT PLAN

S1.02 LEVEL FOUR FLOOR PLAN

S1.03 LEVEL FIVE FLOOR PLAN

S1.04 LEVEL FIVE SOFFIT PLAN

S2.01 FOURTH AVENUE ELEVATION PLAN

S3.01 LEVEL ONE WATERPROOFING PLAN

S3.02 LEVEL TWO WATERPROOFING PLAN

S3.03 LEVEL THREE WATERPROOFING PLAN

S3.04 LEVEL FOUR WATERPROOFING PLAN

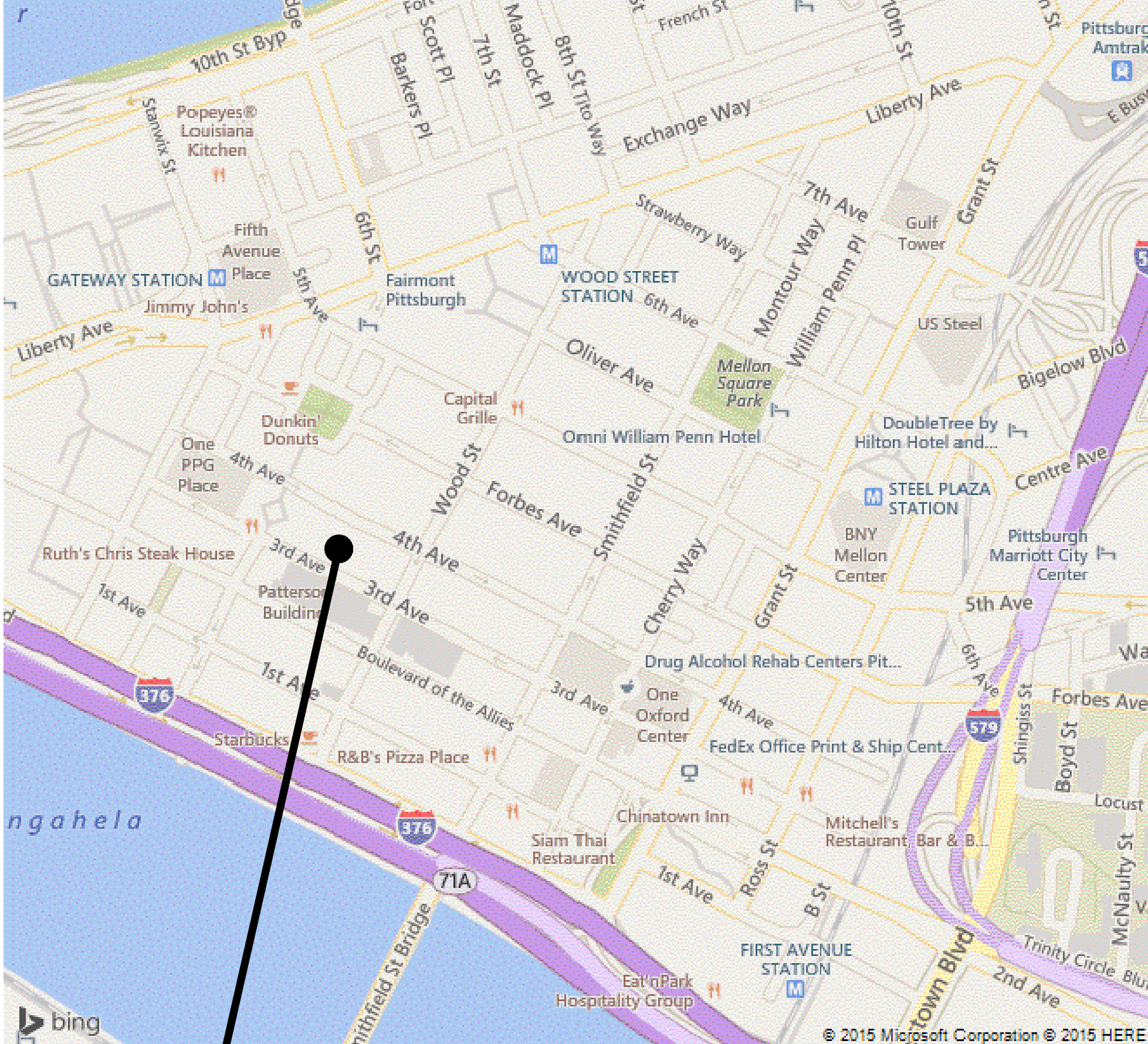
S3.05 LEVEL FIVE WATERPROOFING PLAN

S4.01 REPAIR DETAILS

S4.02 REPAIR DETAILS

S4.03 REPAIR DETAILS

LOCATION MAP



SITE LOCATION

REPAIR AND PREVENTATIVE MAINTENANCE
OF THE
THIRD AVENUE PARKING GARAGE ROOF DECK
PITTSBURGH, PA

[illegible]

NO.	DESCRIPTION	DATE
DRAWING TITLE:		

COVER
SHEET

DRAWING NO.

\$0.00

SCALE: NONE

DATE: 06/17/26

PROJECT NO : 51-22130

DES.	DRWN.	CK D.
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GENERAL NOTES

THE FOLLOWING GENERAL NOTES SHALL APPLY UNLESS NOTED OTHERWISE ON PLANS:

- ALL DESIGN AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE APPLICABLE LOCAL, STATE, AND NATIONAL BUILDING CODES.
- DO NOT SCALE DIMENSIONS FROM DRAWINGS.
- THE CONTRACTOR IS RESPONSIBLE TO VERIFY ALL DIMENSIONS SHOWN ON PLANS WITH EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
- THE CONTRACTOR SHALL REPORT IMMEDIATELY TO THE ENGINEER ANY DISCREPANCIES OR INCORRECT INFORMATION WITH THE DRAWINGS BASED ON EXISTING CONDITIONS. AFTER REPORTING THE DISCREPANCIES VERBALLY, A WRITTEN REPORT SHOULD THEN FOLLOW. THE CONTRACTOR SHALL BE DIRECTED BY THE ENGINEER REGARDING THE DISCREPANCIES.
- THE CONTRACTOR SHALL PROVIDE METHODS AND EQUIPMENT FOR PROTECTING THE STRUCTURE AND ALL MATERIALS AND PERSONNEL FROM FIRE DAMAGE PRIOR TO STARTING WORK. METHODS AND EQUIPMENT ARE SUBJECT TO APPROVAL BY THE LOCAL FIRE DEPARTMENT. THE CONTRACTOR SHALL SUBMIT THE METHODS AND EQUIPMENT TO THE ENGINEER IN WRITING AND OBTAIN THE ENGINEER'S AND OWNER'S APPROVAL PRIOR TO STARTING WORK. FIRE PROTECTION AND PREVENTION DURING THE CONSTRUCTION PERIOD SHALL BE IN ACCORDANCE WITH ALL LAWS AND REGULATIONS, INCLUDING BUT NOT LIMITED TO THE LATEST N.F.P.A. REGULATIONS, O.S.H.A., AND STATE AND LOCAL REQUIREMENTS.
- THE CONTRACTOR SHALL COMPLY WITH ALL SAFETY AND HEALTH LAWS AND REGULATIONS INCLUDING, BUT NOT LIMITED TO, PROVISIONS AND REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970, AS AMENDED AND/OR THE CONSTRUCTION SAFETY ACT OF 1969, AS AMENDED (WHICHEVER IS APPLICABLE) AND WITH ALL MOST RECENT APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS, AND ORDERS OF ANY PUBLIC AUTHORITY-HAVING JURISDICTION AND SAFETY OF PERSONS OR PROPERTY OR TO PROTECT THEM FROM DAMAGE, INJURY OR LOSS. HE SHALL ERECT AND MAINTAIN, AS REQUIRED BY EXISTING CONDITIONS AND PROGRESS OF THE WORK, ALL REASONABLE SAFEGUARDS FOR SAFETY AND PROTECTION, INCLUDING POSTING DANGER SIGNS AND OTHER WARNING AGAINST HAZARDS, PROMULGATING SAFETY REGULATIONS, AND NOTIFYING THE OWNER AND USERS OF ADJACENT UTILITIES. THE CONTRACTOR SHALL ASSURE THAT ALL OF HIS SUBCONTRACTORS ALSO CONFORM TO ALL HEALTH AND SAFETY LAWS AND REGULATIONS. THE CONTRACTOR SHALL AT ALL TIMES HAVE AN O.S.H.A. CERTIFIED "COMPETENT PERSON" ON THE JOB AND AN INDIVIDUAL TRAINED AND CERTIFIED IN FIRST AID BY THE AMERICAN RED CROSS.
- THE CONTRACTOR SHALL PROVIDE ALL SHORING, BRACING, AND SHEETING REQUIRED FOR SAFETY AND PROPER EXECUTION OF THE WORK. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL THE METHOD OF SHORING. SHORING SHALL BE SEALED BY AN ENGINEER LICENSED IN THE STATE WHERE THE WORK WILL OCCUR.
- THE CONTRACTOR SHALL NOT DEMOLISH ANY EXISTING STRUCTURAL ELEMENT IN THE STRUCTURE PRIOR TO INSTALLATION OF PROPER SHORING MEMBERS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL NOT ATTEMPT TO BRING ANY VEHICLE OR EQUIPMENT INTO THE FACILITY PRIOR TO INSTALLATION OF PROPER SHORING MEMBERS APPROVED BY THE ENGINEER AND OF WHICH THE REQUIREMENTS ARE SHOWN ON PLANS. ANY VEHICLE AND/OR EQUIPMENT TO BE BROUGHT INTO THE FACILITY SHALL BE APPROVED BY THE ENGINEER. THE CONTRACTOR IS SOLELY RESPONSIBLE TO PREPARE SHOP DRAWINGS FOR THE SHORING MEMBERS AND TO SUBMIT THEM TO THE ENGINEER FOR APPROVAL.
- WHEN THE PLANS INCLUDE INFORMATION PERTAINING TO SURFACE OBSERVATION, MATERIAL TESTING, AND OTHER PRELIMINARY INVESTIGATIONS, SUCH INFORMATION REPRESENTS ONLY THE OPINION OF THE ENGINEER AS TO THE LOCATION, CHARACTER, OR QUALITY OF THE MATERIALS ENCOUNTERED AND IS ONLY INCLUDED FOR CONVENIENCE OF THE BIDDER. THE OWNER/ENGINEER ASSUMES NO RESPONSIBILITY WHATSOEVER IN RESPECT TO THE SUFFICIENCY OR ACCURACY OF THE INFORMATION, AND THERE IS NO GUARANTEE, OTHER EXPRESSLY IMPLIED, THAT THE CONDITIONS INDICATED ARE REPRESENTATIVE OF THOSE EXISTING THROUGHOUT THE WORK, OR THAT UNANTICIPATED DEVELOPMENTS MAY NOT OCCUR. SAID INFORMATION SHALL NOT BE CONSIDERED BY THE PARTIES AS A BASIS FOR THE CONTRACT AWARD AMOUNT.
- ANY EXTRA WORK BEYOND THE SCHEDULED QUANTITIES REQUIRING ADDITIONAL COST TO THE OWNER SHALL BE APPROVED BY THE OWNER AND ENGINEER PRIOR TO TAKING SUCH ACTION. CLAIMS FOR EXTRA WORK WHICH HAVE NOT BEEN AUTHORIZED IN WRITING BY THE OWNER AND APPROVED BY THE ENGINEER WILL BE REJECTED AND THE CONTRACTOR SHALL NOT BE ENTITLED TO PAYMENT. THE CONTRACTOR SHALL PROMPTLY SUBMIT THE PROPOSAL FOR EXTRA WORK, IN WRITING, AS ADDITIONAL WORK IS DISCOVERED.
- THE PLANS MAY BE SUPPLEMENTED BY STANDARD AND WORKING DRAWINGS AS ARE NECESSARY TO ADEQUATELY DESCRIBE THE WORK. IN THE SOLE JUDGMENT OF THE ENGINEER, IF AN EVENT A CHANGE BECOMES NECESSARY IN THE BEST INTERESTS OF THE PROJECT, DUE TO CIRCUMSTANCES NOT KNOWN UNTIL THE BID DOCUMENTS WERE SUBMITTED TO THE OWNER OR ARISING THEREAFTER, THE ENGINEER MAY ALTER THE PLANS AS MAY BE NECESSARY AND INCREASE OR DECREASE THE QUANTITIES OF WORK TO BE PERFORMED IN ACCORDANCE WITH SUCH CHANGES. THE OWNER SHALL BE INFORMED WITH A COPY OF ALL SUBMITTALS AND CORRESPONDENCE AS THE CHANGES MAY OCCUR.
- EXECUTION OF THE WORK WILL INVOLVE CONSIDERATION FOR ALLOWING THE OWNER TO CONTINUE TO USE AREAS OUTSIDE THE REPAIR AREA AND THE FACILITIES ABOVE AND SURROUNDING THE AREAS UNDER REPAIR. PRIOR TO THE AWARD OF THE CONTRACT, THE CONSTRUCTION SCHEDULE PREPARED BY THE CONTRACTOR SHALL BE SUBMITTED TO THE OWNER AND COORDINATED WITH THE FACILITY MANAGEMENT. OWNER'S APPROVAL OF THE PROPOSED SCHEDULE SHALL PRECEDE THE CONTRACT AWARD.
- THE CONTRACTOR SHALL REVIEW ALL EXISTING CONDITIONS TO DETERMINE ALL SERVICES (ELECTRICAL, HVAC, PLUMBING) AFFECTED BY THE REPAIR WORK. HE SHALL MAKE NECESSARY TEMPORARY CONNECTIONS TO MAINTAIN EXISTING SERVICES TO ALL AREAS OF THE FACILITY OR OTHER AREAS NOT IN THE CONTRACT AFFECTED BY THE WORK. THE CONTRACTOR SHALL SUBMIT THE METHODS AND SCHEDULE OF CONNECTIONS FOR THE OWNER'S APPROVAL PRIOR TO COMMENCEMENT.
- AS THE WORK PROGRESSES, THE CONTRACTOR SHALL PRODUCE "AS-BUILT" DRAWINGS FOR THE INSTALLATION OF ALL REPAIR ITEMS UNDER THE CONTRACT. THE ENGINEER WILL PROVIDE THE GENERAL CONTRACTOR WITH A SET OF REPRODUCIBLES FOR THIS PURPOSE. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN THE "AS-BUILT" DRAWINGS UPDATED ACCORDING TO THE JOB PROGRESS. FOR EACH PAY REQUEST BY THE CONTRACTOR, THE OWNER AND ENGINEER SHALL RECEIVE A COPY OF THE UPDATED "AS-BUILT" DRAWINGS.
- WORK AREA ENCLOSURES: FLOOR-TO-CEILING PLYWOOD PARTITIONS/ENCLOSURES ARE TO BE UTILIZED WHERE THE CONSTRUCTION AREAS ADJACENT AREAS OF THE GARAGE OR THE ADJACENT GARAGE THAT ARE TO REMAIN OPEN TO THE PUBLIC. AT ALL OTHER OPEN AIR LOCATIONS, PRIMARILY AT THE EXTERIOR ELEVATIONS OF THE GARAGE, THE OPENINGS SHALL BE SEALED WITH 10 MIL POLYETHYLENE SHEETING. THE MATERIALS THAT ARE UTILIZED TO ENCLOSE THE CONSTRUCTION AREAS SHALL RESULT IN A NEAR AIR-TIGHT SEAL, WHICH WILL CONTROL AND PREVENT THE DISPERSION OF DUST AND DEBRIS. THE CONTRACTOR MAY BE REQUIRED TO UTILIZE EXPANDABLE FOAMS, CLAMPS, AND VARIOUS ADHESIVES TO PROVIDE A NEAR AIR TIGHT ENCLOSURE. EQUIP PARTITIONS WITH DUST RESISTANT DOORS AND SECURITY LOCKS. THE FLOOR PLANS INDICATE THE LOCATIONS AND TYPES OF ENCLOSURES REQUIRED FOR THIS PROJECT.

