REQUEST FOR PROPOSALS

NKU-19-19

A&E Design Services

Kenton Drive Garage Restoration

November 15, 2018

Proposal NO:	NKU-19-19
Issue Date:	November 15, 2018
Title:	A& E Design Services – Kenton Drive Garage Restoration
Purchasing Officer:	Blaine Gilmore
Phone:	859.572.6449

RETURN ORIGINAL COPY OF PROPOSAL TO:

Procurement Services
617 Lucas Administrative Center
Highland Heights, KY 41099

IMPORTANT: BIDS MUST BE RECEIVED BY: 11/30/2018 BEFORE 2:00 P.M. HIGHLAND HEIGHTS, KY time.

NOTICE OF REQUIREMENTS

1. The University's General Terms and Conditions and Instructions to Bidders, viewable at http://procurement.nku.edu/policies/terms-and-conditions.html, apply to this Request for Proposal.
2. Contracts resulting from this RFP must be governed by and in accordance with the laws of the Commonwealth of Kentucky.
3. Any agreement or collusion among Offerors or prospective Offerors, which restrains, tends to restrain, or is reasonably calculated to restrain competition by agreement to bid at a fixed price or to refrain from offering, or otherwise, is prohibited.
4. Any person who violates any provisions of KRS 45A.325 shall be guilty of a felony and shall be punished by a fine of not less than five thousand dollars nor more than ten thousand dollars, or be imprisoned not less than one year nor more than five years, or both such fine and imprisonment. Any firm, corporation, or association who violates any of the provisions of KRS 45A.325 shall, upon conviction, may be fined not less than ten thousand dollars or more than twenty thousand dollars.

AUTHENTICATION OF BID AND STATEMENT OF NON-COLLUSION AND NON-CONFLICT OF INTEREST

I hereby swear (or affirm) under the penalty for false swearing as provided by KRS 523.040:

1. That I am the offeror (if the offeror is an individual), a partner, (if the offeror is a partnership), or an officer or employee of the bidding corporation having authority to sign on its behalf (if the offeror is a corporation);
2. That the attached proposal has been arrived at by the offeror independently and has been submitted without collusion with, and without any agreement, understanding or planned common course of action with, any other Contractor of materials, supplies, equipment or services described in the Request for Proposal, designed to limit independent bidding or competition;
3. That the contents of the proposal have not been communicated by the offeror or its employees or agents to any person not an employee or agent of the offeror or its surety on any bond furnished with the proposal and will not be communicated to any such person prior to the official closing of the RFP:
4. That the offeror is legally entitled to enter into contracts with the Northern Kentucky University and is not in violation of any prohibited conflict of interest, including those prohibited by the provisions of KRS 45A.330 to .340, 164.390, and
5. That the Offeror, and its affiliates, are duly registered with the Kentucky Department of Revenue to collect and remit the sale and use tax imposed by Chapter 139 to the extent required by Kentucky law and will remain registered for the duration of any contract award
6. That I have fully informed myself regarding the accuracy of the statement made above.

SWORN STATEMENT OF COMPLIANCE WITH FINANACE LAWS

In accordance with KRS45A.110 (2), the undersigned hereby swears under penalty of perjury that he/she has not knowingly violated any provision of the campaign finance laws of the Commonwealth of Kentucky and that the award of a contract to a bidder will not violate any provision of the campaign finance laws of the Commonwealth of Kentucky.

CONTRACTOR REPORT OF PRIOR VIOLATIONS OF KRS CHAPTERS 136, 139, 141, 337, 338, 341 & 342

The Contractor by signing and submitting a proposal agrees as required by 45A.485 to submit final determinations of any violations of the provisions of KRS Chapters 136, 139, 141, 337, 338, 341 and 342 that have occurred in the previous five (5) years prior to the award of a contract and agrees to remain in continuous compliance with the provisions of the statutes during the duration of any contract that may be established. Final determinations of violations of these statutes must be provided to the University by the successful Contractor prior to the award of a contract.

CERTIFICATION OF NON-SEGREGATED FACILITIES

The Contractor, by submitting a proposal, certifies that he/she is in compliance with the Code of Federal Regulations, No. 41 CFR 60-1.8(b) that prohibits the maintaining of segregated facilities.

RECIPROCAL PREFERENCE

(1) Prior to a contract being awarded to the lowest responsible and responsive bidder on a contract by a public agency, a resident bidder of the Commonwealth shall be given a preference against a nonresident bidder registered in any state that gives or requires a preference to bidders from that state. The preference shall be equal to the preference given or required by the state of the nonresident bidder.
(2) A resident bidder is an individual, partnership, association, corporation, or other business entity that, on the date the contract is first advertised or announced as available for bidding:
(a) Is authorized to transact business in the Commonwealth; and
(b) Has for one (1) year prior to and through the date of the advertisement, filed Kentucky corporate income taxes, made payments to the Kentucky unemployment insurance fund established in KRS 341.490, and maintained a Kentucky workers' compensation policy in effect.
(3) A nonresident bidder is an individual, partnership, association, corporation, or other business entity that does not meet the requirements of subsection (2) of this section.
(4) If a procurement determination results in a tie between a resident bidder and a nonresident bidder, preference shall be given to the resident bidder.
(5) This section shall apply to all contracts funded or controlled in whole or in part by a public agency.
(6) The Finance and Administration Cabinet shall maintain a list of states that give to or require a preference for their own resident bidders, including details of the preference given to such bidders, to be used by public agencies in determining resident bidder preferences. The cabinet shall also promulgate administrative regulations in accordance with KRS Chapter 13A establishing the procedure by which the preferences required by this section shall be given.
(7) The preference for resident bidders shall not be given if the preference conflicts with federal law.
(8) Any public agency soliciting or advertising for bids for contracts shall make KRS 45A.490 to 45A.494 part of the solicitation or advertisement for bids

DEFINITIONS

As used in KRS 45A.490 to 45A.494: (1) "Contract" means any agreement of a public agency, including grants and orders, for the purchase or disposal of supplies, services, construction, or any other item; and

(2) "Public agency" has the same meaning as in KRS 61.805.

SIGNATURE REQUIRED: This proposal cannot be considered valid unless signed and dated by an authorized agent of the offeror. Type or print the signatory's name, title, address, phone number and fax number in the spaces provided. Offers signed by an agent are to be accompanied by evidence of his/her authority unless such evidence has been previously furnished to the issuing office. Your signature is acceptance to the Terms and conditions above.

DELIVERY TIME:	**NAME OF COMPANY:**	**DUNS #**
PROPOSAL FIRM THROUGH:	**ADDRESS:**	**Phone/Fax:**
PAYMENT TERMS:	**CITY, STATE & ZIP CODE:**	**E-MAIL:**
SHIPPING TERMS: F.O.B. DESTINATION - PREPAID AND ALLOWED	**TYPED OR PRINTED NAME:**	**WEB ADDRESS:**
FEDERAL EMPLOYER ID NO.:	**SIGNATURE:**	**DATE:**

Kenton Drive Garage Restoration – AE Design Services
RFP Summary Sheet

Northern Kentucky University
Highland Heights, Kentucky
RFP # NKU-19-19

Professional Services: AE Design Services

Project Name and Location: Kenton Drive Garage Restoration
Northern Kentucky University
Highland Heights, Kentucky 41099

Project Construction Budget: $ 1 million (total scope including design and construction)

Response Deadline (Proposals Due): November 30, 2018 2:00pm

Selection Committee Members for this project:

- TBD

Do NOT contact the Committee members listed above. For project-specific or general procurement information, ONLY contact the Northern Kentucky University personnel listed below:

Ryan Straus
Bid Specialist
Procurement Services
Northern Kentucky University
617 Lucas Administrative Center
Highland Heights, KY 41099
859-572-6605
Strausr2@nku.edu

NOTE: Northern Kentucky University, as an Agency of the Commonwealth of Kentucky, is subject to Kentucky's Open Records Laws (KRS 61.870-61.884). As such, a bidder's entire offer and resulting contract cannot be deemed "confidential".

Proposals submitted in response to an RFP will remain confidential throughout the evaluation process, however, after negotiations are concluded and a contract has been entered into, all proposals become a matter of public record. Bidders may mark sections of their responses as confidential if the information provided would be considered financially sensitive or trade secrets. The university will make every effort to honor such requests, but may conduct discussions with the bidders concerning the release of said information.

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1.0 DEFINITIONS

The term "addenda" means written or graphic instructions issued by Northern Kentucky University prior to the receipt of Proposals that modify or interpret the Request for Proposal documents by addition, deletions, clarification, or corrections.

The term "competitive negotiations" means the method authorized in the Kentucky Revised Statutes, Chapter 45A.085.

The terms "offer" or “proposal” means the Offeror(s) response to this Request for Proposal.

The term "Offeror" or “Proposer” means the entity or AE Team submitting a proposal in response to this RFP.

The term "Construction Manager" or “Construction Manager at Risk” (CM) means the person or entity who will or has entered into a contract with the Owner that assumes the risk for construction of the Project at a contracted guaranteed maximum price as the general contractor, and who will provide consultation and collaboration regarding the construction during and after design of the Project. The CM shall execute and hold all construction Trade Contracts and Purchase Orders for the Project.

The term "Purchasing Agency" or “Owner” means Northern Kentucky University, Nunn Drive, Highland Heights, Kentucky 41099

The term "Purchasing Official" or “Purchasing Officer” means the contracting representative appointed by the university.

The term "Responsible Offeror" means a person, company, or corporation who has the capability in all respects to perform fully the contract requirements and the integrity and reliability that will assure good faith performance.

The term "solicitation" means Request for Proposal (RFP).

The term "University" means Northern Kentucky University, a statutory body corporate existing pursuant to Sections 164.100 et seq. of the Kentucky Revised Statutes.

