INFORMATIONAL PROPOSAL (For information only, not to be used for bidding)

NEBRASKA DEPARTMENT OF ROADS
LETTING DATE: March 12, 2015

CALL ORDER: 200 CONTRACT ID: 2559

CONTROL NO./SEQ. NO.: 22559 /000 PROJECT NO.: STR-6-7(1051)

TENTATIVE START DATE: 05/11/15 CONTRACT TIME: 174 CALENDAR DAYS

LOCATION: US-6, W. PAPILLION CREEK NEAR 168th STREET, OMAHA
IN COUNTY: DOUGLAS

BIDDER

GROUP 1 GRADING
GROUP 3 CONCRETE PAVEMENT
GROUP 6 BRIDGE AT STA. 105+49
GROUP 7 GUARDRAIL
GROUP 10 GENERAL ITEMS

SEE SPECIAL PROVISIONS FOR GROUP TIES

NOTES

THE TOTAL AMOUNT OF WORK WHICH WILL BE ACCEPTED IN THIS LETTING IS LIMITED TO $_____.

THE NUMBER OF _____ CONTRACTS WHICH WILL BE ACCEPTED IN THIS LETTING IS LIMITED TO _____.

NOTICE TO ALL BIDDERS

To report bid rigging activities, call: 1-800-424-9071

The U.S. Department of Transportation (DOT) operates the above toll-free “hotline” Monday through Friday, 8:00 a.m. to 5:00 p.m. eastern time. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the “hotline” to report such activities.

The “hotline” is part of the DOT’s continuing effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

LETTING QUESTIONS

Prior to the letting, any questions pertaining to the Special Provisions or the Plans for this project should be submitted to NDOR in a written format through the Bid Express (BidX) website at https://www.bidx.com/ne/lettings. Likewise, NDOR will post answers exclusively to the BidX website. All official answers will be identified as “Authorized by NDOR.” **Questions will not be answered verbally.**

STATE OF NEBRASKA
DEPARTMENT OF ROADS

Required Provisions Supplemental to the

Standard Specifications for Highway Construction

I. Application

These contract provisions shall apply to all work performed on the contract by the contractor with his own organization and with the assistance of workmen under his immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

The contractor shall insert in each of his subcontracts all of the stipulations contained in the Special Provisions and these Required Provisions.

A breach of any of the stipulations contained in these Required Provisions may be grounds for termination of the contract.

II. Equal Opportunity

1. Selection of Labor

During the performance of this contract, the contractor shall not discriminate against labor from any other state.

2. Nebraska Fair Employment Practices Act

The contractor shall not discriminate against any employee or applicant for employment, to be employed in the performance of this contract with respect to his hire, tenure, terms, conditions, or privileges of employment, because of his race, color, religion, sex or national origin. The contractor agrees to post in a conspicuous place or places a notice to be provided by the State Highway Department which sets forth excerpts of the Act.

3. Nebraska Equal Pay Act

The contractor shall not discriminate on the basis of sex by paying wages to employees of one sex at a lesser rate than the rate paid to employees of the opposite sex for comparable work on jobs which have comparable requirements. An abstract of the Act is included on the notice which is provided by the State Highway Department.

April 4, 1995

III. Employment of Labor

1. General

No person under the age of sixteen (16) years, and no one whose age or physical condition is such as to make his employment dangerous to his health or safety, or to the health and safety of others shall be employed on any project. This paragraph shall not be construed to deny the employment of older people or physically handicapped persons, otherwise employable, where such persons may be safely assigned to work which they can ably perform.

No person currently serving sentence to a penal or correction institution shall be employed on any project.

Except as specifically provided under this section, workers who are qualified by training or experience to be assigned to projects of this character shall not be discriminated against on any grounds whatsoever.

2. Payrolls

Payrolls and basic records relating thereto will be maintained during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working on the site of the work.

The contractor's and subcontractor's payroll records shall be available for inspection by authorized representatives of the State Highway Department and authorized representatives of Federal Agencies.

The wages of labor shall be paid in legal tender of the United States, except that this condition will be considered satisfied if payment is made by a negotiable check, on a solvent bank, which may be cashed readily by the employee in the local community for the full amount, without discount or collection charges of any kind. Where checks are used for payment the contractor shall make all necessary arrangements for them to be cashed and shall give information regarding such arrangements.

No fee of any kind shall be asked or accepted by the contractor or any of his agents from any person as a condition of employment on the project.

No laborers shall be charged for any tools used in performing their respective duties except for reasonably avoidable loss or damage thereto.

Every employee on the work covered by this contract shall be permitted to lodge, board and trade where and with whom he elects and neither the contractor nor his agents, nor his employees shall directly or indirectly require as a condition of employment that an employee shall lodge, board or trade at a particular place or with a particular person.

No charge shall be made for any transportation furnished by the contractor or his agents to any person employed on the work.

No individual shall be employed as a laborer on this contract except on a wage basis, but this shall not be construed to prohibit the rental of teams, trucks or other equipment from individuals. No such rental agreement, or any charges for feed, gasoline, supplies, or repairs on account of such agreement, shall cause any deduction from the wages accruing to any employee except as authorized by the regulations hereinbefore cited.

IV. Safety and Accident Prevention

In the performance of this contract, the contractor shall comply with all applicable Federal, State and local laws governing safety, health and sanitation. The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions, on his own responsibility or as the contracting officer may determine, reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

V. Subletting or Assigning the Contract

The contractor shall perform with his own organization contract work amounting to not less than 30 percent of the total contract amount except that any items designated in the contract as "Specialty Items" may be performed by subcontract and the amount of any such "Specialty Items" so performed may be deducted from the total contract amount before computing the amount of work required to be performed by the contractor with his own organization.

Any items that have been selected as "Specialty Items" for the contract are listed as such in the Special Provisions found elsewhere in the contract.

No portion of the contract shall be sublet, assigned, or otherwise disposed of except with the written consent of the contracting officer or his authorized representative. Requests for permission to sublet assign or otherwise dispose of any portion of the contract shall be in writing and accompanied by a showing that the organization which will perform the work is particularly experienced and equipped for such work. The contractor shall give assurance that the minimum wage for labor as stated in his proposal shall apply to labor performed on all work sublet, assigned or otherwise disposed of in any way. Consent to sublet, assign or otherwise dispose of any portion of the contract shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract.

SPECIAL PROVISIONS
FOR
STATE
PROJECT NO. STR-6-7(1051)

GENERAL CONDITIONS

Bids for the work contemplated in this proposal form will be received at the office of the Nebraska Department of Roads in Room 104 of the Central Office Building at 1500 Highway 2 at Lincoln, Nebraska, on March 12, 2015, until 1:30 P.M.

a. Bids submitted by mail should be addressed to the Nebraska Department of Roads, c/o Contract Lettings Section, P.O. Box 94759, Lincoln, NE 68509-4759.

b. Bids submitted electronically over the internet, shall be submitted using www.bidx.com.

The 2007 Edition of the Standard Specifications for Highway Construction, including all amendments and additions thereto effective at the date of the contract, are made a part of these Special Provisions, through reference.

The Required Provisions dated April 4, 1995, are attached to and are a part of this proposal form.

The attention of bidders is directed to the Required Provisions covering subletting or assigning the contract.

The proposal contains a statement that the contractor is complying with, and will continue to comply with, fair labor standards in the pursuit of his business and in the execution of the work contemplated in this proposal.

Fair labor standards shall be construed to mean such a scale of wages and conditions of employment as are paid and maintained by at least fifty per cent of the contractors in the same business or field of endeavor as the contractor filing this proposal.

GROUPS 1, 3, 6, 7 AND 10 ARE TIED TOGETHER AND BIDDING PROPOSAL FORMS FOR THIS WORK WILL BE ISSUED AND A CONTRACT AWARDED TO A CONTRACTOR WHO IS QUALIFIED FOR BRIDGES.

STATUS OF UTILITIES

The following information is current as of December 2, 2014

Aerial and/or underground utilities may exist within the limits of this project. The Contractor shall determine to their satisfaction the extent of occupancy of any utility facilities located within the project construction areas and the extent of conflict with the proposed work under this contract.

At this time, no utilities have been required to relocate their facilities.

Any utility adjustments or interruption of service for the convenience of the Contractor shall be the sole responsibility of the Contractor.

To arrange for utilities to locate and flag their underground facilities, contact The Diggers Hotline of Nebraska at 1-800-331-5666 or dial 811.

Any work necessary will be concurrent with construction.

STATUS OF RIGHT OF WAY

The right of way for this project has been acquired and physical possession is held by the State of Nebraska and ready for the Contractor's use, except tracts listed below:

Unacquired Right-of-Way Tracts as follows:

Tract Number	Status of Tract	Hearing Date
None	None	None

Right-of-Way Tracts with Pay Items:

Tract Number	Pay Items
None	None

- No encroachments on the old right of way.
- Acquisition of right of way is not required for this project.

SPECIAL PROSECUTION AND PROGRESS (General Requirements)

I. Peak Hours

For this project, the peak hours are from 6:00 a.m. to 10:00 p.m., seven days a week, or as otherwise directed by the Engineer. All other hours are non-peak hours and the work of permanent pavement marking and the placing/relocation/removal of concrete protection barriers shall occur during these non-peak hours via the use of temporary lane closures.

II. Papio Creek Trail and Papio Creek

As per the Environmental Commitments, the Contractor shall be required to prevent any debris from falling onto the Papio Creek Trail and into the Papio Creek channel at all times during the Phase II work on the north bridge rail.

III. Phasing

The plans depict phasing sequences that are to be used in the construction of this project. Any deviation from these sequences shall require the written approval of the Engineer.

IV. Project Scheduling

The Time Allowance for this project 174 calendar days, with a tentative start date of May 11, 2015, and a completion date is October 31, 2015.

V. Internal Liquidated Damage Assessment

The Contractor's failure to have all lanes open to normal traffic by October 31, 2015, shall result in the assessment of a $7,690 per calendar day inconvenience to the traveling public internal liquidated damage. This assessment has not been provided for elsewhere in the contract and shall be in addition to other liquidated damages which are part of the contract. This assessment shall begin on November 1, 2015, and shall continue per calendar day until, and including, the day that all lanes are open to normal traffic. The following formula was used to determine this assessment:

Cost = [(1-%T)(ADT)($ Pass) + (%T)(ADT)($ Trucks)] x D
= [(1-0.05)(79,940)($0.23) + (0.05)(79,949)($0.44)] x 0.40
= [$17,466.89 + $1,58.68] x 0.40
= $7,590.23 ➔ Rounded to $7,690/calendar day

Where: %T = percent trucks
ADT = average daily traffic
Pass = passenger car factor = $0.23
$ Trucks = truck factor = $0.44
D = delay (in minutes)

NOTICE TO BIDDERS

The Contractor shall use caution to prevent damage to the existing pipe underdrains on the project. Subgrade preparation at these locations may be accomplished with two complete coverages with a device capable of attaining compaction, as approved by the Engineer.

ENVIRONMENTAL COMMITMENT

Control No.: 22559 Project No.: STR-6-7(1051)

Project Name: W Papillion Creek Near 168th St. Omaha

Below are the Conservation Conditions that will be required for this project. All conditions and regulations of any permit obtained for this project will be followed by the Contractor.

(Responsible Party for the measure is found in parentheses)

This project is permitted under the U.S. Army Corps of Engineers (USACE) Nationwide Permit #3(a).

All **Nationwide Permit General Conditions** and **Nebraska** R**egional Conditions** will be followed, as applicable. Based on the project scope (NDOR Control No. 22559), the items indicated with checkmarks in the attached document (*NDOR Contractor Requirements Sheet*) appear to be applicable and relevant to the Contractor and Project Manager. (Contractor, District Construction)

Regulated Wetlands and/or Water Resources for this project have been identified and delineated in the field by NDOR. The Contractor shall not drive through, stage, store, waste or stockpile materials and equipment within delineated wetland boundaries (Wetlands – Do Not Disturb) and/or environmentally sensitive areas (Area of Environmental Concern – Do Not Disturb) as shown in the 2-W aerial plan sheets and/or the erosion control plan sheets included in the plan set. (Contractor, District Construction)

Contact Person: Justin Williams, Highway Environmental Biologist, (402) 479-3812

General Conservation Conditions

Changes in Project Scope. If there is a change in the project scope, the project limits, or environmental commitments, the NDOR Environmental Section must be contacted to evaluate potential impacts prior to implementation. Environmental commitments are not subject to change without prior written approval from the NDOR Environmental Section. (District Construction, Contractor)

Threatened and Endangered Species. The Contractor shall reference the AGC Endangered Species Guide or the Nebraska Game and Parks Commission website for a reference of federal and state listed species that may occur in the project vicinity prior to starting project construction. These guidance documents can be found at:

- http://www.agcne.org/services/es_guide.htm
- http://outdoornebraska.ne.gov/wildlife/programs/nongame/Endangered_Threatened.asp

If federal or state listed species are observed during construction, stop work and contact the NDOR Environmental Section to determine action required prior to resuming work. (NDOR Environmental, District Construction, Contractor)

Refueling. Refueling will be conducted within the confines of the paved roadway surface or within the boundaries of an approved stockpile/staging site. (Contractor)

Restricted Activities. The following project activities shall, to the extent possible, be restricted to between the beginning and ending points of the project, within the right-of-way designated on the project plans.

- Borrow sites
- Construction debris waste disposal areas
- Asphalt plants
- Haul roads
- Stockpiling areas
- Staging areas
- Material storage sites

Any project related activities that occur outside of the project limits (includes the paved surface and within 12 inches of the paved surface) must be environmentally cleared/permitted with the Nebraska Game and Parks Commission as well as any other appropriate agencies by the Contractor and those clearances/permits shall be submitted to the District Construction Project Manager prior to the start of the above listed project activities. The Contractor shall submit a NDOR Plant Site/Stockpile Site Request Identification and Evaluation Form (DR Form 56) and/or a Borrow Site/Waste Site Request Identification and Evaluation Form (DR Form 119) as appropriate, and include information such as an aerial photo showing the proposed activity site, a plan-sheet or drawing showing the location and dimensions of the activity site, ground photos showing the existing conditions at the proposed activity site, etc. The Contractor must receive notice of acceptance from NDOR, prior to starting the above listed project activities. These project activities cannot adversely affect state and/or federally listed species or designated critical habitat. Fill cannot be placed in Wetland, Stream or other Waters of the U.S. without authorization. (NDOR Environmental, District Construction, Contractor)

Waste/Debris. Construction waste/debris will be disposed of in areas or a manner which will not adversely affect state and/or federally listed species and/or designated critical habitat. (Contractor)

Northern Long-eared Bat

NLEB-1 Tree clearing and bridge deck removal activities will be scheduled to occur between October 1st – March 31st to avoid impacts to the northern long-eared bat roosting period. (NDOR Environmental, Construction, Contractor)

OR

NLEB-2 If tree clearing or bridge deck removal occurs during the northern long-eared bat roosting period (April 1st – September 30th), NDOR personnel will perform surveys prior to the start of these activities at the following locations: *At and surrounding West Papillion Creek Bridge at MM 360.12* (*location of suitable habitat*). If the species is absent, work may proceed. If the species is found, NDOR Environmental Section will consult with the USFWS and NGPC prior to the start of construction. (NDOR Environmental, Construction, Contractor)

NDOR Construction Project Managers should contact NDOR Environmental at 402-479-3546 or Melissa.marinovich@nebraska.gov at least 30 days prior to construction start to schedule Northern Long-Eared Bat surveys.

Contact Person: Melissa Marinovich, Highway Environmental Biologist, (402) 479-3546

West Papio Trail

During construction activities, the West Papio Trail shall be protected by a constructed overhead barrier beneath the bridge. The trail access and continuity shall be maintained during construction. No temporary access changes are expected. No permanent access changes would occur. (Contractor)

Encountering Unexpected Waste

If contaminated soils and/or water or hazardous materials are encountered, then all work within the immediate area of the discovered hazardous material shall stop until NDOR/FHWA is notified and a plan to dispose of the Hazardous Materials has been developed. Then NDEQ shall be consulted and a remediation plan shall be developed for this project. The potential exists to have contaminants present resulting from minor spillage during fueling and service associated with construction equipment. Should contamination be found on the project during construction, the NDEQ shall be contacted for consultation and appropriate actions to be taken. The Contractor is required by NDOR's Standard Specification Section 107 (Legal Relations and Responsibilities to the Public) to handle and dispose of contaminated material in accordance with applicable laws. (Contractor)

Contact Person: Jon Barber, Highway Environmental Program Manager, (402) 479-4412

WETLANDS 404 PERMIT

Nationwide Permit 3

Maintenance

(a) The repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure, or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, requirements of other regulatory agencies, or current construction codes or safety standards that are necessary to make the repair, rehabilitation, or replacement are authorized. Any stream channel modification is limited to the minimum necessary for the repair, rehabilitation, or replacement of the structure or fill; such modifications, including the removal of material from the stream channel, must be immediately adjacent to the project or within the boundaries of the structure or fill. This NWP also authorizes the repair, rehabilitation, or replacement of those structures or fills destroyed or damaged by storms, floods, fire or other discrete events, provided the repair, rehabilitation, or replacement is commenced, or is under contract to commence, within two years of the date of their destruction or damage. In cases of catastrophic events, such as hurricanes or tornadoes, this two-year limit may be waived by the district engineer, provided the permittee can demonstrate funding, contract, or other similar delays.

(b) This NWP also authorizes the removal of accumulated sediments and debris in the vicinity of existing structures (e.g., bridges, culverted road crossings, water intake structures, etc.) and/or the placement of new or additional riprap to protect the structure. The removal of sediment is limited to the minimum necessary to restore the waterway in the vicinity of the structure to the approximate dimensions that existed when the structure was built, but cannot extend farther than 200 feet in any direction from the structure. This 200 foot limit does not apply to maintenance dredging to remove accumulated sediments blocking or restricting outfall and intake structures or to maintenance dredging to remove accumulated sediments from canals associated with outfall and intake structures. All dredged or excavated materials must be deposited and retained in an area that has no waters of the United States unless otherwise specifically approved by the district engineer under separate authorization. The placement of new or additional riprap must be the minimum necessary to protect the structure or to ensure the safety of the structure. Any bank stabilization measures not directly associated with the structure will require a separate authorization from the district engineer.

(c) This NWP also authorizes temporary structures, fills, and work necessary to conduct the maintenance activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in

their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

(d) This NWP does not authorize maintenance dredging for the primary purpose of navigation. This NWP does not authorize beach restoration. This NWP does not authorize new stream channelization or stream relocation projects.

(Sections 10 and 404)

Note: This NWP authorizes the repair, rehabilitation, or replacement of any previously authorized structure or fill that does not qualify for the Clean Water Act Section 404(f) exemption for maintenance.

Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

13. Removal of Temporary Fills. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address ESA compliance for the NWP activity, or whether additional ESA consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed work or that utilize the designated critical habitat that might be affected by the proposed work. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the

Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on listed species or critical habitat, or until Section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWPs.

(e) Authorization of an activity by a NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. FWS or the NMFS, The Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their world wide web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.noaa.gov/fisheries.html respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for obtaining any "take" permits required under the U.S. Fish and Wildlife Service's regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The permittee should contact the appropriate local office of the U.S. Fish and Wildlife Service to determine if such "take" permits are required for a particular activity.

20. Historic Properties. (a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address section 106 compliance for the NWP activity, or whether additional section 106 consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the

National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of Section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties on which the activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

(d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)). If NHPA section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves.

The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 31, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse effects of the proposed activity are minimal, and provides a project-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in minimal adverse effects on the aquatic environment.

(2) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.

(3) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) – (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not

practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).

(4) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.

(5) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream rehabilitation, enhancement, or preservation, to ensure that the activity results in minimal adverse effects on the aquatic environment.

(e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs.

(f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the restoration or establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to establish a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or establishing a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(g) Permittees may propose the use of mitigation banks, in-lieu fee programs, or separate permittee-responsible mitigation. For activities resulting in the loss of marine or estuarine resources, permittee-responsible compensatory mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous

wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____
(Transferee)

_____
(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized work was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the work and mitigation.

Further Information

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project.

NDOR Contractor Requirements Sheet
Wetlands and Waters of the U.S.
Environmental Permitting Unit

In accordance with Section 404 of the Clean Water Act (discharge of dredged or fill material into waters of the United States), NDOR has evaluated the project for necessary Contractor requirements. The requirements are based on nationwide permit general conditions and Nebraska regional conditions set forth by USACE, which can be viewed online at: http://www.nwo.usace.army.mil/html/od-rne/nwp.html. Note that not all of the USACE general and regional conditions appear below, because they are either not relevant to Contractor commitments or will be executed by NDOR. Contractor must also comply with special conditions in the 404 permit.

Based on the project scope (NDOR Control No. 22559), the Contactor requirements indicated with check marks below require action and/or compliance by the Contactor.

☐ **Navigation**

No activity may cause more than a minimal adverse effect on navigation in navigable waters of the United States.

Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

☐ **Aquatic Life Movements and Management of Water Flows**

No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. Culverts placed in streams must be installed to maintain low flow conditions.

To the maximum extent practicable, the pre- construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

☐ **Adverse Effects From Impoundments**

If the activity creates and impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

☐ **Spawning Areas**

Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or

downstream smothering by substantial turbidity) of an important spawning area are not authorized.

☐ **Migratory Bird Breeding Areas**

Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

☐ **Shellfish Beds**

No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48.

☐ **Water Supply Intakes**

No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

☒ **Equipment**

Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

☐ **Removal of Temporary Fills**

Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

☒ **Soil Erosion and Sediment Controls**

☒ **SWPPP Required**

Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

☒ **Borrow Site Identification**

The contractor shall notify NDOR of the location of any borrow site that will be used in conjunction with the construction of the authorized activity.

☒ **Revegetation of Disturbed Areas**

All areas adjacent (contiguous, bordering, neighboring) to jurisdictional waters disturbed by construction shall be revegetated with appropriate perennial, native grasses and forbs and maintained in this condition. *Phalaris arundinacea* (Reed Canary Grass), *Lythrum salicaria* (Purple Loosestrife), *Bromus inermus* (Smoth Brome), *Phragmites, sp*. (Common Reed, River Reed) and *Tamarix, sp*. (Salt Cedar), are NOT appropriate choices of vegetation. A cover crop

may be planted to avoid in the establishment of native vegetation. The disturbed areas shall be reseeded concurrent with the project or immediately upon completion. Revegetation shall be acceptable when ground cover of desirable species reaches 75%. If this seeding cannot be accomplished by September 15 the year of project completion, then an erosion blanket shall be placed on the disturbed areas. The erosion blanket shall remain in place until ground cover of desirable species reaches 75%. If the seeding can be accomplished by September 15, all seeded areas shall be properly mulched to prevent additional erosion. When the vegetation has become established, all temporary erosion control materials shall be removed from the project site. Biodegradable or photodegradable materials need not be removed.

☒ **Discovery of Previously Unknown Remains and Artifacts**

If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the District Engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The District Engineer will initiate the Federal, Tribal and State coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

☐ **Temporary Structures/Work/Fill**

The use of dredged material in the construction of temporary structures or used for temporary work or used as temporary fill shall not be allowed. The term “dredged material” means material that is excavated or dredged from waters of the U.S. All temporary fill material shall be obtained from an upland source.

At the completion of the construction activity, all temporary fill material shall be removed in its entirety from the water of the U.S. to an upland area and the affected area shall be restored to its pre-construction condition.

The Nebraska Regulatory Office shall be notified with documentation (i.e., photos) when the site has been restored to its pre-project condition.

☐ **Stream Channelization Projects**

Buffer strips shall be set aside along both sides of the channel no less than 50 feet from the top of each side slope landward. The buffer strips shall be planted to a mixture of perennial, native grasses, forbs and trees required for tree mitigation and maintained in this condition. Reed Canary Grass (*Phalaris arundinacea*), Purple Loosestrife (*Lythrum salicaria*) and Smooth Brome (*Bromus inermus*) are NOT appropriate choices of vegetation. Revegetation will be acceptable when ground cover of desirable species reaches 75%.

☒ **Suitable Material**

No activity may use unsuitable fill material as defined in the list below. Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

OMAHA DISTRICT PROHIBITED/RESTRICTED MATERIALS:

1. Vehicle bodies, farm machinery and metal junk, including appliances and metal containers, are prohibited.

2. The use of old or used asphalt paving material as a fill material and the use of new or used asphalt for bank stabilization or erosion control is prohibited.

3. The use of organic debris as fill material is prohibited. (Properly anchored trees, treetops, root wads, logs, and hay bales may be allowed on a case-by-case basis.)

4. Any material subject to leaching when in an aquatic environment is prohibited (for example, but not limited to, chemically-treated building material, roofing material, and wood debris).

5. Individual or unanchored tires are prohibited. (Tires may be allowed on a case-by-case basis when placed in the form of a mat or grid with multiple anchoring points to reduce the risk of design failure.)

6. Small aggregate (i.e., less than 6 inches in diameter) may not be placed below the ordinary high water mark (OHWM) of a water body for the purpose of bank stabilization or erosion control when such aggregate will be unstable or subject to frequent failure. Small aggregate may, however, be placed below the OHWM if its purpose is to fill the interstices of a well graded rock riprap revetment or channel lining.

7. Slab material, regardless of source, must be broken before placement so that the dimension of the largest slab will not be more than 3.5 times the dimension of the smallest slab (unless justified by a qualified Engineer) and must be free of exposed rebar, wire and wire mesh.

8. The use of clean brick, broken concrete and cinder block for erosion control or bank stabilization will be considered on a case-by-case basis. If allowed, the broken concrete must be free of exposed rebar, wire, wire mesh, asphalt paving material, paint, and other erodible materials. Broken concrete must range in size from 6 to 36 inches (unless justified by a qualified Engineer).

FLOODPLAIN PERMIT

Nebraska Department of Roads

Floodplain/Floodway Development Permit/Application

RECEIVED
AUG 29 2014
ENVIRONMENTAL SECTION

Permit Application No.: FLD-14-00203
Date: 8/18/14

This form is used for any man-made change to improved or unimproved transportation facility, including, but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation, drilling operations, or storage of equipment or materials.

Nebraska Department of Roads will obtain all other necessary federal, state, or local permits *(e.g., Corps of Engineers 404 Permit, Local Levee District, etc.)*

1.	Name of Applicant:	Nebraska Department of Roads PO Box 94759 Lincoln NE 68509-4759
2.	Type and Use of Development:	Bridge Repair
3.	Specific Location of Development:	N-6 - M.M. 360+12
4.	Complete this section if the proposed development involves the improvement of a structure *(i.e., walled and roofed building).*	Pre-improvement Value of Structure: $ Cost of Improvement: $

The following section is to be completed by the community official:

5. Is the development Substantial Improvement? *(see #4)* ☐ Yes ☒ No
6. Is the development in an identified floodplain? ☒ Yes ☐ No

If Yes, complete the following:

a. Elevation of the Base *(100-Year)* Flood 1,106.00 Ft. MSL/NGVD 29 or NAVD 88

b. Elevation/Floodproofing Requirement *(if applicable)* N/A Ft. MSL/NGVD 29 or NAVD 88

c. Is the development in a designed Floodway?

☒ Yes New structures for human habitation are prohibited. For any other Floodway development, the NDOR must provide certification by a registered professional engineer that the development would result in no increase along the floodway water surface profile.

☐ No If a floodway has not been designated, the NDOR may be required to submit hydraulic data demonstrating that the proposed development will not increase flood heights more than one foot at any location.

If the development is in a floodplain, the following shall apply:

This permit is issued with the condition that the lowest floor *(including basement)* of a new or substantially improved nonresidential building will be elevated or floodproofed at least one foot above the base flood elevation. NDOR will provide certification by a registered Engineer, Architect, or Land Surveyor that these provisions are met.

All provisions of the City of Omaha *(County or City)* Floodplain Management Resolution/Ordinance (Number _____) shall be complied with.

Flood Plain Coordinator — *Local Authorizing Official (Name & Title)*
8/27/14 — *Date*

sign for — *NDOR Environmental Permits Manager*
8/18/14 — *Date*
Tony Ringenberg

Project Name: W Papillion Creek Near 168th St, Omaha	
Project No.: STR-6-7(1051)	
Control No.: 22559	Structure No.: S006 36012

SPECIAL PROSECUTION AND PROGRESS
(Migratory Birds)
(A-42-1112)

The Department of Roads will, to the extent practicable, schedule the letting of projects such that clearing and grubbing can occur outside of the primary nesting season in Nebraska which has been determined to generally occur between April 1 and September 1. Work on structures, such as but not limited to bridges and culverts, should occur outside the primary swallow nesting season, April 15 to September 30, unless approved methods of avoiding nesting have been taken on the bridge and/or culvert structures. The nesting dates above are a guide only, nesting can occur outside of those dates. Work outside of those dates is not exempt from compliance with the Migratory Bird Treaty Act.

The Contractor shall, to the extent possible, schedule work on structures, such as but not limited to bridges and culverts, and clearing and grubbing activities to occur outside the primary nesting season in Nebraska. However, if circumstances dictate that project construction or demolition must be done when nesting migratory birds may be present, a survey of the number of active nests and species of birds shall be conducted by qualified personnel representing the Contractor, and assisted by the Project Manager (PM), NDOR Environmental Section staff, or the United States Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) - Wildlife Services Office. If the survey finds that nests will be impacted by the proposed construction, the Contractor may be responsible for delays.

The following guidance is provided for compliance with the Migratory Bird Treaty Act for construction of NDOR projects:

1. The Contractor shall submit a plan to the NDOR regarding how he intends to accomplish bridge demolition or clearing and grubbing of the project to avoid conflict with nesting migratory birds.

2. The Contractor must submit a temporary erosion control plan tailored to fit the plan for clearing and grubbing.

3. If construction operations result in unavoidable conflict with nesting migratory bird's eggs or young, which will result in "taking" nests and their contents, the Contractor should notify the NDOR Project Manager (PM). The PM shall notify the Environmental Section of Planning and Project Development by telephone at 402-479-4766.

4. The NDOR Environmental Section will then determine if assistance in conducting the survey will be provided by the NDOR Environmental Section (if available) or from the USDA APHIS - Wildlife Services Office and arrange for assistance with the survey of nest numbers, bird species, etc. Results of the survey shall be maintained by the NDOR until project completion.

5. If the nesting survey is required, and the project was awarded prior to the nesting season, and the Contractor did not accomplish clearing/grubbing and/or work on bridge/culvert structures outside the nesting season, the Contractor will reimburse the Department of Roads for each survey required at $1,000 per survey. If the project was awarded during the nesting season, and construction

activities are such that clearing/grubbing and/or work on bridge/culvert structures must be accomplished prior to any other activity on the project, then there will be no charge assessed for the initial survey. The Contractor is responsible for removing all trees surveyed, that do not contain active nests, and for taking appropriate measures on bridge/culvert structures, within 3 days of the survey. Reimbursement for additional surveys may be charged if the Contractor fails to remove the trees within 3 days of the survey, and requires an additional survey. Survey reimbursement will be determined on a project specific basis, considering the project timeline and associated activities.

6. If an active nest is found during the survey, the Contractor should do everything possible to restructure his activities and leave the nest undisturbed until the young fledge. Fledging could occur within a week, or up to a month, after the survey depending on the species of bird and whether the nest contained eggs or young. Also depending on the species of bird and their sensitivity to disturbance, a buffer of up to 30 feet surrounding the tree with the active nest could be required.

7. If construction cannot be rescheduled to allow the birds to fledge, and it is determined as an unavoidable "take" circumstance, the Contractor shall stop all work within 30 feet of the active nest and coordinate with the Construction Project Manager to determine how to proceed. The Construction Project Manager will then coordinate with the NDOR Environmental Section and they will facilitate coordination with the US Fish and Wildlife Service and the Federal Highway Administration (for projects using Federal-aid) to determine the appropriate way to address the active nest. No work shall occur within 30 feet of the active nest until US Fish and Wildlife Service coordination is complete and the requirements of the Migratory Bird Treaty Act are satisfied.

