

**CONTRACT DOCUMENTS AND SPECIFICATIONS**

for

**High Hanover Parking Facility Maintenance Project 2010  
Bid Proposal # 14-11**

**John P. Bohenko, City Manager**

Prepared by:

City of Portsmouth  
Engineering Division  
Public Works Department

## TABLE OF CONTENTS

INVITATION TO BID	3
INSTRUCTION TO BIDDERS	4
AWARD AND EXECUTION OF CONTRACT	7
PROPOSAL	9
BID BOND	12
BIDDER'S QUALIFICATIONS	14
CONTRACT AGREEMENT	16
NOTICE OF INTENT TO AWARD	19
NOTICE TO PROCEED	20
CHANGE ORDER	21
LABOR AND MATERIALS PAYMENT BOND	22
MAINTENANCE BOND	25
CONTRACTOR'S AFFIDAVIT	26
CONTRACTOR'S RELEASE	27
GENERAL REQUIREMENTS	28
CONTROL OF WORK	30
INSURANCE	32
MEASUREMENT AND PAYMENT	33
SHOP DRAWINGS	38
TECHNICAL SPECIFICATIONS	39

City of Portsmouth  
Portsmouth, NH  
Department of Public Works

## High/Hanover Parking Facility Maintenance Project

### INVITATION TO BID

**Sealed** bid proposals, **plainly marked, High/Hanover Parking Facility Maintenance Project**, Bid Proposal #14-11 **on the outside of the mailing envelope as well as the sealed bid envelope**, addressed to the Finance/Purchasing Department, City Hall, 1 Junkins Avenue, Portsmouth, New Hampshire, 03801, will be accepted until **September 29, 2010 at 2:00p.m.**, at which time all bids will be publicly opened and read aloud.

The work shall consist of topping slab repairs and the installation of cathodic protection systems for topping slab reinforcement.

Completion date will be 30 calendar days from the date of the Notice to Proceed. Liquidated damages shall be assessed at \$50.00 per day.

**Contractors must have at least five years of successful experience in the field of concrete repair and protection.** Bidders must determine the quantities of work required and the conditions under which the work will be performed.

Specifications and bid proposal forms may be obtained from the Finance/Purchasing Department on the third floor at the above address, by calling the Purchasing Coordinator at 603-610-7227, or from our website [www.cityofportsmouth.com](http://www.cityofportsmouth.com). Questions may be directed to the Purchasing Coordinator. Addenda to this bid document, if any, including written answers to questions, will be posted on the City of Portsmouth website at <http://www.cityofportsmouth.com/finance/purchasing.htm> under the project heading. Addenda and updates will **NOT** be sent directly to vendors. Questions may be addressed to the Purchasing Coordinator.

The City of Portsmouth reserves the right to reject any or all bids, to waive technical or legal deficiencies, to re-bid, and to accept any bid that it may deem to be in the best interest of the City.

Each Bidder shall furnish a bid security in the amount of ten percent (10%) of the bid. The Bid Security may be in the form of a certified check or a bid bond executed by a surety company authorized to do business in the State of New Hampshire, made payable to the City of Portsmouth, N.H.

## **INSTRUCTIONS TO BIDDERS**

### **BIDDING REQUIREMENTS AND CONDITIONS**

1. Special Notice to Bidders

Appended to these instructions is a complete set of bidding and general contract forms. These forms may be detached and executed for the submittal of bids. The plans, specifications, and other documents designated in the proposal form will be considered as part of the proposal, whether attached or not.

The bidders must submit a statement of bidder's qualifications, if requested, subsequent to bid opening but prior to award.

Addenda to this proposal, if any, including written answers to questions, will be posted on the City of Portsmouth website at <http://www.cityofportsmouth.com/finance/purchasing.htm> under the project heading. Addenda and updates will **NOT** be sent directly to firms. Contractors submitting a proposal should check the web site daily for addenda and updates after the release date. Firms should print out, sign and return addenda with the proposal. Failure to do so may result in disqualification

2. Interpretation of Quantities in Bid Schedules

The quantities appearing in the bid schedule are approximate only and are prepared for the comparison of bids. Payment to the contractor will be made only for actual work performed and accepted in accordance with the contract. Any scheduled item of work to be done and materials to be furnished may be increased, decreased or omitted as hereinafter provided, and no claim for loss, anticipated profits or costs incurred in anticipation of work not ultimately performed will be allowed due to such increase or decrease.

3. Examination of Plans, Specifications and Site Work

The bidder is expected to examine carefully the site of the proposed work, the plans, standard specifications, supplemental specifications, special provisions and contract forms before submitting a proposal. The submission of a bid shall be considered conclusive evidence that the bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirements of the contract. It will be conclusive evidence that the bidder has also investigated and is satisfied with the sources of supply for all materials.

Plans, surveys, measurements, dimensions, calculations, estimates and statements as to the condition under which the work is to be performed are believed to be correct, but the contractors must examine for themselves, as no allowance will be made for any errors or inaccuracies that maybe found therein.

4. Familiarity with Laws

The bidder is assumed to have made himself or herself familiar with all federal and state laws and all local by-laws, ordinances and regulations which in any manner affect those engaged or employed on the work or affect the materials or equipment used in the work or affect the conduct of the work, and the bidder, if awarded the contract, shall be obligated to perform the work in conformity with said laws, by-laws, ordinances and regulations notwithstanding its ignorance thereof. If the bidder shall discover any provision in the plans or specifications which is in conflict with any such law, by-law, ordinance or regulation the bidder shall forthwith report it to the engineer in writing.

5. Preparation of Proposal

a) The bidder shall submit its proposal upon the forms furnished by the Owner. The bidder shall specify a lump sum price in figures, for each pay item for which a quantity is given and shall also show the products of the respective prices and quantities written in figures in the column provided for that purpose and the total amount of the proposal obtained by adding the amount of the several items. All words and figures shall be in ink or typed. If a unit price or a lump sum bid already entered by the bidder on the proposal form is to be altered it should be crossed out with ink, the new unit price or lump sum bid entered above or below it and initialed by the bidder, also with ink.

b) The bidder's proposal must be signed with ink by the individual, by one or more general partners of a partnership, by one or more members or officers of each firm representing a joint venture; by one or more officers of a corporation, by one or more members (if member-managed) or managers (if manager-managed) of a limited liability company, or by an agent of the contractor legally qualified and acceptable to the owner. If the proposal is made by an individual, his or her name and post office address must be shown, by a partnership the name and post office address of each general and limited partner must be shown; as a joint venture, the name and post office address of each venturer must be shown; by a corporation, the name of the corporation and its business address must be shown, together with the name of the state in which it is incorporated, and the names, titles and business addresses of the president, secretary and treasurer.

#### 6. Nonconforming Proposals

Proposals will be considered nonconforming and may be rejected in the Owner's sole discretion for any of the following reasons:

- If the proposal is on a form other than that furnished by the Owner, or if the form is altered or any portion thereof is detached;
- If there are unauthorized additions, conditional or altered bids, or irregularities of any kind which may tend to make the proposal or any portion thereof incomplete, indefinite or ambiguous as to its meaning;
- If the bidder adds any provisions reserving the right to accept or reject an award, or to enter into a contract pursuant to an award; or
- If the proposal does not contain a unit price for each pay item listed except in the case of authorized alter pay items.

#### 7. Proposal Guaranty

No proposal will be considered unless accompanied by a bid bond, surety, or similar guaranty of the types and in an amount not less than the amount indicated in the Invitation to Bid. All sureties shall be made payable to the "City of Portsmouth". If a bid bond is used by the bidder it shall be:

- In a form satisfactory to the Owner;
- With a surety company licensed, authorized to do business in, and subject to the jurisdiction of the courts of the State of New Hampshire; and
- Conditioned upon the faithful performance by the principal of the agreements contained in the sub-bid or the general bid.

In the event any irregularities are contained in the proposal guaranty, the bidder will have four business days (not counting the day of opening) to correct any irregularities. The corrected guaranty must be received by 4:00 p.m. If irregularities are not corrected to the satisfaction of the Owner, the Owner, in its sole discretion, may rejected the bid.

#### 8. Delivery of Proposals

When sent by mail, the sealed proposal shall be addressed to the Owner at the address and in the care of the official in whose office the bids are to be received. All proposals shall be filed prior to the time and at the place specified in the invitation for bids. Proposals received after the time for opening of the bids will be returned to the bidder, unopened.

9. Withdrawal of Proposals

A bidder will be permitted to withdraw his or her proposal unopened after it has been submitted if the Owner receives a request for withdrawal in writing prior to the time specified for opening the proposals.

10. Public Opening of Proposals

Proposals will be opened and read publicly at the time and place indicated in the invitation for bids. Bidders, their authorized agents, and other interested parties are invited to be present.

11. Disqualification of Bidders

Any or all of the following reasons may be deemed by Owner in its sole discretion as being sufficient for the disqualification of a bidder and the rejection of his proposal:

- More than one proposal for the same work from an individual, firm, or corporation under the same or different name;
- Evidence of collusion among bidders;
- Failure to submit all required information requested in the bid specifications;
- **Contractor lacks a successful track record of five years or more in the field of concrete repair and protection;**
- Lack of competency or of adequate machinery, plant or other equipment, as revealed by the statement of bidders qualification or otherwise;
- Uncompleted work which, in the judgment of the owner, might hinder or prevent the prompt completion of additional work if awarded;
- Failure to pay, or satisfactorily settle, all bills due for labor and materials on former contracts;
- Default or unsatisfactory performance on previous contracts; or
- Such disqualification would be in the best interests of the Owner.

12. Material Guaranty and Samples

Before any contract is awarded, the bidder may be required to furnish a complete statement of the origin, composition and manufacture of any or all materials to be used in the construction of the work, and the Owner may, in its sole discretion, reject the bid based on the contents of the statement or as a result of the failure of the bidder to submit the statement.

## AWARD AND EXECUTION OF CONTRACT

### 1. Consideration of Proposals

After the proposals are opened and read, they will be compared on the basis of the total price for all sections of work and any such additional considerations as may be identified in the bid documents. The results of such comparisons will be immediately available to the public. In case of a discrepancy between the prices written in words and those written figures, the prices written in words shall govern. In case of a discrepancy between the total shown in the proposal and that obtained by adding the products of the quantities of items and unit bid prices, the latter shall govern.

### 2. Award of Contract

Within 30 calendar days after the opening of proposals, if a contract is to be awarded, the award will be made to the lowest responsible and qualified bidder whose proposal complies with all the requirements prescribed. The successful bidder will be notified, in writing, mailed to the address on his or her proposal, that his or her bid has been accepted and that the bidder has been awarded the contract.

### 3. Reservation of Rights

The Owner reserves the right to reject any or all proposals, to waive technicalities or to advertise for new proposals, if, in the sole discretion of the Owner, the best interest of the City of Portsmouth will be promoted thereby. The Owner further reserves the right to modify the scope of work in the event that bids exceed budgeted amounts.