2.0 GENERAL OVERVIEW

2.1 Intent and Scope

Project Background:

Northern Kentucky University (Owner) requests written proposals and qualifications for **AE Design Services** for the **Kenton Garage Restoration** project. The overall scope for this project is to provide documentation to address the work necessary to preserve the integrity of the garage. A condition assessment was performed by THP Engineering dated October 31, 2017. A copy of that report is included as an attachment.

2.2 Project Description & Design Schedule

As mentioned, the overall intent for this project is address the work necessary to preserve the Kenton Drive garage.

The Kenton Drive Garage is in overall good condition. Most of the items identified in the assessment relate to long –term durability of the garage rather than immediate structural needs. The repair

recommendations typically relate to waterproofing and maintaining the garage structure, façade and stair towers.

The main concern in the garage is the long-term protection of the post-tension intermediate anchors and the individual tendons at isolated crack locations. The sealants in the slab construction joints are failing, which is allowing water to migrate to the level of the highly-stressed anchors. Corrosion of the intermediate anchors can become a structural issue over time. Precautions need to be taken to limit the penetration of moisture through the surface of the slab and slow the build-up of chlorides at the level of the steel reinforcing.

Recommended work includes concrete repairs to address minor slab deterioration, installation of a silane water repellant at the supported slab levels, installation of vehicular traffic membrane at limited areas, replacement of the slab and façade expansion joint seals, replacement of construction joint and façade sealants, rail post embedment and miscellaneous concrete repairs at the stair towers, sealant repairs at the curtain wall systems, masonry repairs at the elevator shafts, and other miscellaneous repairs. The THP assessment developed a prioritized four year restoration plan for the repairs. That work was supposed to begin in 2018. That work did not take place. NKU's intent is to do this entire scope of work in one summer season in 2019.

2.3 Proposed Schedule

Design Services begin	Week of January 7, 2019
Drawings Complete/Out to Bid	March 15, 2019
Award Construction Contract	April 19, 2019
Construction Begins ""	May 6, 2019
Project complete	July 31, 2019

3.0 PROPOSAL REQUIREMENTS

3.1 Key Event Dates

Release of RFP	November 15, 2018
Pre-Proposal Conference	November 20, 2018 10:00am
Deadline for Written Questions	November 22, 2018 12:00noon
Final Date for issuance of Addenda ""	November 23, 2018
RFP Proposals Due Date	November 30, 2018 2:00pm

3.2 Offeror Communication

To ensure RFP documentation and any necessary subsequent information (modifications, clarifications, addendum, etc.) are directed to the appropriate persons within the Offeror's firm, each Offeror who intends to participate in this RFP process is required to immediately provide the following information to NKU Procurement Services:

- Name of primary contact
- Mailing address, email address, and telephone number for primary contact
- Firms may name additional contact persons (provide contact information)

This information shall be transmitted via e-mail to NKU Procurement Services at the email address listed on the RFP Summary Sheet (Page 4):

Restrictions on Communications with University Staff, Selection Committee Members, and the Project Design Team

From the issue date of this RFP and a contract award is made, Offerors shall not communicate about the subject of this RFP with any University administrator or faculty, staff, or members of the Board of Regents, nor any voting member of the Selection Committee. Communication is strongly discouraged with any members of the project design team as well. All communications regarding this RFP shall be directed **only** to the individual(s) within the university that are listed on the RFP Summary Sheet (Page 4). If violation of this provision occurs, the university reserves the right to reject the proposal.

3.3 Pre-Proposal Conference

A Pre-Proposal Conference will be held at Northern Kentucky University, Highland Heights, Kentucky on November 20, 2018 at 10:00 a.m. in the SU109 to allow the opportunity to ask questions and clarify the expectations and requirements of the university. Visitor parking is available in the nearby Kenton Garage.

The following items should be noted in reference to the Pre-Proposal Conference:

- Attendance at the Pre-Proposal Conference is **optional,** but all interested Offerors are encouraged to attend due to the complexity and scope of this project..

- All questions shall be submitted in writing to NKU Procurement Services. The university will prepare written responses to all submitted questions and release as an addendum. All written questions and answers will be made part of the RFP and may become part of the contract with the successful AE team. Verbal answers given at the conference and not memorialized in written form are not binding.

3.4 Offeror Presentations

In-person interviews and presentations will **NOT** be conducted for the review, evaluation, and award process for this RFP solicitation, unless deemed necessary by the selection committee during their initial review and evaluation.

3.5 Preparation of Offers

Offeror is expected to follow all specifications, terms, conditions, and instructions in this Request for Proposals. Offeror will furnish all information required by this solicitation. The Offeror will sign and return the proposal cover sheet and print or type her/his name, firm, address, telephone number and date. The person signing the offer must initial erasures or other changes. The signer shall further certify that the proposal is made without collusion with any other person, persons, company or parties submitting a proposal; that it is in all respects fair and in good faith without collusion or fraud, and that the signer is authorized to bind the principal Offeror.

3.6 Proposed Deviations from the Request for Proposal

The stated requirements appearing elsewhere in this RFP shall become a part of the terms and conditions of any resulting contract. Any deviations therefrom must be specifically defined in accordance with the Transmittal Letter, Section 4.3 (d). If accepted by the Owner, the deviations shall become part of the contract, but such deviations must not be in conflict with the basic nature of this RFP.

Note: Offerors shall not submit their standard terms and conditions as exceptions to the RFP Terms and Conditions. Each exception to an Owner term and condition shall be individually addressed.

3.7 Addenda

Any addenda or instructions issued by the University prior to the time for receiving proposals shall become a part of this RFP. Such addenda shall be acknowledged in the proposal. No instructions or changes shall be binding unless documented by a proper and duly issued addendum. No addendum will be issued less than 7 days prior to proposal due date without providing an extension to the due date.

3.8 Offeror Response and Proprietary Information

The Request for Proposals specifies the format, required information, and general content of proposals to be submitted in response to this RFP. The university or the members of the appointed selection committee will not disclose any portions of the proposals prior to contract award to anyone outside the University's administrative staff, and the members of, and advisors to, the Committee evaluating the proposals. After a contract is awarded in whole or in part, the Owner shall have the right to duplicate, use, or disclose all Proposal data submitted by Offerors in response to this RFP as a matter of public record.

Any submitted proposal shall remain a valid proposal for 90 calendar days after the proposal due date.

Northern Kentucky University shall have the right to use all systems or ideas or adaptations of those systems or ideas contained in any proposal received in response to this RFP. Selection or rejection of the proposal will not affect this right.

3.9 Cost of Preparing Proposal

Costs for developing the proposals and any subsequent activities prior to contract award are solely the responsibility of the Offerors. The university will not provide reimbursement for such costs in any amount.

3.10 Disposition of Proposals

All proposals become the property of Northern Kentucky University. The successful proposal will be incorporated into the resulting contract by reference.

3.11 Confidentiality:

In accordance with KRS 45A.085 Competitive Negotiation, all proposals received or information derived there from remain confidential until a contract is awarded or all proposals are rejected.

3.12 Alternate Proposals

Offerors who wish to do so may submit alternate proposals. If more than one proposal is submitted, all must be complete (separate) and comply with the instructions set forth within this document. Each proposal will be evaluated on its own merit.

3.13 Questions

All questions should be submitted in writing to Ryan Straus, NKU Procurement Services, no later than the deadline specified herein. Email strausr2@edu.com, Direct phone line: 859-572-6605

3.14 Section Titles in the RFP

Titles of paragraphs used herein are for the purpose of facilitating ease of reference only and shall not be construed to infer a contractual construction of language.

3.15 No Contingent Fees

No person or selling agency shall be employed or retained or given anything of monetary value to solicit or secure this contract, except bona fide employees of the Offeror or bona fide established commercial or

selling agencies maintained by the Offeror for the purpose of securing business. For breach or violation of this provision, the University shall have the right to reject the proposal, annul the contract without liability, or, at its discretion, deduct from the contract price or otherwise recover the full amount of such commission, percentage, brokerage or contingent fee or other benefit.

3.16 Proposal Addenda and Rules for Withdrawal

Prior to the date specified for receipt of offers, a submitted proposal may be withdrawn by submitting a written request for its withdrawal to the Purchasing Officer, signed by the Offeror. Unless requested by the university, no revisions or alterations to proposals after the proposal due date will accepted or considered.

4.0 PROPOSAL FORMAT AND CONTENT

4.1 Proposal & Qualification Submittal Information and Criteria

The following section specifies the items to be addressed in your proposal. Please read this section thoroughly, prepare your submission carefully to facilitate the university's review of your proposal.

Proposals should be prepared simply and economically, providing a description of the Offeror's capabilities to satisfy the requirements of the solicitation. The proposal shall be prepared on 8 ½" x 11" recycled paper, with all text clear of binding. Text type size shall be a minimum of 10 point font. The proposals must be indexed and all pages sequentially numbered throughout or by section. Binders and covers will be at the respondent's discretion, however, elaborate graphics and expensive paper and binding are not necessary, nor encouraged. All text and exhibits should be succinct and relevant to the RFP requirements. Emphasis should be on completeness and clarity of content. Each copy of the proposal shall be bound in a single volume.

Proposals shall be organized into the section tabs identified below.