8. It is the Contractor’s responsibility to schedule his work to accommodate the process of conducting a survey(s) and submitting the necessary documentation if avoidance is not practicable. The Contractor shall be responsible for using any legal and practical method to prevent the nesting of birds in order to prevent the need for any survey and prevent the need for additional surveys. It is understood and agreed that the Contractor has considered in the bid all of the pertinent requirements concerning migratory birds (including endangered species) and that no additional compensation, other than time extensions if warranted, will be allowed for any delays or inconvenience resulting in these requirements.

STORM WATER DISCHARGES
(A-43-0408)

In compliance with the Federal Water Pollution Control Act, authorization to discharge storm water on this project has been granted under National Pollutant Discharge Elimination System (NPDES) General NPDES Permit Number NER110000 for Storm Water Discharges from Construction Sites to Waters of the State of Nebraska. This permit became effective on January 1, 2008.

Contractors are advised that, under the Construction Storm Water General Permit, ***plant sites, camp sites, storage sites, and borrow or waste sites not shown*** **on** ***the plans may be***

subject to separate NPDES permit authorization requirements for stormwater discharges from those locations. Contractors shall be responsible for verifying the need for NPDES permit coverage with the Nebraska Department of Environmental Quality (NDEQ). When required for these locations, the filing of a "Notice of lntent" shall be made by the Contractor directly to the NDEQ.

Additionally, asphalt (SIC Code 2951) or concrete (SIC Code 3273) batch plants that are owned by a private contractor and are operated on a contract-for-service basis to perform work for the Contractor completing the project may be subject to NPDES General Permit Number NER000000 for Industrial Storm Water Discharges. While the plant may be required for completion of the project, it is not under the control of the Department (or other project owner); and the filing of a "Notice of Intent" shall be made by the Contractor directly to the NDEQ.

The NDEQ may be contacted at 402-471-4220 for additional information.

REQUIRED SUBCONTRACTOR/SUPPLIER QUOTATIONS LIST (A-43-0307)

All bidders must provide to the NDOR the identity of all firms who provided quotations on all projects, including both DBEs and non-DBEs. This information must be on a form provided by the NDOR Contracts Office.

If no quotations were received, the bidder must indicate this in the space provided.

Each bidder will be required to submit one list per letting to cover all projects bid.

PROPOSAL GUARANTY BID BOND (A-43-0307)

Paragraphs 1.a. and 1.b. of Subsection 102.15 in the *Standard Specifications* are void and superseded by the following:

a. OPTION 1 - (Project Specific Paper Bid Bond). The Bid Bond shall be executed on an original Department Bid Bond Form, which may be obtained from the Department. The original Bid Bond shall be delivered to the Department with the bid. A reproduction or a copy of the original form will not be accepted and will cause the bid not to be opened and read.

b. OPTION 2 - (Annual Bid Bond). The Department at its discretion may allow a bidder to place an "Annual Bid Bond" on file with the Department. This bond would cover all projects the bidder bids for a 12-month period shown in the bond. The bidder must indicate in the bid submittal to the Department that their "Annual Bid Bond" applies to the submitted bid. The original Annual Bid Bond shall be executed on the Department of Roads Bid Bond Form, which may be obtained from the Department. A reproduction or a copy of the original form will not be accepted.

WORKER VISIBILITY
(A-43-0507)

Pursuant to Part 634, Title 23, Code of Federal Regulations, the following modified rule is being implemented:

Effective on January 1, 2008, all workers within the right-of-way who are exposed either to traffic (vehicles using the highway for purposes of travel) or to construction equipment within the work area shall wear high-visibility safety apparel.

High-visibility safety apparel is defined to mean personal protective safety clothing that:

1 - is intended to provide conspicuity during both daytime and nighttime usage, and

2 - meets the Performance Class 2 or Class 3 requirements of the ANSI/ISEA 107-2004 publication titled "American National Standards for High-Visibility Safety Apparel and Headwear."

VALUE ENGINEERING PROPOSALS (VEP)
(A-43-0807)

Subsection 104.03 in the *Standard Specifications* is amended to include the following:

14. A VEP will not be accepted if the proposal is prepared by an Engineer or the Engineering Firm who designed the contract plans.

LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC
(A-43-0210)

Paragraph 4.a. of Subsection 107.01 in the *Standard Specifications* is void and superseded by the following:

4. a. Whenever the Contractor violates any governing Federal, State or Local environmental quality regulation and/or is in noncompliance with any environmental commitment, the violating activity must cease immediately until the appropriate remedy can be determined by: the Engineer, the NDOR Environmental Section, the Federal Highway Administration (for projects utilizing Federal-aid) and other agencies, as deemed appropriate. The Engineer, with assistance from the NDOR Environmental Section and the FHWA, will provide a written order confirming the appropriate corrective action to the Contractor. Work can resume to normal conditions once the Engineer determines that the violation or non-compliance has been addressed in accordance with the order for corrective action.

Subsection 107.01 in the *Standard Specifications* is amended to include the following two paragraphs:

5. Should the Contractor encounter any previously unidentified hazardous materials, the Engineer shall be promptly notified. The Contractor shall suspend operations in the area involved until such time that arrangements are made for their proper treatment or removal.

6. The Contractor shall prevent the transfer of invasive plant and animal species. The Contractor shall wash equipment at the Contractor's storage facility prior to entering the construction site. The Contractor shall inspect all construction equipment and remove all attached vegetation and animals prior to leaving the construction site.

SPECIAL PROSECUTION AND PROGRESS (Federal Immigration Verification System) (A-43-1209)

The Contractor shall register with and use a Federal Immigration Verification System to determine the work eligibility status of newly hired employees physically performing services within the State of Nebraska. The Prime Contractor shall contractually require every subcontractor to register with and use a Federal Immigration Verification System to determine the work eligibility status of newly hired employees physically performing services within the State of Nebraska.

The Federal Immigration Verification System shall be an electronic verification of the work authorization program of the Illegal Immigration Reform and Immigration Responsibility Act of 1996, 8 U.S.C. 1324a, known as the E-Verify Program. The Contractor may use an equivalent Federal program designated by the United States Department of Homeland Security or other Federal agency authorized to verify the work eligibility status of a newly hired employee. The equivalent program shall comply with the Immigration Reform and Control Act of 1986.

The Prime Contractor shall furnish a letter to the NDOR Construction Division in Lincoln on company letterhead and signed by an officer of the company stating that documentation is on file certifying that the Contractor and all subcontractors have registered with and used a Federal Immigration Verification System. The Contractor shall maintain all records of registration and use for a period of three years and make records available upon request. The Contractor shall contractually require subcontractors to maintain all records for a period of three years and make records available upon request.

Payment will not be made to the Contractor for using the Federal Immigration Verification System or the maintenance of the records. This work shall be subsidiary to the work being performed.

The Contractor’s Certification shall become part of the final records of the Contract. The Department considers this document to have direct bearing to the beginning interest date and may affect the amount of interest earned.

CONTRACT TIME ALLOWANCE
(A-43-0911)

Paragraph 5. of Subsection 108.02 of the *Standard Specifications* is void and superseded by the following:

5. Each week, the Engineer shall post on the Department's website a report of working days or calendar days charged. The Contractor then has 14 days from the day the Engineer's report is posted to provide a written explanation of why he/she does not concur with the working days or calendar days as assessed.

Paragraph 6.b. of Subsection 108.02 of the *Standard Specifications* is amended to include the following:

(4) If the time allowance for the contract has been established on a calendar day basis, the Contractor is expected to schedule the work and assign whatever resources are necessary to complete the work in the time allowance provided regardless of the weather. Accordingly, regardless of anything to the contrary contained in these *Specifications*, the Department will not consider delays caused by inclement or unseasonable weather as justification for an extension of the contract time allowance unless:

i. the weather phenomena alleged to have contributed to or caused the delay is of such magnitude that it results in the Governor issuing a Disaster Declaration, ***and***
ii. the weather phenomena alleged to have contributed to or caused the delay can clearly be shown to have directly impacted the work on the critical path identified on the Contractor's schedule.

Paragraphs 10.b. and 10.c. of Subsection 108.02 of the *Standard Specifications* are void and superseded by the following:

b. (1) If the extra work is not in the original contract, time extensions will be granted by determining the actual time necessary to accomplish the extra work.

(2) If the extra work is the result of the addition of additional quantities of existing contract items, time extensions will be granted by either:

(i) determining the actual time necessary to accomplish the extra work; or
(ii) determining the additional time to be granted by comparing the value of the additional quantities of work to the total amount of the original contract when measurement of the actual additional time is not possible or practical.

(3) In either case, only the time necessary to perform the extra work of the additional quantities of existing contract items when the extra work or the additional quantities of existing contract items are deemed to be the current controlling operation will be granted as a time extension.

c. Increases in quantities of work associated with traffic control items measured by the day will not be considered for extending the contract time allowance. Overruns of traffic control items that are measured by methods other than time may be considered for extending the contract time allowance, but they must be deemed to be a controlling operation when the overrun of quantities occurs.

PARTIAL PAYMENT
(A-43-1110)

Paragraph 2. of Subsection 109.07 of the *Standard Specifications* is void and superseded by the following:

2. When the value of the work completed during a semi-monthly period exceeds $10,000, the Contractor will receive semi-monthly progress estimates from which the Department shall make such retentions as may be allowed by the contract, provided that the nature and quality of the completed work are satisfactory and provided further that the progress of the work conforms to the requirements of Subsection 108.07.

Paragraph 3.b. of Subsection 109.07 of the *Standard Specifications* is void and superseded by the following:

b. Under normal circumstances, the Department shall not retain any earnings on a progress estimate. However, the Department reserves the right to retain such amounts as are necessary for material deficiencies, anticipated liquidated damages, unpaid borrow, and for other reasons to protect the Department's interests.

PARTIAL PAYMENT
(A-43-0611)

Paragraph 4. of Subsection 109.07 of the *Standard Specifications* is void and superseded by the following:

4. a. (1) Upon presentation by the Contractor of receipted bills, billing invoices, or such other documentation sufficient to satisfy the Engineer and verify the Contractor's or subcontractor's actual costs for the materials, payments may also be allowed for acceptable nonperishable materials purchased expressly to be incorporated into the work and delivered in the vicinity of the project or stored in acceptable storage places within Nebraska.

(2) Materials not delivered and stored in the immediate vicinity of or on the actual project site must be clearly marked to identify the project on which they are to be used, must be segregated from similar materials at the storage site, and cannot be included in a supplier's inventory of material available for sale for other purposes.

(3) All items eligible for partial payment as stored materials must be available for verification, sampling, and measurement.

b. The amount to be included in the payment will be determined by the Engineer, but in no case shall it exceed 100 percent of the value of the materials documented. This value may not exceed the appropriate portion of the value of the contract item or items in which such materials are to be incorporated, nor shall the quantity in any case exceed the total estimated quantity required to complete the project.

c. Payment will not be approved when the documented value of such materials amounts to less than $1,000.00, when the progress of the work is not in accordance with the requirements set forth in Subsection 108.07, or when the material can reasonably be expected to be incorporated into the work and eligible for payment as completed work on a progress estimate within 15 days of being placed into storage.

d. Deductions at rates and in amounts which are equal to the payments will be made from estimates as the materials are incorporated into the work.

e. Payment for the materials shall not in itself constitute acceptance, and any materials which do not conform to the specifications shall be rejected in accordance with Subsection 106.05.

f. The Contractor shall be responsible for all damages and material losses until the material is incorporated into the work and the work is accepted.

g. Partial payment will not include payment for fuels, supplies, form lumber, falsework, other materials, or temporary structures of any kind which will not become an integral part of the finished construction.

h. No partial payments will be made on living or perishable plant materials until planted.

BUY AMERICA
(A-43-0212)

Subsection 106.07 in the *Standard Specifications* is void and superseded by the following:

106.07 -- Buy America

1. The Buy America rule requires that steel or iron materials be produced domestically, and only those products which are brought to the construction site and permanently incorporated into the completed project are covered. Construction materials, forms, etc., which remain in place at the Contractor's convenience, but are not required by the contract, are not covered.

2. To further define the coverage, a domestic product is a manufactured steel construction material that was produced in one of the 50 States, the District of Columbia, Puerto Rico, or in the territories and possessions of the United States.

3. All manufacturing processes to produce steel or iron materials (i.e., smelting, and any subsequent process which alters the steel or iron material's physical form or shape, or changes its chemical composition) must occur within one of the 50 States, the District of Columbia, Puerto Rico, or in the territories and possessions of the United States, to be considered of domestic origin. This includes processes such as casting, rolling, extruding, machining, bending, grinding, drilling, and coating. Coating includes epoxy coating, galvanizing, painting, and any other coating that protects or enhances the value of the material. The manufacturer shall include a statement on the material test report or certification that all material described above except the coating material is a domestic product.

4. Raw materials used in the steel or iron materials may be imported. All manufacturing processes to produce steel or iron materials must occur domestically. Raw materials are materials such as iron ore, limestone, waste products, etc., which are used in the manufacturing process to produce the steel products. Waste products would include scrap; i.e., steel no longer useful in its present form from old automobiles, machinery, pipe, railroad tracks and the like. Also, steel trimmings from mills or product manufacturing are considered waste. Extracting, crushing, and handling the raw materials which is customary to prepare them for transporting are exempt from Buy America. The use of pig iron and processed, pelletized, and reduced iron ore manufactured outside of the United States may be used in the domestic manufacturing process for steel and/or iron materials.

5. Notwithstanding this requirement, a minimum of foreign steel or iron materials will be permitted if its value is less than one-tenth of one percent of the total contract cost or $2,500, whichever is greater.

6. Upon completion of all work utilizing steel or iron products, the Prime Contractor shall furnish a letter to the State on company letterhead and signed by an officer of the company stating that documentation is on file certifying that all steel or iron materials brought to the construction site and permanently incorporated into the work complied in all respects with the Buy America requirements.

BORROW, WASTE, STOCKPILE, AND PLANT SITE APPROVAL (A-43-0512)

Subsection 107.02 in the Standard Specifications is amended to include the following:

4. Site Approval:

   a. When borrow is obtained from a borrow site or waste excavation is placed at sites which are not shown in the contract, or the Contractor plans to use a plant or stockpile site which is not shown in the contract, the Contractor shall be solely responsible for obtaining all necessary site approvals. The Department will provide the procedures necessary to obtain approvals from the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, Nebraska State Historical Society, Nebraska Game and

Parks Commission, and Nebraska Department of Natural Resources on the NDOR website. The Contractor shall also be responsible for obtaining a Discharge Number from the Nebraska Department of Environmental Quality (NDEQ) that allows work under the current Construction Stormwater Permit. The Contractor shall also be responsible for obtaining any and all other permits required by local governments.

b. It is anticipated that it may require 60 calendar days or more for the Contractor to obtain the necessary approvals. The Contractor will not be allowed to begin work at borrow or waste sites until the necessary approvals are obtained. No extension of completion time will be granted due to any delays in securing approval of a borrow or disposal site unless a review of the time frames concludes that there were conditions beyond the Contractor's control.

Paragraph 7. of Subsection 205.02 in the Standard Specifications is void and superseded by the following:

7. Borrow and Waste Site Approval:

a. Borrow and waste site approvals shall be in accordance with Section 107.02.

b. Material shall not be removed from borrow sites until preliminary cross sections and representative soil samples have been taken by the Engineer. The Contractor shall notify the Engineer a sufficient time in advance of the opening of any borrow site so that cross sections may be taken.

c. Material shall be removed in a manner that will allow accurate final cross sections to be taken for determining the quantity of excavation. The surfaces of the borrow sites shall be bladed and shaped to drain as shown in the contract or as directed by the Engineer.

SPECIAL PROSECUTION AND PROGRESS (Subletting or Assigning of Contract) (A-43-0414)

Subsection 108.01 in the Standard Specifications is void and superseded by the following:

108.01 – Subletting or Assigning of Contract

1. a. (1) The Contractor will not be allowed to sublet, assign, sell, transfer, or otherwise dispose of any portion of the contract or any right, title, or interest therein; or to either legally or equitably assign any of the money payable under the contract or the claims without the prior written consent of the Engineer.

(2) With the Engineer's consent, the Contractor may sublet up to 70 percent of the work.

(3) Any items designated in the contract as "specialty items" may be performed by subcontract.

(4) The cost of any subcontracted "specialty items" may be deducted from the total contract cost before computing the percentage of work required to be performed by the Contractor.

(5) Subcontracts, or transfer of contract, will not release the Contractor of any liability under the contract and bonds.

b. Certain items of work may be performed without a subcontract. A list of items not requiring a subcontract is available from the Engineer.

2. The performance of any work by a subcontractor before the date of authorization by the Department shall subject both the Contractor and subcontractor to the imposition of appropriate sanctions by the Department.

3. a. The Contractor's request to sublet work shall be made electronically to the NDR Construction Engineer using project management software identified by the Department. A signed subcontract agreement shall be on file in the Contractor's office when the request is made. The subcontract agreement must provide that the subcontracted work will be completed according to the terms of the contract. The required and Special Provisions contained in the proposal shall be physically included in any subcontract.

b. On all Federal-aid projects, a scanned copy (.pdf format) of the signed subcontract agreement shall be included with the subcontracting request. (Federal-aid projects can be identified by inclusion in the Proposal of Form FHWA-1273 (REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS).

c. Scanned copies (.pdf format) of all executed subcontracts, written agreements, and/or lease agreements used to meet DBE goals shall be submitted to the NDR Construction Engineer with the subcontracting request. These copies must show labor cost, material prices, overhead and profit.

4. a. Second tier subcontracts will be allowed.

b. If a DBE firm subcontracts work to another firm, only work subcontracted to another DBE firm can be counted toward meeting a DBE goal.

c. All requests for second tier subcontracting shall be submitted to and approved by the Prime Contractor before they are forwarded to the NDR Construction Engineer for approval.

5. All subcontract documents relating to the contract shall be maintained during the course of the work and preserved for a period of three years thereafter. These documents shall be available for inspection by authorized representatives of

State and Federal agencies. Scanned copies (.pdf format) of the signed subcontract agreements not specifically identified elsewhere in this Subsection shall be furnished to the Department upon request.

6. The Contractor may discuss a proposed subcontract with the Engineer before entering into a signed subcontract agreement, but final approval will not be granted until a formal request and proper certification has been received by the Department.

7. On projects requiring submittal of certified payrolls, all subcontractor payrolls shall be checked by the Contractor before submittal to the Engineer.

8. a. The Prime Contractor, and subcontractors when subletting work to lower tier subcontractors, shall include language which can be identified as a “Prompt Payment Clause” as a part of every subcontract for work and materials.

b. (1) The language constituting the “Prompt Payment Clause” will require payment to all first tier subcontractors for all labor and materials --- for work completed to date --- within 20 calendar days of receipt of progress payments from the Department for said work. Similar language in a contract between a subcontractor and a lower-tier subcontractor will require payment to the lower tier subcontractor for all labor and materials --- for work completed to date --- within 10 calendar days of receipt of progress payments from the prime Contractor for said work.

(2) The language constituting the “Prompt Payment Clause” will also stipulate the return of retainage within 30 calendar days after the satisfactory completion of the work by the subcontractor as evidenced by inclusion of the work on a progress payment.

(3) Additionally, the language constituting the “Prompt Payment Clause” may stipulate the subcontractor’s obligation to return to the Contractor or subcontractor, as the case may be, any overpayments which result from adjustments to measured and recorded quantities as part of the preparation of subsequent progress payments or the final records. Overpayments shall be returned to the Prime Contractor or subcontractor, as the case may be, within 20 calendar days of receiving notice of the adjusted quantities and the amount of the overpayment.

c. The Prime Contractor of subcontractors, as the case may be, may withhold payment only for just cause and shall not withhold, delay, or postpone payment without first receiving written approval from the Department.

d. (1) The failure by the Prime Contractor to abide by the agreements identified in the “Prompt Payment Clause” without just cause, including the timely return of retainage, is a material breach of this contract which may result in the Department withholding the amount of payment from the prime Contractor that should have been paid to the subcontractor, termination of this contract, or other such remedy as the Department deems necessary.

(2) Additionally, the failure of any subcontractor to abide by the agreements identified in the “Prompt Payment Clause” without just cause, including the timely return of retainage to lower tier subcontractors, or by failing to return overpayments in a timely manner when the language permitted in Paragraph 8.b.(3) above is included in the subcontract may result in the Department withholding subcontract approval for other work until the overpayments have been returned.

9. a. (1) For Davis Bacon (DBRA)-covered projects and Non-DBRA-covered projects, a Contractor or subcontractor may wish to use another individual owner-operator or trucking company to supplement his or her hauling fleet. (The Department will not recognize multiple individuals claiming to be collectively identified as a single “owner operator.)

(2) This supplemental individual or company must either become a subcontractor (first tier or lower tier, as the case may be) or be otherwise documented by the utilizing Contractor or subcontractor by entering into a lease agreement for the trucks and showing the driver (or drivers) from the supplemental company on the Prime Contractor’s or subcontractor’s payrolls in the manner described below.

(3) Payrolls will only be accepted from the Prime Contractor or approved subcontractors.

b. (1) If the decision is made to subcontract the hauling, the Prime Contractor must first notify the NDOR Construction Office to request subcontract approval. As part of the subcontract approval process --- at any tier --- the proper certificates of insurance must be provided before approval will be granted.

(2) Additionally, on DBRA-covered projects, the Prime Contractor must submit payrolls for all subcontractors --- at any tier.

c. (1) Owner/Operators of trucks hired by a Contractor or subcontractor to supplement his or her hauling fleet are not subject to Davis Bacon wage requirements. However, they must still be shown on a payroll prepared by the Contractor or subcontractor for whom they are working with the notation “owner/operator.”

(2) Any other employees of the “owner/operator” must appear on the certified payroll in complete detail and must be compensated according to the wage rates established for the project.

d. In the event a Prime Contractor or subcontractor elects to not subcontract the supplemental driver or drivers but instead chooses to “carry the workers/truckers on their payroll,” the following requirements must be met:

(1) The Prime Contractor’s or subcontractor’s certified payroll must contain the names of all workers/truck drivers, and the payroll should identify their supervisors (including “owner-operators”).

(2) Pay checks for the workers/truckers in question must be drawn against the Prime Contractor's or subcontractor's payroll or other account.

(3) Owner/Operators need only be identified as such on the payroll. Additional drivers, if any, from the "owner-operator's" company must appear on a payroll in complete detail and be compensated according to the wage rates established for the project.

(4) The Prime Contractor or subcontractor must enter into a lease agreement for the trucks driven by such drivers, and the lease agreement must show that the compensation for the leased equipment is on a time basis and not based on the amount of work accomplished. The lease agreements must be available for inspection by NDOR personnel.

(5) Any supplemental truckers employed under this arrangement must still carry the minimum automobile liability coverage specified in the contract. It shall be the duty of the Prime Contractor to ensure that the supplemental truckers have such coverage in effect. Evidence of proper insurance must be presented for verification on demand.

ELECTRONIC SHOP DRAWINGS
(A-43-0215)

Paragraphs 5,6, and 7 of Subsection 105.02 of the Standard Specifications are void and superseded by the following:

5. a. The Contractor shall provide electronic working drawings in a Portable Document Format (PDF). The PDFs shall be sized to print on an 11x17 inch sheet of paper and have a minimum resolution of 300 dpi. Each sheet of the shop drawings shall have a space provided for an electronic stamp that measures 2.5 inches x 3.5 inches when printed.

b. Electronic working drawing files shall be named with the following file naming format:

Control Number_Brief Description_Date.pdf

For example: 12345_FloorDrains_05Feb2015
12345_FloorDrainCoverLetter_05Feb2015

c. The project number, control number, and project location as it appears on the plans shall be shown on the front sheet of each Shop Drawing file. Structure numbers shall be included, if applicable.

6. No electronic working drawings shall be submitted to the Engineer unless they have been checked by the Contractor. The electronic submittal shall be accompanied by a Contractor's letter of approval in a PDF format. This letter shall also be named with the format shown in the example above. The letter of approval shall clearly indicate that the Contractor is responsible for any errors on the working drawings.

7. a. Electronic submittals shall be submitted by email to the following address:

DOR.ShopDrawings@nebraska.gov

b. Attachments shall be limited to 25 MB of data per email. Larger files shall be separated and sent in multiple emails.

c. Electronic working drawings will only be accepted from the Prime Contractor.

8. Any reference to hard copy shop drawings in the contract shall be considered void.

LIABILITY INSURANCE
(A-55-0414)

Subsection 107.13 in the Standard Specifications is void and superseded by the following:

107.13 – Liability Insurance

Prior to execution of the contract, the Contractor shall obtain insurance coverage to fully protect it from loss associated with the work, and have at a minimum the insurance described below:

1. General Liability:
Limits of at least:
$ 1,000,000 per Occurrence
$ 2,000,000 General Aggregate
$ 2,000,000 Completed Operations Aggregate
$ 1,000,000 Personal and Advertising Injury

a. Contractor shall be responsible for the payment of any deductibles.

b. Coverage shall be provided by a standard form Commercial General Liability Policy (CG0001 or equivalent) covering bodily injury, property damage including loss of use, and personal injury.

c. The General Aggregate shall apply on a Per Project Basis.

d. The State of Nebraska, Department of Roads, shall be named as an Additional Insured on a primary and non-contributory basis including completed operations for three (3) years after final acceptance and payment.

e. Contractor agrees to waive its rights of recovery against the State of Nebraska, Department of Roads. Waiver of Subrogation in favor of the State of Nebraska, Department of Roads shall be added to the policy.

f. Contractual liability coverage shall be on a broad form basis and shall not be amended by any limiting endorsements.

g. If work is being performed near a railroad track, the 50' railroad right-of-way exclusion must be deleted.

h. Products and completed operations coverage in the amount provided above shall be maintained for the duration of the work, and shall be further maintained for a minimum period of three years after final acceptance and payment.

i. Coverage shall be included for demolition of any building or structure, collapse, explosion, blasting, excavation and damage to property below surface of ground (XCU coverage).

j. Policy shall not contain a total or absolute pollution exclusion. Coverage shall be provided for pollution exposures arising from products and completed operations as per standard CG0001 Pollution Exclusion or equivalent. If the standard pollution exclusion as provided by CG0001 has been amended, coverage must be substituted with a separate Pollution Liability policy of $1.0 million per occurrence and $2.0 million aggregate. If coverage is provided by a "claims made" form, coverage will be maintained for three years after project completion. Any applicable deductible is the responsibility of the Contractor.

2. Automobile Liability:
Limits of at least:
$ 1,000,000 CSL per Accident

a. Coverage shall apply to all Owned, Hired, and Non-Owned Autos.

b. If work is being performed near a railroad track, the 50-foot railroad right-of-way exclusion must be deleted.

c. Contractor agrees to waive its rights of recovery against the State of Nebraska, Department of Roads. Waiver of Subrogation in favor of the State of Nebraska, Department of Roads, shall be added to the policy.

d. Automobile liability coverage shall be obtained from an insurance carrier who is licensed with the Nebraska Department of Insurance.

3. Workers' Compensation:
Limit: Statutory coverage for the State where the project is located.
Employer's Liability limits: $500,000 Each Accident
$500,000 Disease – Per Person
$500,000 Disease – Policy Limit

a. Contractor agrees to waive its rights of recovery against the State of Nebraska, Department of Roads. Waiver of Subrogation in favor of the State of Nebraska, Department of Roads shall be added to the policy.

b. Workers' compensation coverage shall be obtained from an insurance carrier who is licensed with the Nebraska Department of Insurance.

c. Where applicable, the Longshore and Harborworkers Compensation Act endorsement shall be attached to the policy.

4. Umbrella/Excess:
Limits of at least:
$1,000,000 per Occurrence

   a. Policy shall provide liability coverage in excess of the specified Employers Liability, Commercial General Liability and Automobile Liability.

   b. The State of Nebraska, Department of Roads, shall be an “Additional Insured.”

   c. Contractor agrees to waive its rights of recovery against the State of Nebraska, Department of Roads. Waiver of subrogation in favor of the State of Nebraska, Department of Roads shall be provided.

5. Pollution Liability:

   a. When “hazardous wastes” or contaminated or polluted materials must be handled and/or moved, the Contractor shall obtain Pollution Liability Coverage with minimum limits of $1,000,000 per occurrence and $2,000,000 aggregate.

   b. If, during the course of construction, hazardous wastes, contaminated or polluted material are discovered on the project, the Contractor shall immediately cease any operation that may disturb these materials, and shall immediately notify the Engineer of all facts related to the discovery of these materials.

   c. Unforeseen work related to the discovery of hazardous, contaminated or polluted materials on the project, and the extra cost, if any, of pollution liability coverage will be handled as “extra work.”

6. Additional Requirements:

   a. The Contractor shall provide and carry any additional insurance required by the Special Provisions.

   b. Except as otherwise provided herein, all insurance shall be kept in full force and effect until after the State releases the Contractor from all obligations under the contract.

   c. (1) If any of the work is sublet, equivalent insurance shall be provided by or on behalf of the subcontractor or subcontractors (at any tier) to cover all operations.

      (2) Approved trucking subcontractors (at any tier) who are being utilized only for the purpose of hauling materials shall be exempt from the requirements of Paragraphs 1, 4, and 5.

      (3) (i) When a Contractor or subcontractor chooses to employ a trucker by carrying the driver on his or her payroll and entering into a lease agreement for the truck, the owner-operator of the truck shall be required to comply with the Automobile Liability provisions of Paragraph 2.

      (ii) Furthermore, it shall be the duty of the Prime Contractor to ensure that the owner-operator of the truck has such insurance in effect. The Prime Contractor shall maintain evidence that any truckers so

utilized (at any tier) are insured to the minimum limits specified and be able to furnish documentation of the same on demand.

(iii) Failure to ensure that insurance coverage exists and failure to maintain evidence thereof shall be considered a breach of the contract.

d. Any insurance policy shall be written by an insurance company with a Best's Insurance Guide Rating of A – VII or better.

e. Prior to execution of the contract, Contractor shall provide the State of Nebraska, Department of Roads evidence of such insurance coverage in effect in the form of an Accord (or equivalent) certificate of insurance executed by a licensed representative of the participating insurer(s). Certificates of insurance shall show the Nebraska Department of Roads as the certificate holders.

f. For so long as insurance coverage is required under this agreement, the Contractor shall have a duty to notify the Department when the Contractor knows, or has reason to believe, that any insurance coverage required under this agreement will lapse, or may be cancelled or terminated. The Contractor must forward any pertinent notice of cancellation or termination to the Department at the address listed below by mail (return receipt requested), hand-delivery, or facsimile transmission within 2 business days of receipt by Contractor of any such notice from an insurance carrier. Notice shall be sent to:

Nebraska Department of Roads
Construction Division --- Insurance Section
1500 Highway 2, P.O. Box 94759
Lincoln, NE 68509-4759

Facsimile No. 402-479-4854

g. Failure of the owner or any other party to review, approve, and/or reject a certificate of insurance in whole or in part does not waive the requirements of this agreement.

h. The limits of coverage set forth in this document are suggested minimum limits of coverage. The suggested limits of coverage shall not be construed to be a limitation of the liability on the part of the Contractor or any of its subcontractors/tier subcontractors. The carrying of insurance described shall in no way be interpreted as relieving the Contractor, subcontractor, or tier subcontractors of any responsibility or liability under the contract.

i. If there is a discrepancy of coverage between this document and any other insurance specification for this project, the greater limit or coverage requirement shall prevail.

CONSTRUCTION DETAILS

FUEL COST ADJUSTMENT PAYMENT
(B-1-0708)

Paragraph 16.a. of Subsection 205.05 in the Standard Specifications is amended to provide that the references to fuel cost fluctuation will be 5% instead of the 10% shown.

The fuel use factor, "F", shown in Paragraph 16.c. of Subsection 205.05 is void and superseded by the following:

F = English
The fuel use factor for diesel fuel, in gallons per cubic yard. For the items of work "Excavation", "Excavation, Borrow", and "Excavation, Established Quantity", "F" shall be equal to 0.20. For the item of work "Earthwork Measured in Embankment", "F" shall be equal to 0.27.

