

**BASE TECHNICAL CONCEPT
JOB SPECIFIC SPECIFICATIONS**

RICN 2018-DB-007

- Holiday Restrictions
- 101.71 Substantial Completion
- 108.03 Prosecution and Progress
- 937.1000 Maintenance and Movement of Traffic Protective Devices
- 937.9901 Maintenance of Travel Lanes and Shoulders
- 926. Anchored and Unanchored Barrier for Temporary Traffic Control
- Prefabricated Bridge Units

HOLIDAY RESTRICTIONS

During the Holiday Restriction noted below, no deliveries of materials and/or equipment that impact traffic on adjacent roadways shall occur, unless approved in advance by RIDOT. No lane and/or shoulder closures allowed after 13:00 on the Friday preceding a holiday weekend.

EASTER SUNDAY

No lane and/or shoulder closures allowed on Saturday.

No Lane and/or shoulder closures allowed on Sunday until 22:00 (after 22:00, General Restrictions shall apply).

NEW YEAR'S DAY, INDEPENDENCE DAY & CHRISTMAS DAY

No lane and/or shoulder closures allowed after 13:00 on the day before the holiday.

No Lane and/or shoulder closures allowed on the holiday.

VETERANS DAY

No lane and/or shoulder closures allowed after 13:00 on the day before the holiday.

No Lane and/or shoulder closures allowed on Veterans Day until 22:00 (after 22:00 General Restrictions shall apply).

DR. MARTIN LUTHER KING JR., MEMORIAL DAY, VICTORY DAY, LABOR DAY & COLUMBUS DAY

No lane and/or shoulder closures allowed on Saturday and Sunday.

No Lane and/or shoulder closures allowed on Monday until 22:00 (after 22:00 General Restrictions shall apply).

THANKSGIVING DAY

No lane and/or shoulder closures allowed after 13:00 on the Wednesday preceding Thanksgiving Day.

No lane and/or shoulder closures allowed on Thanksgiving Day.

No Lane and/or shoulder closures allowed on Friday, Saturday, and Sunday after Thanksgiving Day.

CODE 101.71

SUBSTANTIAL COMPLETION

101.71 SUBSTANTIAL COMPLETION. Substantial completion is when the Work is completed so it can be safely and effectively used by the public. This may include the entire project or a unit, or portion of the Work such as a structure, an interchange, or section of road or pavement.

Except as provided by other provisions in the Contract, after notice by the Contractor, Substantial Completion occurs at the point when the Engineer determines that the following Work (as applicable) has been finished:

- A. All courses of pavement are complete;
- B. All curbing and berm has been installed or placed;
- C. All bridge superstructures have been completely replaced;
- D. All concrete repairs to the substructures have been completed;
- E. All project drainage is completed;
- F. All project stormwater BMP's are completed and operational;
- G. Guardrail, terminal sections and bridge barriers are properly installed;
- H. Permanent pavement markings are completed;
- I. Regulatory and warning signs are installed;
- J. Highway lighting is operational;

The parties may agree that any incomplete Contract Work, including but not limited to landscaping, erosion control measures, or Final Cleanup, not listed in A-J above shall be completed on the Punch List, which is defined in Section 101 in the Specifications.

CODE 108.03

PROSECUTION AND PROGRESS

GENERAL REQUIREMENTS:

Project Schedule Program: The Contractor shall develop and maintain an integrated schedule management and controls program, i.e. Critical Path Method Schedule (CPM Schedule), through Completion of the Project. The Special Provisions of the Contract shall modify the schedule requirements.