A. Signed Authentication of Bid and Statement of Non-Collusion and Non-Conflict of Interest Form
B. Transmittal Letter (Two pages Maximum)
C. Executive Summary and Proposal Overview
D. Qualifications – Firm/Entity
E. Qualifications of Project-Specific AE Team
    i. Specific project team experience on similar projects
    ii. Specific project team experience & qualifications
    iii. Specific project team experience at NKU/other universities
F. Proposed project cost and fee structure
G. References (list a maximum of 5)
H. Signed Certifications and Affidavits
I. Other Additional Information, as necessary (Five page Maximum)

RFP Evaluation Criteria:

The Owner's staff selection committee will review all proposals to rank the most qualified consultants based on the content of the Proposal & Qualification Submittal. All submitted proposals will be reviewed by the Selection Committee specifically established for this project, and all proposals will be evaluated based on the following, weighted criteria:

- Company's Approach to AE Design Services 15 pts
- Specific Project Team Experience with similar projects 15 pts
- Specific Project Team Experience & qualifications 15 pts
- Specific Project Team Experience at NKU/other universities 15 pts
- Proposed Fees & Fee Structure 25 pts

- MBE/DBE Participation 10 pts
- Company Location Relative to Project 5 pts

The Selection Committee will select the highest evaluated firm and the University will enter into final negotiations to finalize a contract for providing AE services. The consultant is encouraged to clearly define what is included and what would be considered additional costs when listing proposed fees and fee structure.

Other Pertinent Information & Suggestions for Proposal Submittal:

1. Provide a **brief** firm profile indicating location, years in business, and firm's expertise in parking garage restoration.
2. Provide a detailed discussion of how the firm approaches AE design specific to parking garage restoration.
3. List **only** those individuals that will actually accomplish the work on this project. Do NOT include other staff or upper management that will not be involved. List the educational qualifications of the **actual team proposed** (degrees, professional licenses, etc.), and also include resumes and all related experience of the **actual team proposed**.
4. Provide relevant experience in AE design in parking garage restoration, and specific NKU and/or other university project experience. Include **only** projects completed by the **actual team** that would perform the work for this project.

4.2 Proposal Submission Deadline

The offeror shall submit, via US Postal Service, courier or other delivery service, five (5) bound and one (1) unbound original of its proposal and one version on a USB drive in a sealed package addressed to:

Mr. Blaine Gilmore
Interim Director of Procurement Services
617 Lucas Administrative Center
Northern Kentucky University
Highland Heights, KY 41099

Bearing respondent's name and address, and clearly marked as follows:

RFP NKU-19-19
AE Design Services
Kenton Drive Garage Restoration

Note: Proposals received after the closing date and time will not be considered. In accordance with the Kentucky Revised Statute 45A.085, there will be no public opening.

4.3 Transmittal Letter

The Transmittal Letter accompanying the RFP shall be in the form of a standard business letter and shall be signed by an individual authorized to legally bind the Offeror. The signer shall further certify that the proposal is made without collusion with any other person, persons, company or parties submitting a proposal; that it is in all respects fair and in good faith without collusion or fraud, and that the signer is authorized to bind the principal Offeror. It shall be limited to a maximum of two pages and shall include:

a) A statement referencing all addenda to this RFP issued by the University and received by the Offeror. If no addenda have been received, a statement to that effect should be included.

b) A statement that the Offeror's proposal shall remain valid for three (3) months after the closing date of the receipt of the proposals.

c) A statement that the Offeror will accept financial responsibility for all travel expenses incurred for oral presentations (if necessary/required) and interviews (if necessary/required).

d) A statement that summarizes any deviations or exceptions to the RFP requirements and includes a detailed justification for the deviation or exception.

Note: Do not submit your standard Terms and Conditions as exceptions to the RFP Terms and Conditions. Each exception to a university specified term or condition shall be individually addressed.

4.4 Executive Summary and Proposal Overview

The Executive Summary and Proposal Overview shall condense and highlight the contents of the technical proposal in such a way as to provide the Selection Committee with a broad understanding of the entire proposal.

4.5 Offeror Qualifications & Services Defined

The purpose of the Offeror Qualifications section is to allow the evaluator to assess the ability of the Offeror to respond to this Request for Proposals. Offerors have the flexibility to be creative in describing and providing evidence of their ability to meet the qualification needs of this project.

4.6 Proposed Project Cost & Fee Structure

Provide anticipated fee information broken down and itemized for each expected phase of the AE design services. An overall fee total shall then be provided as a bottom line, lump sum fee.

5.0 Scope of Work for AE Design Services

5.1 Overview

The AE design services shall include the review of the condition of the garage. The proposed work is not meant to be based solely from the THP Condition of Assessment dated October 31, 2018. The assessment which was performed last year, does not include changes to the physical conditions and any additional deterioration over the past year.. The AE team shall validate the previous assessment and incorporate any changes to the physical condition of the garage into the restoration plan. The AE would also be responsible for assisting NKU during bidding, and construction administration during construction

5.2 Design Phase, Bidding and Construction Administration

The AE Team would be responsible for preparation of the drawings and specification for all work not limited to concrete repairs to address minor slab deterioration, installation of a silane water repellant at the supported slab levels, installation of vehicular traffic membrane at limited areas, replacement of the slab and façade expansion joint seals, replacement of construction joint and façade sealants, rail post embedment and miscellaneous concrete repairs at the stair towers, sealant repairs at the curtain wall systems, masonry repairs at the elevator shafts, and other miscellaneous repairs. The AE will provide

assistance during the bidding and award process, issuing any addendum or clarifications. The AE shall also provide construction period services for the duration of construction and through project close out. Services will be based on a standard AIA contract which will be negotiated with the successful Offeror.

6.0 SUPPLEMENTAL CONDITIONS

6.1 Personal Service Contract

This RFP is for consulting or other personal services. Kentucky law requires a Personal Services Contract to be signed by the vendor and filed with the Legislative Research Commission in Frankfort prior to any work beginning. KRS 45A.690 defines a Personal Service Contract as "an agreement whereby an individual, firm, partnership, or corporation is to perform certain services requiring professional skill or professional judgment for a specified period of time at a price agreed upon."

After Determination but prior to award, a Personal Services Contract will be sent to the winning offeror for signature. Please be sure to sign and return the original contract promptly to Northern Kentucky University. A Notice of Award will not be issued until the signed Personal Services Contract has been received by Procurement Services and filed with the Legislative Research Commission in Frankfort, KY.

Regarding Personal Service Contract Invoicing

House Bill 387 has now amended Kentucky Revised Statute 45A.695(10)(A) with the following language, "No payment shall be made on any personal service contract unless the individual, firm, partnership, or corporation awarded the personal service contract submits its invoice for payment on a form established by the committee". The Personal Service Contract Invoice Form shall be used for this purpose and for your convenience we have added fields so that it can be filled in online and printed. This form can be located on Northern Kentucky University's Procurement Services website at: https://inside.nku.edu/content/dam/Procurement/docs/Personal-Service-Contracts/PSC_INVOICE_FORM.pdf

6.2 Compliance with State Laws

Any contract resulting from this solicitation shall be governed under, and the rights and obligations of the parties hereto, shall be determined in accordance with the laws of the Commonwealth of Kentucky. The firm selected shall provide equal job opportunity and prohibit discrimination based on race, creed, color, sex, age, religion or national origin as required by Kentucky Revised Statutes 45:550 through 45:640. All contractors and subcontractors are required to comply with Federal Executive Order 11246 entitled "Equal Employment Opportunity" as amended by the Department of Labor regulations (41CFR, Part 60). The successful firm will be required to provide certificates of insurance showing proof of general, vehicle liability and Worker's Compensation insurance.

6.3 Competitive Negotiation

It is the intent of the Request for Proposal (RFP) to enter into competitive negotiation as authorized by KRS 45A.085. The Owner will review all proposals properly submitted. However, the Owner reserves the right to request necessary amendments, reject all proposals, reject any proposal that does not meet mandatory requirement(s) or cancel this RFP, according to the best interests of the University.

The Owner also reserves the right to waive minor technicalities or irregularities in proposals providing such action is in the best interest of the University. Such waiver shall in no way modify the RFP requirements or excuse the Offeror from full compliance with the RFP specifications and other contract requirements if the Offeror is awarded the contract.

6.4 Appearance before Committee (if necessary)

Any, all or no Offerors may be requested to appear before the Selection Committee to explain their proposal and/or to respond to questions from the committee concerning the proposal. Offeror(s) are prohibited from electronically recording these meetings. The committee reserves the right to request additional information.

6.5 Acceptance or Rejection and Award of Proposal

Northern Kentucky University reserves the right to accept or reject any or all proposals, or part of proposals, to waive any informalities, technicalities, clarify any ambiguities in proposals, and unless otherwise specified to accept any item in the proposal. In case of error in extension of prices or other errors in calculation, the unit price shall govern.

6.6 Cooperation in Related Efforts

The University reserves the right to undertake or award other contracts for additional or related work. The AE Team shall fully cooperate with such other Consultants, Contractors and/or University employees and carefully fit their work to such additional work. The AE Team shall not commit or permit any act, which will interfere with the performance of work by any other Contractor(s) or by University employees.

6.7 Modification or Withdrawal of Offer

An offer and/or modification of offer received at the office designated in the solicitation after the exact hour and date specified for receipt will not be considered.

An offer may be modified or withdrawn by written notice before the exact hour and date specified for receipt of offers. An offer also may be withdrawn in person by an Offeror or his authorized representative, provided his identity is made known and he signs a receipt for the offer, but only if the withdrawal is made prior to the exact hour and date set for receipt of offers.

6.8 Rejection

Grounds for the rejection of proposals include, but shall not be limited to:

- Failure of a proposal to conform to the essential requirements of the Request for Proposal.
- An offer imposing conditions that would significantly modify the terms and conditions of the solicitation or limit the Offeror's liability to the University on the contract awarded on the basis of such solicitation.
- Failure of the Offeror to sign the Owner's Request for Proposal, as part of the proposal. This includes the Authentication of Proposal and Statement of Non-collusion and Non-conflict of Interest statements.
- Proposals received after the closing date and time specified in the RFP.

6.9 Responsibility

Any contract that may result from the RFP shall specify that the AE Team is solely responsible for fulfillment of the contract with the university.

6.10 Attorneys' Fees

In the event that either party deems it necessary to take legal action to enforce any provision of the contract, and in the event and to the extent that the Owner prevails, the AE Team agrees to pay all expenses of such action, including attorneys' fees and costs at all stages of litigation.

