

SUBMIT BID TO:
PROCUREMENT SERVICES
UNIVERSITY OF FLORIDA
971 ELMORE DRIVE
PO BOX 115250
GAINESVILLE, FL 32611

Phone: (352) 392-1331 - FAX: (352) 392-8837

Web Address: <https://procurement.ufl.edu/>



INVITATION TO BID

Construction

Acknowledgment Form

Page 1 of 137 pages Plus Attachment A		BID WILL BE OPENED: August 30, 2022 at 3:00 PM local time and may not be withdrawn within 45 days after such date and time. Mandatory Pre-bid: August 3, 2022 at 10:00 AM local time.		BID NO.: ITB23KO-103	
DATE: 7/22/2022		PROCUREMENT AGENT: KO		BID TITLE: Repairs of Parking Garages 3, 7, 9 and 9A	
VENDOR NAME					
VENDOR MAILING ADDRESS		REASON FOR NOT SUBMITTING BID			
CITY - STATE - ZIP CODE		<p align="center">POSTING OF BID TABULATIONS</p> <p>Bid tabulations with intended award(s) will be posted electronically for review by interested parties at https://procurement.ufl.edu/ and will remain posted for a period of 72 hours excluding Saturdays, Sundays, or state holidays. Failure to file a protest in accordance with Board of Governors (BOG) Regulation 18.002 or failure to post the bond or other security as required in the BOG regulations 18.002 and 18.003(3), shall constitute a waiver of protest proceedings.</p>			
AREA CODE	TELEPHONE NO.				
	FAX NO.				
	WEB ADDRESS				
	EMAIL ADDRESS				

I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm or person submitting a bid for the same materials, supplies, or equipment and is in all respects fair and without collusion or fraud. I agree to abide by all conditions of this bid and certify that I am authorized to sign this bid for the vendor and that the vendor is in compliance with all the requirements of the Invitation to Bid, including but not limited to, certification requirements. In submitting a bid on behalf of the Board of Trustees, hereinafter known as the University, the vendor offers and agrees that if the bid is accepted the vendor will convey, sell, assign, or transfer to the University all rights, title and interest in and to all causes of action it may now or hereafter acquire under the Anti-trust laws of the United States and the University for price fixing relating to the particular commodities or services purchased or acquired by the University. At the University's discretion, such assignment shall be made and become effective at the time the purchasing agency tenders final payment to the vendor.

 AUTHORIZED SIGNATURE (MANUAL)

 NAME AND TITLE (TYPED)

GENERAL CONDITIONS

SEALED BIDS: All bid sheets and this form must be executed and submitted in a sealed envelope. (DO NOT INCLUDE MORE THAN ONE BID PER ENVELOPE.) The face of the envelope shall contain, in addition to the above address, the date, and time of the bid opening and the bid number. Bids not submitted on the attached bid form shall be rejected. All bids are subject to the conditions specified herein. Those which do not comply with these conditions are subject to rejection.

1. **EXECUTION OF BID:** Bid must contain an original manual signature of authorized representative in the space provided above. Bid must be typed or printed in ink. Use of erasable ink is not permitted. All corrections to prices made by vendor must be initialed.

2. **NO BID:** If not submitting a bid, respond by returning only this vendor acknowledgment form, marking it "NO BID", and explain the reason in the space provided above. Failure to respond to a procurement solicitation without giving justifiable reason for such failure, nonconformance to contract conditions, or other pertinent factors deemed reasonable and valid shall be cause for removal of the supplier's name from the bid mailing list. NOTE: To qualify as a respondent, vendor must submit a "NO BID", and it must be received no later than the stated bid opening date and hour.

3. **BID OPENING:** Shall be public, on the date, location and the time specified on the bid form. It is the vendor's responsibility to assure that the bid is delivered at the proper time and place of the bid opening. Bids which for any reason are not so delivered will not be considered. A bid may not be altered after opening of the bids. NOTE: Bid tabulations will be posted electronically at <https://procurement.ufl.edu/>. Bid tabulations will not be provided by telephone.

4. **PRICES, TERMS AND PAYMENT:** Firm prices shall be bid and will include all packing, handling, shipping charges, and delivery to the destination shown herein.

(a) **TAXES:** The University does not pay Federal Excise and Sales taxes on direct purchases of tangible personal property or services. The Florida Tax Exempt Number is 11-06-024056-57C. This exemption does not apply to purchases of tangible personal property or services made by vendors who use the tangible personal property or services in the performance of contracts for the improvement of University-owned real property as defined in Chapter 192, F.S.

(b) **DISCOUNTS:** Vendors are encouraged to reflect trade discounts in the unit prices quoted; however, vendors may offer a discount for prompt payment. Prompt payment discounts will not be considered in the bid award. However, every effort will be made to take the discount within the time offered.

(c) **MISTAKES:** Vendors are expected to examine the specifications, delivery schedule, bid prices, extensions, and all instructions pertaining to supplies and services. Failure to do so will be at vendor's risk. In case of a mistake in extensions the unit price will govern.

(d) **INVOICING AND PAYMENT:** Payment will be made by the University of Florida after the items awarded to a vendor have been received, inspected, and found to comply with award specifications, free of damage or defect and properly invoiced. All invoices shall bear the purchase order number. Payment for partial shipments shall not be made unless specified. An original invoice shall be submitted. Failure to follow these instructions may result in delay in processing invoices for payment. Payment shall be made in accordance with Section 215.422 (1) (2) F.S. VENDOR OMBUDSMAN: The University's vendor ombudsman, whose duties include acting as an advocate for vendors may be experiencing problems in obtaining payment from the University, may be contacted at 352-392-1241.

(e) **ANNUAL APPROPRIATIONS:** The University's performance and obligation to pay under any contract awarded is contingent upon an annual appropriation by the Legislature.

(f) **CONDITION AND PACKAGING:** It is understood and agreed that any item offered or shipped as a result of this bid shall be a new, current standard production model available at the time of this bid. All containers shall be suitable for storage or shipment, and all prices shall include standard commercial packaging.

(g) **SAFETY STANDARDS:** Unless otherwise stipulated in the bid, all manufactured items and fabricated assemblies shall comply with applicable requirements of Occupational Safety and Health Act and any standards hereunder.

5. **CONFLICT OF INTEREST:** The award hereunder is subject to the provisions of Chapter 112, F.S. All vendors must disclose with their bid the name of any officer, director, or agent who is also an employee of the University of Florida. Further, all vendors must disclose the name of any University employee who owns, directly or indirectly, an interest of five percent (5%) or more in the vendor's firm or any of its branches.

6. **AWARDS:** As the best interest of the University may require, the right is reserved to make award(s) by individual item, group of items, all or none or a combination thereof; to reject any and all bids or waive any minor irregularity or technicality in bids received. When it is determined there is no competition to the lowest responsible vendor, evaluation of other bids are not required. Vendors are cautioned to make no assumptions unless their bid has been evaluated as being responsive.

7. INTERPRETATIONS/DISPUTES: Any questions concerning conditions or specifications shall be directed in writing to Procurement Services. Inquiries must reference the date of bid opening and bid number. No interpretations shall be considered binding unless provided in writing by the University in response to requests in full compliance with this provision.

8. NOTICE OF BID PROTEST BONDING REQUIREMENT: Any person or entity who files an action protesting a decision or an intended decision pertaining to a competitive solicitation shall at the time of filing the formal protest, post with the University a bond payable to the University in an amount equal to: 10% of the estimated value of the protestor's bid or proposal; 10% of the estimated expenditure during the contract term; \$10,000.00; or whichever is less. The bond shall be conditioned upon the payment of all costs which may be adjudged against the person or entity filing the protest action. In lieu of a bond, the University may accept a cashier's check, bank official check or money order in the amount of the bond. **FAILURE OF THE PROTESTING PERSON OR ENTITY TO FILE THE REQUIRED BOND, CASHIER'S CHECK, BANK OFFICIAL CHECK OR MONEY ORDER AT THE TIME OF THE FILING THE FORMAL PROTEST SHALL RESULT IN DENIAL OF THE PROTEST.**

9. GOVERNMENTAL RESTRICTIONS: In the event any governmental restrictions may be imposed which would necessitate alteration of the material, quality, workmanship or performance of the items offered in this bid prior to their delivery, it shall be the responsibility of the successful vendor to notify the purchaser at once, indicating in writing the specific regulation which requires an alteration. The University reserves the right to accept any such alteration, including any price adjustments occasioned thereby, or to cancel the contract at no expense to the University.

10. LEGAL REQUIREMENTS: Applicable provision of all Federal, State, county and local laws, and of all ordinances, rules and regulations shall govern development, submittal and evaluation of all bids received in response hereto and shall govern any and all claims and disputes which may arise between person(s) submitting a bid response hereto and the University, by and through its officers, employees and authorized representatives, or any other person, natural or otherwise; and lack of knowledge by any vendor shall not constitute a cognizable defense against the legal effect thereof.

11. LOBBYING: Vendor is prohibited from using funds provided under any contract or purchase order for the purpose of lobbying the Legislature or any official, officer, commission, board, authority, council, committee, or department of the executive branch or the judicial branch of state government.

12. ADVERTISING: In submitting a bid, the vendor agrees not to use the results therefrom as a part of any commercial advertising. Vendor may not use the names, logos, or trademarks of the University, its employees, or affiliates without the prior written consent of the University.

13. ASSIGNMENT: Any contract or purchase order issued pursuant to this Invitation to Bid and the monies which may become due hereunder are not assignable except with the prior written approval of the purchaser.

14. LIABILITY: The vendor agrees to indemnify and save the University of Florida, the State of Florida and the Florida Board of Governors, their officers, agents, and employees harmless from any and all judgments, orders, awards, costs and expenses, including attorney's fees, and also all claims on account of damages to property, including loss of use thereof, or bodily injury (including death) which may be hereafter sustained by the vendor, its employees, its subcontractors, or the University of Florida, the State of Florida and the Florida Board of Governors, their officers, agents, or employees, or third persons, arising out of or in connection with any contract awarded and which are the result of the vendor's breach of contract or of the negligent acts of the vendor, its officers, agents, and employees. This clause does not apply to contracts between government agencies.

15. FACILITIES: The University reserves the right to inspect the vendor's facilities at any time with prior notice.

16. ADDITIONAL QUANTITIES: For a period not exceeding ninety (90) days from the date of acceptance of any offer by the University of Florida, the right is reserved to acquire additional quantities up to but not exceeding those shown on bid or the bid level at the prices bid in this invitation. If additional quantities are not acceptable, the bid sheets must be noted "BID IS FOR SPECIFIED QUANTITY ONLY".

17. SERVICE AND WARRANTY: Unless otherwise specified, the vendor shall define any warranty service and replacements that will be provided during and subsequent to this contract. Vendors must explain on an attached sheet to what extent warranty and service facilities are provided.

18. SAMPLES: Samples of items, when called for, must be furnished free of expense, on or before bid opening time and date, and if not destroyed, may upon request, be returned at the vendor's expense. Each individual sample must be labeled with vendor's name, manufacturer's brand name and number, bid number and item reference. Request for return of samples shall be accompanied by instructions which include shipping authorization and name of carrier and must be received with the bid. If instructions are not received within this time, the commodities shall be disposed of by the University.

19. INSPECTION, ACCEPTANCE AND TITLE: Inspection and acceptance will be at destination unless otherwise provided. Title and risk of loss or damage of all items shall be the responsibility of the contract supplier until accepted by the University, unless loss or damage results from negligence by the University. The contract supplier shall be responsible for filing, processing and collecting all damage claims. However, to assist him in the expeditious handling of damage claims, the University will:

- (a) Record any evidence of visible damage on all copies of the delivering carrier's Bill of Lading.

- (b) Report damage (Visible or Concealed) to the carrier and contract supplier confirming such reports in writing within 15 days of delivery, requesting that the carrier inspect the damaged merchandise.
- (c) Retain the item and its shipping container, including inner packing material until inspection is performed by the carrier, and disposition given by the contract supplier.
- (d) Provide the contract supplier with a copy of the carrier's Bill of Lading and damage inspection report.

20. PATENTS, COPYRIGHTS, TRADEMARKS, ROYALTIES and other Intellectual Property: The vendor, without exception, shall indemnify and save harmless the University and its employees from liability of any nature or kind, including cost and expenses for or on account of any copyrighted, patented, or unpatented invention, process, or article manufactured or used in the performance of the contract, including its use by the University of Florida. If the vendor uses any design, device, or materials covered by letters, patent or copyright, it is mutually agreed and understood without exception that the bid prices shall include all royalties or costs arising from the use of such design, device, or materials in any way involved in the work.

21. CONFLICT BETWEEN DOCUMENTS: If any terms and conditions contained within the documents that are a part of this ITB or resulting contract are in conflict with any other terms and conditions contained therein, then the various documents comprising this ITB or resulting contract, as applicable, shall govern in the following order of precedence: change order, purchase order, addenda, special conditions, general conditions, specifications, departmental description of work, and bid.

22. MANUFACTURERS' NAMES AND APPROVED EQUIVALENTS: Any manufacturer's names, trade names, brand names, information and/or catalog numbers listed in a specification are for information and not intended to limit competition. If bids are based on equivalent products, indicate on the bid form the manufacturer's name and number. Vendor shall submit with the bid, cuts, sketches, and descriptive literature, and/or complete specifications. Reference to literature submitted with a previous bid will not satisfy this provision. The vendor shall also explain in detail the reasons why the proposed equivalent will meet the specifications and not be considered an exception thereto. The University of Florida reserves the right to determine acceptance of item(s) as an approved equivalent. Bids which do not comply with these requirements are subject to rejection. Bids lacking any written indication of intent to quote an alternate brand will be received and considered in complete compliance with the specifications as listed on the bid form.

23. NONCONFORMANCE TO CONTRACT CONDITIONS: Items may be tested and/or inspected for compliance with specifications by any appropriate testing facilities. Should the items fail, the University may require the vendor to reimburse the University for costs incurred by the University in connection with the examination or testing. The data derived from any tests for compliance with specifications are public records and open to examination thereto in accordance with Chapter 119, F.S. Items delivered not conforming to specifications may be rejected and returned at vendor's expense. These items and items not delivered as per delivery data in bid and/or purchase order may result in vendor being found in default in which event any and all reprourement costs may be charged against the defaulting vendor. Any violation of these conditions may also result in the vendor's name being removed from the University of Florida's vendor file.

24. PUBLIC RECORDS: Any material submitted in response to this Invitation to Bid will become a public document pursuant to Section 119.07 F.S. This includes material which the responding vendor might consider to be confidential or a trade secret. Any claim of confidentiality is waived upon submission, effective after opening pursuant to Section 119.07 F.S.

25. DELIVERY: Unless actual date of delivery is specified (or if specified delivery cannot be met), show number of days required to make delivery after receipt of purchase order in space provided. Delivery time may become a basis for making an award (see Special Conditions). Delivery shall be within the normal working hours of the University of Florida, Monday through Friday, unless otherwise specified.

26. PUBLIC PRINTING - PREFERENCE GIVEN PRINTING WITHIN THE STATE: The University of Florida shall give preference to vendors located within the state when awarding contracts to have materials printed, whenever such printing can be done at no greater expense than, and at a level of quality comparable to, that obtainable from a vendor located outside of the state.

(a) **CONTRACTS NOT TO BE SUBLET:** In accordance with Class B Printing Laws and Regulations "Printing shall be awarded only to printing firms. No contract shall be awarded to any broker, agent, or independent contractor offering printing manufactured by other firms or persons."

(b) **DISQUALIFICATION OF VENDOR:** Reasonable grounds for believing that a vendor is involved in more than one bid for the same work will be cause for rejection of all bids in which such vendors are believed to be involved. Any or all bids will be rejected if there is reason to believe that collusion exists between vendors. Bids in which the prices obviously are unbalanced will be subject to rejection.

(c) **TRADE CUSTOMS:** Current trade customs of the printing industry are recognized unless accepted by Special Conditions or Specifications herein.

(d) **COMMUNICATIONS:** It is expected that all materials and proofs will be picked up and delivered by the printer or his representative, unless otherwise specified. Upon request, materials will be forwarded by registered mail.

(e) **RETURN OF MATERIAL:** All copy, photos, artwork, and other materials supplied by the University of Florida must be handled carefully and returned in good condition upon completion of the job. Such return is a condition of the contract and payment will not be made until return is affected.

27. E-VERIFY COMPLIANCE. Agency is obligated to comply with the provisions of Section 448.095, Fla. Stat., "Employment Eligibility." Compliance with Section 448.095, Fla. Stat., includes, but is not limited to, utilization of the E-Verify System to verify the work authorization status of all newly hired employees. Vendor affirms and represents that it is registered with the E-Verify system and is using same, and will continue to use same as required by Section 448.095, Fla. Statute.

END OF SECTION

Bid Number: ITB23KO-103

**Title: Repair of Parking Garages
3, 7, 9 and 9A**



AUTHORIZED REPRESENTATIVE**UF PROCUREMENT SERVICES:**

Karen Olitsky
 971 Elmore Drive / PO Box 115250
 Gainesville, FL 32611-5250
 (352) 294-1163
kolitsk@ufl.edu

NON-TECHNICAL SPECIFICATIONS TABLE OF CONTENTS**I. Bidding Conditions**

00020 Invitation to Bid
 00100 Instruction to Bidders
 00310 Bid Form
 00430 List of Subcontractors

II. General Terms and Conditions

<https://facilities.ufl.edu/wp-content/uploads/forms/contracts/GTC.pdf>

III. Division 0 Non-Technical Specifications

<https://facilities.ufl.edu/wp-content/uploads/forms/contracts/Div0NonTechSpecs.pdf>

IV. Division 1 Non-Technical Specifications

https://facilities.ufl.edu/wp-content/uploads/forms/contracts/Div1_NonTech_Specs_SEPT_2020.pdf

V. UF Design and Construction Standards

<https://facilities.ufl.edu/projects/forms-standards/design-construction-standards/>

VI. Standards, Policies, Regulations, Forms, Guides, Inspection & Closeout and References

<https://facilities.ufl.edu/projects/forms-standards/>

a. Other Forms

- Dig Permits: <https://www.facilitieservices.ufl.edu/departments/utilities/dig-permits/>
- Building Codes Enforcement Inspections: <https://www.ehs.ufl.edu/departments/facility-support-services/building-codes-enforcement/inspections/>
- Fire Plan Review and Inspection: <https://www.ehs.ufl.edu/departments/facility-support-services/fire-safety/>

00020 - INVITATION TO BID

The Invitation to Bid shall be in accordance with the University of Florida, Procurement Services "Invitation to Bid Acknowledgement Form" with all relevant information provided therein.

END OF SECTION

00100 - INSTRUCTIONS TO BIDDERS

1.1 RELATED SECTIONS

- A. Documents affecting the work of this Section include, but are not necessarily limited to, the General Terms & Conditions and other Sections in Divisions 0 and 1 of these Specifications.

1.2 THE WORK

PROJECT TITLE: Pre-engineered Metal Building at IFAS Dairy Unit in Hague, FL

1.3 SECURING DOCUMENTS

Copies of the Bid Documents may be obtained from: <https://procurement.ufl.edu/vendors/schedule-of-bids/>

1.4 BID FORM

To be considered responsive and responsible, make bids in accordance with the following:

- A. Make bids upon the forms provided, properly signed and with all items completed. Do not change the wording of the bid form and do not otherwise alter or add words to the bid form. Unauthorized conditions, limitations, or provisions attached to the bid may be cause for rejection of the bid.
- B. Include with bid a completed and signed Invitation to Bid Construction Acknowledgment Form.
- C. Include qualifications and references as described below in 1.6 Proof of Competency and Qualification of Bidders.
- D. Include list of subcontractors as described below in 1.7 Subcontracts.
- E. Include completed Section 00310 - Bid Form and Attachment A.
- F. **Bids must be submitted no later than August 30, 2022 at 3:00PM, local time.** No bids received after the time fixed for receiving them will be considered. Late bids will be returned to the bidder unopened.
- G. Address bids to Karen Olitsky, Procurement Agent III, and deliver to:
University of Florida
Procurement Services
971 Elmore Drive / PO Box 115250
Gainesville, FL 32611-5250
Submit bid in a sealed envelope that includes the bid number, contractor name and date and

time of the bid opening on the outside of the envelope. Submit one (1) original bid and one (1) electronic copy on flash drive or CD/DVD. It is the sole responsibility of the bidder to see that bids are received on time. Faxed and/or emailed bids will not be accepted.

1.5 WITHDRAWAL OF BIDS

- A. A bidder may withdraw their bid, either personally or by written request, at any time prior to the scheduled time for opening bids.
- B. No bidder may withdraw their bid for a period of forty-five calendar days after the date set for opening thereof, and bids shall be subject to acceptance by the Owner during this period.

1.6 PROOF OF COMPETENCY AND QUALIFICATION OF BIDDERS

- A. A bidder may be required to furnish evidence, satisfactory to the Owner, that the bidder and the bidder's proposed subcontractors have sufficient means and experience in the types of work required to assure completion of the Contract in a satisfactory manner.
- B. A contract will be awarded only to a responsible, properly licensed, bidder, qualified by appropriate experience, with the ability, capacity, skill and financial resources to perform the work specified.
- C. Bidder should submit, with their bid, the following documentation:
 - 1. Evidence that bidder is licensed by the appropriate government agency to perform the work specified and in good standing at the time of the receipt of bids.
 - 2. List and briefly describe three (3) projects of similar size and/or complexity which have been satisfactorily completed over the last five (5) years, including location, dates of contracts, names of contracts, and names and addresses of owners.
 - 3. References:
 - a. Trade References
 - b. Bank References
 - c. Surety
 - Name of bonding company
 - Name and address of agent
 - Proof that surety and/or its agent is licensed to conduct business in the State of Florida and has a Best Rating of "A" and a financial size of "Class X" or better.
 - Letter from Surety or its agent licensed to do business in Florida verifying the bidder's capability to provide performance and payment bonds for this project.
 - Letter stating whether or not, within the past five (5) years, a contract or any portion of the Work connected to a contract was completed by the Owner or the applicant's Surety. If so, attach an explanation providing the name and location of the project, the name and address of the owner's representative and all pertinent details of the matter.

4. Financial Statement which shall include latest balance sheet and income statement showing the following items:

- a. Current Assets
- b. Net Fixed Assets
- c. Other Assets
- d. Current Liabilities

1.7 SUBCONTRACTS

If the Bidder intends to subcontract any of the Work:

- A. Each bidder shall furnish with its bid a list of all subcontractors for subcontracted scopes/packages of work valued at more than \$10,000.
- B. This list shall identify, for each subcontracted package in excess of \$10,000, the name and address of the proposed subcontractor and the approximate value of the subcontract.
- C. If the bidder does not intend to subcontract portions of the Work in amounts greater than \$10,000, then a statement to that effect shall be furnished with the bid.
- D. Each subcontractor performing work more than \$10,000 must present evidence of being qualified in and licensed for the applicable trade. Such proof of subcontractor licensure shall be provided by the successful bidder after award, but prior to commencement of Work.

1.8 PERFORMANCE AND PAYMENT BONDS

See General Terms & Conditions, Article 20.

1.9 BID DEPOSIT

Not required.

1.10 AWARD OR REJECTION OF BIDS

The Contract, if awarded, will be awarded to the responsible and responsive bidder who has proposed the lowest Contract Sum, subject to the owner's right to reject any or all bids and to waive informality and irregularity in the bids and in the bidding. Acceptance or rejection of any bid will be at the owner's sole discretion.

1.11 MANDATORY PRE-BID CONFERENCE:

A mandatory Pre-bid Conference will be held prior to the scheduled bid opening for the purpose of considering questions posed by bidders and is open to interested bidders, prospective subcontractors, and any other interested parties. The conference will be held **August 3, 2022 at 10:00 AM, local time in Garage 9, 1995 SW Archer Road, Gainesville, FL.** The conference will begin promptly at 10:00AM at the elevators on the ground floor.

1.12 EXECUTION OF AGREEMENT

- A. A Purchase Order (PO) will be issued for purposes of fiscal encumbrance and payment. The PO itself serves as the form of contract.
- B. Upon notice of Bid Award, the bidder to whom the Contract is awarded shall deliver to UF those Certificates of Insurance and Payment & Performance Bonds required by the Contract Documents.
- C. Bonds and Certificates of Insurance shall be approved by UF before the successful bidder may proceed with the Work.

1.13 INTERPRETATION OF CONTRACT DOCUMENTS PRIOR TO BIDDING

- A. If any person contemplating submitting a bid for construction of the Work is in doubt as to the true meaning of any part of the Contract Documents, or finds discrepancies in or omissions from any part of the Contract Documents, they may submit a written request for interpretation thereof no later than **August 9, 2022 at 5:00PM**, local time, to Karen Olitsky, Procurement Agent III at kolitsk@ufl.edu. The person submitting the request shall be responsible for its prompt delivery.
- B. Interpretations or corrections of proposed Contract Documents will be made only by Addendum and will be available on the Procurement Services “Schedule of Bids” webpage <https://procurement.ufl.edu/vendors/schedule-of-bids/>. The Owner will not be responsible for any other explanations or interpretations of the proposed Contract Documents.

1.14 TIME OF COMPLETION:

- A. Successful Bidder hereby agrees that Work required by this Contract shall be commenced within ten (10) calendar days after issuance date of written Notice to Proceed; that all insurance and permits will be obtained; that all documents and notices will be filed; that all requirements as specified will be met; and that Work shall be prosecuted regularly, diligently and uninterruptedly at such rate of progress as will insure Substantial Completion of entire Project within TBD days after receipt of Notice to Proceed, and shall be finally completed TBD days after the date of Substantial Completion.

END OF SECTION

00310 - BID FORMS**BID PROPOSAL**

FROM:

(Name of Bidder)

TO:

UNIVERSITY OF FLORIDA
 PROCUREMENT SERVICES
 971 Elmore Drive
 P.O. Box 115250
 Gainesville, Florida 32611-5250

The undersigned, hereinafter called "Bidder", having reviewed the Contract Documents for the Project entitled **ITB23KO-103 Repairs of Parking Garages 3, 7, 9 and 9A** and having visited and thoroughly inspected the site of the proposed Project and familiarized himself/herself with all conditions affecting and governing the construction of said Project, hereby proposes to furnish all labor, materials, equipment and other items, facilities and services for the proper execution and completion of the Project, in strict compliance with the Contract Documents, Addenda, and all other Documents relating thereto on file in Procurement Services, and, if awarded the Contract, to complete the said Work within the time limits called for in the Documents and as stated herein, for the sums as enumerated on this and the following pages:

PRICING:

SEE ATTACHMENT A. COMPLETE ATTACHMENT A AND SUBMIT WITH YOUR BID.

ADDENDA:

Receipt of the following Addenda to the Construction Documents is acknowledged:

ADDENDUM # _____ Dated _____

ADDENDUM # _____ Dated _____

ADDENDUM # _____ Dated _____

COMPLETION DATE:

All Work covered by the Bidding Documents and the foregoing Base Bid shall be completed and ready for Owner's occupancy as specified in the contract documents.

SIGNATURE:

I hereby certify that for all statements and amounts herein made on behalf of

 (Name of Bidder)

a (Corporation) (Partnership) (Individual) organized and existing under the laws of the State of Florida, I have carefully prepared this Bid Proposal from Contract Documents described hereinbefore, I have examined Contract Documents and local conditions affecting execution of Work before submitting this Bid Proposal, I have full authority to make the statements and commitment herein and submit this Bid Proposal in (its) (their) behalf, and all statements are true and correct.

Signed and sealed this _____ day of _____, 2022.

(Signature of Bidder)

(Print Name)

(Title)

WITNESS:

(Signature of Witness)

(Print Name)

Address: _____

(City)

(State)

(Zip Code)

END OF SECTION

**ITB23KO-103
PARKING STRUCTURE REPAIRS 2021
GARAGES III, VII, IX & IX-A**

TECHNICAL SPECIFICATIONS

UF PROJECT NO. MP-07392 & MP-07393

SECTION 020010 - WORK ITEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

WI 1.0 GENERAL REQUIREMENTS

- A. Scope of Work
1. Work consists of performing all tasks, specifically required and incidental, which are not identified under separate Work Item designation, but necessary to perform the work identified in this project. This work includes, but is not limited to the following items:
 - WI 1.1 – Project Mobilization
 - WI 1.3 – Concrete Shores and Reshores
 - WI 1.4 – Concrete Reinforcement
 - WI 1.5 – Temporary Signage
 - WI 1.7 – Owner's Contingency

WI 1.1 PROJECT MOBILIZATION

- A. Scope of Work
1. Work consists of coordinating, scheduling, obtaining and assembling at construction site all equipment, materials, permits, supplies, manpower and other essentials and incidentals necessary to perform Work defined in this Contract. Payment of lump sum amount for mobilization shall be according to following schedule and shall be based on percentage of original contract amount earned.
- B. Materials (Not Applicable)
- C. Execution
1. At execution of agreement by all parties, payment of not more than 25% of mobilization lump sum amount.

2. When amount earned is greater than 10% but less than 25% of original contract amount, an additional amount will be paid to bring total payment for mobilization to 50% of mobilization lump sum amount.
3. When amount earned is equal to or greater than 25% but less than 50% of original contract amount, an additional amount will be paid to bring total payment for mobilization to 75% of mobilization lump sum amount.
4. When amount earned is equal to or greater than 50% of original contract amount, an additional amount will be paid to bring total payment for mobilization to 100% of mobilization lump sum amount.

WI 1.3 CONCRETE SHORES AND RESHORES

A. Scope of Work

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

B. Materials

1. Shores shall be steel, rated at a minimum allowable load of 4,500 lb at 12 ft extension or steel shoring towers rated at a minimum allowable load of 40,000 lbs per four leg tower (based on two 20,000 lb crossed braced frames.).

C. Execution

1. Comply with ACI 301 and ACI 347 for shoring and reshoring in multi-story construction, except as modified in this Section.
2. For purpose of calculations: Construction Load = 50 psf; Dead Load = 100 psf for the floor slab plus the dead load of beams and girders..
3. Shore/Reshore loads on the structure shall not exceed 40 psf distributed load on the precast double tees, and concentrated loads shall not exceed posted wheel loads or 2,000 lbs., whichever is less. Concentrated bearing pressures shall not exceed 1,200 psi.
4. Shore/Reshore loads on concrete slab-on-grade shall be distributed by steel grillage or timber grillage so as not to exceed soil bearing capacity or 1,500 psf, whichever is smaller.
5. Shore/Reshore loads shall be distributed horizontally and/or distributed to more than one level to meet shore/reshore load limitations.
6. Shore/Reshore loads shall be distributed to multiple framing members (double tee stems) and extend beyond the immediate work area to ensure proper distribution of loads throughout the structure.
7. Prior to installation of shores, Contractor shall submit shoring scheme prepared and sealed by Registered Professional Engineer in Florida.
8. Engineer/Architect will review shoring scheme for general conformance to requirements stated herein. If it does not conform, Contractor will be informed to resubmit another shoring scheme.

9. Remove shores and reshore in planned sequence to avoid damage to partially cured concrete. Locate and provide adequate reshoring to safely support Work without excessive stress or deflection.
10. Keep reshores in place as required until heavy loads due to construction operations have been removed.
11. If during construction, modifications are necessary to accommodate other trades, revise and resubmit erection plan to Engineer/Architect for review.

WI 1.4 CONCRETE REINFORCEMENT

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision, and incidentals necessary to fabricate and install all mild steel reinforcement. This work item is incidental to WI 1.1 "Project Mobilization".

B. Materials

1. Reinforcement materials shall be as specified in ACI 301 "Standard Specifications for Structural Concrete."
2. Welded wire reinforcement: provide mats only. Roll stock prohibited.
3. Epoxy Coating for Existing Exposed Non-prestressed Steel Reinforcement or Welded wire reinforcement:
 - a. "Sikadur 32 Hi-Mod," Sika Chemical Corp., Lyndhurst, NJ.
 - b. "Concressive Liquid LPL," Degussa Construction Systems Americas, Shakopee, MN.
 - c. "Scotchkote 413 PC," 3M Company.
 - d. "Armatec 100," Sika Corporation.
 - e. "Euco 452," The Euclid Chemical Company, Cleveland, OH.
 - f. "Resi-Bond (J-58)," Dayton Superior Corporation, OH.

C. Execution

1. Work shall conform to requirements of ACI 301 "Standard Specifications for Structural Concrete," ACI 315-80 "Details and Detailing of Concrete Reinforcement," ACI 318 "Building Code Requirements for Reinforced Concrete," and Concrete Reinforcing Steel Institute (CRSI), "Manual of Standard Practice."
2. Submittals required include: Product data for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, and others as requested by Engineer/Architect including, but not limited to:
 - a. Manufacturer's product data and installation instructions for proprietary form coatings, manufactured form systems, ties, and accessories.
 - b. Steel producer's certificates of mill analysis, tensile tests, and bend tests.
 - c. Manufacturer's product data, specifications, and installation instructions for proprietary materials, welded and mechanical splices, and reinforcement accessories.

3. Store concrete reinforcement materials at site to prevent damage and accumulation of dirt or excessive rust.
4. Reinforcement with any of following defects will be rejected:
 - a. Lengths, depths and bends exceeding CRSI fabrication tolerances.
 - b. Bends or kinks not indicated on Drawings or final Shop Drawings.
 - c. Reduced cross-section due to excessive rusting or other cause.
5. General: Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars," for details and methods of reinforcement placement and supports and as herein specified.
 - a. Avoiding cutting or puncturing vapor retarder during reinforcement placement and concreting operations.
 - b. Examine conditions under which concrete reinforcement is to be placed, and immediately notify Engineer/Architect in writing of unsatisfactory conditions. Do not proceed with Work until unsatisfactory conditions have been corrected in acceptable manner.
 - c. Clean reinforcement of loose rust and mill scale, earth, and other materials that reduce or destroy bond with concrete.
 - d. Fabricate reinforcement to conform to required shapes and dimensions, with fabrication tolerances complying with CRSI MSP. In case of fabricating errors, do not re-bend or straighten reinforcement in manner that will injure or weaken material.
 - e. Bends in reinforcement are standard 90° bends unless noted otherwise.
 - f. Reinforcement with any of following defects will be rejected:
 - 1) Lengths, depths and bends exceeding CRSI fabrication tolerances.
 - 2) Bends or kinks not indicated on Drawings or final Shop Drawings.
 - 3) Reduced cross-section due to excessive rusting or other cause.
 - g. Perform all welding of mild steel reinforcement, metal inserts and connections with low hydrogen welding electrodes in accordance with AWS D1.4.
 - h. Comply with ACI 301, Chapter 3 for placing reinforcement.
 - i. Use rebar chairs and accessories to hold all reinforcing positively in place. Provide rebar chairs at all formed surfaces, both vertical and horizontal, to maintain minimum specified cover. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces. Maximum spacing of chairs and accessories shall be per CRSI Manual of Standard Practice. In situations not covered by CRSI, provide support at 4 ft on center maximum each way.
 - j. Install welded wire reinforcement in as long lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.
 - k. Splices:
 - 1) Provide standard reinforcement splices by lapping ends, placing bars in contact, and tying tightly with wire. Comply with requirements of ACI 318 for minimum lap of spliced bars.

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

WI 1.5 TEMPORARY SIGNAGE

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment and supervision necessary to provide and install and remove following completion of project, temporary signage as required for traffic control and user information during construction and as required by Owner/Engineer. This work item is incidental to WI1.1 "Project Mobilization".

B. Materials

1. Temporary signage shall meet following minimum requirements:
 - a. Minimum size: 12 inches deep by 48 inches horizontal.
 - b. Backing material: 0.5 in. medium density overlay plywood.
 - c. Colors:
 - 1) Background: medium orange or white.
 - 2) Symbols/Lettering: black
 - d. Lettering: silk screened or die-cut.
 - 1) Font Style: Helvetica or similar.
 - 2) Size: 2 in. high minimum for pedestrian information; 4 in. high minimum for traffic information.

C. Execution

1. Mounting height: 5 ft. to bottom of sign. Provide mounting brackets as required.

2. Typical regulatory signs (that is, STOP, YIELD, etc.) and "Handicap" signs shall conform to all Federal, state, and local requirements for sizes, materials, and colors.

WI 1.7 OWNER'S CONTINGENCY

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision, and incidentals necessary to perform miscellaneous project work not covered by existing Work Items as directed in writing by the Engineer or Owner.

B. Materials/Equipment (Not Applicable)

C. Execution

1. Special conditions, hidden conditions, and similar situations shall be brought to the attention of the Owner and Engineer.
2. Where above conditions warrant, or if Owner elects to add or delete work, contract modifications will be made in accordance with the Change and Clarification Procedures section within the Contract. Contractor shall not bill, charge, invoice or in any other manner request payment against this Work Item unless specifically directed to do so by Owner/Engineer as indicated above.

WI 2.0 FLOOR SURFACE PREPARATION

WI 2.6 FLOOR PREPARATION – TRAFFIC TOPPING/MEMBRANE REMOVAL

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to remove and dispose of traffic toppings or other bonded waterproofing membrane from concrete surfaces as shown on Drawings.

B. Materials/Equipment

1. Equipment used shall not exceed weight or clearance restrictions currently in force for structure. No equipment may be used which, in opinion of Owner or Engineer/Architect, will damage existing structural system.
2. Equipment used shall leave a surface profile acceptable for traffic topping re-application.

C. Execution

1. Remove existing traffic topping/membrane from concrete floor slab by mechanical means.

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2. Clean final slab surface after removals so slab can be inspected and determine repair areas. All debris incidental to removal and surface cleaning shall be removed from deck and properly disposed of before inspection begins.
3. Damage to floor slab caused by removal operations shall be corrected to satisfaction of Engineer/Architect at no additional cost to Owner.
4. Preparation of spall and delamination cavities prior to placement of concrete patch or overlay materials is not part of Work of this Work Item.

WI 3.0 CONCRETE FLOOR REPAIR

A. Scope of Work

1. This Work consists of furnishing all labor, materials, equipment, supervision and incidentals including shoring necessary to locate existing spalls, locate and remove delaminated and unsound floor concrete, prepare cavities and install new concrete and reinforcing (as required) materials to restore concrete floor to original condition and appearance. Refer to Detail Series 3.0 for specific requirements.

B. Materials

1. Concrete repair materials shall be as specified in Section "Prepackaged Repair Mortar."

C. Execution

1. Locating, marking, removal, preparation, and inspection of deteriorated concrete and reinforcing steel preparation, repair and installation shall be performed as specified in Division 02 Section "Surface Preparation for Patching and Overlay."
2. Final surface preparation, concrete placement, finishing and curing shall be performed as specified in concrete repair material specification. Manufacturer specifications/requirements for these issues shall also be followed in the event proprietary bag mix repair materials are used.

WI 3.1 FLOOR REPAIR - PARTIAL DEPTH

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

WI 3.10 FLOOR REPAIR – STAIR NOSING REPAIR

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment. Supervision and incidentals necessary to locate existing spalled or delaminated stair nosing, removal of embedded metal nosing, removal of deteriorated and unsound

concrete, prepare cavities, and install patching material [and prefabricated non-slip tread/nosing] to restore stair to serviceable condition. Refer to Detail 3.10 for specific requirements.

B. Materials

1. Shallow/small placements: Trowel applied patching material shall be specified in Division 03 Section "Prepackaged Repair Mortar."
2. Dowels shall be stainless steel, Type 304, threaded set in approved epoxy.
3. High modulus, high strength epoxy paste resin adhesive with either rapid set or extended working time. Acceptable materials for this Work are:
 - a. "MasterEmaco ADH 327," or "MasterEmaco ADH 327 RS", or "MasterEmaco ADH 1420," or by BASF Building Systems, Shakopee, MN.
 - b. "Dural Fast Set Epoxies", or "EUCO #452 Epoxy System", by The Euclid Chemical Company, Cleveland, OH.
 - c. "Sikadur 31, Hi-Mod Gel", "Sikadur 32 Hi Mod", "Sikadur Hi-Mod LPL", or "Sikadur 33", by Sika Corporation, Lyndhurst, NJ.
 - d. Other types may be used only with Engineer/Architect's approval in writing prior to bidding.

C. Execution

1. Locating, marking, removal, preparation, and inspection of deteriorated floor surface concrete and reinforcing steel preparation, repair and installation shall be performed as specified in Division 02 Section "Surface Preparation for Patching and Overlay."
2. Final surface preparation, concrete placement, finishing and curing shall be performed as specified in concrete repair material specification. Manufacturer specifications/requirements for these issues shall also be followed in the event proprietary bag mix repair materials are used.
3. Install prefabricated non-slip tread/nosing as shown on the referenced Detail.

WI 4.0 CONCRETE CEILING REPAIR

A. Scope of Work

1. This Work consists of furnishing all labor, materials, equipment, supervision and incidentals including shoring necessary to locate existing spalls, locate and remove delaminated and unsound overhead concrete, prepare cavities and install new concrete and reinforcing (as required) materials to restore overhead concrete to original condition and appearance. Refer to Detail Series 4.0 for specific requirements.

B. Materials

1. Trowel applied patching material shall be as specified in Section "Prepackaged Repair Mortar." This material may be used for shallow removal and repair Work Items only.

C. Execution

1. Locating, marking, removal, preparation, and inspection of deteriorated concrete and reinforcing steel preparation, repair and installation shall be performed as specified in Division 02 Section "Surface Preparation for Patching and Overlay."
2. Final surface preparation, concrete placement, finishing and curing shall be performed as specified in concrete repair material specification. Manufacturer specifications/requirements on these issues shall also be followed in the event proprietary bag mix repair materials are used.

WI 4.1 CEILING REPAIR - PARTIAL DEPTH

- A. Refer to Work Item 4.0, "Concrete Ceiling Repair" for Scope of Work, materials and procedure associated with this Work Item. Refer to Detail 4.1 for specific requirements.

WI 5.0 CONCRETE BEAM AND JOIST REPAIR

A. Scope of Work

1. This Work consists of furnishing all labor, materials, equipment, supervision and incidentals including shoring necessary to locate existing spalls, locate and remove delaminated and unsound overhead concrete, prepare cavities and install new concrete and reinforcing (as required) materials to restore concrete beams and joists to original condition and appearance. Refer to Detail Series 5.0 for specific requirements.

B. Materials

1. Cast-in-place concrete repair materials shall be as specified in Division 03 Section "Prepackaged Repair Mortar."
2. Conventional steel reinforcement shall be as specified in Work Item 1.4, "Concrete Reinforcement."
3. Trowel applied patching material shall be as specified in Division 03 Section "Prepackaged Repair Mortar." This material may be used for shallow removal and repair Work Items only.

C. Execution

1. Locating, marking, removal, preparation, and inspection of deteriorated concrete and reinforcing steel preparation, repair and installation shall be performed as specified in Division 02 Section "Surface Preparation for Patching and Overlay." Install shoring at repair locations where required per the Construction Documents prior to starting removals.
2. Final surface preparation, concrete placement, finishing and curing shall be performed as specified in concrete repair material specification. Manufacturer specifications/requirements on these issues shall also be followed in the event proprietary bag mix repair materials are used.

WI 5.1 BEAM REPAIR - PARTIAL DEPTH/SHALLOW

- A. Refer to Work Item 5.0, "Concrete Beam and Joist Repair" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 5.1 for specific requirements.

WI 6.0 CONCRETE COLUMN REPAIR

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals including shoring necessary to locate existing spalls, locate and remove delaminated and unsound concrete, prepare cavities and install concrete and reinforcing (as required) materials to restore concrete columns to original condition and appearance. Refer to Detail Series 6.0 for specific requirements.

B. Materials

1. Cast-in-place concrete repair materials shall be as specified in Division 03 Section "Prepackaged Repair Mortar."
2. Conventional steel reinforcement shall be as specified in Work Item 1.4, "Concrete Reinforcement."
3. Trowel applied patching material shall be as specified in Division 03 Section "Prepackaged Repair Mortar." This material may be used for shallow removal and repair Work Items only.

C. Execution

1. Locating, marking, removal, preparation, and inspection of deteriorated concrete and reinforcing steel preparation, repair and installation shall be performed as specified in Division 02 Section "Surface Preparation for Patching and Overlay." Install shoring at repair locations where required per the Construction Documents prior to starting removals.
2. Final surface preparation, concrete placement, finishing and curing shall be performed as specified in concrete repair material specification. Manufacturer specifications/requirements on these issues shall also be followed in the event proprietary bag mix repair materials are used.

WI 6.1 COLUMN REPAIR – PARTIAL DEPTH

- A. Refer to Work Item 6.0, "Concrete Column Repair" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 6.1 for specific requirements.

WI 6.6 COLUMN REPAIR – HAUNCHES

- A. Refer to Work Item 6.0, "Concrete Column Repair" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 6.6 for specific requirements.

WI 7.0 CONCRETE WALL REPAIR

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals including shoring necessary to locate existing spalls, locate and remove delaminated and unsound concrete, prepare cavities and install concrete and reinforcing (as required) materials to restore concrete walls to original condition and appearance. Refer to Detail Series 7.0 for specific requirements.

B. Materials

1. Cast-in-place concrete repair materials shall be as specified in Division 03 Section "Prepackaged Repair Mortar."
2. Trowel applied patching material shall be as specified in Division 03 Section "Prepackaged Repair Mortar." This material may be used for shallow removal and repair Work Items only.

C. Execution

1. Locating, marking, removal, preparation, and inspection of deteriorated concrete and reinforcing steel preparation, repair and installation shall be performed as specified in Division 02 Section "Surface Preparation for Patching and Overlay ." Install shoring at repair locations where required per the Construction Documents prior to starting removals.
2. Final surface preparation, concrete placement, finishing and curing shall be performed as specified in concrete repair material specification. Manufacturer specifications/requirements on these issues shall also be followed in the event proprietary bag mix repair materials are used.

WI 7.1 WALL REPAIR - PARTIAL DEPTH

- A. Refer to Work Item 7.0, "Concrete Wall Repair" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 7.1 for specific requirements.

WI 7.5 WALL REPAIR – LIFTING LUG GROUT POCKET

- A. Refer to Work Item 7.0, "Concrete Wall Repair" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 7.5 for specific requirements.

WI 9.0 EXPANSION JOINT PREPARATION

WI 9.3 EXPANSION JOINT PREPARATION – PREPARE BLOCK-OUT

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision, and incidentals necessary to locate the Work area, remove sound and unsound floor slab concrete as required, and place patch or fill material to prepare cavity, including modifications to joint opening to receive new expansion joint system including header material. Refer to Detail 9.3 for specific requirements and installation conditions. This Work shall be coordinated with Work Item 10.3 "Expansion Joint - Elastomeric concrete edged."

B. Materials

1. Cast-in-place concrete repair materials shall be as specified in Division 03 Section "Prepackaged Repair Mortar."
2. Trowel applied patching material shall be as specified in Division 03 Section "Prepackaged Repair Mortar." This material may be used for shallow removal and repair Work Items only.

C. Execution

1. Contractor shall remove existing expansion joint materials in manner that minimizes damage to adjacent concrete.
2. Alterations and preparation to existing expansion joint concrete opening slab surfaces to prepare the necessary block-out required for installation of new expansion joint system shall be performed in accordance with this Work Item and Division 02 Section "Surface Preparation for Patching and Overlay."
3. Contractor shall locate and mark all expansion joint installation areas as located on Drawings.
4. All concrete requiring removal shall be square sawcut and chipped to limits/dimensions detailed. Caution shall be exercised during saw-cutting operations to avoid damaging existing post-tensioning tendons and reinforcement near surface of concrete.
5. Spalls and delaminations located within block-out shall be patched in accordance with Work Item 3.0, "Concrete Floor Repair."
6. Contractor shall allow for Engineer/Architect inspection of all cavities for condition as specified.
7. Final surface preparation, concrete placement, finishing and curing shall be performed as specified in concrete repair material specification. Manufacturer shall confirm acceptance of joint opening, block-out and repair materials prior to installation of expansion joint system.

WI 10.0 EXPANSION JOINT REPAIR AND REPLACEMENT

A. Scope of Work

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

B. Materials

1. Expansion joint system materials shall be as specified in Division 07 Section "Expansion Joint Assemblies," installed in strict accordance with manufacturer's recommendations.
2. Cast-in-place concrete repair materials shall be as specified in Division 03 Section "Prepackaged Repair Mortar."
3. Trowel applied patching material shall be as specified in Division 03 Section "Prepackaged Repair Mortar." This material may be used for shallow removal and repair Work Items only.

C. Execution

1. Contractor shall remove existing expansion materials in manner that minimizes damage to adjacent concrete.
2. Alterations to existing expansion joint blockout required for installation of new expansion joint system shall be performed in accordance with Work Item Series 9.0, "Expansion Joint Preparation."
3. Joint installation procedures shall be in accordance with referenced specifications and manufacturer's recommendations.
4. In-place testing: Prior to opening, test joint seal for leaks with 2 in. water depth maintained continuously for 12 hrs. Repair leaks revealed by examination of seal underside. Repeat test and repairs until all leaks stopped for full 12 hrs.

WI 10.3 EXPANSION JOINT – ELASTOMERIC CONCRETE EDGED

- A. Refer to Work Item 10.0, "Expansion Joint Repair and Replacement" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 10.3 for specific requirements.