CONSTRUCTION NOTES

- CODES AND STANDARDS: ALL STRUCTURAL REPAIR WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROVISIONS OF ALL STATE BUILDING CODES AND WITH THE LATEST EDITION OF THE FOLLOWING CODES AND STANDARDS:
 - ACI 304 "RECOMMENDED PRACTICE FOR MEASURING, MIXING, TRANSPORTING AND PLACING CONCRETE"
 - ACI 305 "RECOMMENDED PRACTICE FOR HOT WEATHER CONCRETING"
 - ACI 306 "RECOMMENDED PRACTICE FOR COLD WEATHER CONCRETING"
 - ACI 309 "RECOMMENDED PRACTICE FOR CONSOLIDATION OF CONCRETE"
 - ACI 311 "RECOMMENDED PRACTICE FOR CONCRETE INSPECTION"
 - ACI 318 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"
 - ACI 347 "FORMWORK FOR CONCRETE"
 - AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"
 - AISC "SPECIFICATIONS FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS"
 - AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS"
 - AWS D1.1 "STRUCTURAL WELDING CODE"
- ALL DETAILS, SECTIONS, AND NOTES SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR SITUATIONS ELSEWHERE, UNLESS OTHERWISE SHOWN.
- THE ENGINEER SHALL HAVE AUTHORITY TO REJECT WORK WHICH DOES NOT CONFORM TO THE CONTRACT DOCUMENTS. THE ENGINEER AND OWNER WILL HAVE AUTHORITY TO REQUIRE SPECIAL INSPECTION OR TESTING OF THE WORK; HOWEVER, NEITHER THE ENGINEER'S AUTHORITY TO ACT UNDER THIS SUBPARAGRAPH NOR ANY DECISION MADE BY HIM IN GOOD FAITH TO EXERCISE OR NOT EXERCISE SUCH AUTHORITY, SHALL GIVE RISE TO ANY DUTY OR RESPONSIBILITY OF THE ENGINEER TO THE CONTRACTOR, ANY SUBCONTRACTOR, ANY OF THEIR AGENTS OR EMPLOYEES, OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK.
- THE CONTRACTOR SHALL MAINTAIN, ON SITE, ONE COMPLETE SET OF DRAWINGS (WHITE PRINTS) AND SPECIFICATIONS FURNISHED BY THE OWNER AT THE CONTRACTOR'S EXPENSE, AN ACCURATE RECORD OF THE INSTALLATION OF ALL MATERIALS AND SYSTEMS COVERED BY THE CONTRACT. THE "AS-BUILT" RECORD SHALL INDICATE THE EXACT LOCATION AND AMOUNT OF ALL WORK. THE COMPLETED SET OF "AS-BUILT" DRAWINGS MUST BE DELIVERED TO THE OWNER AND ENGINEER AS SOON AS THE PROJECT IS FINISHED.
- ANY EQUIPMENT GREATER THAN 6,000 LBS. SHALL REQUIRE SPECIALIZED SHORING OF THE SUPPORTED SLAB. THE ENGINEER SHALL REVIEW AND APPROVE SHORING PRIOR TO STARTING WORK. ALL LOOSE CONCRETE ADJACENT TO A REPAIR AREA ON THE SOFFIT OF A SUPPORTED SLAB SHALL BE REMOVED PRIOR TO STARTING WORK. ALL NOISE AND DUST PRODUCING OPERATIONS ARE LIMITED TO THE OWNER'S SATISFACTION AND LOCAL CODE REQUIREMENTS.
- THE NEW CONCRETE SHALL BE PLACED, CONSOLIDATED, AND FINISHED TO MATCH EXISTING FINISH ELEVATIONS. ALL NEW CONCRETE MAY BE OPEN TO SERVICE LOADS AFTER THE NEW CONCRETE HAS ACHIEVED A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI. THE SHORING AND FALSEWORK SHALL BE LEFT IN PLACE UNTIL THE NEW CONCRETE ACHIEVES AT LEAST 80% OF THE DESIGN COMPRESSIVE STRENGTH.
- HAND-HELD PNEUMATIC HAMMERS MAY BE UTILIZED TO REMOVE AREAS OF CONCRETE SCHEDULED TO BE REMOVED. MAXIMUM HAMMER SIZE SHALL NOT EXCEED 30 LBS. THE USE OF HOE RAMS AND HYDRO-DEMOLITION IS PROHIBITED.
- THE CRITERIA FOR MEASUREMENT AND PAYMENT FOR THE UNIT PRICE WORK ITEMS ARE SHOWN IN DETAILS 16 THROUGH 20 ON DRAWING S3.07. FOR UNIT PRICE ITEMS NOT SHOWN IN THESE DETAILS, THE CRITERIA SHALL BE A REASONABLE APPROXIMATION BASED ON THESE DETAILS.

CONCRETE PROCEDURE NOTES

- ESTABLISH A BENCH MARK AND SHOOT ELEVATIONS OF THE EXISTING SLAB, INCLUDING BOTH INSIDE AND OUTSIDE OF REPAIR AREAS, MAINTAIN A RECORD OF THE ELEVATIONS BEFORE, DURING, AND UPON COMPLETION OF REPAIR WORK.
- INSTALL TRAFFIC DEVICES FOR PROPER MAINTENANCE AND PROTECTION OF TRAFFIC DURING CONSTRUCTION. DUSTPROOF FLOOR-TO-CEILING PARTITIONS SHALL BE ERECTED AROUND AND DIRECTLY BENEATH WORK AREA.
- PROVIDE ADEQUATE SHORING AND BRACING FOR THE SAFE AND PROPER EXECUTION OF THE WORK. ALL SHORING SHALL BE CARRIED TO GRADE. SEE DETAIL 2, DWG S4.02.
- SAWCUT PERIMETER OF AREA TO BE REPAIRED WITHOUT CUTTING REINFORCING STEEL. REMOVE DETERIORATED CONCRETE. REINFORCING BARS THAT HAVE LOST 20% OR MORE OF THEIR CROSS-SECTIONAL AREA SHALL BE SUPPLEMENTED. BARS THAT HAVE BEEN CUT OR HAVE GREATER THAN 50% SECTION LOSS SHALL BE REPLACED WITH NEW EPOXY-COATED REBAR. NEW REBAR SHALL BE LAP SPLICED. IF THERE IS INSUFFICIENT DEVELOPMENT LENGTH, DOWELS (DETAIL 3, DWG S4.02) AND MECHANICAL FASTENERS (DETAIL 4, DWG S4.02) SHALL BE USED.
- INSTALL THE NECESSARY FALSEWORK (FOR FULL DEPTH REPAIRS) AND PROVIDE NEW EPOXY COATED REINFORCING STEEL AND WELDED WIRE FABRIC TO MATCH THE EXISTING LAYOUT.
- FOR FLAT SLAB AND FULL DEPTH REPAIR AREAS PLACE, CONSOLIDATE, AND FINISH NEW FIBER REINFORCED CONCRETE.
- FOR VERTICAL AND OVERHEAD REPAIR AREAS, APPLY APPROVED SHOTCRETE OR FORM AND PUMP MATERIAL IN LAYERS OF LIMITED THICKNESS AS PER THE MANUFACTURERS RECOMMENDATIONS AND THE SPECIFICATIONS.
- CURING OF NEW CONCRETE SHALL BE BY APPROVED METHODS AND THE MINIMUM PERIOD FOR MAINTENANCE OF MOISTURE AND TEMPERATURE SHALL BE 3 DAYS OR THE TIME NECESSARY TO ATTAIN 80% OF THE SPECIFIED COMPRESSIVE STRENGTH, WHICHEVER PERIOD IS GREATER. THE SAME REQUIREMENTS SHALL APPLY FOR REMOVAL OF FALSEWORK AND SHORING.
- NO SURFACE TREATMENTS (SEALER OR WATERPROOF MEMBRANE) SHALL BE APPLIED TO NEW CONCRETE WITHIN THE FIRST 28 DAYS AFTER PLACEMENT.
- MAINTAIN OR IMPROVE THE EXISTING SLOPE TO PROVIDE POSITIVE DRAINAGE ON THE FINISHED DECK SURFACE.
- EXPPOSED REPAIR SURFACES SHALL NOT CONTAIN FINS, OFFSETS, SHOULDERS, OR PASTE LEAKING DUE TO POORLY FIT FORMS. A SAMPLE REPAIR AREA SHALL BE FORMED AND PLACED AT THE BEGINNING OF THE PROJECT IN ORDER TO ESTABLISH A STANDARD OF ACCEPTABILITY.
- ALL CRACKS IN NEW CONCRETE, NEW CONSTRUCTION JOINTS AND COVE JOINTS SHALL HAVE A JOINT SEALANT INSTALLED PER SPECIFICATIONS AS SHOWN IN THE DETAILS.