6.11 Patents, Copyrights and Trademark

The AE Team shall protect Northern Kentucky University from any and all damages or liability arising from alleged infringements of patents, copyrights or trademarks.

6.12 Method of Award

It is the intent of the University to award a contract to the qualified Offeror whose offer, conforming to the conditions and requirements of the RFP, is determined to be the most advantageous to the University, cost and other factors considered.

Notwithstanding the above, this RFP does not commit the University to contract for any requirements detailed in this document. The University reserves the right to reject any or all offers and to waive formalities and minor irregularities in the proposal received.

6.13 Certificate of Insurance

Successful proposer must provide NKU with an insurance certificate listing NKU as a certificate holder and additionally insured.

Northern Kentucky University
617 Lucas Administrative Center
1 Nunn Drive
Highland Heights, KY 41099

The Contractor shall furnish the University the Certificates of Insurance and guarantee the maintenance of such coverage during the term of the contract. The Contractor shall provide an original policy endorsement of its CGL insurance naming Northern Kentucky University and the directors, officers, trustees, and employees of the University as additional insured on a primary and non-contributory basis as their interest appears. Additionally, the Contractor shall provide an original policy endorsement for Waiver of subrogation in favor of the Northern Kentucky University its directors, officers, trustees, and employees as additional insured.

Our basic insurance requirements are:
Worker's Compensation and Employers' Liability Insurance: the Contractor shall acquire and maintain Workers' Compensation insurance with Kentucky's statutory limits and Employers' Liability insurance with at least $100,000 limits of liability.

Comprehensive General Liability (CGL) Insurance the limits of liability shall not be less than $500,000 each occurrence for bodily injury and $250,000 property damage.

Comprehensive Automobile Liability Insurance: To cover all owned, hired, leased or non-owned vehicles used on the Project. Coverage shall be for all vehicles including off the road tractors, cranes and rigging equipment and include pollution liability from vehicle upset or overturn. Policy limits shall not be less than $500,000 for bodily injury and $100,000 for property damage.

Excess liability insurance in an umbrella form for excess coverages shall have a minimum of $1,000,000 combined single limits for bodily injury and property damage for each.

Northern Kentucky University

Kenton Drive Parking Garage
2017 Condition Assessment
THP #17274.00

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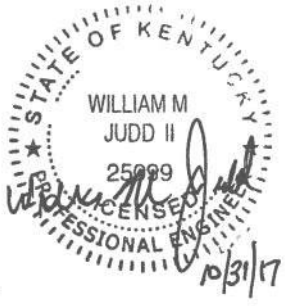
Northern Kentucky University

Kenton Drive Parking Garage
2017 Condition Assessment

by
THP Limited, Inc.
October 31, 2017
THP #17274.00



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EXECUTIVE SUMMARY

The Kenton Drive Garage is in overall good condition. Most of the items identified in the assessment relate to long-term durability of the garage rather than immediate structural needs. The repair recommendations typically relate to waterproofing and maintaining the garage structure, façade, and stair towers.

The main concern in the garage is the long-term protection of the post-tensioned intermediate anchors and the individual tendons at isolated crack locations. The sealants in the slab construction joints are failing, which is allowing water to migrate to the level of the highly-stressed anchors. Corrosion of the intermediate anchors can become a structural issue with time. Precautions need to be taken to limit the penetration of moisture through the surface of the slab and slow the build-up of chlorides at the level of the steel reinforcing.

Recommended work includes concrete repairs to address minor slab deterioration, installation of a silane water repellent at the supported slab levels, installation of vehicular traffic membrane at limited areas, replacement of slab and façade expansion joint seals, replacement of construction joint and façade sealants, rail post embedment and miscellaneous concrete repairs at stair towers, sealant repairs at curtain wall systems, masonry repairs at elevator shafts, and other miscellaneous repairs.

THP has developed a prioritized four-year restoration plan for the recommended repairs, with a total recommended budget of $854,000 during that time period.

INTRODUCTION

BACKGROUND

THP was retained by Northern Kentucky University to review the conditions of the Kenton Drive Parking Garage. THP conducted the survey of the garage on October 12, 2017. The observations, conclusions, and recommendations contained in this report are based exclusively on the following:

- Review of original architectural and structural drawings.
- Review of 2004 construction field reports and correspondence.
- Review of 2013 repairs to and re-support of wall panels at south elevation.
- Visual surveys of garage in June 2016 for development of 2017 repair documents.
- Visual survey of slab soffits, slab surfaces, beams, columns, and walls.
- Visual survey of waterproofing elements.
- Visual survey of garage stair towers.
- Visual survey of garage exterior elevations.
- Delamination (chain drag) survey of the supported slab.
- Concrete chloride testing of supported slab powder samples.

This report is based on conditions existing as of the date of the Survey, and assumes the original design and construction of the Project met appropriate standards. Unless otherwise noted in this report, review of conditions hidden or indeterminable from visual assessment are excluded from THP's scope of work. Analysis of the structure for code compliance with present day codes is excluded. THP's professional services are performed in accordance with generally accepted professional standards of care appropriate for the size, complexity, schedule and other characteristics of this project, and the recommendations provided are appropriate given the scope of our review. THP cannot precisely predict when structural and waterproofing components may fail or otherwise require additional repair. This report contains no express or implied warranty concerning the observations, conclusions and recommendations. Conditions change with time and use of the facility, thereby meriting further inspection as well as potential changes in the recommendations contained herein. It is possible that the need for repairs or maintenance identified through this report may be accelerated due to conditions or events outside of THP's control, which may include events that occur after the Survey was completed. It is critical that

NKU timely implement the repairs and maintenance identified in the report and periodically re-evaluate for future repairs and maintenance.

The conclusions and recommendations in this report are provided to NKU for repair/maintenance planning and budgeting purposes. This report is not intended to be used as a construction document.

THP has analyzed and quantified field survey data and developed preliminary restoration concepts for the parking garage, along with the probable costs.

The short narratives on the “History of Salt Use” and “Slab Tendons in Post-Tensioned Concrete Structures” are included on the following pages as a description of the garage structure type and deterioration mechanisms in post-tension garages.

HISTORY OF SALT USE

Over forty-five years ago, state highway departments in the northern United States adapted policies of “bare-pavement” winter roadway maintenance. These policies led to the use of vast quantities of deicer salts. Toward the end of the 1960’s a significant increase in the rate of deterioration of highway structures was noted. In the late 1970’s it became generally recognized that this increased deterioration was due to corrosion of embedded reinforcement accelerated by the presence of chloride, which is the major chemical component in deicer salts. In the late 1970’s, it also became generally recognized that parking structures in the northern United Sates were suffering from the same symptoms as highway structures. It is difficult to overstate the severity of salt-induced corrosive deterioration on reinforced concrete structures. On the national level, its destruction of both public and private infrastructure has been estimated as high as $5 billion per year.

Salt-Induced Corrosion in Reinforced Concrete Structures

The process of salt-induced concrete deterioration begins when vehicles track in salt laden slush. The slush melts into saltwater that drips onto the deck and is absorbed into the concrete. When salt dissolves in water, chloride ions are liberated. These ions lower an otherwise high pH concrete matrix, which provides a natural passivity to embedded reinforcing steel. A pH of greater than 11.5 is believed to stabilize the protective film on the embedded steel. Once the pH drops below this value the natural passivity, or protective film, is destroyed and corrosion can be supported and sustained.

Steel reinforcing embedded in concrete will, after a period of time, be completely surrounded with a thin film of oxide compounds. This thin film serves as a protective barrier between the steel and oxygen-bearing moisture which penetrates the concrete through cracks and pores in the concrete surface. As long as the oxide barrier remains intact, the steel is protected from corroding.

Concrete is normally an alkaline material which is responsible for the maintenance of the protective oxide film. The stability of the oxide film is upset, however, by the presence of negatively charged chloride ions. Both sodium chloride and calcium chloride deicing agents ionize in water, releasing over 60 percent of their weight as chloride ions. These highly reactive

ions lower the pH (reduce the alkalinity) of concrete and eventually compromise the iron-oxide film surrounding the embedded steel reinforcing. The compromised oxide film allows the detrimental corrosion process to begin if the steel is exposed to oxygen and moisture.

Research has shown that a certain “threshold” concentration of chloride ions will support the corrosion process and continue it at approximately the same rate regardless of higher chloride ion concentrations. Once the concentration of chloride ions is over the threshold level, the amount of oxygen-bearing water at the level of the steel reinforcement influences the corrosion rate. Since time is required for the ions and moisture to penetrate the overlaying concrete, the depth of steel reinforcement cover, the permeability of the concrete, and the presence of a water seal on the surface of the concrete are critical factors, among others, in establishing the time before the corrosion process begins, and the rate of the corrosion process once it has commenced.

The iron-oxide (rust) that is produced as a result of the exposure of the steel to oxygen-bearing moisture has a much larger volume than the parent metal. As a steel reinforcement bar rusts, its volume increases by over a factor of six. This expansion produces large internal splitting stresses in the concrete. In the case of a reinforced concrete slab where the steel reinforcement is in layers below the surface of the concrete, this pressure from expanding rust first splits the concrete above the rebar away from the concrete below the rebar. This action is termed a “delamination.” At the initial stages it may or may not be visible from the surface. At this stage, however, the concrete ceases to be a coherent mass, and the bond between the concrete and steel reinforcement (which is structurally critical) is lost. Continued internal pressure will eventually crack the concrete through to the surface. In the case of top-surface delaminations, the mechanical action of traffic or the uplift caused by entrapped freezing water will eventually completely loosen the delaminated concrete resulting in a “spall”. For ceiling delaminations, gravity, vibration from traffic, and pressures from freezing water are responsible for loosening the delamination, resulting in the concrete eventually falling from the ceiling.