The Owner reserves the right to cancel the award of any contract at any time before the execution of such contract by all parties without any liability of the Owner.

### 4. Return of Proposal Guaranty

All proposal guaranties, except those of the three lowest bidders, will be returned upon request following the opening and checking of the proposals. The proposal guaranties of the three lowest bidders will be returned within ten days following the award of the contract if requested.

### 5. Contract Bonds

At the time of the execution of the contract, the successful bidder shall furnish:

- Labor and materials payment bond in the sum equal to 100 percent of the contract amount.

At the time of project completion, the Owner may, in its sole discretion, permit the Contractor to substitute a maintenance bond in lieu of holding retainage for the entire guaranty period. If a bond is furnished it shall meet the following criteria:

- The bond shall be in an amount equal to 20 percent of the contract amount. Such bond shall guarantee the repair of all damage due to faulty materials or workmanship provided or done by the contractor. The guarantee shall remain in effect for a period of one year after the date of final acceptance of the job by the Owner.

Each bond shall be: (1) in a form satisfactory to the Owner; (2) with a surety company licensed and authorized to do business and with a resident agent designated for services of process in the State of New Hampshire; and (3)

conditioned upon the faithful performance by the principal of the agreements contained in the original bid. All premiums for the contract bonds are to be paid by the contractor.

6. Execution and Approval of Contract

The successful bidder is required to present all contract bonds, to provide proof of insurance, and to execute the contract within 10 days following receipt of the City's notification of acceptance of the bid. No contract shall be considered as in effect until it has been fully executed by all parties.

7. Failure to Execute Contract

Failure to execute the contract and file acceptable bonds within 10 days after notification of acceptance of bid shall be just cause for the cancellation of the award and the forfeiture of the proposal guarantee which shall become the property of the Owner, not as a penalty, but in liquidation of damages sustained. Award may then be made to the next lowest responsible bidder, or the City may exercise its reserved rights including the rejection of all bids or re-advertisement.



**PROPOSAL FORM**

**HIGH/HANOVER PARKING FACILITY MAINTENANCE PROJECT**

CITY OF PORTSMOUTH, N.H.

To the City of Portsmouth, New Hampshire, herein called the Owner.

The undersigned, as Bidder, herein referred to as singular and masculine declares as follows:

1. All interested in the Bid as Principals are named herein.
2. This bid is not made jointly, or in conjunction, cooperation or collusion with any other person, firm, corporation, or other legal entity;
3. No officer, agent or employee of the Owner is directly or indirectly interested in this Bid.
4. The bidder has carefully examined the sites of the proposed work and fully informed and satisfied himself as to the conditions there existing, the character and requirements of the proposed work, the difficulties attendant upon its execution and the accuracy of all estimated quantities stated in this Bid, and the bidder has carefully read and examined the Drawings, Agreement, Specifications and other Contract Documents therein referred to and knows and understands the terms and provisions thereof;
5. The bidder understands that the quantities of work calculated in the Bid or indicated on the Drawings or in the Specifications or other Contract Documents are approximate and are subject to increase or decrease or deletion as deemed necessary by the Portsmouth City Engineer. Any such changes will not result in or be justification for any penalty or increase in contract prices; and agrees that, if the Bid is accepted the bidder will contract with the Owner, as provided in the Contract Documents, this Bid Form being part of said Contract Documents, and that the bidder will supply or perform all labor, services, plant, machinery, apparatus, appliances, tools, supplies and all other activities required by the Contract Documents in the manner and within the time therein set forth, and that the bidder will take in full payment therefor the following item prices, to wit:

**PROPOSAL FORM** (continued)

THIS PROJECT SHALL BE BID BY UNIT PRICES:

ITEM #	ESTIMATED QUANTITY	ITEM DESCRIPTION & UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	ITEM TOTAL IN FIGURES
1.	1	Project Mobilization (Not to exceed 15% of Total Project Cost) Per Lump Sum	\$ _____	\$ _____
2.	1,700 SF	Topping Slab Concrete Repair w/ Sacrificial Anodes Per Square Foot	\$ _____	\$ _____

**PROPOSAL FORM** (continued)

Award of Bid will be based on the Total Bid of Items 1 through 2 complied by the Bidder using the estimated quantities listed above

In Figures \$ \_\_\_\_\_

In Words \$ \_\_\_\_\_

To Bidder: It is the intention of this contract that the items listed above describe completely and thoroughly the entirety of the work as shown on the plans and as described in the specifications. All other items required to accomplish the above items are considered to be subsidiary work, unless shown as a pay item.

The undersigned agrees that for extra work, if any, performed in accordance with the terms and provisions of the Contract Documents, the bidder will accept compensation as stipulated therein.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Company

By: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Business Address

Title: \_\_\_\_\_

\_\_\_\_\_  
City, State, Zip Code

Telephone: \_\_\_\_\_

The Bidder has received and acknowledged Addenda No. \_\_\_\_\_ through \_\_\_\_\_. All Bids are to be submitted on this form and in a sealed envelope, plainly marked on the outside with the Bidder's name and address and the Project name as it appears at the top of the Proposal Form.

**BID SECURITY BOND**

(This format provided for convenience, actual Bid Bond is acceptable in lieu of, if compatible.)

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned

\_\_\_\_\_, as Principal, and

\_\_\_\_\_, as Surety, are hereby

held and firmly bound unto \_\_\_\_\_

IN THE SUM OF \_\_\_\_\_

as liquidated damages for payment of which, well and truly to be made we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

The condition of this obligation is such that whereas the Principal has submitted to the

\_\_\_\_\_ referred to as the "AGREEMENT" and or "CONTRACT", for

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

NOW THEREFORE,

- (a) If said Bid shall be rejected or withdrawn as provided in the INFORMATION FOR BIDDERS attached hereto or, in the alternative,
- (b) If said Bid shall be accepted and the Principal shall duly execute and deliver the form of AGREEMENT attached hereto and shall furnish the specified bonds for the faithful performance of the AGREEMENT and/or CONTRACT and for the payment for labor and materials furnished for the performance of the AGREEMENT and or CONTRACT,

then this obligation shall be void , otherwise it shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder in no event shall exceed the amount of this obligation.

**BID SECURITY BOND** (continued)

The Surety, for value received, hereby agrees that the obligation of said surety and its bond shall be in no way impaired or affected by any extensions of the time within such BID may be accepted, and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the parties hereto have duly executed

this bond on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
L.S.  
(Name of Principal)

(SEAL)

BY \_\_\_\_\_

\_\_\_\_\_  
(Name of Surety)

BY \_\_\_\_\_

**STATEMENT OF BIDDER'S QUALIFICATIONS**

**Supply with Bid**

**All questions must be answered and the data given must be clear and comprehensive. Add separate sheets if necessary**

1. Name of Bidder
2. Permanent Main Office Address
3. Form of Entity
4. When Organized
5. Where Organized
6. How many years have you been engaged in the contracting business under your present name; also state names and dates of previous firm names, if any.
7. Contracts on hand; (schedule these, showing gross amount of each contract and the approximate anticipated dates of completion).
8. General character of work performed by your company.
9. Have you failed within the last seven years to complete any work awarded to you? \_\_\_\_\_(no)\_\_\_\_\_(yes). If so, where and why?
10. Have you defaulted on a contract within the last seven years?  
\_\_\_\_\_ (no)\_\_\_\_\_ (yes). If so, where and why?
11. Have you ever failed to complete a project in the time allotment according to the Contract Documents?  
\_\_\_\_\_ (no)\_\_\_\_\_ (yes). If so, where and why?
12. List the most important contracts recently executed by your company, stating approximate cost for each, and the month and year completed.
13. List your major equipment available for this contract.
14. List your key personnel such as project superintendent and foremen available for this contract.

**STATEMENT OF BIDDERS QUALIFICATIONS** (continued)

15. List any subcontractors whom you would expect to use for the following (unless this work is to be done by your own organization).

- a. Concrete Repair Work \_\_\_\_\_
- b. Cathodic Protection Work \_\_\_\_\_

16. Contractor must have at least five years prior experience in concrete repair and protection. Describe that prior experience, identifying projects/contracts that have been successfully completed within the last five years.

---



---



---



---



---

Latest Financial Statements: The City reserves the right to request Bidders' latest Financial Statements. Certified audited statements if available, prepared by an independent certified public accountant, may be requested by Owner. If requested, such statements must be provided within five (5) business days or the bid proposal will be rejected. Certified Audited Statement are preferred. Internal statements may be used only if independent statements were not prepared.

Dated at \_\_\_\_\_ this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
Name of Bidder

BY \_\_\_\_\_

TITLE \_\_\_\_\_

State of \_\_\_\_\_

County of \_\_\_\_\_

\_\_\_\_\_ being duly sworn, deposes and

says that the bidder is \_\_\_\_\_ of \_\_\_\_\_  
(Name of Organization)

and answers to the foregoing questions and all statements contained therein are true and correct.

Sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
Notary of Public

My Commission expires \_\_\_\_\_



**CONTRACT AGREEMENT**

**HIGH/HANOVER PARKING FACILITY MAINTENANCE PROJECT  
2010**

THIS AGREEMENT made as of the **Xrd** day of **XXXXX** in the year **2010**, by and between the City of Portsmouth, New Hampshire (hereinafter call the Owner) and **XXXXXXXX** (hereinafter called the Contractor),

WITNESSETH; that the Owner and Contractor, in consideration of the mutual covenants hereinafter set forth, agree as follows:

**ARTICLE I- Work** - The Contractor shall perform all work as specified or indicated in the Contract Documents for the completion of the Project. The Contractor shall provide, at his expense, all labor, materials, equipment and incidentals as may be necessary for the expeditious and proper execution of the Project.

**ARTICLE II - ENGINEER** - The City Engineer shall mean the Director of Public Works, or his authorized representative will act as engineer in connection with completion of the Project in accordance with the Contract Documents.

**ARTICLE III - CONTRACT TIME** - The work will commence and finish in accordance with the Notice to Proceed.

**ARTICLE IV - CONTRACT PRICE and PAYMENT**- Upon final acceptance of the work and settlement of all claims, Owner shall pay the Contractor the Contract Price as shown in the Bid Proposal, subject to additions and deductions (such as retainage) provided for in the Contract Documents.

**ARTICLE V - RETAINAGE** – To insure the proper performance of this Contract, the Owner shall retain ten percent of the Contract Price as specified in the Contract Documents.

**ARTICLE VI - LIQUIDATED DAMAGES** - In event the Contractor fails to successfully complete the work within the specified contract time the Owner shall assess the Contractor liquidated damages in the amount of **fifty dollars (\$50.00)** for each calendar day beyond the specified completion date. Liquidated damages shall be deducted from the Contract Price prior to final payment of the Contractor.