WI 10.7 EXPANSION JOINT – FOAM SEAL

- A. Refer to Work Item 10.0, "Expansion Joint Repair and Replacement" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 10.7 for specific requirements.

WI 11.0 CRACK AND JOINT REPAIR

WI 11.1 SEAL CRACKS AND JOINTS

A. Scope of Work

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

B. Materials

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

C. Execution

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

WI 11.2 REPAIR CRACK/JOINT SEALANT

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate and mark failed joint sealant, remove existing

sealant, prepare edges and reseal joints and cracks. Refer to Details 11.2 for specific requirements.

B. Materials

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

C. Execution

1. Contractor shall locate failed crack/joint sealant by visual inspection.
2. Contractor shall remove existing sealant from joints and/or cracks. When existing joint dimensions do not conform to Detail 11.2, joints shall be routed or sawcut to an adequate width and depth as required by Work Item Detail. Routing shall be performed by mechanized device that has positive mechanical control over depth and alignment of cut.
3. Cavities shall be thoroughly cleaned by either sandblasting or grinding to remove all remaining sealant and unsound concrete which may interfere with adhesion. Groove shall also be air blasted to remove remaining debris.
4. Sealant materials and associated reference specifications are listed in Work Item "Repair Crack/Joint Sealant," Article "Materials," above. Sealant installation procedures shall be in accordance with referenced specifications for selected material.

WI 11.3 VERTICAL JOINT SEALANT

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate and mark failed vertical joint sealant, remove existing sealant, prepare edges and reseal vertical joints. Refer to Detail 11.3 for specific requirements.

B. Materials

1. Approved materials for use in this Work are specified in Division 07 Section "Concrete Joint Sealants."

C. Execution

1. Contractor shall locate failed crack/joint sealant by visual inspection.
2. Contractor shall remove existing sealant from joints and/or cracks.
3. When existing joint dimensions do not conform to Detail 11.3, joints shall be routed or sawcut to an adequate width and depth to match Work Item Detail. Routing shall be performed by mechanized device that has positive mechanical control over depth and alignment of cut.
4. Cavities shall be thoroughly cleaned by either sandblasting or grinding to remove all remaining sealant and unsound concrete which may interfere with adhesion. Groove shall also be air blasted to remove remaining debris.

5. Sealant materials and installation procedures shall be in accordance with referenced specifications for selected material.
6. If traffic topping will contact vertical joint sealant, traffic topping manufacturer shall verify in writing that joint sealant is compatible with traffic topping.

WI 11.4 REPLACE TEE-TO-TEE JOINT SEALANT

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate and mark failed joint sealant, remove existing sealant, prepare edges and reseal joints. Refer to Detail 11.4 for specific requirements.

B. Materials

1. Approved materials for use in this Work are specified in Division 07 Section "Concrete Joint Sealants".

C. Execution

1. Contractor shall locate failed joint sealant by visual inspection.
2. Contractor shall remove existing sealant from joints.
3. When existing joint dimensions do not conform to Detail 11.4, joints shall be routed or sawcut to an adequate width and depth as required by Work Item Detail. Routing shall be performed by mechanized device that has positive mechanical control over depth and alignment of cut.
4. Cavities shall be thoroughly cleaned by either sandblasting or grinding to remove all remaining sealant and unsound concrete which may interfere with adhesion. Groove shall also be air blasted to remove remaining debris.
5. Sealant materials and associated reference specifications are listed in Article "Materials," above. Sealant installation procedures shall be in accordance with referenced specifications for selected material.

WI 11.5 EPOXY INJECTION

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate cracks, prepare and pressure inject cracks with an epoxy resin so as to create waterproof barrier and/or structural repair as indicated in the Drawings. Refer to Detail 11.5 for specific requirements.

B. Materials

1. Epoxy injection materials shall be as specified in Division 03 Section "Epoxy Injection Systems."

C. Execution

1. Epoxy injection work and materials shall be performed in accordance with Division 03 Section "Epoxy Injection Systems."
2. Contractor is responsible for location of all locations requiring epoxy injection prior to start of Work.
3. Contractor shall allow for Engineer/Architect inspection of all epoxy injection sites for condition as specified.
4. No payment will be allowed for Work executed without Engineer/Architect inspection and verification.
5. Remove and patch all ports, holes, temporary seal materials to match existing conditions. This is considered incidental to the Work.
6. Clean and paint the repair area limited to the disturbed surfaces to match existing surfaces.

WI 11.7 COVE SEALANT

A. Scope of Work

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

B. Materials

1. Joint sealant materials shall be as specified in Division 07 Section "Concrete Joint Sealants."

C. Execution

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

WI 11.8 REPLACE FLASHING SEALANT

- A. Refer to Work Item 11.2 "Repair Crack/Joint Sealant" for similar scope of Work, materials and procedure associated with this Work Item. Refer to Detail 11.8 for specific requirements.

WI 11.9 REPLACE LOUVER FRAME SEALANT

- A. Scope of Work
1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate, remove and install sealant around louver frames.
- B. Materials
1. Approved materials for use in this Work are specified in Division 07 Section "Concrete Joint Sealants."
- C. Execution
1. Contractor shall locate and mark Work areas as located on Drawings.
 2. Joint shall be cleaned to remove all contaminants and foreign material. Contractor to exercise caution to protect interior spaces and equipment from dust during removals.
 3. Sealant shall be tooled concave. (No wet tooling will be allowed.) Joint preparation, backer rod and bond breaker shall be in accordance with sealant manufacturer's recommendations. Sealant materials shall be in accordance with specification Section "Concrete Joint Sealants."

WI 15.0 PROTECTIVE SEALER

- A. Scope of Work
1. Work consists of providing all labor, materials, equipment, supervision and incidentals necessary to prepare surfaces and install protective sealer system on concrete surfaces.
- B. Materials
1. Protective sealer system materials shall be as specified in Division 07 Section "Water Repellents."
- C. Execution
1. All surfaces scheduled to receive protective sealer system shall be identified by Contractor. Mark with chalk all areas other than floor surfaces which are to be treated.
 2. Floor surfaces shall be prepared by shotblast in accordance with referenced specification section.

3. All other surfaces to be treated shall be mechanically brushed, waterblasted, or sandblasted as required and then airblasted prior to application. Use of waterblasting on vertical or overhead surfaces requires adequate drying time before application to achieve proper penetration. Check moisture content with moisture meter and ensure moisture content is below maximum allowable by material manufacturer.
4. Sealer application shall be as specified in referenced specification section. Overhead and vertical surface application shall be by brush or pressure sprayer.

WI 15.1 CONCRETE SEALER - FLOORS

- A. Refer to Work Item 15.0, "Protective Sealer" for scope of Work, materials and procedure associated with this Work Item.

WI 16.0 TRAFFIC TOPPING

- A. Scope of Work
 1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals, including installation of joint sealant materials, necessary to prepare existing floor surfaces and install traffic topping. Coating of all vertical surfaces within Work limits shall be incidental to installation of traffic topping. Refer to Detail series 16.0 for specific requirements.
 2. Refer to Division 01 Section "Summary of Work – Restoration" for phasing requirements of Traffic Topping work.
- B. Materials
 1. Traffic topping materials shall be as specified in Division 07 Section "Traffic Coatings."
- C. Execution
 1. Floor surface preparation shall be performed by coating system licensed applicator or under its direct supervision.
 2. Shotblast surface preparation is required for floors.
 3. Coating system shall be installed by licensed applicators in strict accordance with manufacturer's recommendations and referenced specification section.
 4. Crack preparation, including installation of sealant material where required, is incidental to traffic topping work.
 5. Coating system shall be thoroughly cured prior to Work areas being returned to service.

WI 16.1 TRAFFIC TOPPING – VEHICULAR

- A. Refer to Work Item 16.0, "Traffic Topping" for Scope of Work, materials and procedure associated with this Work Item. Refer to Detail 16.1 for specific requirements.

WI 16.2 TRAFFIC TOPPING – STAIRTOWER/PEDESTRIAN AREAS

- A. Refer to Work Item 16.0, "Traffic Topping" for Scope of Work, materials and procedure associated with this Work Item. Refer to Detail 16.2 for specific requirements.

WI 16.4 TRAFFIC TOPPING – RECOAT (PARTIAL SYSTEM)

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals, including preparation and installation of crack, joint and cove sealant materials, necessary to prepare and recoat the existing traffic topping as shown on Drawings. Refer to Detail 16.4 for specific requirements.

B. Materials

1. Traffic topping materials shall be as specified in Division 07 Section "Traffic Coatings" and shall be compatible with existing system. Obtain written approval from new traffic topping manufacturer that existing coating surface is acceptable for installing new coating before beginning Work.

C. Execution

1. Removal of loose/failed existing coating, preparation of exposed concrete surfaces and existing traffic topping membrane shall be in strict accordance with manufacturer's recommendations and referenced specification section. Floor surface preparation shall be performed by coating system licensed applicator or under its direct supervision.
2. Shotblast surface preparation is required for floors.
3. Coating system shall be installed by licensed applicators in strict accordance with manufacturer's recommendations and referenced specification section.
4. Crack preparation, including installation of sealant material where required, is incidental to traffic topping work.
5. Preparation and installation of crack, joint, and cove sealant material, where required, is incidental to this Work Item.
6. Prior to recoating the area, any patches and/or bare concrete areas shall be coated with a base coat and an appropriate number of intermediate coats to bring the new membrane up to the level of the existing membrane. This work is incidental to this Work Item. After this has been completed, the entire area will be recoated.
7. Existing prepared traffic topping membrane shall be recoated with a minimum of one intermediate coat with aggregate and one top coat.
8. Coating system shall be thoroughly cured and traffic marking completed prior to returning work areas to service.

WI 18.0 CEMENTITIOUS COATING

WI 18.1 INSTALL CEMENTITIOUS COATING

A. Scope of Work

1. Works consists of furnishing all labor, materials, equipment, supervision, and incidentals necessary to prepare surfaces and install cementitious coating on concrete surfaces per manufacturer's recommendations.
2. Contractor shall prepare a mock-up of cementitious coating. The mock-up shall consist of a 2'x2' area at location chosen by Engineer. Upon approval, mock-up can be incorporated into final installation.

B. Materials

1. Acceptable materials for this Work are:
 - a. MasterSeal 581 by Master Builders Solutions
 - b. Sikagard Flex Coat by Sika Corporation
 - c. Or Engineer's approved equivalent

C. Execution

1. Contractor shall locate and mark all Work areas. Engineer shall verify locations prior to start of Work.
2. Surface preparation shall be performed in strict accordance with manufacturer's specifications/requirements.
3. Finish shall be sponge float finish.

WI 25.0 MECHANICAL - DRAINAGE

WI 25.6 MECHANICAL – CLEAN EXISTING DRAINS AND PIPING

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to clean drains, and piping in the garage for adequate drainage.

B. Materials (not used)

C. Execution

1. Work shall commence after all concrete operations that leave slurry or similar debris in or near drains.
2. Clean and flush all drains within parking structure to remove debris buildup and accumulation, to include collector/pit areas.

3. All drains within the parking structure shall be kept free-flowing throughout the duration of the project.
4. Equipment shall be equal to or better than 4000 psi water jet flusher with no less than 15 gpm at nozzle end.
5. Contractor will be required to provide a written summary for each parking structure of all drain locations, date each drain and drain line cleaned and tested, verifications of proper flow upon completion of construction Contractor shall provide sample format of report for approval by the Engineer prior to performing Work.

WI 35.0 MASONRY REPAIRS

WI 35.2 TUCKPOINTING

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to tuckpoint defective, cracked, broken or eroded joints in existing masonry work. Refer to detail 35.2 for specific requirements.

B. Materials

1. Materials shall be as specified in Division 04 Section "Unit Masonry."
2. Portland Cement: ASTM C 150, Type I or II.
3. Quicklime: ASTM C5; pulverized lime.
4. Hydrated Lime: ASTM C 207, Type N.
5. Aggregate for Mortar: ASTM C 144; except for joints less than 0.25 in., use aggregate graded with 100% passing the No. 16 sieve.
6. Water: Potable
7. Mortar shall match existing color.

C. Execution

1. Contractor shall locate and mark all Work areas. Engineer shall verify locations prior to start of Work.
2. All defective joints which are cracked, broken, or eroded to depth of 0.5 in. or more shall be tuckpointed.
3. Joints to be tuckpointed shall be cut back to depth of 0.75 in., or to full depth of deterioration. Use mechanically operated blades only to perform cutting. Joint at back of cut shall have square shoulder. Remove all mortar from upper and lower surfaces and sides of mortar joint being prepared.
4. Contractor shall flush all mortar joints thoroughly with clean water under pressure prior to tuckpointing to remove all dust, dirt, and laitance. CMU shall be damp and free of excess water before tuckpointing commences. Take all necessary precautions to prevent water from entering cavity space during cleaning operations.
5. Tuckpointing shall be performed using Type N mortar in accordance with ASTM C270 using specified materials.

6. Match existing mortar color. Mortar shall be dry and mixed thoroughly prior to adding water. Add one-half required mixing water and allow to stand 1 hour, then add balance of mixing water.
7. Press mortar into prepared joint using pointing tool 0.125 in. smaller than width of joint until joint is packed full. Finish point joint with pointing tool at least 0.125 in. wider than prepared joint.
8. Prior to initial set of mortar, tool joints to match existing.
9. Allow 3 to 7 days for mortar to harden prior to cleaning of masonry wall.
10. Dispose of all accumulated material and leave premises in clean condition.
11. Masonry surfaces that become dirty or smeared during joint cutting and repointing of joint surfaces shall be cleaned with bristle brushes and plain water.
12. Unnecessary damage to surrounding brick shall be repaired by Contractor at no cost to Owner.

WI 37.0 DOORS, FRAMES AND HARDWARE

WI 37.6 REPAIR ABRASIVE NOSINGS

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate existing deteriorated stair nosing, removal of existing material, prepare cavities, and installation of patching material to restore stair to serviceable condition. Refer to Detail 37.6 for specific requirements.

B. Materials

1. Replacement nosing material shall be Sikadur-22 Lo-Mod with Black Beauty aggregate or approved equivalent.

C. Execution

1. Locating, marking, removal, preparation, and installation of new nosing material.

WI 43.0 MISCELLANEOUS METALS

WI 43.1 REMOVE AND REPLACE HANDRAILS

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, shoring and jacking, supervision and incidentals necessary to replace the existing handrails with steel tube handrails at locations shown on the Drawings.
2. All new railings shall meet the current FBC:Building Code. Design of the railings shall be completed by a delegated designer hired by the contractor. Submit signed and sealed calcs to engineer for review.

B. Materials

1. Railings

- a. 1 ½" Diameter Steel - Nominal standard pipe
- b. Provide wall returns at ends of wall-mounted handrails unless otherwise indicated. Close ends of returns unless clearance between end of rail and wall is 1/4 inch (6 mm) or less.
- c. Finishes
 - 1) Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A 153/A 153M for steel and iron hardware and with ASTM A 123/A 123M for other steel and iron products
 - a) Do not quench or apply post galvanizing treatments that might interfere with paint adhesion
 - b) Fill vent and drain holes that are exposed in the finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth
- d. Field weld and grind smooth.
 - 1) Cold galvanize weld after installation

- 2. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, end closures, flanges, miscellaneous fittings, and anchors for interconnecting components and for attaching to other work. Furnish inserts and other anchorage devices for connecting to concrete or masonry work.
 - a. For galvanized railings, provide galvanized fittings, brackets, fasteners, sleeves, and other ferrous-metal components.
 - b. Provide type of bracket with predrilled hole for exposed bolt anchorage and that provides 1-1/2-inch (38-mm) clearance from inside face of handrail to finished wall surface.

C. Execution

- 1. Contractor to provide shop drawings for review and approval.
- 2. Remove existing aluminum railings, brackets, and anchors.
- 3. Anchor handrail ends to concrete with steel round flanges welded to rail ends and anchored with post-installed anchors and bolts.
- 4. Attach handrails to wall with wall brackets. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads. Secure wall brackets to building construction as required to comply with performance requirements.
- 5. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780/A 780M.

WI 43.3 RESET GUARDRAIL

A. Scope of Work

- 1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals to remove existing guardrail, re-install all posts, cast concrete repair mortar to restore post anchorage, and install cove sealant around perimeter of

each post. Repair of concrete deterioration, if necessary, is incidental to this Work Item.

B. Materials

1. Concrete repair mortar shall be as specified in Division 03 Section "Prepackaged Repair Mortar."
2. Anchoring grout shall be N.S. Grout with a minimum compressive strength of 5,000 psi.
3. Sealant shall be as specified in Division 07 Section "Concrete Joint Sealants."

C. Execution

1. Contractor shall locate, layout work areas and verify location with engineer. Contractor shall provide temporary signage directing pedestrians to other stairs. Temporary railings, approved by owner and engineer, may be used to keep stair operational during repair activities.
2. Materials are listed in article "Materials," above.
3. Contractor shall remove existing guardrail, clean post embedments, and re-install guardrails.
4. If necessary, deteriorated concrete at a post location shall be repaired in accordance with Work Item Series 3.0 and is incidental to this work item.
5. Existing posts shall be cleaned and coated with a corrosion inhibitive coating (such as Armatec Epocem 110 or engineer approved equivalent) as required.
6. Contractor shall install cove sealant around perimeter of each post.

WI 43.4 GUARDRAIL REPAIR – EDGE SPALL

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals to repair existing concrete deterioration, reset post, drill and epoxy in supplemental reinforcement and cast concrete repair mortar as needed to restore post anchorage. Removal and re-installation of railing, if necessary, is incidental to this Work Item. Refer to Detail 43.4 for specific requirements.

B. Materials

1. Concrete repair patching material shall be as specified in Work Item Series 3.0.
2. Reinforcement materials shall be as specified in ACI 301 "standard specifications for structural concrete."
3. Sealant shall be as specified in Division 07 Section "Concrete Joint Sealants."

C. Execution

1. Contractor shall locate, layout work areas and verify location with engineer. Contractor shall provide temporary signage directing pedestrians to other stairs. Temporary railings, approved by owner and engineer, may be used to keep stair operational during repair activities.
2. Materials are listed in article "Materials," above.

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3. Deteriorated concrete at a post location shall be repaired in accordance with Work Item Series 3.0 and is incidental to this work item.
4. Existing posts shall be cleaned and coated with a corrosion inhibitive coating (such as Armatec Epocem 110 or engineer approved equivalent) as required.

WI 43.5 REMOVE EXISTING STOREFRONT

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to remove existing storefront, door frame, and hardware at location indicated by Owner. Incidental to the removal of the existing storefront, door frame, and hardware is the application of a cementitious coating on the exposed concrete surface. Refer to materials listed below. Contractor shall strictly follow manufacturer's instructions and recommendations for application.

B. Materials

1. Acceptable materials for the cementitious coating are as follows:
 - a. MasterSeal 581 by Master Builders Solutions
 - b. Sikagard Flex Coat by Sika Corporation
 - c. Tamoseal by Euclid Chemical Company

C. Execution

1. Existing storefront, door frame, and hardware removal procedures, equipment, etc. shall be in accordance with each manufacturer's instructions.
2. Detach and temporarily support miscellaneous equipment attached to storefront or surroundings, i.e Exit Sign, conduit, etc.
3. Remove and properly dispose of existing storefront materials, door frame, and hardware. Fill any holes that may be present in the edges of the precast concrete panels.
4. Apply a cementitious coating to the newly exposed concrete.
5. Install detached equipment to concrete slab above or surrounding walls.

WI 43.6 INSTALL GUARDRAIL BENEATH STAIRS

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, shoring and jacking, supervision and incidentals necessary to install a guardrail at location shown on the Drawings.

B. Materials

1. Railings
 - a. 1 ½" Diameter Steel - Nominal standard pipe

- b. Finishes
 - 1) Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A 153/A 153M for steel and iron hardware and with ASTM A 123/A 123M for other steel and iron products
 - a) Do not quench or apply post galvanizing treatments that might interfere with paint adhesion
 - b) Fill vent and drain holes that are exposed in the finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth
 - c. Field weld and grind smooth.
 - 1) Cold galvanize weld after installation
2. Flanges, Fittings, and Anchors: Provide post brackets, flanges, miscellaneous fittings, and anchors for interconnecting components. Furnish inserts and other anchorage devices for connecting to concrete or masonry work.
- a. For galvanized railings, provide galvanized fittings, brackets, sleeves, and other ferrous-metal components.
- C. Execution
- 1. Contractor to provide shop drawings for review and approval.
 - 2. Anchor guardrail post ends to concrete floor with steel 6"x6"x1/2" plate welded to post ends and anchored with post-installed expansion anchors and bolts.
 - 3. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780/A 780M.

WI 43.7 INSTALL BOLLARD

- A. Scope of Work
- 1. Work consists of furnishing all labor, materials, equipment. Supervision and incidentals necessary to drill anchor holes and install steel bollards. Refer to Detail 43.7 for specific requirements.
- B. Materials
- 1. See Detail 43.7 for material.
- C. Execution
- 1. Contractor to provide shop drawings for review and approval.
 - 2. Locate and mark location prior to drilling anchor holes.
 - 3. Location of steel bollard shall not impede any ADA spaces and access aisles.
 - 4. Bollard shall be located so that there is a minimum of 3'-0" walk path on all sides of bollard to access stair / elevator towers.

WI 45.0 PAINTING

WI 45.1 PAINT TRAFFIC MARKINGS

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate, layout and paint parking stall stripes, crosswalks, accessible stall access aisles, symbols, stop bars and all other existing pavement markings.
2. Stripes shall match all existing marks and be provided at same locations.

B. Materials

1. Painting materials shall be waterborne acrylic based as specified in Division 09 Section "Pavement Marking."

C. Execution

1. Contractor shall locate and layout Work areas as indicated on Drawings and shall match existing pavement markings, except as directed otherwise by Engineer/Architect.
2. Engineer shall inspect all layout and surface preparation for conditions in accordance with Sections "Water Repellants" and "Pavement Marking."
3. Paint materials and associated referenced specifications are listed in Article "Materials," above. Procedures shall be in accordance with referenced specifications.

WI 45.5 CLEAN AND PAINT BOLLARD/PIPE GUARD

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to contain surface preparation debris and paint during operations and prepare, prime and paint all bollards located on Drawings.

B. Materials

1. Painting materials shall be as specified in Division 09 Section "Exterior Painting."

C. Execution

1. Contractor shall locate and verify with Engineer all Work areas.
2. Contractor shall verify color selection with Owner prior to start of Work.
3. Contractor shall take all necessary measures to contain, debris and paint within the Work area to protect public from injury and vehicles and public property from damage.

4. Contractor shall solvent clean any surface area with oil or grease build-up prior to receiving surface preparation in accordance with SSPC-SP1.
5. Contractor shall power tool clean all surfaces with surface corrosion in accordance with SSPC-SP3.
6. Contractor shall air blast and remove all debris from Work area prior to application of primer or paint.
7. Contractor shall apply primer to all prepared metal surfaces on same day (within 8 hrs) as surface preparation operations. Apply primer according to Section "Exterior Painting" and in strict accordance with manufacturer's recommendations.
8. Contractor shall apply paint in accordance with referenced specification section listed in Work Item "Clean and Paint Bollard," Article "Materials," above.

WI 45.8 CLEAN AND PAINT LIGHT POLE BASE

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to prepare, prime, paint, and install sealant around all light pole bases where indicated on Drawings.

B. Materials

1. Paint materials shall be as specified in Division 09 Section "Exterior Painting."
2. Sealant materials shall be as specified in Division 07 Section "Concrete Joint Sealants."

C. Execution

1. Contractor shall locate and verify with Engineer/Architect all Work areas.
2. Contractor shall verify color selection with Owner prior to start of Work.
3. Contractor shall solvent clean any surface area with oil or grease build-up prior to receiving surface preparation in accordance with SSPC-SP1 and Section "Exterior Painting."
4. Contractor shall prepare surfaces to SSPC-SP3 and Section "Exterior Painting" Areas of heavy mill scale and corrosion shall be cleaned to SSPC-SP11 "Power Tool Cleaning to Bare Metal."
5. Contractor shall remove existing grout installed around perimeter of light pole base. Grout removal at light pole base is incidental to Work Item 45.8.
6. Contractor shall apply primer to all metal surfaces on same day (within 8 hrs) as surface preparation. Apply primer according to Section "Exterior Painting" and in strict accordance with manufacturer's recommendations.
7. Contractor shall apply paint in accordance with referenced specification section listed in Work Item "Clean and Paint Light Pole Base", Article "Materials", above.
8. Contractor shall install sealant around light pole base in accordance with Work Item 11.7. Cove sealant at light pole base is incidental to Work Item 45.8.

WI 45.9 CLEAN AND PAINT LIGHT POLE BASE COVER

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to prepare, prime and paint all light pole base covers where indicated on Drawings.

B. Materials

1. Paint materials shall be as specified in Division 09 Section "Exterior Painting."

C. Execution

1. Contractor shall locate and verify with Engineer/Architect all Work areas.
2. Contractor shall verify color selection with Owner prior to start of Work.
3. Contractor shall solvent clean any surface area with oil or grease build-up prior to receiving surface preparation in accordance with SSPC-SP1 and Section "Exterior Painting."
4. Contractor shall prepare surfaces to SSPC-SP3 and Section "Exterior Painting" Areas of heavy mill scale and corrosion shall be cleaned to SSPC-SP11 "Power Tool Cleaning to Bare Metal."
5. Contractor shall apply primer to all metal surfaces on same day (within 8 hrs) as surface preparation. Apply primer according to Section "Exterior Painting" and in strict accordance with manufacturer's recommendations.
6. Contractor shall apply paint in accordance with referenced specification section listed in Work Item "Clean and Paint Light Pole Base", Article "Materials", above.

WI 95.0 DOORS AND WINDOWS

WI 95.1 RESEAL WINDOW FRAME JOINT

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to remove existing joint sealant, prepare substrates and reseal failed sealant locations between window frame and façade. See Detail 95.1 for specific requirements.

B. Materials

1. Sealants shall be as specified in Division 07 Section "Concrete Joint Sealants."

C. Execution

1. Contractor shall locate and mark all locations requiring resealing as detailed on Drawings.

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2. Contractor shall remove existing joint sealant. Care shall be taken not to damage adjacent façade, window components, or other surrounding features.
3. Joint shall be thoroughly cleaned by grinding to remove all debris, residual joint filler material and joint sealant material. Joint shall be air blasted to remove remaining debris after preparation.
4. Unnecessary damage to surrounding elements shall be repaired by Contractor at no cost to Owner.
5. Contractor shall install new joint sealant in accordance with Details and manufacturer's recommendations.
6. Sealed joints shall be neat in appearance. Poorly sealed or improperly sealed joints shall be removed and replaced at no additional cost to Owner.

WI 95.2 WINDOW GLAZING CAP SEAL

A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to prepare existing window glass and window frame substrates and install sealant to perimeter of existing window lites. See Detail 95.2 for specific requirements.

B. Materials

1. Sealants shall be as specified in Division 07 Section "Concrete Joint Sealants."

C. Execution

1. Contractor shall locate and mark all locations requiring "wet sealing" sealing installation as detailed on Drawings.
2. Contractor shall remove existing joint sealant (if present). Care shall be taken not to damage glass adjacent façade, window components or other surrounding features.
3. If gasket or glazing tape extends beyond the frame, cut back gasket/glazing tape flush with frame. Take care not to damage glass when cutting gasket/tape.
4. Joint shall be thoroughly cleaned to bare substrate materials by grinding to remove all debris, residual joint filler material and joint sealant material. Joint shall be airblasted to remove remaining debris after preparation.
5. Unnecessary damage to surrounding elements shall be repaired by Contractor at no cost to Owner.
6. Contractor shall install liquid applied joint sealant in accordance with Details and manufacturer's recommendations.
7. Sealed joints shall be neat in appearance. Poorly sealed or improperly sealed joints shall be removed and replaced at no additional cost to Owner.

END OF SECTION 020010

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SECTION 025130 - GENERAL CONCRETE SURFACE PREPARATION

PART 1 - GENERAL

1.1 DEFINITIONS

- A. **DELAMINATIONS:** Fracture planes, "internal cracks," within concrete. Typically these fractures are parallel to the member face and vary in depth.
- B. **NEAR-VERTICAL CHIPPED EDGES:** Provide an edge dressed to within 20° of perpendicular of finished surface.
- C. **SPALLS:** Potholes, cavities or voids in floor slabs, beams, columns, and walls. Usually result of delamination migrating to face of concrete member. When fracture finally reaches surface, concrete encompassed by delamination breaks away, resulting in spall.
- D. **UNSOUND CONCRETE:** Concrete exhibiting one or more of:
 - 1. Incipient fractures present beneath existing delaminated or spalled surfaces.
 - 2. Honeycombing.
 - 3. Friable or punky areas.
 - 4. Deterioration from freeze-thaw action.
- E. **SCALING:** Deterioration which attacks mortar fraction (paste) of concrete mix. First appears as minor flaking and disintegration of concrete surface. Scaling eventually progresses deeper into concrete, exposing aggregate which breaks away. Concrete scaling is caused by freeze-thaw action. If concrete is frozen in saturated state, excess water freezing in concrete causes high internal stresses.
- F. **SHOTBLASTING:** Scarification of concrete surfaces using an abraded metal shot-rebound. See Corps of Engineer's Manual EM 1110-2-2002 and the National Cooperative Highway Research Program's Report #99 for a more detailed definition.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

END OF SECTION 025130

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SECTION 025140 - SURFACE PREPARATION FOR PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the provision of all labor, materials, equipment, supervision and incidentals necessary to locate and remove all delaminated and unsound concrete and preparation of cavities created by removal to receive patching material and preparation of existing surface spalls and potholes to receive patching material.
- B. Related Sections: Following Sections contain requirements that relate to this Section:
 - 1. Division 3 Section "Trowel Applied Mortar"

1.3 REFERENCES

- A. "Specifications for Structural Concrete for Buildings" (ACI 301) by American Concrete Institute, herein referred to as ACI 301, is included in total as specification for this structure except as otherwise specified herein.
- B. Comply with provisions of following codes, specifications and standards except where more stringent requirements are shown on Drawings or specified herein:
 - 1. "Guide for Repair of Concrete Bridge Superstructures" (ACI 546.1), American Concrete Institute.
 - 2. "Building Code Requirements for Structural Concrete and Commentary" (ACI 318-08) American Concrete Institute.
 - 3. "Guide for Selecting Application Methods for the Repair of Concrete Surfaces" (ICRI Technical Guideline No. 320.1R-1996), International Concrete Repair Institute.
 - 4. "Guide for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion" (ICRI Technical Guideline No. 310.1R-2008) International Concrete Repair Institute.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.1 INSPECTION

A. Floor Slabs:

1. Floor slab delaminations: locate by sounding surface with hammer, rod, or chain drag.
2. When delaminated area is struck, distinct hollow sound is heard.
3. Contractor: sound all designated floors for delaminations.
4. Certain structural systems that contain thin slab thicknesses with Welded Wire Reinforcement or other small diameter reinforcing, such as precast tees, may have significant deterioration without evidence of delaminations. These structural systems require qualified personnel to provide additional inspections, primarily visual in nature, to define the extent of deterioration.
5. Contractor: Visually inspect thin slab thicknesses with small diameter reinforcing for deterioration.

B. Vertical and Overhead Surfaces:

1. Vertical and overhead surface delaminations: locate by sounding appropriate member with hammer or rod.
2. Cracks, usually horizontal in orientation along beam faces, and vertical in orientation near column corners are indicators of delaminated concrete.
3. Contractor: sound only vertical and overhead surfaces that show evidence of cracking and/or salt and water staining.

C. Delaminated areas, once located by Contractor, shall be further sounded to define limits. Mark limits with chalk or paint.

D. Contractor: locate spalls by visual inspection and mark boundaries with chalk or paint after sounding surface.

E. Engineer will define and mark additional unsound concrete areas for removal, if required.

F. Areas to be removed shall be as straight and rectangular as practical to encompass repair and provide neat patch.

G. Contractor: Locate and determine depth of all embedded REINFORCEMENT, PRESTRESSING TENDONS, and ELECTRICAL CONDUIT in repair area and mark these locations for reference during concrete removal. Do **NOT** nick or cut any embeds unless approved by Engineer.

3.2 PREPARATION

- A. **Temporary shoring may be required at concrete floor repair areas exceeding 10 sq ft and at any beam, joist, or column repair. Contractor: Review all marked removal and preparation areas and request clarification by Engineer of shoring requirements in questionable areas. Shores shall be in place prior to concrete removal and cavity preparation in any area requiring shores.**
- B. Delaminated, spalled and unsound concrete floor areas: mark boundaries. All concrete shall be removed from within marked boundary to minimum depth of 0.75 in. using 15 to 30 lb chipping hammers equipped with chisel point bits. When directed by Engineer, chipping hammers less than 15 lb shall be used to minimize damage to sound concrete. If delaminations exist beyond minimum removal depth, chipping shall continue until all unsound and delaminated concrete has been removed from cavity.
- C. Where embedded reinforcement or electrical conduit is exposed by concrete removal, exercise extra caution to avoid damaging it during removal of unsound concrete. If bond between exposed embedded reinforcement and adjacent concrete is impaired by Contractor's removal operations, Contractor shall perform additional removal around and beyond perimeter of reinforcement for minimum of 0.75 in. along entire length affected at no cost to Owner.
- D. If rust is present on embedded reinforcement where it enters sound concrete, additional removal of concrete along and beneath reinforcement required. Additional removal shall continue until non-rusted reinforcement is exposed, or may be terminated as Engineer directs.
- E. Sawcut to depth of 0.75 in. into floor slab, unless otherwise noted. For vertical and overhead surfaces marked boundary may be sawcut, ground or chipped to depth of 0.5 in. to 0.625 in. into existing concrete, measured from original surface. All edges shall be straight and patch areas square or rectangular-shaped. Diamond blade saw or grinder with abrasive disk suitable for cutting concrete is acceptable for performing work. Edge cut at delamination boundary shall be dressed perpendicular to member face. It shall also be of uniform depth, for entire length of cut. Exercise extra caution during sawcutting to avoid damaging existing reinforcement and electrical conduit and any other embedded items near surface of concrete. Any damage to existing reinforcement, post-tensioning tendons or sheathing during removals shall be repaired by Contractor with Engineer-approved methods at no additional cost to Owner.

3.3 INSPECTION OF REPAIR PREPARATION

- A. After removals are complete, but prior to final cleaning, cavity and exposed reinforcement shall be inspected by Contractor and verified by Engineer for compliance with requirements of this Section. Where Engineer finds unsatisfactory cavity preparation, Engineer shall direct Contractor to perform additional removals. Engineer shall verify areas after additional removals.

- B. Contractor shall inspect embedded reinforcement and conduits exposed within cavity for defects due to corrosion or damage resulting from removal operations. Contractor shall notify Engineer of all defective and damaged reinforcement or conduits. Replacement of damaged or defective reinforcement or conduits shall be performed according to this Section and as directed by Engineer.

3.4 REINFORCEMENT AND EMBEDDED MATERIALS IN REPAIR AREAS

- A. All embedded reinforcement exposed during surface preparation that has lost more than 15% of original cross-section due to corrosion shall be considered DEFECTIVE. All non-defective exposed reinforcement that has lost section to extent specified above as direct result of Contractor's removal operations shall be considered DAMAGED.
- B. **Embedded materials** including, but not limited to, electrical conduit, corrosion protection systems and snow/ice melting equipment **shall be protected by Contractor** during removal operations. **Damage due to removal operations shall be repaired by Contractor in accordance with national code requirements at no cost to Owner.** Embedded materials which are defective due to pre-existing conditions may be repaired or replaced by Contractor or abandoned at Owner's option and cost.
- C. Supplement defective or damaged embedded reinforcement by addition of reinforcement of equal diameter with Class "B" minimum splice per ACI 318 beyond damaged portion of reinforcement. Secure new reinforcement to existing reinforcement with wire ties and/or approved anchors. Supplemental reinforcement shall be ASTM A615 Grade 60 steel installed in accordance with Work Item "Concrete Reinforcement."
- D. Loose and supplemental reinforcement exposed during surface preparation shall be securely anchored prior to patch placement. Loose reinforcement shall be adequately secured by wire ties to bonded reinforcement or shall have drilled-in anchors installed to original concrete substrate. Drilled-in anchors shall be Powers "Tie-Wire Lok-Bolt" anchors, ITW Ramset/Red Head "TW-1400" anchor, or approved equivalent. Supplemental reinforcing needed to be held off substrate shall be adequately secured by drilled-in anchors installed to original concrete substrate with Powers "Tie-Wire Spike", ITW Ramset/Red Head Redi-Drive "TD4-112" anchors, or approved equivalent. Engineer will determine adequacy of wire ties and approve other anchoring devices prior to their use. Securing loose and supplemental reinforcement is incidental to surface preparation and no extras will be allowed for this Work.
- E. Concrete shall be removed to provide minimum of 3/4 in. clearance on all sides of defective or damaged exposed embedded reinforcement that is left in place. Minimum of 1.5-in. concrete cover shall be provided over all new and existing reinforcement. Concrete cover over reinforcement may be reduced to 1 in. with Engineer's approval if coated with an approved epoxy resin.

- F. Supplemental reinforcement and concrete removals required for repairs of defective or damaged reinforcement shall be paid for as follows:
1. Concrete removals and supplemental reinforcement required for repairs of DEFECTIVE reinforcement shall be incidental to work item WI 1.1 "Project Mobilization".
 2. Concrete removals and supplemental reinforcement required for repairs of DAMAGED reinforcement shall be paid for by Contractor.

3.5 CLEANING OF REINFORCEMENT WITH DELAMINATION AND SPALL CAVITIES

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

3.6 PREPARATION OF CAVITY FOR PATCH PLACEMENT

- A. Cavities will be examined prior to commencement of patching operations. Sounding surface shall be part of examination. Any delamination noted during sounding shall be removed as specified in this Section.
- B. Cavities shall be sandblasted. Airblasting is required as final step to remove sand. All debris shall be removed from site prior to commencement of patching.

END OF SECTION 025140

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SECTION 033760 – PREPACKAGED REPAIR MORTAR

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the provision of all labor, materials, supervision and incidentals necessary to prepare deteriorated or damaged concrete surfaces and install prepackaged concrete repair mortar to formed horizontal, vertical and overhead surfaces to restore original surface condition and integrity.
- B. Related Sections: Following Sections contain requirements that relate to this Section:
 - 1. Division 01 Section "Submittal Procedures."
 - 2. Division 02 Section "Work Items."
 - 3. Division 02 Section "General Concrete Surface Preparation."
 - 4. Division 02 Section "Surface Preparation for Patching."
 - 5. Division 07 Section "Concrete Joint Sealants."
 - 6. Division 07 Section "Traffic Coatings."
 - 7. Division 09 Section "Pavement Marking."

1.3 QUALITY ASSURANCE

- A. Work shall conform to requirements of ACI 301 as applicable except where more stringent requirements are shown on Drawings or specified in this Section.
- B. Testing Agency:
 - 1. Independent testing laboratory employed by Owner and acceptable to Engineer.
 - 2. Accredited by AASHTO under ASTM C1077. Testing laboratory shall submit documented proof of ability to perform required tests.
- C. Sampling and testing of mortar shall be performed by ACI certified Concrete Field Technicians Grade I. Certification shall be no more than three years old.
- D. Testing Agency is responsible for conducting, monitoring and reporting results of all tests required under this Section. Testing Agency has authority to reject mortar not meeting Specifications. Testing Agency does not have the authority to accept mortar that does not meet specifications.

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- E. Testing Agency shall submit the following information for Field Testing of Concrete unless modified in writing by Engineer:
1. Project name and location.
 2. Contractor's name.
 3. Testing Agency's name, address and phone number.
 4. Mortar manufacturer.
 5. Date of report.
 6. Testing Agency technician's name (sampling and testing).
 7. Placement location within structure.
 8. Weather data:
 - a. Air temperatures.
 - b. Weather.
 - c. Wind speed.
 9. Date, time, and place of test.
 10. Compressive test data:
 - a. Cube or cylinder number.
 - b. Age of sample when tested.
 - c. Date and time of test.
 - d. Compressive strength.

1.4 REFERENCES

- A. "Standard Specification for Structural Concrete" (ACI 301) by American Concrete Institute, herein referred to as ACI 301, is included in total as specification for this structure except as otherwise specified herein.
- B. Comply with provisions of following codes, specifications and standards except where more stringent requirements are shown on Drawings or specified herein:
1. "Building Code Requirements for Structural Concrete" (ACI 318), American Concrete Institute, herein referred to as ACI 318.
 2. "Hot Weather Concreting" reported by ACI Committee 305.
 3. "Cold Weather Concreting" reported by ACI Committee 306.
 4. "Standard Specification for Curing Concrete" (ACI 308.1)
- C. Contractor shall have following ACI publications at Project construction site at all times:
1. "Standard Specifications for Structural Concrete (ACI 301) with Selected ACI and ASTM References," ACI Field Reference Manual, SP15.
 2. "Hot Weather Concreting" reported by ACI Committee 305.
 3. "Cold Weather Concreting" reported by ACI Committee 306.
- D. American Society for Testing and Materials (ASTM):

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1. ASTM C109, "Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or 50-mm Cube Specimens)."
2. ASTM C31, "Test Method for Compressive Strength of Cylindrical Concrete Specimens."
3. ASTM C1583, "Standard Test Method for the Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method)"

1.5 SUBMITTALS

- A. Make submittals in accordance with requirements of Division 01 and as specified in this Section.
- B. Contractor: At preconstruction meeting, submit procedures for demolition, surface preparation, material batching, placement, finishing, and curing of application. Provide procedure to protect fresh patches from severe weather conditions.
- C. Testing Agency: Promptly report all mortar test results to Engineer and Contractor. Include following information:
 1. See Article "Quality Assurance," paragraph "Testing Agency shall submit...."
 2. Strength determined in accordance with ASTM C109.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide products of one of following, only where specifically named in product category:
 1. BASF Building Systems (BASF), Shakopee, MN
 2. Euclid Chemical Corporation (Euclid), Cleveland, OH
 3. Mapei Corporation (MAPEI), Deerfield Beach, FL
 4. Sika Corporation (Sika), Lyndhurst, NJ.

2.2 MATERIALS

- A. Horizontal Repair and Form and Pour Mortar: Shall be prepackaged cementitious repair mortar capable of horizontal and form and pour partial depth applications, achieving a minimum 3,000 psi compressive strength at 7 days and 5,000 psi compressive strength at 28 days per ASTM C39 as certified by manufacturer with maximum lineal shrinkage of 0.10% at 28 days. Extend per manufacturer's instructions as required for deeper placements.
 1. Acceptable cementitious repair materials for this Work are as follows:

- a. "MasterEmaco S440," by BASF.
 - b. "Eucocrete," by Euclid.
 - c. "Planitop 11," by MAPEI.
 - d. "Sikacrete 211," by Sika.
 - e. Other types may be used only with Engineer's approval in writing prior to bidding.

- B. Trowel Applied Repair Mortar: Shall be prepackaged, cementitious repair mortar capable of vertical/overhead application by trowel achieving a minimum 3,000 psi compressive strength at 7 days and 4,500 psi compressive strength at 28 days per ASTM C 109 as certified by manufacturer.
 - 1. Acceptable materials for this Work are as follows:
 - a. "MasterEmaco N425," by BASF.
 - b. "Verticoat Supreme," by Euclid.
 - c. "Planitop XS," by MAPEI
 - d. "Sikaquick VOH," by Sika.
 - e. Other types may be used only with Engineer's approval in writing prior to bidding.

- C. Horizontal Topping Mortar: Shall be prepackaged cementitious repair mortar capable of horizontal partial depth applications on minimum thickness of 0.5 inches and a maximum thickness of 2 inches, achieving a minimum 3,000 psi compressive strength at 7 days and 5,000 psi compressive strength at 28 days per ASTM C109 as certified by manufacturer. The mortar is not to be extended.
 - 1. Acceptable materials for this Work are as follows:
 - a. "MasterEmaco T1061," by BASF.
 - b. "Concrete Top Supreme," by Euclid.
 - c. "Planitop 15," by MAPEI.
 - d. "SikaTop 111 Plus," by Sika.
 - e. Other types may be used only with Engineer's approval in writing prior to bidding.

2.3 MATERIAL ACCESSORIES

- A. Extended Open Time Epoxy Bonding Agent: Three component, water based, epoxy modified portland cement bonding agent and corrosion inhibitor coating providing the recommended Manufacturer's open time in which to apply repair mortar.
 - 1. Acceptable materials for this Work are:
 - a. "MasterEmaco P124," by BASF.
 - b. "Duralprep A.C.," by Euclid.
 - c. "Planibond 3C," by MAPEI.
 - d. "Armaterc 110 EpoCem", by Sika.

- B. Clear, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.
- C. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.
- D. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Epoxy Bonding Agent Extended Open Time:
 - 1. In strict accordance with manufacturer's recommendations, mix and apply epoxy bonding agent to all areas as indicated on Drawings.
 - 2. Allow epoxy bonding agent to dry a minimum 2 hours, but no more than the Manufacturer's recommended open time prior to placing repair mortar.
- B. Mortar Placement: Mortar materials shall be placed in strict accordance with manufacturer's instructions. Properly proportioned and mixed mortar material shall be placed using tools to consolidate mortar so that no voids exist within new material and continuous contact with base concrete is achieved.
- C. Form and Pour Repair Mortar Placement: Mix and apply in strict accordance with manufacturer's written instructions, to achieve a maximum 9" slump. Consolidate mortar so that no voids exist and continuous contact with base concrete is achieved.
- D. Vertical and Overhead Repairs: Mortar materials shall be placed in strict accordance with manufacturer's instructions. Properly proportioned and mixed mortar material shall be placed using tools to consolidate mortar so that no voids exist within new material and continuous contact with base concrete is achieved. Supplemental wire mesh shall be required for delamination and spall repairs greater than two inches in depth.
- E. Finishing:
 - 1. Apply a nonslip broom finish to top of floor patches and to exterior concrete platforms, steps, and ramps. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route.
 - 2. Provide a surface finish similar to adjacent surfaces for vertical and overhead partial depth repairs.
 - 3. Finish formed surfaces similar to adjacent surfaces.

3.2 CONCRETE PROTECTION AND CURING

- A. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 305R for hot-weather protection during placement. Keep concrete continually moist prior to final curing by evaporation retarder, misting, sprinkling, or using absorptive mat or fabric covering kept continually moist.
- B. Immediate upon conclusion of finishing operation cure concrete in accordance with ACI 308.1 for duration of at least seven (7) days by curing methods listed below. Provide additional curing immediately following initial curing and before concrete has dried.
 - 1. During initial and final curing periods maintain concrete above 50°.
 - 2. Prevent rapid drying at end of curing period.
- C. Concrete surfaces to receive slab coatings or penetrating sealers shall be cured with moisture curing or moisture-retaining-cover curing.
- D. Curing Methods: Cure formed and non-formed concrete moisture curing, moisture-retaining-cover curing, curing compound, or a combination of these as follows:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - 3. Curing compound: Apply curing compound in accordance with manufacturer's instructions.

3.3 FIELD QUALITY CONTROL

- A. Testing Agency: Owner shall engage a qualified independent testing and inspecting agency acceptable to the Engineer to sample materials, perform tests, and submit test reports during concrete placement according to requirements specified in this Article. Perform tests according to ACI 301.
- B. Testing Frequency: Perform one set of strength testing and one bond test for each product used for each day's work. Prepare samples in accordance with ASTM C31.

- C. Compressive Strength Testing: Determine strength at, 7 and 28 days. Each test shall consist of two 6-inch diameter cylinders or three 4-inch diameter cylinders. Testing shall be in accordance with ASTM C39.
- D. Compressive Strength Testing: Determine strength at, 7, and 28 days. Each test shall consist of three 2-inch cubes. Testing shall be in accordance with ASTM C109 using as placed mortar.

3.4 EVALUATION AND ACCEPTANCE OF WORK

- A. Acceptance of Repairs (ACI 301):
 - 1. Acceptance of completed concrete Work will be according to provisions of ACI 301.
 - 2. Repair areas shall be sounded by Engineer and Contractor with hammer or rod after curing for 72 hours. Contractor shall repair all hollowness detected by removing and replacing patch or affected area at no extra cost to Owner.
 - 3. If shrinkage cracks appear in repair area when initial curing period is completed, repair shall be considered defective, and it shall be removed and replaced by Contractor at no extra cost.
 - 4. Patches shall be considered defective if average strength does not meet minimum strength at 28 days or if average bond strength does not meet minimum requirements of 150 psi.

END OF SECTION 033760

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SECTION 036300 - EPOXY INJECTION SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the provision of all labor, materials, equipment, supervision and incidentals necessary to prepare cracks in structural concrete members and inject them with a 2-component, moisture-insensitive, 100 percent solids, low-viscosity epoxy resin system.
- B. Related Sections: Following Sections contain requirements that relate to this Section:
 - 1. Division 01 Section "Submittal Procedures."
 - 2. Division 02 Section "Work Items."
 - 3. Division 02 Section "General Concrete Surface Preparation."
 - 4. Division 02 Section "Surface Preparation for Patching and Overlay."