Metric
The fuel use factor for diesel fuel, in liters per cubic meter. For the items of work "Excavation", "Excavation, Borrow", and "Excavation, Established Quantity", "F" shall be equal to 0.99. For the item of work "Earthwork Measured in Embankment", "F" shall be equal to 1.32.

Paragraph 16.d. of Subsection 205.05 is void and superseded by the following:

d. The allowable price differential, "D", for the current estimate will be computed according to the following formula:

When the current price, P, is greater than the base price, P(b).

D = P - 1.05P(b), but not less than zero.

When the current price, P, is less than the base price, P(b).

D = P - 0.95P(b), but not greater than zero.

WATER
(B-1-0307)

Paragraph 4.a. of Subsection 205.04 in the Standard Specifications is amended to include the following:

Payment shall be made at the established contract unit price.

EXCAVATION AND EMBANKMENT
(B-1-0212)

Paragraph 6. of Subsection 205.02 in the Standard Specifications is void and superseded by the following:

6. Frozen Layers:

   a. Thin Frozen Layer. A thin soil layer that freezes during the construction of an embankment may remain provided that the layer:

      (i) had proper density and moisture prior to freezing,
      (ii) can be readily broke up by a single pass of a tamping (sheepsfoot) roller or track mounted excavator,
      (iii) is thoroughly scarified into pieces having a single dimension of 3 inches or less, and a second dimension of ½ inch or less, and
      (iv) is not within 10 inches (measured vertically) of any thin frozen layer that was previously scarified and left in place.

   b. Thick Frozen Layer. A soil layer that freezes during the construction of an embankment, but does not meet the Thin Frozen Layer requirements:

      (i) may remain in the embankment provided that the layer is thawed and has proper density and moisture after thawing, or
      (ii) shall be completely removed from the embankment prior to placing any additional embankment material.

TEMPORARY WATER POLLUTION CONTROL
(B-3-1014)

Section 204 in the Standard Specifications is void.

CONSTRUCTION STORMWATER MANAGEMENT CONTROL
(B-3-1014)

A. General

1. This Section defines some best management practices (BMPs) for erosion and sediment control measures and construction practices the Contractor shall use to prevent soil erosion and avoid water pollution.

2. a. The Department and the Contractor are co-permittes of the NPDES Construction Storm Water General Permit.

   b. The Contractor shall comply with all conditions required by the current NPDES Construction Storm Water General Permit.

3. The Contractor shall exercise every reasonable precaution throughout the life of the contract to prevent silting of the waters of the state, the project site, and adjacent property. Construction of drainage facilities, as well as performance of

other contract work which will contribute to the control of siltation, shall be carried out in conjunction with earthwork operations or as soon thereafter as is practicable.

4. a. The Contractor shall take sufficient precautions to prevent pollution of the waters of the state, the project site, and adjacent property from construction debris, petroleum products, chemicals, or other harmful materials.

   The Contractor shall conduct and schedule the operations to avoid interference with any protected species.

   b. The Contractor shall comply with all applicable statutes relating to pollution of the waters of the state and fish and game regulations.

5. All construction debris shall be disposed in a manner that it cannot enter any waterway. Excavation shall be deposited as to protect the waters of the state from siltation.

6. All erosion and sediment control measures shall be properly installed and maintained by the Contractor until all permanent drainage facilities have been constructed, and all slopes are sufficiently vegetated to be an effective erosion deterrent; or until tentative acceptance of the work.

7. All erosion and sedimentation resulting from the Contractor's operations and the weather conditions must be corrected by the Contractor.

LIMITATION OF OPERATIONS
(B-3-1014)

A. General

1. The maximum exposed surface area for the Contractor's operations in excavation, borrow, and embankment is 18 acres (72,800 m2) plus an equal area of clearing and grubbing/large tree removal. A written request for an increase in the maximum exposed surface area may be approved by the Engineer. This approval will be based on the soil, moisture, seasonal conditions, the Contractor’s operation, or other conditions.

2. The Engineer shall have the authority to reduce the maximum exposed surface area when any of the following conditions warrant:

   a. Soil and moisture conditions are such that erosion is probable.

   b. Seasonal conditions may force extended delays.

   c. Proximity to the waters of the state requires more stringent controls.

   d. Equipment and personnel available on the job is not sufficient to properly maintain erosion and dust control measures.

e. Any other environmental condition in the area that may exist which would be affected by erosion from the project.

3. Construction operations in rivers, streams, wetlands, and impoundments shall be restricted to those areas specifically shown in the contract. Rivers, streams, wetlands, and impoundments shall be promptly cleared of all false work, piling, debris, or other obstructions placed therein or caused by the construction operations.

4. Fording and operation of construction equipment within streams and wetlands will not be allowed, unless explicitly allowed in the contract. Streams are defined as any area between the high banks, regardless of the flow conditions.

CONSTRUCTION METHODS
(B-3-1014)

A. General

1. The Contractor shall conduct all construction activities and install temporary erosion control measures, as necessary, to control sediment and avoid soil erosion during construction.

2. The Contractor shall incorporate all permanent erosion control features into the project at the earliest practicable time.

3. Construction stormwater management control measures for Contractor obtained work areas located outside the right-of-way, such as borrow site operations, haul roads, plant sites, staging sites, waste sites, equipment storage sites, etc. are the sole responsibility of the Contractor. All construction stormwater management control measures for these areas are at the Contractor's expense. The Contractor is responsible for securing all required permits for use of these sites.

4. The construction stormwater management procedures contained herein shall be coordinated with any permanent erosion control measures specified elsewhere in the contract to the extent practical to assure economical, effective, and continuous erosion and sediment control throughout the construction period.

5. The Contractor shall be responsible to limit erosion and prevent siltation into the waters of the state during the construction period, as well as during the times that work may be suspended.

6. a. All erosion and sediment control items shall be installed by personnel who are knowledgeable in the principles and practice of various BMP installations.

b. The installation of all erosion and sediment control items shall be done under the direct supervision of the Contractor's employee who has successfully completed training provided by the Department and has been certified as an Erosion and Sediment Control Inspector (Inspector).

The Contractor's Inspector shall be present at each site during installation to direct and inspect all erosion and sediment control BMP installations.

i. The NDOR Erosion and Sediment Control Inspector Certification is obtained by completing an Erosion and Sediment Control Inspector Training Course provided by the Nebraska Department of Roads and passing the examination that accompanies the training.

c. The Contractor shall notify the Engineer of all employees, who have been certified as Inspectors, who will be on the project to direct and inspect all erosion and sediment control BMP installations.

d. No payment will be made for any erosion and sediment control item unless a Contractor's Inspector was present to directly supervise and inspect the work.

e. No payment will be made for any erosion and sediment control item that is not properly installed. All erosion and sediment control items shall be installed as per the contract.

ENVIRONMENTAL COMMITMENT DOCUMENT (B-3-1014)

A. Environmental Commitment Document

1. a. An Environmental Commitment Document will be created by the Department to identify all project specific environmental commitments and will be included in the Contract.

b. The Department will provide information for the following, when applicable:

i. Storm Water Pollution Prevention Plan (SWPPP)
ii. U.S. Army Corps of Engineers (USACE) Section 404 Permit
iii. Nebraska Department of Environmental Quality 401 Water Quality Certification
iv. State Title 117 Waters (USACE Non-Jurisdictional)
v. Floodplain Permit
vi. Historic Clearance
vii. Endangered Species Act Clearance
viii. Nebraska Nongame and Endangered Species Conservation Act Clearance
ix. National Environmental Policy Act Compliance
x. NPDES Construction Stormwater Permit (within Right-of-Way limits, only)
xi. Conservation Measures
xii Migratory Bird Treaty Act
xiii. Bald and Golden Eagle Protection Act Compliance
xiv. Other pertinent issues

c. The Contractor shall provide information for the following, when applicable:

i. Temporary Erosion Control Plan
ii. Spill Prevention and Control Plan
iii. Migratory Bird Treaty Act Compliance Plan
iv. Name and telephone number of the Contractor's representative responsible for the Environmental Commitments
v. Name and telephone number of the employees that are NDOR-Certified Erosion and Sediment Control Inspectors
vi. Critical Path Construction Schedule
vii. Other items as defined elsewhere in the contract

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) (B-3-1014)

A. General

1. A SWPPP is required for projects that construction activities will cause a land disturbance of one (1) acre or more. The Department will prepare the SWPPP for the areas within the Right-of-Way, temporary easements and permanent easements.

2. For projects not requiring a SWPPP, the Contractor shall comply with the requirements of Environmental Commitment Document, Paragraph 1.b. of this Special Provision, as applicable.

3. Contractor obtained work areas, located on private property, are not included in the NDOR Project SWPPP.

B. Temporary Erosion Control Plan

1. The Contractor shall prepare and submit the Temporary Erosion Control Plan prior to the start of any work. The Contractor shall not begin work until the Temporary Erosion Control Plan has been submitted to the Engineer and appropriate erosion control measures are in place. Payment for any work on the contract will be withheld if erosion control measures are not in place or properly maintained.

2. The Temporary Erosion Control Plan will be reviewed at project progress meetings. All active Contractors shall have their Inspectors present and work in cooperation to determine any necessary changes. Necessary changes will be documented on the Temporary Erosion Control Plan by the Engineer.

3. Payment for preparing the Temporary Erosion Control Plan, inspections and meeting reviews are subsidiary to items that direct payment is made.

C. Spill Prevention and Control Plan

1. All project activities shall be addressed in the Spill Prevention and Control Plan. The Contractor shall prepare and submit the plan to the Engineer and install all appropriate spill prevention and control measures prior to the start of any work.

2. The Spill Prevention and Control Plan shall clearly state measures to prevent, contain, document and clean up a spill. It shall state measures for disposal of the contaminated material, disposal documentation and incident review to train personnel to prevent spills from reoccurring.

3. Spill Prevention and Control Plans are applicable to construction sites where hazardous materials are stored, used and/or generated onsite. Hazardous materials include, but not limited to: hazardous wastes, pesticides, paints, cleaners, petroleum products, fertilizers, solvents and porta-potty wastes.

4. Direct payment will not be made for the Spill Prevention and Control Plan.

D. Migratory Bird Treaty Act Compliance Plan

1. The Contractor shall not begin work until a Migratory Bird Treaty Act Compliance Plan has been submitted to the Engineer and appropriate nesting migratory bird avoidance measures are in place.

2. a. The Contractor shall clearly state the necessary measures they intend to use to avoid a "Take" of nesting migratory birds in the Migratory Bird Treaty Act Compliance Plan. Measures may include but are not limited to:

    i. Clearing and grubbing prior to April 1st or after September 1st
    ii. Tree removal prior to April 1st or after September 1st
    iii. Clearing empty nests on structures prior to April 1st
    iv. Maintaining clear structures until commencement and throughout the duration of work on structures
    v. Netting structures to prevent nesting
    vi. Commitment to perform surveys according to protocol
    vii. Hire a biologist to survey areas to be disturbed prior to commencement of work during the nesting season
    viii. Submittal of required bird survey reports
    ix. Training of Contractor Personnel to insure compliance

3. a. The Migratory Bird Treaty Act Compliance Plan is applicable to the entire project site to avoid the "Take" of migratory birds protected under the Migratory Bird Treaty Act.

    b. "Take" is defined as: pursuit, hunt, shoot, wound, kill, trap, capture, collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect.

4. The Migratory Bird Treaty Act Compliance Plan shall adhere to the NDOR's Avian Protection Plan located at:

http://www.transportation.nebraska.gov/environment/guides/avian-protection-plan.pdf

Direct payment will not be made for the Migratory Bird Treaty Act Compliance Plan.

E. SWPPP Inspection

1. The Contractor shall accompany the Engineer on inspections in accordance with the NPDES Construction Storm Water General Permit.

2. The SWPPP will be maintained and updated by the Engineer as work progresses and site conditions change to accurately describe the BMPs that are currently in place.

3. The Contractor's participation in SWPPP inspections, maintenance and updates shall begin on the first day construction activities cause land disturbance and end on the date of project completion as evidenced as the completion date in the District Engineer's Letter of Tentative Acceptance.

4. a. The Contractor's Inspector shall be responsible for ensuring that all BMPs are installed in accordance with the contract or the manufacturers' recommendations. The Contractor's Inspector shall be capable of reading and interpreting these documents.

   b. The Contractor's Inspector shall be familiar with product and structural BMPs. The Contractor's Inspector shall inspect, assess, and supervise the maintenance of erosion and sediment control BMPs to ensure compliance with the NPDES Construction Storm Water General Permit while preserving BMP functionality.

5. Payment for project inspection is subsidiary to items that direct payment is made.

ENVIRONMENTAL COMMITMENT ENFORCEMENT (B-3-1014)

A. General

1. This specification establishes payment and disincentive assessment for the Contractor's performance in complying with Contract Environmental Commitments.

2. Deficiencies are described but not limited to:

   a. Failure to install pollution prevention control BMPs as work progresses or as described in the SWPPP.

   b. Failure to maintain existing pollution prevention control BMPs.

   c. Failure to remove non-functioning pollution prevention control BMPs.

d. Failure to comply with USACE Section 404 Permit requirements.

e. Failure to comply with NPDES Construction Storm Water General Permit requirements.

f. Failure to comply with all applicable statutes relating to pollution of the waters of the state.

g. Exceeding the maximum exposed surface area for excavation of 18 Acres without written request for permission and written approval.

h. Failure to comply with wildlife species specific conservation conditions.

i. Failure to comply with the Contract.

j. Failure to comply with the Engineers directives.

B. SWPPP Deficiency Notification

1. The Engineer will document and direct the Contractor to correct deficiencies.

2. a. The Contractor shall commence correcting deficiencies, provide adequate equipment and personnel, and diligently pursue correcting deficiencies without cessation until all deficiencies have been corrected.

b. The count of Working Days and/or Calendar Days will continue during the time period that corrective work is being performed.

c. Delays to the project as a result of the Contractor conducting corrective actions for the Contract Environmental Commitments will not constitute a valid reason for an extension of the contract time allowance.

3. Deficiencies shall be corrected within seven (7) calendar days of notification or within an approved extension. When deficiencies are not corrected within seven (7) calendar days or within an approved extension, the Engineer will make a disincentive assessment to the contract as stated herein.

4. a. If soil, weather, or other conditions prevent the Contractor from completing the corrective actions within seven (7) calendar days, the Contractor shall notify the Engineer in writing. The Contractor's letter shall state the reasons preventing corrective action within the time allowed. The Contractor shall propose a written Corrective Action Plan within 48 hours. Corrective work shall continue while the Corrective Action Plan is developed. The Contractor's Corrective Action Plan must contain a course of action and a time frame for completion. If the reasons and the Corrective Action Plan are acceptable, the Engineer may extend the time in which to complete the corrective work.

b. The Contractor will be allowed to proceed with the plan as proposed without incurring a disincentive assessment. If all corrective work is

completed within the time allowance shown in the Notification or within an approved extension, a disincentive assessment will not be imposed upon the Contractor.

c. Storm events or soil and weather conditions occurring on other projects, which interfere with a Contractor completing corrective actions on the project within seven (7) calendar days, will not be justification for a time extension to complete the corrective work.

5. If all corrective work identified in the Notification has not been completed at the end of the seventh (7^{th}) calendar day after the Initial Notice Date or within an approved extension, a Shut-Down Notice will be issued on the eighth (8^{th}) calendar day after the Initial Notice Date or on the calendar day following the last day of an approved extension.

6. All operations shall cease as of the date and time cited in the Shut-Down Notice. The Contractor shall work, exclusively, on the deficiencies until all have been corrected or as directed by the Engineer. Upon issuance of the Shut-Down Notice, a disincentive of $500.00 per deficiency per calendar day will be assessed thru the day the corrective work is completed, inclusive.

7. The Engineer may require the Contractor to provide a written Procedures Plan that describes the process to prevent reoccurrence of deficiencies. The written Procedures Plan shall be provided within two (2) calendar days of the request. Failure to correct all deficiencies and provide a Procedures Plan may result in payments being withheld until such time that procedures are outlined.

a. Payment for preparing a written Procedures Plan is subsidiary to items that direct payment is made.

C. Storm Event Restoration – Incentive and Disincentive

1. The Department will pay “Storm Event Restoration - Incentive” when the Contractor completes the restoration work to eliminate the pollution prevention control deficiencies within seven (7) calendar days of Notification or within an approved extension. Multiple deficiencies may be included in one notification. If the restoration work has not been completed within seven (7) calendar days after the Initial Notice or within an approved extension, payment for the item of “Storm Event Restoration - Incentive” will not be made.

2. A storm event is defined as a storm exceeding 0.50 inch of rain in a 24 hour period.

3. The Department will notify the Contractor of pollution prevention control deficiencies.

4. a. Payment for the item of “Storm Event Restoration - Incentive” may not be made when the Contractor is notified to correct pollution prevention devices not installed in accordance with the contract or the manufacturer’s recommended installation instructions.

5. If the restoration work is not completed within seven (7) calendar days or within an approved extension, a disincentive assessment of $500.00 per deficiency per calendar day will be assessed. The disincentive assessment will begin on the eighth (8^{th}) calendar day after the issuance of the Initial Notice Date or on the calendar day following the last day of an approved extension(s) and continue through the day that the restoration work is completed, inclusive.

D. Method of Measurement

1. a. "Storm Event Restoration – Incentive" will be measured by the each upon completion of restoration of all deficiencies included in a notification within the allowed time and only one payment per notification is allowed when multiple deficiencies are included on the notification.

   b. If deficiencies from multiple notifications are restored during the same restoration operation, only one (1) incentive is eligible for payment.

   c. If multiple notifications are the result of successive storm events and deficiencies are transferred to ensuing notifications, incentive payment is only eligible for the latest notification.

2. "Storm Event Restoration – Disincentive" will be measured by the calendar day in accordance with Paragraph C.5. above.

E. Basis of Payment

1. Pay Item	**Pay Unit**
Storm Event Restoration – Incentive	Each
Storm Event Restoration – Disincentive	Calendar Day

2. All equipment, materials, etc. used in the restoration work will be paid for in accordance with Division 800 of the Standard Specifications.

3. Payment is full compensation for all other incidentals required to complete the restoration work included in the notification within the allowed time.

F. Environmental Commitments – Contractor Compliance

1. To provide payment for all plans, inspections, surveys, reports, travel, qualified inspection persons and any other subsidiary activities for the work of implementing threatened and endangered species commitments, temporary erosion control or any other environmental commitments prescribed in the contract.

2. Multiple visits to the project may be required to comply with environmental commitments prescribed in the contract.

G. Method of Measurement

1. No measurement is required.

H. Basis of Payment

1.

Pay Item	Pay Unit
Environmental Commitments – Contractor Compliance	Lump Sum

2. Partial payments will be made as follows:

   a. The Department will pay 50 percent of the total amount bid for the item Environmental Commitments – Contractor Compliance within seven (7) calendar days after the Notice to Proceed Date.

   b. Upon completion of 50 percent of the Original Contract Amount, the Department will pay 30 percent of the amount bid for the item Environmental Commitments – Contractor Compliance.

   c. Upon completion of 75 percent of the Original Contract Amount, the Department will pay the remaining 20 percent of the amount bid for the item Environmental Commitments – Contractor Compliance.

   d. Failure to comply with any or all of the contract requirements, included for payment under the item of Environmental Commitments – Contractor Compliance, will preclude all payment for the item, including any previous payment.

3. Payment is full compensation for all work prescribed in the contract.

I. Immediate Action Deficiencies

1. Deficiencies that pose an imminent threat to the environment are considered an emergency situation. These deficiencies will be identified in the Immediate Action Deficiencies Section of the Environmental Commitment Deficiency Notification Form. The corrective work for Immediate Action Deficiencies shall begin immediately and continue without cessation until completed.

2. The Engineer will issue a shut-down notice. All work on the contract shall cease until the corrective work has been completed. The Engineer may allow the Contractor to continue working in areas unaffected by the Immediate Action Deficiency, provided corrective actions are being actively performed on the deficiency.

3. Immediate Action Deficiencies are not eligible for an incentive payment.

4. The Contractor will be assessed a disincentive assessment of $1,000.00 per deficiency per calendar day for failure to begin corrective actions or failing to continue to completion as directed by the Engineer or by the regulatory agency with jurisdiction.

5. Examples of Immediate Action Deficiencies include but are not limited to:

   a. Threatened & Endangered Species habitat protection deficiencies

b. USACE Section 404 Permit Noncompliance

c. Petroleum Spills/Tank Leakage

d. Hazardous Material Spills

J. Rights Reserved

1. The Department reserves the right to initiate and perform corrective action on any deficiencies which result from the Contractors' actions, inactions, or for failure to comply with the NPDES Construction Stormwater General Permit, USACE Section 404 Permit, or any other applicable permit.

2. The Contractor shall be liable to the Department for any and all costs incurred by the Department for corrective actions taken by the Department.

3. It is expressly understood that the provisions of this specification shall not relieve the Contractor of their responsibilities nor shall it relieve the Surety of its obligation for and concerning any just claim.

4. The Contractor shall indemnify and save harmless the Department and all of its representatives from any and all actions or claims brought because of the Contractor's actions, inactions, or for failure to comply with the NPDES Construction Storm Water General Permit, USACE Section 404 Permit, or any other applicable permit.

SUBGRADE PREPARATION
(C-1-0307)

Paragraph 2.a. of Subsection 302.03 in the Standard Specifications is amended to include that trimming on narrow, irregular or roadway grading of 1/2 mile (0.8 km) or less may be accomplished using conventional methods.

TYPE B HIGH INTENSITY WARNING LIGHTS
(D-6-0307)

All references in the plans to Type B High Intensity Warning Lights shall be considered void. The plans will not be revised to reflect this change.

TEMPORARY TRAFFIC CONTROL DEVICES
(Type II Barricades, Reflectorized Drums, 42" (1070 mm) Reflective Cones, and Vertical Panels)
(D-6-1112)

Paragraph 2.d. of Subsection 422.03 in the Standard Specifications is void and superseded by the following:

d. (1) Reflectorized drums used for traffic warning or channelization shall be constructed of lightweight, flexible, and deformable materials, be a minimum of 36 inches (900 mm) in height, and have a minimum width of 18 inches (450 mm), regardless of orientation. The predominant color of the drum shall be orange.

(2) Steel drums shall not be used.

(3) The markings on drums shall be horizontal, shall be circumferential, and shall display four 6-inch (150 mm) wide bands of retroreflective sheeting, alternating fluorescent orange - white – fluorescent orange - white. The fluorescent orange sheeting shall meet the luminance requirements of the following table.

FHWA Luminance Factor

	Luminance Factor Y_T		
Sheeting Type	Min	Max	Fluorescence Luminance Factor Limit, Y_F
Fluorescent Orange	25	None	15

e. When approved by the Engineer or shown in the plans, 42" (1070 mm) reflective cones may be used in lieu of Type II Barricades or Reflectorized Drums. 42" (1070 mm) reflective cones shall include a 30-pound (14 kg) rubber base and display four 6-inch (150 mm) wide bands of retroreflective sheeting, alternating fluorescent orange - white - fluorescent orange - white. 42" (1070 mm) reflective cones shall not be used for lane-closure tapers or shifts.

f. Rubber base-mounted 36-inch vertical panels shall not be used for channelization when the speed limit exceeds 40 miles per hour.

Paragraph 2.b. of Subsection 422.04 of the Standard Specifications is void and superseded by the following:

b. (i) Type II Barricades, Reflectorized Drums, and 42" (1070 mm) Reflective Cones shall be counted as "Barricades, Type II" and measured for payment by the number of calendar days each is in place and positioned as shown in the plans or as directed by the Engineer.

(ii) Vertical Panels shall be measured for payment as permanent "Sign Days" (by the each) by the number of calendar days each vertical panel unit is in place and positioned as shown in the plans or as directed by the Engineer.

Paragraph 2.c. of Subsection 422.04 of the Standard Specifications is amended to include Reflectorized Drums.

Paragraphs 3. and 4. of Subsection 422.05 of the Standard Specifications are void and superseded by the following:

3. a. The pay item "Barricade, Type II" is used to pay for three items ("Barricades, Type II", "42" (1070 mm) Reflectorized Cones", and "Reflectorized Drums").

b. "Barricades, Type II", which includes "42" (1070 mm) Reflectorized Cones", and "Reflectorized Drums", is paid for as an "established" contract unit price item. The established unit price is identified on the "Schedule of Items" shown in the Proposal.

4. Payment for vertical panels includes all posts, brackets, or hardware necessary to install and maintain the vertical panel units.

WORK ZONE TRAFFIC CONTROL SIGNS (D-6-1212)

The Department has adopted the FHWA 2009 Manual of Uniform Traffic Control (MUTCD) and the 2011 Nebraska Supplement to the MUTCD as the official guidance for work zone traffic control signs. Many work zone traffic control signs have been revised, redesigned, or replaced in the 2009 MUTCD (and 2011 Nebraska Supplement). Accordingly, all work zone signs shall comply with the following:

1 - All signs, regardless of age, shall meet the design standards of the 2009 MUTCD (and 2011 Nebraska Supplement).

TEMPORARY PAVEMENT MARKING (D-10-0811)

Paragraph 4.f. of Subsection 422.01 in the Standard Specifications is void.

Paragraph 6.a.(2) of Subsection 422.03 is void and superseded by the following:

(2) When the markings are no longer needed, the Contractor shall remove them. If removing markings from the final wearing surface, the removal process shall not mar or damage the surface. Removed markings shall no longer be visible on the final wearing surface.

Paragraph 6. of Subsection 422.03 in the Standard Specifications is amended to include the following:

This work shall consist of installing and removing reflectorized temporary pavement lines of the color, width and line configuration shown in the plans or as designated by the Engineer.

Temporary paint markings will be used on this project. The use of Type I tape will not be permitted and Type II tape may be used for short durations only, as directed by the

Engineer. Temporary paint stripes shall be a minimum 4" (100 mm) wide, 10' (3 m) long with a 30-foot (9 m) gap or a minimum 4" (100 mm) wide solid line as shown on the plans.

Temporary pavement marking which is no longer applicable shall be removed as directed by the Engineer.

Paragraph 12.a. of Subsection 422.04 is void and superseded by the following:

a. "Pavement Marking Removal" and "Temporary Pavement Marking Removal" shall be measured by the linear foot (meter) along the centerline of the traveled roadway for each line removed.

Subsection 422.04 is amended to include the following:

21. The use of paint for Temporary Pavement Marking shall be measured per linear foot (meter) for the item "Temporary Pavement Marking, Type Paint".

22. Temporary pavement marking tape Type II shall be measured per linear foot (meter) for the item "Temporary Pavement Marking, Type II".

23. Initial surface preparation requiring sand or shot blasting shall be measured per linear foot (meter) for the item "Temporary Pavement Marking, Surface Preparation". Surface preparation for repainting, consisting of air blasting and brushing, shall be subsidiary to other items for which payment is made.

Paragraph 1. of Subsection 422.05 is amended to include the following:

Pay Item	**Pay Unit**
Temporary Pavement Marking Removal	Linear Foot (LF)
Temporary Pavement Marking, Type Paint	Linear Foot (LF)
Temporary Pavement Marking, Type II	Linear Foot (LF)
Temporary Pavement Marking, Surface Preparation	Linear Foot (LF)

Paragraph 9.c. of Subsection 422.05 is void.

Paragraph 13. of Subsection 422.05 is void and superseded by the following:

13. Removal of temporary pavement markings including overlay broken/solid lines will be paid for except:

    a. When the temporary markings are intended to be covered up by permanent markings.

    b. When surface preparation removes the temporary markings.

Section 1069 in the Standard Specifications is amended to include the following:

1. Prior to the initial placement of the markings, temporary paint, or Type II tape the pavement upon which the markings are to be placed shall be dry, cleaned and

properly prepared by sand or shot blasting, as a minimum, and to the extent recommended by the manufacturer so that all contaminants, loose debris, and other foreign material are completely removed. Surface preparation for any subsequent application shall consist of air blasting and brushing the roadway surface to remove all loose dirt, mud or other debris and to dry the surface. Each additional application of paint shall be applied over the previously painted stripes.

Prior to placing the temporary pavement markings on the prepared surface, the Contractor shall layout, spot or string line the proposed temporary marking location. The temporary markings shall be aligned in such a way as to provide a smooth and gradual transition to and from the existing markings, and throughout both straight and horizontally curved sections of the project.

2. The material used for temporary paint marking shall be a commercially available acrylic resin Type II traffic paint that dries to no pickup in 4 minutes and shall be applied with a minimum of 6 pounds (0.7 kg) of glass beads per gallon (liter). The paint shall be applied at a minimum width of 4 inches (100 mm) and a wet thickness of approximately 15 mils (380 µm) {approximately 16.5 gallons (39 liters) of paint per mile (kilometer) of solid line}. The equipment used to paint the line shall be a machine designed for the purpose of applying long line traffic lane markings of the type, width and thickness required, and shall be self-propelled or truck mounted and be equipped with an adjustable guide-on to assure proper placement of the line. Hand application, walk behind equipment or towing of the equipment will not be allowed.

   Temporary paint lines shall be used on new or existing concrete pavement and asphaltic concrete pavement.

   Any temporary painted line or segment of line, placed before December 1, which fails to adhere to the roadway surface for a minimum of 60 days under normal vehicular traffic or which appears wavy, nonuniform, thin, poorly applied, misaligned, beadless or nonreflective, shall be replaced as directed by the Engineer. For temporary painted pavement markings placed between December 1 and March 15, the minimum time requirement shall be 15 days with the same conditions applicable. No direct payment will be made for replacement within the 60 day or 15 day warranty periods.

   After the minimum 60 day or 15 day warranty periods, the Contractor may be required to repaint the temporary traffic markings, as directed by the Engineer. Direct payment will be made for each additional application. However, should the additional application fail within the 60 day or 15 day warranty periods, the provisions as stated in the previous paragraph shall apply.

   The Contractor must begin each additional repainting application within 72 hours after notification by the Engineer. Should the Contractor fail to begin repainting within this 72 hour period, the Engineer may use State forces or hire a private contractor to repaint the temporary traffic markings. The Contractor will be assessed any costs above the contract unit price “Temporary Pavement Marking, Type Paint” incurred by the State as a result of performing the corrective action by others, and the project will be shut down until the painting is completed.

When painting is required with air temperatures between 38° F (3° C) and 50° F (10° C), the paint shall be heated according to the manufacturer's recommendation prior to application on the dry, clean and properly prepared pavement. Any paint application made when the air temperature is below 38° F (3° C) will be paid for by the State, even if the application falls within either the 60 day or 15 day warranty periods previously described.

3. Temporary pavement marking tape Type II shall be a mixture of high quality polymeric materials and pigments, with glass beads throughout the pigmented portion of the film, and a reflective layer of high index of refraction glass beads bonded to the top surface. The film shall be precoated with a pressure-sensitive adhesive. Unless otherwise specified, the temporary pavement marking shall be 4 inches (100 mm) wide and the reflectorizing glass beads shall be incorporated to facilitate removal of the tape easily from asphalt and Portland cement concrete surfaces intact or in large pieces, at temperatures above 40° F (4° C), either manually or with a recommended roll up device. Removal shall be accomplished without the use of heat, solvents, grinding or sandblasting.

INERTIAL BARRIER SYSTEM
(D-14-0509)

Paragraph 9.b.(5) of Subsection 422.03 in the Standard Specifications is void and superseded by the following:

(5) All inertial barriers shall have 5 to 15 percent (by volume) rock salt mixed with the filler material.

WET REFLECTIVE POLYUREA PAVEMENT MARKING, GROOVED
(D-17-1114)

I. Description

This work shall consist of furnishing and installing wet night retroreflective polyurea pavement markings in accordance with this provision and in conformance to the dimensions and lines shown on the plans or established by the Engineer.