**CONTRACT AGREEMENT** (continued)

**ARTICLE VII – CONTRACT DOCUMENTS** – The Contract Documents which comprise the contract between Owner and Contractor are attached hereto and made a part hereof and consist of the following:

- 8.1 This Agreement
- 8.2 Contractor's Bid and Bonds
- 8.3 Notice of Award, Notice to Proceed
- 8.4 Instruction to Bidders
- 8.5 General Requirements, Control of Work, Temporary Facilities, Measurement and Payment, Standard Specifications
- 8.6 Insurance Requirements
- 8.7 Standard and Technical Specifications
- 8.8 Drawings
- 8.9 Special Provisions
- 8.10 Any modifications, including change orders, duly delivered after execution of this Agreement.

**ARTICLE VIII – TERMINATION FOR DEFAULT** – Should contractor at any time refuse, neglect, or otherwise fail to supply a sufficient number or amount of properly skilled workers, materials, or equipment, or fail in any respect to prosecute the work with promptness and diligence, or fail to perform any of its obligations set forth in the Contract, Owner may, at its election, terminate the employment of Contractor, giving notice to Contractor in writing of such election, and enter on the premises and take possession, for the purpose of completing the work included under this Agreement, of all the materials, tools and appliances belonging to Contractor, and to employ any other persons to finish the work and to provide the materials therefore at the expense of the Contractor.

**ARTICLE IX – INDEMNIFICATION OF OWNER** – Contractor will indemnify Owner against all suits, claims, judgments, awards, loss, cost or expense (including without limitation attorneys' fees) arising in any way out of the Contractor's negligent performance of its obligations under this Contract. Contractor will defend all such actions with counsel satisfactory to Owner at its own expense, including attorneys' fees, and will satisfy any judgment rendered against Owner in such action.

**ARTICLE X – PERMITS** – The Contractor will secure at its own expense, all permits and consents required by law as necessary to perform the work and will give all notices and pay all fees and otherwise comply with all applicable City, State, and Federal laws, ordinances, rules and regulations.

**ARTICLE XI – INSURANCE** – The Contractor shall secure and maintain, until acceptance of the work, insurance with limits not less than those specified in the Contract.

**ARTICLE XII – MISCELLANEOUS –**

- A. Neither Owner nor Contractor shall, without the prior written consent of the other, assign, sublet or delegate, in whole or in part, any of its rights or obligations under any of the Contract Documents; and, specifically not assign any monies due, or to become due, without the prior written consent of Owner.
- B. Owner and Contractor each binds himself, his partners, successors, assigns and legal representatives, to the other party hereto in respect to all covenants, agreements and obligations contained in the Contract Documents.
- C. The Contract Documents constitute the entire Agreement between Owner and Contractor and may only be altered amended or repealed by a duly executed written instrument.
- D. The laws of the State of New Hampshire shall govern this Contract without reference to the conflict of law principles thereof.
- E. Venue for any dispute shall be the Rockingham County Superior Court unless the parties otherwise agree.

IN WITNESS WHEREOF, the parties hereunto executed this  
 AGREEMENT the day and year first above written.

**BIDDER:**

BY: \_\_\_\_\_

TITLE: \_\_\_\_\_

**CITY OF PORTSMOUTH, N.H.**

BY: \_\_\_\_\_

John P. Bohenko

TITLE: City Manager

**NOTICE OF INTENT TO AWARD**

Date:

To:

IN AS MUCH as you were the low responsible bidder for work entitled:

**HIGH/HANOVER PARKING FACILITY MAINTENANCE PROJECT 2010**

You are hereby notified that the City intends to award the above referenced project to you.

Immediately take the necessary steps to execute the Contract and to provide required bonds and proof of insurance within ten (10) calendar days from the date of this Notice.

The City reserves the right to revoke this Notice if you fail to take the necessary steps to execute this Contract.

City of Portsmouth  
Portsmouth, New Hampshire

Judie Belanger,  
Finance Director

**NOTICE TO PROCEED**

DATE:

**HIGH/HANOVER PARKING FACILITY MAINTENANCE PROJECT 2010**

TO:

YOU ARE HEREBY NOTIFIED TO COMMENCE WORK IN ACCORDANCE WITH THE AGREEMENT DATED XXXXXXXX WITHIN THIRTY (30) DAYS FROM THE NOTICE TO PROCEED AND TO BE COMPLETED WITHIN 30 DAYS OF COMMENCEMENT.

CITY OF PORTSMOUTH, N.H.

\_\_\_\_\_  
BY: Steven F. Parkinson, PE

TITLE: Public Works Director

**ACCEPTANCE OF NOTICE**

RECEIPT OF THE ABOVE NOTICE TO PROCEED IS HEREBY ACKNOWLEDGED BY

\_\_\_\_\_  
This the \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_

By: \_\_\_\_\_

Title: \_\_\_\_\_

**CHANGE ORDER**

Change Order Number:

Date of Issuance:

Owner: CITY OF PORTSMOUTH, N.H

Contractor:

\_\_\_\_\_  
You are directed to make the following changes in the  
Contract Documents:

Purpose of Change Order: Additional Work

Attachments: Spreadsheet

CHANGE IN CONTRACT PRICE

CHANGE IN CONTRACT TIME

Original Contract Price:  
\$

Original Completion Date:

Contract Price prior to this  
Change Order:  
\$

Contract Time prior to this  
Change Order:  
days

Net Increase of  
this Change Order:  
\$

Net Increase of  
this Change Order:  
days

Contract Price with all  
approved Change Orders:  
\$

Contract Time with all  
approved Change Orders:  
days

RECOMMENDED:

APPROVED:

APPROVED:

by \_\_\_\_\_

by \_\_\_\_\_

by \_\_\_\_\_

by \_\_\_\_\_

PW Director

City Finance

City Manager

Contractor

**LABOR AND MATERIAL PAYMENT BOND**

(This format provided for convenience, actual Labor and Material Bond is acceptable in lieu, if compatible)

Bond Number \_\_\_\_\_

KNOW ALL MEN BY THESE PRESENTS:

that \_\_\_\_\_

as Principal, hereinafter called Contractor, and \_\_\_\_\_ (Surety Company) a corporation organized and existing under the laws of the State of

\_\_\_\_\_ and authorized to do business in the State of New Hampshire hereinafter called Surety, are held and firmly bound unto the City of Portsmouth, N.H. Obligee, hereinafter called Owner, for the use and benefit of claimants as herein below defined, in the

amount of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_), for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal has by written agreement dated \_\_\_\_\_ entered into a

contract with Owner for \_\_\_\_\_ in accordance with drawings and specifications prepared by the Public Works Department, 680 Peverly Hill Road, Portsmouth, N.H. 03801, which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that the Principal shall promptly make payment to all claimants as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the Contract and for the hire of all equipment, tools, and all other things contracted for or used in connection therewith, then this obligation shall be void, otherwise it shall remain in full force and effect, subject however, to the following conditions:

(1) A claimant is defined as one having a direct contract with the Principal or, with a subcontractor of the Principal for labor, material, equipment, or other things used or reasonably required for use in the performance of the Contract. "Labor and material" shall include but not be limited to that part of water, gas, power, light, heat, oil and gasoline, telephone service or rental of equipment applicable to the Contract.

(2) The above named Principal and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such a claimant, may sue on this bond for the use of such claimant, prosecute the suit by final judgment for such sum or sums as may be

**LABOR AND MATERIAL PAYMENT BOND** (continued)

justly due claimant, and have execution thereon. The Owner shall not be liable for the payment of any such suit or any costs or expenses of any such suit, and principal and surety shall jointly and severally indemnify, defend and hold the Owner harmless for any such suit, costs or expenses.

(3) No suit or action shall be commenced hereunder by any claimant:

(a) Unless Claimant, other than one having a direct contract with the Principal, shall have given notice to all the following:

The Principal, the Owner and the Surety above named, within six (6) calendar months after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Principal, Owner, and Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the State of New Hampshire save that such service need not be made by a public officer.

(b) After the expiration of one (1) year following the date on which Principal ceased all work on said contract, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

(c) Other than in a State court of competent jurisdiction in and for the county or other political subdivision of the State in which the project, or any part thereof, is situated, or in the United States District Court for the district in which the project, or any part thereof, is situated, and not elsewhere. (4) The amount of this bond may be reduced by and to the extent of any payment of payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed on record against said improvement, whether or not claim for the amount of such lien by presented under and against this bond.

Signed and sealed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_. In the presence of:

\_\_\_\_\_  
(Witness) BY: \_\_\_\_\_  
(Principal) (Seal)

\_\_\_\_\_  
(Surety Company)

\_\_\_\_\_  
(Witness) BY: \_\_\_\_\_  
(Title) (Seal)



**LABOR AND MATERIAL PAYMENT BOND** (continued)

Note:

If the Principal (Contractor) is a partnership, the Bond should be signed by each of the partners.

If the Principal (Contractor) is a corporation, the Bond should be signed in its correct corporate name by its duly authorized Officer or Officers.

If this bond is signed on behalf of the Surety by an attorney-in-fact, there should be attached to it a duly certified copy of his Power of Attorney showing his authority to sign such Bonds.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Agreement.

**MAINTENANCE BOND**

At the Owner's election, a maintenance bond may be substituted for retainage at the completion of the project. If the Owner permits a maintenance bond, it shall be in the amount of **Twenty Percent (20%)** of the contract price with a corporate surety approved by the Owner. Such bond shall be provided at the time of Contract completion and shall guarantee the repair of all damage due to faulty materials or workmanship provided or done by the Contractor. This guarantee shall remain in effect for a period of one year after the date of final acceptance of the job by the Owner.

**CONTRACTOR'S AFFIDAVIT**

STATE OF \_\_\_\_\_:

COUNTY OF \_\_\_\_\_:

Before me, the undersigned, a \_\_\_\_\_  
(Notary Public, Justice of the Peace)

in and for said County and State personally appeared, \_\_\_\_\_  
(Individual, Partner, or duly authorized representative of Corporate)

who, being duly sworn, according to law deposes and says that the cost of labor, material, and equipment and outstanding claims and indebtedness of whatever nature arising out of the performance of the Contract between

CITY OF PORTSMOUTH, NEW HAMPSHIRE

and \_\_\_\_\_  
(Contractor)

of \_\_\_\_\_

Dated: \_\_\_\_\_

has been paid in full for Construction of: **High/Hanover Parking Facility Maintenance Project 2010**

\_\_\_\_\_

(Individual, Partner, or  
duly authorized  
representative of  
Corporate Contractor)

Sworn to and subscribed  
before me this \_\_\_\_\_ day  
of \_\_\_\_\_ 20\_\_

\_\_\_\_\_

**CONTRACTOR'S RELEASE**

KNOW ALL MEN BY THESE PRESENTS that

I, \_\_\_\_\_ {insert name},  
in my capacity as \_\_\_\_\_ {insert title}  
of \_\_\_\_\_ {insert name of Contractor}

agree that upon receipt of the sum of \$\_\_\_\_\_ from the CITY OF  
PORTSMOUTH NEW HAMPSHIRE as final and completed payment for the construction of:  
\_\_\_\_\_ {insert name of project}

do hereby on behalf of \_\_\_\_\_ {name of Contractor} and its  
successors and assigns release, quit-claim and forever discharge the City of Portsmouth, New  
Hampshire, its successors and assigns, of and from all claims and demands arising from or in  
connection with the construction of the above-referenced project and the contract dated  
\_\_\_\_\_. All claims and demands shall include without limitation all actions, causes,  
suits, debts, dues, duties, sums of money, accounts, reckonings, bonds, bills, specifications,  
covenants, contracts, agreements, promises, damages and judgments whatsoever in law or equity  
against the City of Portsmouth, New Hampshire which Contractor ever had, now has or may  
have, for, upon or by reason of any matter, cause, or thing whatsoever; from the beginning of  
record time to the date of these presents.