REINFORCED CONCRETE NOTES

- ALL REINFORCED CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF ACI 318 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"
- MATERIALS:
 - THE 28-DAY COMPRESSIVE STRENGTH OF ALL NEW CONCRETE SHALL BE A MINIMUM OF 5,000 PSI UNLESS OTHERWISE NOTED.
 - ALL NEW REINFORCING STEEL SHALL BE EPOXY COATED REBAR AND CONFORM TO ASTM A775 (60,000 PSI YIELD).
- ALL DIMENSIONS SHOWN FOR LOCATION OF REINFORCING STEEL ARE TO THE FACE OF MAIN BARS AND DENOTE MINIMUM CLEAR COVER. UNLESS SPECIFICALLY NOTED, CONCRETE COVER FOR NEW EPOXY COATED REINFORCING STEEL SHALL BE:

REINFORCING STEEL IN CONCRETE CAST AGAINST EARTH – 3"

#6 OR LARGER BARS IN CONCRETE EXPOSED TO WEATHER OR TRAFFIC – 2"
#5 OR SMALLER BARS AND W.W.F. IN CONCRETE EXPOSED TO WEATHER OR TRAFFIC – 1 1/2"

REINFORCING STEEL NOT EXPOSED TO EARTH, WEATHER, OR TRAFFIC:
#11 OR SMALLER BARS IN SLABS, WALLS, AND JOISTS – 3/4"
ALL BARS IN BEAMS AND COLUMNS – 1 1/2"
ALL EXISTING REINFORCING STEEL (TOP OR BOTTOM) – 3/4"
- UNLESS DIRECTED OTHERWISE BY THE ENGINEER, ALL CONCRETE REINFORCEMENT SHALL BE DETAILED, FABRICATED, LABELED, SUPPORTED, AND SPACED IN THE FORMS AND SECURED IN PLACE IN ACCORDANCE WITH THE PROCEDURES AND REQUIREMENTS OUTLINED IN THE LATEST EDITION OF ACI 315 "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES". BAR SUPPORT IN CONTACT WITH EXPOSED SURFACES SHALL BE PLASTIC TIPPED.
- SHOP DRAWINGS SHOWING REINFORCING DETAILS, INCLUDING STEEL SIZES, SPACING, AND PLACEMENT, SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO FABRICATION.
- FORMS FOR ALL CONCRETE WORK, IF USED, SHALL BE TIGHT, LEAKPROOF, AND PROVIDE THE NECESSARY RIGIDITY TO SUPPORT THE IMPOSED LOADS WITHOUT ANY SETTLEMENT OR DEFORMATION.
- ALL REINFORCING SPLICES SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST EDITION OF ACI 318, BUT IN NO CASE WILL IT BE LESS THAN THE LENGTHS NOTED BELOW, UNLESS NOTED ON THE DRAWINGS. WELDED WIRE FABRIC SHALL BE LAPPED 2 FULL MESH PANELS AND TIED SECURELY WHERE REQUIRED. DOWELS SHALL MATCH SIZE AND NUMBER OF MAIN REINFORCING BARS AND BE SPLICED ACCORDING TO THE TABLE BELOW, UNLESS NOTED OTHERWISE.

LAP SPLICE LENGTHS FOR BARS IN TENSION AND TEMPERATURE STEEL		
BAR SIZE	UNCOATED REINFORCEMENT	EPOXY-COATED REINFORCEMENT
3	17"	25"
4	22"	33"
5	28"	41"
6	33"	50"
7	48"	72"
8	55"	83"
9	62"	93"

TABLE NOTES:

- CLASS B SPLICE
- NORMAL WEIGHT CONCRETE
- COMPRESSIVE STRENGTH = 5000 PSI
- GRADE 60 REINFORCING STEEL
- LESS THAN 12" OF CONCRETE CAST BELOW REINFORCING STEEL
- CLEAR COVER BETWEEN 1 AND 3 BAR DIAMETERS
- BAR SPACING BETWEEN 2 AND 6 BAR DIAMETERS

EXISTING STRUCTURE NOTES

- THE EXISTING STRUCTURE NOTES ARE BASED ON THE ORIGINAL CONSTRUCTION DOCUMENTS DATED MARCH 1, 1951 AS PREPARED BY HOFFMAN AND CRUMPTON, ARCHITECTS FOR THE PUBLIC PARKING AUTHORITY OF PITTSBURGH.
- DESIGN STANDARD: BUILDING CODE OF THE CITY OF PITTSBURGH.
- CONCRETE STRENGTH: 3,000 PSI IN 28 DAYS.
- LIVE LOADS: GARAGE FLOOR AND RAMPS = 80 PSF
STAIRS AND STORAGE AREAS = 100 PSF
- REINFORCING STEEL SHALL BE INTERMEDIATE GRADE DEFORMED BARS CONFORMING TO ASTM A15-39.
- SPIRALS SHALL BE COLD DRAWN STEEL WIRE CONFORMING TO ASTM A32-34.
- REQUIREMENTS OF THE ACI DETAILING MANUAL SHALL APPLY.
- SOIL BEARING PRESSURE UNDER SPREAD FOOTINGS AT COLUMNS FOR DEAD + LIVE LOADS = 3 KSF.

BUILDING CODE NOTES

- THE PROPOSED WORK IS COMPLIANT WITH 2021 IBC REQUIREMENTS.
- CONSTRUCTION TYPE – 1A
- OCCUPANCY CLASSIFICATION – GROUP S-2
- THE PARKING GARAGE DOES NOT CONTAIN A SPRINKLER SYSTEM.
- THE WORK AREA AND ROUTE TO IT ARE COMPLIANT WITH PA UCC ACCESSIBILITY REQUIREMENTS.

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REPAIR AND PREVENTATIVE MAINTENANCE
OF THE
THIRD AVENUE PARKING GARAGE ROOF DECK
PITTSBURGH, PA

ISSUE

NO.	DESCRIPTION	DATE
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DRAWING TITLE:

GENERAL
NOTES

DRAWING NO.

S0.01

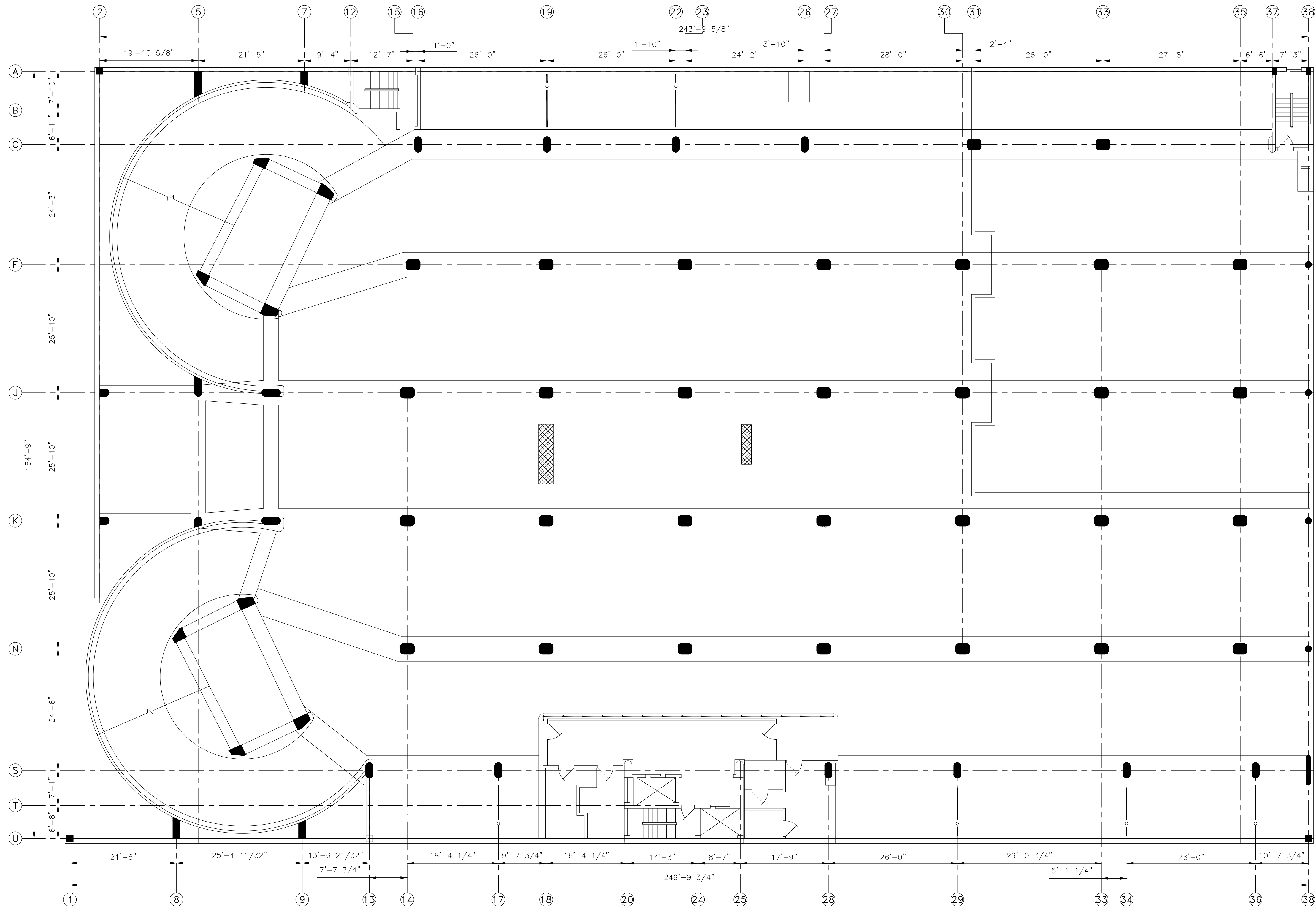
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DATE: 06/17/26