The wet reflective polyurea marking material shall be applied by spray method onto asphaltic cement concrete and Portland cement concrete surfaces. Following an application of glass beads or black aggregate, and upon curing, the resulting marking shall be an adherent reflectorized stripe of the specified thickness and width that is capable of resisting deformation by traffic.

The Contractor shall field verify the pavement marking quantities required for the project prior to purchasing materials. The Department will not be held responsible for the Contractor's shortage or surplus of material. The Contractor's verification of quantities and purchasing material shall not delay the project or the installation of pavement marking when required.

The polyurea pavement marking shall be applied in grooves cut into the surfacing. The grooves shall be made in a single pass dry cut; the equipment used shall be self-vacuuming and leave the cut groove ready for polyurea pavement marking application. The equipment and method used shall be approved by the polyurea pavement marking manufacturer. The polyurea pavement marking shall be applied in the grooves the same day as the cut. Grooves shall be clean and dry prior to polyurea pavement marking application. All conflicting pavement markings which remain after application of the polyurea pavement markings shall be removed. The removal of conflicting, pre-existing temporary or permanent pavement marking shall be paid for with the appropriate removal pay item. The removal of conflicting temporary or permanent pavement marking placed as part of this work shall be at no cost to the Department.

Groove width: pavement marking width + 1 inch to 2 inch maximum
Groove depth: per manufacturer's recommendations to a minimum of 60 mils
Groove length: full length of marking + required grooving transition
Groove position: 2 inches off of joint line (per plan)

Grooving of the surfacing shall be performed in accordance with the polyurea manufacturer's recommendations. Grooving the surfacing shall not be measured and paid for but shall be considered subsidiary to "____ Polyurea Pavement Marking, Grooved".

II. Materials

A. Polyurea

Composition Requirements:

Composition requirements are per manufacturer's specifications. The Polyurea Pavement Markings approved for use are shown on the NDR Approved Products List. Markings which have not been previously approved by the Department will not be permitted on the project until approved by the Traffic Engineer.

Properties:

1. Color and Weathering Resistance: The mixed polyurea compound, white, yellow and black, when applied to a 3" x 6" aluminum panels at 15±1 mil in thickness with no glass beads or elements and exposed for 500 hours in a Q.U.V. Environmental Testing Chamber, as described in ASTM-G154, Cycle #1, shall conform to the following minimum requirements. The color of the white polyurea system shall not be darker than Federal Standard No. 595A-17778. The color of the yellow polyurea system shall conform to Federal Standard No. 595A-13538. The color of the black polyurea system shall conform to Federal Standard No. 595A-17038.

2. Track-Free Time (Laboratory): When tested in accordance with ASTM D 711, the polyurea marking material shall reach a track-free condition in 10 minutes or less for a 15 mil thickness. This test shall be performed with AASHTO Type 1 beads coated at a rate of 0.099 pounds

per square foot. The track-free time shall not increase substantially with decreasing temperature.

3. Adhesion to Concrete: The polyurea coating, when tested according to ACI Method 503, shall have such a high degree of adhesion to the specified concrete surface that there shall be a 100% concrete failure in the performance of this test. The prepared specimens shall be conditioned at room temperature (75°± 2° F) for a minimum of 24 hours and maximum of 72 hours prior to the performance of the tests indicated.

4. Adhesion to Asphalt: The polyurea coating, when tested according to ACI Method 503, shall have such a high degree of adhesion to the specified asphalt surface that there shall be a 100% asphalt failure in the performance of this test. The prepared specimens shall be conditioned at room temperature (75°± 2° F) for a minimum of 24 hours and maximum of 72 hours prior to the performance of the tests indicated.

B. Reflective Media

The reflective media application shall incorporate a double drop technique to maximize wet night reflectivity and color. The reflective media used shall ensure the wet reflective polyurea pavement markings meet the retroreflectance performance requirements in Section II.D.3. The glass beads for drop-on application shall conform to the following requirements *or be an approved equivalent.*

1. Glass Beads

The required glass beads shall be a 60/40 blend (60% sinkers and 40% floaters) of AASHTO M 247-81 Type I gradation 1.5 index glass beads. The glass beads shall have a minimum of 70% Rounds as measured according to ASTM D1155. Crush Resistance shall be measured according to the procedures of ASTM D1213 and shall be a minimum of 30 pounds retained on US #40 Mesh.

Acid Resistance: A sample of glass beads supplied by the manufacturer shall show resistance to corrosion of their surface after exposure to a 1% solution (by weight) of sulfuric acid. The 1% acid solution shall be made by adding 5.7 cc of concentrated acid into 1000 cc of distilled water. CAUTION: Always add the concentrated acid into the water, not the reverse. The test shall be performed as follows:

Take a 1" x 2" sample, adhere it to the bottom of a glass tray and place just enough acid solution to completely immerse the sample. Cover the tray with a piece of glass to prevent evaporation and allow the sample to be exposed for 24 hours under these conditions. Then decant the acid solution (do not rinse, touch, or otherwise disturb the bead surfaces) and dry the sample while adhered to the glass tray in a 150° F *(66*° C) oven for approximately 15 minutes. Microscopic examination (20X) shall

show not more than 15% of the beads having a formation of very distinct opaque white (corroded) layer on their entire surface.

2. Wet Reflective Media

Wet reflective media shall be approved for use by the polyurea manufacturer. The Wet Reflective Media approved for use are shown in the NDR Approved Products List.

C. Non-reflective Media

Black aggregate shall be broadcast to saturation on all black lines to provide a matte, non-reflective finish. The black aggregate shall be either a fine or medium gradation.

D. Finished Markings

Because of normal variances in road surfaces, application processes and measurement, the properties of markings made from the materials specified herein will vary from one installation to the next. When the materials are applied according to the specifications in Section III, they shall be capable of forming markings with the following reproducibility of properties:

1. On-the-road Track-Free Time: When installed at 77° F and at a wet film thickness of 15±1 mils, the markings shall reach a no-track condition in less than 10 minutes. Track-free shall be considered as the condition where no visual deposition of the polyurea marking to the pavement surface is observed when viewed from a distance of 50 feet, after a free-rolling traveling vehicle's tires have passed over the line. The track-free time shall not increase substantially with decreasing temperature.

2. Skid Resistance: The average initial skid resistance shall be 45 BPN or greater when tested according to ASTM E303.

3. Retroreflectance – Required initial retroreflectance values are shown in the table below. Typical retroreflectivity is determined as the average of many readings (mcd(ft-2)(fc-1)) metric equivalent (mcd(m-2)(lux-1)) as described below.

Average Minimum Initial Retroreflectance		
	White	Yellow
Dry (ASTM E1710)	500	350
Wet Recovery (ASTM E2177)	350	275
Wet Continuous (ASTM E2832)	100	75

3.1.1 Some reasonable variance should be expected (for example, application on very rough road surfaces or differences in glass beads).

3.1.2 The initial retroreflectance value of a single installation or unit of work shall be the average value determined according to the measurement and sampling procedures outlined in ASTM D7585,

using a 30-meter (98.4 feet) retroreflectometer, except as modified below. The 30-meter retroreflectometer shall measure the coefficient of retroreflected luminance, R_L at an observation angle of 1.05 degrees and an entrance angle of 88.76 degrees. R_L shall be expressed in units of millicandelas per square foot per foot-candle [mcd(ft^{-2})(fc^{-1})]. The metric equivalent shall be expressed in units of millicandelas per square meter per lux [mcd(m^{-2})(lux^{-1})].

3.1.3 The initial retroreflectance values of the pavement marking shall be measured no sooner than 48 hours after application, but not later than 30 days after application. The Contractor shall provide an acceptable 30-meter retroreflectometer to use on the project (the retroreflectometer will remain the property of the Contractor). The contractor will take measurements in the presence of the Engineer. Prior to taking measurements, the Contractor shall calibrate the retroreflectometer according to the manufacturer's requirements.

Measurements will be taken at equally spaced (or nearly so) test areas located by the Engineer in each evaluation section. An evaluation section is defined as a 3 mile (or major fraction) portion of a segment. If the last evaluation section is less than 1.5 miles in length, it shall be combined with the preceding section.

The test areas shall be at least 400 ft. in length and a minimum of 10 readings shall be taken over the length of each test area.

All measurements shall be made in the direction of travel. On centerlines of undivided highways, measurements shall be taken in both directions in each test area and averaged to determine the value of that color line in that test area.

Measurements shall be taken for each type and color of line in the evaluation section.

Individual symbols and legends will be treated as separate evaluation sections. Three (3) readings shall be taken on each symbol to determine the average retroreflectance value for the symbol.

The Department will do verification testing. When the average of the readings for an evaluation section fall below the minimum, the entire section represented by those readings will be further evaluated by the Engineer and may be subject to removal and replacement.

3.1.4 The Department may elect to determine wet retroreflectance values measured under a "condition of continuous wetting" (simulated rain) in accordance with ASTM E2832. To reduce variability between measurements, the test method shall be performed in a controlled laboratory environment while the marking is positioned with a 3 to 5 degree lateral slope.

Measurements shall be reported as the average of the minimum of three locations. Samples of the completed finished product shall be applied to flat panels during application and brought back to the lab for testing. When such samples are taken, the Department will furnish the panels.

III. Application

The Contractor shall furnish equipment and apply the materials according to the following specifications:

A. Equipment

Application equipment shall be capable of producing markings that meet the specifications of the manufacturer's listed on the NDR Approved Products List for Polyurea Pavement Marking.

At any time throughout the duration of the project, the Contractor shall provide free access to his application equipment for inspection by the Engineer, his authorized representative or a materials representative.

When black and white polyurea are applied together to create a contrast pattern, they shall be applied from one truck in a single pass operation.

B. Application Conditions:

1. **Moisture**: The markings shall only be applied during conditions of dry weather and when the pavement surface is dry and free of moisture.

2. **Air Temperature**: The markings shall only be applied when road and air temperatures are above 40 degrees F, unless manufacturer's guidelines state otherwise.

3. **Surface Preparation**: Marking operations shall not begin until applicable surface preparation work is completed and approved by the Engineer.

   3.1 Prior to applying the markings, the Contractor shall remove any remaining existing markings to expose a minimum of 80% of the pavement surface.

   3.2 Prior to applying the markings, the Contractor shall remove all curing compounds on new Portland cement concrete surfaces.

   3.3 Prior to applying the markings, the Contractor shall remove all dirt, sand, dust, oil, grease and any other contaminants from the road surface.

   3.4 Application over temporary paint is not acceptable.

4. **Dimensions**: The pavement markings shall be placed only on properly prepared surfaces and at the widths and patterns as designated in the

contract. The markings shall be applied in accordance with the "Manual on Uniform Traffic Control Devices" and in accordance with the Engineer's plans.

Any markings that are found to be 0.5 inches less than the width shown in the plans shall be removed and replaced by the Contractor.

5. **Other Restrictions**: The Engineer and/or Contractor shall determine further restrictions and requirements of weather and pavement conditions necessary to meet the all other application specifications and produce markings that perform to the satisfaction of the Engineer.

6. **Binder Thickness**: The polyurea binder (mixed Part A and Part B) coating shall be applied at rates to achieve minimum uniform wet thicknesses as follows:

Surface Type	Recommended Polyurea Pavement Marking Thickness (1 inch=1000 mils)
Existing Smooth Asphalt or Concrete Surface	20±2 mils
New Concrete Surface[1]	20±2 mils
New Asphalt Surface (Standard Asphalt Mix)	20±2 mils
Open Grade Friction Course (OGFC) or Stone Matrix Asphalt (SMA)[2]	25±2 mils
Rough Concrete or Asphalt	22±2 mils
Concrete or Asphalt after Grinding Off Pavement Markings[3]	22±2 mils

[1] Use thicker binder (20 mils) on new concrete surfaces with heavy tines.
[2] Very large aggregate sizes for open grade friction course or stone matrix asphalt mixes may require a thickness of 25 mils for proper coverage.
[3] Pavement marking thickness determined by the type of surface and roughness/texture created from grinding operation.

7. **Reflective Media Application**: The Contractor shall ensure that the reflective media are properly set in the polyurea coating so that their exposed portions are free of polyurea coating material. The specified reflective media shall be dropped per the manufacturer's specified rates to achieve their recommended coating weights:

8. **Volumetric Proportioning**: The Contractor shall ensure proper proportioning as required by manufacturer's specifications and mixing of the polyurea components so that the markings are adequately hardened throughout and are free of soft or uncured material. Typically, such areas will darken over time from dirt and tire residue.

9. **Overspray**: The Contractor shall ensure the polyurea coating does not exhibit excessive overspray.

10. **Adhesion**: The Contractor shall ensure that the polyurea coating is well adhered to the road surface, and that the reflective media are well adhered to the binder.

IV. Observation Period

Following initial completion of all pavement marking, there will be a 180-day observation period before final acceptance. During the observation period, the Contractor, at no expense to the Department of Roads, shall replace any marking that the Engineer determines are not performing satisfactorily due to defective materials and/or workmanship in manufacture and/or application. At the end of the observation period the minimum required retention percentage for marking installed shall be 90%.

Determination of Percentage Retained - The percentage retained shall be calculated as the nominal area of the strip less the area of loss divided by the nominal area and expressed as a percentage of the nominal area. A claim, made by the State against the Contractor, shall be submitted to the Contractor in writing within 30 days after the 180-day observation period. When such a claim is made prior to August 1, the replacement material shall be installed during that same construction season. Replacement material for any claim after August 1, shall be installed prior to June 1, of the following year. Marking replacement shall be performed in accordance with requirement specified herein for the initial application, including but not limited to surface cleaning, sealer application, etc.

Final acceptance of all marking will include an inspection of the appearance of the markings during daylight and darkness. Any markings that fail to have a satisfactory appearance during either period, as determined by the Engineer, shall be reapplied at no expense to the Department of Roads.

Final acceptance of the pavement marking will be: (1) 180 days after the initial completion of all work, or (2) upon completion of all corrective work, whichever occurs last.

V. Contract Units and Basis for Payment

A. Linear pavement markings will be measured in linear feet complete-in-place for the width specified.

B. Arrows and Legends are measured by the each.

Subsection 423.05 of the Standard Specifications is amended to include the item: "____ Polyurea Pavement Marking, Grooved". Payment shall be full compensation for

grooving the pavement surface, furnishing and applying all markings, and for all materials, labor, tools, equipment and incidentals necessary to complete the work.

Payment will be made under:

Pay Item	Pay Unit
____ Polyurea Pavement Marking, Grooved	Linear Feet
____ Polyurea Pavement Marking, Grooved	Each

Payment is full compensation for all work prescribed in this Section.

CONCRETE PROTECTION BARRIERS (D-20-0614)

Guidance for concrete protection barriers:

1. Type A: 4-loop barriers with a large opening at the bottom.
   Type B: 6-loop barriers with 4 lifting slots and no slots for tie-down rods.
   Type C: 6-loop barriers with 4 lifting slots and 6 slots for tie-down rods.

2. Barriers Type A, B and C may be used on this project and may directly be pinned to each other in the same installation arrangement; however, only Type B or C concrete protection barriers shall be allowed for use on any Interstate roadway or Interstate bridge.

3. Other existing barriers meeting NCHRP 350 or MASH testing guidelines and FHWA approval may only be used with written permission (containing this project name and/or control number) from the District and Roadway Design Division.

4. If new barriers are to be fabricated for use on this project, only Type C barriers shall be fabricated.

Paragraph 5 of Subsection 422.03 in the Standard Specifications is amended to include the following:

f. (1) Concrete protection barriers that become dislodged or moved out of alignment shall be placed back in alignment as soon as practical. If the dislodged barriers are considered to be a hazard to the traveling public by the Engineer, or the barriers encroach into the traveled lane, the barriers shall be realigned within four (4) hours of the time the Contractor is notified. For each occurrence, failure to realign the barriers within the four (4) hour time period will result in the assessment of a lump sum $1,000 liquidated damage assessment and the Engineer may proceed to correct the adverse condition(s) in a manner that is deemed appropriate. The Contractor will also be assessed the cost incurred when the action is performed by others. This assessment has not been provided for elsewhere in the contract and shall be considered in addition to other liquidated damage assessments which are a part of the contract.

TRAFFIC CONTROL MANAGEMENT

Description and General Requirements

Paragraph 1. of Subsection 422.01 in the Standard Specifications is void and superseded by the following:

1. a. This work consists of furnishing, installing at the locations shown on the plans, operating, maintaining, and when work is complete, removing the temporary traffic control devices described in this Section. This work shall also consist of providing Traffic Control Management by furnishing one or more qualified individuals who shall be specifically responsible for performing or supervising the installation, inspection, maintenance, and removal of those devices.

b. When project conditions warrant, the Engineer may suspend the need for Traffic Control Management and will notify the Contractor accordingly. The Contractor shall be given at least three days' notice of the suspension, but the work may be suspended in a lesser time if mutually acceptable to the Department and the Contractor. During periods when no payment is being made for Traffic Control Management under this special provision, this provision will not apply.

Paragraphs 2.i., 2.j.(2)(ii), and 2.k. of Subsection 422.01 of the Standard Specifications are void.

Paragraph 2. of Subsection 422.01 of the Standard Specifications is amended to include the following:

p.(1) The Contractor shall designate an individual, other than the Project Superintendent, to be the Traffic Control Manager for the project. This person shall be qualified by having attended and having satisfactorily passed the examination which accompanies the training for the courses for Traffic Control Supervisor or Traffic Control Technician offered by the American Traffic Safety Services Association (ATSSA). The training shall have been completed no more than 4 years prior to working on the project. Formal certification by ATSSA in these disciplines is encouraged, but not mandated. Other training or certifications may be accepted if approved by the Engineer. The Traffic Control Manager shall also possess a current Flagger Certification Card. Documentation of the Traffic Control Manager's training or certifications shall be provided to the Engineer prior to the installation of any traffic control devices on the project.

(2) The Contractor may also designate one or more Assistant Traffic Control Managers for the project. These individuals shall possess a valid Flagger Certification Card and be qualified by having attended and having satisfactorily passed the examination which accompanies the training for the course for Traffic Control Technician or Traffic Control Supervisor offered by the American Traffic Safety Services Association (ATSSA) --- the training having been completed no more than 4 years prior to working on the project --- or by certification according to the Department’s certification program for Assistant Traffic Control Managers --- the training having been completed no more than 2 years prior to working on the project . Documentation of the Assistant Traffic Control Manager's training or certifications shall be provided to the Engineer.

(3) In order to be qualified according to the Department's Certification Program, the prospective Assistant Traffic Control Manager must:

i. View the 47-minute video "Training and Certification of Assistant Traffic Control Managers."

ii. Correctly answer 80 percent of the questions on an examination that accompanies the video.

(4) Upon satisfactory completion of the training and examination procedure, the prospective Assistant Traffic Control Manager shall be issued an Assistant Traffic Control Manager Certification Card by the examining Contractor. The Assistant Traffic Control Manager's name, last four digits of social security number, and test score shall be reported to the Construction Engineer on DR Form 90a, "Certification Report for Assistant Traffic Control Managers."

(5) The video examination forms, Assistant Traffic Control Manager Cards, and Certification Reports for Assistant Traffic Control Managers shall be furnished by the Department.

q. The Traffic Control Manager or Assistant Traffic Control Manager shall be available and reasonably accessible (within 30 minutes) to the project during normal working hours on every day that work is being performed on the project and always on-call at other times. During other than normal working hours, these individuals shall respond and be on the project within 60 minutes of notice being given that traffic control items on the project are in need of attention. The Contractor may elect to have an employee or employees perform this function simultaneously on more than one project, but shall not be relieved from the sanctions or disincentives that may be imposed for failure to meet the deadlines specified herein.

r. The Traffic Control Manager's or Assistant Traffic Control Manager's activities on the project shall be dedicated to the purpose of monitoring and maintaining the traffic control devices. The performance of other crafts or trades will be permitted, but shall be secondary to the performance of duties associated with traffic control.

s. The Contractor shall provide prior to the installation of any traffic control devices on the project two to four telephone numbers where the Traffic Control Manager or an Assistant Traffic Control Manager may be reached 24 hours a day, seven days a week.

t. The Traffic Control Manager or Assistant Traffic Control Manager shall have available at all times an approved, current version of the Traffic Control Plan.

u. If corrective action is not taken by the Contractor within the times specified in Paragraph 2.q., the Engineer may suspend all work on the project until the problem is corrected. The Engineer shall make reasonable allowance for existing weather conditions in the case of materials whose installation is governed by temperature or other atmospheric conditions.

Construction Methods

Subsection 422.03 of the Standard Specifications is amended to include the following:

20. The Traffic Control Manager's or Assistant Traffic Control Manager's duties shall include:

    a. Insuring that all traffic control devices, including flagging operations, are functioning properly, are clean, and are correctly located as shown on the Traffic Control Plan or as directed by the Engineer. This provision in no way restricts the cleaning, repair and maintenance of traffic control devices to the Traffic Control Manager or his or her assistants.

    b. Inspecting all traffic control devices on every calendar day that traffic control devices are in place, whether in use or covered. Inspections shall take place a minimum of twice daily, at least two inspections shall be eight hours apart, and at least one weekly inspection shall be during the hours of darkness. However, during or following periods of inclement weather or when the situation warrants for other reasons, inspections shall be done more frequently. Additionally, when flagger control is being utilized, at least one inspection each week shall be performed during flagging operations for monitoring purposes. The Traffic Control Manager or Assistant Traffic Control Manager shall perform the inspections.

    c. Monitoring the cleaning and maintenance of all traffic control devices and the placement of temporary pavement markings.

    d. Completing a Traffic Control Inspection Form provided by the Engineer at the completion of each inspection. These forms shall be submitted daily to the Engineer, either in person or via facsimile transmission.

    e. Monitoring flagging operations on the project to insure signing and flagging techniques are in compliance with Department and ATSSA requirements (flagger location and proper spacing / signage as per the plans). The Traffic Control Manager or Assistant Traffic Control Manager shall not act as a flagger, except in an emergency or when providing relief for short periods of time.

    f. Coordinating all traffic control operations, including those of subcontractors and suppliers.

    g. Coordinating traffic-related activities with the appropriate law enforcement, fire, and emergency medical agencies.

    h. Attending all project scheduling meetings.

Method of Measurement

Subsection 422.04 of the Standard Specifications is amended to include the following:

21.(1) Traffic Control Management is measured by the day for the actual number of days management and inspection are required and provided. Payment will only be made for one day of Traffic Control Management during each midnight-to-midnight period regardless of the number of Traffic Control Managers or Assistants required to adequately perform the work.

(2) No measurement will be made when the Engineer has suspended the need for Traffic Control Management and notified the Contractor accordingly.

Basis of Payment

Paragraph 1. of Subsection 422.05 of the Standard Specifications is amended to include the following:

Pay Item	**Pay Unit**
Traffic Control Management	Day (d)

Paragraph 15. of Subsection 422.05 of the Standard Specifications is renumbered to be Paragraph 16. Subsection 422.05 of the Standard Specifications is amended to include the following:

15. With regard to inspection, maintenance and repair of temporary traffic control devices, an assessment in the amount of $500 per occurrence per day shall be charged to the Contractor when any of the following occur (these assessments shall be in addition to any other liquidated damages which may be assessed):

a. The Contractor fails to respond within the timeframe specified in Paragraph 2.q. of the amended Subsection 422.01 of the Standard Specifications. Response time shall begin when:

1) The Engineer notifies the Contractor of deficiencies in person;
2) The Engineer makes notification of deficiencies via the 24-hour phone number(s) provided by the Contractor; or
3) The Engineer leaves a message or receives no answer at the number(s) provided;

b. The Contractor fails to begin corrective actions to repair, replace, remove, relocate, or clean any traffic control devices or pavement markings within two hours of the completion of an inspection that uncovers deficiencies or within two hours of notification of deficiencies by the Engineer (including flagging operations).

c. The Contractor fails to begin corrective actions to repair, replace, remove, relocate, or clean any traffic control devices or pavement markings within two hours of documented notification by an official law enforcement agency (including flagging operations).

d. The Contractor fails to correct improper flagging procedures.

e. The Contractor fails to make or report the inspections prescribed in this specification.

f. The Engineer observes and documents any occurrence of the Contractor or his or her subcontractors flagrantly disregarding the necessary maintenance of traffic control devices that are in obvious need of attention.

UTILITY CONTACT

Paragraph 1 of Subsection 413.03 in the Standard Specifications is amended to include the following:

The utility contact person for this project is:

Mr. Robert “Bert” Adams, Utilities Coordinator Omaha Public Power District
(402) 636-3333

REMOVABLE WET REFLECTIVE TAPE

I. Description

This work shall consist of furnishing and installing retroreflective preformed patterned pavement markings in accordance with this provision and in reasonably close conformance to the dimensions and lines shown on the plans and/or required by the Engineer.

II. Materials - General

The preformed patterned markings shall consist of white or yellow films with clear microcrystalline ceramic beads incorporated to provide immediate and continuing retroreflection during both wet and dry conditions. This film shall be manufactured without the use of lead chromate pigments or other similar, lead-containing chemicals.

The quality of the pavement marking shall be such that the performance requirements for the marking shall be met. The markings shall be precoated with a pressure sensitive adhesive and shall be capable of being adhered to Asphalt concrete or Portland cement concrete at temperatures as low as 50°F (10°C) in accordance with the manufacturer's recommendations. When stored in a cool dry area indoors, the materials shall be suitable for use for one year after the date of purchase.

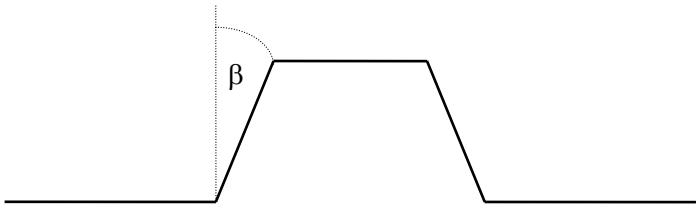
III. Classification

The removable retroreflective pavement marking tape must be designed and constructed in such a manner that it can be readily removed when the markings are no longer applicable. The tape shall be capable of performing for the duration of a normal

construction season and shall then be capable of being removed intact or in large pieces. The tape shall be wet and dry reflective throughout its useful life. (A normal construction season is defined as the time after the last snowplowing in the spring and before the first snowplowing in the fall/winter.)

IV. Composition and Retroreflectivity Requirements

Composition: The retroreflective pliant polymer pavement markings shall consist of a mixture of high-quality polymeric materials, pigments and glass beads distributed throughout its base cross-sectional area, with a reflective layer of microcrystalline ceramic beads bonded to a durable polyurethane topcoat surface. The patterned surface shall have approximately 20% ± 10% of the surface area raised and presenting a near vertical face (ß angle of 0° to 60°) to traffic from any direction. (See diagram below.) The channels between the raised areas shall be substantially free of exposed beads or particles.



Retroreflectance: The white and yellow markings shall have the initial expected retroreflectance values as shown in Table 1 under dry, wet, and rainy conditions. The photometric quantity to be measured shall be coefficient of retroreflected luminance (R_L) and shall be expressed as millicandelas per square foot per foot-candle [(mcd • ft^{-2}) • fc^{-1}]. The metric equivalent shall be expressed as millicandelas per square meter per lux [(mcd • m^{-2}) • lx^{-1}].

Retroreflectance values shall be measured under dry conditions in accordance with the testing procedures of ASTM D4061.

Retroreflectance values shall be measured under wet conditions in accordance with ASTM E2176 or ASTM E2177. Wet retroreflectance values measured under a “condition of continuous wetting” (simulated rain) shall be in accordance with ASTM E2176, and to reduce variability between measurements, test method shall be performed in controlled laboratory environment while the marking is positioned with a 3 to 5 degree lateral slope. A wetting agent shall be used to improve wetting of the pavement marking by the water. It is recommended that a 0.1% by volume liquid soap solution be used. Measurements shall be reported as an average for each roll tested, in a minimum of three locations.

Wet retroreflectance values measured under a “condition of wetness” shall be in accordance with ASTM E2177, and the test may be performed with the marking installed on the road. New markings shall be tested using a wetting agent, as previously described. Laboratory measurements shall be performed using a 3 to 5 degree lateral slope. Measurements shall be reported as an average for each roll tested, in a minimum of three locations

Table 1
Expected Initial R_L under dry, wet, and rainy conditions

White	Dry	Wet & Rainy
Entrance Angle	88.76°	88.76°
Observation Angle	1.05°	1.05°
Retroreflected Luminance R_L [(mcd • m^{-2}) • lx^{-1}]	500	250

Yellow	Dry	Wet & Rainy
Entrance Angle	88.76°	88.76°
Observation Angle	1.05°	1.05°
Retroreflected Luminance R_L [(mcd • m^{-2}) • lx^{-1}]	300	200

Note: The test instrument shall use an Entrance Angle of 88.76° and Observation Angle of 1.05° which represents a simulated driver viewing geometry at a 30 meter distance.

Beads: Index of Refraction: All “dry-performing” microcrystalline ceramic beads bonded to the polyurethane-coated, patterned surface of the material shall have a minimum index of refraction of 1.70 when tested using the liquid oil immersion method. All “wet-performing” microcrystalline ceramic beads bonded to the polyurethane-coated, patterned surface of the material shall have a minimum index of refraction of 2.30 when tested using the liquid oil immersion method. The glass beads mixed into the pliant polymer shall have a minimum index of refraction of 1.5 when tested by the liquid oil immersion method.

Testing Procedure For Refractive Index of Beads By Liquid Immersion

Equipment Required:

1. Microscope (minimum 100X magnification)
2. Light source - preferably sodium light or other monochromatic source, but not absolutely essential
3. Refractive index liquids
4. Microscope slide and slide cover
5. Mortar and pestle

Procedure:

1. Using the mortar and pestle, crush a few representative beads and place a few of these crushed particles on a microscope slide.
2. Place a drop of a refractive index liquid, with an index as close to that of the glass as can be estimated, on the particles.
3. Cover the slide with a microscope slide cover and view the crushed

particles by transmitted light normal to the slide surface (illuminated from the bottom).

4. Adjust the microscope mirror to allow a minimum light intensity for viewing. This is particularly important if sodium light is not used.

5 Bring a relatively flat and transparent particle into focus.

6. By slightly raising and lowering the objective (microscope tube), look for one or both of the following:

   a. Becke Line - This light line will appear to move either into the particle or away from it. In general, if the objective is raised, the line will move toward the material of higher refractive index; if the objective is lowered, the line will move toward the material of lower index.

   b. Variation in Particle Brightness - When raising the object from a sharp focus, the particle will appear to get brighter or darker than the surrounding field. If it becomes brighter, the glass has a higher refractive index than the liquid. If it becomes darker, the glass has a lower refractive index than the liquid. In both cases, the opposite will be true if the object is lowered.

7. This test can be used to confirm that the beads are above or below a specified index. It can also be used to give an accurate determination of the index (± 0.001). This is done by using several refractive index liquids until a match or near match of indices occurs. The index of the glass will equal that of the liquid when no Becke line and no variation in bead brightness can be observed.

   The size and quality of the beads shall be such that the performance requirements for the retroreflective pliant polymer shall be met.

Acid Resistance: The beads shall show resistance to corrosion of their surface after exposure to a 1% solution (by weight) of sulfuric acid. The 1% acid solution shall be made by adding 5.7cc of concentrated acid into 1000cc of distilled water. CAUTION: Always add the concentrated acid into the water, not the reverse. The test shall be performed as follows:

Take a 1-inch x 2-inch sample, adhere it to the bottom of a glass tray and place just enough acid solution to completely immerse the sample. Cover the tray with a piece of glass to prevent evaporation and allow the sample to be exposed for 24 hours under these conditions. Then decant the acid solution (do not rinse, touch or otherwise disturb the bead surfaces) and dry the sample while adhered to the glass tray in a 150° F. (66° C.) oven for approximately 15 minutes.

Microscopic examination (20X) shall show no more than 15% of the beads having a formation of a very distinct opaque white (corroded) layer on their entire surface.