IN WITNESS WHEREOF,

Witness

Contractor:

\_\_\_\_\_  
print name : \_\_\_\_\_

By: \_\_\_\_\_  
Its Duly Authorized \_\_\_\_\_

Dated: \_\_\_\_\_

## **GENERAL REQUIREMENTS**

### **SCOPE OF WORK**

#### **1. INTENT OF CONTRACT**

The intent of the Contract is to provide for the construction and completion in every detail of the work described. The Contractor shall furnish all labor, materials, equipment, tools, transportation and supplies required to complete the work in accordance with the terms of the Contract. The Contractor shall be required to conform to the intent of the plans and specifications. No extra claims shall be allowed for portions of the work not specifically addressed in the plans and specifications but required to produce a whole and complete project, such work will be considered subsidiary to the bid items.

#### **2. INCIDENTAL WORK**

Incidental work items for which separate payment is not measured includes, but is not limited to, the following items:

- a. Clearing, grubbing and stripping (unless otherwise paid for)
- b. Clean up
- c. Plugging existing sewers and manholes
- d. Signs
- e. Mobilization/Demobilization (unless otherwise paid for)
- f. Restoration of property
- g. Cooperation with other contractors, abutters and utilities.
- h. Utility crossings, (unless otherwise paid for)
- i. Minor items - such as replacement of fences, guardrails, rock wall, etc.
- j. Steel and/or wood sheeting as required.
- k. Accessories and fasteners or components required to make items paid for under unit prices or lump sum items complete and functional.

#### **3. ALTERATION OF PLANS OR OF CHARACTER OF WORK**

The Owner reserves the right, without notice to Surety, to make such alterations of the plans or of the character of the work as may be necessary or desirable to complete fully and acceptably the proposed construction; provided that such alterations do not increase or decrease the contract cost. Within these cost limits, the alterations authorized in writing by the Owner shall not impair or affect any provisions of the Contract or bond and such increases or decreases of the quantities as a result from these alterations or deletions of certain items, shall not be the basis of claim for loss or for anticipated profits by the contractor. The contractor shall perform the work as altered at the contract unit price or prices.

#### **4. EXTRA WORK ITEMS**

Extra work shall be performed by the Contractor in accordance with the specifications and as directed, and will be paid for at a price as provided in the Contract documents or if such pay items are not applicable than at a price negotiated between the contractor and the Owner or at the unit bid price. If the Owner determines that extra work is to be performed, a change order will be issued.

5. CHANGE ORDERS

The Owner reserves the right to issue a formal change order for any increase, decrease, deletion, or addition of work or any increase in contract time or price. The contractor shall be required to sign the change order and it shall be considered as part of the Contract documents.

6. FINAL CLEANING UP

Before acceptance of the work, the contractor shall remove from the site all machinery, equipment, surplus materials, rubbish, temporary buildings, barricades and signs. All parts of the work shall be left in a neat and presentable condition. On all areas used or occupied by the contractor, regardless of the contract limits, the bidder shall clean-up all sites and storage grounds.

The items prescribed herein will not be paid for separately, but shall be paid for as part of the total contract price.

7. ERRORS AND INCONSISTENCY IN CONTRACT DOCUMENTS

Any provisions in any of the Contract Documents that may be in conflict with the paragraphs in these General Requirements shall be subject to the following order of precedence for interpretation.

1. Technical Specifications and Special Provisions will govern General Requirements.

## **CONTROL OF WORK**

### **1. AUTHORITY OF ENGINEER**

(a) All work shall be done under supervision of the City Engineer and to his satisfaction. The City Engineer will decide all questions which may arise as to the quality and acceptability of materials furnished and work performed and as to the rate of progress of the work; all questions that may arise as to the interpretation of the plans and specifications; and all questions as to the acceptable fulfillment of the Contract by the Contractor.

(b) The City Engineer will have the authority to suspend the work wholly or in part for such periods as he may deem necessary due to the failure of the Contractor to correct conditions unsafe for workers or the general public; for failure to carry out provisions of the Contract; for failure to carry out orders; for conditions considered unsuitable for the prosecution of the work, including unfit weather; or for any other condition or reason deemed to be in the public interest. The Contractor shall not be entitled any additional payments arising out of any such suspensions.

(c) The Owner reserves the right to demand a certificate of compliance for a material or product used on the project. When the certificate of compliance is determined to be unacceptable to the City Engineer the Contractor may be required to provide engineering and testing services to guarantee that the material or product is suitable for use in the project, at its expense (see Sample of Certificate of Compliance).

### **2. PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPES**

(a) The Contractor shall use every precaution to prevent injury or damage to wires, poles, or other property of public utilities; trees, shrubbery, crops, and fences along and adjacent to the right-of-way, all underground structures such as pipes and conduits, within or outside of the right-of-way; and the Contractor shall protect and carefully preserve all property marks until an authorized agent has witnessed or otherwise referenced their location.

(b) The Contractor shall be responsible for all damage or injury to property of any character, during the prosecution of the work, resulting from any act, omission, neglect, or misconduct in his manner or method of executing the work, or at any time due to defective work or materials, and said responsibility will not be released until the project shall have been completed and accepted.

(c) When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or as a result of the failure to perform work by the Contractor, the Contractor shall restore, at its own expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing rebuilding, or otherwise restoring as may be directed, or the Contractor shall make good such damage or injury in an acceptable manner.

(d) The Contractor shall paint with tree paint all scars made on fruit or ornamental trees by equipment, construction operations, or the removal of limbs larger than one inch in diameter. Damaged trees must be replaced if so determined by the City Arborist, in his or her sole discretion.

(e) If the Contractor fails to repair, rebuild or otherwise restore such property as may be deemed necessary, the Owner, after 48 hours notice, may proceed to do so, and the cost thereof may be deducted from any money due or which may become due the Contractor under the contract.

(f) It is the intent of the Parties that the Contractor preserve, to as great an extent as possible, the natural features of the site.

**CONTROL OF WORK** (continued)

**3. MAINTENANCE DURING CONSTRUCTION**

The Contractor shall maintain the work during construction and until the project is accepted. This maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and workers to ensure that the structure is kept in satisfactory conditions at all times.

**4. SAFETY PRECAUTIONS**

Upon commencement of work, the Contractor shall be responsible for initiating, maintaining and supervising all safety precautions necessary to ensure the safety of employees on the site, other persons who may be affected thereby, including the public, and other property at the site or adjacent thereto.

**5. PERMITS**

It will be the responsibility of the Contractor to obtain all permits required for the operation of equipment in, or on, all city streets and public ways.

**6. BARRICADES, WARNING SIGNS AND TRAFFIC OFFICERS**

(a) The Contractor shall provide, erect and maintain all necessary barricades, suitable and sufficient lights, danger signals, signs and other traffic control devices, and shall take all necessary precautions for the protection of the work and safety of the public. Roadway closed to traffic shall be protected by effective barricades. Obstructions shall be illuminated during hours of darkness. Suitable warning signs shall be provided to control and direct traffic in a proper manner, as approved by the engineer.

(b) The Contractor will be held responsible for all damage to the work from traffic, pedestrians, animals or any other cause due to lack of adequate controlling devices.

(c) The Contractor shall provide such police officers as the City Engineer deems necessary for the direction and control of traffic within the site of project.

The work prescribed herein will not be paid for separately but will be paid for as part of the Contract Price unless specifically appearing as a bid item.



**INSURANCE REQUIREMENTS**

Insurance shall be in such form as will protect the Contractor from all claims and liabilities for damages for bodily injury, including accidental death, and for property damage, which may arise from operations under this contract whether such operation by himself or by anyone directly or indirectly employed by him.

**AMOUNT OF INSURANCE**

- A) Comprehensive General Liability:  
Bodily injury or Property Damage - \$2,000,000  
Per occurrence and general aggregate
  - B) Automobile and Truck Liability:  
Bodily Injury or Property Damage - \$2,000,000  
Per occurrence and general aggregate
- Coverage requirements can be met with excess policies

Additionally, the Contractor shall purchase and maintain the following types of insurance:

- A) Full Workers Comprehensive Insurance coverage for all people employed by the Contractor to perform work on this project. This insurance shall at a minimum meet the requirements of the most current laws of the State of New Hampshire.
- B) Contractual Liability Insurance coverage in the amounts specified above under Comprehensive General Liability.
- C) Product and Completed Operations coverage to be included in the amounts specified above under Comprehensive General Liability.

**ADDITIONAL INSURED**

All liability policies (including any excess policies used to meet coverage requirements) shall include the City of Portsmouth, New Hampshire as named Additional Insureds.

- 1) The contractor's insurance shall be primary in the event of a loss.
- 2) City of Portsmouth shall be listed as a Certificate Holder. The City shall be identified as follows:

City of Portsmouth  
Attn: Legal Department  
1 Junkins Avenue  
Portsmouth, NH 03801

**MEASUREMENT AND PAYMENT**

**1. MEASUREMENT OF QUANTITIES**

- (a) All work completed under the contract will be measured according to the United States standard measure.
- (b) The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice. Unless otherwise stated all quantities measured for payment shall be computed or adjusted for "in place" conditions.
- (c) Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures having an area of 9 square feet or less. Unless otherwise specified, transverse measurements for area computations will be the dimensions shown on the plans or ordered in writing.
- (d) Structures will be measured according to lines shown on the plans or as ordered unless otherwise provided for elsewhere in the specifications.
- (e) In computing volumes of excavation, embankment, and borrow, the average end area method will be used. Where it is impracticable to measure by the cross-section method, acceptable methods involving three-dimensional measurement may be used. When measurement of borrow in vehicles is permitted, the quantity will be determined as 80 percent of the loose volume.
- (f) In computing volumes of concrete, stone and masonry, the prismatic method will be used. The term "ton" will mean the short ton consisting of 2,000 pounds avoirdupois.
- (g) Except as specified below, all materials that are measured or proportioned by weight shall be weighed on scales which the Contractor has had sealed by the State or by a repairman registered by the Commissioner of Agriculture. All weighing shall be performed in a manner prescribed under the Rules and Regulations of the Bureau of Weights and Measures of the New Hampshire Department of Agriculture.
- (h) Weighing of materials on scales located outside New Hampshire will be permitted for materials produced or stored outside the state, when requested by the Contractor and approved. Out-of-state weighing in order to be approved, must be performed by a licensed public weigh master or a person of equal authority in the state concerned on scales accepted in the concerned state.
- (i) Each truck used to haul material being paid for by weight shall bear a plainly legible identification mark, and if required, shall be weighed empty daily at such times as directed.
- (j) When material is weighed, the individual weight slips, which shall be furnished by the Contractor, for trucks, trailers, or distributors, shall show the following information: the date; the project; the material or commodity; the dealer or vendor; the Contractor or Subcontractor; the location of the scales; the vehicle registration number or other approved legible identification mark; the tare and net weights, with gross weights when applicable; and the weigher's signature or his signed initials.