PROJECT NO : 51-22130

DES.	DRWN.	CK'D.
MWR	DJC	MWR

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LEVEL TWO SOFFIT PLAN



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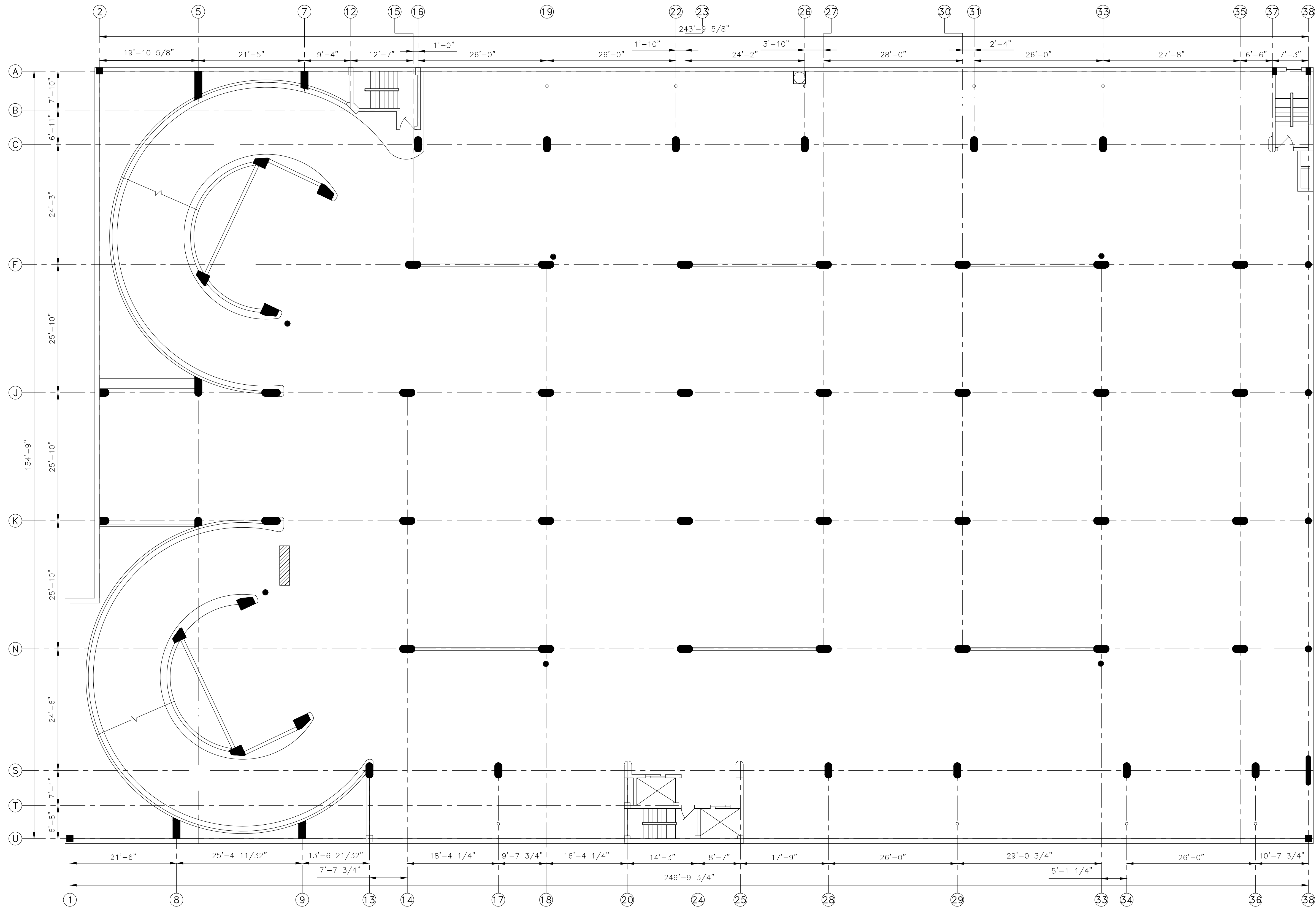
— AREA DESIGNATED FOR PARTIAL DEPTH SOFFIT REPAIR, SEE DETAIL 1, DRAWING S4.01

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REPAIR AND PREVENTATIVE MAINTENANCE
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PITTSBURGH, PA

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LEVEL TWO SOFFIT PLAN		
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SCALE: 3/32"=1'-0"		
DATE: 06/17/26		
PROJECT NO : 51-22130		
DES.	DRWN.	CK'D.
MWR	DJC	MWR



LEVEL FOUR FLOOR PLAN



LEGEND:

▨ - AREA DESIGNATED FOR PARTIAL DEPTH FLOOR REPAIR,
SEE DETAIL 1, DRAWING S4.01

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PITTSBURGH, PA

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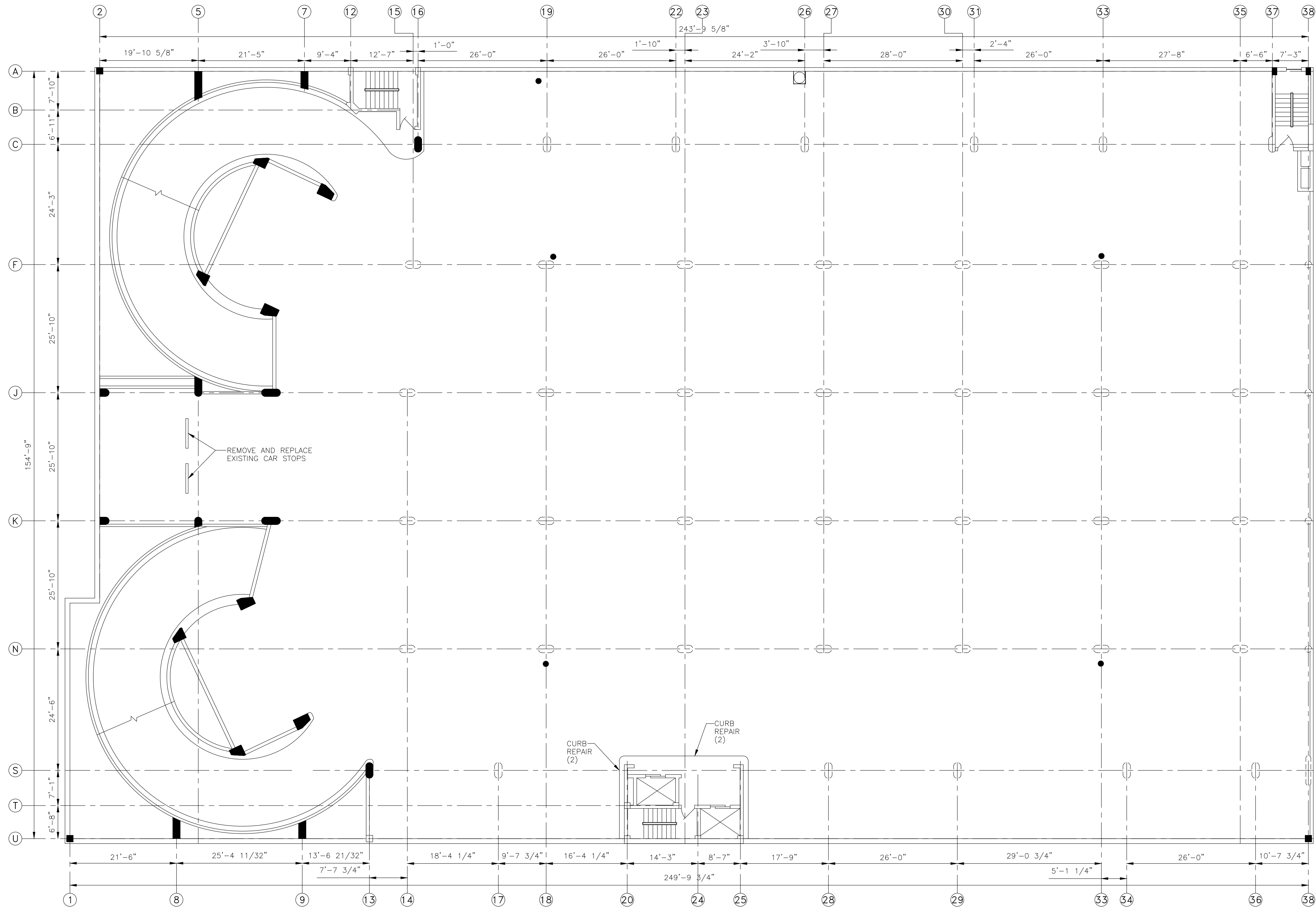
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DATE: 06/17/26

PROJECT NO : 51-22130

DES.	DRWN.	CK'D.
MWR	DJC	MWR



LEVEL FIVE FLOOR PLAN



LEGEND:

CURB REPAIR (#) - DENOTES FULL DEPTH CURB REPAIR (AREA IN S.F.), SEE DETAIL 5, DRAWING S4.02

REMOVE EXISTING CAR STOPS AS INDICATED ON THE DRAWING AND INSTALL NEW SENTRY INDUSTRIAL PLASTIC PARKING BLOCKS OR APPROVED EQUAL PER THE MANUFACTURER'S RECOMMENDATIONS (2 EA). ALL DOWELS TO BE CUT FLUSH WITH SLAB AND EPOXY COATED.

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PITTSBURGH, PA

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PROJECT NO : 51-22130		
DES.	DRWN.	CK'D.
MWR	DJC	MWR

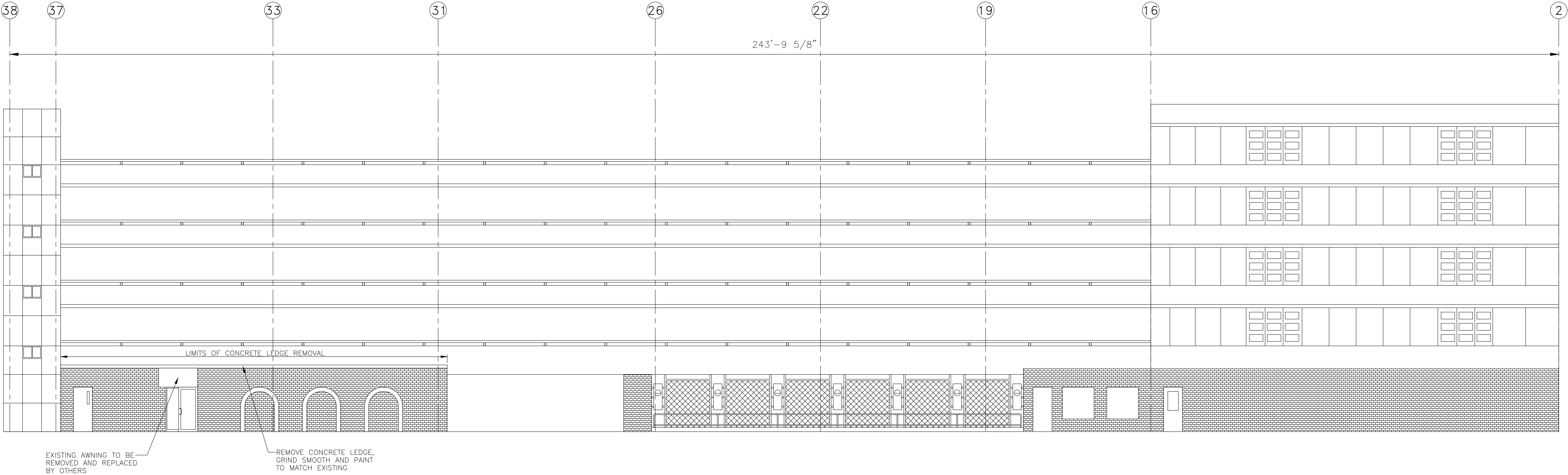


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THIRD AVENUE PARKING GARAGE ROOF DECK
OF THE
REPAIR AND PREVENTATIVE MAINTENANCE
PITTSBURGH, PA

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PROJECT	NO : 51-22130	
DES. MWR	DRWN. DJC	CK'D. MWR