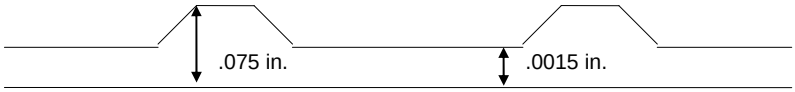
Color: The preformed markings shall consist of white film with pigments selected and blended to conform to standard highway colors.

Removability: The pavement markings shall be removable from Asphalt concrete and Portland cement concrete intact or in large pieces, at temperatures above freezing without the use of heat, solvents, grinding or blasting without permanently scarring the roadway surface.

Skid Resistance: The patterned surface of the retroreflective pliant polymer shall provide an initial average skid resistance value upon manufacturing of 45 BPN when tested according to ASTM E303 except values shall be taken in one direction and then at a 45° angle from that direction. These two values shall then be averaged to find the skid resistance of the patterned surface.

Patchability: The pavement marking material shall be capable of use for patching worn areas of the same type in accordance with manufacturer's instructions.

Thickness: The patterned material without adhesive shall have a minimum caliper of 0.075 inches (1.651mm) at the thickest portion of the patterned cross-section and a minimum caliper of 0.020 inches (.508mm) at the thinnest portion of the cross-section.



V. Installation

The markings shall be applied in accordance with the manufacturer's installation instructions. Marking configurations shall be in accordance with the "Manual on Uniform Traffic Control Devices." Tape shall not be installed unless the surface and air temperatures are in compliance with the manufacturer's specifications. Pavement markings shall be applied to clean, dry surfaces in accordance with the manufacturer's installation instructions or a method approved by the Engineer.

The Contractor shall have on the project at all times during the application of the removable pavement markings at least one employee with a valid American Traffic Safety Services Association (ATSSA) certification. The ATSSA certification may be for either a "Certified Pavement Marking Technician" or a "Certified Pavement Marking Specialist." The Contractor shall provide the Engineer a copy of the employee's certification prior to the beginning of work.

VI. Observation

During the project phase the markings are intended for, the contractor, at no expense to the Department of Roads, shall replace any markings that the Engineer determines are not performing satisfactorily due to defective materials and/or workmanship in manufacture and/or application. The installation of all markings will include an inspection of the appearance of the markings during daylight and darkness. Any markings that fail to have a satisfactory appearance during either period, as determined by the Engineer, shall be reapplied at no expense to the Department of Roads.

VII. **Removal**

Upon completion of the project or phase, the contractor shall remove the tape in whole. The removal procedure shall not damage the roadway surface.

VIII. **Contract Units And Basis For Payment**

Subsection 422.01 of the 2007 Standard Specifications is amended to include the item: "Removable Wet Reflective Tape". The price shall be full compensation for furnishing, installing, and removing all markings, and for all materials (including adhesive), labor, tools, equipment and incidentals necessary to complete the work.

Payment will be made under:

Pay Item	Pay Unit
____ Inch Removable Wet Reflective Tape	Linear Foot

RELOCATE INERTIAL BARRIER SYSTEM

Paragraph 19. b. of Subsection 422.04 in the Standard Specifications is void and superseded by the following:

b. "Relocate Inertial Barrier System" is the pay item for moving the inertial barrier system to a new location after initial installation and operation.

Paragraph 1. of Subsection 422.05 is amended to include the following:

1.	Pay Item	Pay Unit
	Relocate Inertial Barrier System	Each (ea)

CONCRETE PAVEMENT CORING (F-17-0110)

Paragraphs 3. a. and 3.b. of Subsection 603.05 of the Standard Specifications are void and superseded by the following:

3. a. (1) A pay factor will be applied to each unit based on the compressive strength of 1 core per unit tested in accordance with AASHTO T 24.

(2) Concrete cores must have a minimum age of 28 days before testing.

(3) The paved area shall be divided into units, and each unit will be considered separately.

(4) Units are 750 linear feet (230 m) of pavement for each separately placed width or width of each class of concrete whether or not placed separately starting at the beginning of the pavement.

b. (1) When any unit core fails to have the required minimum compressive strength, the Contractor will have the option to obtain, at no cost to the Department, two additional cores from that unit provided that:

(i) The cores shall be cut by the contractor. (The cutting to be witnessed by the Engineer)
(ii) The cores shall be cut within seven (7) days of being notified of the strength deficiency, and
(iii) The cores shall be cut within 6 inches of the original unit core in the longitudinal direction.

(2) The Engineer will take possession of the cores and have them tested within 24 hours at the Materials and Research laboratory.

(3) The results of all three cores sampled at the location will be averaged for the final compressive strength calculation and pay factor.

(4) The Department may agree to cut the additional cores if requested to do so by the Contractor, but will do so only if the Department's coring crew is available on the project and has sufficient time to cut and transport the cores for testing during normal working hours within seven (7) days of the Contractor being notified of the strength deficiency.

Paragraph 4.a.(4) of Section 603.05 in the Standard Specifications is void and replaced by the following:

A separately placed width is the width between field constructed longitudinal joints, between a longitudinal construction joint and the edge, or between two pavement edges. A separately placed width may include more than one pay class of concrete, such as doweled and non-doweled.

PORTLAND CEMENT CONCRETE PAVEMENTS GENERAL REQUIREMENTS (F-20-0611)

Paragraph 7.b. of Subsection 601.02 in the Standard Specifications is void and superseded by the following:

b. The finishing machine shall travel at a controlled speed such that it produces a uniform, well consolidated pavement that does not contain large voids.

Paragraph 10.d. of Subsection 601.02 is void and superseded by the following:

d. The Contractor shall always have a tachometer available to monitor vibrator frequency. The vibrator frequency shall be within the manufacturer’s specifications not to exceed 9,000 vpm.

Paragraph 12.d.(1) of Subsection 601.02 is void and superseded by the following:

(1) The mechanical joint saw shall have an adjustable guide to insure a true line is cut. The mechanical joint saw blade shall be water-cooled, or specifically designed for early-entry sawing if air cooled.

Paragraph 12.d.(2) of Subsection 601.02 is void.

Paragraph 12.d.(3) of Subsection 601.02 is void and superseded by the following:

d. (3) The joint cut shall be made with a diamond-toothed blade.

CONCRETE PAVEMENT
(F-21-0611)

Paragraph 2.a. of Subsection 603.03 in the Standard Specifications is amended to include the following:

(6) The base material shall be moistened through a uniform, lightly applied spray pattern prior to concrete placement as directed by the Engineer.

Paragraphs 2.d. and e. of Subsection 603.03 are void and superseded by the following:

d. After being consolidated with internal mechanical vibration, the concrete shall be struck off to a uniform height approximately 0.5 inch (12 mm) above the finished surface and then finished to the final elevation by means of a vibrating mechanical or vibrating hand operated screed.

e. Finished concrete shall be of uniform density with no segregation, honeycombing, or large voids.

Paragraph 3.f. of Subsection 603.03 is void and superseded by the following:

f. (1) A wet burlap, carpet, or canvas drag will be drawn over the entire surface in a longitudinal direction for a final finish, dampening of this drag material will be accomplished through a uniform, lightly applied spray pattern.
(2) The drag shall be suspended from a mandrel, or similar device, to insure a uniform texture.
(3) The drag shall be lifted from the surface of the concrete pavement when the paving train is not in motion for 30 minutes or more and carefully reset before resuming the dragging operations.
(4) Drags shall be rinsed or washed as necessary to obtain a uniform surface. Drags that cannot be cleaned shall be replaced.

Paragraphs 4.e., f., g., and h. of Subsection 603.03 are void and superseded by the following:

e. For areas with pavement widening, dowel baskets shall be placed in all transverse contraction joints which are 6 feet (1.8 mm) or wider.

f. If normal vibration is found inadequate to thoroughly consolidate the plastic concrete within and around the dowel basket assemblies, adjustments to the material and/or operations shall be made.

g. Precautions shall be taken to assure that the sawed contraction joint is located directly over the center of the dowel bars.

h. Transverse cracks which form in the concrete pavement panels between load transfer joints shall be stitched as shown in the plans, described in the Special Provision or repaired as directed by the Engineer. No payment will be made for this work.

Paragraph 6.b.(7)(i) of Subsection 603.03 is void and superseded by the following:

(7) (i) The concrete shall be textured by dragging a wet burlap, carpet, or canvas belt over the full width of the surface in a longitudinal direction. Dampening of this drag material will be accomplished through a uniform, lightly applied spray pattern.

Paragraph 6.c.(4)(i) of Subsection 603.03 is void and superseded by the following:

(4) (i) The concrete shall be textured by dragging a wet burlap, carpet, or canvas belt over the full width of the surface in a longitudinal direction. Dampening of this drag material will be accomplished through a uniform, lightly applied spray pattern.

Paragraph 7.a.(3) of Subsection 603.03 is void and superseded by the following:

(3) (i) The curing compound shall be applied in 2 equal applications immediately following each other or other methods approved by the Engineer.

(ii) The total rate of applications shall be at a minimum of 1 Gal/100 SF (0.3 L/m^2) of surface area for tined surfaces or 1 Gal/150 SF (0.2 L/m^2) of surface area for all other finishes.

Paragraph 8.a.(6) of Subsection 603.03 is voided and superseded by the following:

(6) Any panels that contain random cracking will be considered unacceptable. The Engineer will decide whether to replace or repair the panel. The Contractor shall replace or repair these panels at the direction of the Engineer at no cost to the Department. A 20% deduction will be assessed on any repaired panel. Any panel that is replaced will not be assessed a 20% deduction.

Paragraph 8.d.(3) of Subsection 603.03 is void.

Paragraphs 8.d.(4), (5) and (6) of Subsection 603.03 are void and superseded by the following:

(4) Before sealing, the joint wall (not the bottom of joint) surfaces shall be sandblasted or water-blasted to remove all dirt, curing compound residue, laitance, and any other foreign material. After sandblasting, the entire joint shall be cleaned with compressed air having a minimum pressure of 90 psi (620 kPa). The compressed air shall be free of oil, water, and other contaminants. The joints shall be dry at the time of sealing.

(5) (i) Transverse contraction joints in Portland cement concrete pavements shall be sealed so that the joint is filled to approximately 1/8" to 3/8" (3 to 9 mm) below the top of the joint with an approved hot poured sealant.

(ii) All overflow material shall be removed from the surface of the pavement.

(iii) If adhesion is not satisfactory, the material shall be rejected.

(6) The Contractor shall give the Engineer one copy of the hot pour manufacturer's sealing recommendations.

Paragraph 9.b. of Subsection 603.03 in the 2007 edition of the NDOR Standard Specifications for Highway Construction is void and superseded by:

b. When the pay item "Portland Cement Concrete Smoothness Testing" is not included in the contract, the Contractor shall test the hardened concrete for surface irregularities with a California Profilograph. Areas showing high spots (bumps) in excess of 0.30 inches in a 25 foot span will be plainly marked on the pavement and on the printed pavement profile trace. All identified high spots shall be ground to the required profile. The grinding shall be performed so that the cement-aggregate bond is not broken. The equipment and profilograph test procedure requirements of Section 602 of the Standard Specifications for Highway Construction shall apply to this surface testing.

Paragraph 9.c of Subsection 603.03 is amended to include:

c. At the Engineer's option, the use of a 10 foot straightedge to locate high spots in excess of 1/8 inch may be allowed in lieu of bump detection using a profilograph testing.

Paragraphs 11.c., d. and e. of Subsection 603.03 are void and superseded by the following:

c. The Contractor's forces may be allowed on the concrete pavement when the concrete has reached a minimum age of 14 days or when the concrete has reached a compressive strength of 3000 psi (24 MPa) when tested in accordance with ASTM C 39.

d. With the approval of the Engineer, the Contractor may elect to increase the early strength of the concrete by adding cement and/or reducing the water/cement ratio, and then the pavement may be opened to traffic provided it has attained a compressive strength of 3500 psi (24 MPa). The concrete in the area where the early strength is required shall be paid for at the bid price.

e. When required by the Special Provisions or when requested by the Contractor, the maturity method, as provided for in ASTM C 1074, may be used in lieu of the requirements of Subsection 603.03, Paragraph 10.c. and d. to determine the strength of concrete pavement for the purpose of early opening to traffic. Requests by the Contractor for use of the maturity method shall be on a project

basis and shall be made in writing to the Materials and Research Engineer. The Contractor shall be responsible to coordinate with the Materials & Research Division to develop the maturity curve.

Paragraph 3.a. and b. of Subsection 603.05 is void and superseded by the following:

3. a. A pay factor will be applied to each unit based on the compressive strength of 1 core per unit tested in accordance with AASHTO T 24. Concrete cores must have a minimum age of 28 days before testing. The Contractor will have the option to obtain two additional cores for any unit core that fail to have the required minimum compressive strength provided that the cores are:

(1) Obtained and tested within seven (7) days of being notified of the strength deficiency, under the supervision of the Engineer.
(2) Cut within 6 inches of the original unit core in the longitudinal direction.

The results of all three cores sampled at the location will be averaged for the final compressive strength calculation and pay factor.

b. The paved area shall be divided into units. Each unit will be considered separately. Units are 750 linear feet (230 m) of pavement for each separately placed width, or width of each class of concrete whether or not placed separately starting at the beginning of the pavement.

Paragraph 4.a.(7) of Subsection 603.05 is void and superseded by the following:

(7) A the option of the Engineer, cores may not be required from irregular areas with widths less than 8 feet (2.4 m) or from an individual pavement type that involve less than 5,000 square yards (4200 m^2) of pavement.

Paragraph 4.c.(4) of Subsection 603.05 is void and superseded by the following:

(4) If the average thickness of the cores is deficient by more than 0.25 inch (6 mm) but not more than 0.50 inch (12.5 mm) an adjusted unit price will be paid in accordance with Table 603.04. Cores deficient by more than 0.50 inch (12.5 mm) will be treated as prescribed in Paragraph 4.d. of this Subsection.

CONCRETE CONSTRUCTION
(G-5-0914)

Section 704 in the Standard Specifications is amended to include the following:

All concrete rails on bridges and approach slabs shall be cast-in-place. Slip-forming will not be permitted for concrete rails on bridges and approach slabs.

Paragraph 8. of Subsection 704.03 is amended to provide that forms for 42 inch bridge rails shall be made of steel.

The fourth subparagraph of Paragraph 8.j. of Subsection 704.03 is void and superseded by the following:

> Steel stay-in-place form material shall conform to the requirements of ASTM A 653/A 653M Coating Designation G165/Z500.

Paragraphs 8.a., b. and c. of Subsection 704.05 are void and superseded by the following:

8. Payment Deductions:

   a. The 28-day compressive strength is determined by the average strength of all cylinders made on a specific day to determine the 28-day compressive strength of all of a group's class of concrete poured that day. Concrete with a 28-day compressive strength not meeting the design compressive strength is subject to removal.

   b. If the 28-day compressive strength is less than the design compressive strength, cores may be taken, at the discretion of the Engineer, within 45 days after the concrete was poured. The average of the cores will be used to determine the compressive strength.

   c. If either the 28-day compressive strength or the average core strength is less than the design strength and the Engineer determines that the concrete is acceptable for use, the concrete is subject to a payment deduction. The pay deduction is shown below:

$$\frac{2 \times (\text{Design Compressive Strength} - \text{28-day Compressive Strength})}{\text{Design Compressive Strength}} = \text{Percent Reduction}$$

Or

$$\frac{2 \times (\text{Design Compressive Strength} - \text{Average Core Compressive Strength})}{\text{Design Compressive Strength}} = \text{Percent Reduction}$$

CONCRETE BRIDGE FLOORS (10-DAY WET CURE) (G-5-1014)

The following Special Provision applies to concrete decks on girder bridges for new bridges and complete deck replacements. Slab bridges and partial deck replacements shall be cured in accordance with Section 706 of the specifications.

Paragraph 8. i of Subsection 704.03 in the Standard Specifications is amended to include the following:

8.i.(4) Reinforcing steel and form work for bridge curbs and bridge rails shall not be placed until after the 10-day wet curing.

Paragraph 14 of Subsection 704.03 in the Standard Specifications is void and superseded by the following:

14. Bridge Deck Curing in Cold Weather

a. The following requirements shall govern the placement of bridge deck concrete when the temperature will be less than 40^0F during the 10-day wet curing period.
   (1) The temperature of the concrete shall not be less than 50^0F immediately after being placed.
   (2) The Contractor shall furnish heating equipment and/or enclose and protect the structure in such a way that the concrete shall be maintained at a temperature between 50^0F and 100^0F for the first 72 hours after the concrete has been placed, and at a temperature of between 40^0F and 100^0F for the next 168 hours.
   (3) After 240 hours of curing is complete, the fall of the concrete temperature shall not be at a rate faster than 5^0F/hour.

b. The Contractor shall assume all risk connected with the placing of concrete during freezing weather, and permission given by the Engineer to place concrete during such time will in no way relieve the Contractor of the responsibility for satisfactory results. Any concrete showing damage from freezing shall be rejected.

Paragraph 5 of Subsection 706.03 in the Standard Specifications is void and superseded by the following:

5. No work shall be performed on the bridge deck, including forming and placing reinforcement for concrete curbs or railing until the concrete deck has cured for 10 days.

Paragraphs 8, 9, and 10 of Subsection 706.03 in the Standard Specifications are void and superseded by the following:

8. a. Finishing

   (1) Immediately following the finishing machine, the Contractor shall give the bridge floor surface a drag finish with wet burlap, carpet or a soft bristled broom. The drag finish shall create a uniform, fine-grained finish on the sealed concrete surface.

b. Grooving

   (1) Transverse tining in plastic concrete of bridge decks (and approaches on new bridges and bridge deck replacements) will not be allowed unless otherwise stated in the contract documents.

   (2) The Contractor shall cut longitudinal grooves into hardened concrete surfaces using a mechanical cutting device. Perform longitudinal grooving after surface correction grinding.

(3) The longitudinal grooves shall be:

(i) 1/8 inch ± 1/64 inch wide,
(ii) 1/8 inch to 1/4 inch (3 mm to 6 mm) deep, and
(iii) Uniformly spaced at 3/4 inch intervals measured center to center of groove.

(4) Longitudinal grooving shall terminate approximately 6 inches (150 mm) from bridge expansion joints.

(5) Longitudinal grooving on the bridge deck and approach sections shall be discontinued 2 feet from the bridge curb, rail, raised medians, or barriers unless otherwise indicated on the plans.

(6) For phased bridge and bridge approach construction:

(i) The Contractor may cut longitudinal grooves in the hardened concrete at the end of each phase of construction or wait until all phases have been completed. If the Contractor elects to delay cutting of the longitudinal grooves until completion of all phases, apply an interim broom finish on the concrete deck and bridge approach during placement for all phases opened to traffic.
(ii) The Contractor shall finish all longitudinal grooving for all phases within 30 calendar days following completion of the last phase of the bridge.
(iii) The interim broom finish will not be allowed as a surface texture when opened to traffic over a winter season. If the interim broom texture is present and the Contractor is not in a position to finish all phases of the bridge, the Contractor shall cut longitudinal grooving into the hardened concrete in order to establish an acceptable driving surface texture for the winter season.

(7) Grooves shall be constructed using multi-blade saw cutting equipment, fitted with diamond-tipped circular saw blades.

Before grooving operations, two approved gauges to verify groove depth shall be supplied. The gauges shall be accompanied by the manufacturer's instructions for their use.

During grooving operations, the groove dimensions will be checked at random. If the minimum groove depth has not been achieved, grooving operations shall stop and the necessary adjustments shall be made.

(8) Sidewalks and top of curbs shall not be grooved and shall receive a final finish with a fine – bristle broom.

9. Curing

a. For this Specification, the bridge deck is defined as the concrete deck and pavement cast between the bridge grade beams. Approaches outside the grade beams are excluded.

b. The Contractor shall cure the concrete deck with wet burlap for at least 240 hours.

(1) The Contractor shall place uniformly saturated wet burlap on the concrete no later than 20 minutes after the finishing machine passes.
(2) The burlap shall be thoroughly wetted prior to placing it on the concrete. The burlap shall be kept continuously wet by means of a sprinkling or wetting system for the 10 days.
(3) The wet burlap shall be secured or weighed down so that it remains in contact with the concrete surface.
(4) After 96 hours, the Contractor may place white opaque polyethylene film over the wet burlap to reduce the amount of water needed.

c. After the 10 day wet cure, the Contractor shall apply an approved white pigment curing compound within 45 minutes of removing the wet burlap.

(1) The total rate of combined applications shall be a minimum of 1 Gal/150 SF of surface area.
(2) The Contractor shall cure the deck with the white pigment curing membrane for an additional 7 days. The Contractor may work on the bridge concrete rail during the 7 days provided caution is used to limit damage to the membrane.
(3) Curing compound shall not be applied to construction joints or reinforcing steel.

d. The Contractor must provide a list of equipment, equipment certification, and the number of personnel that will be dedicated to the curing operation at least 24 hours before the actual casting date.

e. The Contractor shall be responsible for the repair of all visible cracks more than 3 inches (75 mm) in length that develop on the bridge deck up to the time the project is accepted at no additional cost to the Department.

f. Cracks shall be repaired with an approved bridge deck crack sealant (methacrylate). Crack sealants shall be installed in accordance with the manufacturer's recommendations.

g. Concrete Bridge curbs and rails shall be cured in accordance with Subsection 704.03.

10. Grinding

a. The grinding and grooving shall not be done until after the 17 days of curing is complete.

b. Bridge decks shall be ground for smoothness in accordance with Section 733.

(1) For bridge decks and approaches that are not covered by Section 733:

i. The Contractor shall test the cured concrete for surface irregularities with either a 10 foot straightedge placed or operated parallel to the centerline of the roadway or some other device for measuring deviations from a plane. Variations greater than 1/8th inch shall be plainly marked for removal, except that for decks which are to receive a subsequent overlay course greater than 1 inch thick, where ¼ inch variations are allowed.

ii. The Contractor shall grind or cut irregularities that exceed the above limits. Bush hammering or other impact methods are not allowed.

Paragraph 15 of Subsection 706.03 in the Standard Specifications is void and superseded by the following:

15. Time for Opening Bridge Floor to Traffic

a. The Contractor shall not open the bridge floor to traffic until approval has been given by the Engineer. The Engineer may open the bridge when the concrete has reached a minimum age of 17 days and has developed a compressive strength of 3500 psi.

b. Construction equipment will not be allowed on the deck until after the 10 day wet curing period. Vehicles needed for construction activities and weighing less than 4.0 kips, and comparable materials and equipment loads, shall be allowed on any span only after the last placed deck concrete has attained a compressive strength of at least 2.4 ksi. Loads in excess of the above shall not be carried on bridge decks until the deck concrete has reached 80% of the minimum compressive strength prescribed on the plans and after the 10 days wet curing period.

Paragraph 1 of Subsection 706.05 in the Standard Specifications is amended to include the following:

	Pay Item	**Pay Unit**
1.	Bridge Deck Grooving	SY

PREFORMED EXPANSION JOINT
(G-11-1212)

Section 734 of the Standard Specifications is void and superseded by the following:

Description

1. This work shall consist of furnishing and installing a Preformed Expansion Joint in a preformed gap at the locations and limits shown on the plans.

2. The Preformed Expansion Joint shall be either a Precompressed Polyurethane Foam Joint or a Preformed Silicone Joint, as indicated in the plans.

    a. When the item is “Precompressed Polyurethane Foam Joint, Type ___” the joint shall be a Precompressed Polyurethane Foam Joint of the type indicated in the plans.
    b. When the item is “Preformed Silicone Joint, Type ___”, the joint shall be a Preformed Silicone Joint of the type indicated in the plans.
    c. When the item is “Preformed Expansion Joint, Type ___”, the joint may be either a Precompressed Polyurethane Foam Joint or a Preformed Silicone Joint of the type indicated in the plans.

Material Requirements

1. Precompressed Polyurethane Foam Joints:

    a. PPF Joint shall be precompressed self-expanding polyurethane foam with factory applied silicone facing on top of the foam.
    b. PPF joints shall be ordered for the joint material dimension shown in the plans.
    c. Approved PPF Joint systems are shown on the NDOR Approved Products List under Precompressed Polyurethane Foam Joint, Type A or B.

2. The approved Preformed Silicone Joint systems are shown on the NDOR Approved Products List under Preformed Silicone Joint, Type A or B.

3. Primers, epoxy adhesives, and silicone sealants shall comply with the manufacturer’s recommendations.

4. Materials shall be resistant to ozone, ultraviolet rays, petroleum products, solvents, industrial cleaners, corrosive vapors and acids.

5. Joint material shall be delivered to the Contractor’s storage area and to the job site in the Manufacturer’s original undamaged containers with wrapping intact. Storage of joint material shall be in a dry, enclosed area, off the ground, between 60^{o}F (16^{o}C) and 75^{o} F (24^{o}C) and out of direct sunlight until immediately prior to installation.

Construction Methods

1. The installation of the Preformed Expansion Joint and the adhesives shall be completed according to the manufacturer's specifications. Additional field applied silicone is

required on both sides of the top of the joint. Any installation that fails to meet the manufacturer's specifications shall be removed and replaced at no cost to the Department.

2. The installation instructions and specifications shall be given to the Engineer 7 days prior to the installation.

3. The Preformed Expansion Joint shall be installed in the presence of the Engineer.

4. The joint opening in the concrete shall be cleaned by sandblasting and shall be dry and free of oil and other deleterious materials before the installation of the Preformed Expansion Joint.

5. The installation of the Preformed Expansion Joint shall be completed between 45°F (7°C) and 90°F (32°C).

6. Any joint material damaged during corrective grinding shall be replaced at no cost to the Department.

Method of Measurement

1. The Preformed Expansion Joint shall be measured for payment by the linear foot (meter) of the joint properly installed and accepted by the Engineer.

2. Pay limits for the Preformed Expansion Joints shall be the horizontal distance from end to end along the centerline of the joint assembly at the locations shown in the plans and 1 foot (0.3 m) upward at the gutter line if shown.

Basis of Payment

1.

Pay Item	Pay Unit
Preformed Expansion Joint, Type ___	Linear Foot (LF) [Meter (m)]
Precompressed Polyurethane Foam Joint, Type ___	Linear Foot (LF) [Meter (m)]
Preformed Silicone Joint, Type ___	Linear Foot (LF) [Meter (m)]

2. Payment is full compensation for furnishing and installing the Preformed Expansion Joint and for all labor, equipment, tools and incidentals necessary to complete the work.

BRIDGE JOINT NOSING

Description

This work shall include sawing, removals (including existing angle irons), forming, and placing of the bridge joint nosing materials required at the expansion joint locations, as specified in the plans. This provision applies to:

- New construction, such as when a new approach slab is being constructed
- Breaking out concrete bridge deck or approaches and building new expansion joint seat
- Saw cutting existing concrete to allow installation of a new expansion joint
- Repairing broken edges of expansion joint gaps such as with nosing material
- Asphalt overlays on bridge decks and approaches

Material Requirements

Products for repair of expansion joint seats or gap edges or used to enhance the durability of gap edges are known as nosing materials. Such materials are given on the Approved Products List as “Bridge Joint Nosing Materials”. Products not shown on the Approved Products List may be used as allowed by Materials and Research Division.

Equipment

Appropriate equipment, in good working order shall be employed to ensure proper mixing and timely application of nosing materials.

Construction Methods

Construction of expansion joint seats shall be done as shown in the plans and compliant with all applicable Special Provisions.

All faces of the joint gap or seat shall be laid out in a straight line (shall not deviate from a straight line by more than ¼ inch at any point). This rule is applicable to whatever method is used to construct the gap, whether it is saw cutting, concrete forming, placing nosing material, etc.

Nosing materials shall be used as prescribed by the manufacturer. In addition, or to augment the manufacturer’s instructions as to preparation, all concrete surfaces against which repair or reconstruction material is to be placed, shall be thoroughly cleaned and free of all dust, laitance, moisture or any substances that may interfere with proper adhesion of the material to the concrete. Concrete against which nosing materials are applied shall have been cured for a period as specified by the nosing manufacturer.

Method of Measurement

The quantity of nosing for which payment will be made shall be computed by the Department in cubic feet from dimensions shown in the plans. No field measurement is required unless actual geometry deviates substantially from what is shown in the plans. No deduction shall be made for the amount of material displaced by reinforcement.

Basis of Payment

The Bridge Joint Nosing shall be paid by the cubic foot of the nosing installed and accepted by the Engineer. Preparation of the joint, including sawing, removals, sandblasting and forming will not be paid for directly but shall be considered subsidiary to the Bridge Joint Nosing.

Pay Item	Pay Unit
Bridge Joint Nosing	Cubic Feet (CF)

EXISTING REINFORCEMENT ENCOUNTERED DURING REPAIR

When existing reinforcing steel is broken or has a section loss greater than 20%, the Contractor shall lap splice the existing bar with a bar of matching size. Lap splices shall be as given in the following table:

Bar #	Non-epoxy Length (in.)	Epoxy (Length (in.)
4	15	18
5	20	24
6	26	31
7	33	39
8	45	54
9	59	71
10	74	89
11	95	139

The bar used to splice, shall lap, by the length given above, with a portion of the existing bar of which 80% or more of the full section is present, on either side of a break or deteriorated or damaged segment.

All existing reinforcing steel exposed during removal of defective concrete shall be incorporated into the new work. Such bars shall be blast cleaned to remove all rust and corrosion. The bars shall be either reformed, as required, to assume their original (intended) shape or bent to allow placement into the new work. Bars that are required to be cut shall be left as long as possible, reformed if necessary and incorporated into the new work. Deviations from these instructions shall be allowed only when clearly indicated in the plans.

For any reinforcing bar that has more than 2/3 of its diameter exposed, the existing concrete shall be removed so that a minimum clearance of 3/4” is provided all around the bar for the placement of new concrete.

All material, labor, tools, equipment and incidentals shall be subsidiary to other work for which payment is made.

MULTI-LAYER EPOXY POLYMER OVERLAY

Description

The work shall consist of preparing the surface of the reinforced concrete bridge deck, and furnishing and placing a multi-layer epoxy polymer overlay (EPO).

Materials

The EPO shall be comprised of a two component epoxy or epoxy/urethane blend (resin and hardener), combined with aggregate as described in the following:

1. Epoxy:

a. The epoxy or epoxy/urethane blend shall be Type lll, for use in bonding skid resistant materials to hardened concrete.
b. Type lll epoxy or epoxy/urethane blend shall comply with AASHTO M 235 (ASTM C 881), and shall meet additional requirements shown in Table 1.0 or Table 1.1, and is the class appropriate for the temperature at the time of application, as designated by the manufacturer.
c. Provide Grade 1 or 2, 100 percent solids, thermosetting, moisture-insensitive epoxy, per ASTM D2369.
d. The Engineer will collect a 16 oz. sample of each component for quality acceptance testing.

Table 1.0

ADDITIONAL REQUIREMENTS FOR TYPE lll EPOXY POLYMER OVERLAY		
Property	**Requirement**	**Test Method**
Viscosity	7-25 poises	ASTM D2393, Brookfield RVT, Spindle 3 at 20 RPM
Gel Time	15-45 min.	ASTM C 881, ¶ 11.2.1 modified, 50 to 100 ml sample
Compressive Strength*, 3 hr.	1000 psi min.	ASTM C 579, w/ plastic inserts
Compressive Strength*, 24 hr.	5000 psi min.	ASTM C 579, w/ plastic inserts
Tensile Strength, 7 days	2000-5000 psi	ASTM D 638 @ 73 deg. F
Elongation, 7 days	40-70%	ASTM D 638 @ 73 deg. F
Elongation, 7 days	20% min.	ASTM D 638 @ 40 deg. F
Pull-Off Strength, after 24 hr. min. Cure Time of Layer 2.	250 psi min.	ASTM C1583 (using 50mm disks)
Epoxide Equivalent	<215	ASTM D1632

*Mixed with aggregate.