- A. The Contractor's Schedule shall include all Contract requirements, including Work performed by the Contractor, subcontractors, vendors, suppliers, utility companies, regulatory agencies, the State and any other third party.
- B. The Following Schedule submittals are required:
 - 1. Preliminary Schedule
 - 2. Baseline Schedule
 - 3. Schedule Updates
 - 4. Recovery Schedule as requested by the Department.
- C. If the Contractor fails to provide an acceptable Project Baseline Schedule and Project Schedule Update in accordance with the requirements of the Contract, the Contractor shall be responsible for all delays and resulting costs to the Project.
- D. The Department may withhold progress payments if the Contractor fails to submit required Schedule Submissions.
- E. Software. The software used to generate the CPM Schedule shall be capable of producing schedules in accordance with the requirements of the Contract and fully compatible with the current software utilized by the Department, or designee. Unless otherwise specified in the Contract, the Contractor shall use terminology defined by Department's or designee's software.

GENERAL REQUIREMENTS:

The Department will provide the Contractor with templates during Schedule Development. The Schedules shall be developed and maintained in accordance with the following requirements and as approved by the Department, or designee:

- 1. Schedule Narrative: A description of the sequence of events summarizing the detailed Milestone Status, Critical Path, and all changes made to the Schedule, including Actual Dates, logic revisions, and Calendar and Duration changes.
- 2. CPM Schedule: All CPM Schedules shall utilize a Work-Breakdown Structure (WBS) developed by the Contractor. The WBS shall be used as the primary code for displaying and organizing the graphical output schedules utilized for the Project, unless otherwise directed by the Department, or designee. The basic dictionary for the WBS shall be approved by the Department, or designee in Schedule Development.

REVIEW AND APPROVAL OF SUBMITTALS:

The Department, or designee will review Schedule Submittals for conformance with the requirements of the Contract Documents. The planning, scheduling, and execution of the Work and the accuracy of any Project Schedule is the responsibility of the Contractor. The Contractor remains responsible for errors in any previously accepted Project Schedule, including but not limited to omitted activities, activity durations, relationships between activities, resource allocation, or any float suppression techniques. The Department, or designee may direct the Contractor to address and adjust schedules that do not accurately reflect the Work at any time, with no additional cost to the State. Approval or acceptance of any Project Schedule does not relieve the Contractor of any responsibility for the completion of the work in conformance with all Contract.

SCHEDULE DEVELOPMENT:

- a) The Schedule Development process shall commence on the date that the Apparent Low Bidder letter is mailed to the Contractor, which will be considered Day 1 for all Schedule Submittals.
- b) Within 30 days of the Apparent Low Bidder Letter, the Contractor will submit a Preliminary Schedule which will contain all activity data, including all logic, for all Work required to be performed within the first 120 days after the NTP.
- c) Within 90 days of the Apparent Low Bidder Letter, the Contractor will submit a Baseline Schedule which will show all Work activities and logic for the complete Contract and include a Narrative Report.

SCHEDULE UPDATES:

Meetings shall be held as directed by the Department, or designee from Notice to Proceed to the substantial completion. The Contractor shall furnish a complete and accurate Schedule Update once a month detailing of the current progress, a printed Critical Path report, a report of the days gained or lost relative to the Substantial Completion date and any other completion dates and a depiction of how future Work plans shall meet the Contract completion dates. The Contractor shall provide sufficient copies of the Schedule Updates in the format acceptable by the Department, or designee.

The Contractor shall submit three copies (paper and electronic) of the Schedule Update. Schedule Updates shall be submitted once a month even in the absence of a Schedule Update Meeting. The Department, or designee shall have 10 working days to review the Schedule Update Submittal.

The Schedule Updates shall contain the following components: (i) Schedule Narrative; (ii) Schedule Activity Report – Past Month and Remaining; (iii) Schedule Activity Report Longest Path (per completion date); (iv) Two week Look Ahead Schedule; (v) Predecessor/Successor Report; (vi) Data File and; (vii) other reports request by the Department, or designee.

All Schedule data, logic and duration changes, and any modifications to the Schedule shall be addressed and discussed with the Department, or designee at the Project Schedule Update meeting. This shall be done prior to the Contractor submitting their final Schedule Updates.