Before steel can corrode, positive iron ions must leave the surface of the steel. These iron ions then normally combine with negative oxygen ions in the local environment of the steel reinforcement. Since these iron ions are actually positively charged atoms, their ability to leave the parent metal requires the material surrounding the steel bar be a conductor of electrical charge. Salt dissolved in water is a far superior conductor of electric charge than water alone.

This electrolytic solution, or electrolyte, does act in surrounding the steel reinforcement in salt-contaminated concrete and greatly enhances the flow of iron ions from the reinforcement after the passive oxide film has been removed.

The Progressive Steps of Chloride-induced Corrosion

1. Application of salt deicing compounds either by direct application to the structure or by indirect application from melt water and slush carried onto the structure by vehicles.
2. Absorption of the ionized chloride and water into the concrete through cracks and surface pores, and penetration to the level of the reinforcing steel.
3. Lowering of the pH of the concrete in the vicinity of the reinforcing steel, and compromising of the protective oxide layer around the steel.
4. Increase of the electrical conductivity of the concrete in the vicinity of the reinforcing steel.
5. Electrochemical corrosion of the now unprotected steel in the presence of water, oxygen, and a conductive electrolyte creating a complex of iron-oxide corrosion products (rust).
6. Expansion of the reinforcing steel due to the formation of rust and the creation of internal pressures.
7. Internal splitting or “delamination” of the concrete.
8. The separation reaches the surface and a “spall” is created.
9. The spall is removed by the action of traffic and the pressure of entrapped freezing water.
10. Continuation of the process with continued exposure of the structure to moisture.
11. Eventual loss of reinforcing steel bond to the concrete, reduction of usable steel area, and loss of concrete cross-sectional area until the reinforced concrete loses its structural integrity.

Figure 1 depicts the major steps of this process.

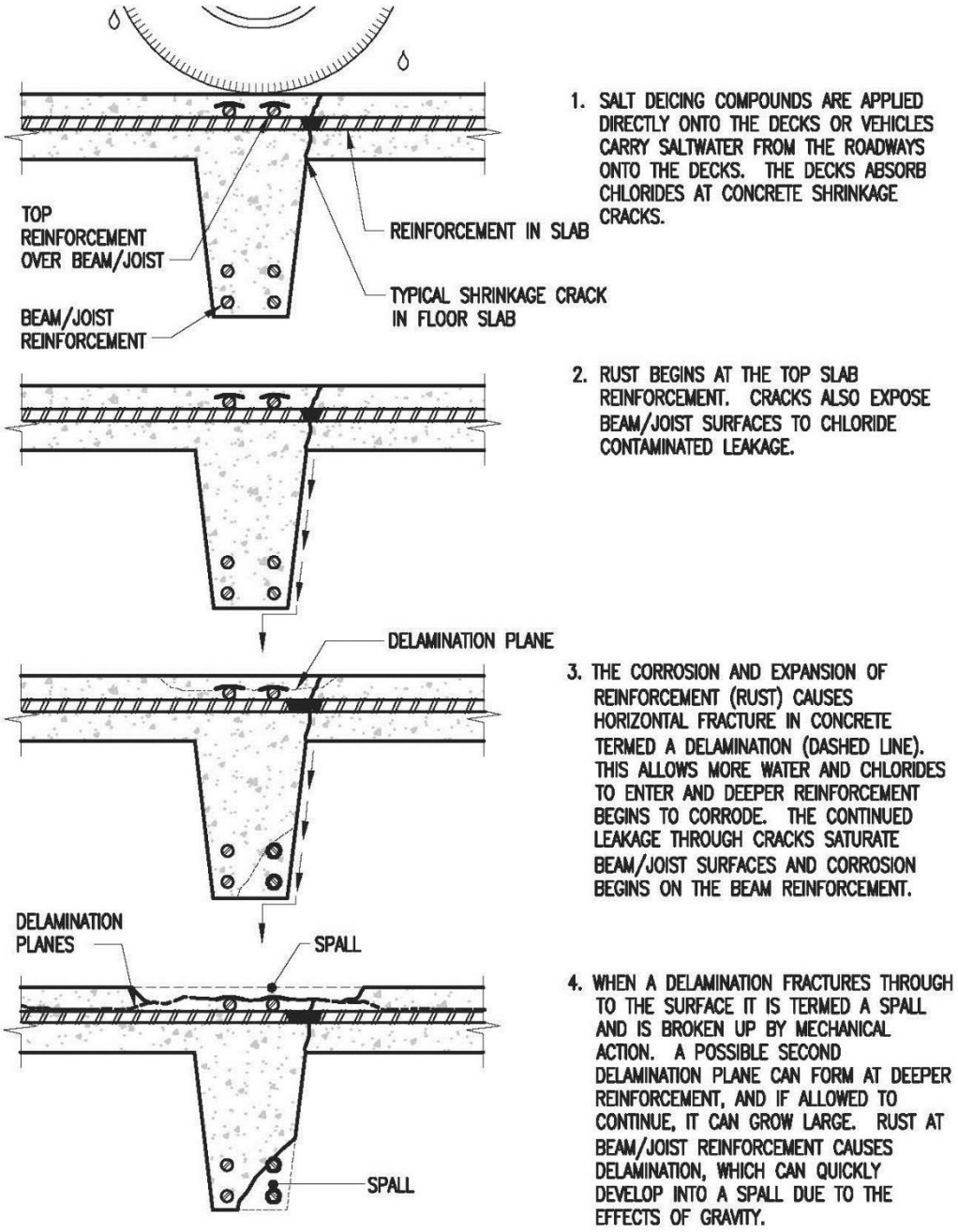

FIGURE 1
PROGRESSIVE STEPS OF CORROSION DETERIORATION.

SLAB TENDONS IN POST-TENSIONED CONCRETE STRUCTURES

The potential for corrosion of the high-stressed, high-strength cables in post-tensioned concrete presents additional concerns relative to long term deterioration.

The supported floors and beams of the Kenton Drive Garage are as post-tension construction. In this type of structural system, the primary reinforcement is composed of high strength steel cables in sheathing that is installed in the slab prior to the concrete being placed around them. After the concrete hardens, these cables are pulled and stretched with hydraulic jacks to nearly 30,000 lbs. After jacking, the cable are locked-off at anchorages, which are referred to as end anchorages or intermediate anchorages depending on their locations in the slab.

Jacking or tensioning of the cables after the concrete is cast yields the term “post-tensioning.” It produces a beneficial compression in the concrete and provides reinforcement in that manner. Two types of post-tensioning systems are commonly used: bonded and unbonded. The Kenton Drive Garage uses and unbonded PT system. In unbonded systems, the cables are pre-coated with grease, are never grouted, and are permanently free to slide within the sheathing.

Post-tensioning tendon corrosion differs from that of mild steel corrosion in several significant ways:

- In un-bonded systems, tendon corrosion is usually not forewarned by concrete spalling because the expanding oxide product fills voids in the sheathing and does not exert expansive splitting forces on the concrete.
- Tendon corrosion normally occurs at localized points along the tendon length as opposed to along substantial lengths of mild steel reinforcement. These points occur where tendons are exposed due to sheathing terminations, ruptures or tears, alone or in combination with, leaking cracks or joints and inadequate grease protection.
- Very little corrosion and pitting are required before tendons break due to their stressed state. Also due to their high tension stress from initial jacking, great energy is released when un-bonded tendons break, analogous to a broken rubber band.
- When broken, an un-bonded tendon’s structural value could be lost throughout its entire stressed length between anchorages.

PROJECT REPORT

DESCRIPTION

The NKU Kenton Drive Parking Garage is a three-story structure consisting of a slab-on-grade level (Level 1) and two supported levels (Levels 2 and 3). The garage was built in 2004 by Messer Construction, and was designed by Champlin/Haupt Inc. Architects with structural engineering by THP Limited. The garage is located on Kenton Drive near the entrance from Johns Hill Road at the southwest corner of campus. Two vehicular entrances and exits are located at the east elevation from Kenton Drive (see Photos 1-2). At the west elevation of Level 1, two additional entrance/exits provide access to a surface parking lot. A pedestrian bridge over Kenton Drive connects to the garage at Level 3, and is not included in the condition assessment.

The garage footprint is approximately 400 ft. north-to-south and 240 ft. east-to-west, with approximately 160,000 total square feet of structured floor slab and parking for approximately 680 vehicles. There is a total of four bays wide east-to-west, referred to in this report from east-to-west as Bays A-D, which are divided into two 2-bay halves by an open courtyard in the center of the garage. The garage halves are connected by two-lane bridges north and south of the courtyard. A two-way vehicular ramp is located at the west half of the garage, at Bay B, adjacent to the courtyard. A storm water detention tank is located on Level 1 below the ramp.

The structural system consists of a 6” thick post-tensioned (PT) concrete slab spanning 22’-0” to concrete beams. The post-tensioned concrete beams vary between 16”-20” wide by 36”-42” deep, and span to conventionally-reinforced 24” x 24” concrete columns (see Photo 3). Transfer girders, located above the traffic lanes at the north and south ends of the garage, are typically 36” deep and vary between 24”-36” wide (see Photo 4).

The façade consists of a combination of exposed concrete structure and precast concrete panels. The upper level spandrels are hung from the structure with stainless steel clips. The lower level panels bear on the foundation. Stair towers are located at the northeast, southeast, and northwest corners of the garage and provide pedestrian access to all levels. The stairs are each enclosed by an aluminum curtain wall with a sloping aluminum skylight/canopy. An elevator is located at the northeast stair tower, and a shaft for a future elevator is located at the southeast stair tower. Both elevator shafts consist of glazed concrete masonry units.

The stairs are built with cast-in-place concrete landings, treads, and risers. The painted stair guardrails and handrails are hot-dipped galvanized tube steel with steel grate infill panels. Rail posts are grouted into the concrete landings and treads at core drilled holes. A structural steel frame utilizing hollow steel sections supports the curtain wall and skylight/canopy systems at all three stairs, and supports the stairs and landings at the northeast and southeast stairs where expansion joints isolate the stairs from the supported PT garage slabs. The northwest stairs and landings are supported by the concrete structure.