Table 1.1

ADDITIONAL REQUIREMENTS FOR TYPE lll EPOXY URETHANE BLEND		
Property	**Requirement**	**Test Method**
Viscosity	35-70 poises	ASTM D2393, Brookfield RVT, Spindle 3 at 20 RPM
Gel Time	15-45 min.	ASTM C 881, ¶ 11.2.1 modified, 50 to 100 ml sample
Compressive Strength*, 3 hr.	1000 psi min.	ASTM C 579, w/ plastic inserts
Compressive Strength*, 24 hr.	5000 psi min.	ASTM C 579, w/ plastic inserts
Tensile Strength, 7 days	2200-5000 psi	ASTM D 638 @ 73 deg. F
Elongation, 7 days	40-100%	ASTM D 638 @ 73 deg. F
Elongation, 7 days	20% min.	ASTM D 638 @ 40 deg. F
Flexural Creep, total, 7 days	0.0065 in.	California Test Method 419
Flexural Yield Strength	5000 psi min.	ASTM D790
Pull-Off Strength, after 24 hr. min. Cure Time of Layer 2.	250 psi min.	ASTM C1583 (using 50mm disks)
Epoxide Equivalent	<215	ASTM D1632

*Mixed with aggregate.

e. The Contractor shall submit for approval the following information to the Engineer:
   (1) Name, address and telephone number of the epoxy manufacturer. Include the name of the preferred contact person.
   (2) Brand name of the material.
   (3) Type, Grade and Class of the material.
   (4) Manufacturer's certificate of compliance stating that epoxy components consist of 100% solids.
   (5) Information regarding recommended usage and application instructions.
   (6) Material Safety Data Sheets.
   (7) Test results shall be submitted by a Cement and Concrete Reference (CCRL) or AASHTO Materials Reference (AMRL) accredited Laboratory. The certified lab will show test results of AASHTO M 235 (ASTM C 881) and requirements of Table 1.0 or Table 1.1, except for pull-off strength per ASTM C1583.
   (8) A Fourier Transform Infrared Spectrophotometry (FTIR) spectrum in transmittance mode must be included for each component.
   (9) Verification that the testing apparatus used for bond tests has been calibrated within the last year according to ASTM C900-06, Annex A1.

2. Aggregate:

a. Provide a singly crushed siliceous gravel or chat that is free of dirt, clay and foreign of organic material.
b. The Engineer shall collect a 60 lb. sample of the aggregate for use in quality assurance testing and acceptance. This sample shall be collected from the material delivered to the jobsite.
c. The aggregates provided shall meet the requirements of Tables 2.0 & 3.0 below:

Table 2.0

QUALITY REQUIREMENTS FOR AGGREGATE		
Property	**Requirement**	**Test Method**
Sodium Sulfate Soundness, Maximum Loss	12%	AASHTO T104
Maximum Wear	30%	AASHTO T96
Acid Insoluble Residue, Minimum	55%	NDOR C25
Fine Aggregate Angularity, Minimum	40%	AASHTO T304, Method C
Moisture Content, Maximum	0.20%	AASHTO T255

Table 3.0

GRADATION REQUIREMENTS FOR AGGREGATES (percent passing)				
Sieve	**4**	**8**	**16**	**30**
% Passing	100	10-40	0-5	0-1

Equipment

The Contractor may request the use of other equipment or methods. The Contractor shall submit a list to the Engineer of all equipment to be used at least two weeks prior to construction. Equipment must comply with the following requirements.

1. **Surface Preparation Equipment:** Steel Shot-blasting equipment capable of producing a surface relief equal to the International Concrete Repair Institute (ICRI) Concrete Surface Profile (CSP) 5 to 6. The shot-blast equipment shall be capable of providing a uniform surface texture. The equipment shall be inspected before use, and worn blasting wheels and liners are required to be replaced. Steel shot is the consumed material. Coal Slag or other by-product material having a Moh's hardness of at least 6 is permitted. Refer to ICRI Technical Guideline No. 310.2-1997 for recommended diameter of steel shot. Loose shot shall be collected using a magnet, magnetic broom, air blast, vacuum or stiff bristle broom. Wet methods are not allowed.

2. **Mechanical Distribution Equipment:**

   a. All equipment to enter or cross the prepared surface, such as work vehicles, trailers, carts, etc., that contain motor oil, transmission fluid, gear oil, radiator fluid, lubricants, etc., shall be accompanied by a protection membrane such as plastic tarps or rolled plastic placed on the prepared deck surface under equipment to protect the prepared deck surface from contamination.
   b. An epoxy distribution system shall be capable of accurate and complete metering, mixing and distributing the polymer at the specified rate on 100% of the prepared surface. Use an application machine that features positive displacement volumetric metering pumps controlled by a hydraulic power unit. Use motionless, in-line mixing so as to not overly shear the material or entrap air in the mix.
   c. An aggregate spreader shall be capable of uniform and accurate application of the dry aggregate over 100% of the prepared surface.
   d. An air compressor shall be capable of producing a sufficient amount of oil-free and moisture-free compressed air to remove all dust and loose material.

3. Hand Application Equipment:

a. Calibrated containers for accurate measurement of epoxy components shall be used.
b. To minimize the formation of air bubbles produced during mechanical mixing of the epoxy components, the mixer shall only use paddle types “Jiffy” or “Sika” paddle types, or approved equal.
c. Adequate additional hand tools may be used to facilitate the placement of the EPO according to this specification and the manufacturer’s recommendations.

4. Uniformly spread prepared mixture to the deck surface using 3/16” notched squeegees. Ensure squeegee blades are replaced regularly to maintain specified application rates.

5. Do not use power driven tools heavier than a 15 pound chipping hammer, during surface preparation.

Construction Method

1. Preparation of Surface:

a. The Contractor shall determine the size of shot, flow of shot, forward speed of shot blast machine and number of passes to achieve a surface preparation that will satisfy the required pull-off strength of the EPO.
b. Deteriorated and/or delaminated concrete shall be removed and repaired with EPO slurry (epoxy and aggregate combined) or approved patch material. The maximum depth of repair with slurry shall be limited to 3”. No Magnesium Phosphate patch materials will be permitted.
c. In all cases, the EPO shall not be placed on any Portland cement concrete less than 28 days old.
d. All bridges will require, at minimum, a single-pass shot blast of the preparation surface. The Contractor shall produce a surface relief equal to the International Concrete Repair Institute (ICRI) Concrete Surface Profile 5 to 6. The width of overlap of successive passes of the machine shall be as minimal as possible to limit double exposure. The Contractor must make available to the Engineer, a set of ICRI surface profile cards to verify the shot blast profile.
e. Use abrasive blasting and/or hand tools to clean small areas (curb lines, rail posts, under open rails, etc.) where shot blasting is unable to be performed, to the satisfaction of the engineer.
f. Metal deck drains and areas of the curb or railing above the proposed surface from the shot blast shall be protected.
g. All dirt, paint, oil, asphalt, laitance, carbonation, curing materials and other deleterious material from the surface of the deck and bridge rails (6” above deck or first break in the case of a continuous rail) shall be removed.
h. The Contractor shall clean all prepared surfaces by air blasting with dry, oil free air or vacuuming. Sweeping with brooms for final cleaning is not acceptable.
i. Any contamination of the prepared deck surface or surface of subsequent layers shall be removed. Contaminated areas shall be shot blasted or bush hammered to produce an acceptable surface for placement of the EPO.
j. The Contractor shall prevent rain water from transporting objectionable materials from surrounding paving onto the bridge deck.

k. Visible moisture on the prepared deck at the time of placing the EPO is unacceptable. The Contractor shall identify moisture in the concrete by taping an 18"x18" plastic sheet to the deck per ASTM D4263. The plastic sheet test shall be performed only when surface temperatures and ambient conditions are within the established parameters for application of the overlay system. In the event of rain, the concrete shall be allowed to air dry for a minimum of 24 hours prior to performing the plastic sheet test. This test shall be performed by the Contractor and observed by the Engineer. **The NDOR will allow a 6 hour test duration in lieu of the 16 hours specified in ASTM D4263**.

l. The first layer shall be placed within 24 hours of preparing the deck surface. Deck surfaces exposed for more than 24 hours must be re-cleaned by shot-blasting prior to application of the EPO. **NO abrasive blasting with sand will be permitted other than that described in ¶ 1.e above.**

2. Proportioning: All epoxy materials shall be proportioned according to the manufacturer's recommendations.

3. Placing the Epoxy Polymer Overlay:

a. The EPO shall be placed in two separate layers to the surfaces shown in the Contract at application rates shown in Table 4.0:

Table 4.0

EPOXY POLYMER OVERLAY APPLICATION RATES		
Layer	**Epoxy Rate**	**Aggregate Rate***
1	Not Less Than .22 gal./sq. yd.	10 lb./ sq. yd. min.
2	Not Less Than .45 gal./sq. yd.	14 lb./ sq. yd. min.

*Apply enough aggregate to completely cover the epoxy.

b. Notched squeegees or mechanical application equipment shall be used to place the mixed epoxy on the deck surfaces immediately and uniformly at the prescribed rate.

c. The Contractor shall continually monitor the gel time of the mixed epoxy. The EPO shall not be placed if conditions are such that gel time is less than 10 minutes.

d. Deck drains shall be closed so the epoxy and aggregate shall not enter the drains.

e. A paintbrush or roller shall be used to apply the epoxy on the face of curbs to the top of the curb. On bridges with continuous concrete barrier rails, apply the epoxy to the first break in the geometry of the barrier or 6 inches above the deck or existing overlay whichever is greater. On bridges with open concrete barriers, apply the epoxy to the following surfaces:
   (1) All 4 faces of the posts a min. of 6 inches above the deck or existing EPO.
   (2) The outside edge of deck.
   (3) A minimum of 8 inches on the underside of the deck or slab overhangs.

f. A single layer of Epoxy and aggregate shall be applied to curbs, barriers or posts during placement of layer 1. No aggregate is required for the outside edge or underside of deck overhangs.

g. The bridge deck and all mixed epoxy and aggregate components must be a minimum of 60°F at the start of application. See paragraph 4.a.

h. The dry aggregate shall be applied to cover the epoxy completely within 10 minutes of application.
i. Any first layer surfaces of epoxy that do not receive enough aggregate before gelling of the epoxy occurs must be removed and replaced.
j. Excess aggregate from the first layer after sufficiently cured shall be vacuumed or swept. If damage or tearing occurs, halt sweeping or vacuuming operation.
k. Traffic must not be allowed on the first EPO layer.
l. The epoxy and aggregate for the second layer shall be placed at the prescribed rate and in the same manner as the first layer and placed within 24 hours after the placement of the first layer.
m. Second layer surfaces that do not receive enough aggregate before gelling of the epoxy may be re-coated with epoxy and aggregate.
n. All longitudinal joints will be at the edge of one lane or as indicated by the Engineer. No joints will be allowed on the wheel path.
o. The EPO shall be produced and placed within the specified limits in a continuous and uniform operation.
p. All construction joints shall be taped to provide a clean straight edge for adjacent EPO placement. This includes joints between previously placed EPO materials and at centerline.
q. The exposed edges at the ends of the bridge and at expansion joints shall be finished to minimize bridge deck roughness.
r. A bond breaker shall be applied to all expansion joints.

4. Curing: Minimum curing times are noted in Table 5.0:

Table 5.0

EPOXY POLYMER OVERLAY CURE TIMES							
	Average Temperature of Deck, Mixed Epoxy, and Aggregate, F deg.						
Layer	55-59	60-64	65-69	70-74	75-79	80-85	85+
	Minimum Cure Time (hours)						
1	5	4	3	2.5	2	1.5	1
2	6.5	6.5	5	4	3	3	3

a. The average temperatures listed in Table 5.0 are to be taken immediately prior to placement of epoxy on deck surfaces. The second layer shall be cured for 8 hours if the air temperature falls below 55°F during the curing period. The cure times listed for the 55-59°F temperature range are provided for the case where the deck, mixed epoxy, and aggregate satisfy the 60°F min. temperature at the start of placement and subsequently decrease during placement.
b. The work shall be planned and performed in such a way as to provide for the minimum curing times specified in this provision or as specified by the epoxy manufacturer.

5. Temperature Limitations:

a. The minimum temperature of deck, mixed epoxy, and aggregate at the start of placement of the EPO shall be 60°F.
b. If the manufacturer's temperature requirements are more restrictive than provided in this provision they will govern.

c. The EPO must not be placed when conditions are such that the deck temperature will exceed 100°F.
d. The EPO must not be placed if conditions are such that gel time is less than 10 minutes.
e. The EPO must not be placed if the air temperature is expected to drop below 55°F within 8 hours of placement.

6. **Correction of Unbonded or Damaged Areas:** Any areas of the EPO discovered to be un-bonded by sounding or chaining and areas of the EPO damaged by the contractor's operation shall be repaired before payment is made. A squared perimeter of areas to be repaired shall be saw cut to the top of the concrete surface and the EPO shall be removed with small air tools (15 pounds maximum) or shot blasting. The underlying concrete area shall be shot blasted to remove contaminants, and the EPO shall be replaced according to standard placement procedures. There is no additional cost to the Department for unbonded or damaged areas.

Temporary Pavement Markings

1. The Contractor shall use Overlay Markers ("Tabs") or Removable Wet Reflective Tape as needed to maintain traffic during phased construction operations.

2. If Overlay Markers are used, two markers shall be installed 5 feet apart at 40 foot intervals on centerline. Edge line markers shall be installed at 10 foot intervals.

3. Avoid installing Overlay Markers with high strength epoxy to avoid damage to EPO.

4. No grooving for temporary pavement tape will be allowed.

5. In the event that the temporary pavement markings are needed to be in place over winter, "Temporary Pavement Marking, Type Paint" shall be used. The removal of the temporary pavement marking paint shall be completed using a self-vacuuming water blaster. The placement and removal of "Temporary Pavement Marking, Type Paint" shall be at no additional cost to the Department. Removal of painted temporary pavement markings by shot blasting or grinding will not be allowed.

Bond (Pull-Off) Testing

1. The Contractor shall record the results of the pull-off tests.

2. The Contractor shall perform pull-off tests of three specimens on each lot of the completed overlay in accordance with ASTM C1583 (using 50mm pull-off disks) under the observation of the Engineer. **A lot shall be defined as 1200 square feet of EPO per lane of traffic of the bridge and approach (if applicable), with the following stipulations:**
a. Shoulders 8 feet and under shall be included in the lot containing the adjacent lane.
b. Shoulders exceeding 8 feet shall be considered a separate lot.
c. For lots less than 1200 square feet, no less than 3 specimens shall be tested.

3. The location of the three pull-off specimens per lot shall be determined by the Engineer.

4. The loading disk used in the pull-off tests shall be adhered to the finished surface of the EPO following core drilling operation to a depth at least ½" into the concrete substrate.

5. The pull-off tests shall not start any sooner than 24 hours after placement of the second layer of the EPO.

6. The pull-off test shall not be performed when the deck temperature exceeds 85^0 F.

Method of Measurement

1. Epoxy Polymer Overlay will be measured for payment by the square yard of deck surface and bridge approach surface area overlaid as determined by field measurement.

2. Epoxy Polymer Overlay applied to bridge rails or barriers and epoxy applied to the deck edge or deck underside will not be measured directly and will be considered subsidiary to the Multi-Layer Epoxy Polymer Overlay.

Basis of Payment

1.

Pay Item	**Pay Unit**
Multi-Layer Epoxy Polymer Overlay	Square Yard (SY)

2. For each lot, the EPO unit price is multiplied by bond strength pay factor for the item "Multi-Layer Epoxy Polymer Overlay".

3. The bond strength of the three (3) pull-off specimens will be averaged to determine the pay factor for each lot with the following exception:

> If the tensile strength of a specimen is less than 250 psi and failure is in the concrete at a depth of at least 1/4 inch over more than 50% of the test surface, then the tensile strength used for that single specimen will be 250 psi.

4. The pay factors for the average bond strength test are as shown in Table 6.0:

Table 6.0

BOND STRENGTH PAY FACTORS	
Average Bond Strength of Lot *	**Percent Pay**
Greater than 245 psi	100%
235 psi - 245 psi	90%
225 psi - 234 psi	75%
Less than 225 psi	40% or Reject

*245 psi allows for a 2% margin of error (with 250 psi required)

5. Any lot rejected by the Engineer will be removed and replaced at no additional cost to the Department.

6. Temporary Pavement Markings shall not be measured and paid for directly but shall be considered subsidiary to Multi-Layer Epoxy Polymer Overlay.

7. Payment is full compensation for all work in this Section.

PENETRATING CONCRETE SEALERS

Description

This work shall consist of furnishing and applying Penetrating Concrete Sealers to Portland Cement Concrete at the locations shown in the plans or ordered by the Engineer in accordance with the requirements of these specifications.

Material Requirements

The Penetrating Concrete Sealer must be from Nebraska's Approved Products List.

Application Methods
Prior to Application

1. Concrete to be sealed shall have cured for a minimum of 28 days.

2. All surfaces shall be cleaned of sand, surface dust, dirt, oil, grease, chemical films, cure compounds or coatings and other contaminants with a high pressure water washer capable of delivering water at not less than 2,000 psi. If high pressure water does not remove surface contaminants, then sand blasting will be required at the engineer's discretion.

3. Surfaces shall be allowed to air dry for a minimum of 48 hours.

4. A 2ft x 2ft clear plastic sheet shall be taped around all of its edges to a representative region of the cleaned concrete for not less than 20 minutes. If upon removal of the plastic sheet, moisture is observed on its surface, additional drying time shall be required before application of Penetrating Concrete Sealer.

5. The Engineer shall consult NDOR Materials and Research Division to determine if a Rilem Tube Absorption Test should be performed.

6. Test applications of the Penetrating Concrete Sealer may be required at the discretion of the Engineer.

Application

1. Air, Material and surface temperatures shall be 40˚ F (4˚ C) or higher during application. Penetrating Concrete Sealers shall not be applied when temperatures are expected to fall below 30˚ F (-1 C˚) within 12 hours or when rain is expected within 6 hours. Do not apply sealer materials during wet weather conditions or if adverse weather conditions are anticipated within 12 hours of the completion of sealer application.

2. Typical Limits of Application

    i) As indicated in the plans and in conjunction with instructions herein.
    ii) For superstructures with **open rails**, Penetrating Concrete Sealer shall be applied to:
        (1) Outside edge of deck.

(2) Underside of deck for a minimum of 8 inches from the outside edge
(a) Penetrating Concrete Sealer shall **not** be applied to deck undersides or edges when an epoxy polymer overlay (EPO) is being applied on the same plan.
(3) Top, sides and bottom of rail.
(4) All surfaces of posts. If an EPO is being done also, only surfaces not covered by the epoxy and aggregate shall be sealed.
(5) Deck surfaces, underneath rails, not covered by an overlay of any type.

iii) For superstructures with **closed rails**, Penetrating Concrete Sealer shall be applied to all surfaces of the rail.

iv) Substructure components shall be sealed to the limits indicated in the plans.

3. Horizontal Application: Penetrating Concrete Sealer shall be applied with low pressure sprayer (10 – 25 psi) or roller so as to thoroughly saturate the concrete surface. Sufficient quantity is indicated when the sealer stands for a few seconds before completely penetrating the concrete surface.

4. Vertical Application: Apply from bottom up with low pressure sprayer (10 – 25 psi) or roller so as to thoroughly saturate the concrete surface and create a uniform wet appearance.

5. Precise Application Rates will vary with concrete mix, porosity, finish and environment, but may be estimated at 200 – 300 sq. ft. per gallon.

6. Drying time shall be a minimum of 2 hours for light traffic or by manufacturer's recommendation and maybe extended at the discretion of the Engineer.

Method of Measurement

1. "Penetrating Concrete Sealer" is measured by the Square Foot

Basis of Payment

1.	**Pay Item**	**Pay Unit**
	Penetrating Concrete Sealer	SQ. FT.

PREPARATION OF BRIDGE AT STATION 105+49.00

Description

Preparation of the existing bridge structure(s) shall be in accordance with the pertinent provisions of Section 704 of the Standard Specifications.

Removal Items

The work shall include all work necessary to prepare the existing bridge for repair, including any of the following that apply:

a. The removal of existing concrete bridge components to limits necessary for the required construction.

b. The saw-cutting and breaking back of existing concrete structures.

c. The removal of the existing steel structures as necessary.

d. The removal of the existing bearing devices as necessary.

e. The cleaning and roughening of the existing concrete that comes into contact with the new work.

f. The cleaning, straightening and extending of the existing reinforcing steel into the new work.

g. The cleaning and removal of loose rusted areas of piling to be incorporated into the new work.

h. The removal of expansion devices and/or expansion joint material to perform work shown in the plans shown in the plans.

i. Cutting down of bearing piles and sheet piles to 2'-0" below the finished grade, if applicable.

Phasing

The existing structure may be used to maintain traffic during the phased construction. The work shall be done in phases according to the details shown on the plans.

Disposal of Materials

If there are lead plates under the existing steel rail posts, the lead plates shall be recycled in accordance with Subsection 203.01 Paragraph 3. (Environmental Requirements) of the Standard Specifications for Highway Construction as prescribed for lead plates under existing bearings.

Extreme caution shall be exercised in removing the existing bridge or bridge components so that no material or debris falls upon the roadway (if so located) below the bridge. The Contractor shall take adequate precautions to protect all traffic and roadways. No material or debris resulting from the preparation shall be permitted to fall upon the roadway below the bridge.

All material resulting from the removal of specified bridge components shall become the property of the Contractor and shall be promptly removed from the right-of-way.

EXCAVATION FOR STRUCTURES

Section 702 in the Standard Specifications is amended to provide that the Excavation For Pipe, Pipe-arch Culverts, and Headwalls will not be measured for payment, but will be considered subsidiary to the pipe being installed.

EROSION CONTROL

Subsection 807.02 in the Standard Specifications is amended to include the following:

Erosion Control	Minimum Purity	Approved Application Rate in lb of Pure Live Seed/1000 sq. yard
Perennial ryegrass – Linn	85	1.25
Western wheatgrass – Barton, Flintlock	85	1.25
Slender wheatgrass	85	1
Canada wildrye – Mandan, NE native	85	1.25
K-31 fescue	85	0.75
Little bluestem – Aldous, Blaze, Camper	60	0.5
Sideoats grama – Butte, El Reno, Trailway	75	0.75
Switchgrass – Trailblazer, Blackwell, Cave-in Rock, Pathfinder	90	0.5
Sand lovegrass – Nebraska 27	90	0.2
Oats/wheat*	90	5

*wheat in the fall

All seed shall be origin Nebraska, adjoining states, or as specified. A Contractor proposing to use a substitute variety, or origin shall submit for the Engineer's consideration a seed tag representing the seed which shows the variety, origin and analysis of the seed.

Rate of application of commercial inorganic fertilizer shall be:

	Rate of Application per 1000 SY (Minimum)
Available Nitrogen (N_2)	4 or 9 lb.
Available Phosphoric Acid (P_2O_5)	0 lb.

Rate of application of granular sulphur coated urea fertilizer shall be:

Nitrogen (Total Available)	0 lb.

EROSION CONTROL

Subsection 807.01 is void and superseded by the following:

This work shall consist of the preparation of slopes and waterways and the furnishing and application of soil retention blankets at the locations shown in the plans.

Subsection 807.02

Paragraphs 2, 2.a., 2.b., and 2.c. are void and superseded by the following:

Wire staples shall be used for anchoring the soil retention blanket. The staples shall be a minimum of 13 gauge U-shaped steel wire with a 1 inch or larger throat with at least 6 inch long legs.

Paragraph 5 is void.

Subsection 807.03

Paragraph 6c is void.

Paragraphs 7.a.i. and 7.a.ii. are void.

Paragraph 8 is void.

Paragraph 1. of Subsection 807.05 is amended to include the following:

Pay Item	**Pay Unit**
Erosion Control, Class_____	Square Yard (SY)

SILT CHECKS

Description

1. This work shall consist of furnishing and placing silt check devices at the locations shown in the plans, Temporary Erosion Control Plans or as directed by the Engineer. Bale Checks shall not be allowed.

2. There are two separate and distinct types of silt checks.

   a. Silt Checks are placed as shown in the plans or as directed by the Engineer after final grading is complete in conjunction with the final stabilization.

   b. Temporary Silt Checks are placed as shown in the Temporary Erosion Control plans or as directed by the Engineer throughout the construction process.

Material Requirements

1. Approved silt check devices are listed in and shall be selected from the Approved Products List.

   a. Silt Checks used for final stabilization shall be the type shown in the plans and selected from the Approved Products List.

   b. Temporary Silt Checks may be any product listed on the Approved Products List.

The following chart shall be used to determine the appropriate application of Temporary Silt Checks during construction.

Type	Material	Ditch Grade	Uses/Locations
1 – Low	9 " Diameter Straw Wattle	< 2 %	Medians, Slopes and Urban Ditches
1 – High	12" Diameter Straw Wattle	< 2 %	Wetlands, Stream Banks, Slopes and Rural Ditches
2 – Low	9" Diameter Wood Fiber Wattle	All	Medians and Urban/Rural Ditches
2 - High	12" Diameter Wood Fiber Wattle	All	Wetlands, Stream Banks, and Rural Ditches
3 – Low	9" Diameter Coir Wattle	All	Slopes, and Rural Ditches
3 – High	>12" Diameter Coir Wattle	All	Wetlands, Stream Banks, Slopes and Rural Ditches
4	Synthetic	All	Urban Ditches

2. All silt check devices have unique staking or pinning requirements based upon the BMP and its use. The hold down stakes and pins shall be as shown on the Silt Check Detail Sheet.

Construction Methods

1. The silt checks shall be placed as shown in the plans or as directed by the Engineer and secured in accordance with the plans.

2. The limits of the completed silt check shall extend up the foreslope and backslope of the ditch to effectively contain the run-off and prevent erosion and washout at the edges of the installation as shown on the Silt Check Detail Sheet.

3. Temporary Silt Checks

   a. The "Temporary Silt Checks" shall be installed at the locations shown in the plans, Temporary Erosion Control Plan and as directed by the Engineer.

   b. The "Temporary Silt Checks" shall be installed immediately after the rough grading is completed in an area.

   c. The "Temporary Silt Check" shall be left in place until the finish grading begins. Reinstall the "Temporary Silt Checks" as soon as finish grading is done unless the permanent erosion control is initiated immediately after finish grading. "Temporary Silt Checks" should be in place at all times after finish grading until permanent "Silt Check," are in place.

   d. The Temporary Silt Check shall be removed and remain the property of the Contractor when it is no longer functional or needed.

Method of Measurement

1. All work involved in constructing silt checks as described above will be included and paid for per linear feet of devices used in the silt checks.

2. "Temporary Silt Checks" shall be measured by the linear foot (meter) for the initial installation. The removing or replacing of the temporary silt checks will not be measured for payment, but will be considered subsidiary to the initial installation.

3. Removal of sediment will be measured based on equipment rental. All incidentals associated with the cleanout shall be subsidiary to the equipment rental items.

Basis of Payment

1.

Pay Item	Pay Unit
Silt Check, Type _____	Linear Foot
Temporary Silt Check	Linear Foot
Rental of Skid Loader, Fully Operated	Hour
Rental of Loader, Fully Operated	Hour
Rental of Crawler Mounted Hydraulic Excavator, Fully Operated	Hour
Rental of Dump Truck, Fully Operated	Hour

2. Payment is full compensation for all work prescribed in this Section.

SILT FENCE

Section 809 of the Standard Specifications is void and superseded with the following:

Description

This work shall consist of installing the silt fence at locations shown in the plans and at locations as approved or determined by the Engineer. The installation shall be in accordance with these *Specifications*, the special provisions, and the plans.

Material Requirements

1. All silt fence material shall be selected from the NDR Approved Products List.

    a. Low Porosity Silt Fence is typically used for perimeter control.

    b. High Porosity Silt Fence is used for velocity control.

    c. Low Profile Silt Fence is used for perimeter control and inlet protection

    d. Coir Silt Fence is used for perimeter control of wetlands and locations specified to use a biodegradable silt fence.

    e. Temporary Silt Fence shall be any product from the silt fence category of the Approved Products List with a use appropriate to the situation.

2. Silt Fence Posts

   a. The silt fence posts shall be Studded “T” Steel Posts with a minimum weight of 1.25 lbs/foot (37 Kg/m).

   b. Used Studded “T” Steel Posts are acceptable.

   c. Coir Silt Fence shall be installed with wooden posts, derived from hardwood tree species. The posts shall only be driven until firm.

3. Wire staples shall be used for anchoring the silt fence.

4. Silt Fence shall be attached to the posts with black zip ties. Zip ties shall be UV stabilized, black with a 50 lb (22 Kg) minimum tensile strength.

Construction Methods

1. The silt fence shall be installed and in good working condition prior any grading or excavation operations and as needed throughout the construction process. The silt fence installation shall not exceed the amount required for the current construction season.

2. Silt Fence may be installed in the ground by either of the two methods listed below.

   a. Trenching Method
      (i) The Contractor shall excavate a trench to the depth, width, and length shown in the plans.
      (ii) The Contractor shall place the silt fence in the trench and pin it as shown in the plans.
      (iii) The Contractor shall backfill the trench, compact the soil, and attach the fabric to the posts as shown in the plans.

   b. Slicing Method
      (i) The Contractor shall install silt fence by mechanically slicing the material into the soil.
      (ii) The Contractor shall compact the soil and attach the fabric to the posts as shown in the plans.

3. Fabric Silt Fence installed in a wetland or below water conditions.

   a. Trenching is not required. Fold a 6 inch (150 mm) flap toward the sediment source and pin as shown in the plans. Install the stakes as for a dry installation. Attach the fabric to the posts with zip ties or other approved methods and secure from slipping down the post. For a wetland or below water installation, the sediment shall be left in place.

4. All silt fence splice joints shall be overlapped a minimum of 6 feet (1.8 m).

5. The Contractor shall remove sediment that accumulates near the silt fence during construction and dispose it in an upland location.

    a. Sediment removal shall be initiated when sediment depth has reached one-half the height of the above ground portion of the silt fence or as directed by the Engineer in conjunction with silt fence repairs.

    b. Sediment shall be removed to approximately 6 inches (150 mm) from the silt fence.

    c. Each time sediment is removed, the silt fence shall be repaired to a good working condition. Good working condition includes fabric repair, retrenching, post repair, tie replacement, and any associated hand work.

6. The Contractor shall maintain the silt fence in good working condition throughout the life of the construction project. Upon completion of the project silt fence shall remain in place in good working condition, in locations specified in the plans or at locations specified by the Engineer.

    a. Silt fence may be removed from locations during construction or upon completion of the project as directed by the Engineer.

    b. Silt fence that has been determined to be unnecessary and is subject to removal shall be cut off at ground level and shall remain the property of the Contractor for disposal. Any accumulated sediment shall be removed to an upland location.

    c. Silt fence posts from removed fence shall remain the property of the Contractor and may be reused on other installations.

    d. Temporary Silt Fence shall be removed at the completion of the project or when it is no longer functional.

Method of Measurement

1. Fabric silt fence is measured by the length of the silt fence in linear feet (meter).

2. Removal of sediment from the silt fence will be measured based on equipment rental.

3. All silt fence repairs, such as fabric repair, tie replacement, retrenching, and splicing and associated handwork are subsidiary to the appropriate silt fence item.

4. Removal of silt fence and all of its components is subsidiary to the silt fence item.

Basis of Payment

1.

Pay Item	Pay Unit
Fabric Silt Fence “Low Porosity”	Linear Foot (LF) [Meter (m)]
Fabric Silt Fence “High Porosity”	Linear Foot (LF) [Meter (m)]
Fabric Silt Fence “Low Profile”	Linear Foot (LF) [Meter (m)]
Fabric Silt Fence “Coir Fiber”	Linear Foot (LF) [Meter (m)]
Temporary Silt Fence	Linear Foot (LF) [Meter (m)]
Rental of Skid Loader, Fully Operated	Hour (h)
Rental of Loader, Fully Operated	Hour (h)
Rental of Dump Truck, Fully Operated	Hour (h)
Rental of Crawler Mounted Hydraulic Excavator, Fully Operated	Hour (h)

2. Payment is full compensation for all work prescribed in this Section.

GUARDRAIL END TREATMENT, TYPE I (I-1-1214)

Section 902 in the Standard Specifications is amended to include “Guardrail End Treatment, Type I”.