Changes to the accepted Baseline Schedule shall be detailed in the Schedule Update Narrative. The acceptance and inclusion of these changes will not be the sole basis of acceptance or entitlement to any time extension(s) or monetary compensation(s).

Schedule Update Submittals will not be used as the sole basis for any adjustment in the Contract Time(s), regardless of their approval by the Department, or designee, either expressed or implied, will only apply to the issue of progress.

RECOVERY SCHEDULE SUBMITTAL:

The Contractor shall identify all schedule and progress delays during the prosecution of the Work. At the Department's, or designee's request, the Contractor shall develop and submit a Recovery Schedule.

The Contractor is not relieved from the submission of Schedule Updates during the development of a Recovery Schedule.

The Recovery Schedule shall illustrate a clear process and procedure for eliminating or mitigating said delays to the Contract Time(s).

The Recovery Schedule shall be submitted within 30 calendar days of the corresponding Schedule Update and is subject to approval by the Department, or designee.

Non-Excusable Delays: The development and submission of the Recovery Schedule shall be at no additional cost to the State.

Excusable Delays: The State may reimburse the Contractor for the costs of the development of the Recovery Schedule.

CODE 937.1000

MAINTENANCE AND MOVEMENT OF TRAFFIC PROTECTIVE DEVICES

DESCRIPTION. Subsection 937.05.2; Failure to Comply, Part a. Maintenance, of the Standard Specifications. Requires that a daily charge be deducted from monies due to the Design-Builder for failure to adequately and safely maintain traffic control devices along any portion of the project.

The charge for this Contract will be \$850.00 per day.

Subsection 937.05.2; Failure to Comply, part b. Movement, when the Design-Builder implements a Traffic Control Plan, the Design-Builder shall adhere to the time periods for the number of lanes and shoulders associated with the roadway impacted by the Traffic Control Plan as given in the approved Transportation Management Plan. The Department will assess penalties to the Design -Builder if the Design-Builder does not adhere to these time and lane restrictions. The Department will assess these penalties per impacted lane per hour. The Department will assess these penalties in hour increments and any minute into an hour will be deemed an hour increment. The Department will be the sole judge in determining the time of the impacted lanes.

Failure to comply with this requirement will result in a negative assessment equal to the sum of \$25,000.00 per hour per travel lane and will be deducted from any monies due the Design-Builder.

CODE 937.9901

MAINTENANCE OF TRAVEL LANES AND SHOULDERS

DESCRIPTION. This consists of all work necessary to maintain the number and widths of lanes and/or shoulders as stated in the approved Transportation Management Plan.

MATERIALS: Not Applicable

CONSTRUCTION METHODS: Not Applicable

BASIS OF PAYMENT:

Payment for Full Compliance: “Maintenance of Travel Lane and Shoulder” will be paid for under Item Code 937.0200, “Maintenance and Movement Traffic Protection”, from the Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction, Amended December 2010, with all revisions.

Failure to Comply: The Contractor shall adhere to the approved Traffic Management Plan (TMP) for this project. If, in the judgment of the Engineer, the Contractor fails to maintain the number and width of lanes and/or shoulders as required in the approved TMP (unless otherwise approved by RIDOT), the following liquidated damages and penalty will be assessed.

Duration of Unauthorized Lane/Shoulder Closure	Charge per half hour per lane/shoulder
(0 – 30 minutes)	\$1,000
(31 – 60 minutes)	\$2,000
(61 – 90 minutes)	\$3,000
(91 – 120 minutes) ¹	\$4,000

¹The liquidated damages and penalty for each additional half hour period after 2 hours (120 minutes) shall increase by \$1,000 (\$6,000, \$7,000, etc.).