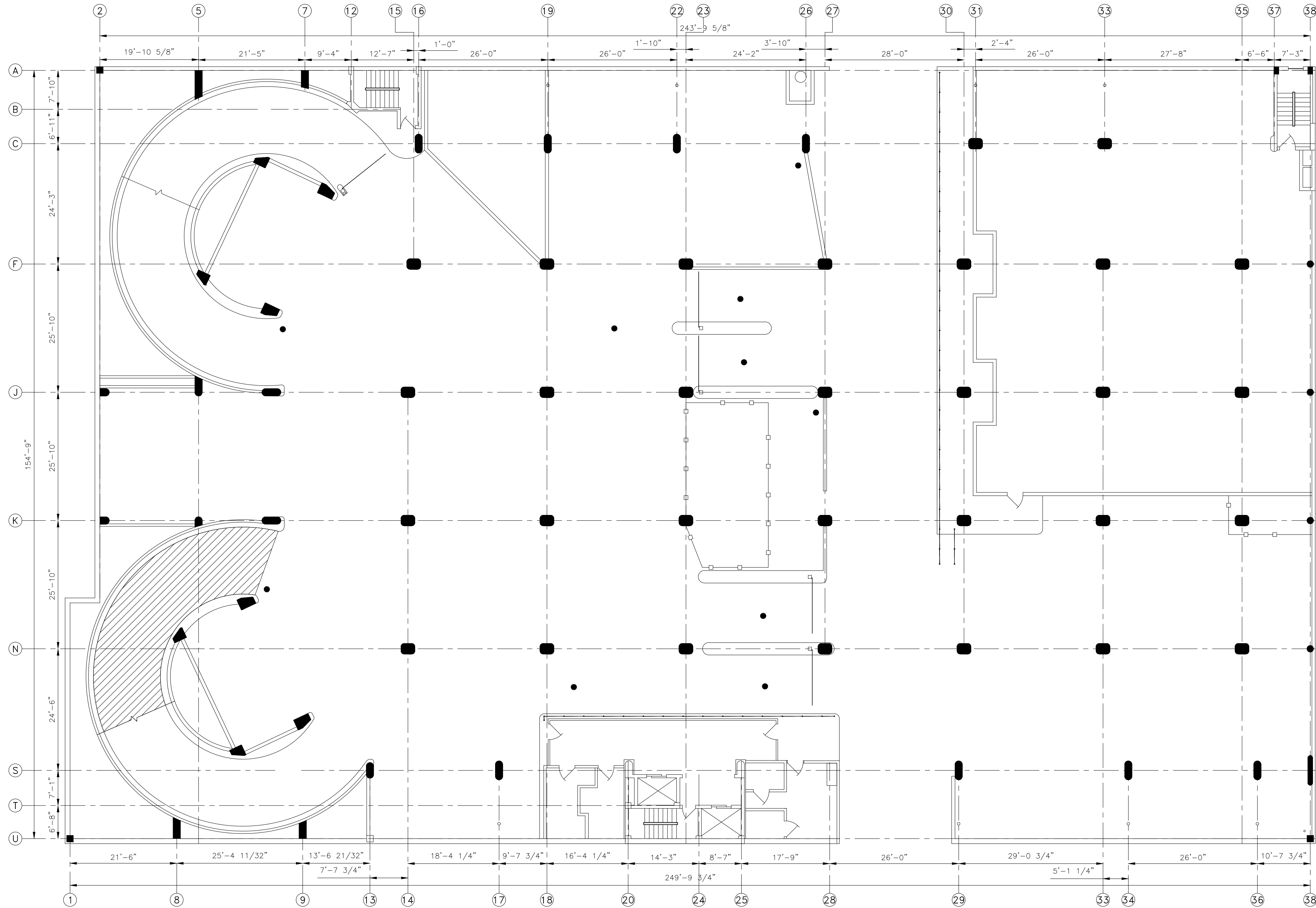
FOURTH AVE ELEVATION

DESIGN

REPAIR AND PREVENTATIVE MAINTENANCE
OF THE
THIRD AVENUE PARKING GARAGE ROOF DECK
PITTSBURGH, PA

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FOURTH AVENUE ELEVATION PLAN		
DRAWING NO.		
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SCALE: 1/8"=1'-0"		
DATE: 06/17/26		
PROJECT NO : 51-22130		
DES.	DRWN.	CK'D.
MWR	DJC	MWR

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LEVEL ONE FLOOR PLAN



LEGEND:

— AREA DESIGNATED REMOVAL AND REPLACEMENT OF THE WATERPROOFING MEMBRANE
SEE DETAIL 7, DRAWING S4.03

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OF THE
THIRD AVENUE PARKING GARAGE ROOF DECK
PITTSBURGH, PA

ISSUE

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DRAWING TITLE:
LEVEL
ONE
WATERPROOFING
PLAN

DRAWING NO.

S3.01

SCALE: 3/32"=1'-0"

DATE: 06/17/26

PROJECT NO : 51-22130

DES.	DRWN.	CK'D.
MWR	DJC	MWR

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LINE	DATE	LINE



 - AREA DESIGNATED REMOVAL AND REPLACEMENT OF THE WATERPROOFING MEMBRANE
SEE DETAIL 7, DRAWING S4.03

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SCALE: $3/32"=1'-0"$

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REPAIR AND PREVENTATIVE MAINTENANCE OF THE THIRD AVENUE PARKING GARAGE ROOF DECK PITTSBURGH, PA

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 - AREA DESIGNATED REMOVAL AND REPLACEMENT OF THE WATERPROOFING MEMBRANE
SEE DETAIL 7, DRAWING S4.03

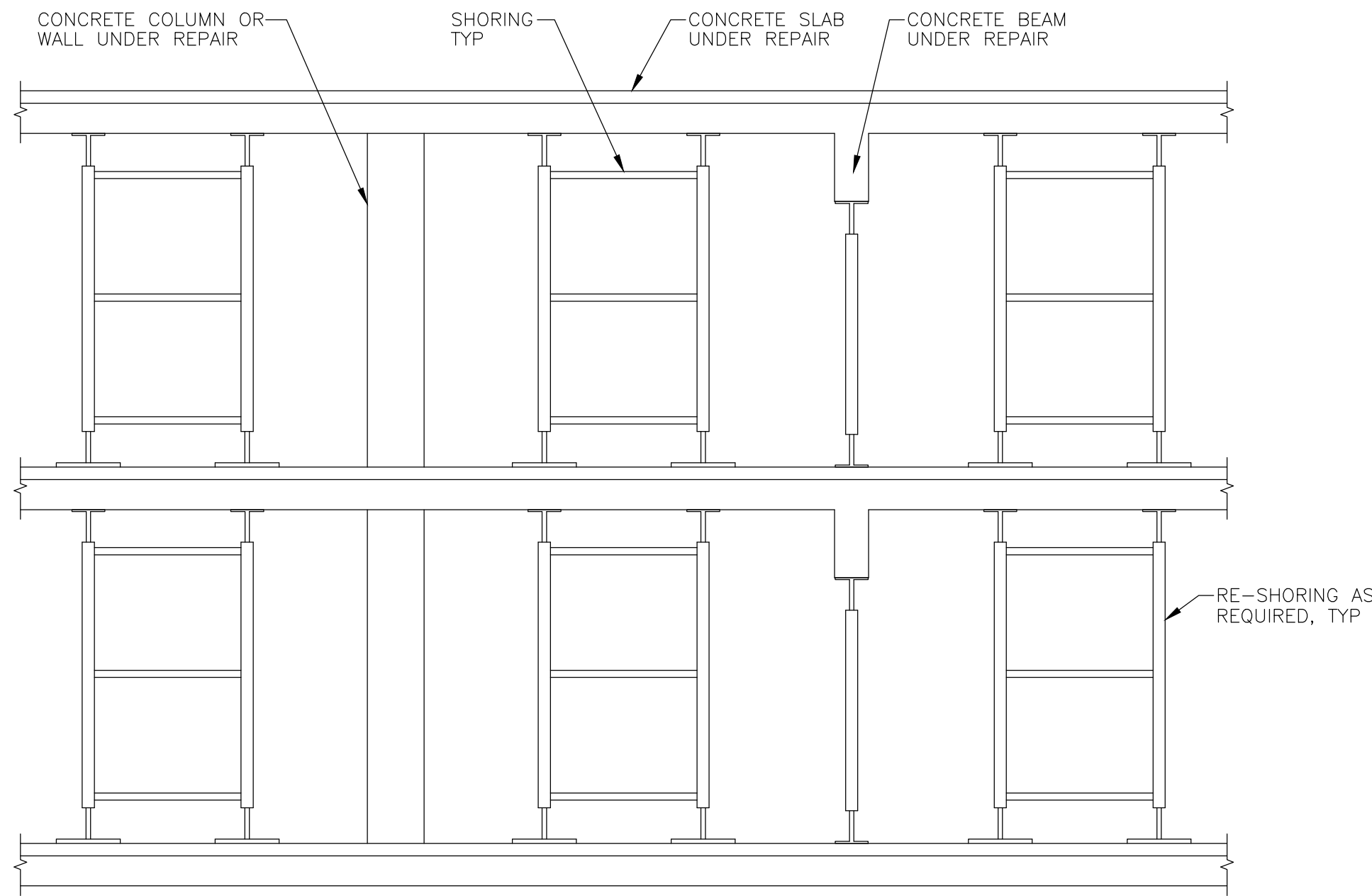
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THIRD AVENUE PARKING GARAGE ROOF DECK
OF THE
REPAIR AND PREVENTATIVE MAINTENANCE
PITTSBURGH, PA

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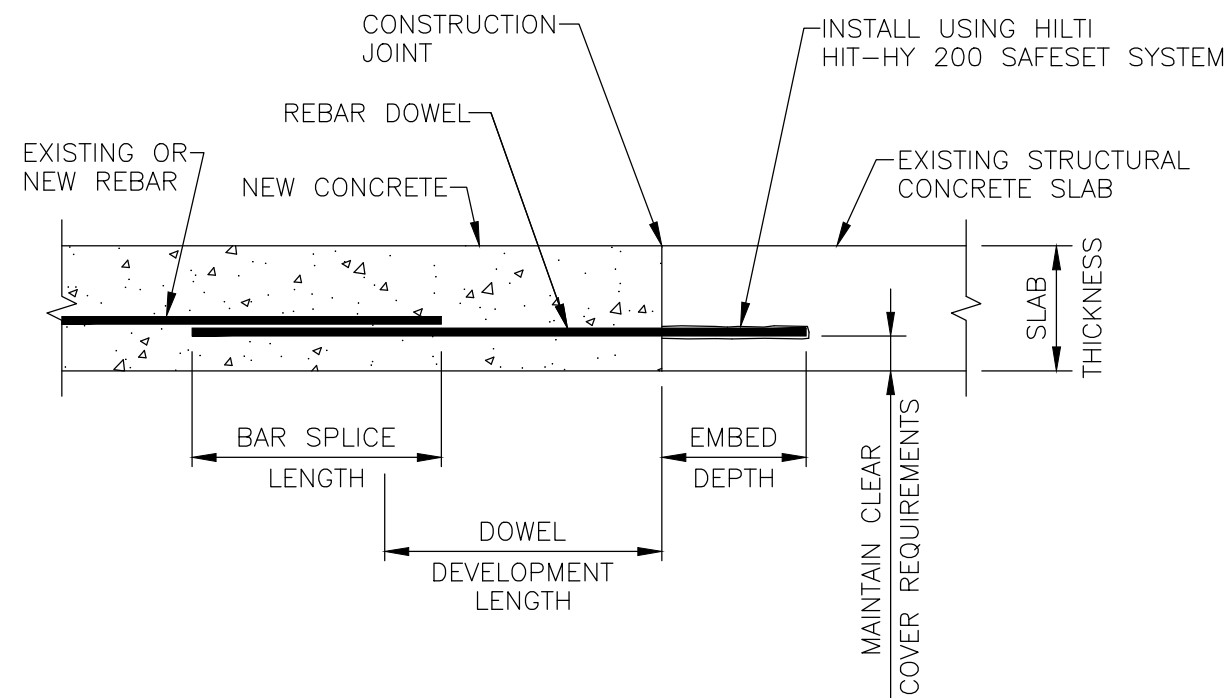


NOTE: THIS SKETCH IS FOR DEMONSTRATIVE PURPOSES, AND DOES NOT IMPLY ANY SHORING CONCEPTS, DESIGNS, OR TECHNIQUES TO THE CONTRACTOR, SHORING DESIGNER, OR ERECTOR.