1.3 QUALITY ASSURANCE

- A. Testing Agency will be independent testing laboratory employed by Owner and approved by Engineer/Architect.
- B. Testing Agency is responsible for conducting, monitoring and reporting to Owner results of all field tests of epoxy injection and installation required under this Section with copy of all reports to Engineer and Contractor.
- C. Submit following information for Field Testing of Epoxy Injection Installation unless modified in writing by Engineer/Architect:
 - 1. Project name and location.
 - 2. Contractor's name.
 - 3. Testing Agency's name, address and phone number.
 - 4. Epoxy material supplier.
 - 5. Date of report.
 - 6. Testing Agency technician's name (sampling and testing).
 - 7. Placement location within structure.
 - 8. Epoxy material data:
 - a. Epoxy type.

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- b. Gel type.
 - c. Width of cracks injected (if applicable).
 - d. Crack conditions (dry or wet).
 - e. Injection port spacing.
 - f. Initial and (if different) constant injection pressures.
 - g. Use rate of epoxy.
- 9. Weather data:
 - a. Air temperatures.
 - b. Weather.
 - c. Wind speed.
- 10. Field test data:
 - a. Date, time and place of test.
 - b. Thickness of epoxy in crack or void.
- D. Qualifications:
 - 1. Contractor Qualifications: Contractor shall be qualified in the field of concrete repair and protection with a minimum of 5 years experience in application of similar systems and products on projects of similar size and scope.
 - a. Successful completion of a minimum of 3 projects of similar size and complexity to specified Work.
 - b. Contractor shall maintain qualified personnel who have received product training by a manufacturer's representative.
 - c. Install materials in accordance with all safety and weather conditions required by the manufacturer, or as modified by applicable rules and regulations of local, state, and federal authorities having jurisdiction.
 - 2. Manufacturer Qualifications: The manufacturer of the specified product shall be ISO 9001:2000 Certified and have in existence a recognized ongoing quality assurance program independently audited on a regular basis. The manufacturer shall have a minimum 15 years of experience in manufacturing of surface hardener.
- E. Pre-Construction Meetings: Conduct Pre-Construction meeting at Project site to comply with requirements of Division 01 and as specified in this Section.
 - 1. Schedule and convene meeting a minimum of 1 week prior to commencing Work of this Section.
 - 2. Review requirements for application, including surface preparation specified under other Sections, substrate condition and pretreatment, minimum curing period, forecasted weather conditions, special details, installation procedures, testing and inspection procedures, protection, and repair.
 - 3. Discuss procedures for protecting adjacent finished Work.

1.4 REFERENCES

- A. "Standard Specifications for Structural Concrete," (ACI 301) by American Concrete Institute, herein referred to as ACI 301, is included in total as specification for this structure except as otherwise specified herein.
- B. Comply with provisions of following codes, specifications and standards except where more stringent requirements are shown on Drawings or specified herein:
 - 1. "Building Code Requirements for Reinforced Concrete," (ACI 318), American Concrete Institute, herein referred to as ACI 318.
 - 2. "Causes, Evaluation, and Repair of Cracks in Concrete Structures" (ACI 224.112), American Concrete Institute.
 - 3. "State-of-the-Art Report on Parking Structures" (ACI 362), American Concrete Institute.
 - 4. "Specification for Crack Repair by Epoxy Injection" (ACI 503.7), American Concrete Institute.
 - 5. "Guide for the Application of Epoxy and Latex Adhesives for Bonding Freshly Mixed and Hardened Concretes", (ACI 503.6), American Concrete Institute.
 - 6. "Standard Specification for Bonding Hardened Concrete, Steel, Wood, Brick, and Other Materials to Hardened Concrete with a Multi-Component Epoxy Adhesive" (ACI 503.1), American Concrete Institute.
 - 7. "Guide for Repair of Concrete Bridge Superstructures" Reported by ACI Committee 546 (ACI 546.1).
- C. Contractor shall have following ACI/ICRI publications at Project construction site at all times:
 - 1. "Specification for Crack Repair by Epoxy Injection" (ACI 503.7), American Concrete Institute." Structural Crack Repair by Epoxy Injection", ACI RAP Bulletin 1, American Concrete Institute.
 - 2. "Standard Specification for Bonding Hardened Concrete, Steel, Wood, Brick, and Other Materials to Hardened Concrete with a Multi-Component Epoxy Adhesive" (ACI 503.1), American Concrete Institute.

1.5 SUBMITTALS

- A. Make submittals in accordance with requirements of Division 01 and as specified in this Section.
- B. Contractor: Submit manufacturer's product data sheets, technical sheets, recommended application procedures and information on epoxy injection equipment.
- C. Testing Agency: Promptly report all test results to Engineer/Architect and Contractor. Include following information:
 - 1. See Article "Quality Assurance," paragraph "Submit following information for Field Testing...."
 - 2. Visual examination of epoxy resin penetration.

- D. See requirements of Division 01 Section, "Submittal Procedures," Part 1 heading, "Submittal Procedures," for limits to resubmittals.
- E. See requirements of Division 01 Section, "Submittal Procedures," Part 2 heading, "Requests for Information," for RFI constraints.

1.6 WARRANTY

- A. System manufacturer and Contractor shall furnish Owner written single source performance guarantee that epoxy resin injection system will be free of defects related to design, workmanship or material deficiency for 3-year period from date of acceptance of Work required under this Section against leakage or bond failure:
 - 1. Any adhesive or cohesive failure.
 - 2. Cracking or other weathering deficiency.
 - 3. Normal abrasion or tear failure.
- B. Any repair under this guarantee shall be done at no cost to Owner. Guarantee shall be provided by Contractor and manufacturer of system.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

- A. Injection epoxy shall be one of following:
 - 1. "MasterInject 1380" or "MasterInject 1500" as manufactured by BASF Construction Chemicals., Shakopee, MN.
 - 2. "Sikadur 35 Hi-Mod LV" or "Sikadur 52" as manufactured by Sika Chemical Corporation, Lyndhurst, NJ.
 - 3. "Epoxy HP-LV" as manufactured by Hunt Process Corp-Southern, Ridgeland, MS.
 - 4. "Pro-Poxy 50 Super LV" as manufactured by Unitex, Kansas City, MO.
 - 5. "Eucopoxy" or "Duralcrete LV" as manufactured by The Euclid Chemical Company, Cleveland OH.
 - 6. "Sure Inject J56 SLV" as manufactured by Dayton Superior Corp., Miamisburg OH.
 - 7. "KonTek 11 LV" as manufactured by Contech Group, Inc. Seattle, WA.
 - 8. "Kemko 038" as manufactured by ChemCo Systems, Inc., Redwood City, CA.
- B. Epoxy gel shall be as specified by the selected injection epoxy manufacturer.
- C. Equipment:
 - 1. Epoxy injection unit shall be portable and equipped with positive displacement-type pumps with interlock to provide positive ratio control of epoxy injection resin components. Pumps shall be air or electric powered and shall provide in-line mixing and metering system and shall be equipped with drain-back plugs.

2. Equipment used to inject epoxy shall be capable of following:
 - a. Automatic proportioning of materials within mix ratio tolerances set by epoxy resin manufacturer.
 - b. Delivery of components, resin and hardeners, from separate reservoirs to mixing type discharge head.
 - c. Complete and uniform mixing of components at discharge head.
 - d. Injection of resin system at constant pressures not to exceed 150 psi.

PART 3 - EXECUTION

3.1 PREPARATION

A. Crack Identification:

1. All cracks 0.03 in. wide or greater that are designated by Engineer/Architect, and not coincident with principal delamination, shall be injected. Cracks that occur coincident with principal delaminations shall not be injected.
2. Cracks requiring repair shall be located by Contractor at time of construction and marked with chalk.

B. Crack Preparation for Injection:

1. Surface of concrete adjacent to crack must be free of all laitance, efflorescence, dirt or foreign particles.
2. Cracks may be damp or dry as per injection material manufacturer's recommended installation procedures.
3. All cracks shall be properly sealed along their exposed length with an approved epoxy gel.
4. Epoxy injection ports shall be uniformly spaced along crack and shall be installed as recommended by system manufacturer. If concrete member being injected is exposed on both sides, provide injection ports on opposite sides at staggered intervals.
5. Apply epoxy gel around injection port to provide an adequate seal to prevent escape of injection resin from perimeter of port while under pressure.
6. Apply epoxy gel for sealing in manner that will result in minimal defacing or disorganization of concrete substrate.

3.2 INSTALLATION

A. Epoxy Injection:

1. Dispense epoxy injection under constant pressure in accordance with manufacturer's recommended procedures or as required to achieve maximum filling and penetration of crack without inclusion of air voids in epoxy resin material.
2. Injection shall begin at lowest port and progress incrementally higher.
3. Appearance of epoxy resin at next higher port shall be considered evidence of successful crack filling.

4. If penetration of epoxy resin into cracks is not possible, notify Engineer/Architect prior to discontinuing injection procedures. If alternate injection procedures are possible, submit procedure in writing to Engineer/Architect for review.
5. Contractor shall adhere to all limitations and cautions for epoxy resin injection material as per manufacturer's current printed literature.

B. Cleaning:

1. When cracks are completely filled, allow adhesive to cure for sufficient time to allow the removal of the surface seal without any draining or runback of epoxy material from the cracks.
2. Remove the surface seal material, ports, and injection adhesive runs or spills from concrete surfaces.
3. Finish the face of the crack flush to the adjacent concrete, removing any indentations or protrusions caused by the placement of entry ports
4. Match work area to adjacent surface including any surface treatments.

3.3 FIELD QUALITY CONTROL BY TESTING AGENCY

A. Core Testing:

1. Testing Agency shall obtain 3- 2 in. minimum diameter core samples in first 100 ft of repaired cracks and 1 core for each 100 ft thereafter. Cores shall be taken after injection resin has cured for period of 7 days. Core sample shall be for full crack depth. Core locations and sizes shall be submitted to Engineer/Architect for review prior to taking core samples. Care should be taken not to damage or cut existing reinforcement (ESPECIALLY POST-TENSIONING TENDONS).
2. Core samples shall be visually examined to determine degree of epoxy penetration. Minimum of 90% of crack shall be full of epoxy adhesive.

B. Evaluation and Acceptance of Epoxy Injection:

1. Results of visual examination will be reviewed by Engineer/Architect for compliance with Article "Field Quality Control by Testing Agency," paragraph "Core Testing."
2. If results of initial cores fail by lack of penetration, work shall not proceed further until area represented by cores has been re-injected and re-tested for acceptance.
3. After cracks have been re-injected, additional cores shall be taken as directed by Engineer/Architect. Cores shall be tested for compliance with Article "Field Quality Control by Testing Agency," paragraph "Core Testing" by Owner's Testing Agency at Contractor's expense.
4. Core holes shall be filled with non-shrink grout material. Grout shall be applied with hard trowel, and be thoroughly rodded and tamped in place. Finish, texture and color to match existing surface. Materials and procedures for filling testing core holes shall be submitted to Engineer/Architect for review prior to starting work.

C. Acceptance of Structure:

1. Acceptance of completed concrete injection work will be according to requirements of Article "Field Quality Control by Testing Agency," paragraph "Core Testing."

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2. Grouted core holes shall be sounded by Engineer/Architect and Contractor with hammer or rod after curing for 48 hours.

END OF SECTION 036300

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SECTION 071800 – TRAFFIC COATINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. A single installer shall be responsible for providing complete water proofing system including all products specified in following Sections:
 - 1. Division 07 Section, "Traffic Coatings"
 - 2. Division 07 Section, "Joint Sealants"
- B. This Section includes traffic coating: Fluid applied, waterproofing, traffic-bearing elastomeric membrane with integral wearing surface, where surface to which membrane is to be applied is one or more of following as detailed on Drawings:
 - 1. Above electrical room.
- C. Materials shall be compatible with materials or related Work with which they come into contact, and with materials covered by this Section.
- D. Related Sections: Following Sections contain requirements that relate to this Section.
 - 1. Division 03 Section, "Prepackaged Repair Mortar."
 - 2. Division 07 Section, "Concrete Joint Sealants"
 - 3. Division 09 Section, "Pavement Markings -Restoration."

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Distribute reviewed submittals to all others whose Work is related.
- B. Pre-installation Conference: Meet at project site well in advance of time scheduled for Work to proceed to review requirements for Work and conditions that could interfere with successful coating performance. Require every party concerned with coating Work, or required to coordinate with it or protect it thereafter, to attend. Include manufacturer's technical representative and warranty officer.
- C. Make submittals in accordance with requirements of Division 01 Section, "Submittal Procedures:"

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1. See requirements of Division 01 Section, "Submittal Procedures," Part 1 heading, "Submittal Procedures," for limits to resubmittals.
 2. See requirements of Division 01 Section, "Submittal Procedures," Part 2 heading, "Requests for Information," for RFI constraints.
- D. Submittals and Resubmittals: Engineer will review each of Contractor's shop drawings and/or submittal data initial time and, should resubmittal be required, one additional time to verify that reasons for resubmittal have been addressed by Contractor and corrections made. Resubmittal changes/revisions/corrections shall be circled. Engineer will review only circled items and will not be responsible for non-circled changes / revisions / corrections and additions. Should additional resubmittals be required, Contractor shall reimburse Owner for all costs incurred, including cost of Engineer's services made necessary to review such additional resubmittals. Owner shall in turn reimburse Engineer.
- E. Requests For Information
1. Engineer reserves right to reject, unprocessed, any Request for Information (RFI) that Engineer, at its sole discretion, deems frivolous and/or deems already answered in the Contract Documents.
 2. RFI process shall not be used for requesting substitutions. Procedures for substitutions are clearly specified elsewhere in Contract documents.

1.4 ACTION SUBMITTALS

- A. Product Data: For each system indicated, submit the following at least 60 days prior to application.
1. Product description, technical data, appropriate applications and limitations.
 2. Primer type and application rate
 3. Material, and wet mils required to obtain specified dry thickness for each coat.
 4. Type, gradation and aggregate loading required within each coat.
- B. Samples:
1. One 4 in. by 4 in. stepped sample showing each component for each system indicated.
- C. Sample Warranty: For each system indicated.

1.5 INFORMATION SUBMITTALS

- A. Certificates
1. Certification that products and installation comply with applicable federal, state where project is located, and local EPA, OSHA and VOC requirements regarding health and safety hazards.

2. Evidence of applicator's being certified by manufacturer. Evidence shall include complete copy of manufacturer's licensing/certification document, spelling out repair responsibility for warranty claims.
3. Certification from Manufacturer that finishes as specified are acceptable for system to be installed at least 1 month before placement of any concrete which will receive traffic coating.
4. Certification stating static coefficient of friction meets minimum requirements of Americans with Disabilities Act (ADA).
5. Certification stating materials have been tested and listed for UL 790 Class "A" rated materials/system by UL for traffic coating application specified on project. Containers shall bear UL labels.
6. Certification from manufacturer confirming compatibility with existing underlying coatings and/or substrate.

B. Manufacturer's Instructions: for each system indicated.

1. Crack treatment and surface preparation method and acceptance criteria.
2. Method of application of each coat.
3. Maximum and minimum allowable times between coats.
4. Final cure time before resumption of parking and/or paint striping.
5. Any other special instructions required to ensure proper installation.

C. Field Quality Control:

1. Quality Control Plan as defined in Part 3.
2. Two copies each of manufacturer's technical representative's log for each visit.
3. Testing agency field reports.

D. Qualification Statements

1. Manufacturer's qualifications as defined in "Quality Assurance" article.
2. Installer's qualifications as defined in "Quality Assurance" article.
3. Signed statement from applicator certifying that applicator has read, understood, and shall comply with all requirements of this Section.

1.6 CLOSEOUT SUBMITTALS

- A. Three copies of System Maintenance Manual.
- B. Final executed Warranty.

1.7 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Owner retains right to reject any manufacturer.
 1. Evidence of acceptable previous work on WALKER-designed projects. If none, so state.
 2. Evidence of financial stability acceptable to Engineer/Architect.

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3. Listing of 20 or more projects completed with submitted system, to include:
 - a. Name and location of project.
 - b. Type of system applied.
 - c. On-Site contact with phone number.
- B. Manufacturer's technical representative, acceptable to Engineer/Architect, shall be on site during surface preparation and initial stages of installation.
- C. Installer's Qualifications: Owner retains right to reject any manufacturer.
 1. Evidence of compliance with Summary article paragraph "A single installer. . ."
 2. Evidence that installer has successfully performed or has qualified staff who have successfully performed at least 5 verifiable years of installations similar to those involved in this Contract, and minimum 10 projects with submitted system.
 3. Listing of 5 or more installations in climate and size similar to this Project performed by installer's superintendent.
- D. Testing Agency: Independent testing laboratory employed by Contractor and acceptable to Engineer/Architect.
- E. Certifications
 1. Traffic coating shall satisfy current National Volatile Organic Compound (VOC) Emission Standards for Architectural Coatings.
 2. Licensing/certification document from manufacturer that confirms system installer is a licensed/certified applicator for the manufacturer and is legally licensed to perform work in the state this project is being constructed.
 3. Licensing/certification agreement shall include following information:
 - a. Applicator's financial responsibility for warranty burden under agreement terms.
 - b. Manufacturer's financial responsibility for warranty burden under agreement terms.
 - c. Process for dispute settlement between manufacturer and applicator in case of system failures where cause is not evident or cannot be assigned.
 - d. Authorized signatures for both Applicator Company and Manufacturer.
 - e. Commencement date of agreement and expiration date (if applicable).

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver all materials to site in original, unopened containers, bearing following information:
 1. Name of product.
 2. Name of manufacturer.
 3. Date of preparation.
 4. Lot or batch number.

- B. Store materials under cover and protect from weather. Replace packages or materials showing any signs of damage with new material at no additional cost to Owner.
- C. Do not store material on slabs to be post-tensioned before final post-tensioning of slabs is accomplished. At no time shall weight of stored material being placed on slab area, after post-tensioning is completed and concrete has reached specified 28 day strength, exceed total design load of slab area. Between time final post-tensioning is accomplished and time concrete has reached specified 28 day strength, weight of stored material placed on slab area shall not exceed half total design load of slab area.

1.9 FIELD CONDITIONS

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

1.10 WARRANTY

- A. System Manufacturer (New Application and Complete System Recoating): Furnish Owner with written total responsibility Joint and Several Warranty, detailing responsibilities of manufacturer and applicator with regard to warranty requirements (Joint and Several). Warranty shall provide that system will be free of defects, water penetration and chemical damage related to system design, workmanship or material deficiency, consisting of:
 - 1. Any adhesive or cohesive failures.
 - 2. Spalling surfaces.
 - 3. Weathering.
 - 4. Surface crazing (does not apply to traffic coating protection course).
 - 5. Abrasion or tear failure resulting from normal traffic use.
 - 6. Failure to bridge cracks less than 0.0625 in. or cracks existing at time of traffic coating installation on double tees only.
- B. If material surface shows any of defects listed above, supply labor and material to repair all defective areas and to repaint all damaged line stripes.
- C. Warranty period shall be a 5 year Joint and Several Warranty commencing with date of acceptance of work.
- D. Perform any repair under this warranty at no cost to Owner.
- E. Address following in terms of Warranty: length of warranty, change in value of warranty – if any- based on length of remaining warranty period, transferability of warranty, responsibilities of each party, notification procedures, dispute resolution procedures, and limitations of liability for direct and consequential damages.
- F. Vandalism, and abnormally abrasive maintenance equipment are not normal traffic use and are exempted from warranty.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide products of 1 of following, only where specifically named in product category:
1. Advanced Polymer Technology (APT), Harmony, PA
 2. BASF Building Systems (BASF), Shakopee, MN
 3. Deneef Construction Chemicals (Deneef), Houston, TX.
 4. Lymtal International Inc. (Lymtal), Lake Orion, MI.
 5. Neogard Division of Jones-Blair Company (Neogard), Dallas, TX.
 6. Pacific Polymers, Inc. a Division of ITW (Pacific Polymers), Garden Grove, CA
 7. Poly-Carb Inc. (Poly-Carb), Twinsburg, OH.
 8. Polycoat Products Division of Amer. Polymers (Polycoat), Santa Fe Springs, CA.
 9. Pecora Corporation (Pecora), Harleysville, PA
 10. Sika Corporation (Sika), Lyndhurst, NJ.
 11. Technical Barrier Systems, Inc. (TBS), Oakville, Ontario.
 12. Tremco (Tremco), Cleveland, OH.

2.2 MATERIALS, TRAFFIC COATING

- A. Acceptable low odor coatings are listed below. Coatings shall be compatible with all other materials in this Section and related work.
1. VOC Compliant, Extreme Low Odor, High-Solids, Fast Cure, Heavy Duty Coating System:
 - a. AutoGard FC HD-48, Autogard E, Neogard.
 - b. Flexodeck Mark 170.2, Poly-Carb.
 - c. Iso-Flex 760 U HL AR and 760 U HL AL, Lymtal.
 - d. Kelmar FCW III, Exposure 3, TBS.
 - e. MasterSeal Traffic 2500, BASF.
 - f. Qualideck Heavy Vehicular (152/252/372/512), APT
 - g. Sikalastic 720/745, Sika.
 - h. Vulkem 360NF/950NF and 951NF, Tremco.
- B. Provide ultraviolet screening for all traffic coating placed on this project.
- C. Finish top coat shall be colored grey.
- D. Substitutions: **None** for this project. Contact Engineer/Architect for consideration for future projects.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces to receive Work and report immediately in writing to Engineer/Architect any deficiencies in surface which render it unsuitable for proper execution of Work.
- B. Coordinate and verify that related Work meets following requirements before beginning surface preparation and application:
 - 1. Concrete surfaces are finished as acceptable for system to be installed. Correct all high points, ridges, and other defects in a manner acceptable to Engineer/Architect.
 - 2. Curing compounds used on concrete surfaces are compatible with system to be installed.
 - 3. Concrete surfaces have completed proper curing period for system selected.
 - 4. Joint Sealants are compatible with traffic coatings.

3.2 PREPARATION

- A. Seal all openings to occupied space to prevent cleaning materials, solvents and fumes from infiltration. All protective measures and/or ventilating systems required to prevent infiltration are incidental to this Work.
- B. Acid etching is prohibited.
- C. Remove all debonded traffic coatings. Remove all laitance and surface contaminants, including oil, grease and dirt, by shotblasting and appropriate degreasers, or as specified by manufacturer's written recommendations to provide warranty.
- D. Before applying materials, apply system to small area to assure that it will adhere to substrate and joint sealants and dry properly and to evaluate appearance.
- E. All random cracks on concrete surface less than 0.03 in. wide and showing no evidence of water and/or salt water staining on ceiling below shall receive detail coat unless more complete treatment required in accordance with manufacturer's recommendations. Rout and seal random cracks, construction joints and control joints prior to installation of primer or base coat. Crack preparation including installation of joint sealant material, where required, is incidental to traffic coating work.
- F. Mask off adjoining surfaces not to receive traffic coating and mask off drains to prevent spillage and migration of liquid materials outside membrane area. Provide neat/straight lines at termination of traffic coating.

3.3 INSTALLATION/APPLICATION

- A. Installation should include all of the following steps:
1. Surface Preparation: Prepare concrete for system application.
 2. Crack/Construction/Control/Cove Joint Sealing: Detail for crack bridging.
 3. Primer Coat: Insure proper adhesion of membrane to substrate.
 4. Base Coat: Provide crack spanning in conjunction with Crack Detail noted above.
 5. Aggregate Coat – to hold aggregate in system, providing skid and wear close up resistance.
 6. Aggregate: Correct size, shape, hardness and amount necessary to insure proper skid and wear resistance.
 7. Top Coat: Lock aggregate into place, provide a maintainable surface and provide resistance to ponding water, UV degradation, color loss and chemical intrusion.
- B. Do all Work in accordance with manufacturer's written instructions and specifications including, but not limited to, moisture content of substrate, atmospheric conditions (including relative humidity and temperature), coverages, mil thicknesses and texture, and as shown on Drawings.
- C. A primer coat is required for all systems. No exception.
- D. Do not apply traffic coating material until concrete has been air dried at temperatures at or above 40°F for at least 30 days after curing period specified.
- E. Cease material installation under adverse weather conditions, or when temperatures are outside manufacturer's recommended limitations for installation, or when temperature of work area or substrate are below 40°F.
- F. All adjacent vertical surfaces shall be coated with traffic coating minimum of 4 in. above coated horizontal surface. Requirement includes, but is not limited to pipes, columns, walls, curbs (full height of vertical faces of all curbs) and islands.
- G. Complete all Work under this Section before painting line stripes.
- H. Clean off excess material and material smears adjacent to joints as work progresses using methods and materials approved by manufacturers.

3.4 FIELD QUALITY CONTROL

- A. Develop a quality control plan for assured specified uniform membrane thickness that utilizes grid system of sufficiently small size to designate coverage area of not more than 5 gallons at specified thickness. In addition, employ wet mil gauge to continuously monitor thickness during application. Average specified wet mil thickness shall be maintained within grid during application with minimum thickness of not less than 80% of average acceptable thickness. Immediately apply more material to any area not maintaining these standards.

- B. Testing Agency employ wet mil gauge to periodically monitor thickness during application.
- C. Install 1 trial section of coating system for each duty grade specified. Do not proceed with further coating application until trial sections accepted in writing by Engineer/Architect. Remove and replace rejected trial sections with acceptable application. Trial section shall also be tested for:
 - 1. Wet mil thickness application.
 - 2. Adhesion to concrete substrate.
 - 3. Overall dry mil thickness.
- D. Use trial sections to determine adequacy of pre-application surface cleaning. Obtain Owner, Engineer/Architect and manufacturer acceptance of:
 - 1. Cleaning before proceeding with traffic coating application.
 - 2. Visual appearance of finished coating application.
 - 3. Conformance to ADA static coefficient of friction.
 - 4. Elcometer or equivalent pull test to quantify traffic coating adhesion to concrete and existing traffic coating.
- E. Determine overall coating system mil thickness:
 - 1. Contractor shall provide 6 in. by 6 in. bond breaker (coating coupon) on concrete surface for each 25,000 sq ft, or fraction thereof, of coating to be placed as directed by Engineer/Architect and manufacturer. Dimensionally locate coupon for easy removal.
 - 2. Contractor shall assist Testing Agency in removing coating coupons from concrete surface at completion of manufacturer-specified cure period. Contractor shall repair coupon area per coating manufacturer's instructions.
 - 3. Testing Agency shall determine dry mil thickness of completed Traffic Coating System, including bond breaker. Take 9 readings (minimum), 3 by 3 pattern at 2 in. on center. No reading shall be taken closer than 1 in. from coupon edge. Report individual readings and overall coating system average to Engineer/Architect. Readings shall be made with micrometer or optical comparator.

END OF SECTION 071800

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SECTION 071900 – WATER REPELLENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. A single installer shall be responsible for providing complete water proofing system including all products specified in the following Sections:
1. Division 07 Section, "Water Repellents"
 2. Division 07 Section, "Concrete Joint Sealants"
 3. Division 07 Section, "Expansion Joint Assemblies"
- B. This Section includes penetrating concrete sealer on the following surfaces or as shown on the drawings:
1. Garage: Top level parking surface and exposed ramp to top level
 2. Concrete stair treads and landings.
 3. Other areas as shown on the documents.
- C. Related Sections: Following Sections contain requirements that relate to this Section.
1. Division 03 Section, "Prepackaged Repair Mortar."
 2. Division 07 Section, "Concrete Joint Sealants"
 3. Division 07 Section, "Expansion Joint Assemblies"
 4. Division 09 Section, "Pavement Markings."

1.3 REFERENCES

- A. ASTM International (ASTM):
1. ASTM D6489, "Standard Test Method for Determining the Water Absorption of Hardened Concrete Treated with a Water Repellent Coating."

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
1. Materials shall be compatible with materials or related Work with which they come into contact, and with materials covered by this Section.

2. Distribute reviewed submittals to all others whose Work is related.
- B. Make submittals in accordance with requirements of Division 01 Section 013300, "Submittal Procedures:"
- C. Submittals and Resubmittals: Engineer will review each of Contractor's shop drawings and/or submittal data the initial time and, should resubmittal be required, one additional time to verify that reasons for resubmittal have been addressed by Contractor and corrections made. Resubmittal changes/revisions/corrections shall be circled. Engineer will review only circled items and will not be responsible for non-circled changes/revisions/corrections and additions.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated at least 10 days prior to application.
 1. Product description, technical data, appropriate applications, and limitations.
 2. Areas and application rates of materials to be applied.
 3. Proposed alternate application methods, if any.

1.6 INFORMATION SUBMITTALS

- A. Certificates
 1. Certification that products and installation comply with applicable federal, state of Florida, and local EPA, OSHA and VOC requirements regarding health and safety hazards.
 2. Evidence of applicator's being certified by manufacturer. Evidence shall include complete copy of manufacturer's licensing/certification document, spelling out repair responsibility for warranty claims.
- B. Field Quality Control
 1. ASTM D6489 Test Results
 2. Two copies of manufacturer's technical representative's log for each visit.
- C. Qualification Statements
 1. Manufacturer's qualifications as defined in the "Quality Assurance" article.
 2. Installer's qualifications as defined in the "Quality Assurance" article.
 3. Signed statement from applicator certifying that applicator has read, understood, and shall comply with all requirements of this Section.

1.7 QUALITY ASSURANCE

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

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1. Evidence of acceptable previous work on WALKER-designed projects. If none, so state.
 2. Evidence of financial stability acceptable to Engineer.
 3. Listing of 5 or more projects completed with submitted system, to include:
 - a. Name and location of project.
 - b. Type of system applied.
 - c. On-Site contact with phone number.
- B. Installer's Qualifications: Owner retains right to reject any installer.
1. Evidence of compliance with Summary article paragraph "A single installer. . ."
 2. Evidence that installer has successfully performed or has qualified staff who have successfully performed at least 5 verifiable years of installations similar to those involved in this Contract, and minimum 5 projects with submitted system.
 3. Listing of 5 or more installations in climate and size similar to this Project performed by installer's superintendent.
- C. Testing Agency: Independent testing laboratory employed by Contractor and acceptable to Engineer.
- D. Certifications
1. Sealer shall satisfy the current national and local Volatile Organic Compound (VOC) Emission Standards for Architectural Coatings.
 2. Licensing/certification document from system manufacturer that confirms system installer is a licensed/certified applicator for the manufacturer and is legally licensed to perform work in the state of Florida.
 3. Licensing/certification agreement must provide following information:
 - a. Applicator's financial responsibility for warranty burden under agreement terms.
 - b. Manufacturer's financial responsibility for warranty burden under agreement terms.
 - c. Process for dispute settlement between manufacturer and applicator in case of system failures where cause is not evident or cannot be assigned.
 - d. Officers' signatures for both Applicator Company and Manufacturer.
 - e. Commencement date of agreement and expiration date (if applicable).

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver all materials to site in original, unopened containers, bearing following information:
1. Name of product.
 2. Name of manufacturer.
 3. Date of preparation.
 4. Lot or batch number.

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

1.9 FIELD CONDITIONS

- A. Weather and Substrate Conditions: Do not proceed with application (except with written recommendation of manufacturer) under any of the following conditions:
 - 1. Ambient temperature is less than 40° F.
 - 2. Rain or temperatures below 40° F predicted for a period of 24 hours.
 - 3. Less than 24 hours after surfaces became wet.
 - 4. Wind velocities higher than manufacturer's specified limit to prevent solvent flash-off.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide products of one of following, only where specifically named in product category:
 - 1. BASF Building Systems (BASF), Shakopee, MN.
 - 2. Evonik Degussa Corporation (Evonik Degussa), Parsippany, NJ.
 - 3. Lymtal International Inc. (Lymtal), Lake Orion, MI.

2.2 MATERIALS, CONCRETE SEALER

- A. Silane (90% or greater solids, 400 g/L or less VOC):
 - 1. Hydrozo 100, 200 sf/g, BASF.
 - 2. Iso-Flex 618-100 CRS, 200 sf/g, Lymtal.
 - 3. Protectosil BHN, 200 sf/g, Evonik Degussa Corp.
- B. Proposed substitutions: None for this project. Contact Engineer for consideration for future projects.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces to receive Work and report immediately in writing to Engineer any deficiencies in surface which render it unsuitable for proper execution of Work.
- B. Coordinate and verify that related Work meets following requirements before beginning surface preparation and application:

1. Concrete surface finishes are acceptable for system to be installed.
2. Control joint and expansion joint Work is complete and has been accepted by Engineer.

3.2 PREPARATION

- A. Seal all openings to occupied space to prevent cleaning materials, solvents and fumes from infiltration. All protective measures and/or ventilating systems required to prevent infiltration are incidental to this Work.
- B. Acid etching is prohibited.
- C. Repair or replace all sealant materials damaged by surface preparation operations.
- D. Shot blast clean all surfaces to be sealed as acceptable to sealer manufacturer before sealer application. Prepare by sandblasting all surfaces inaccessible to shotblast equipment.
- E. Equipment used during floor slab cleaning shall not exceed height limitation of facility and shall not exceed 3,000 lb axle load or vehicle gross weight of 6,000 lb.
- F. Mask off adjoining surfaces not to receive sealer and mask off drains to prevent spillage and migration of liquid materials outside sealer area. Provide neat/straight lines at termination of sealer.

3.3 INSTALLATION/APPLICATION

- A. Do all Work in accordance with manufacturer's written instructions and specifications including, but not limited to, moisture content of substrate, atmospheric conditions (including relative humidity and temperature), coverage, mil thickness and texture, and as shown on Drawings.
- B. Clean all surfaces affected by sealer material overspray and repair all damage caused by sealer material overspray to adjacent construction or property at no cost to Owner.
- C. Clean off excess material as work progresses using methods and materials approved by manufacturer.

3.4 FIELD QUALITY CONTROL

- A. Install 2 trial sections of sealer (minimum 10feet X 10 feet) to verify treated surface is not glazing as result of sealer application. If application of sealer causes glazing at trial section, contact sealer manufacturer to obtain written recommendations for solving problem. Do not proceed with sealer application following trial section applications until directed to do so in writing by Engineer.

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3.5 NON-CONFORMING WORK

- A. Unsatisfactory Field Quality Control test results shall be grounds for rejection of sealer or sealer application rate. Perform sealer reapplication at no additional cost to Owner.

END OF SECTION 071900

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SECTION 079233 – CONCRETE JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. A single installer shall be responsible for providing complete water proofing system including all products specified in the following Sections:
1. Division 07 Section, "Water Repellents"
 2. Division 07 Section, "Concrete Joint Sealants"
 3. Division 07 Section, "Expansion Joint Assemblies"
- B. This Section includes the following:
1. Exterior joints in the following horizontal traffic bearing surfaces at the top level and as shown on the drawings:
 - a. Control joints of field topped double tees.
 - b. Tee-to-tee joints of pre-topped precast double tees.
 - c. Cove joint sealants between horizontal and vertical surface.
 - d. Precast concrete column and wall panel joints.
 - e. Perimeter of all floor drains
- C. Related Sections: Following Sections contain requirements that relate to this Section.
1. Division 03 Section, "Trowel Applied Mortar."
 2. Division 07 Section, "Water Repellents."
 3. Division 07 Section, "Expansion Joint Assemblies."
 4. Division 09 Section, "Pavement Markings."

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
1. Materials shall be compatible with materials or related Work with which they come into contact, and with materials covered by this Section.
 2. Distribute reviewed submittals to all others whose Work is related.
- B. Make submittals in accordance with requirements of Division 01 Section 013300, "Submittal Procedures:"

1. See requirements of Division 01 Section, "Submittal Procedures," Part 1 heading, "Submittal Procedures," for limits to resubmittals.
 2. See requirements of Division 01 Section, "Submittal Procedures," Part 2 heading, "Requests for Information," for RFI constraints.
- C. Pre-installation Conference: Meet at project site well in advance of time scheduled for Work to proceed to review requirements for Work and conditions that could interfere with successful sealant performance. Require every party concerned with sealant Work, or required to coordinate with it or protect it thereafter, to attend. This includes but is not limited to manufacturer's technical representative, warranty officer, Engineer, Owner, contractor's superintendent, and contractor's employee's that will be performing the work.

1.4 ACTION SUBMITTALS

- A. Product Data: For each system indicated at least 10 days prior to application.
1. Product description, technical data, appropriate applications and limitations.
 2. Primer type and application rate
- B. Samples:
1. If requested, one for each system indicated.

1.5 INFORMATION SUBMITTALS

- A. Certificates:
1. Evidence of installer's being certified by manufacturer. Evidence shall include complete copy of manufacturer's licensing/certification document, spelling out repair responsibility for warranty claims.
 2. Certification from the Manufacturer that joint details as specified are acceptable for system to be installed at least 1 month before placement of any concrete which will receive joint sealant.
- B. Field Quality Control:
1. Testing agency field and test reports per ASTM C1521.
- C. Qualification Statements:
1. Manufacturer's qualifications as defined in the "Quality Assurance" article.
 2. Installer's qualifications as defined in the "Quality Assurance" article.
 3. Signed statement from this Section applicator certifying that applicator has read, understood, and shall comply with all requirements of this Section.

1.6 CLOSEOUT SUBMITTALS

- A. Final executed Warranty.

1.7 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Owner retains right to reject any manufacturer.
1. Evidence of acceptable previous work on WALKER-designed projects. If none, so state.
 2. Evidence of financial stability acceptable to Engineer.
 3. Listing of 5 or more projects completed with submitted system, to include:
 - a. Name and location of project.
 - b. Type of system applied.
 - c. On-Site contact with phone number.
- B. Manufacturer's technical representative, acceptable to Engineer, shall be on site during surface preparation and initial stages of installation.
- C. Installer's Qualifications: Owner retains right to reject any manufacturer.
1. Evidence of compliance with Summary article paragraph "A single installer. . ."
 2. Evidence that installer has successfully performed or has qualified staff who have successfully performed at least 5 verifiable years of installations similar to those involved in this Contract, and minimum 5 projects with submitted system.
 3. Listing of 5 or more installations in climate and size similar to this Project performed by installer's superintendent.
- D. Testing: Refer to Specification Section 014000 Quality Control for additional information regarding testing.
- E. Certifications:
1. Licensing/certification document from system manufacturer that confirms system installer is a licensed/certified applicator for the manufacturer and is legally licensed to perform work in the state of Florida.
 2. Licensing/certification agreement shall include following information:
 - a. Applicator's financial responsibility for warranty burden under agreement terms.
 - b. Manufacturer's financial responsibility for warranty burden under agreement terms.
 - c. Process for dispute settlement between manufacturer and applicator in case of system failures where cause is not evident or cannot be assigned.
 - d. Authorized signatures for both Applicator Company and Manufacturer.
 - e. Commencement date of agreement and expiration date (if applicable).

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver all materials to site in original, unopened containers, bearing following information:
 - 1. Name of product.
 - 2. Name of manufacturer.
 - 3. Date of preparation.
 - 4. Lot or batch number.
- B. Store materials under cover and protect from weather. Replace packages or materials showing any signs of damage with new material at no additional cost to Owner.

1.9 FIELD CONDITIONS

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

1.10 WARRANTY

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

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide products of 1 of following, only where specifically named in product category:
1. BASF Building Systems (BASF), Shakopee, MN.
 2. Dow Corning Corp. (Dow Corning), Midland, MI.
 3. Lyntal International Inc. (Lyntal), Lake Orion, MI.
 4. Pecora Corporation (Pecora), Harleysville, PA.
 5. Sika Corporation (Sika), Lyndhurst, NJ.
 6. Tremco (Tremco), Cleveland, OH.

2.2 MATERIALS, JOINT SEALANT SYSTEM

- A. Provide complete system of compatible materials designed by manufacturer to produce waterproof, traffic-bearing control joints as detailed on Drawings.
- B. Compounds used for sealants shall not stain masonry or concrete. Aluminum pigmented compounds not acceptable.
- C. Color of sealants shall match adjacent surfaces.
- D. Closed cell or reticulated backer rods: Acceptable products:
1. "Sof Rod," Nomaco Inc., 501 NMC Drive, Zebulon, NC 27597. (800) 345-7279 ext. 341.
 2. "ITP Soft Type Backer Rod," Industrial Thermo Polymers Limited, 2316 Delaware Ave., Suite 216, Buffalo, NY 14216. (800) 387-3847.
 3. "MasterSeal 921 Backer Rod," BASF.
- E. Bond breakers and fillers: as recommended by system manufacturer.
- F. Primers: As recommended by sealant manufacturer.
- G. Acceptable sealants are listed below. Sealants shall be compatible with all other materials in this Section and related work.
- H. Acceptable polyurethane control joint sealants (traffic bearing):
1. MasterSeal SL-2 or MasterSeal SL-2 SG, BASF.
 2. Iso-flex 880 GB or Iso-flex 881, Lyntal.
 3. Dynatrol II-SG or Urexpan NR 200, Pecora.
 4. Sikaflex-2c SL or Sikaflex-2c NS TG, Sika.
 5. THC-901, Vulkem 45SSL, or Dymeric 240 FC, Tremco.

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- I. Acceptable polyurethane vertical and cove joints sealants (non-traffic bearing):
 - 1. Sikaflex-2c NS, Sika.
 - 2. Sonolastic NP-2, BASF.
 - 3. Dymeric 240/240FC, Dymonic 100 or THC 901 (cove only), Tremco.
 - 4. Dynatred, Pecora.
 - 5. Iso-flex 881, Lymtal.
- J. Acceptable silicone vertical sealants (non-traffic bearing).
 - 1. Sikasil WS-295, Sika Corporation.
 - 2. 896, Pecora.
 - 3. Dow Corning NS Parking Structure Sealant, Dow Corning.
- K. Acceptable hybrid sealants for flashing and louvers (W.I. 11.8 & 11.9):
 - 1. MasterSeal NP 100 by Master Builders Solutions (BASF).
 - 2. SikaHyflex-150 LM by Sika Corporation.
- L. Proposed Substitutions: **None** for this project. Contact Engineer for consideration for future projects.

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 PREPARATION

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

- E. Check preparation of substrate for adhesion of sealant.
- F. Prime and seal joints and protect as required until sealant is fully cured. A primer coat is required for all systems.

3.3 INSTALLATION/APPLICATION

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

3.4 FIELD QUALITY CONTROL

- A. Contractor shall hire an independent testing agency to test adhesion of installed sealants, both horizontal and vertical sealants, per ASTM C1521. Manufacturer representatives do not meet the requirements of an independent testing agency. Testing agency shall perform nondestructive continuous inspection on all sealants installed, i.e. vertical, cove, tee-to-tee, etc. For each individual sealant Work Item, testing agency shall perform destructive procedure every 100 linear ft in the first 1,000 linear ft of sealant. If no test failure is observed in the first 1,000 ft of sealant, perform procedure every 1,000 linear ft thereafter. If failure is observed, testing frequency shall increase to every 100 linear ft of 1,000 linear ft of sealant.
- B. Independent testing agency shall provide reports with the following items, at a minimum:
 - 1. Overall photo of the test location with test location marked in the photo
 - 2. Detailed photo of each inspection location
 - 3. Note failure type, i.e. cohesive, adhesive, proportions, etc.
- C. Contractor shall repair all random joint sealant "cut out" sections at no cost to Owner.

END OF SECTION 079233

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SECTION 079500 – EXPANSION JOINT ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
1. Expansion joint systems for parking structure:
 - a. Extruded rubber expansion joint system with elastomeric concrete edge.
 - b. Expanding foam seal.
- B. Contractor shall provide in writing the name of the proposed installer, manufacturer, and model of the expansion joint system at the time of bid submittal. See also additional submittal requirements for minimum experience record and qualifications for system. Single licensed installer shall be responsible for providing complete sealant, expansion joint, and waterproofing system designed to minimize occurrence of common sealant, expansion joint, waterproofing, and concrete deterioration problems. All measures called for in these Specifications will be rigorously enforced.
- C. Contractor shall provide in writing the name of the proposed installer, manufacturer, and model of the expansion joint system at the time of bid submittal. See also additional submittal requirements for minimum experience record and qualifications for system. Single licensed installer shall be responsible for providing complete expansion joint system designed to minimize occurrence of common expansion joint, and concrete deterioration problems. All measures called for in these Specifications will be rigorously enforced.
- D. Related Sections: The following Sections contain requirements that relate to this section:
1. Division 07 Section, "Water Repellents"
 2. Division 07 Section, "Concrete Joint Sealants"
 3. Division 09 Section "Pavement Markings".

1.3 DEFINITIONS

- A. Maximum Joint Width: Widest linear gap a joint system tolerates and in which it performs its designed function without damaging its functional capabilities.
- B. Minimum Joint Width: Narrowest linear gap a joint system tolerates and in which it performs its designed function without damaging its functional capabilities.
- C. Movement Capability: Value obtained from the difference between widest and narrowest widths of a joint opening typically expressed in numerical values (mm or inches) or a percentage (plus or minus) of nominal value of joint width. Movement capability is to include anticipated movements from concrete shrinkage, concrete shortening and creep from post-tensioning or prestressing, cyclic thermal movements, and seismic movements.
- D. Nominal Joint Width: The width of the linear opening specified in practice and in which the joint system is installed.
- E. Nominal Form Width: Linear gap in joint system at time of forming or erection of structural elements bounding the expansion joint.

1.4 PREQUALIFICATION OF INSTALLER AND MANUFACTURER

- A. Prequalification of Bidders:
 - 1. With Bid, submit evidence of qualifications.
 - 2. Prequalification Criteria, all in writing:
 - a. Evidence of compliance with Experience Record and Qualifications paragraph below.
 - b. Evidence of acceptable previous work on WALKER-designed projects. If none, so state.
 - c. Owner or Engineer/Architect retains absolutely, right to reject any prequalification statement.
 - d. Copy of sample warranty.
 - e. Evidence of financial stability acceptable to Owner or Engineer/Architect.
- B. Experience record and qualifications:
 - 1. Manufacturer's and installers experience shall include verification of 5 years experience and 5 verified projects completed with submitted system for similar applications. Verify projects completed with the system identifying the following: Name, date and location of project, system installed, on-site or owner contact and phone number.
 - 2. Information shall be included with bid submission.
 - 3. List Superintendent's specific training/qualification.
 - 4. Installer/Applicator training and qualification/certification by manufacturer.

- C. Sample Labor and Material Warranty including all terms and conditions from manufacturer and installer.
1. Information shall be included with bid submission.
 2. See Warranty requirements in Article "Warranty".

1.5 SUBMITTALS

- A. Submittals and Resubmittals: Engineer/Architect will review each of Contractor's shop drawings and/or submittal data the initial time and, should resubmittal be required, one additional time to verify that reasons for resubmittal have been addressed by Contractor and corrections made. Resubmittal changes/revisions/corrections shall be circled. Engineer/Architect will review only circled items and will not be responsible for non-circled changes/revisions/corrections and additions.
- B. Shop Drawings: Provide the following for each joint system specified:
1. Placement Drawings: Show project conditions including, but not limited to, line diagrams showing plans, elevations, sections, details, splices, blackout requirement, terminations, joint systems change planes, provide isometric or clearly detailed drawing depicting how components interconnect. Include reviewed and approved details from others whose work is related. Other information required to define joint placement or installation.
- C. Warranty Requirements: System manufacturer shall submit written plan of the construction and coordination requirements to allow the manufacturer to proceed with installation of joints with the specified warranty. Submit to OWNER for acceptance 2 weeks prior to ordering materials for construction and specifically address the following:
1. Block out acceptance criteria.
 2. Surface preparation acceptance criteria.
 3. Crack, surface defect, and detailing recommendations.
 4. Method of protection of surrounding surfaces.
 5. Method of expansion joint system installation description.
 6. Primer type and application rate.
 7. Method of preparation of all glands and reinforced membranes.
 8. Temperature, humidity and other weather constraints. Specify substrate moisture testing criteria, if any.
 9. Final cure time before removal of protection, resumption of traffic, and/or paint striping.
 10. Any other special instructions required to ensure proper installation.
 11. Quality Service Requirements:
 - a. Show evidence of licensed/approved installer. List of names, addresses and phone numbers, with copies of certification/approval agreement with each, satisfies requirement. Licensing/certification agreement shall include following information:

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- 1) Installer's financial responsibility for warranty burden under agreement terms.
 - 2) Manufacturer's financial responsibility for warranty burden under agreement terms.
 - 3) Process for dispute settlement between manufacturer and installer in case of system failures where cause is not evident or cannot be assigned.
 - 4) Authorized signatures for both Installer Company and Manufacturer.
 - 5) Commencement date of agreement and expiration date (if applicable).
- b. Provide copy of contractor's field application quality control procedures.
 - c. Installer shall show evidence of minimum 5 projects completed by installer over previous 5 years using submitted system, or similar system.
- D. Evidence of manufacturer's certification of installer/applicator. Evidence shall include complete copy of manufacturer's licensing/certification document, spelling out repair responsibility for warranty claims.
- E. Signed statement from installer/applicator certifying that installer/applicator has read, understood, and shall comply with all requirements of this Section
- F. Signed statement from manufacturer's representative that they have read, understood, and shall comply with all requirements of this section.
- G. Two copies each of manufacturer's technical representative's log for each visit.
- H. Samples for each type of joint system indicated.
1. Submit 2 samples for each type. Full width by 6 inches (150 mm) long, for each system required.
 2. Field samples of premolded joint sealant. Width, thickness and durometer hardness of sealant shall be checked by Testing Agency. Upward buckling caused by joint gap closure shall be limited to a maximum of 1/4 inch per ADA Guidelines.
- I. Other information required to define joint placement or installation.
- J. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for current products.
- K. ADA Certification: Prior to installation, submit written certification from manufacturer indicating that expansion joints conform to Americans with Disabilities Accessibility Guidelines for Buildings and Facilities, as published by U.S. Architectural & Transportation Barriers Compliance Board, 1331 F Street, N.W., Suite 1000, Washington, DC 20004-1111. 1-800-872-2253.
1. Submit test reports from accredited laboratory attesting to joint systems' movement capability and ADA compliance.