JOB SPECIFIC

ANCHORED AND UNANCHORED BARRIER FOR TEMPORARY TRAFFIC CONTROL

Remove **Section 926; Precast Concrete Median Barrier for Temporary Traffic Control**, pages AC-219 to AC-221 of the April 2016 Compilation of Approved Specifications in its entirety and replace with the following:

926.01 DESCRIPTION. This work consists of providing anchored or unanchored barrier for temporary traffic control at the locations shown on the Plans or as directed by the Engineer, all in accordance with these Specifications.

Anchored barrier on bridge decks shall meet or exceed the test level as specified in the RFP Documents.

926.02 MATERIALS.

926.02.1 Anchored and Unanchored Barrier Units. Portland cement concrete and reinforcing shall conform to the requirements of **Subsection 909.02.1** of these Specifications. Barrier units comprising of other materials, such as steel, plastic, etc., may also be used upon approval of the Engineer.

926.02.2 Delineators. Delineators shall have a minimum of 9 square inches of reflective surface area. The unit shall be capable of being mounted on the side of barrier by use of an adhesive or other method approved by the manufacturer. Such delineators may be one of those products which appear on the Department's Approved Materials List.

926.02.3 High Strength Non-Shrink Grout. High Strength Non-Shrink Grout shall conform to the requirements of **Subsection 819.02.2** of these specifications.

926.02.4 Anchorage System. For new or existing bridge decks, the anchorage system shall meet or exceed the specific test level as specified in the RFP Documents. Anchors shall be installed per manufacturer's written recommendations.

For new bridge decks and existing bridge decks to remain, only adhesive, embedded or expansion anchors shall be used. For existing bridge decks not to remain, through-bolts may be used in lieu of adhesive or expansion anchors.

All anchors, nuts and washers shall conform to ASTM A325 and shall be galvanized according to ASTM A153. All bolts, anchors, nuts, and washers shall conform to the applicable requirements of **Subsection M.05.04.4** of these Specifications except as modified by the RFP Documents.

926.03 CONSTRUCTION METHODS.

926.03.1 Plant Requirements. Plant requirements shall conform to the applicable provisions of **Subsection 909.03.1** of these Specifications.

926.03.2 Delineators. White delineators shall be installed on the right side of the travel way and amber delineators on the left side of the travel way. The delineators shall be installed at 50-foot intervals and they shall be located 3 inches from the top of the concrete barriers.

926.03.3 Placement. Precast concrete barrier used for temporary traffic control shall be placed on the pavement at locations indicated on the Plans or as directed by the Engineer.

Care shall be exercised during transporting, storing, hoisting and handling of the units to prevent cracking or damage. No damaged units or units that have markings painted on them from previous work-sites shall be installed. Units showing defects or damage shall be removed and replaced or repaired by the Design-Builder, and at no additional cost to the State if due to Design-Builder's operations or negligence.

Unanchored barrier shall be carefully removed from their initial locations and transported to alternate locations where they shall be placed on the pavement as directed by the Engineer.

Anchored barrier units shall be firmly secured to the bridge deck surface. Traffic shall not be allowed near the barrier until units are firmly anchored and highway approach transitions are in place. The Design-Builder shall be responsible for developing details for transitioning its chosen temporary barrier system to any existing highway or bridge barrier systems.

Anchors shall be placed on the traffic side of the barrier and located such that interference with the longitudinal deck reinforcement is minimized. Prior to barrier placement, deck reinforcement shall be located and marked using a pachometer. The position of the barrier shall then be adjusted to minimize interference between the anchors and deck reinforcement.

The barrier units shall be placed in such a manner as not to leave exposed blunt ends of said units.

926.03.4 Removal. Upon completion of the work the Design-Builder shall completely remove and legally dispose of said barrier units from the project site. For anchored barrier, the remaining holes in the new deck shall be patched with high strength non-shrink grout.

926.03.5 Submittals. For anchored and unanchored barrier on bridge decks, the Design-Builder shall submit its chosen temporary barrier system, including the FHWA test level approval level and any details for transitional areas to any existing barrier systems, to the State for Approval.