SHORING NOTES

- THE CONTRACTOR SHALL PROVIDE ALL SHORING, RE-SHORING BRACING, AND SHEETING REQUIRED FOR SAFETY AND PROPER EXECUTION OF THE WORK. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL OF THE SHORING DESIGN, INSTALLATION, AND MAINTENANCE FOR THE IMPLEMENTATION OF THE REPAIRS.
 - THE CONTRACTOR SHALL HAVE FULL RESPONSIBILITY FOR THE ERECTION AND MAINTENANCE OF THE SHORING SYSTEM DURING THE REPAIR WORK. ON A DAILY BASIS, THE SHORING SYSTEM SHALL BE CHECKED TO ENSURE TIGHTNESS TO THE SOFFIT AT ALL LOCATIONS.
 - SUFFICIENT LATERAL SUPPORT MUST BE PROVIDED WHERE NECESSARY TO RESIST LATERAL LOADS OR LATERAL MOVEMENT OF THE STRUCTURAL MEMBERS OR SHORING SYSTEM. THIS INCLUDES BRACING THE COMPRESSION FLANGE/FACE OF BEAMS WITHIN FULL DEPTH SLAB REMOVAL AREAS.
 - TOWER LEG LOADING SHOULD BE AS UNIFORMLY DISTRIBUTED AS POSSIBLE. NEVER LOAD ONE LEG OF FRAME OR ONE LEDGER OF A TOWER.
 - THE SHORING SHALL REMAIN IN PLACE UNTIL THE NEW CONCRETE HAS ACHIEVED A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI OR 80% OF ITS DESIGN COMPRESSIVE STRENGTH, WHICHEVER IS GREATER.
 - SHORING SYSTEM SHOULD BE INSTALLED AND MAINTAINED PER PUBLISHED SAFETY RULES AND REGULATIONS OF THE SCAFFOLD AND SHORING INSTITUTE.
 - THE CONTRACTOR SHALL SUBMIT SHORING DESIGN AND ERECTION DRAWINGS TO MEET ALL CITY, STATE, FEDERAL, AND OSHA REQUIREMENTS FOR REVIEW. THE SHORING SYSTEM SHALL BE DESIGNED AND STAMPED BY A LICENSED PROFESSIONAL ENGINEER.
 - THE SHORING SHALL BE DESIGNED FOR WORKING LOADS SHOWN BELOW:
 - WEIGHT OF CONCRETE (DEAD) 150 LBS/CF
 - WEIGHT OF FORMWORK (DEAD) 10 LBS/SF
 - CONSTRUCTION LOAD (LIVE) 30 LBS/SF MIN.
 - "A" + "B" + "C" 100 LBS/SF MIN.
 - ASCE 7 LOADS OR APPLICABLE LOCAL CODE (LIVE) 40-100+ LBS/SF
 - USE OF MOTORIZED CARTS/BUGGIES (LIVE) 25 LBS/SF MIN.
- NOTE THAT "E" IS IN ADDITION TO "D", WHICH INCLUDES ITEMS "A-C". THEREFORE, TOTAL UNFACTORED LOAD = "D" + "E" (IF APPLICABLE) + "F" (IF APPLICABLE)
- THE SHORING SYSTEM SHALL BE DESIGNED SO THAT THE STRUCTURAL MEMBERS UNDER REPAIR AND ADJACENT TO MEMBERS UNDER REPAIR DO NOT EXPERIENCE ANY DEFLECTION DURING THE IMPLEMENTATION OF THE REPAIRS.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WALL/COLUMN SHORING DESIGN, INSTALLATION, AND MAINTENANCE AT WALL/COLUMN REPAIRS AND LOCATIONS WHERE LATERAL SUPPORT IS PARTIALLY/ FULLY REMOVED FROM THE EXISTING WALLS/COLUMNS DUE TO FLOOR SLAB AND BEAM REPAIRS.

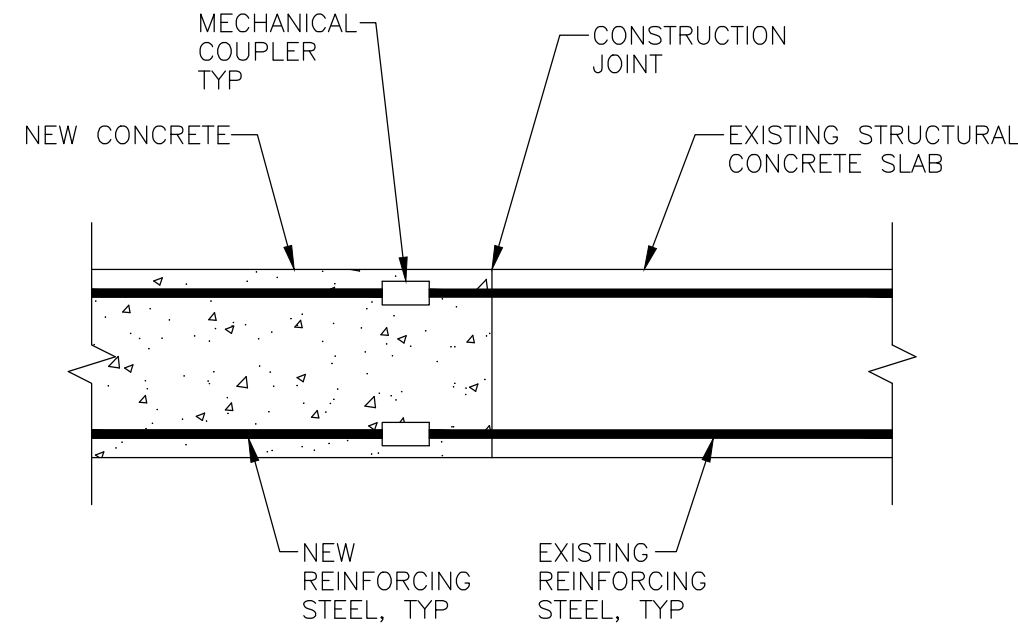
2 SHORING DETAILS/REQUIREMENTS FOR CONCRETE REPAIRS



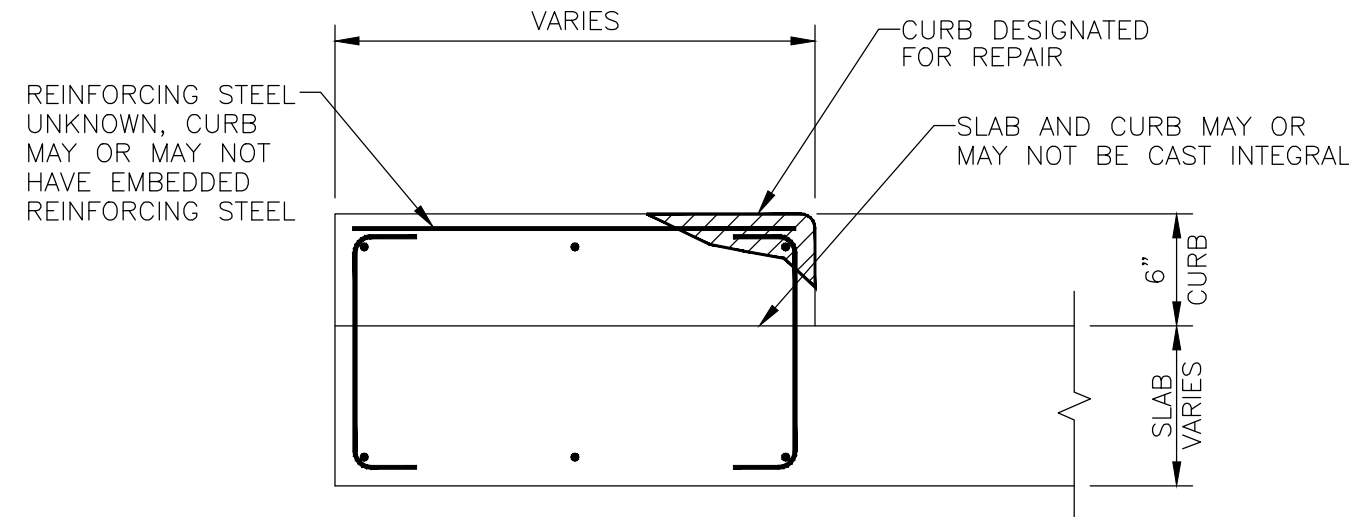
NOTES:

- FOR DOWEL DEVELOPMENT LENGTH AND BAR SPLICE LENGTHS, SEE GENERAL NOTES, DWG S0.01
- FOR EMBEDMENT DEPTH, CONTACT MANUFACTURER