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2. Static coefficient of friction shall meet minimum requirements of Americans with Disabilities Act (ADA).
- L. Maintenance Manual: Submit 3 copies of System Maintenance Manual.
- M. Certification that products and installation comply with applicable federal, state of Florida, and local EPA, OSHA and VOC requirements regarding health and safety hazards.

1.6 QUALITY ASSURANCE

- A. Testing Agency: Independent testing laboratory employed by Owner and acceptable to Engineer/Architect.
- B. Installer Qualifications: An employer of workers trained and approved by manufacturer.
- C. Source Limitations: A single Installer shall be responsible for providing complete expansion joint system. Obtain joint systems through one source from a single manufacturer.
- D. Product Options: Drawings indicate size, profiles, and dimensional requirements of joint systems and are schematic for systems indicated in Part 2.
 1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.
 2. Refer to Division 01 Section "Product Requirements."
- E. Walking Surfaces: Expansion joint assemblies at walking areas subject to pedestrian traffic shall provide a smooth, slip resistant walking surface for pedestrians with these minimum requirements:
 1. Shall provide walking surfaces in accordance with ASTM – F 1637 Standard Practice for Safe Walking Surfaces.
 2. Shall be designed to comply with "Americans with Disabilities Act (ADA), Accessibility Guidelines (ADAAG)" and ICC A117.1. Americans with Disabilities Accessibility Guidelines for Buildings and Facilities, as published by U.S. Architectural & Transportation Barriers Compliance Board, 1331 F Street, N.W., Suite 1000, Washington, DC 20004-1111. 1-800-872-2253.
 3. Adjoining walkway surfaces shall be flush and meet the following minimum requirements:
 - a. Changes in level of less than ¼ inch in height may be without edge treatment as shown in ADA Figure 303.2 and on the Drawings.
 - b. Changes in Level between ¼ inch and ½ inch in height shall be beveled with a slope no greater than 1:2 as shown in ADA Figure 303.3 and on the Drawings.

- c. Changes in level greater than ½ inch in height are not permitted unless they can be transitioned by means of a ramp as shown on Drawings.
 - d. Openings in floor or ground surfaces shall not allow passage of a sphere more than ½ inch diameter except as allowed for elevators and platform lifts as shown in ADA Figure 302.3 and on the Drawings.
- F. Materials shall be compatible with materials or related Work with which they come into contact and the related materials sections.
- G. Manufacturer/Applicator: Review and approve all details before construction. Confirm in writing to OWNER.
- H. Installer: Coordinate services with related Work including layout of joint system and approval of methods for providing joints.
- I. Installer: Inspect site to insure proper joint configuration in field.
- J. Pre-installation Conference: Meet at project site well in advance of time scheduled for Work to proceed to review requirements for Work and conditions that could interfere with successful expansion joint system performance. Require every party concerned with concrete formwork, blockout, concrete placement, or others required to coordinate or protect the Work thereafter, to attend. Include manufacturer's technical representative and warranty officer.
- K. Manufacturer: Provide qualified technical representative for periodic inspection of Work at critical time of the installation, including but not limited to pre-concrete formwork and placement site meetings, block out inspection, surface defect repair, surface preparation, metal work, expansion gland installation and waterproofing system installation.
- L. Deliver all materials to site in original, unopened containers, bearing following information:
 - 1. Name of product.
 - 2. Name of manufacturer.
 - 3. Date of preparation.
 - 4. Lot or batch number.
- M. Store materials under cover and protect from weather. Replace packages or materials showing any signs of damage with new material at no additional cost to Owner.
- N. Weather and Substrate Conditions: Proceed with work only when existing and forecast weather and temperature of concrete substrate will permit work in accordance with manufacturer's recommendations.
- O. Provide reports to owner detailing maintenance activities have been performed in accordance with written maintenance agreement for expansion joints.

1.7 WARRANTY

- A. Warranty period shall be a 5 year labor and materials warranty commencing with date of acceptance of work.
 1. Warranty shall be jointly executed by Manufacturer and Installer for labor and materials.
 2. With bid submittal, provide Owner with sample of final labor and materials warranty including, but not limited, to the following: length of warranty, change in value of warranty – if any- based on length of remaining warranty period, transferability of warranty, responsibilities of each party, notification procedures, dispute resolution procedures, and limitations of liability for direct and consequential damages.
 3. With bid submittal, provide the Owner with sample of Manufacturer's Licensing/Certification Agreement, detailing joint responsibilities of manufacturer and applicator with regard to warranty claim resolution.
- B. Perform any repair under this warranty at no cost to Owner.
- C. Expansion Joint Systems Manufacturer: Furnish OWNER with written Warranty detailing responsibilities of General Contractor, manufacturer and installer with regard to warranty requirements, as outlined in the Manufacturer's warranty and related Licensing/Certification documents. Submit a copy of the warranty and related documents and/or Licensing/Certification Agreement. The warranty shall provide that system will be free of defects, water penetration and chemical damage related to system design, workmanship or material deficiency, consisting of:
 1. Any water leakage through the expansion joint system or leaking conditions of the reinforced membrane, other waterproofing components, or glands.
 2. Any adhesive or cohesive failures of the system.
 3. Shifting of plates out of alignment due to system failure.
 4. Loose plates, anchor blocks, bolts.
 5. Metal to metal noises during use.
 6. Tears, weathering, or degradation in gland from normal use.
 7. Expansion joint glands are considered defective if they buckle upwards beyond the level of the floor surface after installation.
- D. If expansion joint systems or components show any of defects listed above, supply labor and material to repair all defects at no cost to OWNER.
 1. Components of the systems include the following:
 - a. Extrusions
 - b. Bolts
 - c. Springs
 - d. Centering bars
 - e. Sound dampeners
 - f. Cover plates
 - g. Elastomeric header material
 - h. Reinforced membranes and associated drainage components

1.8 PERFORMANCE AND DESIGN CRITERIA

- A. Expansion Joint Assembly Performance and Design Criteria: provide the following minimum requirements:
1. Expansion joint design shall meet or exceed the ability to accommodate expansion up to $\frac{3}{4}$ inch and compression up to $\frac{1}{2}$ inch.
 2. Expansion joint systems shall be capable of resisting a differential vertical movement of $\frac{1}{2}$ inch.
 3. Materials shall be supplied in lengths to minimize or eliminate the need to splice the waterproofing components.
 - a. Materials shall be supplied with no joints in the vehicle drive aisles and with lengths no shorter than 20 feet.
 - b. All mitered splices shall be performed at the factory and provide sufficient gland length for butt splicing with field splicing equipment.
 - c. All Santoprene butt to butt splices shall be heat welded.
 - d. Butt to butt splices with other materials shall be per manufacturer's recommendations.
- B. Shop drawings shall include temperature adjustment table with expansion joint opening calculated at increments as indicated in Article "Submittals".

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

- A. A single Installer shall be responsible for providing complete expansion joint system. Obtain all joint systems through one source from a single manufacturer.
- B. Drawings indicate size, profiles, and dimensional requirements of joint systems and are schematic for systems indicated.
- C. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

2.2 PERFORMANCE REQUIREMENTS

- A. Intent of this section is to insure that installed expansion joints allow pedestrian and vehicular traffic to pass in a smooth, quiet fashion with minimal maintenance required over a period of not less than 10 years. Expansion joints shall not only function as structural bridging elements, but must also accommodate structural expansions/contractions and minimize water leakage.

- B. Provide design of expansion joint for preparation of final details for fabrication and construction of all concrete openings, expansion joint elements and required accessories. An integral part of this project is engineering for the following:
1. Include calculations for the size and forming of concrete openings to provide nominal joint width as indicated on drawings. Provide a summary of the design criteria used in the design.
 2. Include calculations for the appropriate size of expansion joint elements in accordance with the expansion joint assembly performance criteria. Include installation requirements of expansion joint assembly for specific project conditions and scheduling. Provide a summary of design criteria used in design.

2.3 MANUFACTURERS

- A. Subject to compliance with requirements, provide products from one of following manufacturers (listed in alphabetical order), only where specifically named in product categories:
1. Emseal Joint Systems, Westborough, MA (Emseal).
 2. Lymtal International Inc. Lake Orion, MI (Lymtal).
 3. Watson Bowman Acme Corporation, a Division of BASF Construction Chemicals NA, Amherst, NY (WBA).

2.4 PRODUCTS, STANDARD EXPANSION JOINT SYSTEMS

- A. Elastomeric concrete edged, extruded rubber expansion joint system.
1. Iso-Flex Winged Joint System J Series, LymTal.
 2. Wabo®Crete Membrane System ME Series, WBA.
- B. Substitutions: **None** for this project. Contact Engineer/Architect for consideration for future projects.

2.5 PRODUCTS, OTHER

- A. Expanding foam sealants:
1. 25V, (black) Emseal.
 2. Seismic Colorseal, Emseal.
 3. Colorseal, (colored), Emseal.
 4. Iso-Flex Precom "C", LymTal.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces where expansion joint systems will be installed for installation tolerances and other conditions affecting performance of work.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare substrates according to joint system manufacturer's written instructions.
- B. Repair concrete slabs and blockouts using manufacturer's recommended repair grout of compressive strength adequate for anticipated structural loadings.
- C. Coordinate and furnish anchorages, setting drawings, and instructions for installing joint systems. Provide fasteners of metal, type, and size to suit type of construction indicated and to provide for secure attachment of joint systems.
- D. Coordinate and verify that related Work meets following requirements:
 - 1. Concrete surfaces are finished as acceptable for system to be installed.
 - 2. Check adhesion to substrates and recommend appropriate preparatory measures.
 - 3. Curing compounds used on concrete surfaces are compatible with Work to be installed.
 - 4. Concrete surfaces have completed proper curing period for system selected.
 - 5. Coordinate expansion joint system with other related Work before installation of expansion joint.
 - 6. Verify expansion joints are compatible with Joint Sealants and traffic toppings.
- E. Acid etching: Prohibited.
- F. All openings to occupied space shall be sealed to prevent cleaning materials, solvents and fumes from infiltration. All protective measures and/or ventilating systems required to prevent infiltration are incidental to this Work.
- G. General Contractor: Correct unsatisfactory conditions in manner acceptable to installer before installing sealant system. All bugholes and air voids in blockouts shall be patched as acceptable to Engineer/Architect prior to installation of Expansion Joint Sealant system.
 - 1. Proceed with expansion joint system only after unsatisfactory conditions have been corrected in manner acceptable to installer.
- H. Clean joints thoroughly in accordance with manufacturer's instructions to remove all laitance, unsound concrete and curing compounds which may interfere with adhesion.
- I. Cease installation of expansion joints under adverse weather conditions, or when temperatures are outside manufacturer's recommended limitations for installation.

- J. Prepare for installation of extruded expansion joint systems in accordance with manufacturer's recommendations.
- K. Cease installation if expansion joint blockouts and/or openings exhibit cracked edges, voids or spalls. Repair with accepted material prior to installation of expansion joint.
- L. Check elevations on each side of expansion joint gap utilizing metal straight edge to ensure flush slab-to-slab transition. Recommend remedial correction.
- M. Check anticipated or actual minimum and maximum joint openings with Engineer/Architect. Compare to manufacturer's movement specifications and make joint sizing recommendations.

3.3 INSTALLATION

- A. Comply with manufacturer's written instructions for storing, handling, and installing joint assemblies and materials unless more stringent requirements are indicated.
- B. Manufacturer's technical representative, acceptable to Engineer/Architect, shall be on site during surface preparation and installation.
- C. Cease material installation under adverse weather conditions, or when temperatures are outside manufacturers recommended limitations for installation, or when temperature of work area or substrate are below 40° F.
- D. During months when historic mean daily temperature at Project is 20° F. or more colder than annual mean daily temperature, premolded sealant shall be installed on temporary basis to prevent hot weather buckling. Provide permanent installation during acceptable weather conditions.
- E. Terminate exposed ends of joint assemblies with field- or factory-fabricated termination devices.
- F. In-place testing: Prior to opening to traffic, test joint seal for leaks with maintained continuously wet for 12 hours. Repair leaks revealed by examination of seal underside. Repeat test and repairs until all leaks stopped for full 12 hours.

3.4 PROTECTION

- A. Do not remove protective covering until finish work in adjacent areas is complete. When protective covering is removed, clean exposed metal surfaces to comply with manufacturer's written instructions.
- B. Protect the installation from damage by work of other Sections. Where necessary due to heavy construction traffic, remove and properly store cover plates or seals and install temporary protection over joints. Reinstall cover plates or seals prior to Substantial Completion of the Work.

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3.5 CLEANING

- A. Clean off excess material and material smears adjacent to joints as work progresses using methods and materials approved by manufacturers.

END OF SECTION 079500

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SECTION 099113 – EXTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes surface preparation and field painting of previously coated concrete and related steel surfaces. In addition, the following shall be performed:
1. Degreasing and pressure cleaning of specific locations/areas.
 2. Installation of sealants at specific locations to prevent water intrusion.
 3. Concrete patching at specific locations.

1.3 DEFINITIONS

- A. Terminology as defined in the following standards apply to this section:
1. ASTM D 16 *Paint, Related Coatings, Materials, and Applications*;
 2. ASTM E 284 *Appearance*;
 3. ASTM C 11 *Standard Terminology Relating to Gypsum and Related Building Materials and Systems*;
 4. National Paint & Coatings Association (NPCA) Glossary of Terms as listed at the following URL: www.paint.org/ind_info/terms.cfm;
 5. Paint/Coatings Dictionary, © 1978 by Federation of Societies for Coatings Technology.
- B. Design Standard: The paint/coating material specifically referenced by manufacturer's name/number, which determines the performance and quality requirements for materials referred in this Section.

1.4 ACTION SUBMITTALS

- A. Manufacturer's Information: Manufacturer's technical information including instructions for handling, storing, surface preparation application etc.
- B. Samples for Initial Selection: For each type of finish-coat material indicated provide a full color palette. After color selection, the Architect will furnish a schedule indicating surfaces for each color selected.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same batch numbers, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1.6 GENERAL QUALITY CONTROL

- A. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label and the following information (minimum):
 - 1. Product name or title of material.
 - 2. Product description (generic classification or binder type).
 - 3. Manufacturer's stock number and date of manufacture.
 - 4. VOC content.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain storage containers in a clean condition, free of foreign materials and residue.
 - 1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily.

1.8 PROJECT CONDITIONS

- A. Apply waterborne paints only when temperatures of surfaces to be painted and surrounding air are between 50 and 90 deg F.
- B. Apply solvent-thinned paints only when temperatures of surfaces to be painted and surrounding air are between 45 and 95 deg F.
- C. Do not apply paint in rain, fog, or to damp or wet surfaces.
- D. Do not apply when the air or surface is excessively hot resulting in "mud cracking." If *mud cracking* occurs an additional coat will be required. *Mud cracking* is not considered an acceptable condition.
- E. Do not apply paint when relative humidity exceeds 85 percent; or at temperatures less than 5 deg F above the dew point.

1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. The *Design Standard* paint/coating materials for this project is Sherwin Williams. Subject to compliance with product submittal/approval requirements, provide one of the products listed in this Section or an equivalent product, as determined by the Engineer. Other manufacturers will be considered with sufficient technical information that verifies equivalency.

2.2 MATERIALS (GENERAL)

- A. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

2.3 COLORS

- A. The Owner (USF) will select the color scheme (Sherwin Williams' color deck) and is expected to include the same number of colors that are currently in place.
- B. Colors: As selected by Architect from manufacturer's full range.
 1. Approval of the in-place color against approved color chips shall be solely the right and judgment of the Owner.
 2. Each underlying coat shall be tinted lighter than next coat or finish coat. The contrast shall be visible at a distance not less than 10 feet. The degree of contrast can be modified at the discretion of the Engineer or appointed designee.

2.4 CAULKING AND/OR SEALANT MATERIAL

- A. Polyurethane sealant conforming to ASTM C920, Type S, Class 50.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for paint application. Comply with procedures specified in PDCA P4.
 - 1. Proceed with paint application only after unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
 - 2. Start of painting will be construed as Applicator's acceptance of surfaces and conditions within a particular area.

3.2 PREPARATION

- A. Surface Preparation General:
 - 1. Before applying paint or other surface treatments, clean substrates of substances that could impair bond of the various coatings in accordance with manufacturer's written instructions for each particular substrate condition and as specified.
 - 2. Cleaning and Mildew Control - Remove mildew using a pre-treatment of household bleach and water solution (1-part bleach to 10-parts water). Thoroughly rinse surface with potable water after treatment and removal of mildew.
 - 3. Blisters and poorly adhered existing paint shall be removed by a combination of pressure cleaning and wet method scraping.
 - 4. Rusted steel surfaces shall be prepared in accordance with SSPC-SP 3 Power Tool Cleaning; SSPC-SP 2 Hand Tool Cleaning may be utilized if power tools are obstructed and the surface cannot be sufficient contacted.
- B. Surface Preparation of Previously Coated Concrete:
 - 1. Removal of poorly bonded paint/coatings shall be performed utilizing a pressure washer capable of producing 4.0 gallons per minute (GPM) at 4,000 PSI
- C. Material Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
 - 1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
 - 2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
 - 3. Use only thinners approved by paint manufacturer and only within recommended limits.

3.3 APPLICATION

- A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
1. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
 2. Finish doors on tops, bottoms, and side edges the same as exterior faces.
 3. The number of coats and film thickness required are the same regardless of application method.
 4. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
- B. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. Brushes: Use brushes best suited for type of material applied. Use brush of appropriate size for surface or item being painted.
 2. Rollers: Use rollers of carpet, velvet-back, or high-pile sheep's wool as recommended by manufacturer for material and texture required.
 3. Spray Equipment: Use airless spray equipment with orifice size as recommended by manufacturer for material and texture required.
- C. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.

3.4 EXTERIOR PAINT SCHEDULE

- A. Miscellaneous Steel Surfaces
1. Primer: SW Macropoxy 646 HS.
 2. Finish Coat: SW Acrolon 100 waterbased urethane.

3.5 CLEANING

- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from Project site.
1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.

3.6 PROTECTION

- A. Provide overhead protection of all pedestrian traffic areas.

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- B. Mask, tape and/or generally protect all surfaces not to be painted. Without pre-approval by the Property Manager, the protection shall not remain in place during non-working hours.
- C. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.
 - 1. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

END OF SECTION 099113

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SECTION 099121 - PAVEMENT MARKING - RESTORATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes surface preparation and application of high build paint systems to replace existing for the items of types, patterns, sizes, and colors described in this article.
- B. Provide the following systems as shown on Drawings:
 - 1. Parking Stall Stripes.
 - 2. Traffic Arrows, crosswalks, accessible stall access aisles, walkways, symbols, stop bars, words and other markings.
 - 3. International Symbol of Accessibility.
- C. Provide painting of curbs and curb ramps as described in the following paragraphs:
 - 1. Paint vertical surface and the first 6 in. of the abutting horizontal surface at the top of all curbs and islands (including PARCS equipment islands) within parking facility to match existing, unless otherwise noted on the Drawings.
 - 2. Paint color for curbs and curb ramps shall be yellow.
- D. Proportion International Symbol of Accessibility in accordance with ICC A117.1-2009 Accessible and Usable Buildings or 2010 ADA Standards for Accessible Design.
- E. Related Work:
 - 1. Pavement Marking Contractor shall verify compatibility with sealers, joint sealants, caulking and all other surface treatments as specified in Division 07.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Provide product data as follows:
 - 1. Manufacturer's certification that the material complies with standards referenced within this Section.
 - 2. Intended paint use.

- 3. Pigment type and content.
- 4. Vehicle type and content.
- C. Submit list of similar projects (minimum of 5) where pavement-marking paint has been in use for a period of not less than 2 yrs.
- D. See requirements of Division 01 Section, "Submittal Procedures," Part 1 heading, "Submittal Procedures," for limits to resubmittals.
- E. See requirements of Division 01 Section, "Submittal Procedures," Part 2 heading, "Requests for Information," for RFI constraints.

1.4 PROJECT CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 degrees F.
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 degrees F above the dew point; or to damp or wet surfaces.

1.5 QUALITY ASSURANCE

- A. Provide written 1 year warranty to Owner that pavement markings will be free of defects due to workmanship, inadequate surface preparation, and materials including, but not limited to, fading and/or loss of markings due to abrasion, peeling, bubbling and/or delamination. Excessive delamination, peeling, bubbling or abrasion loss shall be defined as more than 15% loss of marking material within one year of substantial completion and/or occupancy of the parking area. With no additional cost to Owner, repair and/or recoat all pavement marking where defects develop or appear during warranty period and all damage to other Work due to such defects.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Pavement marking materials shall meet Federal, State and Local environmental standards.
- B. Paint shall be manufactured and formulated from first grade raw materials and shall be free from defects or imperfections that might adversely affect product serviceability.
- C. Paints shall comply with the National Organic Compound Emission Standards for Architectural Coatings, Environmental Protection Agency, 40 CFR Part 59.

- D. The product shall not contain mercury, lead, hexavalent chromium, or halogenated solvents.

2.2 PAVEMENT MARKING PAINTS:

- A. Low VOC - Solvent based paint may be employed for white and yellow pavement markings and shall meet the requirements of MPI #32
1. Available Products: Subject to compliance with the requirements, products that may be incorporated into the Work include, but are not limited to the following:
 - a. Chlorinated Rubber Traffic & Zone Marking Paint, 7493/7494, by RAE Products & Chemicals Corporation
 - b. Setfast Low VOC Acrylic Marking Paint, TM 5626/5627 by Sherwin Williams Company
- B. 100% acrylic waterborne - paint shall be used for white and yellow pavement markings and shall meet requirements of MPI #70.
1. Available Products: Subject to compliance with the requirements, products that may be incorporated into the Work include, but are not limited to the following:
 - a. Hi-Build Latex "Liquid Thermoplastic" Traffic & Zone Marking Paint, 5430/5431, by RAE Products & Chemicals Corporation
 - b. Setfast Acrylic Waterborne Marking Paint, TM 226/227 by Sherwin Williams Company
 2. 100% acrylic waterborne paint for special color pavement markings (blue, green, red, black) shall meet requirements of Federal Specification TT-P-1952E. Special color marking materials shall be compatible with the white and yellow pavement markings where they are layered.
- C. All products shall have performance requirements of Type I and II of Federal Standard TT-P-1952E.

2.3 COLOR OF PAINT

- A. Color of paint shall match existing, unless noted otherwise on Contract Drawings:
1. White: Match federal color chip 37925 and daylight directional reflectance (without glass beads) shall not be less than 84% (relative to magnesium oxide) when tested in accordance with Federal Test Method Standard 141, Method 6121.
 2. Yellow: Match federal color chip No. 33538. Color shall have daylight directional reflectance (without glass beads) of not less than 50% (relative to magnesium oxide) when tested in accordance with Federal Test Method Standard 141, Method 6121.

3. Blue: Match federal color chip No. 35180. Color shall have daylight directional reflectance (without glass beads) of not less than 52% (relative to magnesium oxide) when tested in accordance with Federal Test Method Standard 141, Method 6121.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
- B. Document the location of existing striping and traffic marking, and colors utilized prior to removal of traffic lines and markings for surface preparation.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
 1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.
- E. Striping shall not be placed until full cure of concrete repairs, sealers or coatings. Sealers (other than silane) generally require 14 days @ 70°F or higher. Silane sealers require 24 hrs @ 70°F or higher. Bituminous surfaces generally require 30 days @ 45°F or higher. Coatings shall be fully cured

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Do not paint or finish any surface that is wet or damp.
- C. Clean substrates of substances that could impair bond of paints, including dirt, dust, oil, grease, release agents, curing compounds, efflorescence, chalk, and incompatible paints and encapsulants.
- D. Concrete Substrates: Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- E. Lay out all striping on each tier, using existing layout, dimensions and details unless otherwise noted on Contract Drawings.

- F. Report any discrepancies, interferences or changes in striping due to field conditions to Engineer/Architect prior to painting. Pavement Marking Contractor shall be required to remove paint, repair surface treatment and repaint stripes not applied in strict accordance with Contract Drawings.
- G. Where existing painted pavement markings and/or stripes conflict with new striping layout or must be removed due to installation which does not conform to contract requirements, remove existing paint markings, using care to avoid scarring substrate surface.
1. Concrete and asphalt surfaces: Material shall be removed by methods acceptable to Engineer/Architect and cause as little damage as possible to surface texture of pavement. Methods, that can provide acceptable results, are grinding and air or shot blasting. Use of chemicals to remove pavement markings prohibited. Collect residue generated by removal of pavement markings and dispose of as required by all applicable laws and regulations. If grinding is used, lightly grind floor surface using wheel mounted floor grinder or similar equipment with positive elevation control of grinder head. For all removal techniques: On test area, demonstrate to Owner acceptable removal of paint material and control of paint removal equipment to prevent substrate scarring.
 2. Traffic Topping/Membrane surfaces: Remove existing pavement markings by solvent washing or high-pressure water washing. Submit letter from traffic topping/membrane manufacturer certifying that solvents and/or water pressures are acceptable for this use and will not damage material. On test area, demonstrate to Owner acceptable removal of paint material and control of paint removal equipment to prevent substrate scarring.
 3. Contractor shall not use paint, bituminous bond coat or other methods of covering markings to obliterate existing pavement markings.
 4. Material deposited on pavement as a result of removal shall be removed as work progresses. Accumulation of material, that might interfere with drainage or might constitute a hazard to traffic, prohibited.
 5. Curing compounds on new concrete surfaces (less than 1 yr old) shall be removed per existing pavement marking removal requirements prior to installation of new pavement markings.
- H. Work Areas:
1. Store, mix and prepare paints only in areas designated by Contractor for that purpose.
 2. Provide clean cans and buckets required for mixing paints and for receiving rags and other waste materials associated with painting. Clean buckets regularly. At close of each day's Work, remove used rags and other waste materials associated with painting.
 3. Take precautions to prevent fire in or around painting materials. Provide and maintain appropriate hand fire extinguisher near paint storage and mixing area.
- I. Mixing:
1. Do not intermix materials of different character or different manufacturer.
 2. Do not thin material except as recommended by manufacturer.

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J. Disposal:

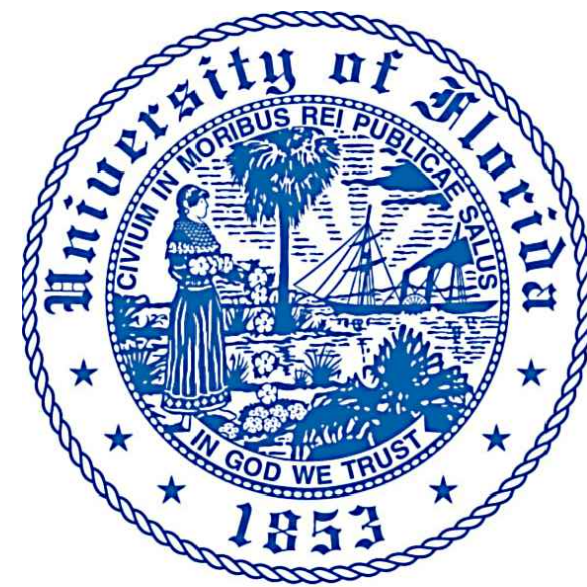
1. Contractor shall properly dispose of unused materials and containers in compliance with Federal Resource Conservation Recovery Act (RCRA) of 1976 as amended, and all other applicable laws and regulations.

3.3 APPLICATION

- A. Apply painting and finishing materials in accordance with manufacturer's directions. Use applications and techniques best suited for material and surfaces to which applied. Minimum air shall be used to prevent overspray. Temperature during application shall be minimum of 40° F and rising, unless manufacturer requires higher minimum temperature. Maximum relative humidity shall be as required by manufacturer.
1. Total wet mil thickness of 0.015 in (minimum).
 2. Total dry film thickness of 0.008 in (minimum).
- B. All lines shall be straight, true, and sharp without fuzzy edges, overspray or non-uniform application. Corners shall be at right angles, unless shown otherwise, with no overlaps. Line width shall be uniform (-0%, +5% from specified width). No excessive humping (more material in middle than at edges or vice versa).
- C. All lines shall be 4-inches wide unless otherwise noted.

END OF SECTION 099121

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UNIVERSITY OF FLORIDA

PARKING STRUCTURE REPAIRS 2021 GARAGE III & VII

GAINESVILLE, FLORIDA

UF Project No.: MP06503

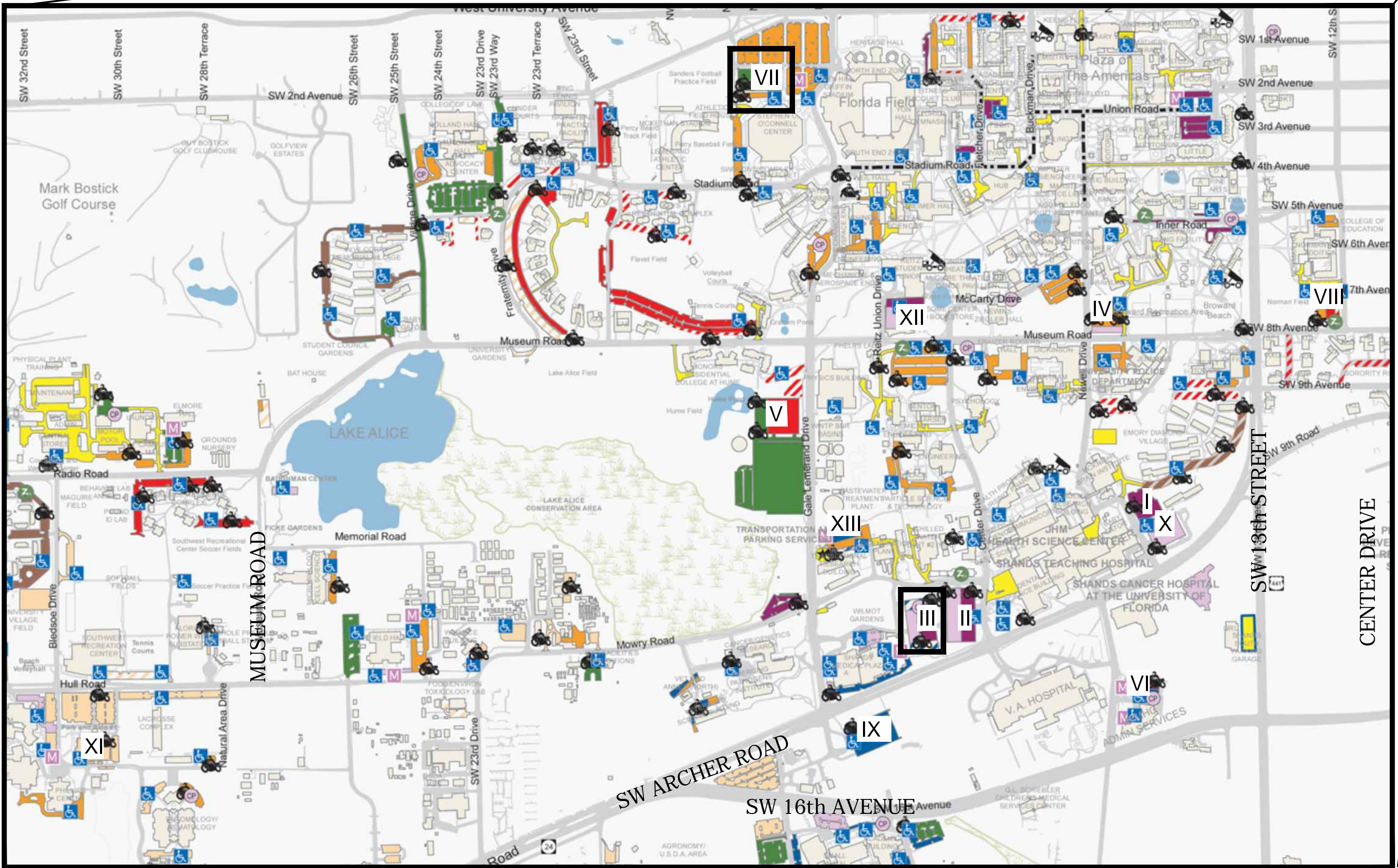
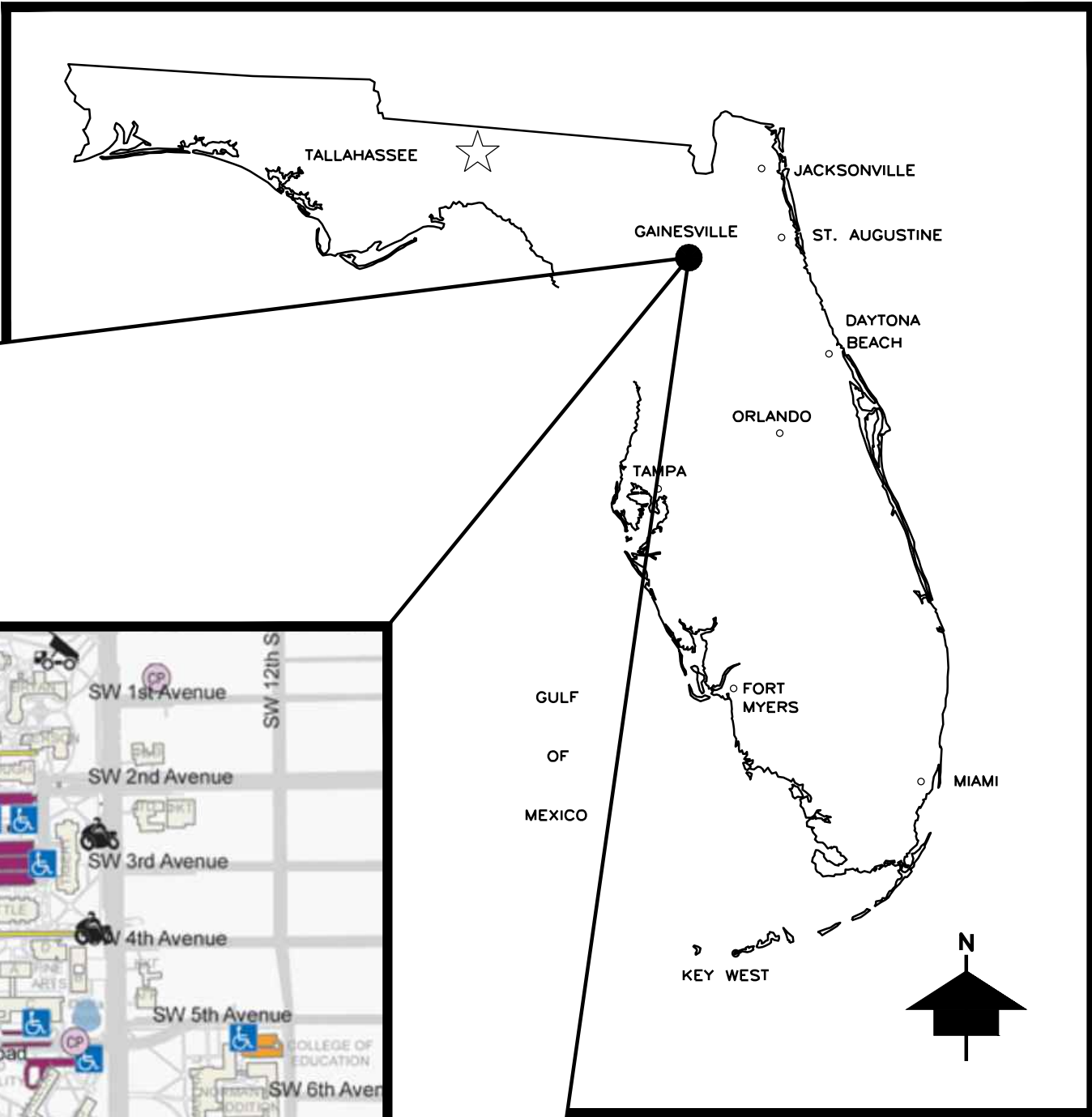
SHEET INDEX

RESTORATION

NO.	SHEET NAME
G-000	COVER SHEET
R-001	GENERAL NOTES
R-002	WORK ITEM SCHEDULE
R-101	GARAGE VII - GROUND LEVEL PLAN
R-102	GARAGE VII - LEVEL 2 PLAN
R-103	GARAGE VII - LEVEL 3 PLAN
R-111	GARAGE III - LEVEL 2 PLAN
R-501	REPAIR DETAILS
R-502	REPAIR DETAILS
R-503	REPAIR DETAILS
R-504	REPAIR DETAILS

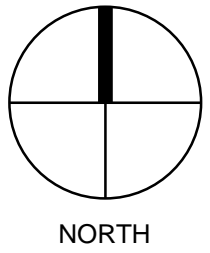
LOCATION MAP

N.T.S.



AREA MAP

N.T.S.



ISSUED FOR BID
06.10.22



WALKER
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Project Number: 15-002430.20 116 of 137

ISSUED FOR BID 06.10.2022

GENERAL RESTORATION NOTES

A. CONSTRUCTION

1. The Contractor shall perform Work in accordance with all applicable Federal, State, and Local Codes, Laws and Ordinances. The Contractor shall promptly notify the Engineer of any known nonconformity with the intent of the Construction Documents and as-built conditions to the applicable Codes, Laws or Ordinances and request clarification from the Engineer prior to proceeding with Work which is deemed in conflict with the applicable Codes, Laws or Ordinances.
2. Fire Safety during construction, alteration or demolition shall comply with Florida Fire Prevention Code.
3. This structure is classified as a parking structure, occupancy Group S-2, and as construction Type (Varies), Unprotected, Non-Combustible.
4. Prior to fabrication of any material or placement of concrete, field verify all existing dimensions and conditions shown on Drawings. Report all discrepancies to the Engineer immediately.
5. Do Not Scale Drawings.

B. CONSTRUCTION DOCUMENTS

1. The extent of repair areas shown on the drawings indicates Engineer's estimates only. The estimated unit quantities included in the bid documents are based on Engineer's estimated units for bid purposes only. The Contractor is responsible for determining the actual extent and locations of repair areas. The actual repair quantities shall be verified and agreed upon by the Engineer prior to commencing the repair Work.
2. Work shall be performed in coordination with construction observations by the Engineer, where required, to determine if the exposed existing construction is as assumed in the design.
3. Dimensions shown on plans are based on original construction documents. The Contractor is required to field verify all conditions for the purpose of preparing the bid and performing the Work.
4. Refer to Specifications for scope, description and requirements of Work.

C. EXISTING STRUCTURE

1. Design Live Loads for the Existing Structure were assumed to be (all loads are service loads unless noted)

DESCRIPTION	LOAD
a. Floors	40 psf
b. Roof	20 psf
c. Concentrated Wheel Load (4.5 in x 4.5 in area)	3000 lb
d. Slabs on Grade	40 psf

2. To the Engineer's knowledge, no outstanding environmental concerns are present on site except as noted below. If an outstanding environmental concern is identified during construction, the Contractor is to bring this to the attention of the Engineer and Owner.
3. It is the Contractor's responsibility to familiarize itself with the existing construction for the Work areas. All significant deviations are to be brought to the attention of the Engineer.

D. DETAILS AND SYMBOLS

1. Repair details are shown on drawing series R-5XX and are identified as two-digit (X.X) details.
2. Three-digit repair details (XX.X.X) do not represent a separate price item. These details supplement the basic detail to provide additional information or show variation of the typical condition.
3. Where the Work Item bubble is noted "TYP," it means the Work Item occurs at all locations where the applicable deterioration or designation symbol occurs on that plan.
4. Where "T.A.R." is noted, it means there may be areas of this work in addition to the particular designated areas.
5. Where two or more Work Item Bubbles are grouped together, it means any or all of the referenced work items may be applicable.
6. When a Work Item or Detail is listed as incidental, this work is included in the pay unit of other work items and does not have a separate price.
7. When a Detail is labeled (FOR REFERENCE ONLY) it provides information only about incidental work and does not have a pay unit.

E. SHORING AND BRACING

1. Contractor shall provide all shoring, bracing, sheeting, etc. required for safety and proper execution of the work.
2. Contractor is solely responsible to prepare shop drawing for bracing and shoring members designed and stamped/sealed by a registered professional engineer (registered in State of Florida) and submit them to the Engineer for review..
3. The design of the shoring and bracing members shall include all changes in the structure caused by the shoring and bracing.

F. EXISTING SERVICES AND UTILITIES

1. Contractor shall review all existing conditions to determine all Electrical and Mechanical services and Utilities affected by the repair work. Make necessary temporary connections to maintain existing services to all areas affected by the work. The Contractor shall submit the methods and schedule of connections for the owner's approval prior to commencement.
2. Provide a minimum 72 hour notice to the Owner representative prior to any interruptions in utility services.

G. CONSTRUCTION PHASING, SEQUENCING AND TRAFFIC MAINTENANCE

1. Work sequence shall be coordinated with the Owner's representative and all identified project representatives.
2. Owner will continue to use structure during restoration. Contractor must phase and arrange work to maintain access at all times to all areas that are not under construction for both vehicles and pedestrians.
3. The Contractor shall verify work hours with the Owner. Contractor shall coordinate off-hours, weekend, and holiday Work with Owner at least 72 hours in advance.
4. The Contractor is responsible for collection and removal of all construction debris on a daily basis, and the site shall be left in a neat and orderly condition, satisfactory to the Owner.

5. The Contractor is responsible for protecting all adjacent structures, landscaping, and other surfaces and items which could be affected by the Work.

H. GENERAL CONCRETE REQUIREMENTS

1. PREPACKAGED REPAIR MATERIAL (033761)
COMPRESSIVE STRENGTH 5000 psi at 28 DAYS
ENGINEER SHALL BE NOTIFIED A MINIMUM OF 24 HOURS FOR
INSPECTION OF PREPARED CONCRETE SURFACES.

I. CONCRETE PROTECTION FOR REINFORCEMENT:

1. The following applies for full section replacement where shown on drawings.
2. The minimum concrete protection for reinforcement shall be per ACI 318-14, Section 7.7.
3. For pre-stressed and non-pre-stressed reinforcement in pre-stressed/precast concrete members, the minimum concrete protection at top of members shall be 1-1/2 in.
4. Minimum cover for reinforcing in non-pre-stressed concrete and non-post-tensioned members.

	Minimum Concrete Cover (inches)
a. Slab top reinforcement	1-1/2
b. Slab bottom reinforcement	3/4
c. Beam top reinforcement, U.N	3*
d. Beam stirrups at sides and bottom of beam	1-1/2
e. Beam stirrups at top of beam	2-1/2
f. Column ties	1-1/2

* Or 3X bar diameter, whichever is greater.

J. EPOXY COATING FOR REINFORCEMENT AND ANCHORS.

1. Epoxy coat all reinforcement exposed within repair areas, except welded wire reinforcement.

K. STRUCTURAL STEEL NOTES

- | | | <u>Price</u> | <u>Unit</u> |
|----|--|--------------|--------------|
| 1. | Structural Shapes | | |
| a. | W-shapes | 50,000 | A992 |
| b. | M-shapes, S-shapes,
HP-shapes, channels,
angles | 36,000 | A36 |
| 2. | Hollow Structural Sections | | |
| a. | Rectangular and square | 46,000 | A500 GR. B |
| b. | Round | 42,000 | A500 GR. B |
| 3. | Steel Pipes | 35,000 | A53 GR. B |
| 4. | Structural Plates and Bars | 36,000 | A36 |
| 5. | Bolts | | |
| a. | 1/2" dia. to 1" dia., UN | 92,000 | A325 |
| b. | 1-1/8" dia. to 1-1/2" dia., UN | 81,000 | A325 |
| 6. | Anchor Rods | 36,000 | F1554 GR. 36 |
| 7. | Welding Electrodes | E70XX | AWS D1.1-04 |
| | Shop drawings shall be submitted by
the contractor for Engineer's review
prior to any fabrication. | | |

L. POST-INSTALLED ANCHORS

1. Expansion Anchors – Hilti Kwik Bolt III, Unless noted.
2. Adhesive Anchors – Hilti HY150-Max SD, Unless noted.
3. Contractor shall locate existing embedded reinforcement using non-destructive testing prior to fabrication of attachments or drilling of holes. Notify Engineer of obstructions that will prevent installation of anchors at design locations.
4. Post-installed Anchors must be installed using the spacing and edge distances given on the plans or details. If field conditions dictate that the anchor spacing or edge distance be modified, the Contractor shall submit a field sketch to the Engineer for review prior to making any modifications.
5. Post-installed anchor holes shall be drilled per manufacturer's written instructions.
6. Adhesive Anchors shall be installed by an ACI-CRSI Certified "Adhesive Anchor Installer"

M. MASONRY

1. Compressive strength of masonry, $f'_m = 2000$ psi.
2. Mortar type "M" or "S".
3. Masonry grout, $f'_c = 3000$ psi.

ABBREVIATIONS

APPROXIMATELY	=	APPROX
BEAM	=	BM
BOTTOM	=	BOT
CAST IN PLACE	=	CIP
CONSTRUCTION JOINT/CONTROL JOINT	=	CJ
CLEARANCE	=	CLR
COLUMN	=	COL
CONCRETE	=	CONC
DETAIL	=	DET
EACH	=	EA
EXPANSION JOINT	=	EJ
EXISTING	=	EXIST
FINISHED	=	FIN
FLOOR	=	FL
INCIDENTAL	=	INC
LINEAR FOOT	=	LF
LATEX MODIFIED CONCRETE	=	LMC
LUMP SUM	=	LS
MAXIMUM	=	MAX
MINIMUM	=	MIN
NOT APPLICABLE	=	N/A
ON CENTER	=	OC
OPPOSITE HAND	=	OH
PRECAST	=	P/C
REINFORCEMENT	=	REINF
REQUIRED	=	REQ'D
RAIN WATER COLLECTOR	=	RWC
SQUARE FOOT	=	SF
SIMILAR	=	SIM
SLAB ON GRADE	=	SOG
SPECIFICATION	=	SPEC
SUPPORTED	=	SUPT
TYPICAL AS REQUIRED	=	TAR
TYPICAL	=	TYP
UNLESS NOTED OTHERWISE	=	UNO
WORK ITEM	=	W.I.
WELDED WIRE FABRIC	=	WWF

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PARKING STRUCTURE REPAIRS 2021
GARAGE III & VII
GAINESVILLE
FLOR

[illegible]

PROJECT NO: 15-002562.00

DRAWN BY: MCB

CHECKED BY: MPD

WORK ITEM SCHEDULE

R-002

GARAGE VII

WORK ITEM SCHEDULE

WORK ITEM	DESCRIPTION	UNITS	LEVEL 2	TOTAL QUANTITY
1.0	GENERAL REQUIREMENTS			
1.1	Project Mobilization	L.S.	XX	1
1.3	Concrete Shores and Reshores	Incidental to W.I. 1.1		
1.4	Concrete Reinforcement	Incidental to W.I. 1.1		
1.5	Temporary Signage	Incidental to W.I. 1.1		
1.7	Owner's Contingency	L.S.	XX	1
43.0	MISCELLANEOUS METALS			
43.5	Remove Existing Storefront	L.S.	XX	1
43.6	Install Guardrail Beneath Stairs	EA.	1	1
43.7	Install Bollard	EA.	2	2
*For information only				

NOTES:

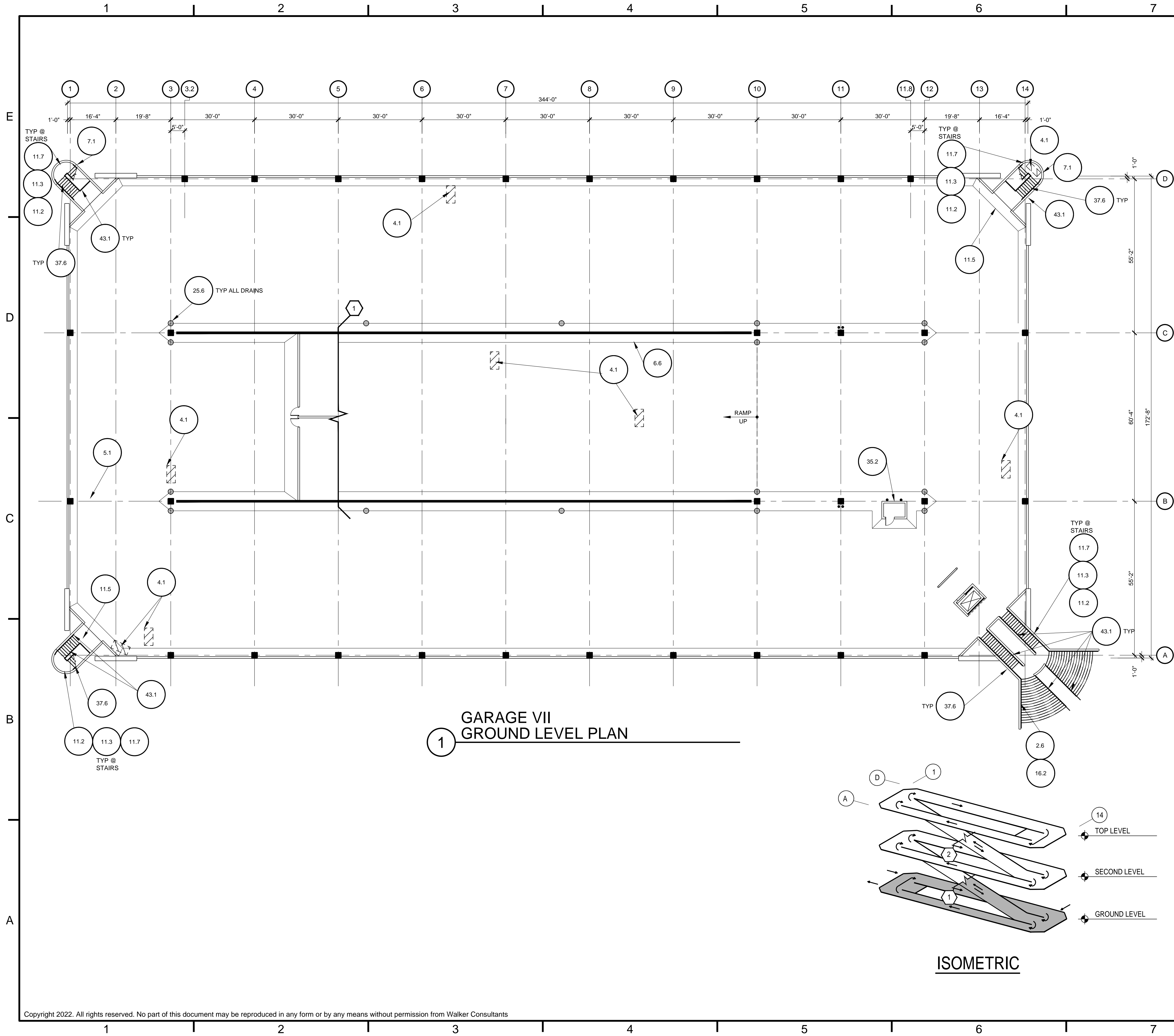
1. XX Lump Sum work to be performed on this level.