926.04 METHOD OF MEASUREMENT.

No measurement shall be made.

926.05 BASIS OF PAYMENT.

All cost for **Unanchored Barrier Units**, **Anchored Barrier Units**, and **Delineators** shall be included in the Design-Builder's Lump Sum price for the work on this project. No separate payment shall be made.

JOB SPECIFIC
PREFABRICATED BRIDGE UNITS

Prefabricated Bridge Units (PBUs) Shop Drawings:

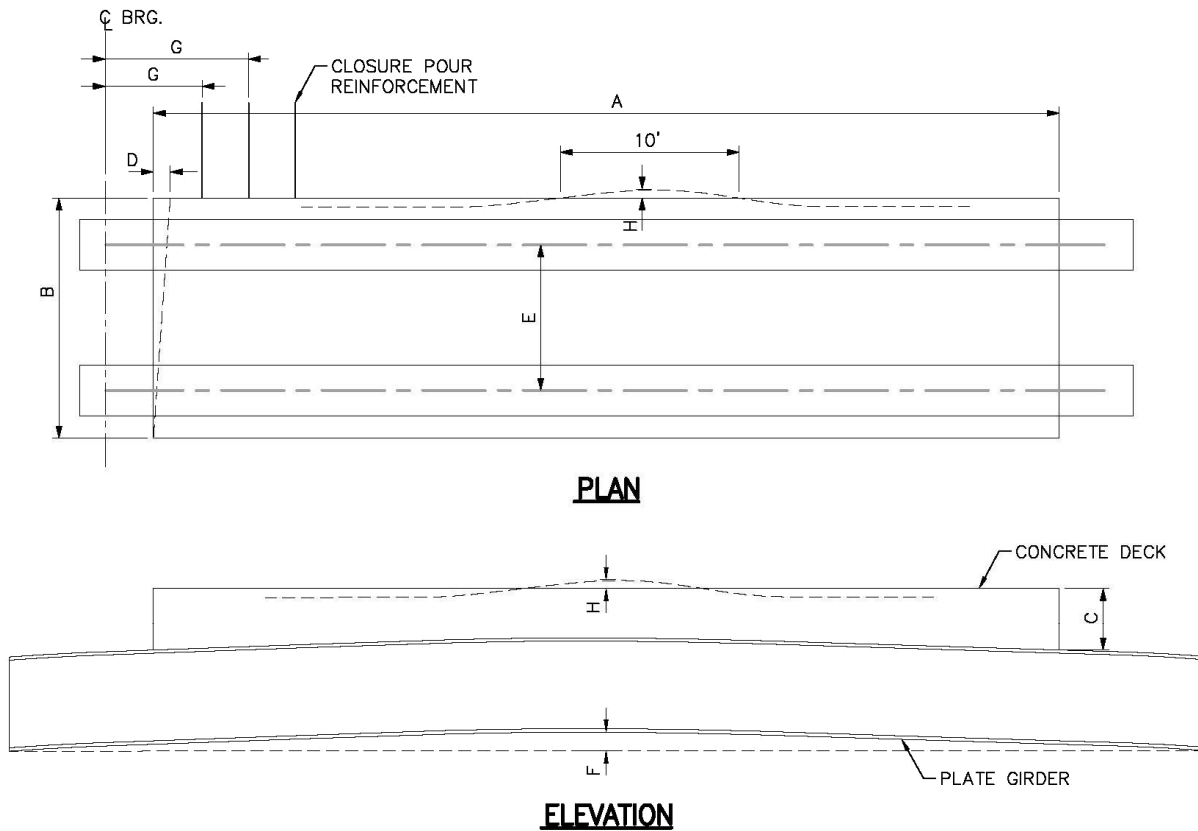
Shop Drawings shall be prepared for all prefabricated bridge units (PBUs) and shall include the following:

- A. Prepare shop drawings.
- B. Show all lifting inserts, hardware, or devices and locations on the shop drawings for Engineer of Record's approval. All lifting devices shall be designed by the Contractor.
- C. Show locations and details of the lifting devices, including supporting calculations, type, and amount of any additional reinforcing required for lifting. Design all lifting devices based on the no cracking criteria in Chapter 8 of the PCI Design Handbook (seventh edition).
- D. Show minimum compressive strength required prior to handling the PBUs.
- E. Do not order materials or begin work until receiving final approval of the shop detail drawings.
- F. RIDOT will reject any elements fabricated before receiving written approval of the shop drawings, or any elements that deviate from the approved drawings.

The Shop Drawings shall be prepared by and stamped by a Professional Engineer registered in the State of Rhode Island.

Tolerances:

The following tolerances are required for the prefabricated bridge units (PBU). All applicable tolerances should be shown on the applicable PBU shop drawings:



PBU TOLERANCES

A	LENGTH	$\pm \frac{1}{4}$ "
B	WIDTH (OVERALL)	$\pm \frac{1}{4}$ "
C	DEPTH (OVERALL)	SEE STANDARD SPECS
D	VARIATION FROM SPECIFIED PLAN END SQUARENESS OR SKEW	$\pm \frac{1}{2}$ "
E	CENTER TO CENTER GIRDER SPACING	PER AASHTO STANDARDS
F	SWEEP OVER MEMBER LENGTH:	PER AASHTO STANDARDS
G	LOCATION OF PROTRUDING REINFORCEMENT (MEASURED FROM COMMON REFERENCE POINT).	$\pm \frac{1}{4}$ "
H	LOCAL SMOOTHNESS OF ANY SURFACE	SEE STANDARD SPECS

PBU Deck Fabrication:

Manufacturing – The manufacturing shall be in accordance with the applicable provisions of Sections 809 and 814 of the RIDOT Standard Specifications and the RFP.

Quality Control:

In order to ensure a consistent level of quality, the following criteria shall be incorporated into the PBU QC Plan:

- A. The precast portion of reinforced concrete deck on top of the girder pairs shall be fabricated by a RIDOT & PCI certified precast concrete facility. On-site precasting will not be permitted.
- B. To ensure proper fit in the field and deck cross slope, the fabricator shall cast the deck with the girders set to the relative proposed bridge seat geometry (elevations, horizontal locations, and skew). The Fabricator shall dry fit all elements of the superstructure that comprise a span prior to shipment to ensure that the elements can be properly erected in the field and that no pre-adjustments to the bridge seat elevations are required.
- C. The fabricator shall permanently mark each PBU prior to shipping to ensure proper placement in the field.
- D. The Fabricator and Contractor shall prevent cracking or damage of precast elements during handling and storage.
- E. If damage occurs replace defects and breakage of precast elements as outlined below:
 1. Members that sustain damage or surface defects during fabrication, handling, storage, hauling, or erection shall be documented in a Non-Conformance report in accordance with the QC Plan and are subject to review or rejection.
 2. Obtain approval before performing repairs.
 3. Repair work must reestablish the elements' structural integrity, durability, and aesthetics to the satisfaction of the Engineer. Repair procedures shall be in conformance with the applicable provisions of the PCI Bridge Member Repair Guidelines,
 4. Determine the cause when damage occurs and take corrective action.
 5. Failure to take corrective action, leading to similar repetitive damage, can be cause for rejection of the damaged element.
 6. Cracks that extend to the nearest reinforcement plane and fine surface cracks that do not extend to the nearest reinforcement plane but are numerous or extensive are subject to review and rejection.
 7. Full depth cracking and breakage greater than one foot are cause for rejection.
- F. Construct PBUs to the dimensions shown on the plans and tolerances shown in the special provisions. Ensure any deficiencies are known to prevent cumulating tolerance issues in the field.
- G. The plant will document all test results. The quality control file will contain at least the following information:
 1. Element identification
 2. Date and time of cast