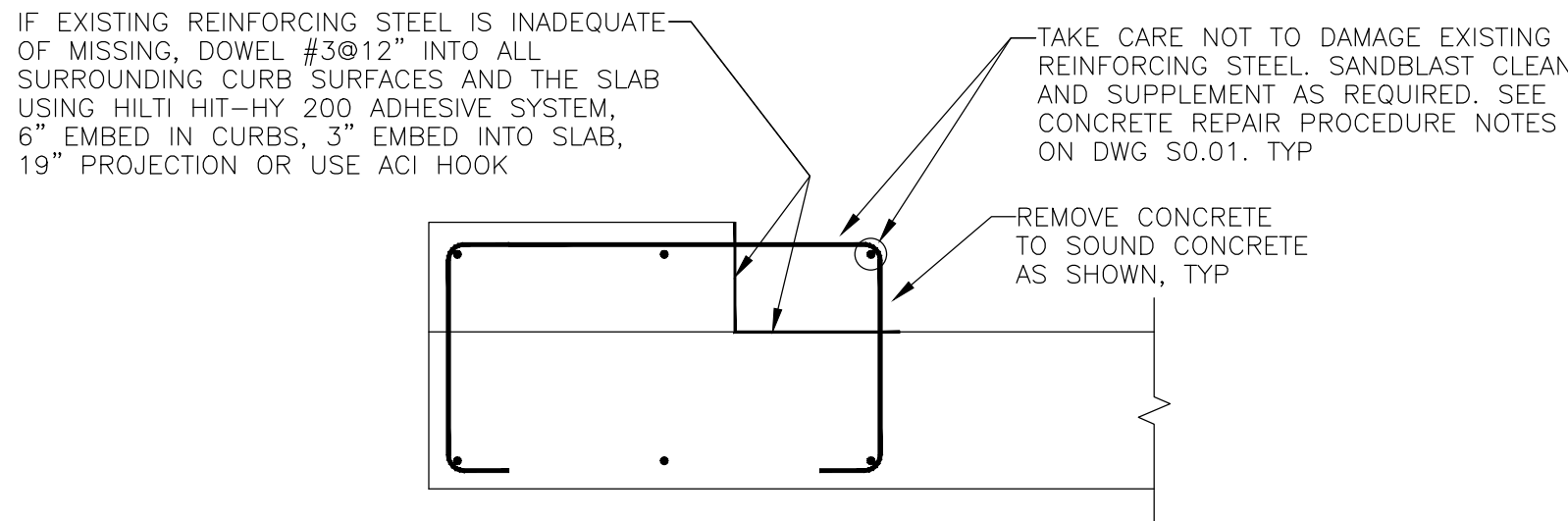
3 DOWEL DETAIL



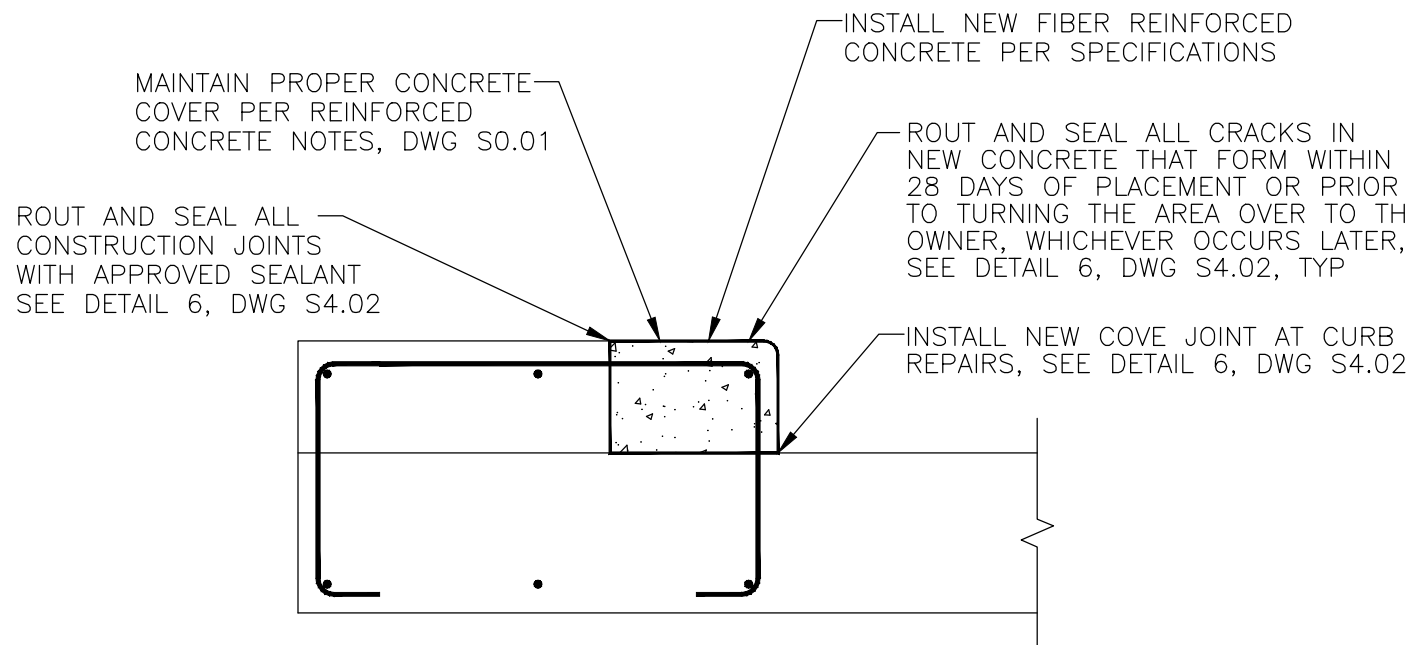
4 MECHANICAL COUPLER DETAIL



EXISTING CONDITION

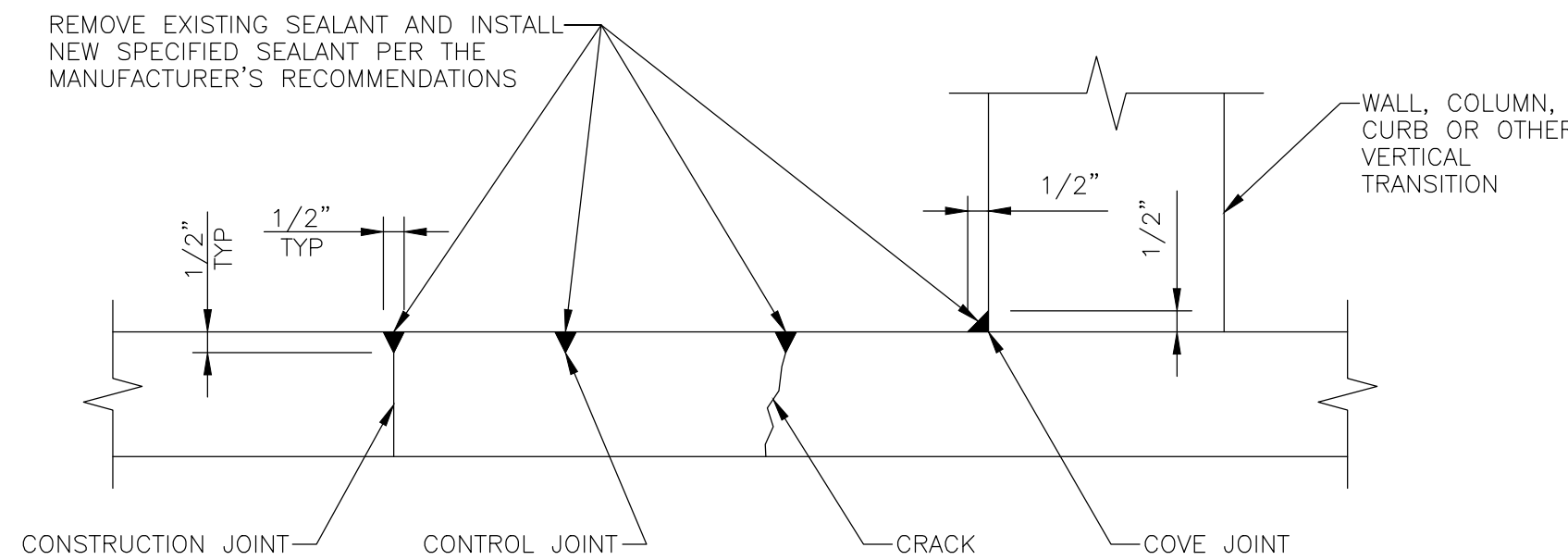


CONCRETE REMOVAL



REPAIRED CONDITION

5 CURB REPAIR DETAIL



NOTES:

- ALL EXISTING CONSTRUCTION, CONTROL, AND COVE JOINTS AND CRACKS SHALL HAVE THE EXISTING SEALANT REMOVED AND HAVE NEW SEALANT INSTALLED AT LOCATIONS WHERE A NEW WATERPROOFING MEMBRANE IS SCHEDULED TO BE INSTALLED.
- ALL NEW CONSTRUCTION, CONTROL, AND COVE JOINTS AND CRACKS THAT FORM IN NEWLY PLACED CONCRETE SHALL HAVE NEW SEALANT INSTALLED REGARDLESS OF WHETHER A NEW WATERPROOFING MEMBRANE IS SCHEDULED TO BE INSTALLED OR NOT.
- REMOVE EXISTING DETERIORATED JOINT/CRACK SEALANT BY APPROVED METHODS.
- ROUT AND CLEAN TO ESTABLISH A PROFILE OF V-SHAPED GROOVE (1/2" X 1/2")
- FOR BACKER ROD INSTALLATION, SEE DETAIL 10B, DWG S3.04.
- PRIME THE SURFACES WHICH THE NEW SEALANT MATERIAL WILL BOND TO.
- INSTALL THE APPROVED MULTI-COMPONENT POLYURETHANE SEALANT.
- FOR APPROVED MATERIALS AND MANUFACTURERS, SEE SPECIFICATIONS

6 JOINT AND CRACK SEALANT INSTALLATION

REPAIR AND PREVENTATIVE MAINTENANCE OF THE THIRD AVENUE PARKING GARAGE ROOF DECK PITTSBURGH, PA

ISSUE

NO.	DESCRIPTION	DATE
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DRAWING TITLE:

REPAIR
DETAILS

DRAWING NO.

S4.02

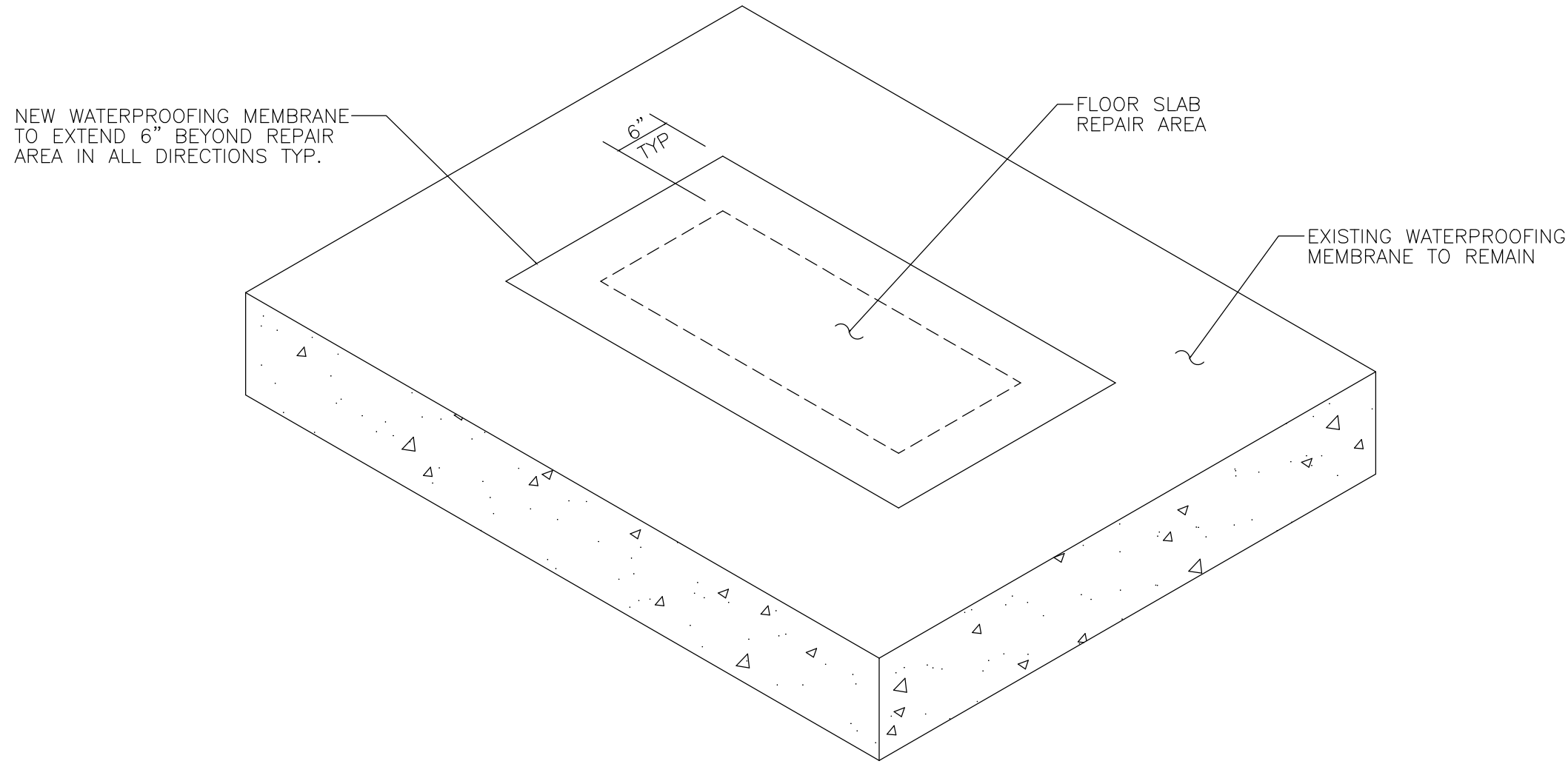
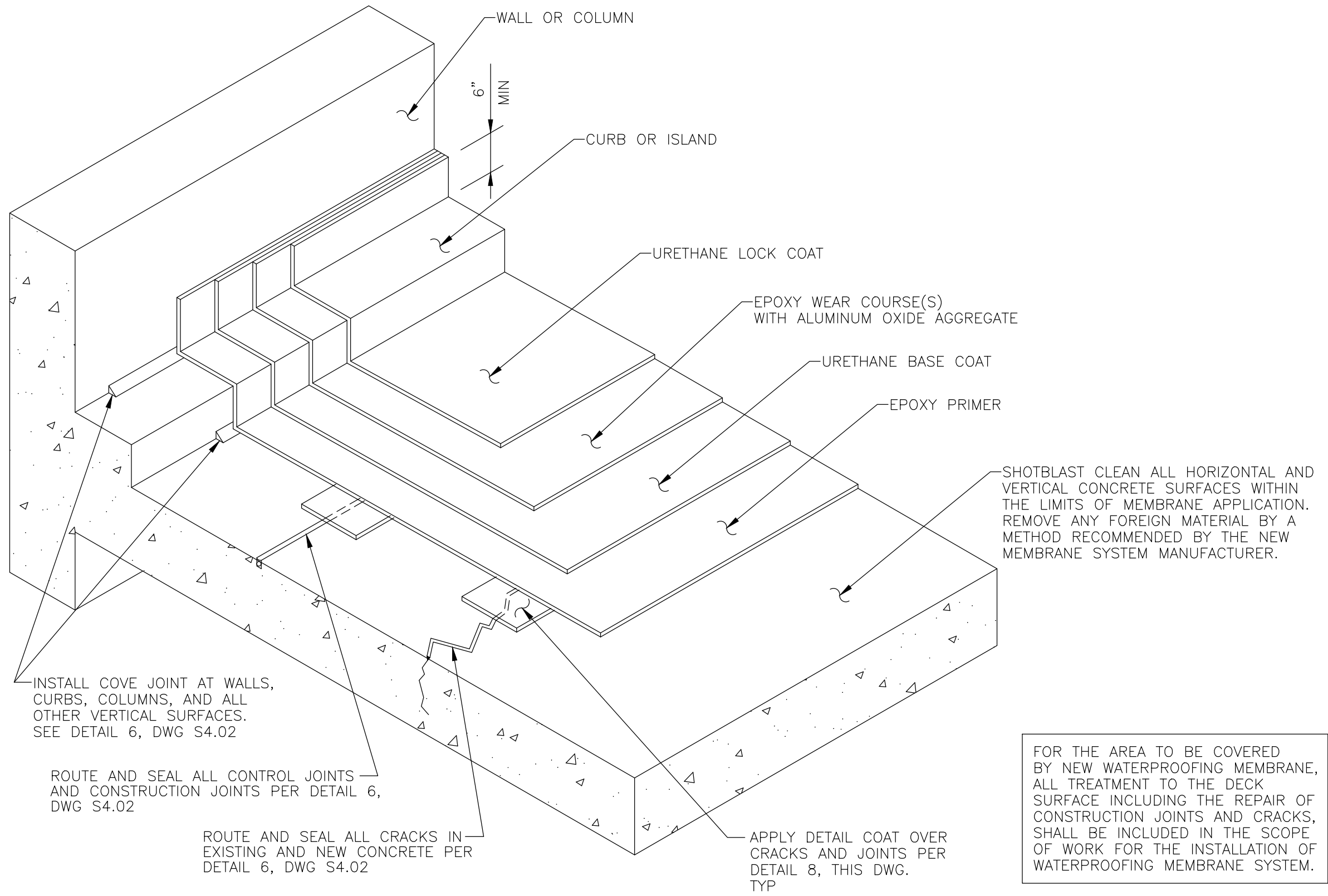
SCALE: NONE