OBSERVATIONS

Concrete Structure

A representative delamination survey of the floor slabs was performed throughout the supported level slabs, with a focus on PT anchors at construction joints. The delamination survey was performed using the chain drag procedure, which is based on the audible change between sound and distressed concrete due to the internal fracture plane caused by the corrosion of the mild steel reinforcement. Only isolated concrete deterioration was noted during the chain drag survey of the garage, typically due to reinforcing steel with shallow cover (see Photo 5). Total deterioration is estimated to be less than .5% of the supported slab area. No delaminations or spalls were observed at columns or PT beams and girders.

The following items were observed during the visual survey of the concrete structure:

- Slab surface scaling was noted at isolated locations (see Photo 6).
- Cracking was noted in the surface of the slabs in various locations (see Photos 7-8).
- Water and contaminant leakage through slab cracks was noted in the slab soffits in isolated locations (see Photo 9).
- Efflorescence and disbonding grout at PT slab end anchorages was noted in various locations where grout pockets are not concealed by spandrel panels (see Photo 10).
- The grout is missing at PT slab end anchorage pockets at isolated locations, and the exposed tendon end has minor surface corrosion (see Photos 11-12).
- Dark stains from grease deposits were noted on isolated PT beams and girders (see Photo 13), which may be indicative of water through the PT tendon sheathing.
- Carbon fiber reinforcing strips were observed at the bottom of two east-west beams at Level 1, near the north vehicular entrance. Construction field reports and memorandums from 2004 indicated the strips were added to reinforce the beams after PT tendons failed during construction. Strips appear to be well-bonded to the beams. The intumescent coating, which was applied to protect the resin bonding the strips to the concrete in the event of a fire, is cracked, disbonded, and peeling (see Photo 14).

Chloride Ion Content Testing

To aid in the evaluation of the garage and to determine the extent of chloride contamination in the floor slabs, chloride ion content testing of concrete powder samples was performed. Concrete powder samples were removed from representative locations in the supported levels of the

garage. Laboratory testing of the powder samples taken in one inch increments down to a depth of three inches determined the chloride contamination of the floor slabs from exposure to deicing salts, either tracked in or by direct application. A total of 12 samples taken from 4 locations were collected.

Research has established that chloride concentrations in the range of 1.3 to 1.9 lbs/yd^3 will promote and accelerate corrosion of grey steel rebar in concrete with the presence of moisture and oxygen. Chloride levels in the top inch of the slab depth are well above the corrosion threshold, but are typically below or right at the bottom of the corrosion threshold at the depth in the slab where the reinforcing steel is located. Concrete deterioration resulting from corrosion of reinforcing steel is not currently anticipated because epoxy-coated (green) rebar was used in the slab.

A summary of the floor slab chloride laboratory test results is below. Refer to Appendix B for the complete results from the testing laboratory.

<u>Level 2 Parking Stall, Bay B (PS 1):</u>
0”-1” depth: 3040 ppm = 11.9 lbs/yd^3
1”-2” depth: 230 ppm = 0.9 lbs/yd^3
2”-3” depth: 200 ppm = 0.8 lbs/yd^3

<u>Level 2 Drive Lane, Bay D (DL2):</u>
0”-1” depth: 3000 ppm = 5.1 lbs/yd^3
1”-2” depth: 290 ppm = 1.3 lbs/yd^3
2”-3” depth: 260 ppm = 0.8 lbs/yd^3

<u>Level 3 Parking Stall, Bay D (PS 2):</u>
0”-1” depth: 1550 ppm = 6.1 lbs/yd^3
1”-2” depth: 340 ppm = 1.3 lbs/yd^3
2”-3” depth: 500 ppm* = 2.0 lbs/yd^3

<u>Level 3 Drive Lane, Bay B (DL1):</u>
0”-1” depth: 1290 ppm = 11.7 lbs/yd^3
1”-2” depth: 320 ppm = 1.1 lbs/yd^3
2”-3” depth: 200 ppm = 1.0 lbs/yd^3

*Chloride level at 2”-3” depth being higher than at 1”-2” depth at this location is likely due to contamination of sample or presence of a chloride-contaminated aggregate.

Waterproofing Elements

Expansion Joints

The supported garage slabs have four sections of winged compression expansion joint seal, located at the west end of the bridges connecting the two garage halves. A fifth winged seal expansion joint is located at the expansion joint in the Level 1-to-2 ramp between the slab-on-grade and the supported slab. Torn glands and damaged header material were observed at both wing seals at the Level 3 expansion joints (see Photos 15-16), and damage to the header material

was observed at the Level 2 north expansion joint (see Photo 17). Winged compression expansion joint seals at the two vehicle entrances/exits were replaced as a part of the 2017 garage repairs, and no issues were noted.

Compressible expansion joint seals at the northeast and southeast stair towers isolate the stairs and elevator shafts from the garage slabs. The seals in most locations have disbonded from the substrate, resulting in sagging seal material (see Photo 18) and allowing water to migrate through the joint. As a part of the 2016 garage repairs, stainless steel covers were installed at the failed seal locations to eliminate the potential trip hazard (see Photos 19). Tears within the silicone cap were observed in isolated locations (see Photo 20).

Sealants

Urethane sealant was installed at the construction joints between slab pours and at the edges of the pour strip at the intermediate post-tensioning cable anchor heads as part of the original garage construction. There is approximately 1,750 linear feet of construction joint sealant in the garage. In various locations, the sealant is cracked and crazed, and has lost bond with the concrete (see Photo 21). Evidence of water infiltration through the construction joints at pour strips was observed in various locations at the slab soffit below (see Photo 22).

Facade

Except as noted below, cracking or distress was not observed within the decorative precast concrete panels and spandrels (see Photo 23). Stainless steel clips supporting precast panels from the concrete structure were free of corrosion (see Photo 24). Aluminum framing elements at the stair tower curtain walls and canopies were typically free of distress, and no fading, cracking, or disbonding was observed in the coating system (see Photo 25). No additional distress was observed adjacent to precast spandrel panels at south elevation where galvanized steel brackets were installed in 2013 to provide additional bearing and support.

The following items were observed at the facade:

- Hairline cracking was noted within the precast concrete façade panels at isolated locations (see Photo 26).
- Compressible expansion joint seals at the southeast stair tower have disbonded from the precast concrete façade panels (see Photo 27), and are disbonded and torn at the joint

between the precast panel and concrete structure at the Level 3 pedestrian bridge opening (see Photo 28).

- Urethane sealant at control joints in concrete barrier walls adjacent to slab construction joints is cracked and crazed (see Photo 29).
- Urethane cove sealant between bottoms of precast panels and projecting concrete structure is cracked and crazed (see Photo 30).
- Urethane sealant at joints between the top of concrete walls and the curtain wall system is typically crazed and cracked, and is disbonded in various locations (see Photo 31).
- The gaskets within the curtain wall have shortened or have missing sections in various locations (see Photo 32).
- One section of curtain wall cover trim at the northwest stair tower was loose and displaced, and sealant at perimeter of cap is cracked and torn (see Photo 33).
- The glazed finish on the elevator shaft CMU is faded from UV exposure, which is especially evident at areas where signage has been replaced (see Photo 34).
- In various locations, mortar joints within the CMU shaft walls are deteriorated or efflorescence is visible (see Photos 35 and 36). Cracked block units were noted above Level 1 and 2 window openings (see Photo 36).

Stair Towers

The following items were observed at the stair towers:

- The coating applied to the structural steel frame is typically degraded and faded (see Photo 37) and widespread surface corrosion is visible on the steel (see Photos 38-39).
- Pack rust has begun to develop on steel angles anchoring the steel beam to the pier at Level 1 of the southeast stair (see Photo 40).
- Distress from corrosion of embedded rail posts has resulted in spalled concrete stair treads in various locations (see Photo 41).
- In various locations, coating applied to handrails and guardrails is chipped and peeling, and surface corrosion is visible (see Photo 45).
- At the northeast stair, delaminations were noted at the edge of the slab at the Level 3 landing (see Photo 42).
- At the northwest stair, a crack is visible through the landing between Levels 1 & 2 (see Photos 43-44).

Miscellaneous

Slab-on-Grade

Level 1 concrete slab was observed to be in overall good condition, with no spalls or delaminations observed, and minor shrinkage cracking at the surface.

Vehicular Guardrails

The coating applied to the steel guardrails is typically degraded and faded from UV exposure, and has varying levels of surface corrosion depending on the location and exposure (see Photo 46).

Security Grilles

The coating applied to the steel grate security panel inserts at Level 1 of the east elevation is disbonding and peeling in isolated locations (see Photo 47).

Stormwater Piping

The garage storm water drainage system consists of cast-iron drain bodies and piping. Surface corrosion was visible on the piping and fittings in various locations, particularly directly below slab penetrations (see Photo 48).

Garage Line Striping

Condition of line striping varies throughout garage, but is typically degraded and peeling (see Photo 49).

Courtyard

Overgrown ivy in the courtyard has grown up and around the columns, across the slab soffits, and is wrapped around beams, walls, and guardrails. Ivy extends to top of barrier walls at Level 3 (see Photo 50).

DISCUSSION

The garage is in good overall condition, with no immediate structural repair needs. Most of the items identified in the Observations above relate to long-term durability of the garage rather than structural concerns. Durability issues, if not addressed, may in time become structural concerns. The following garage repair recommendations typically relate to waterproofing and maintaining the garage structure, stairs, and façade.