**MEASUREMENT AND PAYMENT** (continued)

(k) The right is reserved to weight any truck, trailer, or distributor, at locations designated, before and after making deliveries to the project.

(l) Bituminous materials will be measured by the gallon or ton.

(m) When material is specified to be measured by the cubic yard but measurement by weight is approved, such material may be weighed and the weight converted to cubic yards for payment purposes. Necessary conversion factors will be determined by the Owner.

(n) The term "lump sum" when used as an item of payment will mean complete payment for the work described in the item.

(o) When a complete structure or structural unit (in effect, "lump sum" work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories, so as to provide the item complete and functional. Except as may be otherwise provided, partial payments for lump sum items will be made approximately in proportion to the amount of the work completed on those items.

(p) Material wasted without authority will not be included in the final estimate.

**2. SCOPE OF PAYMENT**

(a) The Contractor shall receive and accept compensation provided for in the contract as full payment for furnishing all materials and for performing all work under the contract in a complete and acceptable manner and for all risk, loss, damage or expense of whatever character arising out of the nature of the work or the prosecution thereof.

(b) The Contractor shall be liable to the Owner for failure to repair, correct, renew or replace, at his own expense, all damage due or attributable to defects or imperfections in the construction which defects or imperfections may be discovered before or at the time of the final inspection and acceptance of the work.

(c) No monies, payable under the contract or any part thereof, except the first estimate, shall become due or payable if the Owner so elects, until the Contractor shall satisfy the Owner that the Contractor has fully settled or paid all labor performed or furnished for all equipment hired, including trucks, for all materials used, and for fuels, lubricants, power tools, hardware and supplies purchased by the Contractor and used in carrying out said contract and for labor and parts furnished upon the order of said Contractor for the repair of equipment used in carrying out said contract; and the Owner, if he so elects, may pay any and all such bills, in whole or in part, and deduct the amount of amounts so paid from any partial or final estimate, excepting the first estimate.

MEASUREMENT AND PAYMENT (continued)

3. COMPENSATION FOR ALTERED QUANTITIES

(a) Except as provided for under the particular contract item, when the accepted quantities of work vary from the quantities in the bid schedule the Contractor shall accept as payment in full, so far as contract items are concerned, at the original contract unit prices for the accepted quantities of work done. No allowance will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor resulting either directly from such alterations or indirectly from unbalanced allocation among the contract items of overhead expense on the part of the Bidder and subsequent loss of expected reimbursements therefore or from any other cause.

(b) Extra work performed will be paid for at the contract bid prices or at the price negotiated between the Owner and the Contractor if the item was not bid upon. If no agreement can be negotiated, the Contractor will accept as payment for extra work, cost plus 15% (overhead and profit). Costs shall be substantiated by invoices and certified payroll.

4. PARTIAL PAYMENTS

NOT APPLICABLE

5. FINAL ACCEPTANCE

Upon due notice from the Contractor of presumptive completion of the entire project, the City Engineer will make an inspection. If all construction provided for and contemplated by the contract is found complete to his satisfaction, this inspection shall constitute the final inspection and the City Engineer will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of the final inspection.

If, however, the inspection discloses any work in whole or in part, as being unsatisfactory, the City Engineer will give the Contractor the necessary instructions for correction of such work, and the Contractor shall immediately comply with and execute such instructions. Upon correction of the work, another inspection will be made which shall constitute the final inspection provided the work has been satisfactorily completed. In such event, the City Engineer will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection.

**MEASUREMENT AND PAYMENT** (continued)

**6. ACCEPTANCE AND FINAL PAYMENT**

(a) When the project has been accepted and upon submission by the Contractor of all required reports, completed forms and certifications, the Owner will review the final estimate of the quantities of the various classes of work performed. The Contractor may be required to certify that all bills for labor and material used under this contract have been paid.

(b) The Contractor shall file with the Owner any claim that the Contractor may have regarding the final estimate at the same time the Contractor submits the final estimate. Failure to do so shall be a waiver of all such claims and shall be considered as acceptance of the final estimate. From the total amount ascertained as payable, an amount equal to ten percent (10%) of the whole will be deducted and retained by the Owner for the guaranty period. This retainage may be waived, at the discretion of the City, provided the required Maintenance Bond has been posted. After approval of the final estimate by the Owner, the Contractor will be paid the entire sum found to be due after deducting all previous payments and all amounts to be retained or deducted under the provisions of the contract.

(c) All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

**7. GENERAL GUARANTY AND WARRANTY OF TITLE**

(a) Neither the final certification of payment nor any provision in the contract nor partial or entire use of the improvements embraced in this Contract by the Owner or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express or implied warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting therefrom which shall appear within a period of twelve (12) months from the date of final acceptance of the work. The Owner will give notice of defective materials and work with reasonable promptness.

(b) No material, supplies or equipment to be installed or furnished under this Contract shall be purchased subject to any chattel mortgage or under a conditional sale, lease purchase or other agreement by which an interest therein or in any part thereof is retained by the Seller or supplier. The Contractor shall warrant good title to all materials, supplies and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same together with all improvements and appurtenances constructed or placed thereon by him to the Owner free from any claims, liens or charges. Neither the Contractor nor any person, firm or corporation furnishing any material or labor for any work covered by this Contract shall have the right to a lien upon any improvements or appurtenances thereon.

Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any bond given by the Contractor for their protection or any rights under any law permitting such persons to look to funds due the Contractor in the hands of the Owner. The provisions of this paragraph shall be inserted in all subcontractors and material contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

**MEASUREMENT AND PAYMENT** (continued)

**8. NO WAIVER OF LEGAL RIGHTS**

(a) Upon completion of the work, the Owner will expeditiously make final inspection and notify the Contractor of acceptance. Such final acceptance, however, shall not preclude or stop the Owner from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Owner be precluded or be stopped from recovering from the Contractor or his Surety, or both, such overpayment as it may sustain by failure on the part of the Contractor to fulfill his obligations under the contract. A waiver on the part of the Owner of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.

(b) The Contractor, without prejudice to the Contract shall be liable to the terms of the Contract, shall be liable to the Owner for latent defects, fraud or such gross mistakes as may amount to fraud, and as regards the Owner's right under any warranty or guaranty.

**9. TERMINATION OF CONTRACTOR'S RESPONSIBILITY**

Whenever the improvement provided for by the Contract shall have been completely performed on the part of the Contractor and all parts of the work have been released from further obligations except as set forth in his bond and as provided in Section 8 above.

**SHOP DRAWINGS**

The Contractor shall submit working and detail drawings, well in advance of the work, to the City Engineer for review.

The Contractor's drawings shall consist of shop detail, erection and other working plans showing dimensions, sizes and quality of material, details and other information necessary for the complete fabrication and erection of the pertinent work.

The Contractor shall submit two sets of drawings to the City Engineer.

Prior to the approval of the drawings, any work done or materials ordered for the work involved shall be at the Contractor's risk.

One set of the drawings will be returned to the Contractor approved or marked with corrections to be made. After approval has been given, the Contractor shall supply the City Engineer with two sets of the revised detail working drawings.

The City Engineer's approval of the Contractor's working drawings will not relieve the Contractor from responsibility for errors in dimensions or for incorrect fabrication processes, or from responsibility to complete the contract work.

## **TECHNICAL SPECIFICATIONS**

### **DIVISION 3 – CONCRETE** **Section - 03550 Concrete Toppings** **03920 Concrete Resurfacing** **03930 Concrete Rehabilitation**

#### **Part 1 – General**

##### **1.01 Summary**

A. This specification describes the patching or overlay of interior and/or exterior horizontal surfaces with a rapid setting, portland cement mortar/concrete.

##### **1.02 Quality Assurance**

A. Manufacturing qualifications: The manufacturer of the specified product shall be ISO 9001 certified and have in existence a recognized ongoing quality assurance program independently audited on a regular basis.

B. Contractor qualifications: Contractor shall be qualified in the field of concrete repair and protection with a successful track record of 5 years or more. 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 manufacturer or as modified by applicable rules and regulations of local, state and federal authorities having jurisdiction. Consult Material Safety Data Sheets for complete handling recommendations.

##### **1.03 Delivery, Storage, and Handling**

A. All materials must be delivered in original, unopened containers with the manufacturer's name, labels, product identification, and batch numbers. Damaged material must be removed from the site immediately.

B. Store all materials off the ground and protect from rain, freezing or excessive heat until ready for use.

C. Condition the specified product as recommended by the manufacturer.

##### **1.04 Job Conditions**

A. Environmental Conditions: Do not apply material if it is raining or snowing or if such conditions appear to be imminent. Minimum application temperature 45°F (7°C) and rising.

B. Protection: Precautions should be taken to avoid damage to any surface near the work zone due to mixing and handling of the specified material.

##### **1.05 Submittals**

A. Submit two copies of manufacturer's literature, to include: Product Data Sheets, and appropriate Material Safety Data Sheets (MSDS).

##### **1.06 Warranty**



A. Provide a written warranty from the manufacturer against defects of materials for a period of five (5) years, beginning with date of substantial completion of the project.

### **1.07 Payment**

A. Method of measurement: The repair of concrete spalls shall be measured by the square foot in place and the quantity to be paid for shall be the square feet actually placed.

B. Basis of Payment: The repair of the spalls will be paid for at the contract unit bid price per square foot as stipulated in the schedule of Bid Prices, which payment shall be full compensation for furnishing and installing all materials, labor, tools, equipment, and other incidentals necessary to complete the specified operation. Payment will be made on the percentage of the work completed during each estimate period as determined by the Owner.

## **Part 2 – Products**

### **2.01 Manufacturer**

A. **SikaQuick 1000**, as manufactured by Sika Corporation, is considered to conform to the requirements of this specification.

### **2.02 Materials**

#### **A. General**

1. The material shall be a blend of selected portland cements, specially graded aggregates, admixtures for controlling setting time, water reducers for workability, and an organic accelerator.
2. The materials shall be non-combustible, both before and after cure.
3. The materials shall be supplied in a factory-blended bag.
4. The rapid-setting cement mortar must be placeable from 1/4-in. to 1-in. in depth per lift for horizontal applications.

B. To prepare a rapid-setting portland cement concrete: aggregate shall conform to ASTM C-33. The material shall be extended with 30-lb. of a 3/8 in. ( No.8 distribution per ASTM C-33, Table II) clean, well-graded, saturated surface dry aggregate, having low absorption, high density and non-reactive (reference ASTM C1260, C227, C289). Aggregate must be approved for use by the Engineer.