WORK ITEM	DESCRIPTION	UNITS	GROUND LEVEL	LEVEL 2	ROOF LEVEL	TOTAL QUANTITY
1.0	GENERAL REQUIREMENTS					
1.1	Project Mobilization	L.S.	XX	XX	XX	1
1.3	Concrete Shores and Reshores	Incidental to W.I. 1.1				
1.4	Concrete Reinforcement	Incidental to W.I. 1.1				
1.5	Temporary Signage	Incidental to W.I. 1.1				
1.7	Owner's Contingency	L.S.	XX	XX	XX	1
2.0	FLOOR SURFACE PREPARATION					
2.6	Floor Preparation - Traffic Topping Removal	L.S. (S.F.)*	650	250	0	1 (900)
3.0	CONCRETE FLOOR REPAIR					
3.1	Floor Repair - Partial Depth	S.F.	0	36	156	192
3.10	Stair Nosing Repair	S.F.	0	0	12	12
4.0	CONCRETE CEILING REPAIR					
4.1	Ceiling Repair - Partial Depth	S.F.	10	40	0	50
5.0	CONCRETE BEAM REPAIR					
5.1	Beam Repair - Partial Depth	S.F.	2	0	0	2
6.0	CONCRETE COLUMN REPAIR					
6.1	Column Repair - Partial Depth	S.F.	0	0	64	64
6.6	Column Repair - Haunch	S.F.	2	6	0	8
7.0	CONCRETE WALL REPAIR					
7.1	Wall Repair - Partial Depth	S.F.	4	5	8	17
7.5	Wall Repair - Lifting Lug/Wall Grout Pocket	EA.	0	2	84	86
9.0	EXPANSION JOINT PREPARATION					
9.3	Expansion Joint Preparation - Prepare Block-out	L.F.	0	77	65	142
10.0	EXPANSION JOINT REPAIR AND REPLACEMENT					
10.3	Expansion Joint - Elastomeric Concrete Edged	L.F.	0	77	65	142
11.0	CRACK AND JOINT REPAIR					
11.1	Seal Cracks and Joints	L.F.	0	150	400	550
11.2	Repair Crack / Joint Sealant	L.S. (L.F.)*	80	450	2550	1 (3080)
11.3	Vertical Joint Sealant	L.S. (L.F.)*	80	270	310	1 (660)
11.4	Repalce Tee-to-Tee Joint Sealant	L.S. (L.F.)*	0	920	4970	1 (5890)
11.5	Epoxy Injection	L.F.	15	30	0	45
11.7	Cove Sealant	L.S. (L.F.)*	200	610	1980	1 (2790)
11.9	Replace Louver Frame Sealant	L.F.	0	0	10	10
15.0	PROTECTIVE SEALER					
15.1	Concrete Sealer - Floors	L.S. (S.F.)*	0	8030	42300	1 (50330)
16.0	TRAFFIC TOPPING					
16.1	Traffic Topping - Vehicular	L.S. (S.F.)*	0	1020	6700	1 (7720)
16.2	Traffic Topping - Grand Stair	L.S. (S.F.)*	650	250	0	1 (900)
18.0	CEMENTITIOUS COATING					
18.1	Install Cementitious Coating on Faces of Column	L.S. (S.F.)*	0	0	576	1 (576)
25.0	MECHANICAL - DRAINAGE					
25.6	Clean Existing Floor Drains	L.S.	XX	XX	XX	1
35.0	DOORS, FRAMES, AND HARDWARE					
35.2	Tuckpointing	L.F.	32	0	0	32
37.0	DOORS, FRAMES, AND HARDWARE					
37.6	Repair Abrasive Nosings	EA.	10	23	23	55
43.0	MISCELLANEOUS METALS					
43.1	Remove and Replace Handrails	L.S.	XX	XX	XX	1
45.0	PAINTING					
45.1	Paint Traffic Markings	L.S. (S.F.)*	0	9050	49000	1 (58050)
45.8	Clean and Paint Light Pole Base	EA.	0	0	6	6
95.0	DOORS AND WINDOWS					
95.1	Reseal Window Frame Joint	L.F.	0	0	24	24
95.2	Window Glazing Cap Seal	L.F.	0	0	120	120
*For information only						

NOTES:
1. XX Lump Sum work to be performed on this level.

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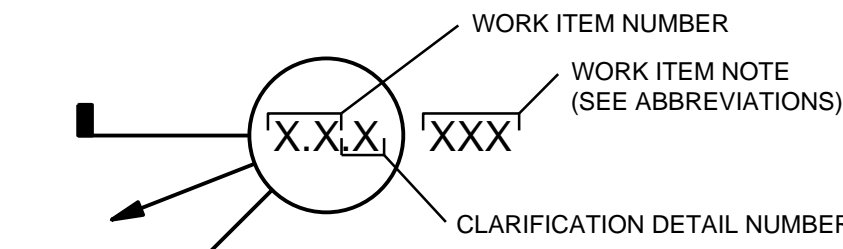
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GENERAL SHEET NOTES

- SEE SHEET R001 FOR GENERAL NOTES AND SCHEDULE OF WORK ITEMS (W.I.)
- SEE DRAWING SHEET SERIES R-500 FOR DETAILS.
- CONTRACTOR IS RESPONSIBLE FOR DETERMINING ACTUAL EXTENT AND LOCATIONS OF REPAIR AREAS IN ACCORDANCE WITH THE SPECIFICATIONS. WORK ITEM IS SHOWN ONLY TO REPRESENT THE TYPES OF DETEIORATION.

GENERAL LEGEND



- NOTES:
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 - SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

WORK ITEM IDENTIFICATION LEGEND
(FOR WORK ITEMS WITH DETAILS)

- FLOOR SPALL OR DELAMINATION W.I. 3.1
- EXISTING FLOOR DRAIN (FD)
- CEILING SPALL OR DELAMINATION W.I. 4.1
- TRAFFIC TOPPING W.I. 16.1
- EXPANSION JOINT
- CONCRETE SEALER W.I. 15.1

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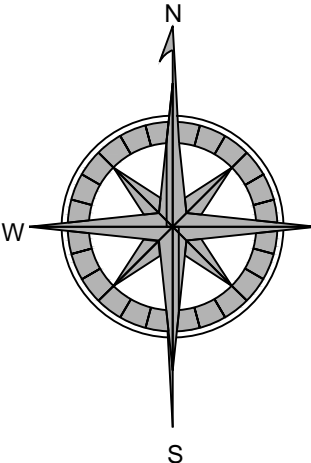
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GAINESVILLE FLORIDA

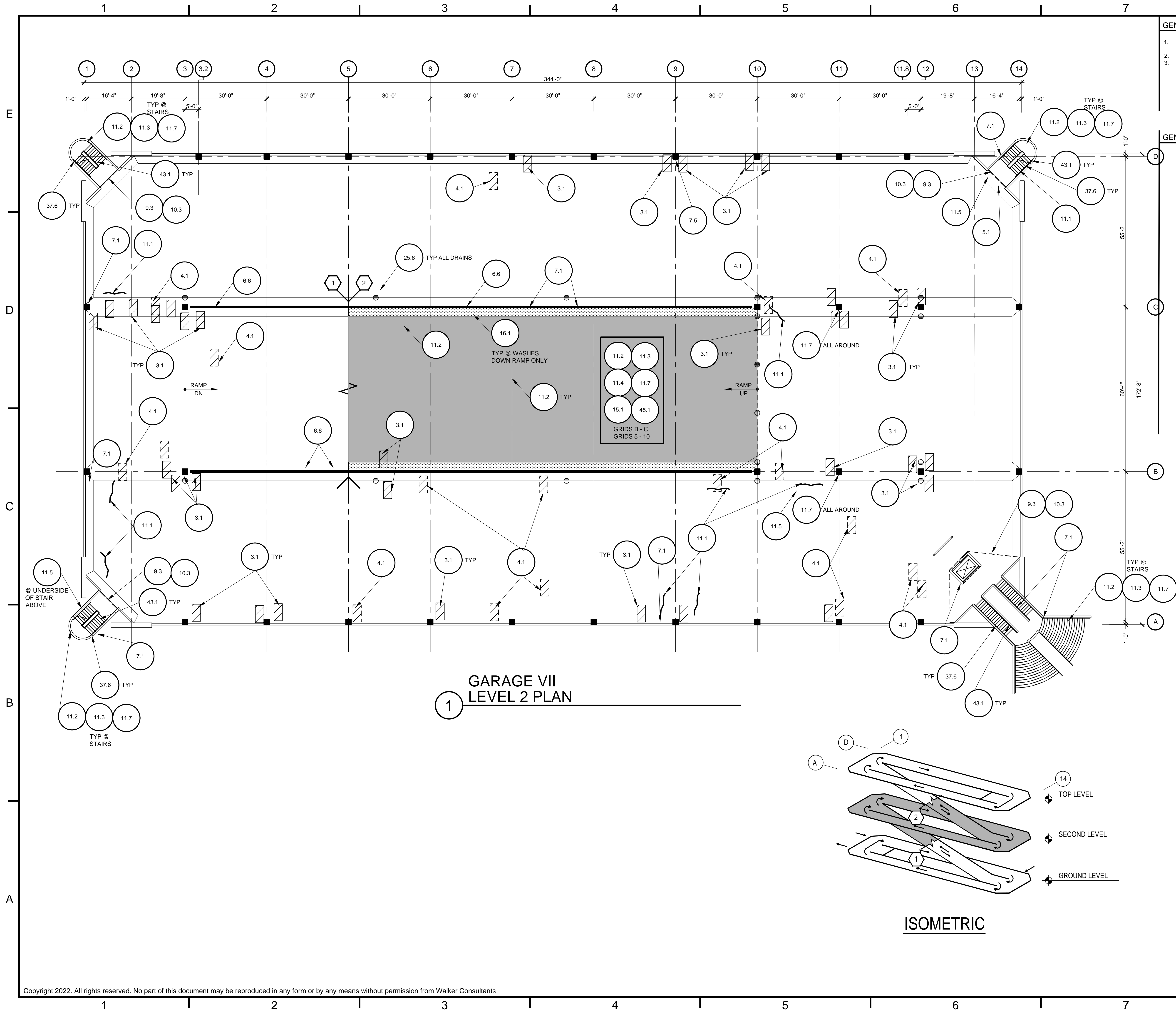
NO.	DATE	DESCRIPTION	ISSUED

PROJECT NO: 15-002562.00
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CHECKED BY: MPD

SHEET TITLE:
GARAGE VII
GROUND LEVEL
PLAN

R-101

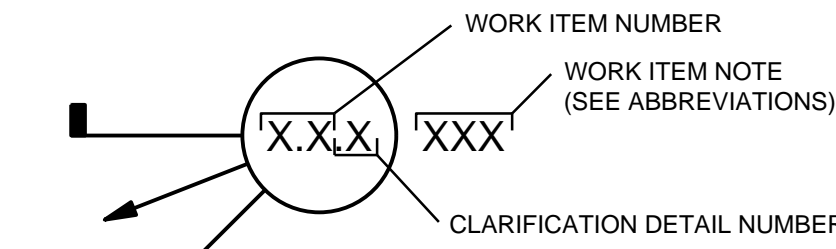




GENERAL SHEET NOTES

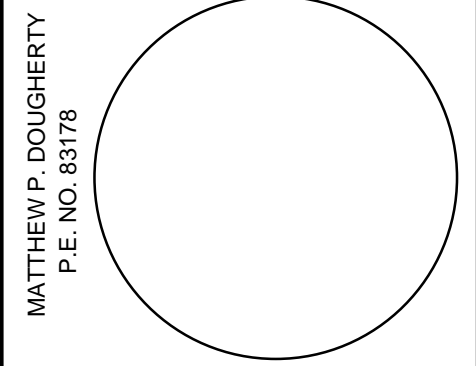
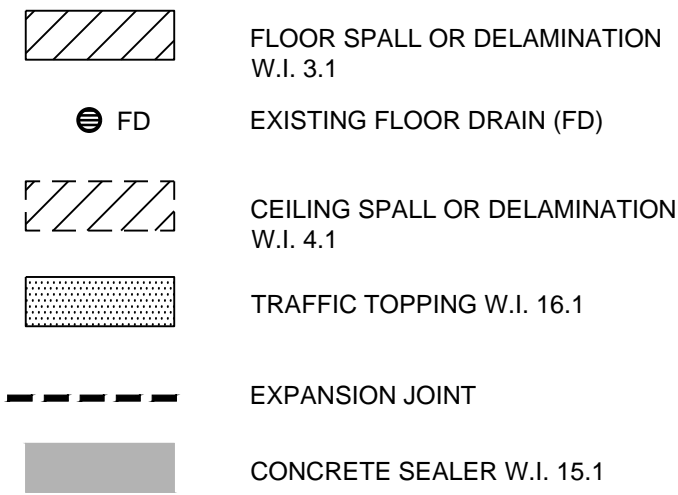
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WORK ITEM IDENTIFICATION LEGEND
(FOR WORK ITEMS WITH DETAILS)



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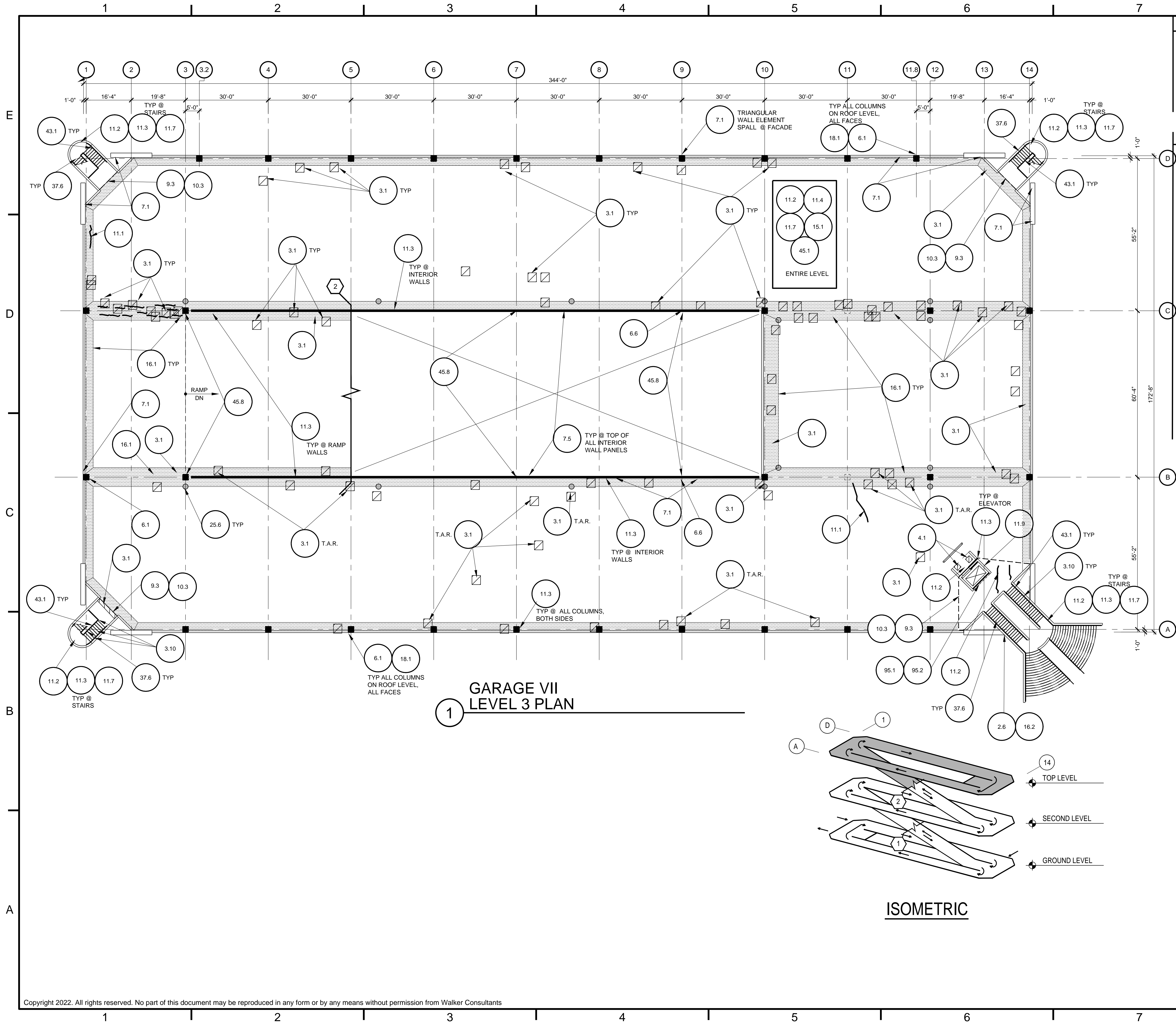
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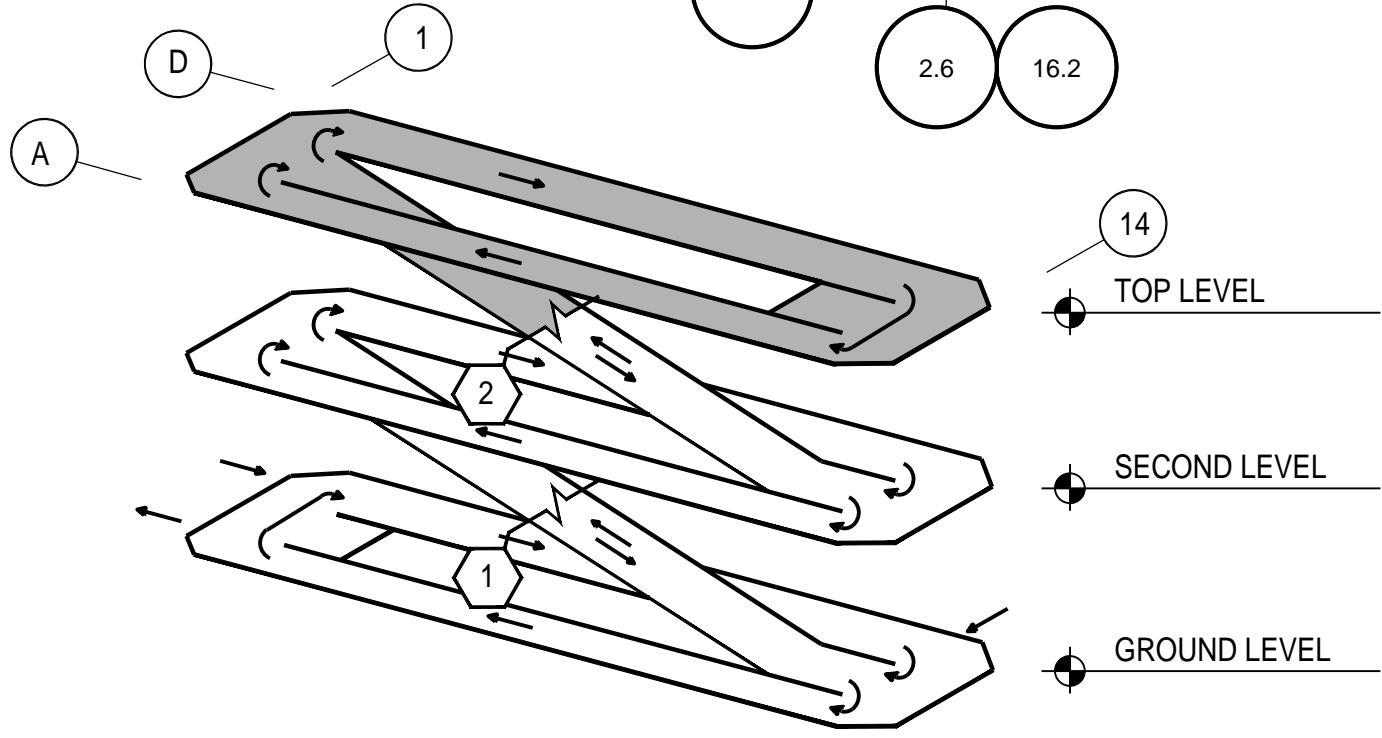
**GARAGE VII
LEVEL 2 PLAN**

R-102

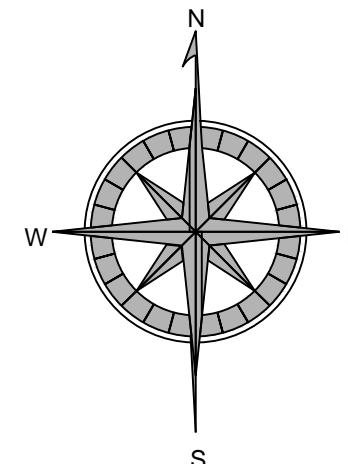
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1 GARAGE VII
LEVEL 3 PLAN



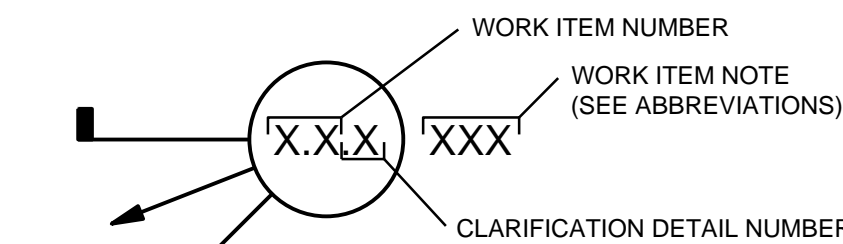
ISOMETRIC



GENERAL SHEET NOTES

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- TRAFFIC TOPPING W.I. 16.1
- EXPANSION JOINT
- CONCRETE SEALER W.I. 15.1

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SHEET TITLE:

GARAGE VII
LEVEL 3 PLAN

R-103

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GARAGE III & VII

FLORIDA

GAINESVILLE

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PROJECT NO:	15-002562.00
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DRAWN BY:	MCB
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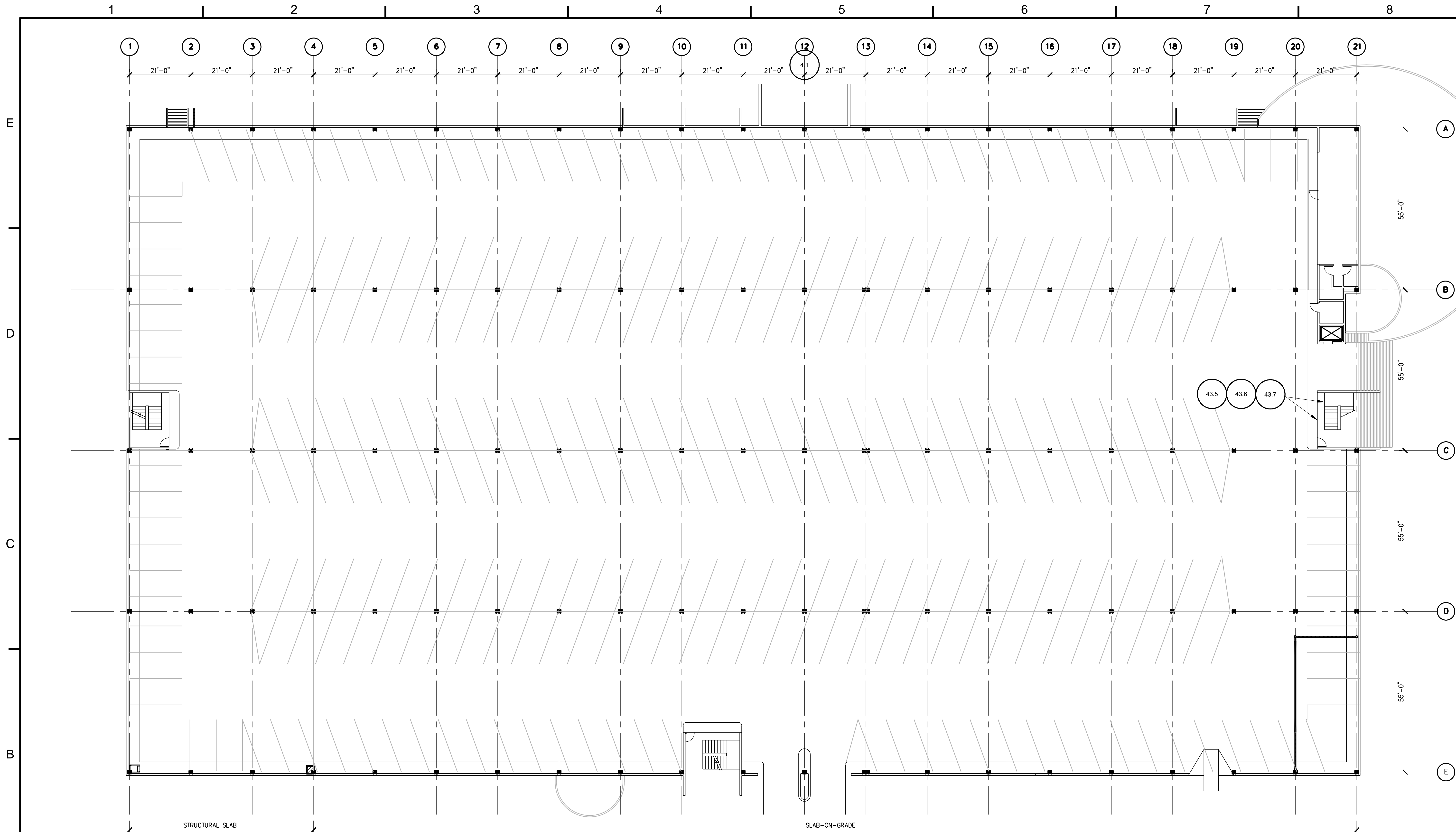
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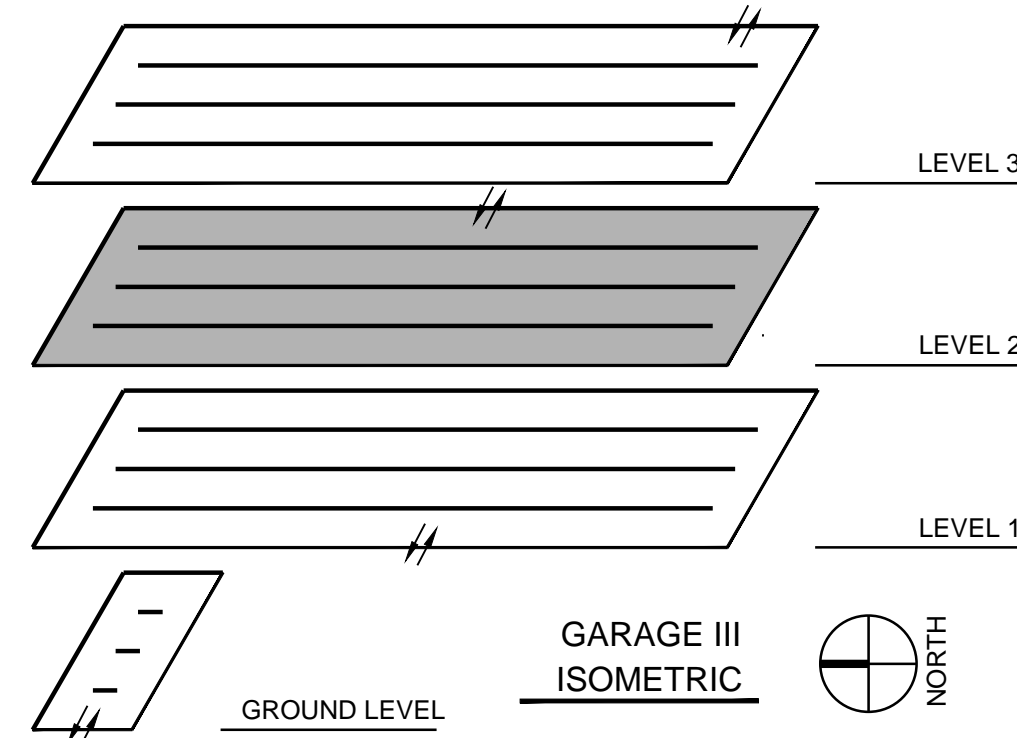
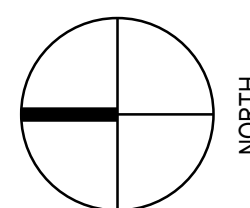
GARAGE III
 SECOND LEVEL
 PLAN

R-111

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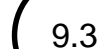
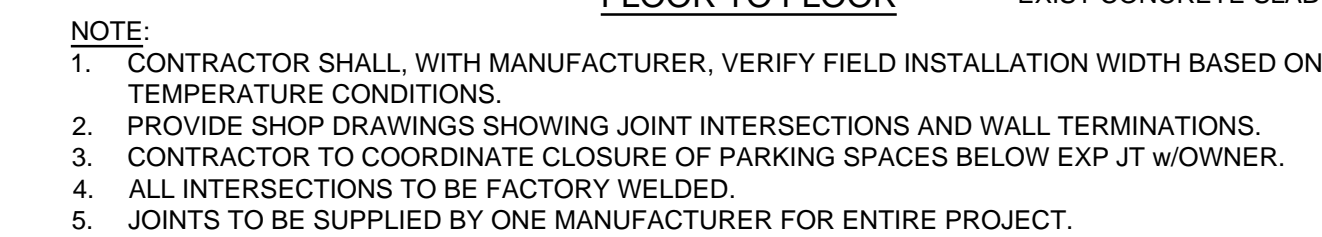
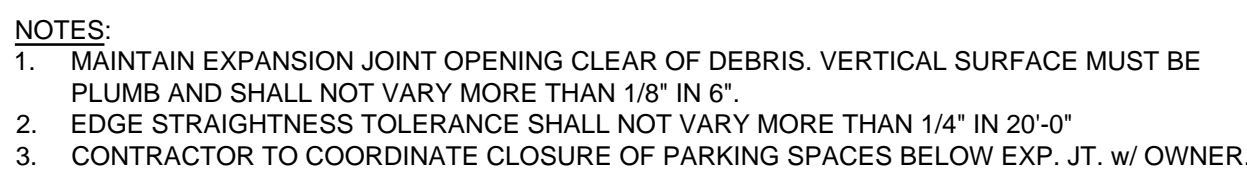
1 GARAGE III
SECOND LEVEL PLAN



GENERAL SHEET NOTES

1. SEE SHEET R001 FOR GENERAL NOTES AND SCHEDULE OF WORK ITEMS (W.I.)
2. SEE DRAWING SHEET SERIES R-500 FOR DETAILS.
3. CONTRACTOR IS RESPONSIBLE FOR DETERMINING ACTUAL EXTENT AND LOCATIONS OF REPAIR AREAS IN ACCORDANCE WITH THE SPECIFICATIONS. WORK ITEM IS SHOWN ONLY TO REPRESENT THE TYPES OF DETERIORATION.

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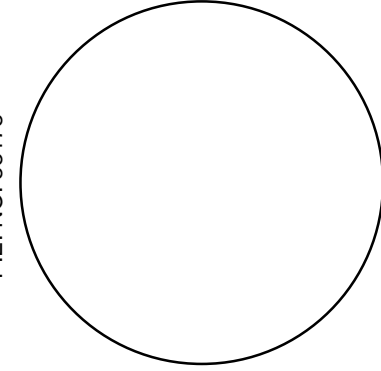
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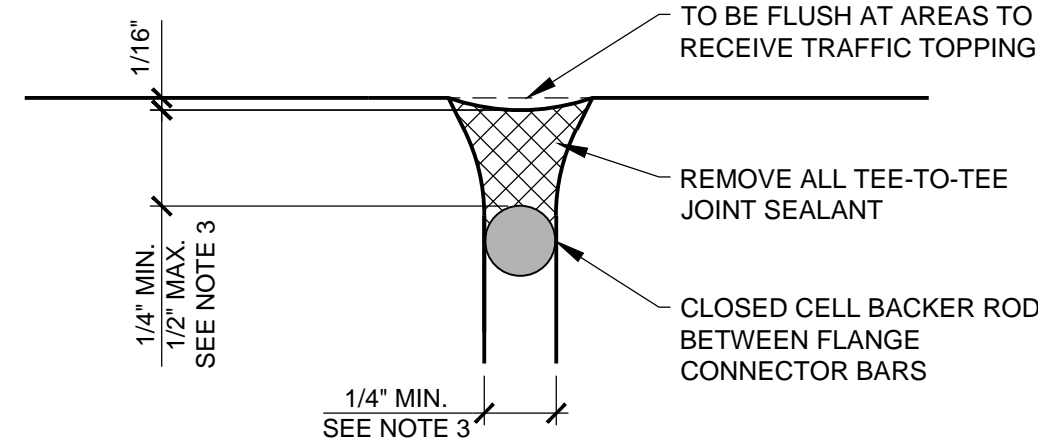
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NO.	DATE	DESCRIPTION	ISSUED

PROJECT NO:	15-002562.00
DRAWN BY:	MCB
CHECKED BY:	MPD
SHEET TITLE:	REPAIR DETAILS

REPAIR
DETAILS

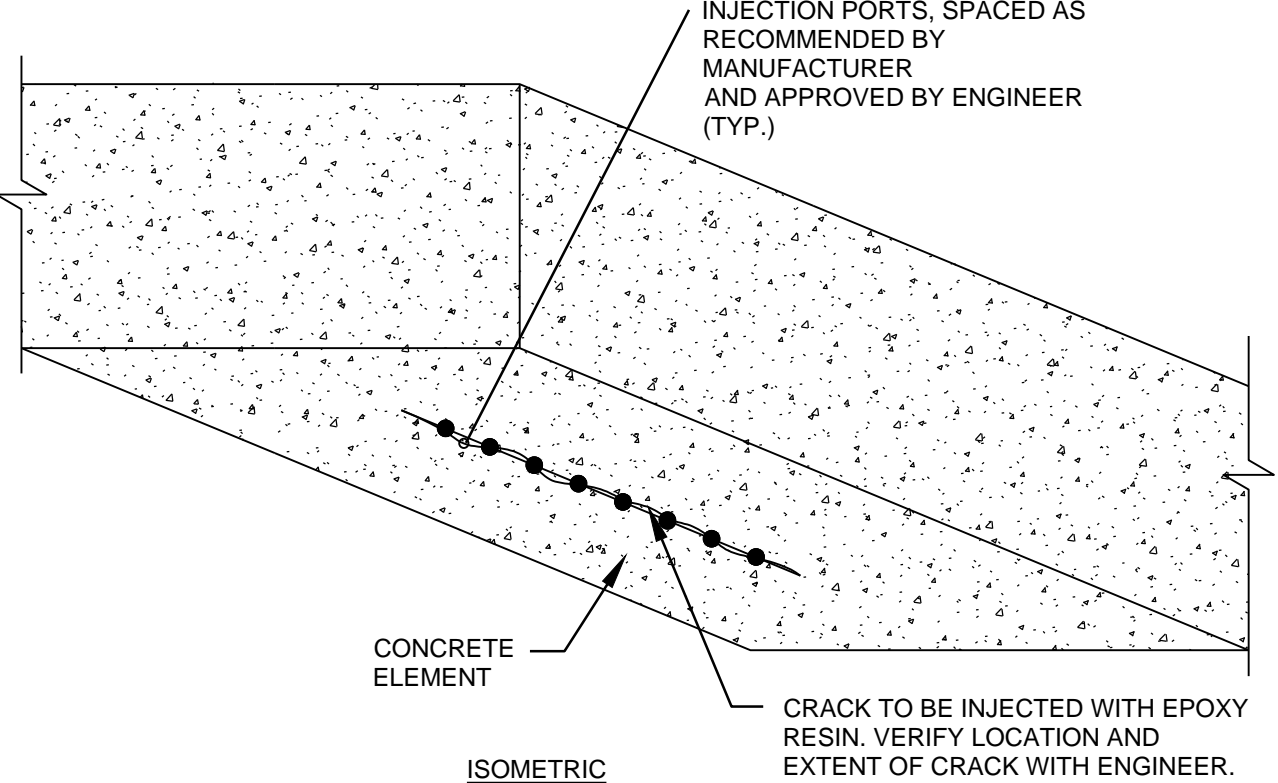
R-502



- NOTES:
- SEALANT SHALL BE REMOVED BY MECHANICAL METHOD THAT LIMITS GROWTH OF JOINT WIDTH TO A MAXIMUM OF 1/8".
 - JOINTS MUST BE PRIMED PRIOR TO SEALANT INSTALLATION.
 - EXISTING JOINT WIDTHS VARY. NEW SEALANT DEPTH SHALL BE 50% TO 60% OF JOINT WIDTH. WHERE EXISTING JOINT WIDTH ALLOWS.
 - PROVIDE BOND BREAKER TAPE OVER EXISTING FLANGE CONNECTORS WHERE BACKER RODS WILL BE INTERRUPTED.

REPLACE TEE TO TEE JOINT SEALANT

- NOTES:
- CLEAN SURFACE OF WALL TO IDENTIFY CRACK
 - SPACE DRILL HOLES AS RECOMMENDED BY MANUFACTURER
 - FLUSH DRILL HOLES w/ CLEAN WATER

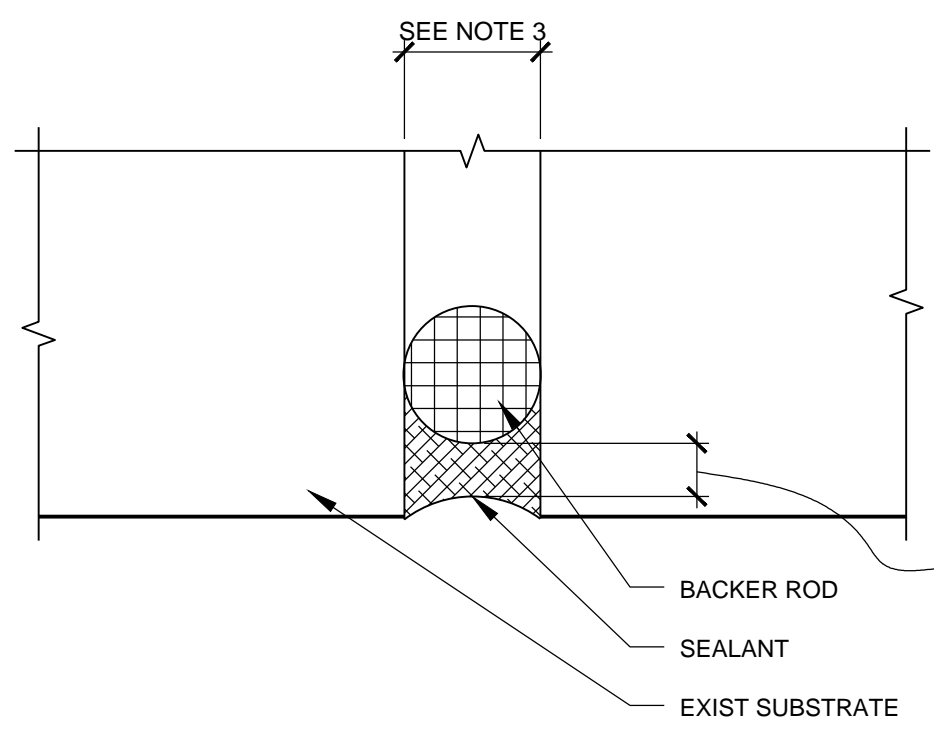


EPOXY INJECTION



- NOTES:
- REFER TO SECTION 020010 OF THE SPECIFICATIONS FOR EXECUTION INFORMATION

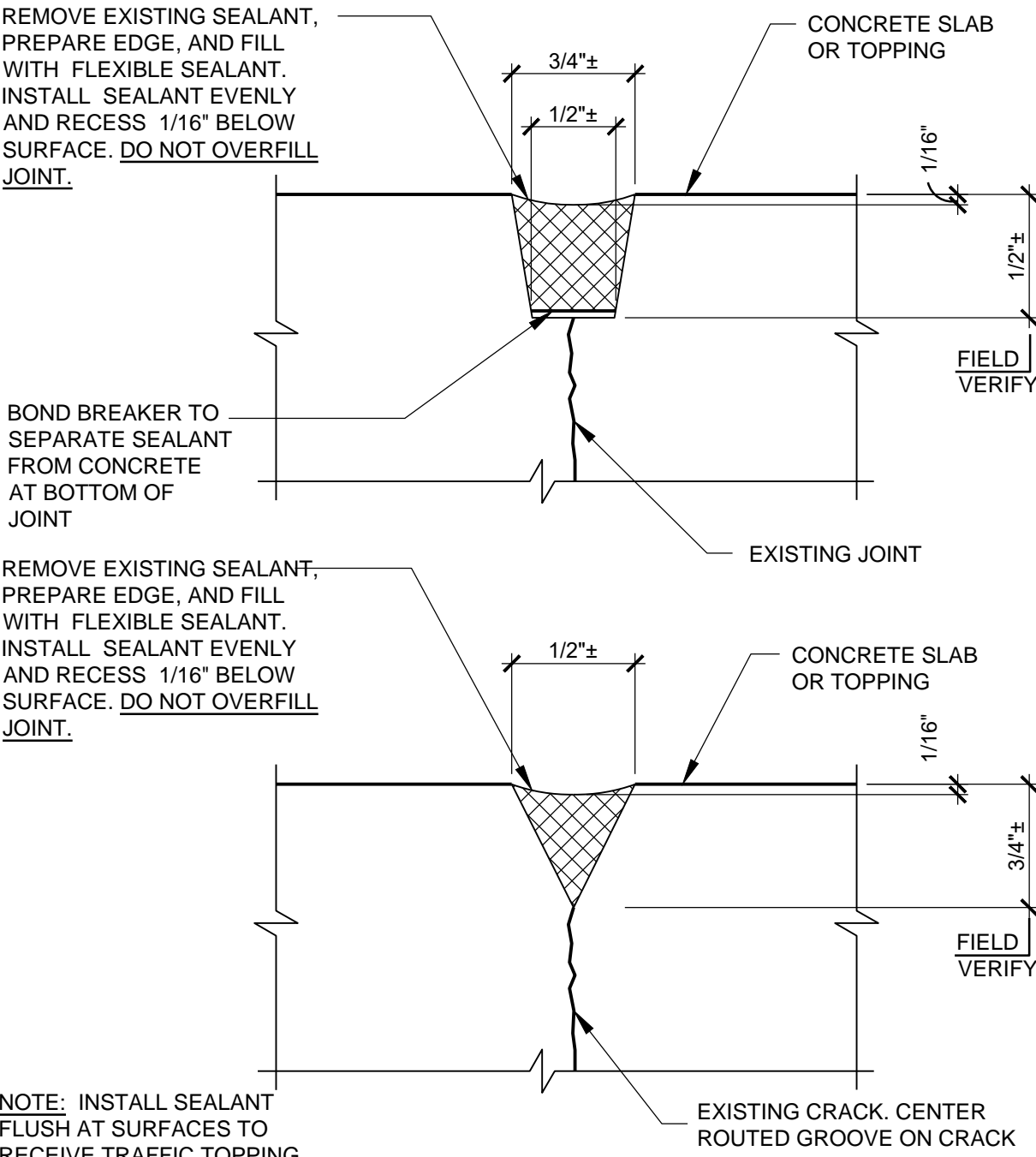
REPLACE LOUVER FRAME SEALANT



- NOTES:
- CLEAN JOINT SUBSTRATE BY SAND & AIR BLASTING.
 - PREPARE AND PRIME SEALANT CAVITY & INSTALL SEALANT ACCORDING TO SEALANT MANUFACTURER'S RECOMMENDATIONS.
 - EXISTING JOINT WIDTHS MAY VARY. NEW SEALANT DEPTH SHALL BE 50% TO 60% OF JOINT WIDTH.

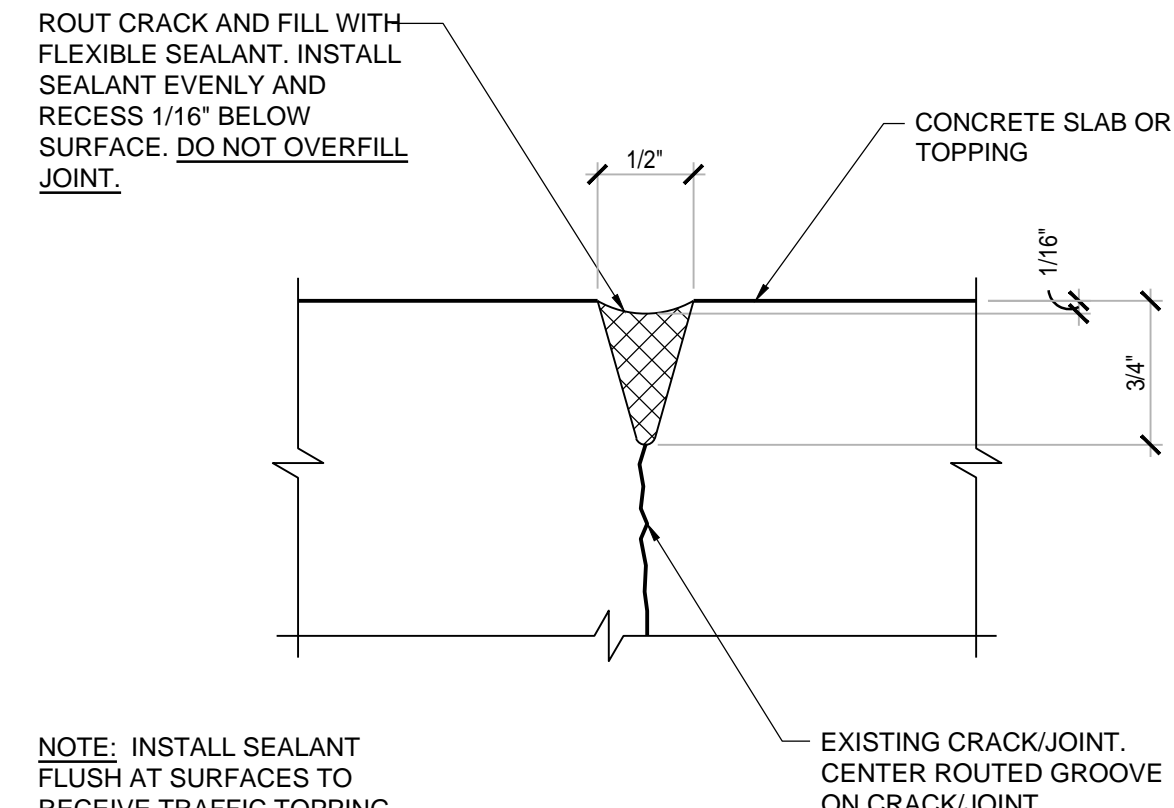
VERTICAL JOINT SEALANT

REFER TO W.I. 11.4.1 (FOR EXTENT OF JOINT WORK)



NOTE: INSTALL SEALANT FLUSH AT SURFACES TO RECEIVE TRAFFIC TOPPING.