DATE: 06/17/26

PROJECT NO : 51-22130

DES.	DRWN.	CK'D.
MWR	DJC	MWR

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REPAIR PROCEDURE:

1. CLEAN AND/OR PREPARE SURFACE OF EXISTING WATERPROOFING MEMBRANE PER MANUFACTURERS RECOMMENDATIONS, 6" MINIMUM AROUND PERIMETER OF REPAIR AREA.
2. APPLY WATERPROOFING MEMBRANE PER DETAIL 8, DRAWING S3.03 TO REPAIR AREAS ONLY.
3. AT INTERFACE APPLY ONLY WEAR COURSE AND TIE COAT/LOCK COAT.

10 WATERPROOFING MEMBRANE OVERLAP DETAIL

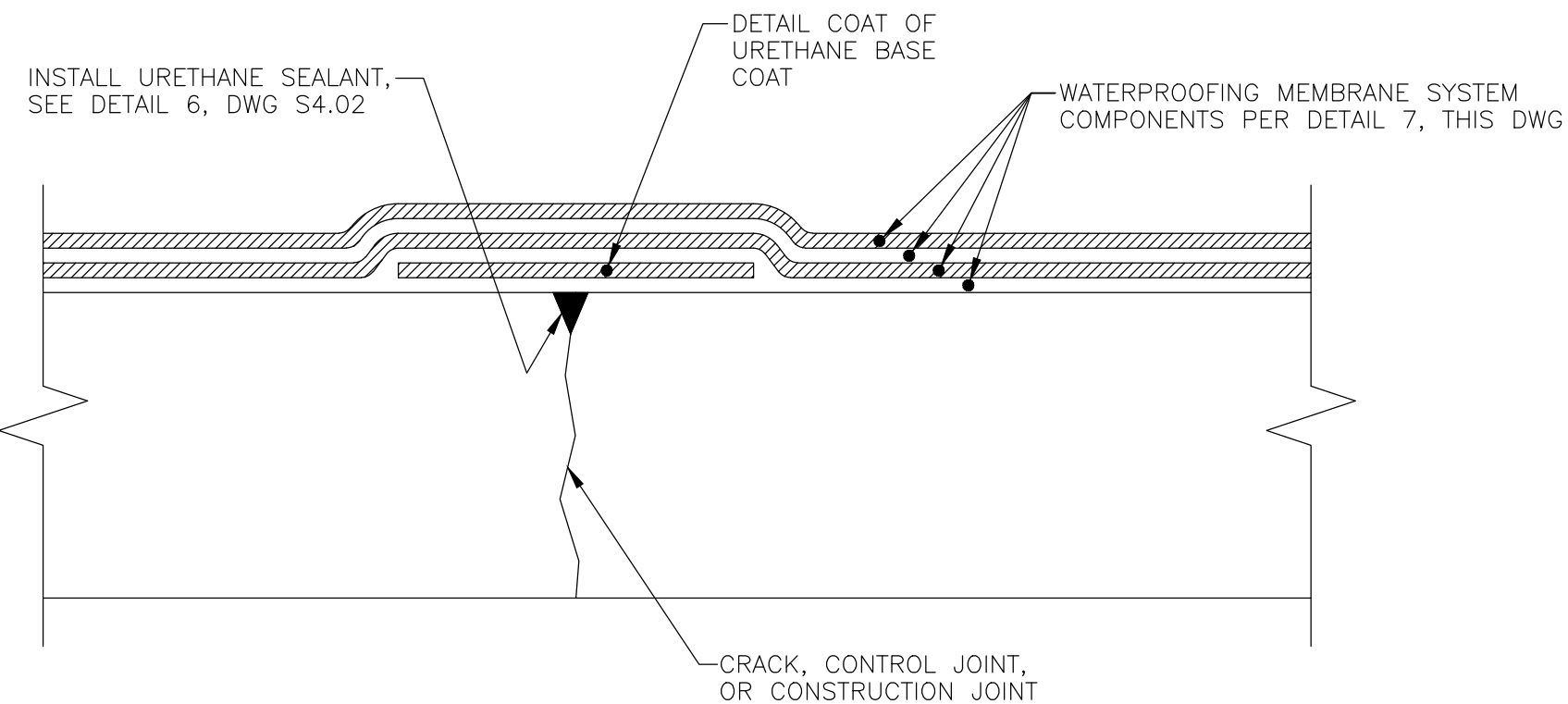
APPLICATION PROCEDURE:

1. THE CONTRACTOR SHALL VERIFY BY SOUNDING THAT ALL AREAS WITHIN THE SCOPE OF THE WATERPROOFING INSTALLATION HAVE BEEN PROPERLY REPAIRED.
2. THE AREA TO BE COVERED BY THE NEW WATERPROOFING MEMBRANE SYSTEM SHALL BE PREPARED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS AND SHALL BE INCLUDED IN THE INSTALLATION COST. THIS INCLUDES ALL TREATMENT TO THE DECK SURFACE INCLUDING DETAILING/ROUTING AND SEALING OF ALL JOINTS AND CRACKS.
3. COORDINATE TRAFFIC REQUIREMENTS IN ORDER TO COMPLETE WORK WITH MINIMAL DISRUPTION TO TRAFFIC.
4. THE SELECTED SYSTEM FOR INSTALLATION SHALL CONTAIN THE FOLLOWING STEPS:
 - A. SURFACE PREPARATION
 - B. EPOXY PRIMER
 - C. URETHANE BASE COAT
 - D. EPOXY WEAR COURSE(S) WITH AGGREGATE
 - E. URETHANE LOCK COAT
5. THE SYSTEM SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS INCLUDING THE MANUFACTURER'S DETAILS FOR TERMINATIONS, UPTURNS, JOINTS, DRAINS, SLAB PENETRATIONS, ETC. UNLESS OTHERWISE SHOWN IN THE DETAILS.
6. FOR LIMITS OF APPLICATION, SEE WATERPROOFING PLANS, DWGS S4.0X.

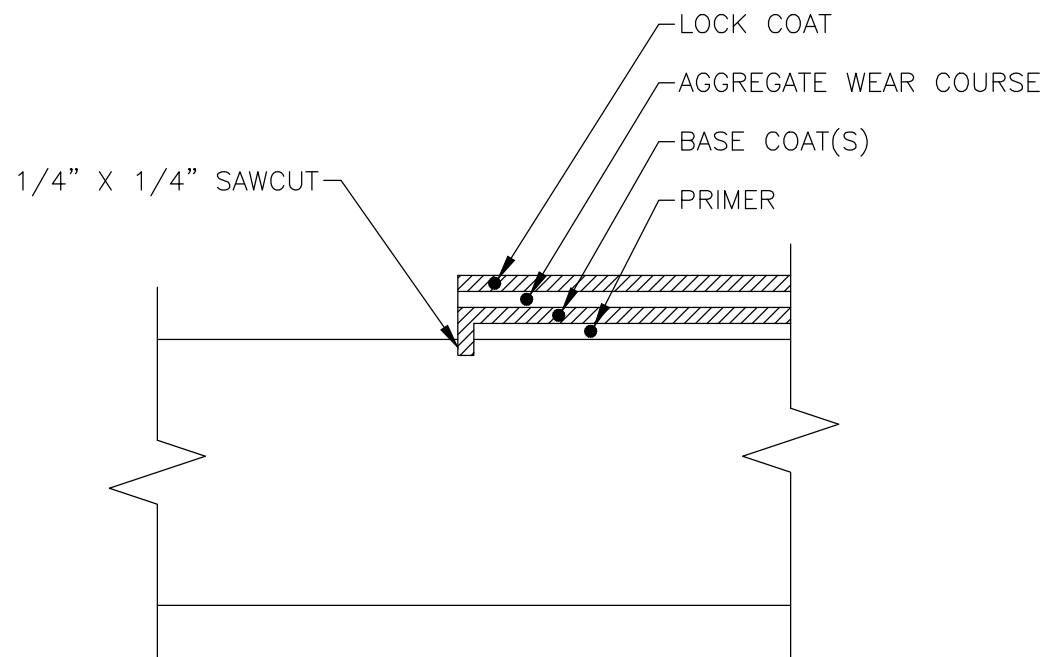
APPROVED SYSTEMS:

SEE SPECIFICATIONS FOR APPROVED TRAFFIC BEARING WATERPROOFING MEMBRANE SYSTEMS.

7 TRAFFIC BEARING WATERPROOFING MEMBRANE SYSTEM: EPOXY WEAR COURSE



8 WATERPROOFING MEMBRANE DETAIL AT CRACK, CONTROL JOINT OR CONSTRUCTION JOINT



9 MEMBRANE TERMINATION DETAIL

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REPAIR AND PREVENTATIVE MAINTENANCE
OF THE
THIRD AVENUE PARKING GARAGE ROOF DECK
PITTSBURGH, PA

ISSUE

NO. DESCRIPTION DATE

DRAWING TITLE:

REPAIR
DETAILS

DRAWING NO.

S4.03

SCALE: NONE

DATE: 06/17/26

PROJECT NO : 51-22130

DES. DRWN. CK'D.
MWR DJC MWR

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