### **2.03 Performance Criteria**

#### **A. Typical Properties of the material:**

1. Working Time: Approximately 30 minutes
2. Color: concrete gray

#### **B. Typical Properties of the cured material (mortar):**

1. Compressive Strength (ASTM C-109 Modified)
  - a. 3 hours: 1,000 psi (6.9 MPa)
  - b. 1 day: 4,500 psi min. (31.0 MPa)
  - d. 7 day: 7,800 psi min. (53.0 MPa)
  - e. 28 day: 9,000 psi min. (62.1 MPa)

2. Flexural Strength (ASTM C-78) @ 28 days: 1,100 psi (7.6 MPa)
3. Splitting Tensile Strength (ASTM C-496) @ 28 days 1,100 psi (7.6 MPa)
4. Bond Strength (ASTM C-882 Modified) @ 28 days: 3,100 psi (21.4 MPa)
5. The portland cement mortar shall not produce a vapor barrier.
6. Density (wet mix): approximately 136 lbs. / cu. ft. (2.18 kg/l)
7. Permeability (AASHTO T-277) @ 28 days Approximately 450 Coulombs
8. Drying Shrinkage, (ASTM C596) @ 28 days: 0.06%
9. Freeze/Thaw resistance (ASTM C666) @ 28 days: 98%

**Note: Tests above were performed with the material and curing conditions @ 71°F – 75°F and 45-55% relative humidity.**

### **Part 3 – Execution**

#### **3.01 Surface Preparation**

A. Areas to be repaired must be clean, sound, and free of contaminants. All loose and deteriorated concrete shall be removed by mechanical means. Mechanically prepare the concrete substrate to obtain sound concrete to ¾" around all reinforcement

B. Where reinforcing steel with active corrosion is encountered, sandblast the steel to a white metal finish to remove all contaminants and rust. Where corrosion has occurred due to the presence of chlorides, the steel shall be high pressure washed after mechanical cleaning. Prime steel with 2 coats of Sika Armatec 110 EpoCem as directed by manufacturer.

#### **3.02 Mixing and Application**

A. Mechanically mix in appropriate sized mortar mixer or with a Sika jiffy paddle and low speed (400-600 rpm) drill. Pour approximately 5 pints of water into the mixing container. Add the powder while continuing to mix. Mix to a uniform consistency for a maximum of three minutes. Add up to another ½ pint of water to mix if a greater flow is desired. Should smaller quantities be needed, be sure the proper water/powder ratio is maintained and that the dry material is uniformly blended before mixing the components together. Mix only that amount of material that can be placed in 30 minutes. Do not re-temper material.

B. Mixing of the rapid-setting portland cement concrete: Pour 5 to 5 1/2 pints of water into the mixing container. Add the powder while continuing to mix. Add correct amount of the pre-approved coarse aggregate, and continue mixing to a uniform consistency. Mixing time should be 3 minutes maximum.

C. Placement Procedure: At the time of application, the substrate should be saturated surface dry with no standing water. Mortar and/or concrete must be scrubbed into substrate filling all pores and voids. While the scrub coat is still plastic, force material against edge of repair, working toward center. After filling, consolidate, then screed. Allow mortar or concrete to set to desired stiffness, then finish with a trowel for a smooth surface. Broom or burlap drag for rough surface. Areas where the depth of the repair is less than 1-inch shall be repaired with the neat rapid setting portland cement mortar. In areas where the depth of the repair is greater than 1 inch, the repair shall be made with the rapid-setting portland cement concrete.

D. As per ACI recommendations for portland cement concrete, curing is required. Moist cure with wet burlap and polyethylene, a fine mist of water or a water-based\* compatible curing compound. Moist

curing should commence immediately after finishing and continue for 48 hours. Protect newly applied material from rain, sun, and wind until compressive strength is 70% of the 28-day compressive strength. To prevent from freezing cover with insulating material. Setting time is dependent on temperature and humidity.

\*Pretesting of curing compound is recommended.

E. Adhere to all procedures, limitations and cautions for this product in the manufacturers current printed technical data sheet and literature.

### **3.05 Cleaning**

A. The uncured material can be cleaned from tools with water. The cured cement mortar can only be removed mechanically.

B. Leave finished work and work area in a neat, clean condition without evidence of spillovers onto adjacent areas.

**SECTION 03700  
EMBEDDED GALVANIC ANODES**

**PART 1 GENERAL**

**1.01 Related Documents**

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

**1.02 Summary**

A. This Section includes furnishing all labor, tools, materials, equipment and services necessary to properly install embedded galvanic anodes.  
B. Embedded galvanic anodes are designed to provide localized corrosion protection. When placed at the appropriate spacing along the perimeter of concrete patches or along the interface between new/existing concrete, the anodes mitigate the formation of new corrosion sites in the existing concrete.

**1.03 References**

- A. ACI/ICRI 1999 Concrete Repair Manual
- B. ACI Guideline No. 222 – Corrosion of Metals in Concrete
- C. ICRI Guideline No. 03730 Guide for Surface Preparation for the Repair of Deteriorated Concrete resulting from Reinforcing Steel Corrosion
- D. ASTM A615/A615M-00 Standard Specification for Deformed and Plain Billet-Steel Bar for Concrete Reinforcement
- E. ASTM B418-95a Standard Specification for Cast and Wrought Galvanic Zinc Anodes
- F. ASTM A82-97a Specification for Plain Steel Wire for Concrete Reinforcement
- G.

**PART 2 PRODUCTS**

**2.01 Materials**

A. Embedded galvanic anodes shall be puck-shaped approximately 2 ½ inches in diameter by 1 inch high (63 mm x 25 mm), pre-manufactured, containing more than 100g of zinc metal in compliance with ASTM B418-95a Type I around a pair of steel tie wires in compliance with bright annealed ASTM A82-97a and encased in a highly alkaline cementitious shell with a pH of 14 or greater. The cementitious shell shall contain no chlorides or other corrosive constituents as per ACI Guideline No. 222. Anodes shall be supplied with integral tie wires for tying to the reinforcing steel. Embedded galvanic anodes shall be Galvashield<sup>®</sup> XP+ available from Sika Corporation.

Application for equals to include:

1. A highly alkaline cementitious shell with a pH of 14 or greater
2. Provide a minimum of 10 years service life (in similar environment)

3. Contain no corrosive constituents detrimental to reinforcing steel, e.g. chloride, etc.
4. Proven track record showing a minimum of three years satisfactory field Performance
5. A minimum of three projects of similar size and application
6. Anodes shall be supplied with integral tie wires for tying to the reinforcing Steel
7. Third party product evaluation, e.g. Hitec, Concrete Innovations Appraisal Service, BRE, etc.

B. Repair mortars, concrete and bonding agents shall be Portland cement-based materials with suitable electrical conductivity. Non-conductive repair materials such as epoxy, urethane, or magnesium phosphate shall not be permitted.

C. SikaRepair 222, 223, SikaQuick 1000 and 2500 are all available from Sika Corporation.

D. Deformed bars for reinforcement shall be hot-rolled steel in accordance with ASTM A615/A615M-00, Grade 60 (Grade 400).

E. Deliver, store, and handle all materials in accordance with manufacturer's instructions.

### **PART 3 EXECUTION**

#### **3.01 Concrete Removal**

- A. Remove loose or delaminated concrete.
- B. Undercut all exposed reinforcing by removing concrete from the full circumference of the steel. The minimum clearance between the concrete  
Note to Specifier: Include SikaRepair 222, 223, SikaQuick 1000 or 2500 (all mixed with water) as the embedding mortar if Galvashield XP+ anodes are to be installed with concrete repair materials that contain greater than 15,000 ohm-cm resistance (typically materials with significant polymer modification or pozzolans such as silica fume). substrate and reinforcing steel shall be 3/4 inch (19 mm) or 1/4 inch (6 mm) larger than the top size aggregate in the repair material, whichever is greater.
- C. Concrete removal shall continue along the reinforcing steel until there are no visible signs of corrosion.

#### **3.02 Cleaning and Repair of Reinforcing Steel**

- A. Clean exposed reinforcing steel of rust, mortar, etc. to provide sufficient electrical connection and mechanical bond.
- B. If significant reduction in the cross section of the reinforcing steel has occurred, replace or install supplemental reinforcement as directed by the engineer.
- C. Secure loose reinforcing steel by tying tightly to other bars with steel tie wire.

### 3.03 Edge and Surface Conditioning of Concrete

- A. Concrete patches shall be square or rectangular in shape with squared corners.
- B. Sawcut the patch boundary ½ inch (13 mm) deep or less if required to avoid cutting reinforcing steel.
- C. Create a clean, sound substrate by removing bond-inhibiting materials from the concrete substrate by high pressure water blasting or abrasive blasting.

### 3.04 Galvanic Anode Installation

A. Galvanic anodes shall be installed along the perimeter of the repair or interface with spacing as specified on the drawings. Anode spacing will vary with changes in the reinforcing steel density, the level of chloride in the structure and the corrosivity of the local environment, etc. In no case shall the distance between anodes exceed 30 inches (750 mm).

B. Provide sufficient clearance between anodes and substrate to allow repair material to encase anode.

C. Secure the galvanic anodes as close as possible to the patch edge using the anode tie wires. The tie wires shall be wrapped around the cleaned reinforcing steel and twisted tight to allow little or no free movement.

1. If the anode is to be tied onto a single bar, or if less than 1 inch (25 mm) of concrete cover is expected, place anode beneath the bar and secure to clean reinforcing steel.

2. If sufficient concrete cover exists, the anode may be placed at the intersection between two bars and secured to each clean bar.

Note to Specifier: Maximum anode spacing guidelines can be found on the Galvashield XP+ data sheet. Anode spacing should be adjusted for aggressive service conditions or for an extended anode service life.

D. Electrical Continuity

1. Confirm electrical connection between anode tie wire and reinforcing steel by measuring DC resistance (ohm, W) with a multi-meter.

2. Confirm electrical continuity of the exposed reinforcing steel within the repair area. If necessary, electrical continuity shall be established with steel tie wire.

3. Electrical continuity is acceptable if the DC resistance measured with multi-meter is less than 1 W.

### 3.05 Concrete Replacement

A. Repair material shall have a resistivity below 15,000 ohm-cm or if the resistivity of the repair material is above 15,000 ohm-cm or unknown, embed the anodes in individual pockets of SikaRepair 222, 223, SikaQuick 1000 or 2500 (all mixed with water) as the embedding mortar to form a conductive bridge to the concrete substrate. If embedding mortar is used, the embedding mortar shall

cover the individual anode, by a minimum thickness of ½ inch (10mm), and shall completely fill the space between the anode and the concrete substrate over a minimum area of 4 inches (100mm) in diameter. Repair materials with significant polymer modification and/or silica fume content may have high resistivity. Similarly, if bonding agents are used, they shall have suitable conductivity. Insulating materials such as epoxy bonding agents shall not be used unless otherwise called for in the design.

B. Following normal concrete repair procedures, complete the repair with the repair material, taking care not to create any air voids around the anode.