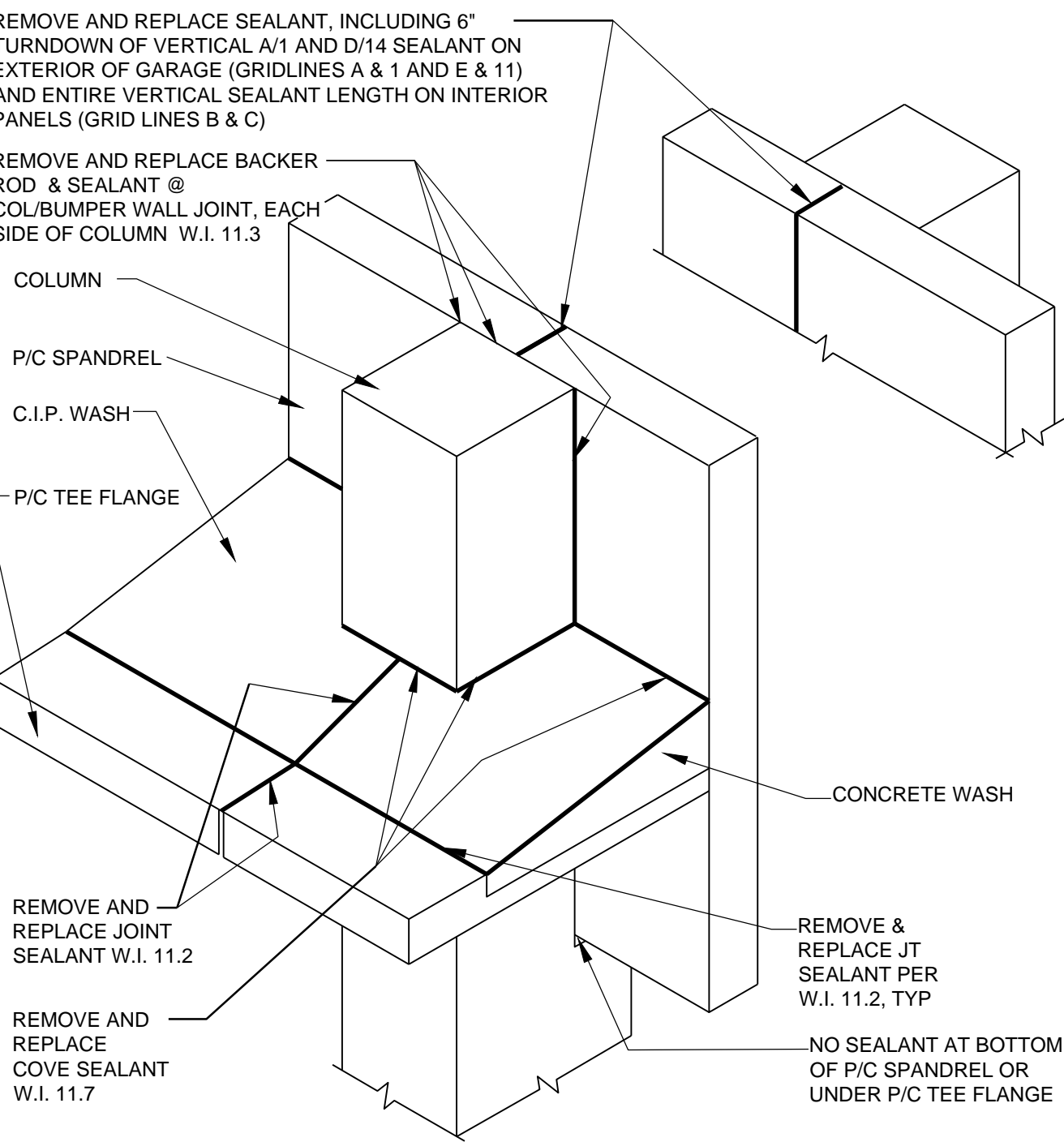
REPAIR CRACK/JOINT SEALANT



NOTE: INSTALL SEALANT FLUSH AT SURFACES TO RECEIVE TRAFFIC TOPPING.

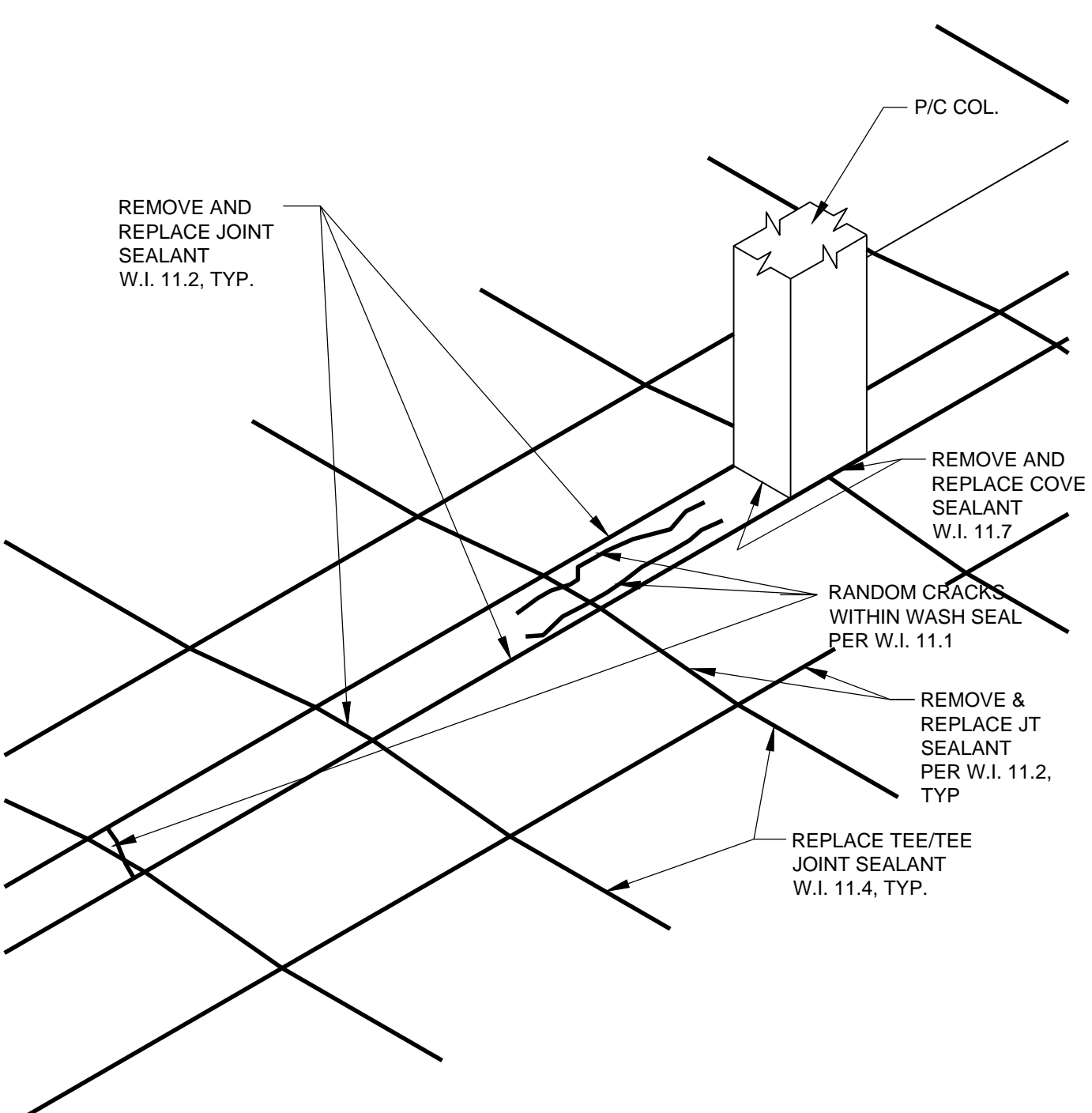
ROUT & SEAL RANDOM CRACKS

INCIDENTAL TO W.I. 11.4.1 & 11.4.2 FOR TYPICAL JOINT LAYOUT



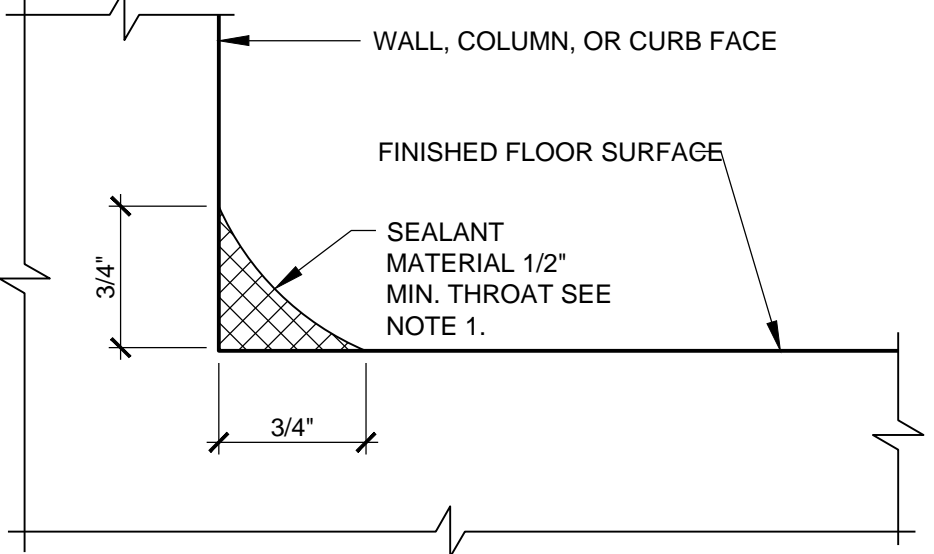
PERIMETER COLUMN PANEL ISOMETRIC

FOR CLARIFICATION ONLY



SEALANT ISOMETRIC @ ENDBAY DRIVE

FOR CLARIFICATION ONLY



- NOTE:
- REMOVE EXISTING COVE SEALANT MATERIAL IF PRESENT. PREPARE SURFACE PER SPECIFICATIONS.

COVE SEALANT

11.7

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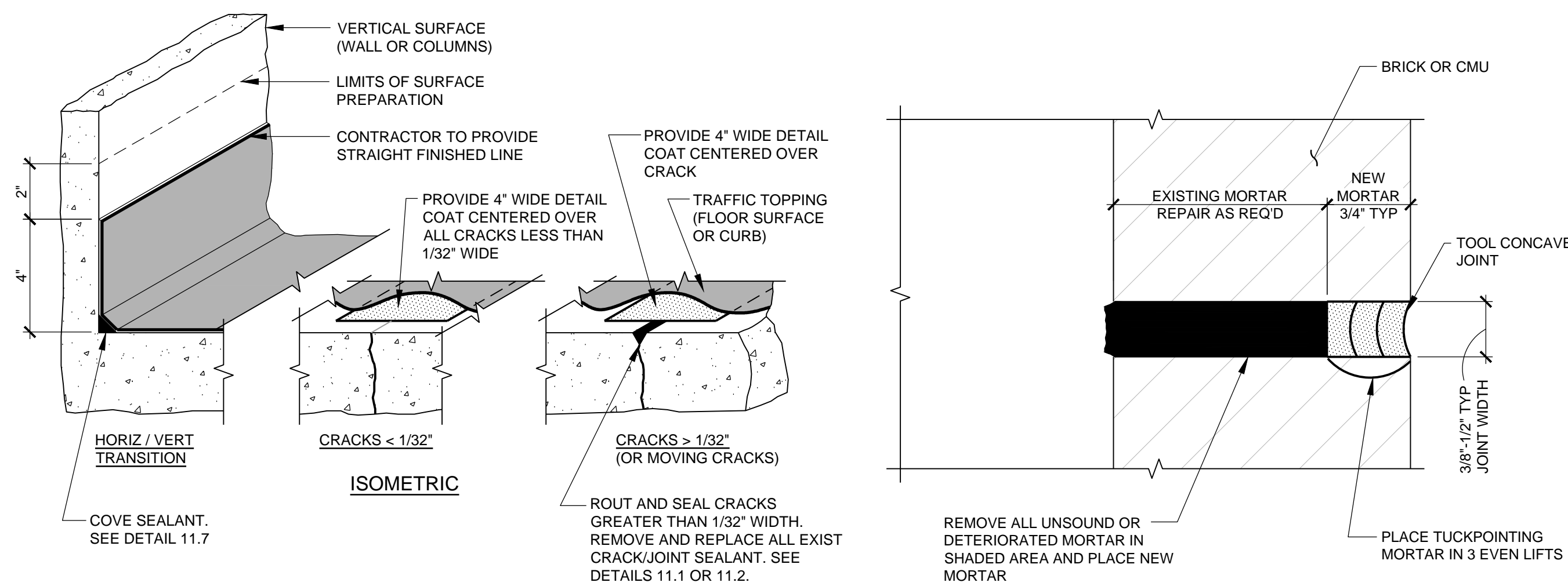
DRAWN BY: MCB

CHECKED BY: MPD

SHEET TITLE:

REPAIR
DETAILS

R-503

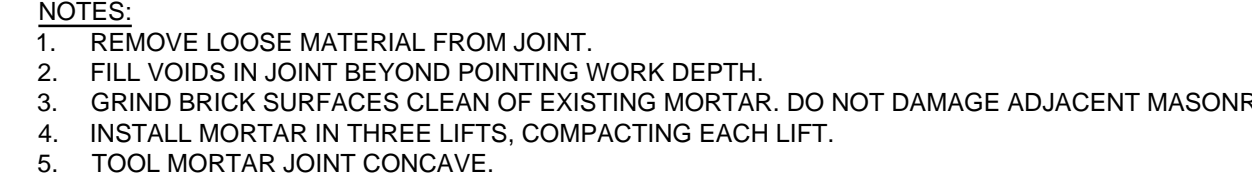


NOTE

1. QUANTITIES BASED ON HORIZONTAL APPLICATION AREA. VERTICAL DETAILING, ADDITIONAL DETAIL COAT OVER CRACKS, ROUTING AND SEALING CRACKS, INSTALLATION OF COVE SEALANT, AND REMOVAL AND REPLACEMENT OF EXISTING SEALANTS ARE INCIDENTAL TO THIS WORK.
2. REMOVE LOOSE MATERIAL FROM JOINT.
3. FILL VOIDS IN JOINT BEYOND POINTING WORK DEPTH.
4. GRIND BRICK SURFACES CLEAN OF EXISTING MORTAR. DO NOT DAMAGE ADJACENT MASONRY.
5. INSTALL MORTAR IN THREE LIFTS, COMPACTING EACH LIFT.
5. TOOL MORTAR JOINT CONCAVE.

TRAFFIC TOPPING- VEHICULAR/RECOAT

16.



TUCKPOINTING

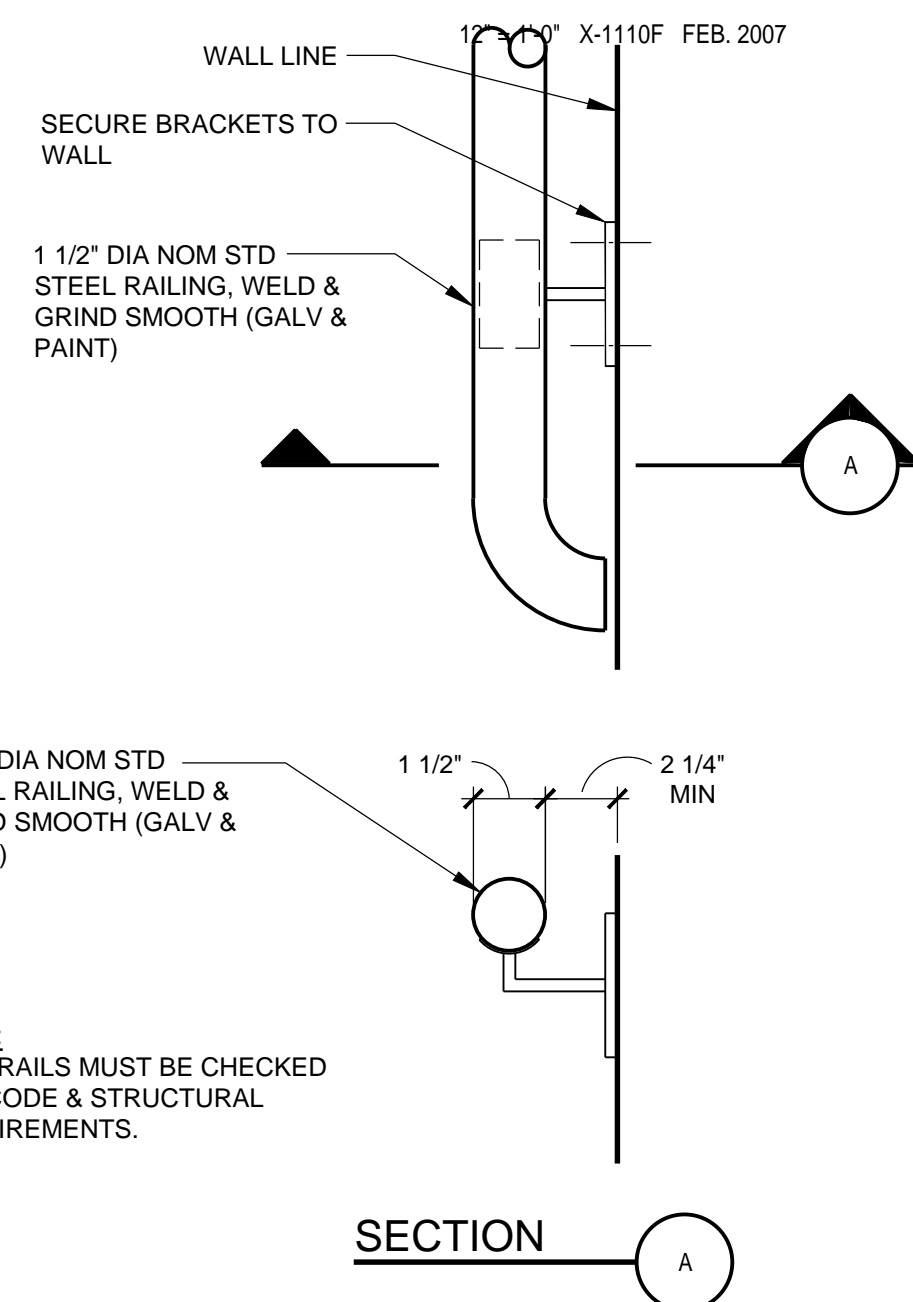
35.



REPAIR STAIR NOSING PER W.I. 37.6
DESCRIPTION IN SPECIFICATION
SECTION 020010.

REPAIR ABRASIVE STAIR NOSING

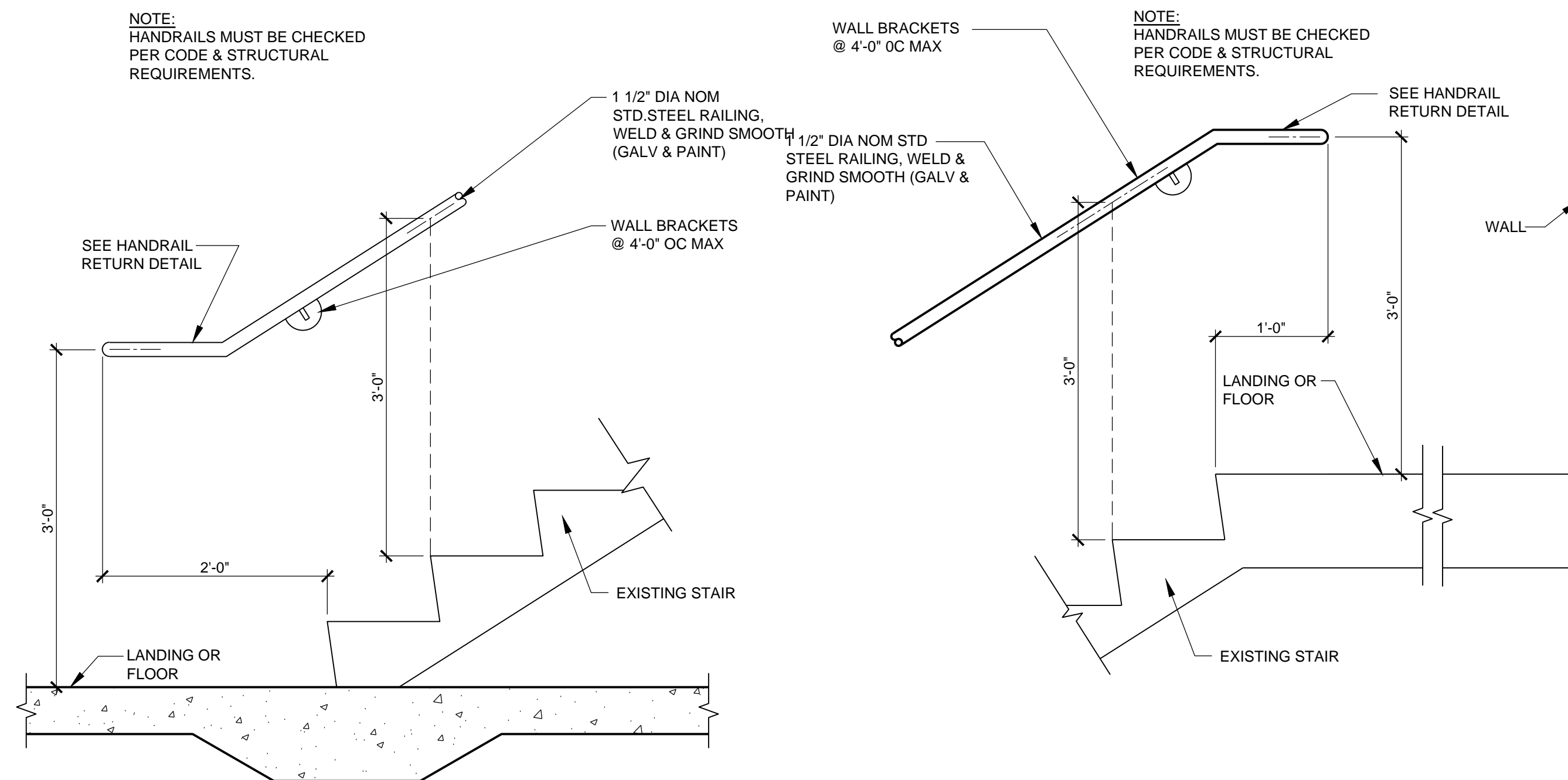
37.



NOTE:
HANDRAILS MUST BE CHECKED
PER CODE & STRUCTURAL
REQUIREMENTS.

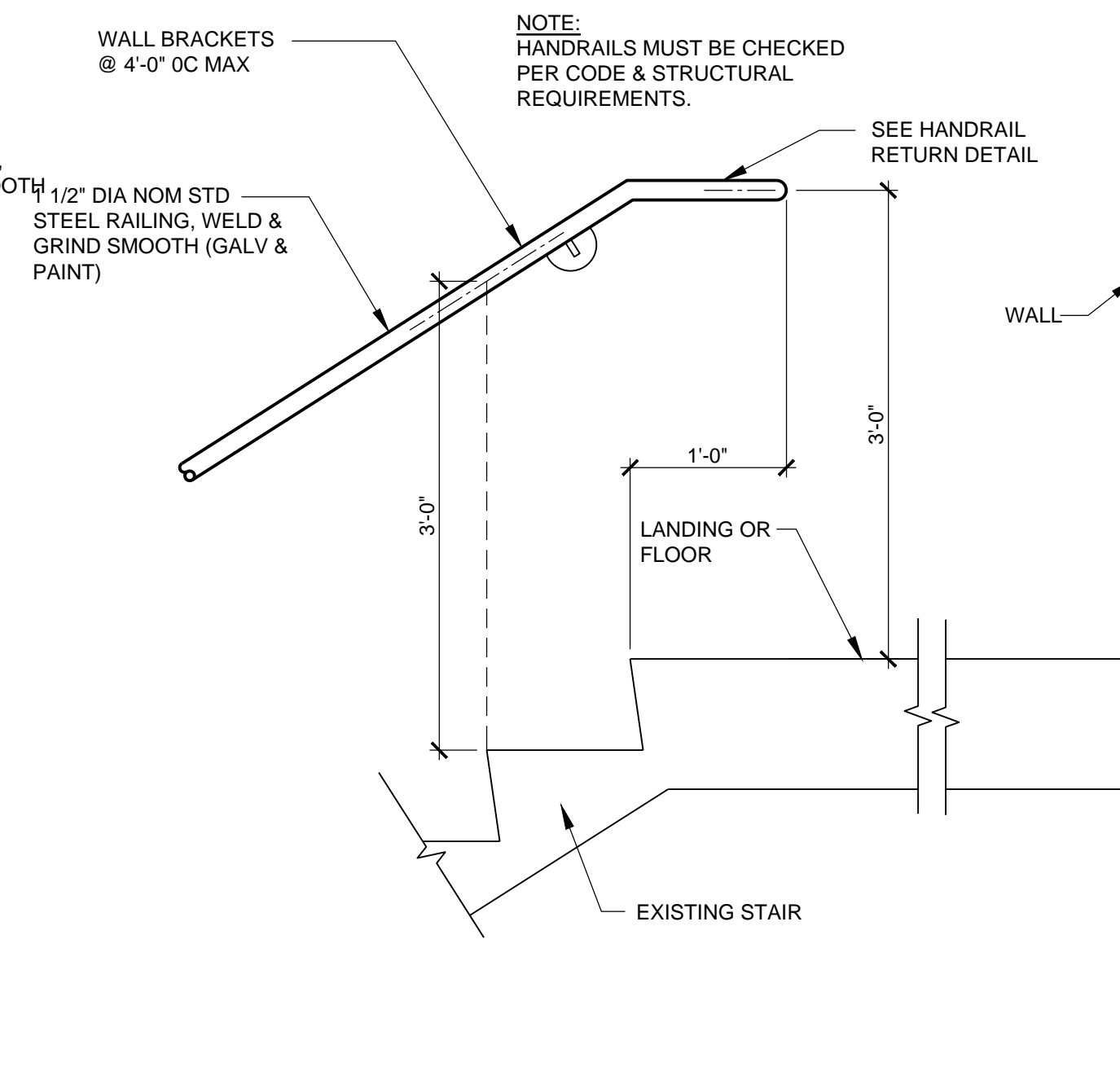
SECTION _____

(A)



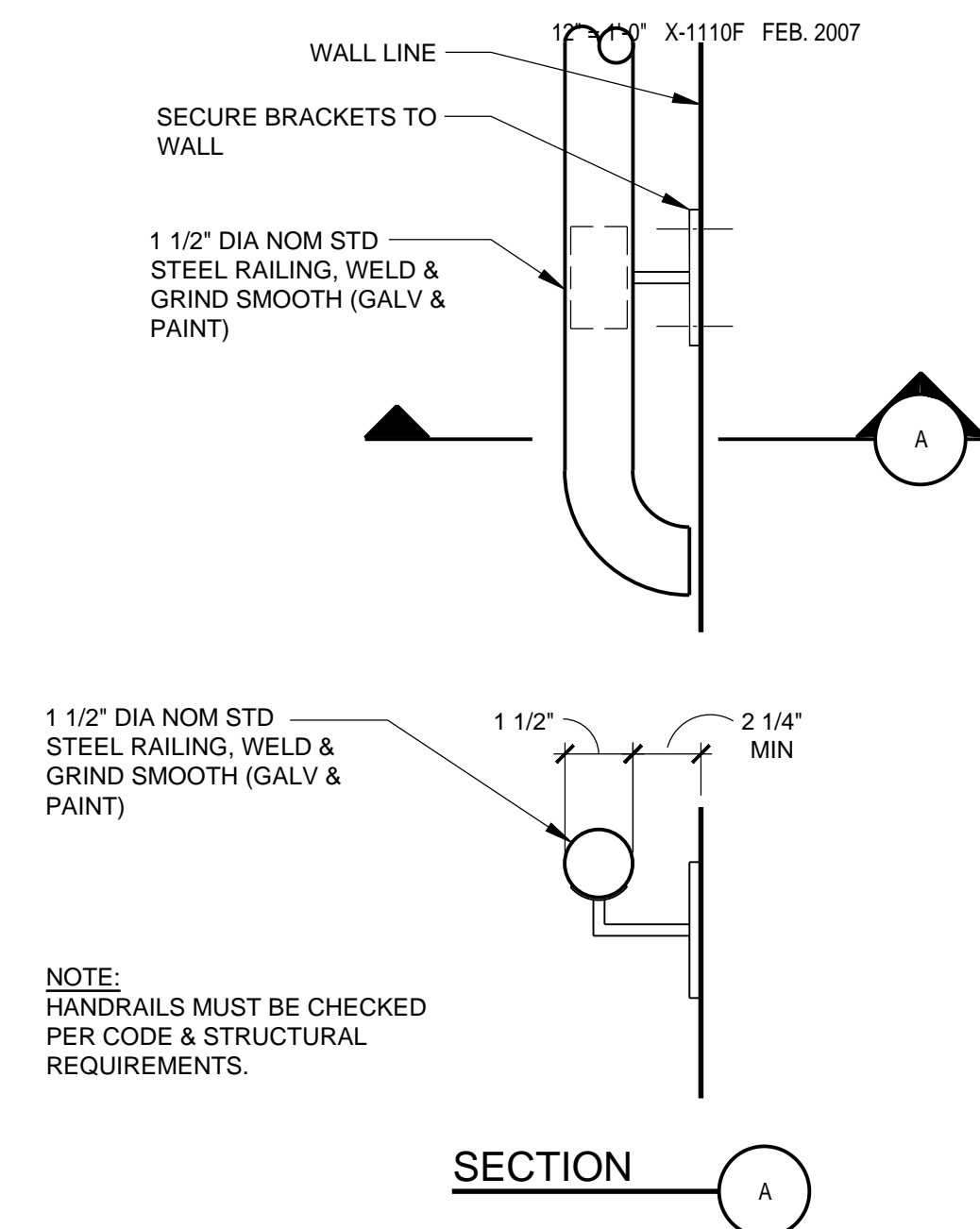
HANDRAIL DETAIL @ WALL

(43.



HANDRAIL DETAIL @ WALL

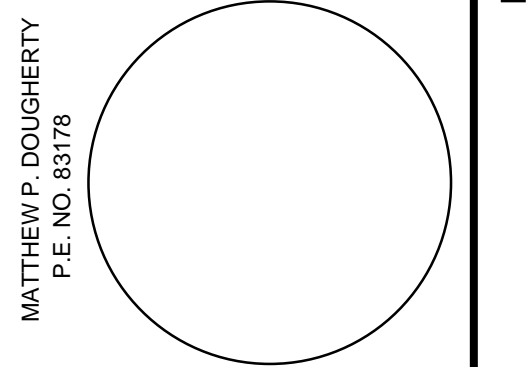
(43)



HANDRAIL RETURN @ WALL

(43

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AND THE APPLICABLE FIRE SAFETY
STANDARD



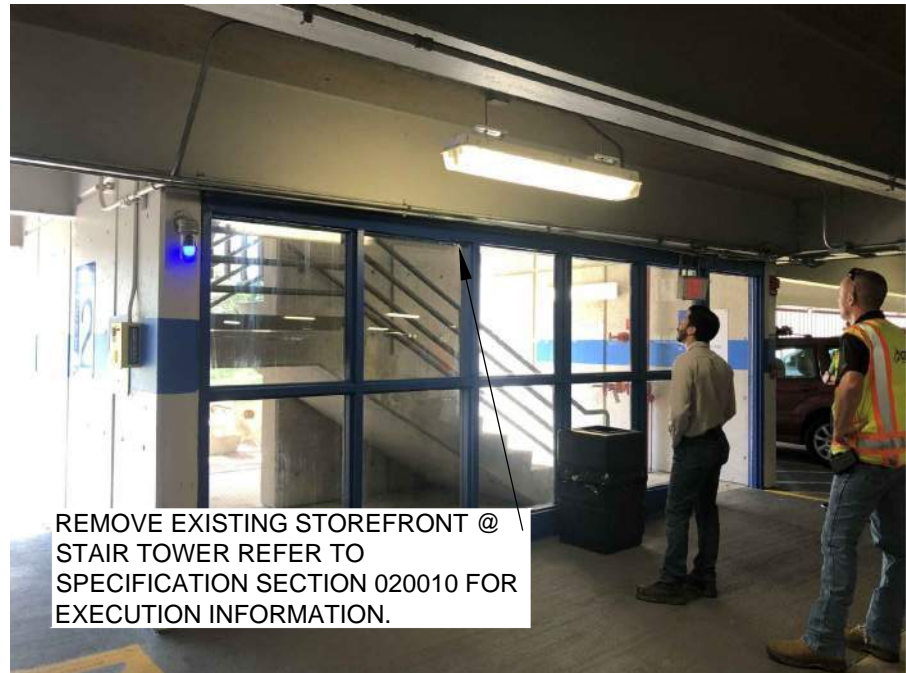
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PARKING STRUCTURE REPAIRS 2021
GARAGE III & VII
GAINESVILLE FLORIDA

NO.	DATE	DESCRIPTION	ISSUED:

PROJECT NO: 15-002562.00
DRAWN BY: MCB
CHECKED BY: MPD
SHEET TITLE:

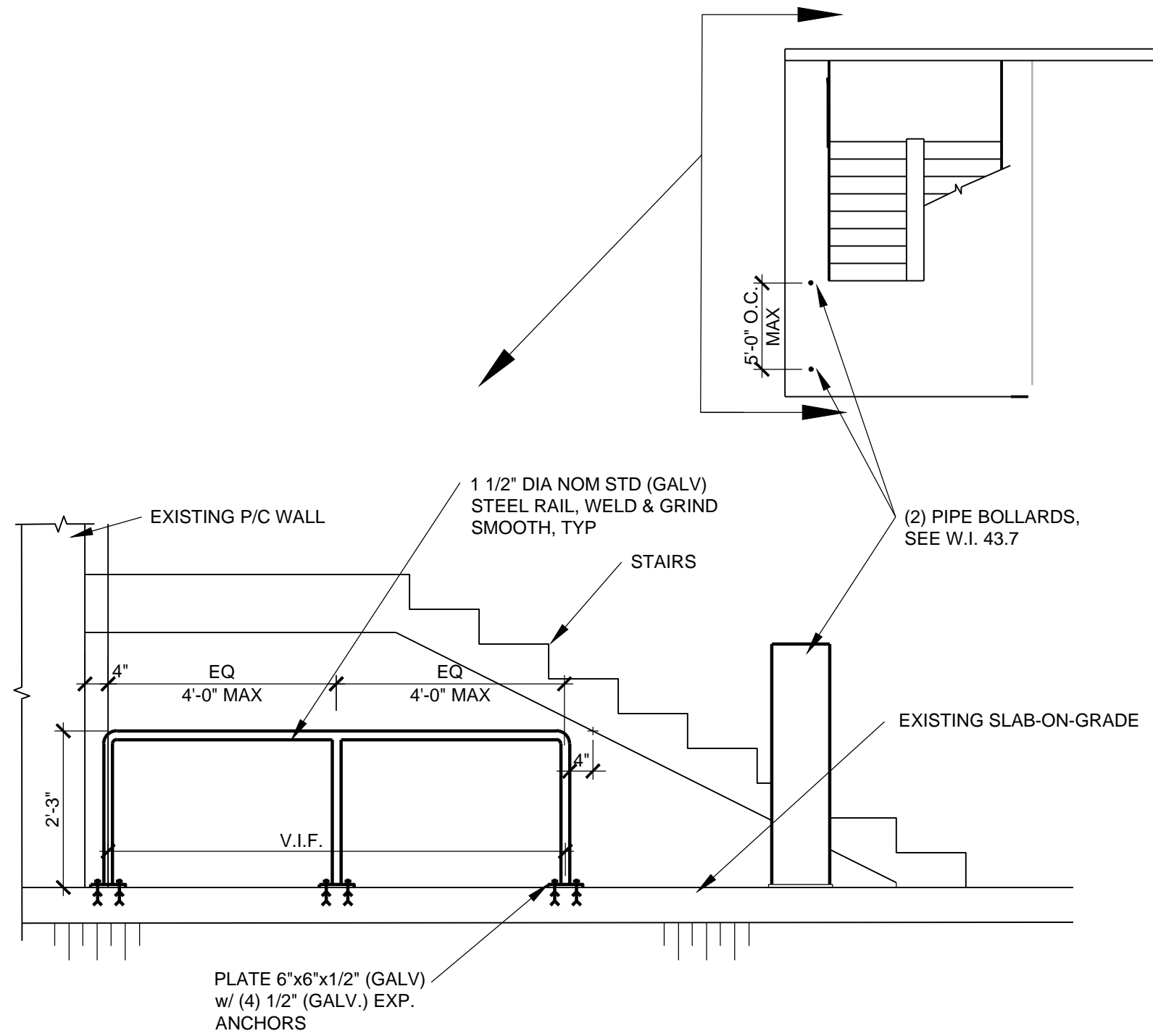
**REPAIR
DETAILS**

R-504

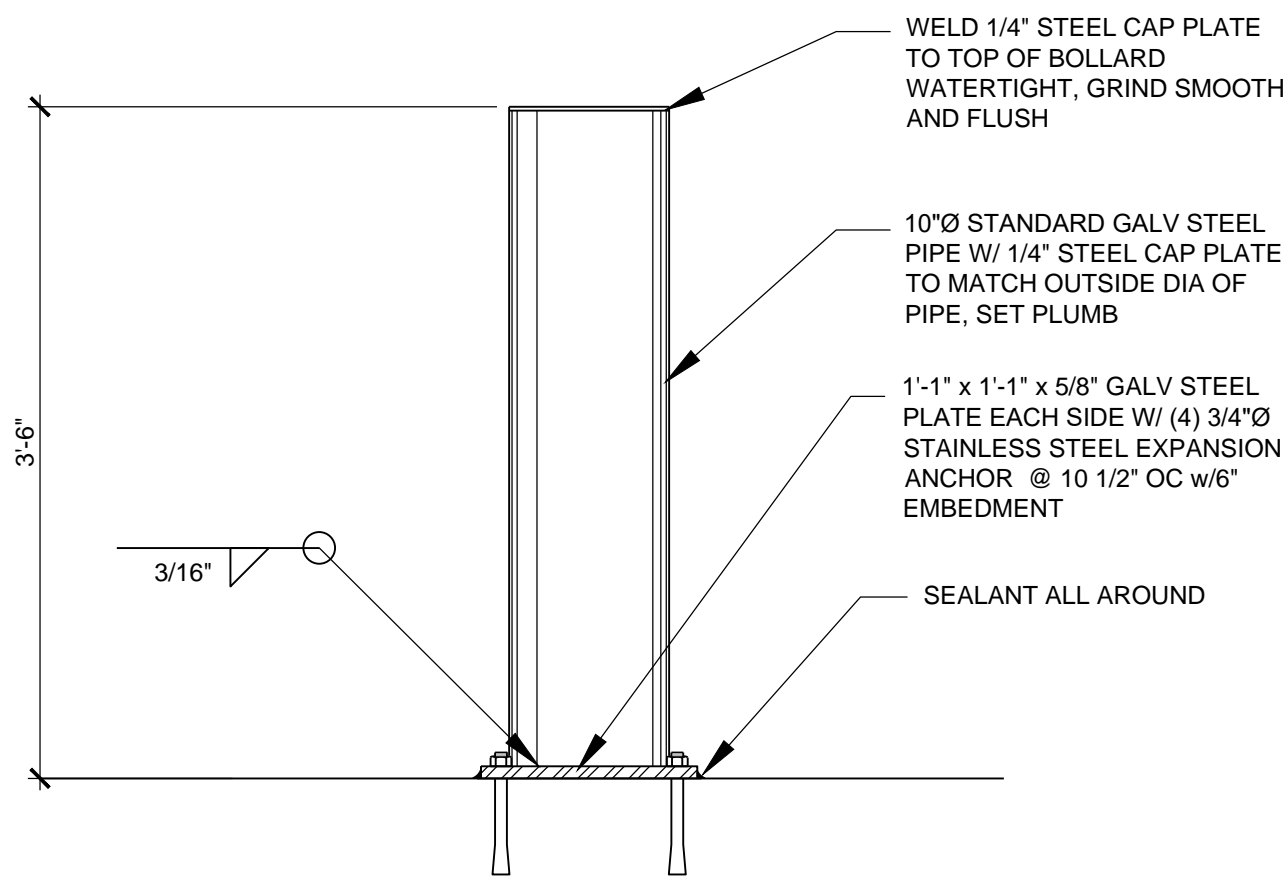


REMOVE EXISTING STOREFRONT @
STAIR TOWER REFER TO
SPECIFICATION SECTION 020010 FOR
EXECUTION INFORMATION.

43.5 REMOVE EXISTING STOREFRONT



43.6 INSTALL GUARDRAIL BENEATH STAIRS



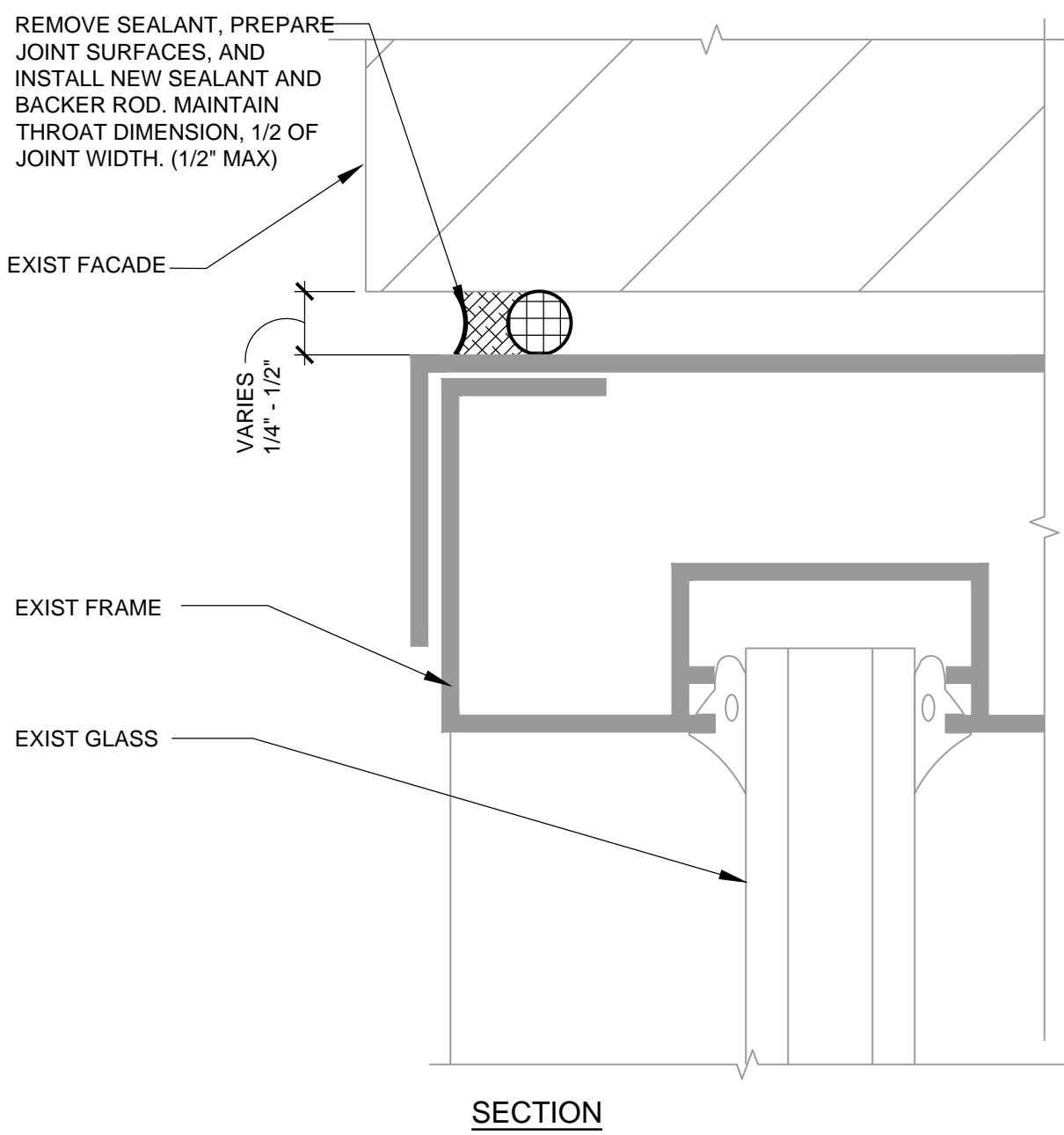
43.7 INSTALL BOLLARD



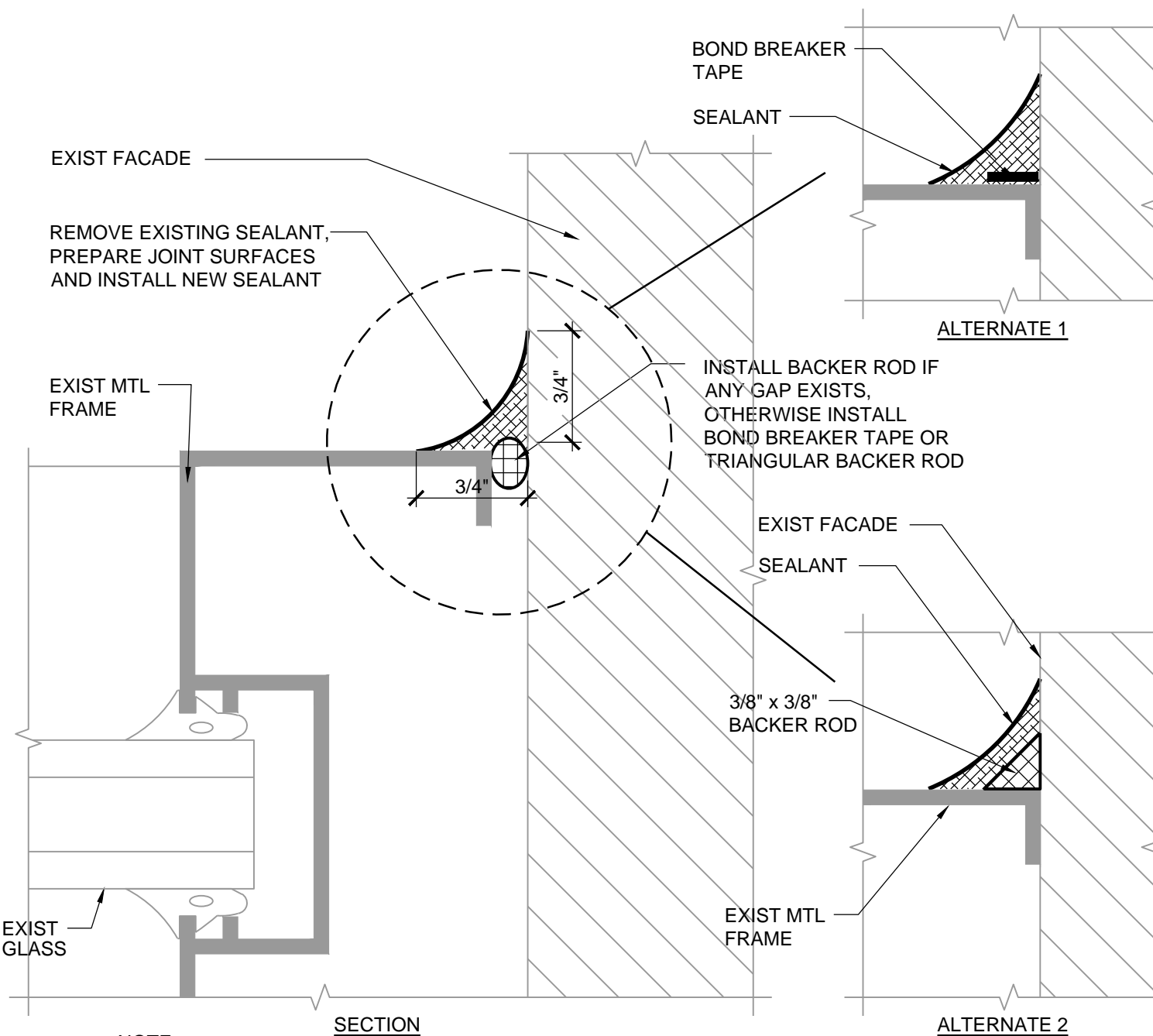
REMOVE EXISTING
GROUT AND INSTALL
SEALANT PER W.I. 11.7

CLEAN AND PAINT
LIGHT POLE BASE. SEE
SPECIFICATION
SECTION 020010 FOR
ADD'L INFO

45.8 CLEAN AND PAINT LIGHT POLE BASE

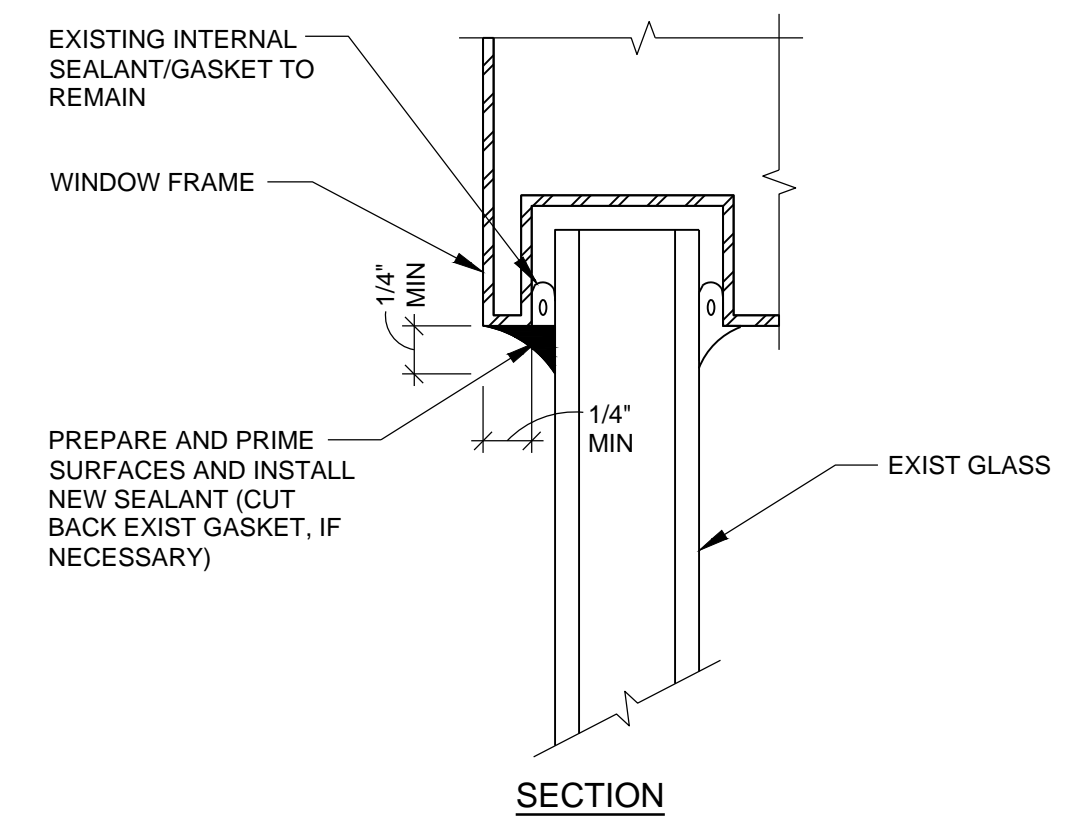


95.1 WINDOW FRAME/FACADE JOINT
WORK ITEMS 95.1 A, C, E & G



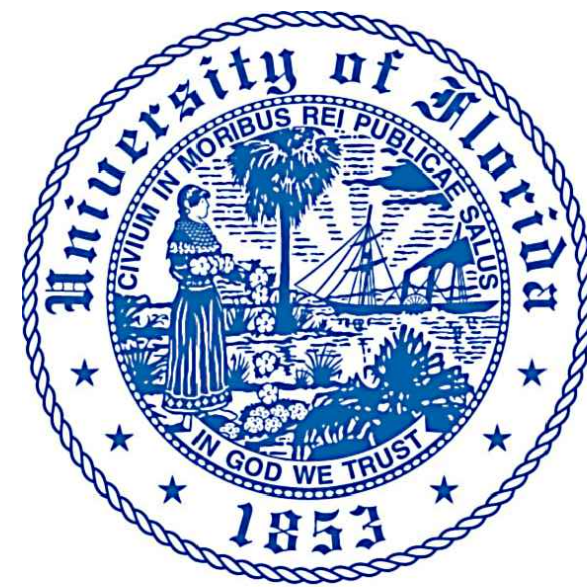
NOTE:
1. REMOVE EXISTING JOINT FILLER AND INSTALL BACKER ROD/BOND
BREAKER SHOWN SHALL REMAIN, APPLY BOND BREAKER AS SHOWN.