This work consists of furnishing and installing a guardrail end treatment system according to the details and at the locations shown in the plans.

The Contractor has the option of installing one of the following systems:

1.) SKT-SP-MGS — Manufactured by Road Systems, Inc.
3616 Old Howard County Airport
Big Springs, TX 79720
(915) 263-2435

2.) X-Tension — Manufactured by Lindsay Manufacturing
505 Crown Point Ave.
Omaha, NE 68110
(402) 210-4593

The lengths of manufacturers’ end treatments vary; the Contractor must install a total length of 53’-1.5”, including the end treatment, to last post with curved end or rectangular “head” beyond the last post. The additional length required will be W-beam guardrail with Midwest Guardrail System 31” design.

The Contractor will be required to furnish two sets of shop plans to the Department of the system to be installed. The guardrail end treatment shall be installed in accordance with the recommendations of the manufacturer.

Payment shall be full compensation for all work required to provide and install the system.

TIMBER AND LUMBER
(J-5-0711)

Paragraphs 2.a. and 2.b. of Subsection 1075.02 in the Standard Specifications are void and superseded by the following:

2. a. The creosote, pentachlorophenol and copper naphthenate preservative treatment for timber and lumber shall be by the Empty-cell (Rueping) Process; and, where allowed, the ammoniacal copper arsenate (ACA), chromated copper arsenate (CCA), and ammoniacal copper zinc arsenate (ACZA) preservative treatment for timber and lumber shall be by the Full-cell (Bethel) Process. Treatment shall conform to the requirements as specified in T1-Use Category System: User Specification for Treated Wood of the American Wood-Preservers' Association Standards and AASHTO M 133. Preservatives shall meet the requirements of Section 1076.

b. Preservative Treatment. The preservative treatment and minimum retentions for timber and lumber shall conform to the requirements as specified in U1-Use Category System: User Specification for Treated Wood of the American Wood Preservers' Association Standards as amended herein. Minimum retentions for all timber and lumber shall conform to Use Category UC4C. Minimum retentions for fence posts shall conform to Use Category UC4A. Timber and lumber to be treated with ammoniacal copper arsenate or ammoniacal copper zinc arsenate shall be dried to the fiber saturation point required to put the timber into satisfactory condition to accept the preservative and attain the required preservative retention and penetration. After treatment, with the exception of offset blocks and posts for guardrail terminals systems, the material shall be redried and have a moisture content of not more than 30 percent at the time or shipment to the job site.

Paragraph 1.b. of Subsection 1075.05 is void and superseded by the following:

b. Species. Unless otherwise specified, sawn wood guardrail posts shall be either Douglas Fir (Coast Region) or Southern Yellow Pine.

Wood offset blocks shall be either Douglas Fir (Coast Region), Southern Yellow Pine (major or minor species), or Ponderosa Pine.

PORTLAND CEMENT CONCRETE
(J-15-0914)

Paragraph 1. of Subsection 1002.02 in the Standard Specifications is amended to include the following:

Concrete mixes will be in accordance of Table 1002.02.

Paragraph 3. of Subsection 1002.02 is void and superseded by the following:

3. Type IP and IT Interground/Blended cement shall be used for all classes of concrete except for pavement repair. Type IP and IT Interground/Blended cement shall meet all requirements of ASTM C 595. Pavement repair shall include Type I/II Portland Cement for Class PR1 Concrete and Type III Portland Cement shall be used in Class PR3 Concrete.

Tables 1002.02 and 1002.03 in Subsection 1002.02 are void and superseded by the following:

ENGLISH
TABLE 1002.02

Class of Concrete (1)	Base Cement Type	Total Cementitious Materials Min. lb/cy	Total Aggregate		Air Content % Min.-Max. (2)	Ledge Rock (%)	Water/Cement Ratio Max. (3)	Required Strength Min. psi
			Min. lb/cy	Max. lb/cy				
47B**	IP/IT*	564	2850	3150	6.5 - 9.0	-	0.45	3500
47B***		564	2850	3150	6.0 - 8.5	-	0.45	3500
47BD		658	2500	3000	6.0 - 8.5	30+3	0.42	4000
47B-HE		752	2500	3000	6.0 - 8.5	30±3	0.40	3500
BX(4)		564	2850	3150	6.0 - 8.5	-	0.45	3500
47B-OL		564	2850	3200	6.0-8.5	30±3	0.36	4000
PR1	I/II	752	2500	2950	6.0 - 8.5	30±3	0.36	3500
PR3	III	799	2500	2950	6.0 - 8.5	30±3	0.45	3500
SF(5)	I/II	589	2850	3200	6.0 - 8.5	50±3	0.36	4000

(1) Each class of concrete shall identify the minimum strength requirement, per plans and specifications.
All classes of concrete shall be air-entrained and a water-reducing admixture shall be used per manufacture's recommendations.

- Class R Combined Aggregate shall use a mid-range water reducer admixture. The dosage shall be at the manufacture's recommendation and the Engineer may approve a low-range water reducer admixture.

(2) As determined by ASTM C 138 or ASTM C 231.
FOR INFORMATION ONLY. The Contractor may develop a Quality Control Program to check the quantity of air content on any given project; such as, checking the air content behind the paver.

(3) The Contractor is responsible to adjust the water/cement ratio so that the concrete supplied achieves the required compressive strength without exceeding the maximum water/cement ratio. The minimum water/cement ratio for any slip form concrete pavement is 0.38, unless the Contractor requests approval from the Engineer in writing to change the minimum water/cement ratio to 0.36.

(4) For temporary surfacing, Type I/II cement is allowed.

(5) Minimum Portland Cement shall be 564 lbs/cyds and the total Silica Fume added shall be 25 lbs/cyds.

(*) Refer to Subsection 1004.02 for material characteristics.
Lithium Nitrate may be used in place of Supplemental Cementitious Materials (SCMs), see Section 1007 of the Standard Specifications as modified in these Special Provisions.
(**) For slip form applications.
(***) For hand-pours and substructures applications.

Table 1002.03	
Table of Acceptable Concrete Class Substitutions	
Class Specified	Acceptable Class for Substitution
BX	47B, 47BD or 47B-HE
47B	47BD or 47B-HE

Paragraphs 5., 6., 7., 8., 9. and 10. of Subsection 1002.02 are void and superseded by the following:

5. Class PR1 and PR3 Concrete:

   a. The calcium chloride for use in PR concrete shall be either:

      (1) A commercially prepared solution with a concentration of approximately 32 percent by weight.

      (2) A Contractor prepared solution made by dissolving 4.5 pounds of Grade 2 or 6.2 pounds of Grade 1 calcium chloride per gallon of water to provide a solution of approximately 32 percent by weight.

   b. The 7.4 pounds of water in each gallon of solution shall be considered part of the total water per batch of concrete.

   c. The calcium chloride solution shall be added, just prior to placement, at a rate of 0.375 gallons/100 pounds of cement (1.4 lb. calcium chloride per 100 lb. cement).

   d. Class A, Flaked or Pellet Calcium Chloride shall be added at a rate not to exceed 2.0 percent of the weight of the cement for Grade 1, or 1.6 percent of the weight of the cement for Grade 2. Grade 1 Calcium Chloride purity is between 70 and 90 percent and Grade 2 Calcium Chloride is between 91 and 100 percent.

   e. Where mixing trucks are used:

      (1) For Class PR3 Concrete, calcium chloride shall be thoroughly mixed into the concrete before placement. The minimum mixing time is 2 minutes.

      (2) For Class PR1 Concrete, calcium chloride shall be added first and then the concrete mixed at least 2 minutes or as required by manufacturer. Next, the Type F high range water-reducer admixture is added and the concrete is mixed an additional 5 minutes.

6. Class High Early (47B-HE) Concrete

   a. High Early (47B-HE) concrete shall be cured as prescribed in Subsection 603.03, Paragraph 7. The Contractor shall take necessary curing measures so the required strength is achieved.

   b. High Early concrete shall achieve a compressive strength of 3,500 psi at 48 hours after placement.

c. The 48-hour compressive strengths shall be used to determine pay factor deductions for high early concrete in accordance with Table 603.03.

d. A non-calcium chloride accelerator shall be used when the ambient temperature at the time of the placement of concrete is 70°F or less.

e. When requested by the Contractor, the maturity method, as provided in NDR C 1074, may be used in lieu of the requirements of Subsection 603.03, Paragraphs 11.c. and d. to determine the strength of concrete pavement for the purpose of early opening to traffic and acceptance. Requests by the Contractor for use of the maturity method shall be on a project basis and shall be made in writing to the Engineer.

7. The yield of the concrete proportions shall be determined and adjusted by the Producer.

8. All Classes of Concrete with the exception of PR1 and PR3 shall have a Durability Factor not less than 70 and a mass loss not greater than five percent after 300 freeze/thaw cycles when tested in accordance with ASTM C 666. The freeze/thaw testing shall be conducted according to Procedure A.

Paragraphs 1. & 2. of Subsection 1002.03 are void and superseded by the following:

1. The Contractor shall identify the plant that will supply the concrete 14 days before use and be entirely responsible for its calibration, batching of concrete, aggregate and sampling of cement per NDR Sampling Guide.

a. The Contractor shall be responsible for the following:

1) Batching concrete.

2) Contractor shall sample aggregate from the conveyor belt or stockpile. Gradations from a split sample shall be tested in accordance to Section 1033 and reported to the Engineer at the frequency required by the Materials Sampling Guide.

i. Contractor shall retain possession of the split samples on-site at the Contractor's facility until such a time as determined by the Engineer.

a. At the pre-construction meeting:

1) Contractor shall determine the location of testing and report the names of the technician performing the sampling and testing.

2) Engineer will notify the Contractor of the retrieval of the split samples.

ii. The Contractor shall split the sample, place the Department's split sample into a cloth bag and immediately seal the split sample with the provided security seal. The cloth sample bag shall be supplied by the Department.

iii. The sampling splitting and placement of the security seal of aggregate samples shall be witnessed by certified Department personnel.

iv. Contractor shall secure the split sample using a consecutively numbered security seal of 75 pounds breaking strength provided by the Department. The Contractor shall use the consecutively numbered security seals to identify and track each Aggregate Class. Samples that are not consecutively numbered will be investigated for custody of the sample and the Engineer may cease production until it is determined what action will be required.

a. The Contractor shall report the security seal tracking number with the split sample gradation.

b. The following training shall be required for personnel who oversee the batching of the concrete:

1) Concrete Technician Personnel

i. Concrete Plant Technician

2) Portland Cement Sampler

i. NDR Portland Cement Sampler

2. Portland Cement Concrete shall be supplied by certified Ready Mix Plants that are in compliance with the requirements in the *Quality Control Manual*, Section 3, -- Certification of Ready Mixed Concrete Production Facilities published by the National Ready Mixed Concrete Association. Refer to NDR Material Sampling Guide for the policy on stationary and portable plants.

Paragraph 4. of Subsection 1002.03 is void and superseded by the following:

4. a. Mix times shall meet the requirements of ASTM C 94. Mixing time tests shall be repeated whenever the concrete appearance indicates that mixing was inadequate.

b. Batch plants that are transporting the concrete in non-agitating trucks, the mixing time will not be less than 60 seconds, and for agitating trucks, the mixing time will not be less than 45 seconds.

c. The Certification of stationary and portable ready mix plants will conform to the tests that are required in the NDR Materials Sampling Guide.

Paragraph 6. of Subsection 1002.03 is void and superseded by the following:

6. Batch tickets shall be prepared as prescribed in the National Ready Mixed Concrete Association's *Quality Control Manual*. The Contractor shall keep all gradations and batch tickets until final acceptance by the Department. Projects that have less than 200 cubic yards of concrete placed will be allowed to have hand written tickets. For projects greater than 200 cubic yards, hand written tickets will be at the Engineer’s discretion. The concrete batch tickets shall show batch weights, aggregate moisture (shall be tested daily and moisture probes are allowed), admixtures used, water, and mix design calculations. A copy of the batch ticket shall be given to the Engineer upon delivery of concrete.

Paragraph 8. of Subsection 1002.03 is void and superseded by the following:

8. Coarse aggregate and aggregate from a dry pit shall be uniformly saturated with water before it is used. The wetting shall begin 24 hours prior to the concrete mixing to allow complete saturation.

Paragraph 13.a. of Subsection 1002.03 is void and superseded by the following:

13. a. The quantity of water shall be determined by the Contractor. The minimum quantity of water should be used which will produce required workability. Any additional water used to rinse the charging hopper and fins after the batching of concrete is allowed. This water must be estimated and recorded on the batch ticket.

Subsection 1002.04 is void and superseded by the following:

1. Class 47B Concrete Mix Design Submittal:

   a. The Contractor shall submit the Concrete Mix Design Worksheet consisting of design mix proportions, testing of mix design from a minimum of 4 cubic yards and aggregate data for 47B class of concrete being placed on the project.

      (1) All testing must be performed by a qualified laboratory found on the NDR's Material and Research website, under the *Nebraska Qualified Consultant & LPA Laboratories* and submitted to the Engineer.

      (2) The Concrete Mix Design shall be submitted to the Engineer 4 weeks prior to any concrete being placed on the project.

      (3) The Concrete Mix Design shall not be paid for directly by the Department and shall be subsidiary to items which direct payment is made.

      (4) Concrete shall not be placed on the project before the Concrete Mix Design Worksheet has been reviewed and approved by the Engineer.

   b. The Contractor shall submit the Concrete Mix Design Worksheet to the Engineer. Email submissions are preferred but will be accepted by fax or postal mail.

      (1) Contractor's Mix Design Worksheet can be found on the Materials and Research website. The submitted Mix Design Worksheet shall include the following:

- Contractor Name
- Project Number
- Date
- Location of ready mix or central mix plant
- Date submitted
- Signature of Contractor representative

(2) Material Source Information.

- Cement Manufacturer
- Type of Interground/Blended Cement
- Type of Admixtures
- Aggregate Pit and Quarry location

(3) Specific Gravity of each individual aggregate source.

(4) Sand Equivalent for dry pit sand-gravel aggregate.

(5) Combined Aggregate percent passing as described on Table 1033.03C.

(6) Contractor's Target combined aggregate gradation percent passing.

(i) The Contractor's required worksheet can be found on the Materials and Research website.

(7) Testing of Mix Design:

The mix design shall show the weights of all ingredients including Interground/Blended cements, aggregates, water, admixtures types and water cement ratio.

- Temperature of concrete at time of sampling, ASTM C 1064.
- The air content of plastic concrete, ASTM C 231.
- Weight per cubic foot, Yield, ASTM C 138. The relative Yield shall be a minimum of 97%.
- Compressive strength shall be performed with a minimum of three averaged specimens at 7-day and 28-day, ASTM C 39. The minimum 28-day compressive strength shall be 3500 psi.

(8) Traditional 47B Mix Design is defined as an IP(25) cement, 70 percent Class B Aggregate and 30 percent Class E Aggregate may be exempt from the concrete testing described in Paragraph 1.(b)(7). All other requirements shall be included in the Concrete Mix Design Report.

c. The PCC Engineer will notify the Contractor of the mix design approval for Class 47B Concrete. Approval of the mix design does not alleviate the Contractor of the responsibility of the in-place concrete. The Contractor may adjust admixtures, water cement ratio, vibrator frequency, etc., as needed in accordance to the specifications.

d. The Contractor shall submit a new concrete mix design worksheet meeting the above requirements when a change occurs in the source,

type, or proportions of cements or aggregates; unless otherwise approved by the Engineer.

2. The quantity of water to be used shall be determined by the Contractor. It shall not be varied without the Engineer's consent.

3. If the concrete mixture is excessively wet causing segregation, excessive bleeding, excessively dry or any other undesirable condition, the concrete shall be rejected. At the option of the Engineer, slump tests may be performed to determine the consistency.

4. Concrete which has developed initial set before it is consolidated and finished shall be rejected.

5. a. If false set is encountered, the batching operation shall be stopped until the problem is resolved.

   b. Each batch must be mixed or agitated for at least 3 additional minutes after observing the false set and the concrete must be of satisfactory consistency.

6. Compressive strength tests shall be made in accordance with ASTM C 39.

7. Concrete shall be sampled as prescribed in the NDR *Materials Sampling Guide*. Samples shall be taken at the point of placement, never before the discharge from the last conveyance.

8. Aggregate Acceptance, Verification, Sampling and Testing:

   a. The aggregate will be accepted based on the Contractor's testing results except as noted below.

   b. The aggregate verification sampling and testing by the Department will be randomly selected and tested according to sublot sizes in Table 1002.05.

Table 1002.05

Aggregate Class	Lot	Sublot
E and F	3000 tons	1000 tons
A,B and C	6000 tons	2000 tons
R	3000 tons	1000 tons

   c. The results of Contractor split sample will be verified by the Department's verification tests. Any samples outside of the tolerances as specified according to the Materials Sampling Guide, Section 28 under the *Acceptable Tolerance Limits for Independent Assurance* will result in an Independent Assurance (IA) review of testing and may result in the Department test results being applied.

   d. On any given Lot, if the results of the gradation from the verification test are within Department's specification, the Contractor's results will be used for the entire lot. On any given Lot, if the gradations results from the

verification test are outside Department's specification, further investigation will be initiated by the Engineer for that sublot. Any or all of the remaining Department sublot samples may be tested and the Department sublot test results may be applied to the respective sublot and the acceptance will apply.

e. When verification tests are within testing tolerance but results show a consistent pattern of deviation from the split sample results, the Engineer will exercise one or more of the following:
   - Cease production.
   - Request additional verification testing.
   - Initiate a complete IA review.

f. Independent Assurance (IA) Review of Testing:

   1) The Contractor shall allow the Department personnel access to the Contractors' laboratory to conduct IA review of the technician testing procedures and apparatus. Any deficiencies discovered in the Contractor's testing procedures will be reported to the Contractor and corrected by the Contractor.

   2) During the IA review, the Department personnel and the Contractor shall split a sample for the purpose of IA testing. The samples selected will be tested in the Department's Branch Laboratory. Any IA test results found to be outside of defined testing tolerances as stated in Paragraph 8.c. of Subsection 1002.04 will be reported to the Contractor. The Contractor shall immediately correct any deficiencies found during the IA review.

   3) If the project personnel and the Contractor cannot reach agreement on the accuracy of the test results, the Department Central Laboratory will be asked to resolve the dispute, which will be final. All dispute resolutions will be in accordance with the Quality Assurance Program requirements in the NDR's Materials Sampling Guide.

PORTLAND AND INTERGROUND/BLENDED CEMENT (J-15-0214)

Section 1004 in the Standard Specifications is void and superseded by the following:

1004.01 – Description

1. Portland cement is the binder in concrete, locking the aggregate into a solid structure. It is manufactured from Lime, Silica, and Alumina (with a small amount of plaster of Gypsum).

2. Equivalent alkali referred to herein is hereby defined as the sum of the Sodium Oxide (Na_20) and the Potassium Oxide (K_20) calculated as Equivalent Alkali $Na_20_e = Na_20 + 0.658\ K_20$.

3. Interground and Blended cements consist of intimate and uniform intergrinding or blending of Portland cement clinker, Slag cement, Pozzolan and/or Limestone.

1004.02 – Material Characteristics

1. Type I, Type II, Type I/II and Type III Portland cement shall conform to the requirements in ASTM C 150 with the following additional requirements:

    a. Portland cement shall not contain more than 0.60 percent equivalent alkali.

    b. Processing additions may be used in the manufacture of the cement, provided such materials have been shown to meet the requirements of ASTM C 465 and the total amount does not exceed 1 percent of the weight of Portland cement clinker.

2. Interground and Blended Cement shall conform to the requirements in ASTM C 595 with the following additional requirements:

    a. Interground/Blended cement (Type IP)

        (1) For Type IP(25) shall be composed of Class F fly ash or Class N pozzolan replacement shall be 25% $\pm$ 2%.

        (2) For Type IP(20) shall be composed of Class F fly ash or Class N pozzolan replacement shall be 20% + 2%.

    b. Interground/Blended cement (Type IT)

        (1) For SCMs, Slag cement and Limestone, the maximum replacement by weight shall be 40%. The manufacturer has a production tolerance of $\pm$ 2% from the proposed replacement.

        (2) For Slag Cement, the maximum replacement shall be 20% or less when incorporated into the final Interground/Blended cement.

        (3) For Limestone cement, the replacement range shall be from 5.1% to 10.0% when incorporated into the final Interground/Blended cement.

    c. No additional SCMs, Slag cement and Limestone will be added at the batch plant.

1004.03 – Procedures

1. The Contractor shall provide adequate protection for the Portland and Interground/Blended cement against dampness.

    a. Portland and Interground/Blended cement shall be hauled or stored in railroad cars, dry bulk trailers or in suitable moisture-proof buildings.

    b. The use of tarpaulins for the protection of the Portland and Interground/Blended cement against moisture will not be allowed.

2. No Portland and Interground/Blended cement which has become caked or lumpy shall be used.

3. Portland and Interground/Blended cement which has been spilled shall not be used.

4. Accepted Portland and Interground/Blended cement which has been held in storage at the concrete mix plant more than 90 days shall be retested.

5. Portland and Interground/Blended cement coming directly from the manufacturer shall not be used until the temperature is 150°F or less.

6. Portland cement having false set when tested in accordance with in ASTM C 150 will not be used.

1004.04 – Acceptance Requirements

1. For Department projects, Portland and Interground/Blended cements must be on the NDR Approved Product List (APL).

2. The Contractor shall submit any new Portland and Interground/Blended cements to the Engineer to be approved for the APL with the following:

    a. Material source information:

        1) Mill Location

        2) Type of Portland and Interground/Blended cements

        3) Grinding Period

        4) Associated Manufacture Product Name

        5) Provide source and type of each SCMs and/or Slag Cement used for final product.
            (i) The Department will allow the use of ASTM C 1697.
                a. When two or more SCMs and/or Slag Cement are pre-blended, the Contractor shall report chemical composition analysis of the final blend.
                b. The final blend shall be reported as per ASTM C 1697, Paragraph 4.

        6) Portland cement shall conform to ASTM C 150.

        7) Interground/blended cements shall conform to ASTM C 595.

        8) Provide total cementitious materials replacement per ASTM C 595.

        9) Report test results per ASTM C 1567 at 28-days.

3. Alkali Silica Reaction Requirements and Testing:

    a. Interground/Blended cement shall be tested according to the provisions of ASTM C 1567.

        (1) The mortar bars shall be composed of Type IP or IT Interground/blended cement and sand and gravel from an approved Platte River Valley-Saunders County source.
            i. When Elkhorn River-Madison County source or an out of state aggregate source and type IP(20) or IT cement is being used on a project, the Elkhorn River or an out of state aggregate source shall be used in lieu of the Platte River Valley-Saunders County source.
            ii. When Contractor proposes a change of aggregate source, then the new aggregate source shall be tested by ASTM C 1567.

        (2) The mortar bars for the ASTM C 1567 shall not exceed 0.10% expansion at 28 days.
            i. To accommodate precision within multi-laboratory testing, expansion up to and including 0.13% will be accepted for use. If the expansion is above 0.13%, the material is noncompliant. If tolerance problems are not corrected within 30 days following notification, the Interground/blended cement in question will be removed from the NDR's APL.

4. Portland and Interground/Blended cements will be placed on NDR's APL based on the conformance with the NDR's Acceptance Policy Portland and Interground/Blended Cements.

1004.05 - Sampling and Testing Requirements

1. All Portland and Interground/Blended cements shall be sampled and tested at the rate as described in the NDR's Materials Sampling Guide.

    a. The Department will inform the Contractor when a sample is required.

    b. A sample shall be taken by a Contractor's Certified Portland Cement Sampler and must be under the supervision of Department certified personnel.

    c. The sample shall be taken at the plant from a bulk shipment of a rail car, dry bulk trailer, batch plant silo or from the line between the bulk truck and the silo. Upon sampling, the Department will take immediate custody of the sample.

    d. When Elkhorn River aggregate- Madison County source or an out of state aggregate source and type IP(20) or IT cement is being used on a project, the Elkhorn River or an out of state aggregate source shall be used in lieu of the Platte River Valley aggregate source.

2. Noncompliant material from the mill, terminal or project will be temporarily removed from the Approved Products List pending further investigation.

3. If the noncompliant Portland or Interground/Blended cement is removed from the Approval Products List, all shipments from the supplier will be held until the investigation

of the failing samples have been completed by the NDR Materials and Research Division. These procedures shall be in accordance with this provision.

WATER FOR CONCRETE
(J-15-0214)

Section 1005 in the Standard Specifications is void and superseded by the following:

1005.01 – Description

1. Water shall be free from objectionable quantities of oil, acid, alkali, salt, organic matter, or other deleterious materials and shall not be used until the source of supply has been approved.

2. Wash water from the mixer washout may be used only with the Engineer's approval. Use of wash water will be discontinued if undesirable reaction with admixtures or aggregates occurs.

1005.02 – Material Characteristics

1. Water which contains more than 0.25 percent total solids by weight shall not be used.

2. When required by the Engineer, the quality of mixing water shall be determined by NDR C 114, NDR T 290, NDR D 512, NDR C 1602, ASTM C 31, ASTM C 109, ASTM C 191, and ASTM C 1603.

3. Upon written request by the concrete producer and approval by Materials and Research, the concrete producer may utilize up to 10% wash water for batching all classes of concrete with the following conditions:

    a. Wash water shall conform to the requirements in NDR's Material Sampling Guide under Policy for Certification of Ready Mix Plants.

    b. Wash water must be clarified wash water that has been passed through a settling pond system.

    c. Wash water must be scalped off of a settling basin that has been undisturbed for a minimum of 12 hours.

    d. Wash water must be metered into each load.

    e. Wash water quantities shall be shown on the batch ticket.

CALCIUM CHLORIDE
(J-15-0214)

Section 1006 of the Standard Specifications is void and superseded by the following:

1006.01 – Description

Calcium Chloride shall be Type S (Solid) or Type L (Liquid). Calcium Chloride can be used for; but not limited to, dust control and acceleration of the set of concrete.

1006.02 – Material Characteristics

The requirements for calcium chloride shall be tested in accordance with ASTM D 98.

1006.03 – Acceptance Requirements

Acceptance shall be based on requirements contained in the NDR Materials Sampling Guide.

SECTION 1007 -- CHEMICAL ADMIXTURES (J-15-0214)

Section 1007 in the Standard Specifications is void and superseded by the following:

1007.01 -- Description

1. Admixtures are materials added to Portland cement concrete to change characteristics such as workability, strength, permeability, freezing point, and curing.

2. The Department's concrete admixture types are:

    a. Type A - Water-Reducing Admixture - An admixture that reduces the quantity of mixing water required to produce concrete of a given slump.

    b. Type B - Retarding Admixture - An admixture that slows the setting of concrete.

    c. Type C - Accelerating Admixture - An admixture that speeds the setting and early strength development of concrete.

    d. Type D - Water-Reducing and Retarding Admixture - An admixture that reduces the quantity of mixing water required to produce concrete of a given slump and slows the setting of concrete.

    e. Type E - Water-Reducing and Accelerating Admixture - An admixture that reduces the quantity of mixing water required to produce concrete of a given slump and speeds the setting and early strength development of concrete.

    f. Type F - Water-Reducing, High Range Admixture - An admixture that reduces the quantity of mixing water required to produce concrete of a given slump by 12 percent or greater.

    g. Type G - Water-Reducing, High Range and Retarding Admixture - An admixture that reduces the quantity of mixing water required to produce concrete of a given slump by 12 percent or greater and slows the setting of concrete.

    h. Air-Entraining - An admixture that encapsulates air in the concrete.

    i. Lithium Nitrate – An admixture used to control the Akali Silica Reaction (ASR) in concrete.

1007.02 -- Material Characteristics

1. Type A through G admixtures shall meet the requirements in ASTM C 494.

2. Air-entraining admixtures shall meet the requirements in ASTM C 260.

3. Use of admixtures other than those cited may be requested by the Contractor.

4. Admixtures shall not contain more than 1 percent of chlorides calculated as calcium chloride unless specified otherwise in the Specification.

5. Admixtures shall be used at the manufacturer's recommended dosage rates.

6. The air-entraining admixture characteristics shall produce concrete with satisfactory workability and total air content as prescribed in Table 1002.02.

7. a. When using the Lithium Nitrate admixture, the Contractor shall submit to the Engineer:
   (i) A five pound sample of Portland cement that will be used on the project.
   (ii) The Manufacturer's method for determining the recommendation for the required dose rate based on the equivalent alkali content.
   (iii) Water content of the Lithium Nitrate admixture solution.

   b. The Engineer will report the equivalent alkali content to the Contractor. The Contractor shall use the reported equivalent alkali content to determine the required dose rate based on the manufacturer's recommendation.

1007.03 -- Procedures

1. The process for adding admixtures to a ready mix truck on the project site involves positioning the load of concrete up to the truck chute, stopping short of discharge.

   a. The admixture is then poured over the surface of the concrete and mixed for at least 5 minutes.

   b. No more than 1.3 gallons of water shall be used to rinse the admixture from the fins and top chute. This water must be shown on the proportioning report and shall not exceed the water cement ratio.

   c. When Lithium Nitrate is used, the portion of the admixture that is water will be shown on the proportioning report and shall not exceed the water cement ratio.

   d. The Contractor is responsible for the addition of the admixture.

2. a. If the air content is less than the minimum specified, addition of air-entraining admixtures is allowed.

   b. The Contractor shall take measures based on manufacturer's recommendations, that are within compliance of NDR Specifications, to bring the load of concrete into NDR prescribed limits according to Table 1002.02.

c. If the air content is then outside the limits in Table 1002.02, the load of concrete shall be rejected.

1007.04 -- Acceptance Requirements

1. a. Approved chemical admixtures are shown on the NDR Approved Products List.

   b. Admixture approval shall be based upon annual certifications and certified test results submitted to the NDR Materials and Research Division.

2. The admixture must be essentially identical in concentration, composition, and performance to the admixture tested for certification.

3. Admixtures not identified on the NDR Approved Products List may be used under the following conditions:

   a. A certificate of compliance and certified test results must be submitted to the NDR Materials and Research Division and approval for use must be given by the NDR Materials and Research Division.

SILICA FUME
(J-15-0307)

Paragraph 2 of Subsection 1009.03 in the Standard Specifications is void and superseded by the following:

2. Silica fume shall be protected from temperatures in excess of 90°F (32°C).

LIQUID MEMBRANE-FORMING COMPOUNDS FOR CURING CONCRETE
(J-15-0307)

Subsection 1012.03 in the Standard Specifications is void and superseded by the following:

1012.03 – Acceptance Requirements

1. All curing compounds to be approved must be from the current calendar year with no carry-over from the previous years.

2. Approved compounds are on the NDR Approved Products List.

3. Products not on the NDR Approved Products List shall be sampled and tested in accordance with requirements of the NDR Materials Sampling Guide.

BITUMINOUS LIQUID COMPOUNDS FOR CURING CONCRETE (J-15-1007)

Section 1013 in the Standard Specifications is void and superseded by the following:

1013.01 – Description

The compound shall consist essentially of an asphaltic base and shall be of a consistency suitable for spraying at temperatures existing at the time of construction operations. It shall form a continuous, uniform film. It shall be free of precipitated matter caused by conditions of storage or temperature. The compounds shall be relatively nontoxic.

1013.02 – Material Characteristics

a. When tested in accordance with AASHTO T 155, the loss of water shall not be more than 0.11 lb/ft^2 (0.55 kg/m^2) of surface area at 3 days, unless otherwise specified by the Engineer.

b. The Contractor has the option of using bituminous tack coat. The tack coat shall conform to all requirements of Section 504.

1013.03 – Acceptance Requirements

Products shall be sampled and tested in accordance with requirements of the NDR Materials Sampling Guide.

JOINT AND CRACK SEALING FILLER (J-15-0813)

Section 1014 in the Standard Specifications is void and superseded by the following:

1014.01 – Description

Joint sealing filler shall be either a cold applied silicone product or an asphalt product (hot pour) conforming to the requirements of this Section. The type of joint filler to be used shall be as specified in the plans or special provisions. If not specified, any of the joint sealing fillers in this Section may be used.