END OF SECTION

# TYPICAL TOPPING SLAB REPAIR

**GENERAL**

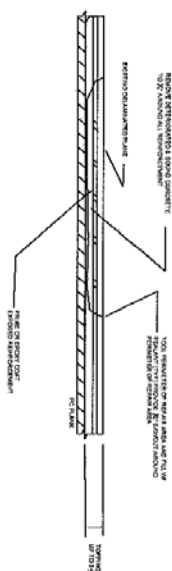
1. DUST AND MOISTURE PREVENTION SHALL BE PROVIDED AT AND BELOW THE LEVELS OF REPAIR

**CONCRETE REMOVAL**

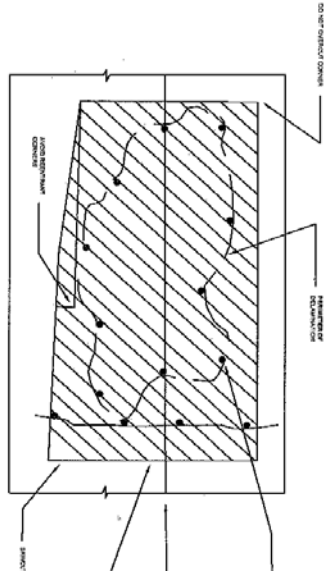
1. REFERENCES: ICR 03750, 03752, ACI 506R-04
2. AT EACH REPAIR AREA REMOVE SMALL AREA OF CONCRETE TO CONFIRM DEPTH OF REINFORCING PRIOR TO CUTTING
3. SAW CUT PERIMETER OF REPAIR AREA TO A DEPTH OF 1/2" UNDISTURBED, DECONTAMINATED AND ALSO CONCRETE TO THE TOP OF EXISTING PRECAST/PRESTRESSED PLANKS. CONCRETE SHALL BE REMOVED BY A METHOD THAT LIMITS THE DAMAGE TO SURROUNDING SOUND CONCRETE TOPPING, EXISTING STEEL REINFORCING AND PRECAST/PRESTRESSED PLANKS TO EXISTING PRECAST/PRESTRESSED PLANKS.
5. MATERIAL REMOVAL SHALL CONTINUE UNTIL AGGREGATE PARTICLES ARE BEING BROKEN I RATHER THAN BEING REMOVED FROM THE CEMENT MATRIX.
6. USE OF MECHANICAL IMPACT CHIPPING HAMMERS SHALL BE LIMITED TO SIZES WITH 18 INCHES OR LESS DIAMETER. EXCESSIVE PRECAUTIONS MUST BE TAKEN TO AVOID MICRO CRACKING (BUSHING) OF THE SURFACE OF THE PRECAST/PRESTRESSED PLANKS.
7. ALL EXISTING REINFORCING AND STEEL TRUSS REINFORCING SHALL BE SALVAGED

**PREPARATION:**

1. REPAIRING EXISTING REINFORCING AND STEEL TRUSS REINFORCING SHALL BE PRIMED
2. PRIOR TO PROCEEDING WITH REPAIRS, INSPECT ALL CONCRETE SURFACES. INDICATE ACCEPTANCE OF ALL SUBSTRATE CONDITIONS TO THE CONTRACTOR
3. INSTALL SIKKA GALVA-SHIELD XP- PER NOTES ON PARTIAL SLAB PLAN
4. APPLY POLYMER ADHESIVE/REINFORCING AGENT TO ALL CONCRETE SURFACES
5. COAT ALL CONCRETE SURFACES WITH A CONCRETE SLURRY PRIOR TO PLACING REPAIR MATERIAL
6. INSTALL NEW REINFORCING IF REQUIRED TO THE TO EXISTING PROPOSED REPAIR AREA
7. REPAIR MATERIAL FOR LARGE AREAS TOTAL PLACEMENT OVER 1 YARD COMPRESSIVE STRENGTH (f'c) = 6200 PSI MINIMUM AIR CONTENT = 6.10 (%-2%) WATER/CEMENT RATIO (w/c) = 0.35 (MAX) AGGREGATE = 3/8" MIN SHrinkage REDUCERS AS PER MANUFACTURER'S RECOMMENDATION
8. REPAIR MATERIAL FOR SMALL & ACCELERATED PLACEMENT OF UNDER 1 YARD SHALL BE ONE COMPONENT, EARLY STRENGTH GAINING, CEMENTITIOUS REPAIR MATERIAL MATCHING THE PROPERTIES NOTED IN 7 ABOVE.
9. PLACEMENT ALL CP REPAIR MATERIAL MUST BE TESTED AS PER SPECIFICATIONS.
10. ALL JOINTS MUST BE HAND TOoled.



**TYPICAL CONCRETE REPAIR**



**PARTIAL SLAB REPAIR**

**NOTES:**

1. AREA OF CONCRETE REPAIR
  2. SALVAGE ALL REINFORCEMENT IN REPAIR AREA IF SECTION LOSS IS GREATER THAN 25% REPAIR PER TYPICAL REINFORCEMENT REPAIR DETAIL S. ENSURE THAT ALL REINFORCEMENT IS TIED TOGETHER.
  3. PROVIDE TOoled JOINTS AROUND PERIMETER OF REPAIR AND AS NOTED ON PLANS.
- REPAIRS:**
1. INSTALL SIKKA GALVA-SHIELD XP-
    - A. ENSURE ALL EXISTING EXPOSED REINFORCEMENT IS TIED W/ STEEL TIE WIRE
    - B. INSTALL ANODES USING A SUITABLE WIRE TWISTING TOOL, TO ELIMINATE FREE MOVEMENT AND ENSURE GOOD ELECTRICAL CONNECTION. ANODE SHALL HAVE 3/4" MINIMUM COVER AND BE PLACED WITHIN 8" OF EDGE OF REPAIR.



**THIS PAGE INTENTIONALLY LEFT BLANK**

# TYPICAL TOPPING SLAB REPAIR

## GENERAL:

1. DUST AND MOISTURE PREVENTION SHALL BE PROVIDED AT AND BELOW THE LEVELS OF REPAIR

## CONCRETE REMOVAL:

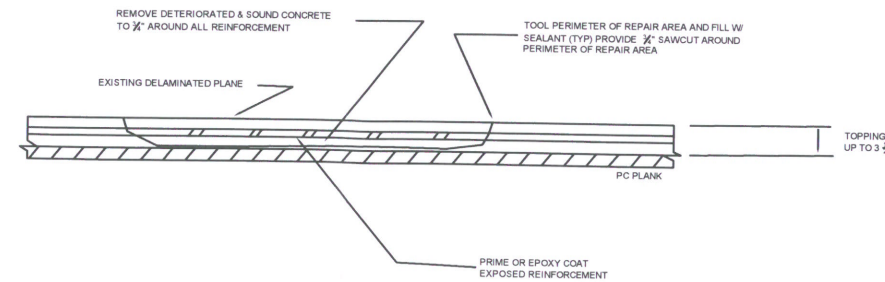
1. REFERENCES: ICRI 03750, 03732, ACI 546R-04
2. AT EACH REPAIR AREA REMOVE SMALL AREA OF CONCRETE TO CONFIRM DEPTH OF REINFORCING PRIOR TO CUTTING.
3. SAW CUT PERIMETER OF REPAIR AREA TO A DEPTH OF 1/2". AVOID CUTTING REINFORCING BARS.
4. REMOVE ALL DETERIORATED, DELAMINATED, AND UNSOUND CONCRETE TO THE TOP OF EXISTING PRECAST/PRESTRESSED PLANKS. CONCRETE SHALL BE REMOVED BY A METHOD THAT LIMITS THE DAMAGE TO SURROUNDING SOUND CONCRETE TOPPING, EXISTING STEEL TRUSS REINFORCING AND WITH MINIMAL DAMAGE TO EXISTING PRECAST/PRESTRESSED PLANKS.
5. MATERIAL REMOVAL SHALL CONTINUE UNTIL AGGREGATE PARTICLES ARE BEING BROKEN RATHER THAN BEING REMOVED FROM THE CEMENT MATRIX.
6. USE OF MECHANICAL IMPACT CHIPPING HAMMERS SHALL BE LIMITED TO 30LBS WITH 15 LBS RECOMMENDED. ALL NECESSARY PRECAUTIONS MUST BE TAKEN TO AVOID MICRO CRACKING (BRUISING) OF THE SURFACE OF THE PRECAST/PRESTRESSED PLANKS.
7. ALL EXISTING REINFORCING AND STEEL TRUSS REINFORCING SHALL BE SALVAGED.

## PREPARATION:

1. REMAINING EXISTING REINFORCING AND STEEL TRUSS REINFORCING SHALL BE PRIMED.
2. PRIOR TO PROCEEDING WITH REPAIRS, INSPECT ALL CONCRETE SURFACES. INSTALLATION OF REPAIR MATERIAL INDICATES ACCEPTANCE OF ALL SUBSTRATE CONDITIONS.
3. INSTALL SIKA GALVASHIELD XP+ PER NOTES ON PARTIAL SLAB PLAN.
4. APPLY POLMER ADHESIVE/BONDING AGENT TO ALL CONCRETE SURFACES.
5. COAT ALL CONCRETE SURFACES WITH A CONCRETE SLURRY PRIOR TO PLACING REPAIR MATERIAL.
6. INSTALL NEW REINFORCING IF REQUIRED AND TIE TO EXISTING. PROVIDE CHAIRS AS REQUIRED TO MAINTAIN PROPER PLACEMENT. MINIMUM COVER 2".
7. REPAIR MATERIAL FOR LARGE AREAS (TOTAL PLACEMENT OVER 1 YARD)
 

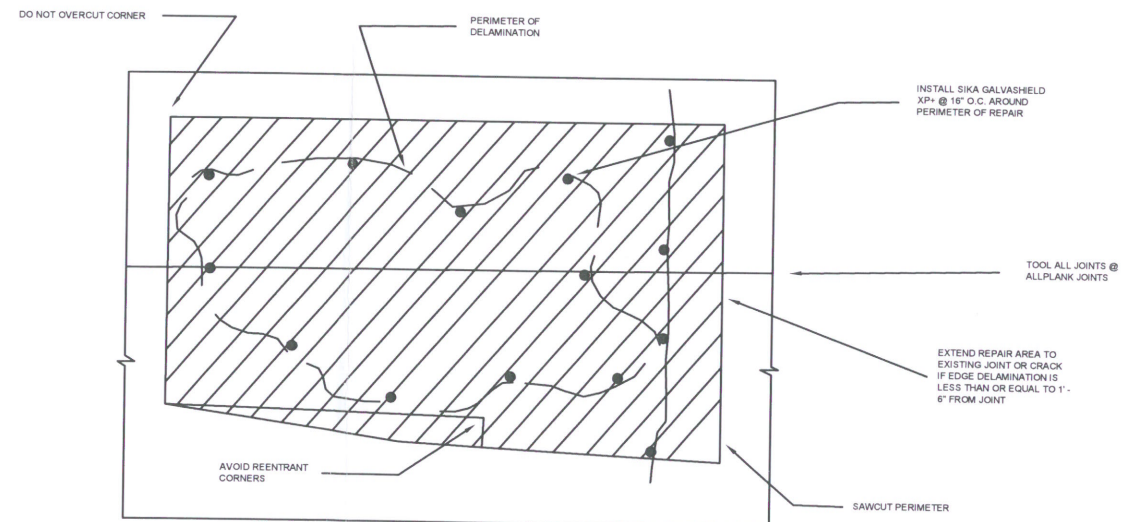
COMPRESSIVE STRENGTH( $f_c$ ) = 5000 PSI	MINIMUM
AIR CONTENT = 6 1/2 (+/- 2%)	
WATER/CEMENT RATIO (W/C) = 0.35 (MAX)	
AGGREGATE = 3/8" MIN	

 SHRINKAGE REDUCERS AS PER MANUFACTURER'S RECOMMENDATION
8. REPAIR MATERIAL FOR SMALL PLACEMENT (PLACEMENT OF UNDER 1 YARD) SHALL BE ONE COMPONENT, EARLY STRENGTH GAINING, CEMENTITIOUS REPAIR MATERIAL MATCHING THE PROPERTIES NOTED IN 7 ABOVE.
9. PLACEMENT: ALL CIP REPAIR MATERIAL MUST BE TESTED AS PER SPECIFICATIONS.
10. ALL JOINTS MUST BE HAND TOOLED.