95.1.1 RESEAL WINDOW
FRAME/FACADE JOINT (JAMB)



NOTE:
1. IF GLAZING GASKETS ARE PRESENT, OR GLAZING TAPE EXTENDS BEYOND FRAME,
CUT BACK GASKET / TAPE FLUSH WITH FRAME. DO NOT DAMAGE GLASS.

95.2 WINDOW GLAZING CAP SEAL



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GAINESVILLE, FLORIDA

UF Project No.: MP07393

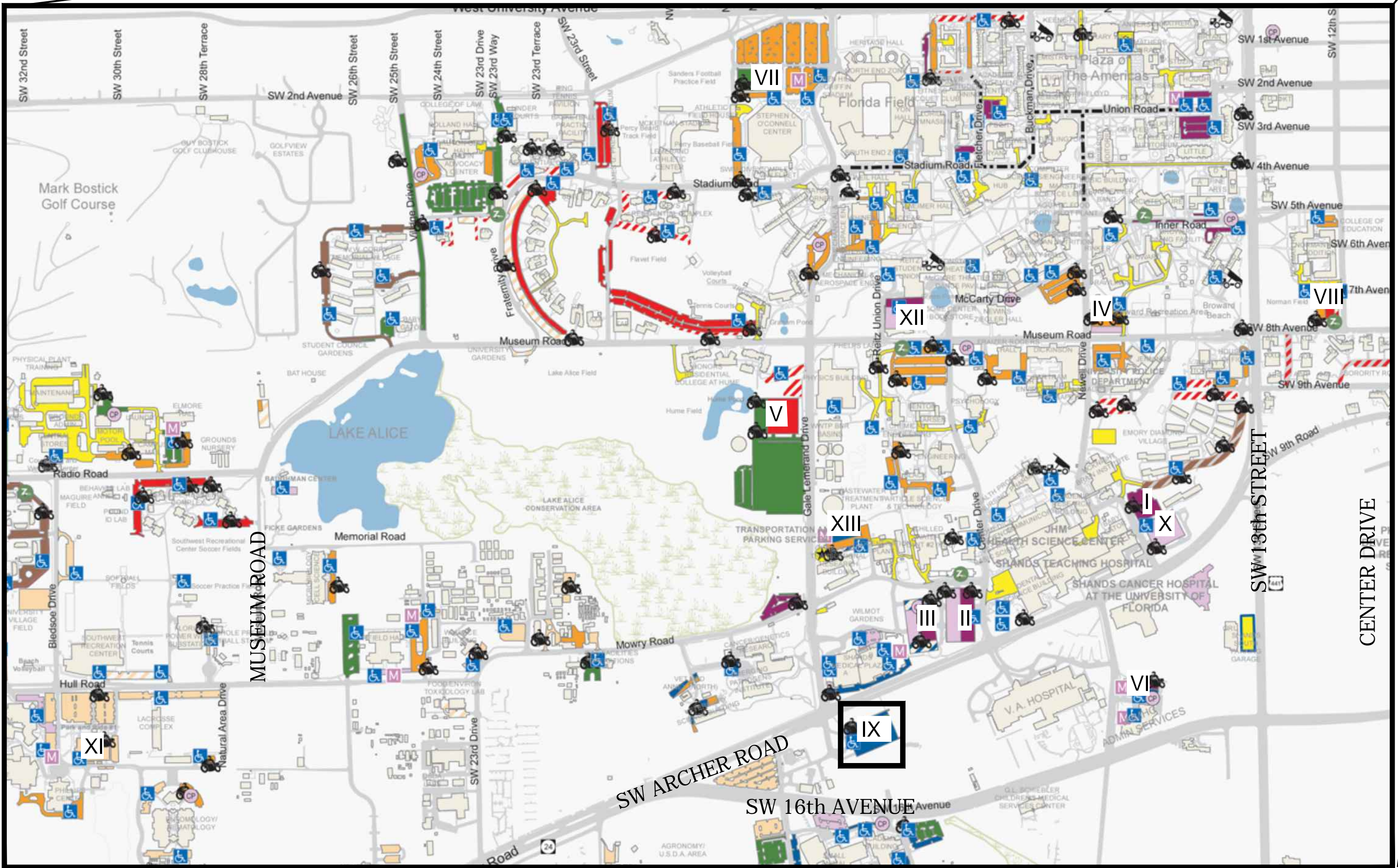
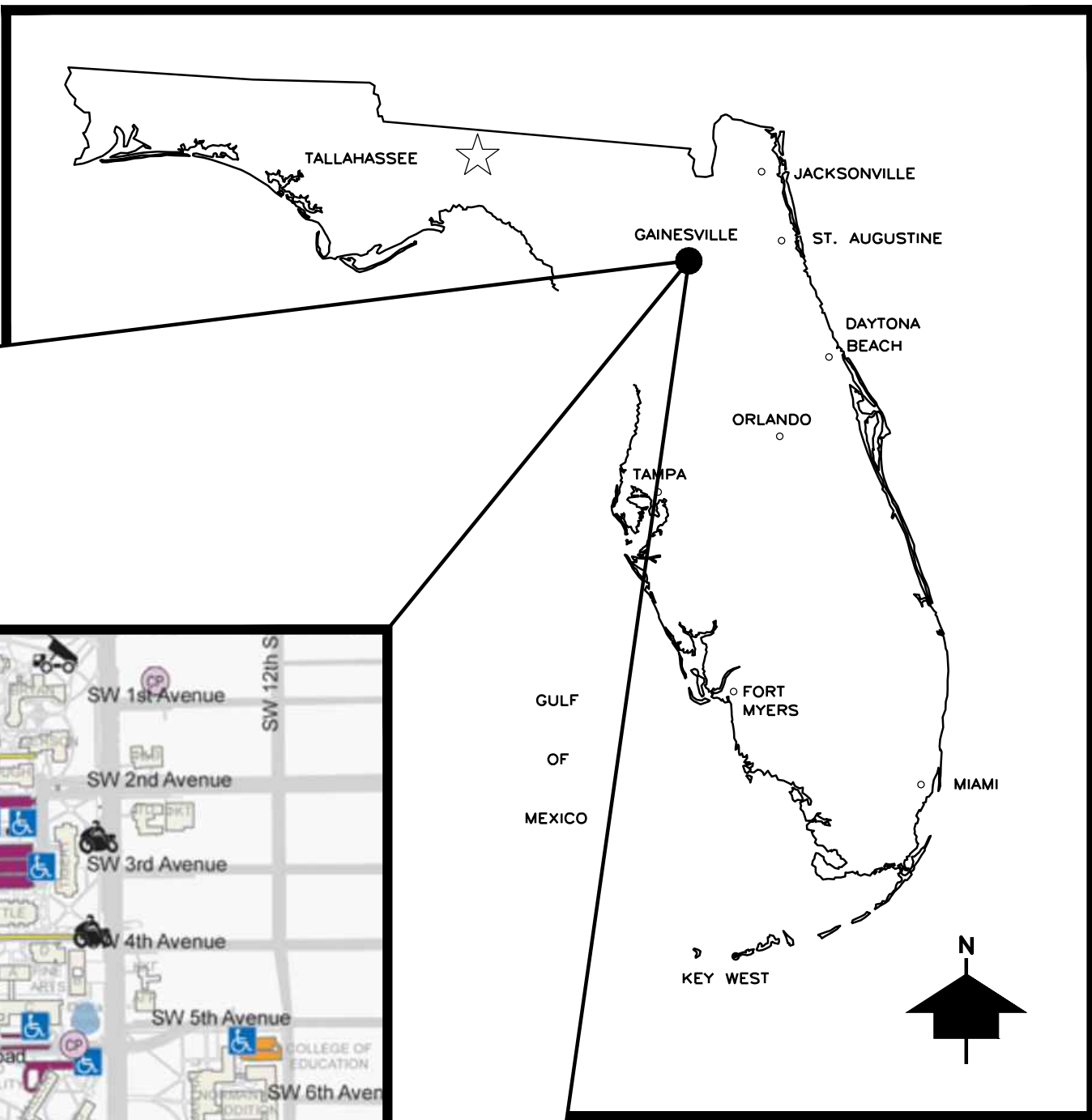
SHEET INDEX

RESTORATION

NO.	SHEET NAME
G-000	COVER SHEET
R-001	GENERAL NOTES
R-002	WORK ITEM SCHEDULE
R-101	GARAGE IX-IXA - GROUND LEVEL PLAN
R-102	GARAGE IX-IXA - LEVEL 2 PLAN
R-103	GARAGE IX-IXA- LEVEL 3 PLAN
R-104	GARAGE IX-IXA- LEVEL 4 PLAN
R-105	GARAGE IX-IXA- TOP LEVEL PLAN
R-501	REPAIR DETAILS
R-502	REPAIR DETAILS
R-503	REPAIR DETAILS

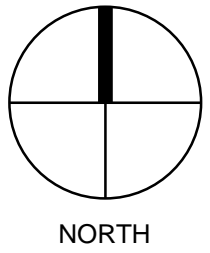
LOCATION MAP

N.T.S.



AREA MAP

N.T.S.



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06.10.22



WALKER CONSULTANTS

4904 Eisenhower Blvd
Suite 150
Tampa, FL 33634
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BE-0003840
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Project Number: 15-002562.10 127 of 137

Plot Date: Jun 10, 2022 - 8:34am - 2562-10_UF_R-001 (IX).dwg

MATTHEW P. DOUGHERTY
P.E. NO. 83178

TO THE BEST OF THE ENGINEER'S
KNOWLEDGE, THE PLANS AND
SPECIFICATIONS COMPLY WITH THE
APPLICABLE MINIMUM BUILDING CODES
AND THE APPLICABLE FIRE SAFETY
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PARKING STRUCTURE REPAIRS 2021
GARAGE IX -IXA
GAINESVILLE
FLOR

[illegible]

PROJECT NO: 15-002562.10

DRAWN BY: MCB

CHECKED BY: MPD

SHEET TITLE:

WORK ITEM SCHEDULE

R-002

WORK ITEM	DESCRIPTION	UNITS	GROUND LEVEL	LEVEL 2	LEVEL 3	LEVEL 4	ROOF LEVEL	TOTAL QUANTITY
1.0	GENERAL REQUIREMENTS							
1.1	Project Mobilization	L.S.	XX	XX	XX	XX	XX	1
1.3	Concrete Shores and Reshores	Incidental to W.I. 1.1						
1.4	Concrete Reinforcement							
1.5	Temporary Signage							
1.7	Owner's Contingency	L.S.	XX	XX	XX	XX	XX	1
3.0	CONCRETE FLOOR REPAIR							
3.1	Floor Repair - Partial Depth	S.F.	0	25	30	50	88	193
4.0	CONCRETE CEILING REPAIR							
4.1	Ceiling Repair - Partial Depth	S.F.	0	0	0	10	0	10
6.0	CONCRETE COLUMN REPAIR							
6.1	Column Repair - Partial Depth	S.F.	0	0	0	0	70	70
7.0	CONCRETE WALL REPAIR							
7.1	Wall Repair - Partial Depth	S.F.	0	1	1	6	15	23
7.5	Wall Repair - Lifting Lug/Wall Grout Pocket	EA.	0	0	3	2	113	118
9.0	EXPANSION JOINT PREPARATION							
9.3	Expansion Joint Preparation - Prepare Block-out	L.F.	0	180	60	60	140	440
10.0	EXPANSION JOINT REPAIR AND REPLACEMENT							
10.3	Expansion Joint- Elastomeric Concrete Edged	L.F.	0	180	60	60	140	440
10.7	Expansion Joint- Foam Seal	L.F.	0	0	0	0	16	16
11.0	CRACK AND JOINT REPAIR							
11.1	Seal Cracks and Joints	L.F.	0	100	100	300	500	1000
11.2	Repair Crack / Joint Sealant	L.S. (L.F.)*	0	0	320	3850	4080	1 (8250)
11.3	Vertical Joint Sealant	L.S. (L.F.)*	0	0	24	260	910	1 (1186)
11.4	Repalce Tee-to-Tee Joint Sealant	L.S. (L.F.)*	0	0	710	8500	8500	1 (17710)
11.5	Epoxy Injection	L.F.	50	200	50	50	0	350
11.7	Cove Sealant	L.S. (L.F.)*	0	0	110	2930	2930	1 (5970)
11.8	Replace Flashing Sealant	L.F.	0	90	0	0	0	90
11.9	Replace Louver Frame Sealant	L.F.	0	0	0	0	10	10
15.0	PROTECTIVE SEALER							
15.1	Concrete Sealer - Floors	L.S. (S.F.)*	0	0	0	7200	86380	1 (93580)
16.0	TRAFFIC TOPPING							
16.4	Traffic Topping - Recoat	S.F.	0	1800	0	0	0	1800
25.0	MECHANICAL - DRAINAGE							
25.6	Clean Existing Floor Drains	L.S.	XX	XX	XX	XX	XX	1
43.0	MISCELLANEOUS METALS							
43.3	Reset Guardrail	EA.	0	0	2	0	1	3
43.4	Guardrail Repair - Edge Spall	EA.	1	2	2	1	1	7
45.0	PAINTING							
45.1	Paint Traffic Markings	L.S. (S.F.)*	0	0	7200	86380	86380	1 (179960)
45.5	Clean and Paint Bollard/Pipe Guard	EA.	0	0	0	0	6	6
45.9	Clean and Paint Light Pole Base Cover	EA.	0	0	0	0	8	8
*For information only								

NOTES:

1. XX Lump Sum work to be performed on this level

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MATTHEW P. DOUGHERTY
P E NO 83178

TO THE BEST OF THE ENGINEER'S
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PARKING STRUCTURE REPAIRS 2021

GARAGE IX -IXA

FLORIDA

GAINESVILLE

[illegible]

PROJECT NO: 15-002562.10

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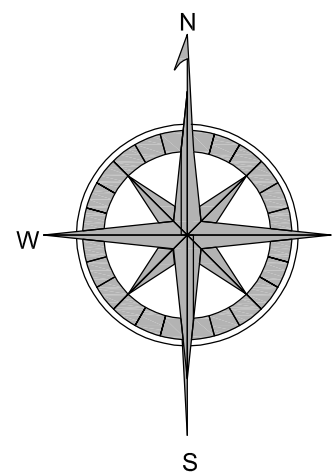
CHECKED BY: MPD

SHEET TITLE:

**GARAGE IX-IXA
GROUND LEVEL
PLAN**





R-101

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WORK ITEM IDENTIFICATION LEGEND

GENERAL LEGEND

- | | |
|---|-------------------------------|
|  | EXPANSION JOINT
(EJ) |
|  | FLOOR SPALL OR DELAMINATION |
|  | CEILING SPALL OR DELAMINATION |
|  | EXISTING FLOOR DRAIN (FD) |

WORK ITEM NUMBER

WORK ITEM NOTE

(SEE ABBREVIATIONS)

NOTES:

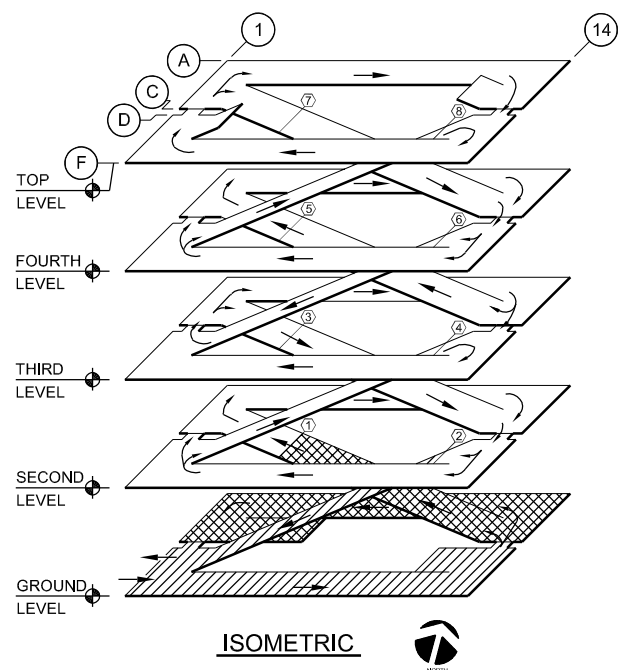
1. NOT ALL WORK ITEMS HAVE DETAILS.
2. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION

SHEET NOTES:

1. SEE SHEET R-001 FOR GENERAL NOTES.
2. SEE SHEETS R-002 FOR SCHEDULE OF WORK ITEMS (W.I.).
3. SEE SHEETS R-501 SERIES FOR DETAILS.
4. FIELD VERIFY ALL INFORMATION SHOWN ON PLANS.

GARAGE IX-IXA GROUND LEVEL PLAN

1



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P E NO 83178

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GARAGE IX - IXA

FLORIDA

GAINESVILLE

[illegible]

PROJECT NO: 15-002562.10

DRAWN BY: MCB

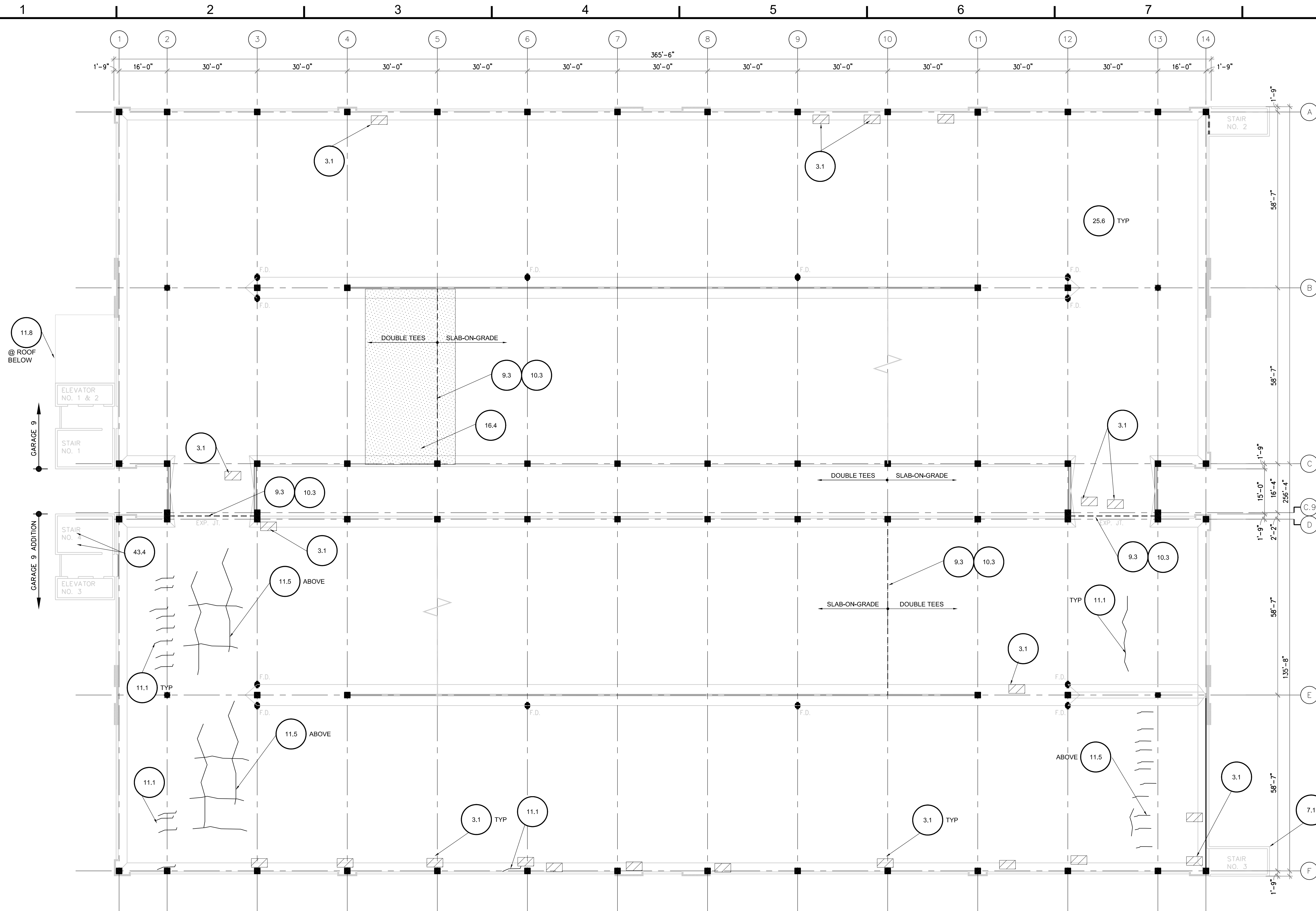
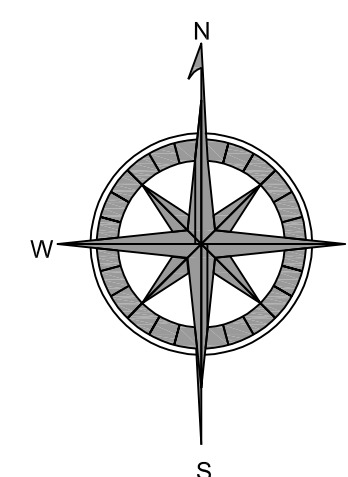
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SHEET TITLE:

GARAGE IX-IXA
LEVEL 2 PLAN

R-102






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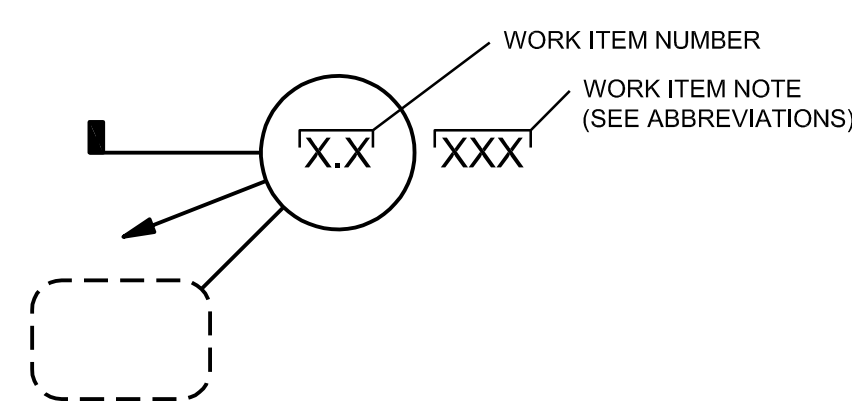
1 GARAGE IX-IXA
LEVEL 2 PLAN

- SHEET NOTES:**
1. SEE SHEET R-001 FOR GENERAL NOTES.
 2. SEE SHEETS R-002 FOR SCHEDULE OF WORK ITEMS (W.I.)
 3. SEE SHEETS R-501 SERIES FOR DETAILS.
 4. FIELD VERIFY ALL INFORMATION SHOWN ON PLANS.

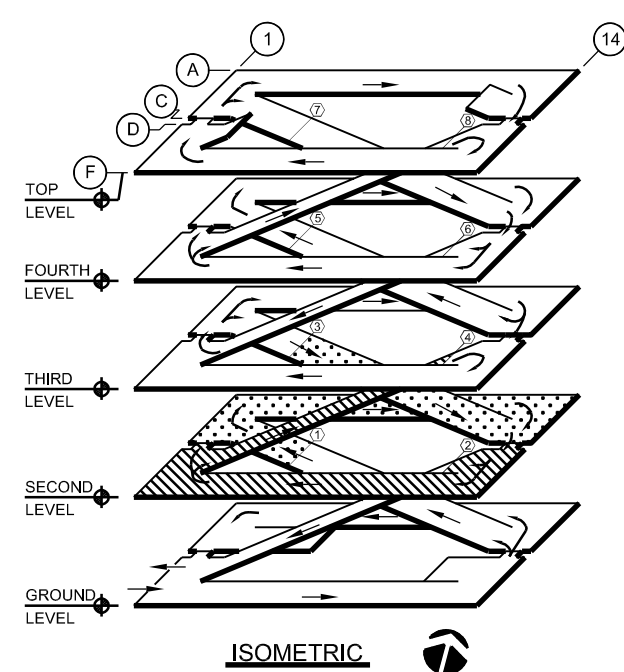
GENERAL LEGEND

- | | |
|---|-------------------------------|
|  | EXPANSION JOINT
(EJ) |
|  | FLOOR SPALL OR DELAMINATION |
|  | CEILING SPALL OR DELAMINATION |
|  | EXISTING FLOOR DRAIN (FD) |
|  | TRAFFIC TOPPING RECOAT |

WORK ITEM IDENTIFICATION LEGEND



- NOTES:
1. NOT ALL WORK ITEMS HAVE DETAILS.
 2. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION



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GARAGE IX - IXA

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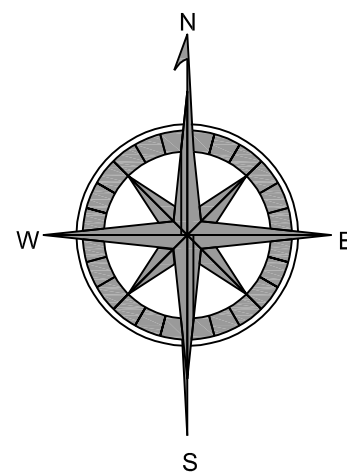
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PROJECT NO:	15-002562.10
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SHEET TITLE:	

GARAGE IX-IXA
LEVEL 3 PLAN

R-103

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WORK ITEM IDENTIFICATION LEGEND

WORK ITEM NUMBER

WORK ITEM NOTE
(SEE ABBREVIATIONS)

NOTES:


1. NOT ALL WORK ITEMS HAVE DETAILS.
2. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION

SHEET NOTES:

1. SEE SHEET R001 FOR GENERAL NOTES.
2. SEE SHEETS R002 & R003 FOR SCHEDULE OF WORK ITEMS (W.I.).
3. SEE SHEETS R501 THRU R504 FOR DETAILS.
4. FIELD VERIFY ALL INFORMATION SHOWN ON PLANS.

GENERAL LEGEND

--- EXPANSION JOINT

 FLOOR SPALL OR DELAMINATION CEILING SPALL OR DELAMINATION

FD EXISTING FLOOR DRAIN (FD)

MATTHEW P. DOUGHERTY
P E NO 83178

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GARAGE IX -IXA
NESVILLE FLORIDA

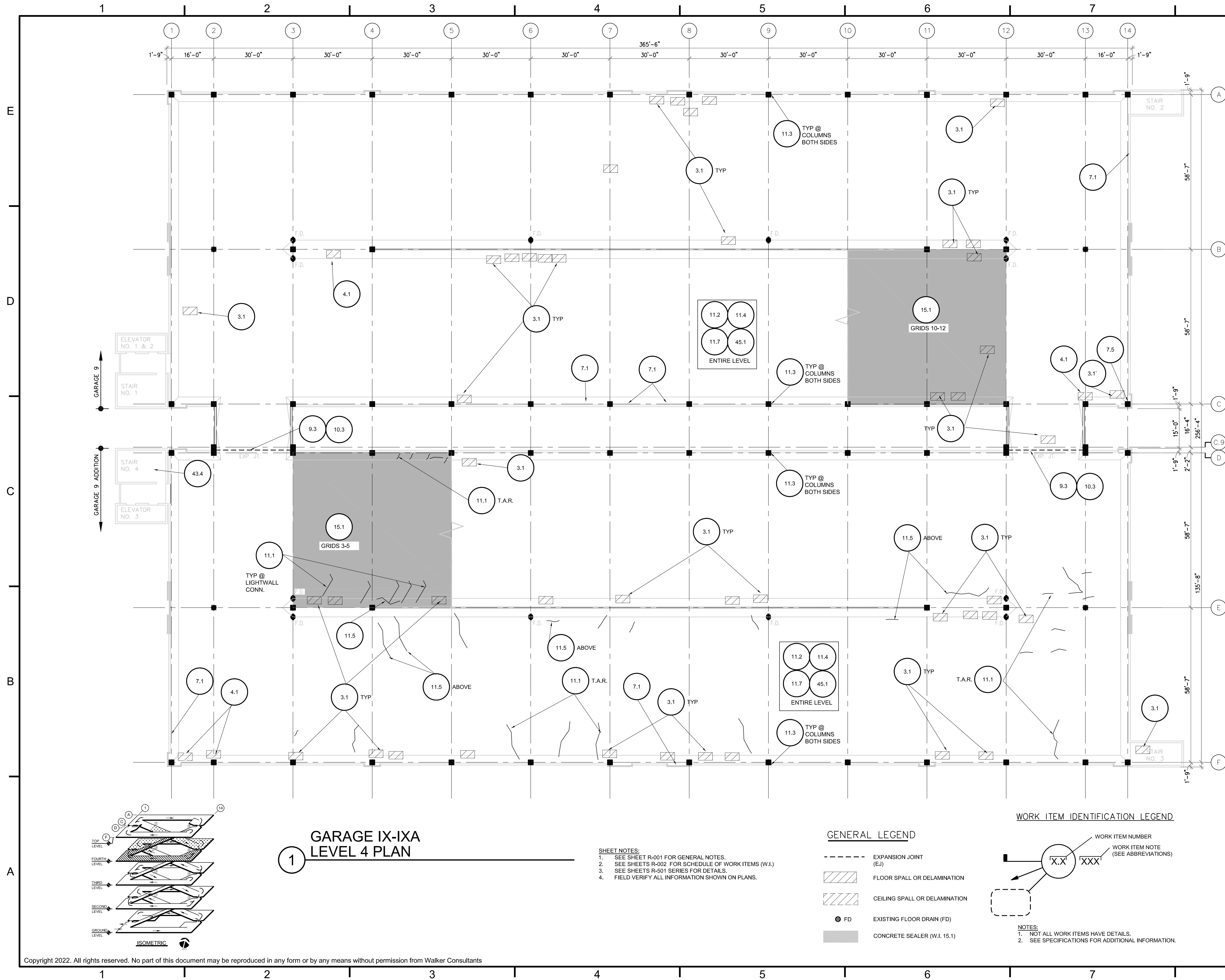
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PROJECT NO:	15-002562.10
DRAWN BY:	MCB
CHECKED BY:	MPD
SHEET TITLE:	

GARAGE IX-IXA
LEVEL 4 PLAN

R-104



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GARAGE IX -IXA

GAINESVILLE

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PROJECT NO:	15-002562.10
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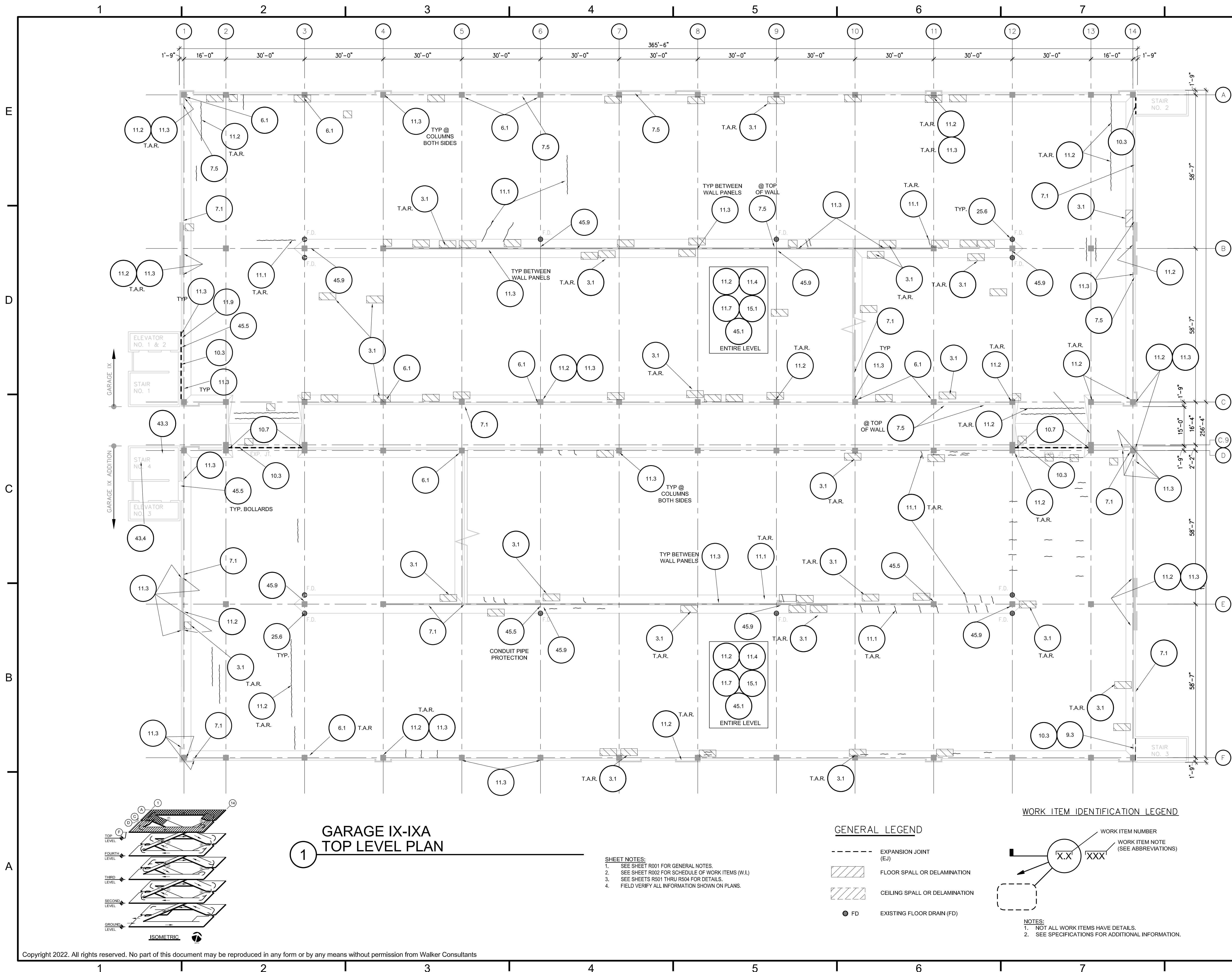
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SHEET TITLE:

GARAGE IX-IXA
TOP LEVEL
PLAN

R-105



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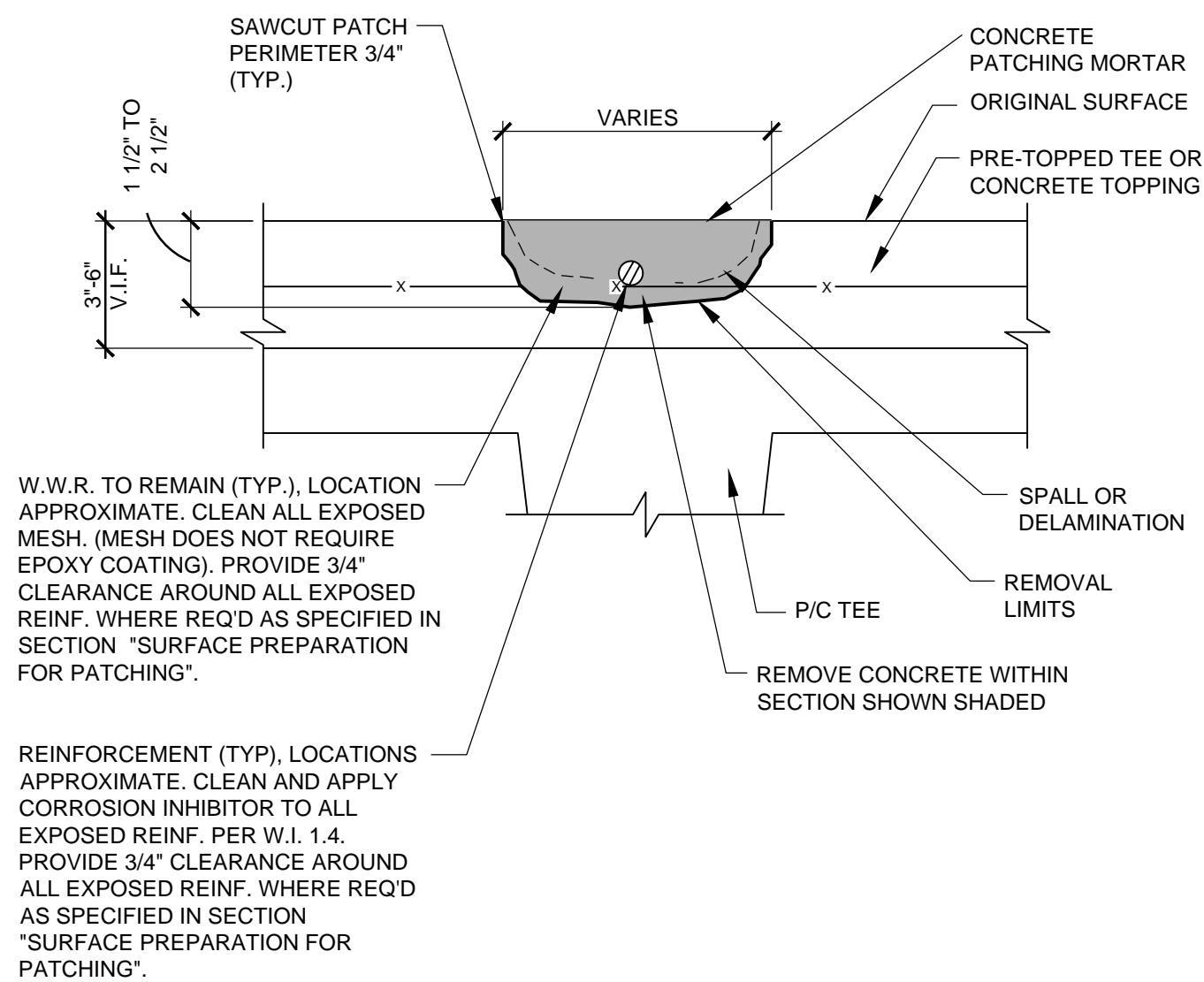
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PARKING STRUCTURE REPAIRS 2021

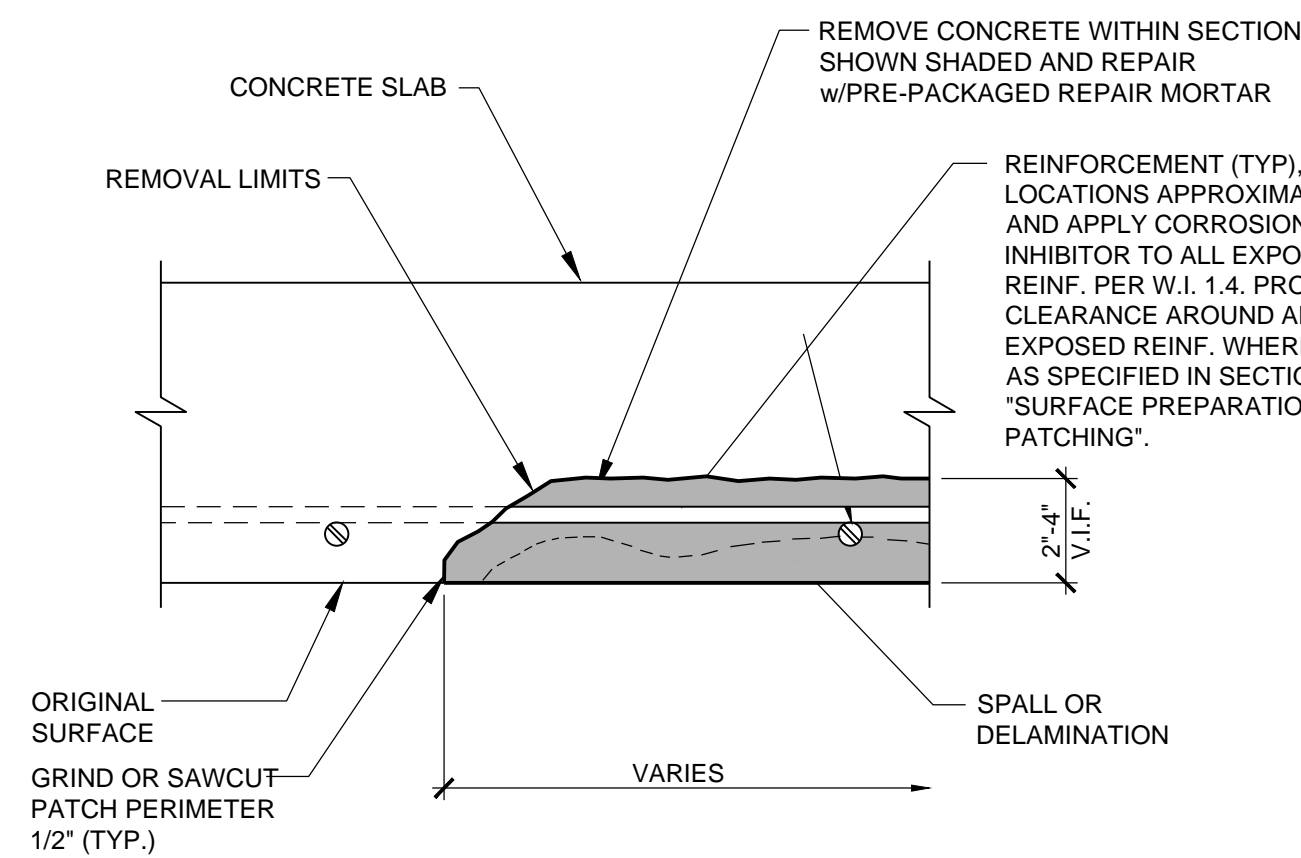
GARAGE IX - IXA

FLORIDA

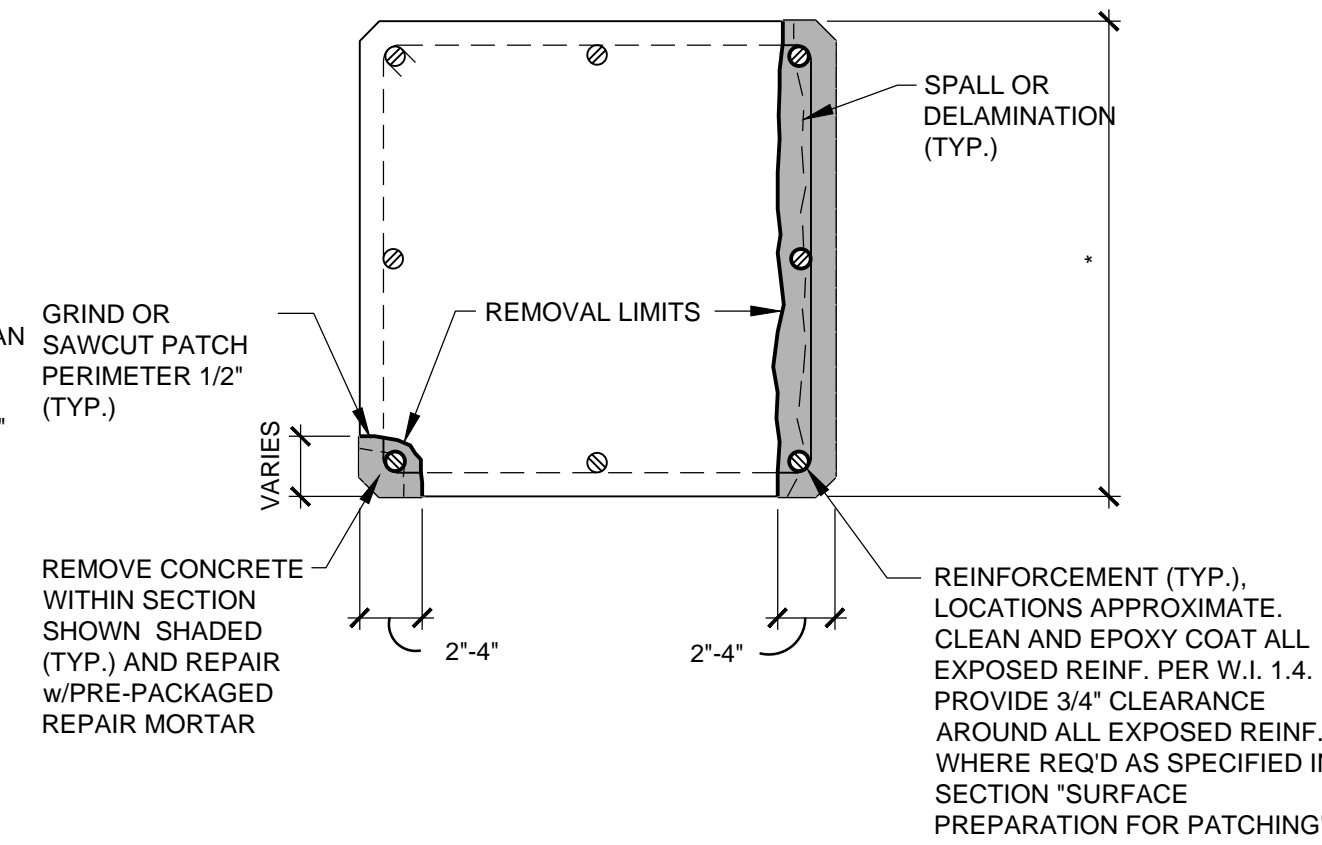
GAINESVILLE



3.1 FLOOR REPAIR-PARTIAL DEPTH

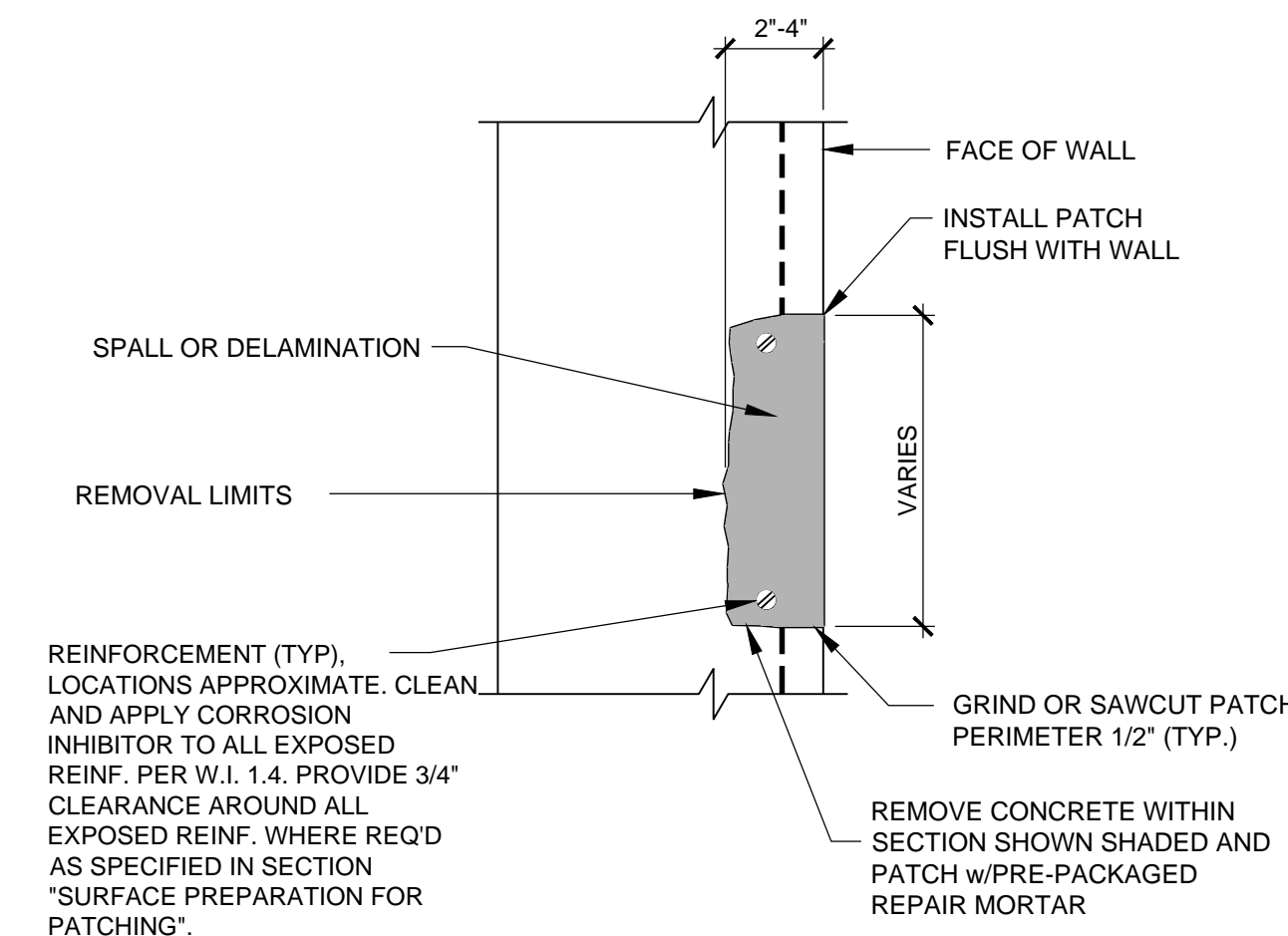


4.1 CEILING REPAIR-PARTIAL DEPTH

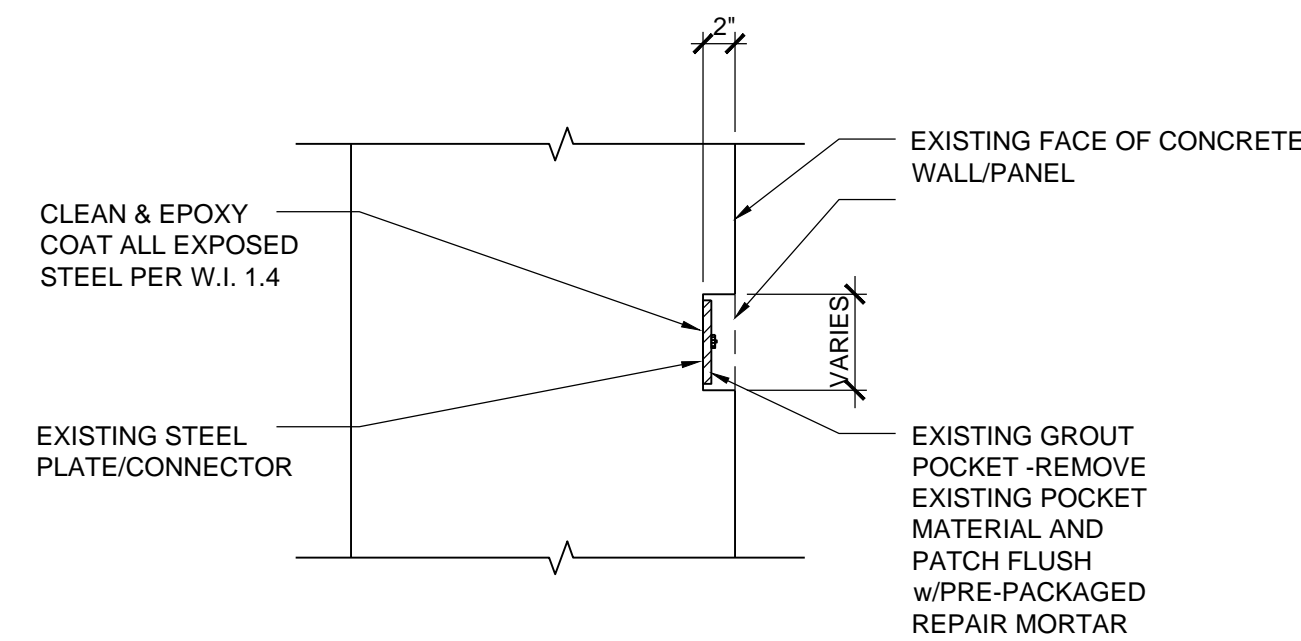


- NOTES:**
1. COLUMN TIES WHICH HAVE LOST MORE THAN 15% OF ORIGINAL CROSS SECTIONAL AREA SHALL BE SUPPLEMENTED AS ENGINEER DIRECTS.
 2. NUMBER AND LOCATION OF REINFORCEMENT SHOWN MAY DIFFER FROM ACTUAL FIELD CONDITIONS.
 3. REPAINT TO MATCH EXISTING FINISH AFTER COMPLETION.