Restoration Plan Repairs

Garage Structure

Though minor surface repairs will need to be performed at isolated locations, the concrete garage structure is in overall good condition. This can be attributed to the following items:

1) The dense concrete mix design specified for the slabs and beams consists of a minimum 7.5% silica fume. These particles are approximately 100 times smaller than cement particles, which helps create a dense concrete structure that limits chloride-laden water from penetrating. The significant reduction between the chloride levels at the 1”-2” depth and those at depths greater than 2” emphasizes the effectiveness of the concrete mix design.

2) Epoxy-coated steel reinforcement was specified and installed for the slab and beams, which is much more resistant to corrosion that uncoated steel.

To limit the penetration of moisture into the slabs, we recommend the application of a penetrating water repellent at the supported levels. This will slow the build-up of chloride, but will not stop it. Water repellent does not have the ability to bridge cracks in the slab, and will not provide any added protection to the slabs and reinforcing if cracks are not properly repaired.

The installation of a vehicular traffic membrane system would eliminate further build-up of chlorides in the slab by preventing all moisture from penetrating the slab. The membrane becomes a maintenance item once it is installed, and may require replacement every 5-15 years depending on its exposure to traffic and ultraviolet light. For this reason, we recommend delaying installation until it is necessary. It is not currently required, but should be budgeted for as a part of a future garage maintenance plan. Choosing to install the membrane system now as a precautionary measure would add approximately $300,000 to the total budget of the proposed restoration plan.

Durability protection of the slab PT cable intermediate anchor heads is critical. Sealant is currently installed in the slab construction joints above the PT cable intermediate anchor heads, which should be removed and replaced with new sealant. As a supplemental waterproofing system, strips of vehicular traffic membrane should be installed at the construction joints and pour strips

The following additional repairs to the garage structure and waterproofing elements are included in the restoration plan:

- Repair isolated areas of surface scaling and minor deterioration.
- Install vehicular traffic membrane at limited areas with widespread cracking. This is primarily located at parking stalls adjacent to west and north barrier walls at Level 2, and along west elevation and north end of east half of Level 3.
- Rout and seal random cracks in the supported slabs to prevent future water infiltration.
- Remove and replace all loose, deteriorated, and missing grout at PT slab anchorage pockets.
- Install new elastomeric coating to seal and protect the grout pockets at PT slabs, beams, and girders.
- Prep and recoat carbon fiber reinforcing strips with new intumescent coating system.
- Remove and replace winged compression expansion joint seals at all locations.
- Failed compressible expansion joint seals at Levels 1 and 2 are allowing water infiltration, which has contributed to the corrosion of the structural steel. Remove temporary cover plates installed at the northeast and southeast stair towers, and remove and replace compressible expansion joint seals at all locations.
- The garage slabs were installed with a concrete slab wash for drainage adjacent to the barrier walls, which helps direct chloride laden water away from the joint between the slab and the wall. To provide additional protection of the tendon end anchorages, install a cove sealant at joints between the supported slab edges and columns/barrier walls.

Façade

The following façade repairs are included in the restoration plan:

- Inject cracks in precast concrete façade panels with a flexible urethane product to prevent water from migrating to the level of the steel reinforcement in the panel.
- Remove and replace compressible expansion joint seals at southeast stair and pedestrian bridge.

- Remove urethane sealant at concrete barrier wall control joints, precast panel cove joints, and between the foundation wall and the curtain wall system, and replace with silicone sealant.
- Wet-seal curtain wall.
- Reinstall loose curtain wall cover trim at northwest stair tower, using silicone sealant at joints.
- Inspect elevator shaft roofs and wall flashings at skylight/canopy systems to determine source of water infiltration into CMU walls. After source has been determined and repaired, replace cracked CMU and re-point deteriorated mortar joints.

Stair Towers

The following stair tower repairs are included in the restoration plan:

- Clean, prep, and re-coat structural steel framing. Blast-clean areas with more advanced corrosion to remove loose material, and inspect anchor bolts.
- Repair spalled concrete stair treads.
- Clean, prep, and re-coat railings.
- Waterproof vertical handrail posts at the base to prevent post corrosion and concrete deterioration. Install a non-shrink grout to fill voids around the posts, flush with the top of the tread. After installation of the grout, install a cove sealant around the posts to prevent water infiltration.
- Repair delaminations at the edge of the slab at northeast stair landing.
- Repair crack through landing of northwest stair with epoxy, and remove and patch deteriorated section of concrete at top surface of landing.

Miscellaneous

The following miscellaneous repairs are included in the restoration plan:

- Clean, prep, and re-coat vehicle guardrails.
- Clean, prep, and re-coat areas of Level 1 security grills with peeling paint.
- Clean, prep, and re-coat portions of stormwater piping with surface corrosion.
- Repaint line striping throughout garage.
- The ivy at the courtyard traps moisture against the concrete structure wall, and could lead to deterioration over time. We recommend that the ivy be cut back to grade at the lower level, and maintained to keep from growing back up the columns.

RESTORATION PROGRAM

OVERVIEW

A four-year restoration plan totaling $854,000 for repairs and maintenance issues is outlined in the following pages for the Kenton Drive Garage.

Cost Estimate Summary by Year:

- 2018 $274,000
- 2019 $265,000
- 2020 $251,000
- 2021 $64,000

The following notes supplement the Proposed Restoration Plan, and are referenced as a superscript where applicable.

1) Probable costs are based on 2017 dollars and adjusted with a 3% per year inflation rate.
2) An allowance for A/E fees has not been included in the repair costs.
3) Budget and review do not include allowance for plumbing, electrical, lighting, and mechanical systems of the garage.
4) Costs are based on performing all yearly work as one repair package and not separated between multiple contractors or repair packages.
5) Contingency is intended to account for unforeseen conditions and anticipated routine repair items that subsequently occur.

RESTORATION PLAN

2018 Repair Work Items	Estimates
Concrete Structure & Waterproofing Elements	
PT Grout Repairs	$3,250.00
Elastomeric Coating at Exposed Slab Edges @ Beam/Girder Ends	$2,500.00
Intumescent Coating on CF Strips	$6,000.00
Replace Compressible Expansion Joint Seals at NE/SE Stairs	$21,250.00
Stair Towers	
Structural Steel and Railings - Prep and Recoat	$128,250.00
Rail Post Base Grout/Sealant	$2,500.00
Repair Spalled Stair Treads	$1,250.00
NE Landing Slab Repairs	$500.00
NW Landing Crack Repair	$500.00
Miscellaneous	
Vehicle Guards - Prep and Coat	$33,000.00
Remove Ivy	$20,000.00
Subtotal	**$219,000.00**
General Conditions, Overhead, and Profit	$33,000.00
Contingency [5]	$22,000.00
Total Recommended 2018 Budget	**$274,000.00**

2019 Repair Work Items	Estimates
Concrete Structure & Waterproofing Elements	
Apply Penetrating Water Repellent, Level 3	$104,500.00
Traffic Membrane System at Cracked Areas, Level 3	$57,250.00
Repair Slab Surface Deterioration, Level 3	$7,500.00
Rout and Seal Cracks, Level 3	$1,750.00
Remove and Replace Sealant at Level 3 Construction Joints	$5,250.00
Install Traffic Membrane Strips at Level 3 Construction Joints	$12,750.00
Replace Level 3 Winged Expansion Joint Seals	$8,250.00
Install Cove Sealant at Level 3 Columns & Barrier Walls	$6,500.00
Miscellaneous	
Level 3 Line Striping	$8,000.00
Subtotal	**$211,750.00**
General Conditions, Overhead, and Profit	$32,000.00
Contingency [5]	$21,250.00
Total Recommended 2019 Budget	**$265,000.00**

2020 Repair Work Items	Estimates
Concrete Structure & Waterproofing Elements	
Apply Penetrating Water Repellent, Level 2	$116,500.00
Traffic Membrane System at Cracked Areas, Level 2	$32,750.00
Repair Slab Surface Deterioration, Level 2	$7,750.00
Rout and Seal Cracks, Level 2	$1,750.00
Remove and Replace Sealant at Level 2 Construction Joints	$5,250.00
Install Traffic Membrane Strips at Level 2 Construction Joints	$13,000.00
Replace Level 2 Winged Expansion Joint Seals	$8,500.00
Install Cove Sealant at Level 2 Columns & Barrier Walls	$6,750.00
Miscellaneous	
Level 2 Line Striping	$8,250.00
General Conditions, Overhead, and Profit	$200,500.00
Contingency [5]	$30,250.00
General Conditions, Overhead, and Profit	$20,250.00
Total Recommended 2020 Budget	**$251,000.00**

2021 Repair Work Items	Estimates
Façade	
Precast Panel Crack Repair	$3,500.00
Replace Compressible Expansion Joint Seals at SE and Bridge	$3,000.00
Remove and Replace Façade Sealants	$6,000.00
Curtain Wall Gasket Repairs	$20,500.00
Flashing/Roofing Repair Allowance	$5,750.00
CMU Unit Replacement	$750.00
CMU Tuckpointing	$2,750.00
Miscellaneous	
Level 1 Security Grilles - Prep and Touch-Up	$3,000.00
Stormwater Piping - Prep and Coat at Corrosion	$5,750.00
General Conditions, Overhead, and Profit	$51,000.00
Contingency [5]	$7,750.00
General Conditions, Overhead, and Profit	$5,250.00
Total Recommended 2021 Budget	**$64,000.00**

Photo 1

Kenton Drive Garage
South Vehicular/Pedestrian Entrance

Photo 2

Kenton Drive Garage
North Vehicular/Pedestrian Entrance

Photo 3

Typical Column, Beam,
and Slab Construction

Photo 4

Typical Column, Beam, and Girder
Construction with Exposed PT
Grout Pockets at End of Girder

Photo 5

Example Typical Concrete Slab with Exposed Reinforcing and Shallow Cover, Level 2 Pour Strip