TYPICAL CONCRETE REPAIR

N.T.S.



PARTIAL SLAB REPAIR

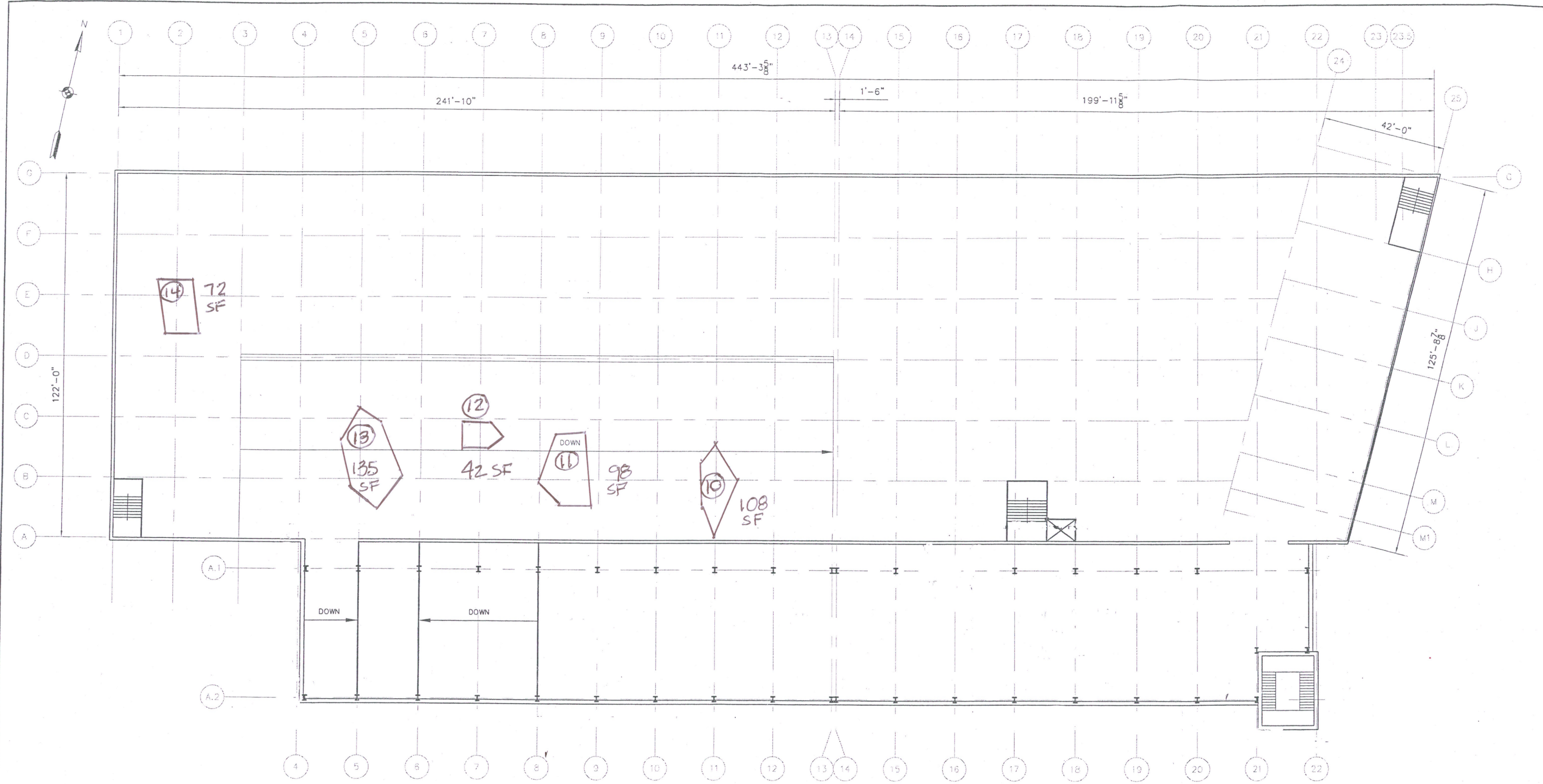
N.T.S.

## NOTES:

1. AREA OF CONCRETE REPAIR
2. SALVAGE ALL REINFORCEMENT IN REPAIR AREA. IF SECTION LOSS IS GREATER THAN 25% REPAIR PER TYPICAL REINFORCEMENT REPAIR DETAILS. ENSURE THAT ALL REINFORCEMENT IS TIED TOGETHER.
3. PROVIDE TOOLED JOINTS AROUND PERIMETER OF REPAIR AND AS NOTED ON PLANS.

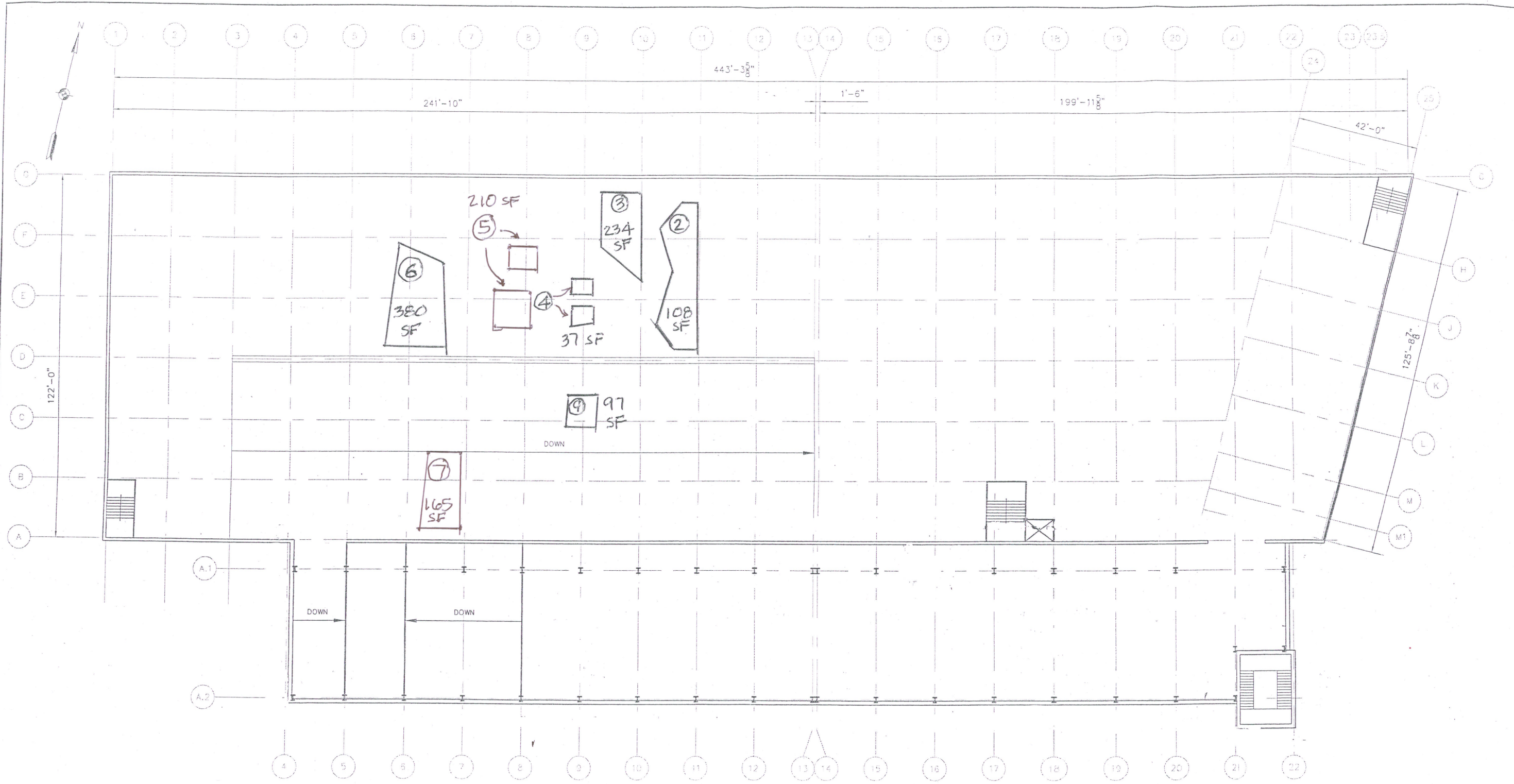
## REPAIRS:

1. INSTALL SIKA GALVASHIELD XP+
  - A. ENSURE ALL EXISTING EXPOSED REINFORCEMENT IS TIED W/ STEEL TIE WIRE.
  - B. INSTALL ANODES USING A SUITABLE WIRE TWISTING TOOL TO ELIMINATE FREE MOVEMENT AND ENSURE GOOD ELECTRICAL CONNECTION. ANODE SHALL HAVE 3/4" MINIMUM COVER AND BE PLACED WITHIN 6" OF EDGE OF REPAIR.



1.1 TYPICAL FLOOR PLAN  
 SCALE: ~~1/8" = 1'-0"~~ 1/4" = 1'-0" NTS  
 LEVEL 3

<b>TYPICAL FLOOR PLAN</b>	
HIGH/HANOVER PARKING FACILITY PORTSMOUTH, NEW HAMPSHIRE	
DRAWN BY:	
DATE ISSUED: DECEMBER 2004	



1.1 TYPICAL FLOOR PLAN  
 SCALE: ~~1/2" = 1'-0"~~ NTS  
 LEVEL 2

<b>TYPICAL FLOOR PLAN</b>	
HIGH/HANOVER PARKING FACILITY PORTSMOUTH, NEW HAMPSHIRE	
DRAWN BY:	
DATE ISSUED:	DECEMBER 2004