Crack sealing filler shall be a hot pour sealer conforming to the requirements of this Section.

1014.02 -- Material Characteristics

1. NE-3405 and NE-3405LM (hot pour)

   a. NE-3405 joint and crack sealer shall conform to the requirements of ASTM D6690, Type II. The material shall conform to the requirements of Table 1 with the following exception:

      (i) The test of Bond, non-immersed, ASTM D5329, 3 specimens through 3 cycles shall be run at 0°F (-18°C), 100% extension.

b. NE-3405LM (Low Modulus) joint and crack sealer shall conform to the requirements of ASTM D6690, Type IV. The material shall conform to the requirements of Table 1.

c. The test of Bond, non-immersed, ASTM-D5329, will be tested on concrete blocks that will be constructed by the NDR Concrete Laboratory. The concrete blocks will be made of a 47B concrete mixture as prescribed in Section 1002 in the NDR Standard Specifications. The design is amended so that no fly ash is used in the mixture. All other specifications for Portland Cement Concrete apply.

d. Sample conditioning, preparation and heating shall be in accordance with ASTM D 5167 with the following exceptions:

(i) The following sentence of Section 8.1.2, “Also, if present, remove container liner by cutting it away”, is void and superseded by the following:

> “Also, if present, as much of the polyethylene bag as possible, shall be removed by cutting it away. Wholly-meltable type container in contact with the sample section shall be left in place.”

(ii) The last sentence of Section 8.1.2 “Solid Materials” is void and superseded by the following:

> The entire vertical section which has been cut, shall be placed into the pot for melting.

(iii) The Section of 8.2.2.1 “Solid Materials” is void.

(iv) The Section of 8.2.3 is void and superseded by the following:

> After the solid segment is added to the melter, the material shall be allowed to minimally melt to a uniform viscous state suitable for the installation of the stirrer or paddle. The sample shall then be stirred for one full hour. The oil bath temperature shall be regulated to bring the material to the maximum heating temperature within the one hour of stirring.

(v) The Section of 8.2.4.1 is void and superseded by the following:

> During the one full hour of stirring, check the temperature of the material at maximum 15 minute intervals using a Type K thermocouple with the calibration verified in accordance with Section 6.1.7 to ensure conformance with specified temperature requirements. Stop the mechanical stirrer when measuring temperatures. If material temperatures ever exceed the maximum heating temperature, or ever drop below the minimum application temperature after the maximum heating temperature was reached, discard the sample and re-do the heating. Maintain appropriate records of times and temperatures to verify conformance with specification requirements.

(vi) The Section of 8.2.4.2 is void.

e. ASTM D 5329 shall include the following changes:

(i) Sections 6.4 and 12.4 “Specimen Preparation” shall have the reference of “177 ml (6 oz.)” replaced with “3 oz.”

(ii) Section 6 “Cone Penetration, Non-Immersed” shall be superseded with the following exceptions:

1. Section 6.5 “Procedure” is void and superseded by the following:

Place the specimen in a water bath maintained at 77 +/- 0.2°F (25 +/- 0.1°C) for two hours immediately before testing. Remove the specimen from the bath and dry the surface by shaking gently to remove free water from the surface of the specimen. Using the apparatus described in Section 6.3, make one determination at or near the center of the specimen. Take care to ensure the cone point is placed on a point in the specimen that is representative of the material itself, and is free of dust, water, bubbles, or other foreign material.

2. Section 6.6 “Report” is void and superseded by the following:

Record the value as penetration of the specimen in dmm units.

(iii) Section 12 “Resilience” shall be superseded with the following exceptions:

1. Section 12.5 “Procedure”, void the sentence “Make determinations at three points equally spaced from each other and less than 13mm (½ inch) from the container rim” and supersede with the sentence “Make one determination at or near the center of the tin.”

2. Section 12.6 “Report” is void.

2. Silicone Joint Sealer (cold applied)

   a. Silicone joint sealers may be either self-leveling or non-sag and shall meet the requirements in Table 1014.01.

Table 1014.01

Silicone Joint Sealer Requirement		
Property	**Requirement**	**Test**
As supplied:		
Specific Gravity	1.010-1.515	ASTM D792
Work Time, minimum	10 minutes	
Tack-Free, at 25°C	20-360 minutes	
Cure Time, at 25°C, maximum	14 days	
Full Adhesion, maximum	21 days	
As cured, at 25°C + 1.5		
Elongation, minimum	800%	ASTM D412
Durometer		
Non-Sag, Shore A	10-25	ASTM D2240
Self-Leveling, Shore 00, minimum	40	ASTM D2240
Joint Movement Capacity	+100% to -50%	ASTM C719
Tensile Stress, at 150% Elongation	45 psi	ASTM D412

1014.03 -- Packaging

1. NE-3405 and NE-3405LM

   a. The joint and crack sealer can be packaged in either cardboard box of wholly-meltable type containers.

      (i) Cardboard box containers shall be manufactured from double wall kraft board producing a minimum bursting test certification of 350 PSI (241 N/cm^2) and using water-resistant adhesives. The use of metal staples or fasteners of any kind will be prohibited for closing the lids of the boxes. Tape or other like material is acceptable.

         a. The joint and crack sealer shall be in meltable [300°F (149°C)] polyethylene bag(s).

      (ii) Wholly-meltable type containers, and any of their components, shall be fully meltable and integrational with the joint and crack sealer by the time the manufacturer's minimum application temperature is reached.

         a. The wholly-melted and integrated container must not adversely affect the test specifications of the joint and crack sealer.

2. Silicone Joint Sealer

   a. Each container shall include information regarding manufacturer and product name.

1014.04 -- Acceptance Requirements

1. NE-3405 and NE-3405LM

    a. Acceptance of the manufactured material is based on pre-approval by either on or off-site sampling. Acceptable hot pour sealant lots are listed on the NDR Approved Products List.

        (i) NDR on-site field sampling shall be in accordance with the NDR Materials Sampling Guide.

        (ii) Off-site (Proxy) sampling shall be in accordance with ASTM D 6690.

            1. Proxy sampling shall be overseen by an outside party approved by the NDR, preferably another DOT Agency. Proxy samples shall include a manufacturer's Certificate of Compliance. Proxy samples shall also include a dated signature of origin by the Representative that is not affiliated with the manufacturer, and can either be on the Certificate of Compliance, or separate letter.

            2. For convenience in both sampling and shipping samples, sample containers smaller than a manufacturer's usual production containers are allowed, as long as the sample is 1500 grams min.

            3. Samples shall be sent to the NDR Bituminous Laboratory, or alternatively, sent to an NDR-approved independent laboratory for testing which will be at no cost to the Department. If a NDR-approved independent laboratory will be used for testing purposes, the NDR Bituminous Laboratory must be notified so that NDR concrete blocks for Bond testing can be sent to it.

2. Silicone Joint Sealer

    a. Acceptance of applied silicone joint sealers shall be in accordance with the NDR *Materials Sampling Guide*.

    b. Acceptable silicone joint sealer manufacturer products are listed on the NDR Approved Products List.

        (i) For products that are not listed, approval may be based upon test results from an independent laboratory submitted to the NDR Concrete Materials Section by the manufacturer, and testing by the NDR. Approval must be made prior to product use.

EPOXY COMPOUNDS AND ADHESIVES
(J-15-0308)

Section 1018 in the Standard Specifications is void and superseded by the following:

1018.01 – Description

This specification provides requirements for two-component, epoxy-resin bonding systems for use in non-load bearing applications and resin adhesives for application to Portland cement concrete.

1018.02 – Material Characteristics

1. Epoxy-resin bonding systems shall conform to the requirements of ASTM C 881. Approved systems are shown on the NDR Approved Products List.

2. The classification of Epoxy-Resin Bonding Systems is as follows:

a.	Type I	For use in non-load bearing applications for bonding hardened concrete and other material to hardened concrete.
	Type II	For use in non-load bearing applications for bonding freshly mixed concrete to hardened concrete.
	Type III	For use in bonding skid resistant materials to hardened concrete, and as a binder in epoxy mortars or epoxy concretes.
b.	Grade 1	Low viscosity.
	Grade 2	Medium viscosity.
	Grade 3	Non-sagging consistency.
c.	Class A	For use below 40°F (4°C); the lowest allowable temperature to be defined by the manufacturer of the product.
	Class B	For use between 40°F and 60°F (4°C and 15°C).
	Class C	For use above 60°F (15°C); the highest allowable temperature to be defined by the manufacturer of the product.
	Class D	For use between 40°F and 65°F (4°C and 18° C).
	Class E	For use between 60°F and 80°F (15°C and 26°C).
	Class F	For use between 75°F and 90°F (24°C and 32°C).

1018.03 – Procedures

1. The compounds shall be of the type and grade specified in the plans or as directed by the Engineer.

2. The class of the compounds shall be selected for use according to climatic conditions at the time of application.

3. All bonding surfaces shall be clean and free of all oil, dirt, grease, or any other materials which would prevent bonding.

4. Mixing and application shall be in strict accordance with the manufacturer's instructions.

1018.04 – Acceptance Requirements

1. Epoxy-resin bonding systems and resin adhesives approved for use are shown on the NDR Approved Products List.

2. Epoxy-resin bonding systems that are not on the NDR Approved Products List may be accepted based on a manufacturer's certificate of compliance.

DEFORMED METAL CENTER JOINT AND METAL KEYWAY (J-15-0307)

Paragraph 1 a. of Subsection 1027.01 in the Standard Specifications is void and superseded by the following:

a. Metal Center Joint:

Metal center joint sections shall be manufactured from sheets no less than 18 gauge [0.05 inch (1.3 mm)] thick and shall be of the size and trapezoidal shape shown in the plans. The sections shall be punched along the centerline of the narrow face of the trapezoid to admit the tie bars required by the plans and also at intervals of not greater than 2 feet (600 mm) to receive pins that are driven vertically into the subgrade to support the metal center joint.

AGGREGATES (J-15-0914)

Subsection 1033.01 is amended to include the following paragraphs and Subsection 1033.02, Paragraphs 1 and 3. of the Standard Specifications is void and superseded by the following:

1033.01 – Description

This combined aggregate gradation using Class R aggregate is to optimize aggregate blends utilizing more locally available materials.

Achieving a uniform gradation for Class R may require the use of two or more different aggregates. It is the responsibility of the contractor to consider additional material characteristics; such as, but not limited to particle shape, cubicity, angularity, etc., when designing a mix.

1033.02 -- Material Characteristics

1. Sampling and Testing Procedures:

All materials shall be sampled and tested in accordance with Table 1033.01. All material source locations and quarries must be approved by the Department for prior to use.

Table 1033.01

Sampling and Testing Procedures	
Procedure	**Method**
Sampling	NDR T 2
Sieve Analysis	NDR T 27
Clay Lumps, Shale, and Soft Particles	NDR T 504
Abrasion	AASHTO T 96
Freeze and Thaw Soundness	NDR T 103
Specific Gravity and Absorption (course aggregate)	AASHTO T 85
Specific Gravity and Absorption (fine aggregate)	AASHTO T 84
Total Evaporable Moisture Content of Aggregates by Drying	AASTHO T 255
Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test	AASTHO T 176
Sodium Sulfate Soundness	AASHTO T 104
Calcium Carbonate	NDR C 25
Organic Impurities	AASHTO T 21
Mortar-Making Properties	AASHTO T 71
Reducing Field Samples of Aggregate to Testing Size	AASHTO T 248

2. Portland Cement Concrete Aggregates:

a. Sand-Gravel Aggregate:

(1) Aggregate shall be washed and composed of clean, hard, durable and uncoated particles.

(2) Aggregates produced from wet pits by pumping must be adequately washed by means approved by the Department.

(3) Aggregates from dry pits shall be adequately washed by means approved by the Department and have a Sand Equivalent value not less than 90 in accordance with AASTHO T 176.

(i) If the Sand Equivalent is less than 90, the Engineer may elect to stop aggregate production until such a time ASTM C 109 has been completed. The aggregate, when subjected to the test for mortar-making properties, shall produce a mortar having a compressive strength at the age of 7 days equal to or greater than that developed by mortar of the same proportions and consistency made of the same cement and aggregate after the aggregate has been washed to a sand equivalent greater than 90. Materials failing to produce equal or greater strength shall be unacceptable.

(4) Aggregate for concrete shall have a soundness loss of not more than 10% by weight at the end of 5 cycles using Sodium Sulfate Soundness test AASHTO T 104.

(5) The weight of the aggregate shall not contain more than 0.5% clay lumps.

(6) Aggregate subjected to the colorimetric test for organic impurities which produces a color darker than the standard shall be further tested for its mortar-making properties in accordance with AASHTO T 71. The Engineer may elect to stop aggregate production until such a time AASHTO T 71 testing has been completed.

(i) Aggregate, when subjected to the test for mortar-making properties, shall produce a mortar having a compressive strength at the age of 7 days equal to or greater than that developed by mortar of the same proportions and consistency made of the same cement and aggregate after the aggregate has been treated in a 3% solution of sodium hydroxide. Materials failing to produce equal or greater strength shall be unacceptable, except when determined to be acceptable under the provisions of Subsection 105.03.

(7) Aggregate shall meet the requirement in Tables 1033.02A, 1033.02B and 1033.03C.

Table 1033.02A

		Percentage	Percent Passing									
			1½"	1"	¾"	½"	3/8	No.4	No.10	No.20	No.30	No.200
AGGREGATE SPECIFICATION RANGE	**Class A**	Max Min	--	--	--	--	**100**	**100** **92**	**90** **64**	--	**40** **10**	**3** **0**
	Class B	Max Min	--	**100**	--	--	--	**97** **77**	**70** **50**	--	**40** **16**	**3** **0**
	Class C	Max Min	--	**100**	--	--	--	**88** **44**	**50** **24**	--	**20** **4**	**3** **0**

Table 1033.02B

Aggregate Classes and Uses	
Aggregate Class	**Concrete Description**
A	Overlay Concrete SF
B	47BD, 47B-HE, 47B-OL, PR 1 and PR 3
C	BX

b. Ledge Rock Aggregate:

(1) Aggregate shall consist of Limestone, Quartzite, Dolomite, Gravel and Granite composed of clean, hard, durable, and uncoated particles.

(2) The percent of clay lumps, shale, or soft particles shall not exceed the following amounts:

Clay Lumps	0.5%
Shale	1.0%
Soft Particles	3.5%

(3) Any combination of clay lumps, shale, and soft particles shall not exceed 3.5%.

(4) Aggregate for concrete shall be free of coatings that will inhibit bond and free of injurious quantities of loam, alkali, organic matter, thin or laminated pieces, chert, or other deleterious substances as determined by the Engineer.

(5) Aggregate for concrete shall not have a soundness loss greater than 8.0% by weight at the completion of 16 cycles of alternate freezing and thawing.

(6) Aggregates for concrete shall have a Los Angeles Abrasion loss percentage of not more than 40.

(7) All fractions passing the No.4 sieve shall meet quality requirement of soundness loss of not more than 10% by weight at the end of 5 cycles using sodium sulfate solution.

(8) The ledge rock shall be tested according to ASTM C 1260.

(a) The mortar bars for the ASTM C 1260 shall not exceed 0.10% expansion at 28 days.

(i) If the proposed ledge rock exceeds 0.10% expansion at 28 days, the ledge rock shall be tested in accordance to ASTM C 1567. If the expansion is greater than 0.10%, the ledge aggregate shall not be used.

a. The ASTM C 1567 mortar bars shall be composed of Type IP or IT Interground/blended cement and the proposed Ledge Rock aggregate.

b. To accommodate precision within multi-laboratory testing, expansion up to and including 0.13% will be accepted for use. If the expansion is above 0.13%, the material is noncompliant.

(9) Aggregate shall meet the requirements in Tables 1033.03A, B, and C.

Table 1033.03A

		Percent	**Percent Passing**									
			1 ½"	**1"**	**¾"**	**½"**	**3/8**	**No.4**	**No.10**	**No.20**	**No.30**	**No.200**
AGGREGATE SPECIFICATION RANGE	**Class E**	Max Min	**100**	**100 92**	**90 66**	**--**	**45 15**	**12 0**	**--**	***4 0**	**--**	**3 0**
	Class F	Max Min	**--**	**--**	**100**	**100 96**	**90 40**	**30 4**	**8 0**	**--**	**--**	**3 0**

*If the No. 200 sieve is less than 1.5% passing the No.20 sieve could be increased to maximum of 6% passing.

Table 1033.03B

Aggregate Classes and Uses	
Aggregate Class	**Concrete Description**
E	47BD, 47B-HE, PR 1 and PR 3
F	47B-OL, Overlay Concrete SF

c. Combined Aggregates:

(1) The Contractor shall design and meet the specification requirements. It is the Contractor's responsibility to provide desirable mix properties; such as, but not limited to, workability, resistance to segregation, stable air void system, good finishing properties and good consolidation properties.

(2) The combined blended aggregate shall meet the requirement in Table 1033.03C and 1033.03D.

Table 1033.03C

*Class R - Combined Aggregate Gradation Limits (Percent Passing)								
Sieve Size	**1 ½ inch**	**1 inch**	**3/4 inch**	**No.4**	**No.10**	**No.30**	**No. 50**	**No.200**
Max	100	100	98.0	70.0	50.0	30.0	12.0	3.0
Min	-	92.0	85.0	45.0	31.0	8.0	2.0	0

***** Refer to Subsection 1002.04, Paragraph 1.b.(8) for the traditional 47B Mix Design

Table 1033.03D

Aggregate Classes and Uses	
Aggregate Class	**Concrete Description**
R	47B

d. Aggregate Production and Testing:

(1) Any change greater than 3% in the original verified constituent percentage of the combined aggregates gradation will be considered non-compliant. Any change of the combined gradation targets must remain within the Combined Aggregate Gradation Limits in Table 1033.03C. The Contractor shall resubmit a new mix design if the material is deemed non-compliant in accordance with Subsection 1002.04, Paragraph 1.

(2) The blended gradation tolerance ranges from the approved mix design are established in Table 1033.03E.

(i) The Contractor shall assume the responsibility to cease operations when the specifications are not met. Production shall not be started again without the approval of the Engineer.

Table 1033.03E Blended Aggregate Production Tolerances

Sieve Size	Tolerances
No. 4 or greater	± 5%
No. 10 to No. 30	± 4%
No. 50	± 3%
Minus No. 200	± 1%

(3) Ledge rock and aggregate from a dry pit shall be uniformly saturated with water before it is used. The wetting shall begin 24 hours before concrete mixing to allow complete saturation.

DOWEL BARS
(J-15-0812)

Paragraph 1.c. of Subsection 1022.01 in the Standard Specifications is void and superseded by the following:

1. c. Both Type A and Type B coated dowel bars shall be coated with a bond breaker shown on the NDR Approved Products List, dipped in asphalt or paraffin, or greased in accordance with the specified requirements as shown in the Standard Plans.

EPOXY COATED REINFORCING STEEL
(J-15-0509)

Paragraph 5. of Subsection 1021.03 in the Standard Specifications is void and superseded by the following:

5. In order to protect the coated reinforcement from damage, the Contractor shall use padded or nonmetallic slings and padded straps. Bundled bars shall be handled in a manner which will prevent excessive sagging of bars which will damage the coating. If circumstances require storing coated steel reinforcing bars outdoors for more than two months, protective storage measures shall be implemented to protect the material from sunlight, salt spray and weather exposure. Coated steel reinforcing bars, whether individual bars or bundles of bars, or both, shall be covered with opaque polyethylene sheeting or other suitable opaque protective material. For stacked bundles, the protective covering shall be draped around the perimeter of the stack. The covering shall be secured adequately, and allow for air circulation around the bars to minimize condensation under the covering. Coated steel reinforcing bars, whether individual bars or bundles of bars, or both, shall be stored off the ground on protective cribbing. The bundled bars shall not be dropped or dragged. If, in the opinion of the Engineer, the coated bars have been extensively damaged, the material will be rejected. The Contractor may propose, for the approval of the Engineer, alternate precautionary measures.

SECTION 1038 -- PLASTIC PIPE
(J-30-1014)

Section 1038 in the Standard Specifications is void and superseded by the following:

1038.01 – Description

High density polyethylene (HDPE), polyvinyl chloride (PVC), and other NDR approved plastic pipes are authorized for use as stipulated in the contract documents.

1038.02 -- Material Characteristics

1. High density polyethylene (HDPE) pipes and fittings shall conform to the following Specification requirements for the size required:

Table 1038.01
Polyethylene Pipe

English Size (Metric)	Specification	Description
15 to 36 in (375 to 900 mm)	AASHTO M 294	Corrugated Polyethylene Pipe, Type C (Cell Class 335420C)
15 to 60 in (375 to 1500 mm)	AASHTO M 294	Corrugated Polyethylene Pipe, Type S (Cell Class 335420C)
15 to 60 in (375 to 1500 mm)	ASTM F 894	Profile Wall, OP, RSC 160 (Cell Class 335434C)
15 to 60 in (375 to 1500 mm)	ASTM F 2562	Steel Reinforced Thermoplastic Ribbed Pipe (Cell Class 345464C)

2. Polyvinyl Chloride (PVC) [Cell Classification 12454C or 12364C (as determined by ASTM D-1784) if applicable] pipe and fittings shall conform to the following Specification requirements for the size required:

Table 1038.02
Polyvinyl Chloride Pipe

English Size (Metric)	Specification	Description
18 to 48 in (450 to 1200 mm)	ASTM F 679	Gravity Sewer Pipe & Fittings
15 to 48 in (375 to 1200 mm)	ASTM F 794	Profile Gravity Sewer Pipe & Fittings, DWCP, OP, Series 46
15 to 48 in (375 to 1200 mm)	ASTM F 949	Corrugated Sewer Pipe w/smooth Interior with Fittings
15 in (375 mm)	ASTM D 2680	Composite Sewer Pipe
15 in (375 mm)	ASTM D 3034	Type PSM Sewer Pipe & Fittings, SDR 35

3. Plastic pipe for underdrains shall conform to the requirements of AASHTO M 252, ASTM F 405, ASTM F 794 or ASTM F 949 for perforated or non-perforated pipe. Perforations for ASTM F 794 PVC pipe shall be slotted as per ASTM F 949.

4. Metal flared-end sections shall conform to the requirements in Section 1036.

5. A 10 foot (3 m) sample of each size and type of plastic pipe shall be sent to the NDR Materials and Tests Laboratory in Lincoln for testing, before being incorporated into the project.

1038.03 -- Acceptance Requirements

Plastic pipe will be accepted based on the requirements of this Section and sampling and testing requirements in accordance with the *NDR Materials Sampling Guide.*

PROPOSAL GUARANTY
(A-40-0307)

As an evidence of good faith in submitting a bid for this work, the bidder shall indicate the type of bid bond applied to this project in accordance with the Proposal Guaranty Bid Bond Section of these Special Provisions.

* * * * *

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SCHEDULE OF ITEMS

CONTRACT ID: 2559 PROJECT(S): STR-6-7(1051)

CALL ORDER NO. : 200

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
	SECTION 0001 GROUP 1 GRADING					
0001	0030.10 MOBILIZATION	LUMP	LUMP			.
0002	1033.00 ROADWAY GRADING	0.460 STA	.			.
0003	1101.00 REMOVE PAVEMENT	1304.000 SY	.			.
0004	1102.00 REMOVE ASPHALT SURFACE	176.000 SY	.			.
0005	1109.20 REMOVE CONCRETE BARRIER	99.000 LF	.			.
0006	7017.00 REMOVE GUARDRAIL	986.000 LF	.			.
0007	L019.13 EROSION CONTROL, CLASS 1D	1290.000 SY	.			.
	SECTION 0001 TOTAL					.
	SECTION 0002 GROUP 3 CONCRETE PAVEMENT					
0008	0030.30 MOBILIZATION	LUMP	LUMP			.

SCHEDULE OF ITEMS

CONTRACT ID: 2559 PROJECT(S): STR-6-7(1051)

CALL ORDER NO. : 200

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0009	1011.00 WATER	4.000 MGAL	30.00000		120.00	
0010	3008.05 TIE BARS	327.000 EACH	.		.	
0011	3075.12 6" CONCRETE PAVEMENT, CLASS 47B-3500	389.000 SY	.		.	
0012	4004.50 CAST IRON GRATE AND FRAME	1320.000 LB	.		.	
0013	4024.74 CONCRETE FLUME, TYPE V	2.000 EACH	.		.	
0014	4040.00 REMOVE HEADWALLS FROM CULVERTS	2.000 EACH	.		.	
0015	4105.59 CLASS 47B-3000 CONCRETE FOR INLET AND JUNCTION BOX	2.200 CY	.		.	
0016	4107.50 CLASS 47B-3000 CONCRETE FOR SPLASH BASIN	1.920 CY	.		.	
0017	4154.50 REINFORCING STEEL FOR SPLASH BASIN	120.000 LB	.		.	
0018	4155.50 REINFORCING STEEL FOR INLET AND JUNCTION BOX	210.000 LB	.		.	
0019	7515.36 5" WHITE WET REFLECTIVE POLYUREA PAVEMENT MARKING, GROOVED	10500.000 LF	.		.	

SCHEDULE OF ITEMS

CONTRACT ID: 2559 PROJECT(S): STR-6-7(1051)

CALL ORDER NO. : 200

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0020	7515.38 12" WHITE WET REFLECTIVE POLYUREA PAVEMENT MARKING, GROOVED	3400.000 LF		.		.
0021	7516.35 5" YELLOW WET REFLECTIVE POLYUREA PAVEMENT MARKING, GROOVED	4500.000 LF		.		.
0022	9170.00 EARTH SHOULDER CONSTRUCTION	9.460 STA		.		.
0023	9173.20 SUBGRADE PREPARATION	389.000 SY		.		.
0024	A080.22 STREET LIGHTING CABLE, NO. 6 BARE	355.000 LF		.		.
0025	A080.24 STREET LIGHTING CABLE, NO. 6 USE	710.000 LF		.		.
0026	P402.15 15" CULVERT PIPE, TYPE 3,4,5 OR 6	303.000 LF		.		.
	SECTION 0002 TOTAL					.

SECTION 0003 GROUP 6 BRIDGE AT STA. 105+49
THREE SPAN PRE-STRESSED CONCRETE I BEAM BRIDGE - REPAIRS

0027	0030.60 MOBILIZATION	LUMP	LUMP			.

SCHEDULE OF ITEMS

CONTRACT ID: 2559 PROJECT(S): STR-6-7(1051)

CALL ORDER NO. : 200

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0028	1030.00 EARTHWORK MEASURED IN EMBANKMENT	40.000 CY	.		.	
0029	3050.15 CONCRETE FOR PAVEMENT APPROACHES CLASS 47BD-4000	558.700 CY	.		.	
0030	3051.10 EPOXY COATED REINFORCING STEEL FOR PAVEMENT APPROACHES	98730.000 LB	.		.	
0031	6004.48 BRIDGE JOINT NOSING	40.000 CF	.		.	
0032	6005.32 PREFORMED EXPANSION JOINT, TYPE A	254.200 LF	.		.	
0033	6010.22 CLASS 47B-3000 CONCRETE FOR BRIDGE	87.800 CY	.		.	
0034	6010.26 CLASS 47BD-4000 CONCRETE FOR BRIDGE	7.400 CY	.		.	
0035	6016.20 MULTI-LAYER EPOXY POLYMER OVERLAY	4086.000 SY	.		.	
0036	6030.00 PREPARATION OF BRIDGE AT STATION 105+49	1.000 EACH	.		.	
0037	6131.23 PENETRATING CONCRETE SEALER	5880.000 SF	.		.	
0038	6131.50 EPOXY COATED REINFORCING STEEL	12750.000 LB	.		.	

SCHEDULE OF ITEMS

CONTRACT ID: 2559 PROJECT(S): STR-6-7(1051)

CALL ORDER NO. : 200

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0039	6601.15 1 1/2" CONDUIT IN BRIDGE	99.000 LF		.		.
0040	8091.00 GRANULAR BACKFILL	400.000 CY		.		.
	SECTION 0003 TOTAL					.

SECTION 0004 GROUP 7 GUARDRAIL

0041	0030.70 MOBILIZATION	LUMP	LUMP			.
0042	7011.20 W-BEAM GUARDRAIL	943.750 LF		.		.
0043	7020.00 BRIDGE APPROACH SECTIONS	5.000 EACH		.		.
0044	7024.25 GUARDRAIL END TREATMENT, TYPE I	1.000 EACH		.		.
	SECTION 0004 TOTAL					.

SECTION 0005 GROUP 10 GENERAL ITEMS

0045	0001.08 BARRICADE, TYPE II	33610.000 BDAY		0.50000		16805.00

SCHEDULE OF ITEMS

CONTRACT ID: 2559 PROJECT(S): STR-6-7(1051)

CALL ORDER NO. : 200

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0046	0001.10 BARRICADE, TYPE III	2410.000 BDAY		.		.
0047	0001.75 TEMPORARY SIGN DAY	140.000 EACH		.		.
0048	0001.90 SIGN DAY	14580.000 EACH		.		.
0049	0001.99 CONTRACTOR FURNISHED SIGN DAY	696.000 EACH		.		.
0050	0002.08 4" YELLOW REMOVABLE WET REFLECTIVE TAPE	5000.000 LF		.		.
0051	0002.09 4" WHITE REMOVABLE WET REFLECTIVE TAPE	7750.000 LF		.		.
0052	0002.11 4" BLACK REMOVABLE WET REFLECTIVE TAPE	6150.000 LF		.		.
0053	0002.28 TEMPORARY PAVEMENT MARKING REMOVAL	18000.000 LF		.		.
0054	0002.30 PAVEMENT MARKING REMOVAL	18400.000 LF		.		.
0055	0002.44 TEMPORARY PAVEMENT MARKING, TYPE PAINT	27500.000 LF		.		.
0056	0002.47 TEMPORARY PAVEMENT MARKING SURFACE PREPARATION	27500.000 LF		.		.

SCHEDULE OF ITEMS

CONTRACT ID: 2559 PROJECT(S): STR-6-7(1051)

CALL ORDER NO. : 200

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0057	0002.97 FLASHING ARROW PANEL	358.000 DAY		.		.
0058	0003.50 CONCRETE PROTECTION BARRIER	1600.000 LF		.		.
0059	0003.56 RELOCATE CONCRETE PROTECTION BARRIER	1600.000 LF		.		.
0060	0003.57 RELOCATE INERTIAL BARRIER SYSTEM	2.000 EACH		.		.
0061	0003.58 INERTIAL BARRIER SYSTEM	2.000 EACH		.		.
0062	0003.64 REPLACEMENT MODULE	16.000 EACH		.		.
0063	0005.10 TRAFFIC CONTROL MANAGEMENT	174.000 DAY		.		.
0064	0010.04 FIELD OFFICE	1.000 EACH		.		.
0065	0030.00 MOBILIZATION	LUMP	LUMP			.
0066	9110.01 RENTAL OF LOADER, FULLY OPERATED	10.000 HOUR		.		.
0067	9110.03 RENTAL OF DUMP TRUCK, FULLY OPERATED	10.000 HOUR		.		.

SCHEDULE OF ITEMS

CONTRACT ID: 2559 PROJECT(S): STR-6-7(1051)

CALL ORDER NO. : 200

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0068	9110.07 RENTAL OF SKID LOADER, FULLY OPERATED	10.000 HOUR		.		.
0069	9110.27 RENTAL OF CRAWLER MOUNTED HYDRAULIC EXCAVATOR, FULLY OPERATED	10.000 HOUR		.		.
0070	L022.75 TEMPORARY SILT CHECK	200.000 LF		.		.
0071	L022.90 TEMPORARY SILT FENCE	200.000 LF		.		.
0072	L860.50 ENVIRONMENTAL COMMITMENTS - CONTRACTOR COMPLIANCE	LUMP	LUMP			.
	SECTION 0005 TOTAL					.
	TOTAL BID					.