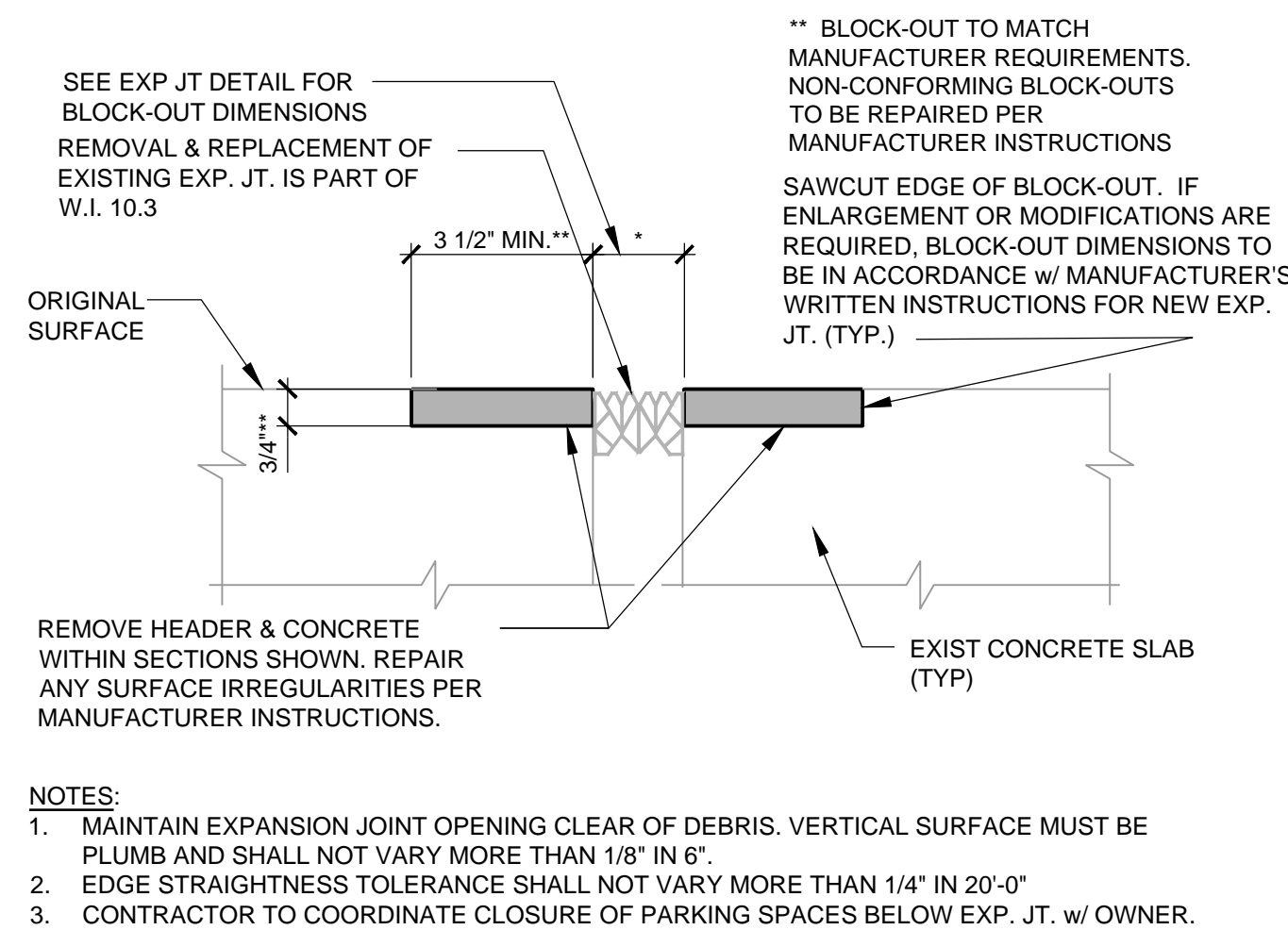
6.1 COLUMN REPAIR-PARTIAL DEPTH



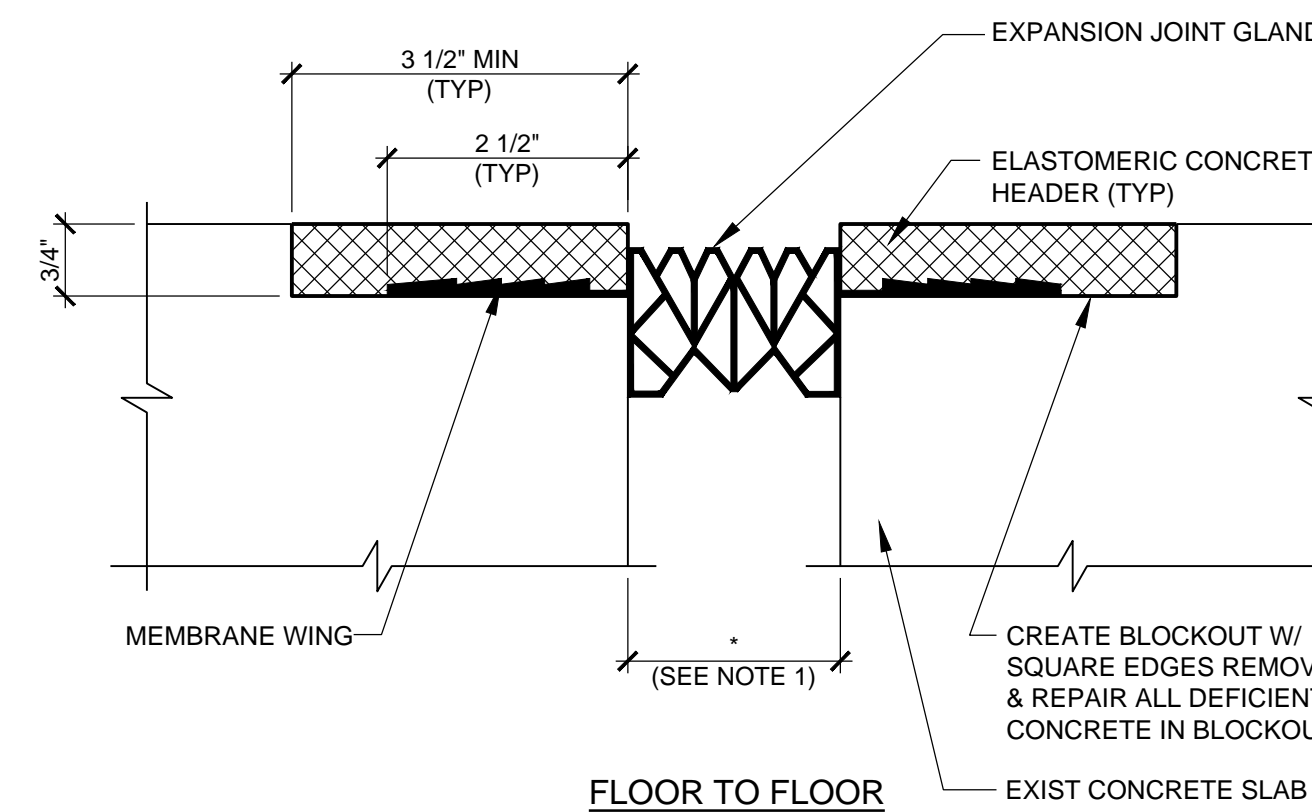
7.1 WALL REPAIR-PARTIAL DEPTH



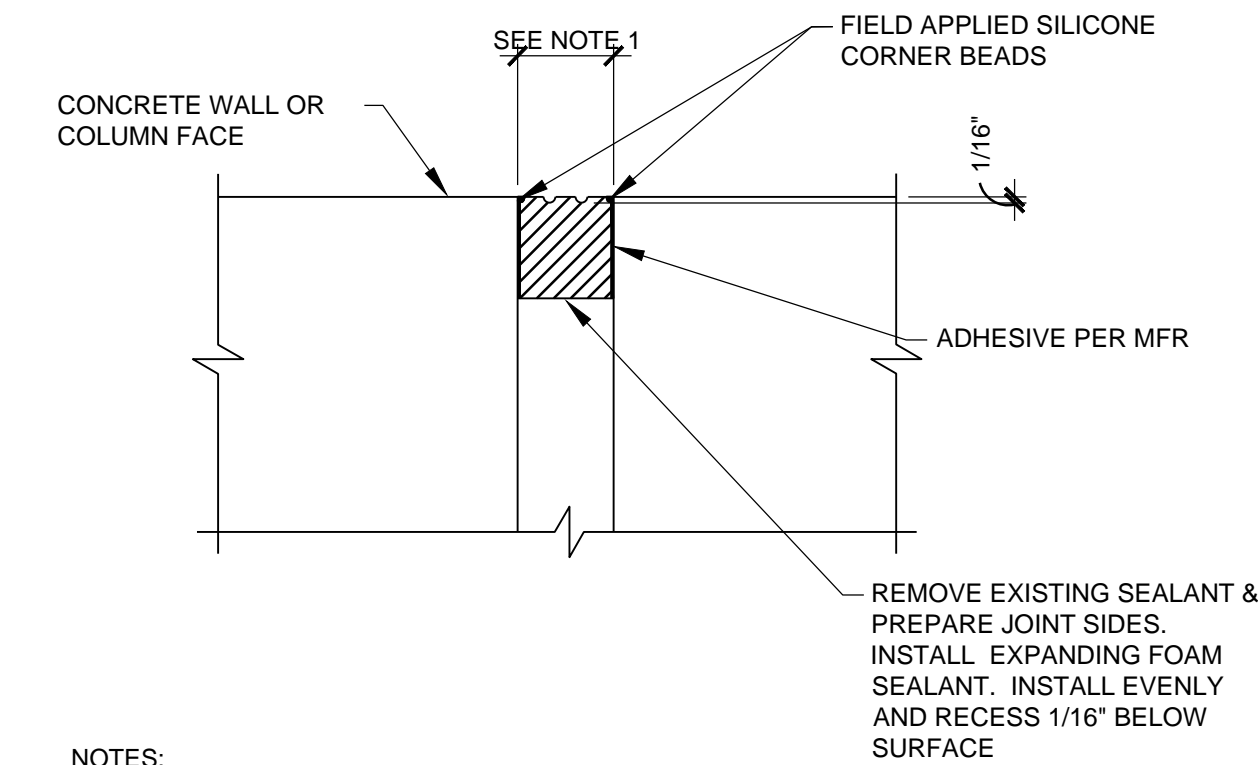
WALL REPAIR - LIFTING LUG/
WALL GROUT POCKET



EXPANSION JOINT PREPARATION- PREPARE BLOCK-OUT



EXPANSION JOINT-ELASTOMERIC
CONCRETE EDGED



VERTICAL JOINT SEALANT-FOAM SEAL

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[illegible]

PROJECT NO: 15-002562.10

DRAWN BY: MCB

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SHEET TITLE:

REPAIR
DETAILS

R-501

Plot Date: Jun 10, 2022 - 8:38am - 2562-10_UF_R-501 (IX).dwg



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GARAGE IX -IXA
FLORIDA
GAINESVILLE

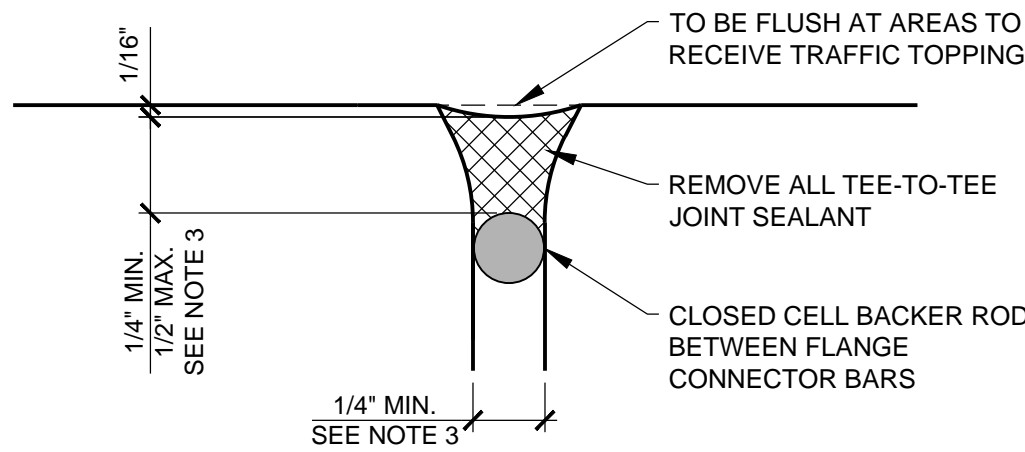
NO.	DATE	DESCRIPTION	ISSUED

PROJECT NO: 15-002562.10
DRAWN BY: MCB
CHECKED BY: MPD
SHEET TITLE:

REPAIR
DETAILS

R-502

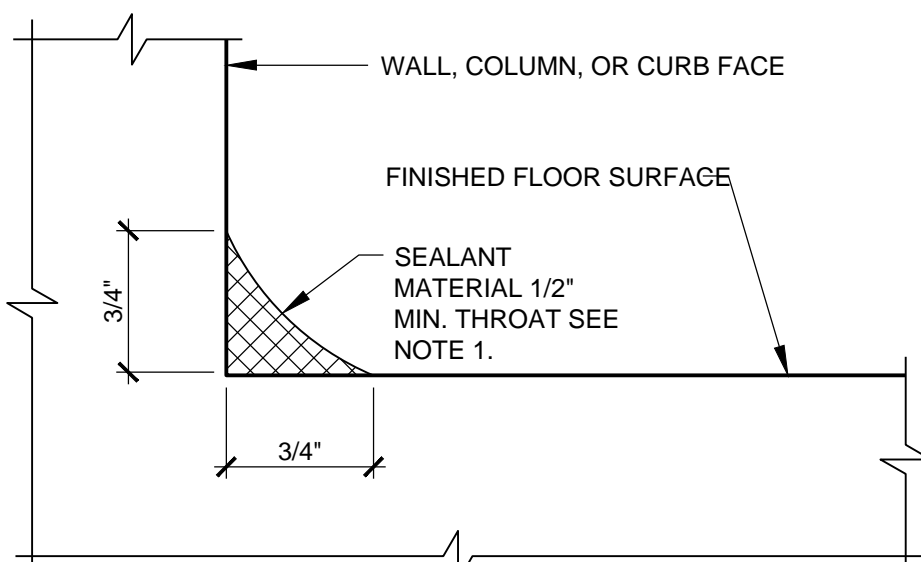
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- NOTES:
- SEALANT SHALL BE REMOVED BY MECHANICAL METHOD THAT LIMITS GROWTH OF JOINT WIDTH TO A MAXIMUM OF 1/8".
 - JOINTS MUST BE PRIMED PRIOR TO SEALANT INSTALLATION.
 - EXISTING JOINT WIDTHS VARY. NEW SEALANT DEPTH SHALL BE 50% TO 60% OF JOINT WIDTH. WHERE EXISTING JOINT WIDTH ALLOWS.
 - PROVIDE BOND BREAKER TAPE OVER EXISTING FLANGE CONNECTORS WHERE BACKER RODS WILL BE INTERRUPTED.

REPLACE TEE TO TEE JOINT SEALANT

11.4



- NOTE:
1. REMOVE EXISTING COVE SEALANT MATERIAL IF PRESENT. PREPARE SURFACE PER SPECIFICATIONS.

COVE SEALANT

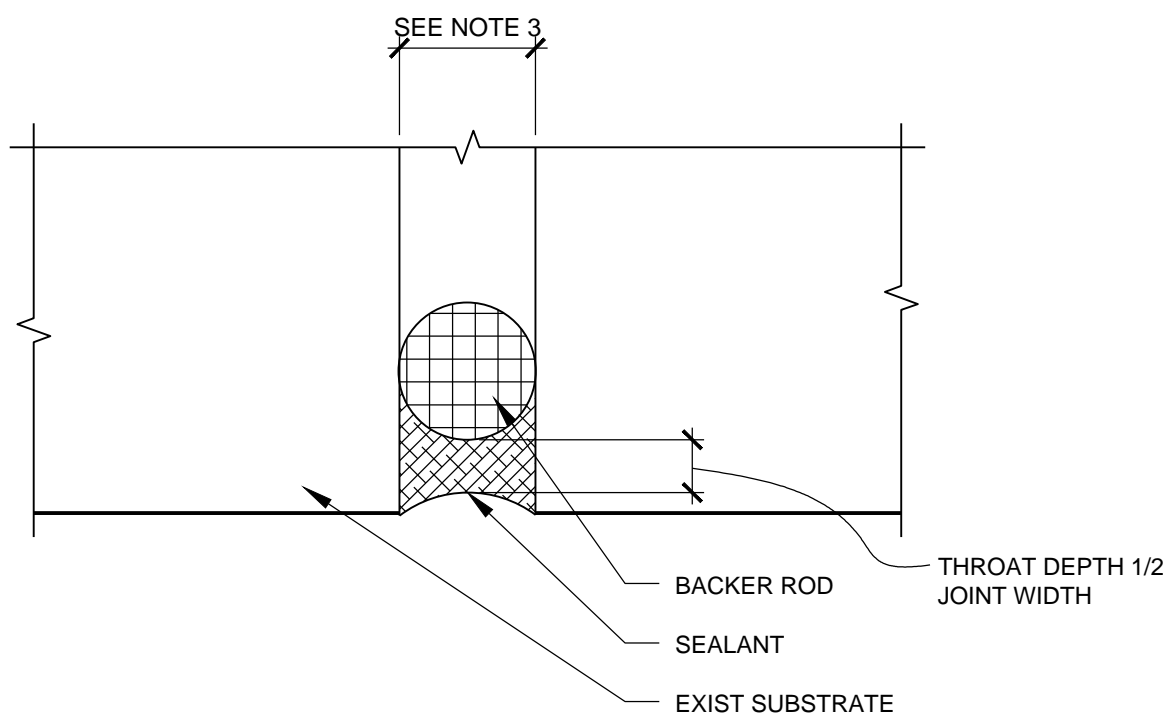
11.7



- NOTES:
REFER TO SECTION 020010 OF THE
SPECIFICATIONS FOR EXECUTION
INFORMATION

REPLACE LOUVER FRAME SEALANT

11.9



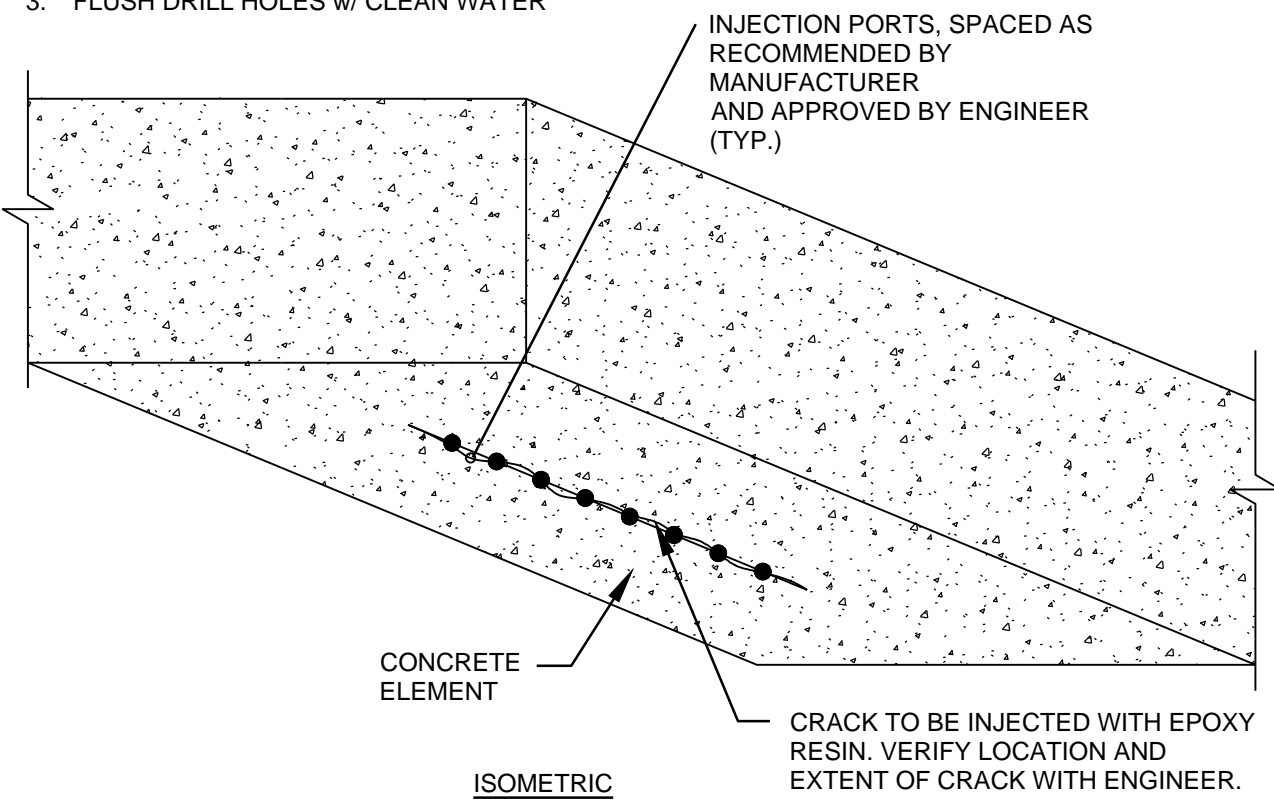
- NOTES:
- CLEAN JOINT SUBSTRATE BY SAND & AIR BLASTING.
 - PREPARE AND PRIME SEALANT CAVITY & INSTALL SEALANT ACCORDING TO SEALANT MANUFACTURER'S RECOMMENDATIONS.
 - EXISTING JOINT WIDTHS MAY VARY. NEW SEALANT DEPTH SHALL BE 50% TO 60% OF JOINT WIDTH.

VERTICAL JOINT SEALANT

11.3

REFER TO W.I. 11.4.1 (FOR EXTENT OF JOINT WORK)

- NOTES:
- CLEAN SURFACE OF WALL TO IDENTIFY CRACK
 - SPACE DRILL HOLES AS RECOMMENDED BY MANUFACTURER
 - FLUSH DRILL HOLES W/ CLEAN WATER



EPOXY INJECTION

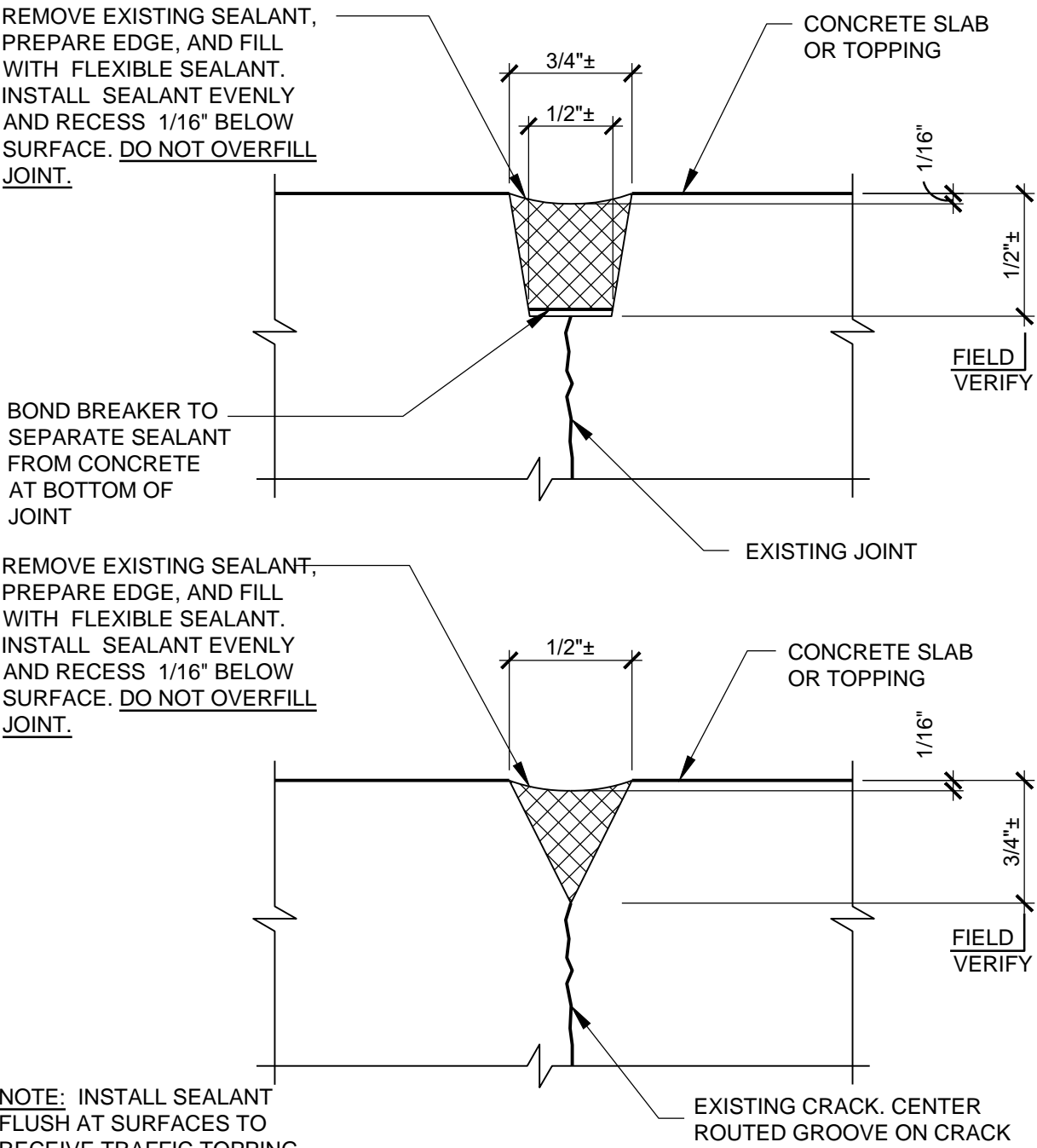
11.5



- NOTES:
REFER TO SECTION 020010 OF THE
SPECIFICATIONS FOR EXECUTION
INFORMATION

REPLACE FLASHING SEALANT

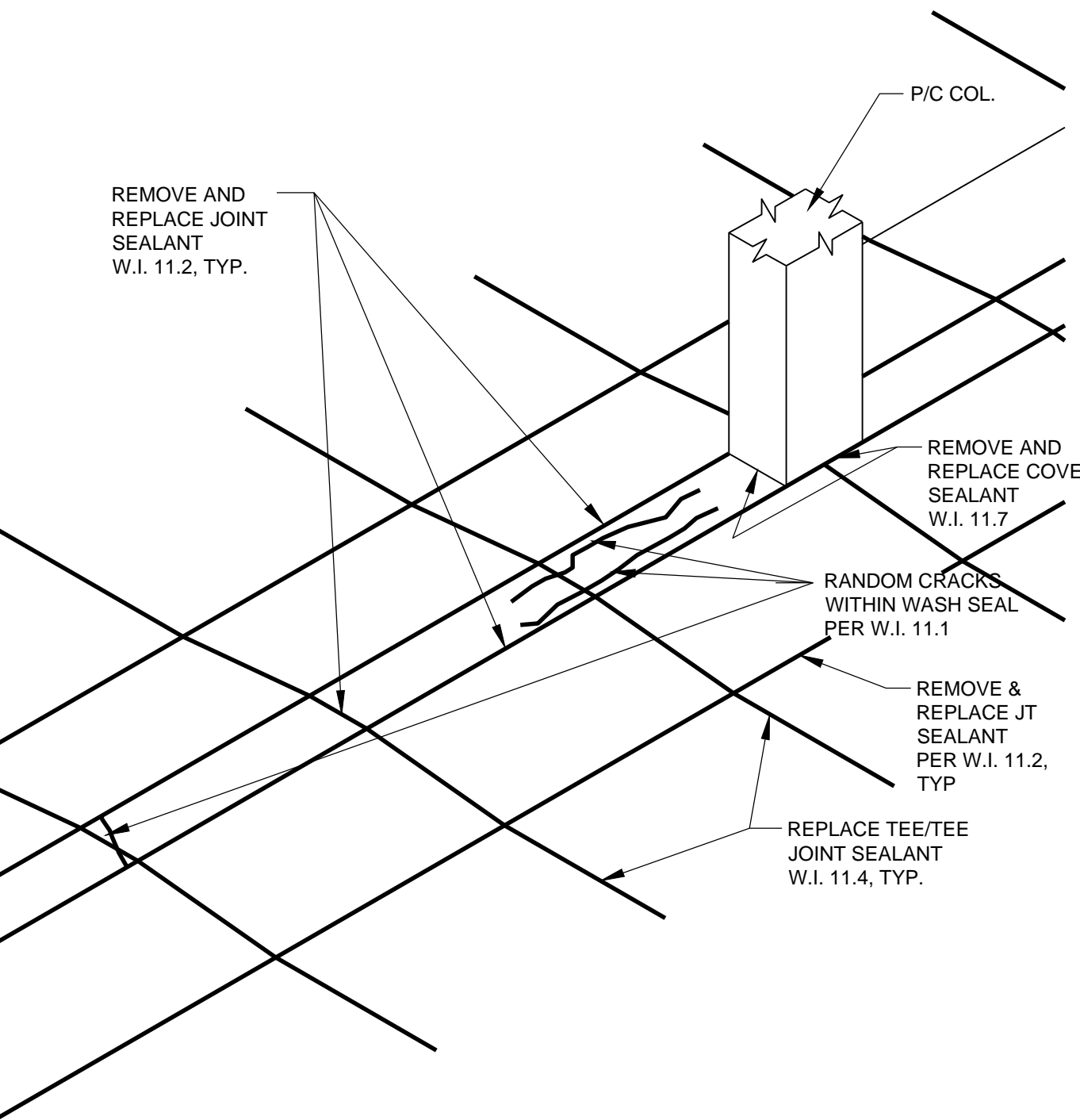
11.8



- NOTE: INSTALL SEALANT
FLUSH AT SURFACES TO
RECEIVE TRAFFIC TOPPING.

REPAIR CRACK/JOINT SEALANT

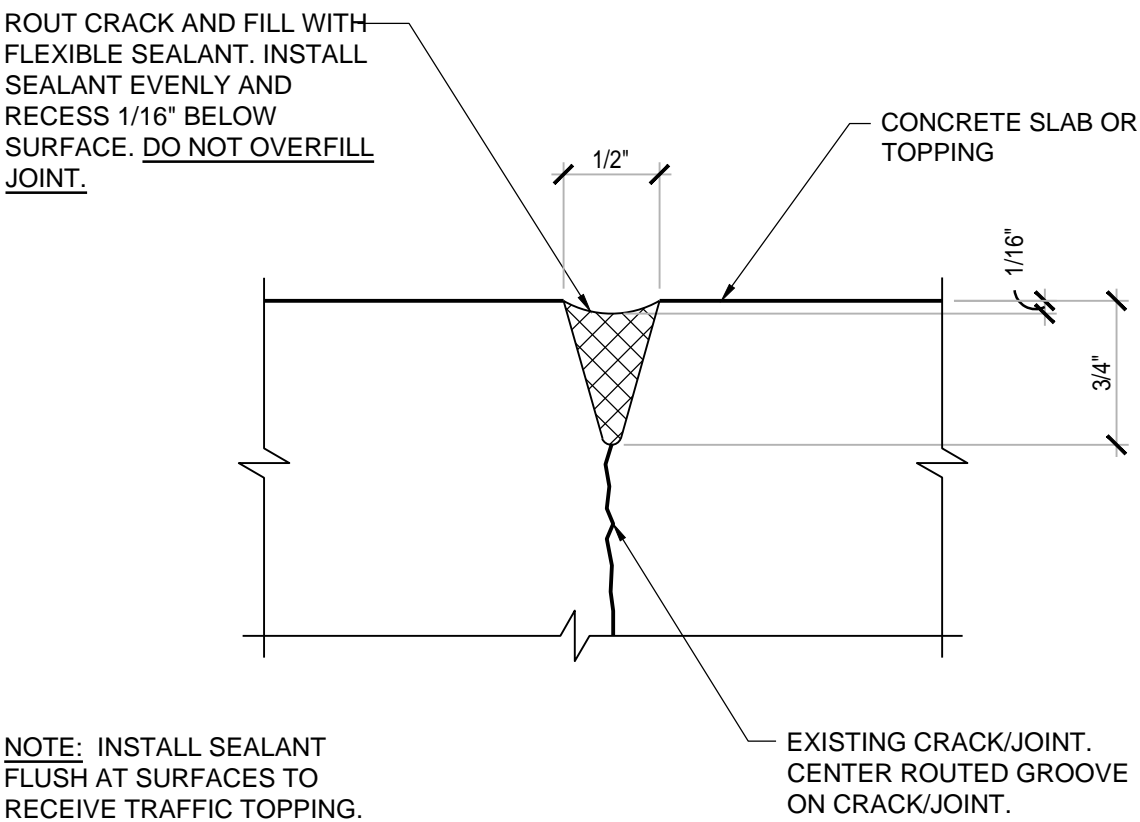
11.2



SEALANT ISOMETRIC @ ENDBAY DRIVE

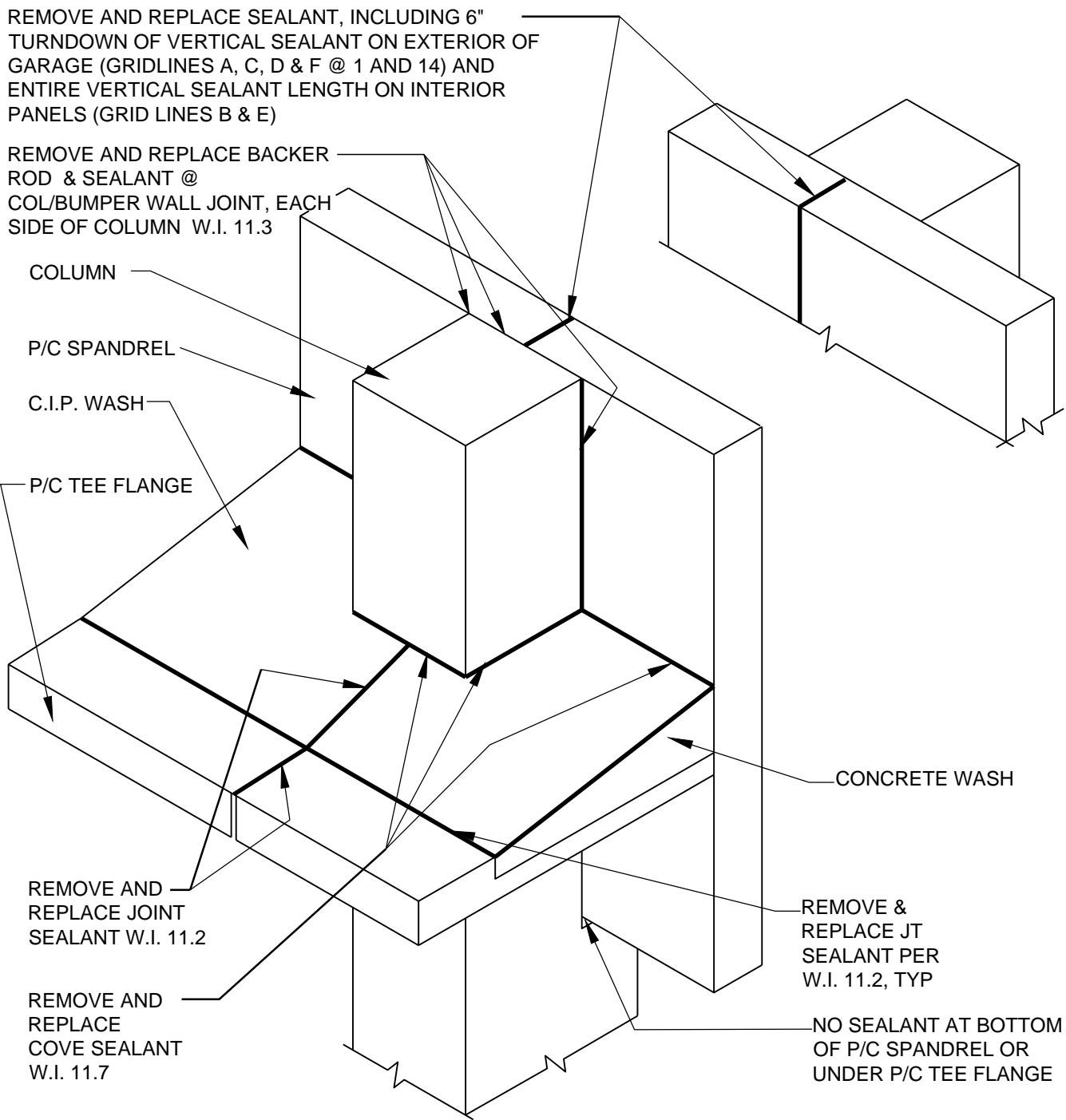
11.4.2

FOR CLARIFICATION ONLY



ROUT & SEAL RANDOM CRACKS

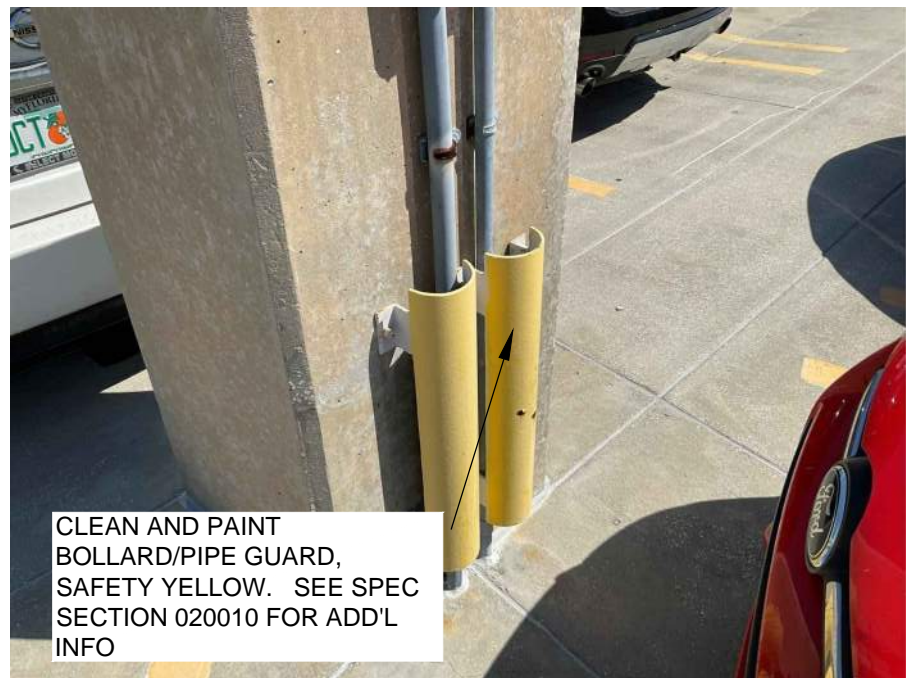
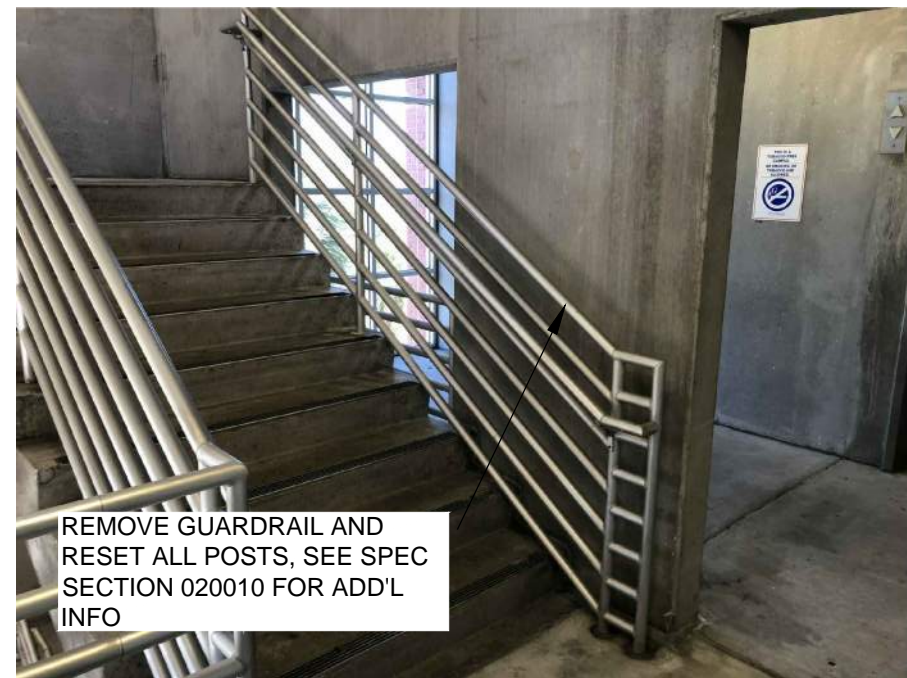
11.1



PERIMETER COLUMN PANEL ISOMETRIC

11.4.1

FOR CLARIFICATION ONLY



NOTES:

1. REMOVE EXISTING ALUMINUM NOSING AND ANCHOR DEVICES.
2. CONTRACTOR TO REMOVE ALL UNSOUND CONCRETE WITHIN REPAIR LOCATION. SAWCUT PATCH PERMITS 4"X4" TYP.
3. CONTRACTOR TO MATCH EXISTING FINISH ON STAIRS.
4. WHERE ALUMINUM NOSING IS IMPACTED, CONTRACTOR TO CUT NOSING BACK FROM REPAIR AREA AND RECESS TAP-CON SCREWS IN ALUMINUM PLATE. REPLACEMENT NOSING MATERIAL SHALL BE SIKADUR-22 LO-MOD WITH BLACK BEAUTY AGGREGATE OR APPROVED EQUAL.

CLEAN & PAINT BOLLARD/PIPE GUARD



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TO THE BEST OF THE ENGINEER'S
KNOWLEDGE, THE PLANS AND
SPECIFICATIONS COMPLY WITH THE
APPLICABLE MINIMUM BUILDING CODES
AND THE APPLICABLE FIRE SAFETY
STANDARD

UNIVERSITY OF
FLORIDA

UNIVERSITY OF FLORIDA

PARKING STRUCTURE REPAIRS 2021

GARAGE IX -IXA

GAINESVILLE
FLORIDA

[illegible]

PROJECT NO: 15-002562.10

DRAWN BY: MCB

CHECKED BY: MPD

SHEET TITLE:

REPAIR DETAILS

R-503

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