Photo 6

Example of Typical Slab Surface Scaling, Level 2

Photo 7

Example of Typical Slab Surface Cracking, Level 2

Photo 8

Example of Typical Slab Surface Cracking, Level 3

Photo 9

Example of Typical Crack
Through Slab at Soffit

Photo 10

Example of Typical Disbonding and
Efflorescence at PT Grout Pocket

Photo 11

Missing Grout at PT Slab
End Anchorage Pocket,
Level 3, Northwest Stair Tower

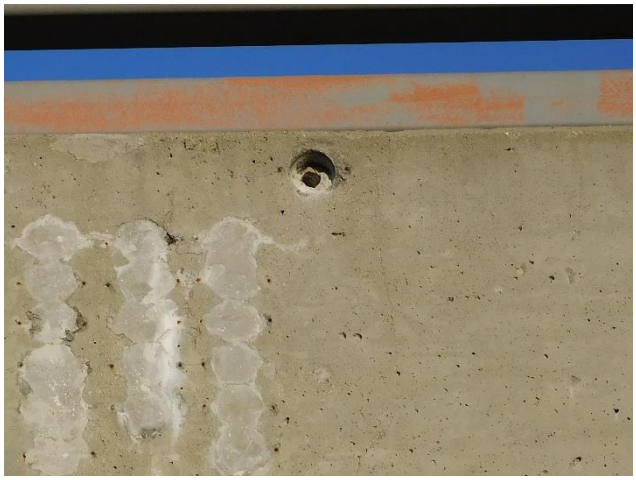

Photo 12

Missing Grout at PT Slab
End Anchorage Pocket,
Level 3, West Elevation

Photo 13

Example of Typical Stains from
Grease Deposits on Beams and Girders

Photo 14

Intumescent Coating Condition at
Carbon Fiber Reinforcing Strips Applied to
Level 2 Beams Near North Entrance

Photo 15

Torn Gland at Level 3
Winged Compression Expansion Joint Seal,
South Connector Bridge

Photo 16

Torn Gland at Level 3
Winged Compression Expansion Joint Seal,
North Connector Bridge

Photo 17

Damaged Header at Level 2
Winged Compression Expansion Joint Seal,
North Connector Bridge

Photo 18

Example of Failed and Sagging
Compressible Expansion Joint Seal
Material (photo taken 6/16)

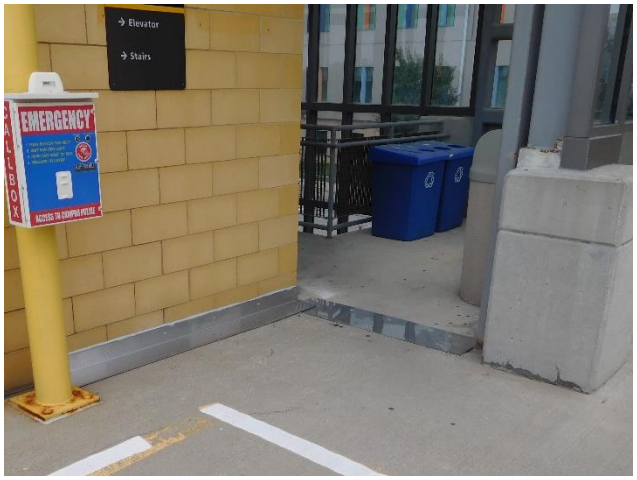

Photo 19

Typical Cover Plates
Installed at Failed
Compression Expansion Joint Seals

Photo 20

Tear in Silicone Cap of
Compression Expansion Joint Seal

Photo 21

Detail of Typical Sealant Condition
at Slab Construction Joint

Photo 22

Stains from Water Infiltration at Slab Soffit
Adjacent to Slab Construction Joint

Photo 23

Overall View of Condition of
Precast Panels and Spandrels,
East Elevation

Photo 24

Typical Stainless Steel Angle
Supporting Precast Concrete Panel

Photo 25

Overall Condition of
Curtain Wall Framing

Photo 26

Hairline Cracks at
Precast Façade Panel

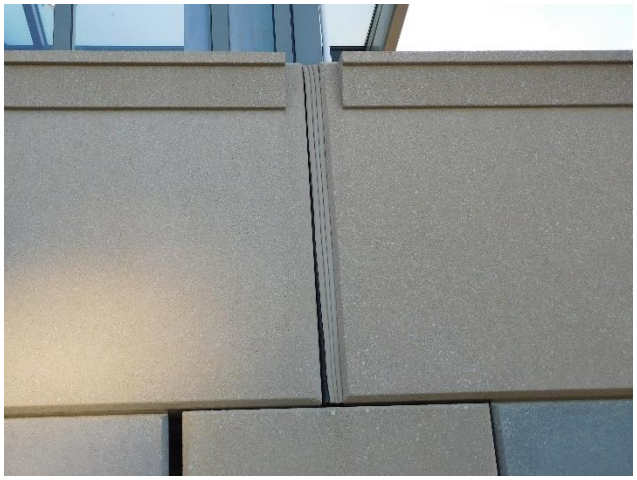

Photo 27

Disbonded Compressible
Expansion Joint Seal
at Southeast Stair Tower

Photo 28

Disbonded and Torn
Compressible Expansion Joint Seal
at Opening to Pedestrian Bridge

Photo 29

Cracked and Crazed Urethane Sealant
in Barrier Walls Control Joints

Photo 30

Cracked and Crazed Urethane
Cove Sealant at Base of Precast Panels

Photo 31

Cracked and Crazed Urethane Sealant
at Joint Between Curtain Wall
and Top of Concrete Wall

Photo 32

Shortened or Missing Section of
Curtain Wall Gasket

Photo 33

Loose and Displaced Section of
Curtain Wall Cover Trim,
Northwest Stair Tower Level 3

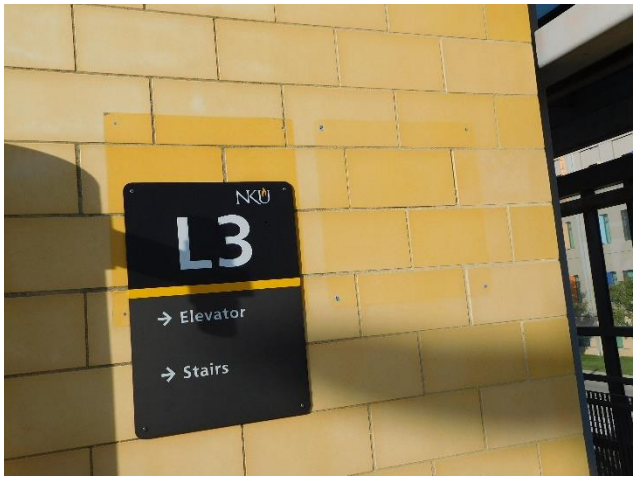

Photo 34

Faded Finish on Glazed CMU at
Northeast and Southeast
Elevator Shafts

Photo 35

Efflorescence within Mortar Joints
at CMU Elevator Shaft Walls
Below Skylight/Canopy

Photo 36

Efflorescence and Deteriorated Mortar Joints
At CMU Elevator Shaft Walls, and
Cracked Block Above Window Openings

Photo 37

Typical Degraded and Faded Coating
On Stair Tower Structural Frame

Photo 38

Typical Surface Corrosion
on Stair Tower Structural Frame

Photo 39

Corrosion of Structural Steel Below
Failed Expansion Joint Seal

Photo 40

Development of Pack Rust on Steel Angles
Anchoring Level 1 Beam to Concrete Pier

Photo 41

Typical Spalled Tread at
Rail Post Base Embedment

Photo 42

Delaminations at Edge of Slab at
Northeast Stair, Level 3 Landing

Photo 43

Crack Through Slab at Northwest Stair,
Landing Between Levels 1 and 2

Photo 44

Deterioration and Cracking at
Top of Slab, Northwest Stair,
Landing Between Levels 1 and 2

Photo 45

Typical Coating Condition and
Surface Corrosion at
Stair Tower Railing

Photo 46

Typical Coating Condition and
Surface Corrosion at
Vehicular Guards

Photo 47

Peeling Coating at Security Grilles,
Level 1, East Elevation

Photo 48

Typical Surface Corrosion
at Stormwater Piping

Photo 49

Typical Peeling Paint at
Garage Line Striping

Photo 50

Overgrown Ivy at
Open Courtyard

Appendix A – Concrete Chloride Test Data

Client:	**THP Limited, Inc.**	CTL Project No:	**400048**
Project:	**Chloride Testing**	CTL Project Mgr.:	**Sai Vaidya**
	PO No. : 17274	Analyst:	**Angel Perez**
Contact:	**Greg Schmitz**	Approved:	***Sai Vaidya***
Submitter:	**Greg Schmitz**	Date Analyzed:	**20-Oct-17**
Date Received:	**16-Oct-17**	Date Reported:	**20-Oct-17**

REPORT of ACID-SOLUBLE CHLORIDE

Sample Identification			Determined Chloride	
CTL ID	Client ID	Description	(wt% sample)	(ppm Cl)
4555201	PS 1-1	Concrete Powder	0.304	3040
4555202	PS 1-2	Concrete Powder	0.023	230
4555203	PS 1-3	Concrete Powder	0.020	200
4555204	PS 2-1	Concrete Powder	0.155	1550
4555205	PS 2-2	Concrete Powder	0.034	340
4555206	PS 2-3	Concrete Powder	0.050	500
4555207	DL 1-1	Concrete Powder	0.300	3000
4555208	DL 1-2	Concrete Powder	0.029	290
4555209	DL 1-3	Concrete Powder	0.026	260
4555210	DL 2-1	Concrete Powder	0.129	1290
4555211	DL 2-2	Concrete Powder	0.032	320
4555212	DL 2-3	Concrete Powder	0.020	200

Notes:

1. This analysis represents specifically the samples submitted as received.
2. Analysis by potentiometric titration with silver nitrate. (ASTM C1152-04(2012)^{e1})
3. This report may not be reproduced except in its entirety.

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