3. QC concrete cylinder test results
4. Quantity of used concrete and the batch printout
5. Form-stripping date and repairs if applicable
6. Location/number of blockouts and lifting inserts
7. Temperature and moisture of curing period
8. Document lifting device details, requirements, and inserts

In order to ensure a consistent level of quality, the following criteria shall be incorporated into the CIP Deck Closure Pour QC Plan:

A pre-placement meeting shall be held between the Contractor and the Engineer at least 2 weeks prior to the start of any concrete placement for the deck slab. The Contractor and the Engineer shall review all aspects of the proposed placement and curing plan, as documented in the approved Placement and Curing Plan, including, but not limited to, the following:

- Equipment proposed for use and for back-up;
- Planned workforce and assigned tasks of each designated position, based on experience and expertise;
- Proposed construction techniques;
- Safety considerations;
- Concrete mix design;
- Admixtures and performance data; dosage rates shall be as approved;
- Proposed placement rate, provisions for adverse weather, curing and loading schedules;
- Curing Practices to be employed as well as the workforce designated to the curing process;
- Delivery / conveyance equipment;
- Traffic control.
- Concrete cylinder testing quantity and frequency

No concrete shall be placed until the Engineer approves all aspects of the proposed placement. Modifications must be submitted in writing to the Engineer for approval.

Lifting Devices:

The Contractor shall design and detail lifting locations for each of the prefabricated bridge units (PBUs). The Contractor will provide the spacing and location of the lifting devices and submit plans and handling stress calculations to the Engineer of Record for approval prior to construction of the precast element.

The following general criteria should be followed for designing the elements:

- Use four-point picks. Assume that only two diagonal lift points are engaged at any one time unless it can be demonstrated that a four-point pick will result in an even distribution of load.
- If element stresses are excessive with a four-point pick, an eight-point pick may be used.
- Any lifting hardware left in place must have 2½” top cover and 1” bottom cover after installation.

Lifting devices shall be removable below the top surface of the precast deck after placement. Any divot or void at the lifting device locations will have a heavy broom finish. After placement of PBU in final position, fill divots or voids in with structural non-shrink grout. Place grout high and grind to final elevation.

Threaded Inserts:

Threaded inserts are permissible on the underside of the PBUs to facilitate forming of the closure pours. Threaded inserts shall be hot dip galvanized or be made of stainless steel. The number of threaded inserts shall be minimized and the inserts shall not come in contact with the reinforcing steel.

Handling and Storage:

The Contractor is responsible for the handling and storage of the precast bridge units (PBUs) in such a manner that does not cause undue stress on the element. Stresses shall not exceed the allowable values specified in the AASHTO LRFD Bridge Specifications.

Submit a handling and storage plan to the Engineer of Record for review prior to the construction of any element. Concrete elements must not be exposed to temperatures below 40 degrees Fahrenheit until the concrete curing is complete and a minimum 7 days has elapsed after casting has been completed.

All precast elements shall be inspected at the prefabrication facility and any defective elements shall be repaired in accordance with the applicable provisions of the PCI Bridge Member Repair Guidelines prior to shipping. Replace any elements that are rejected based on the following criteria:

The following general criteria will be cause for rejection:

- Broken corners that cannot be properly repaired.
- Significant dimensional deformities.
- Elements that are fabricated outside of the specified tolerances.

PREFABRICATED BRIDGE UNIT INSTALLATION

Assembly Plans:

The Assembly Plan is a construction procedure document prepared and submitted by the Contractor prior to the start of work that details the means to which the Contractor will install the bridge superstructure by clearly identifying all stages of the construction. It includes all materials and their requirements to install the bridge superstructure. The Assembly Plan shall be prepared by and stamped by a Professional Engineer, registered in the State of Rhode Island, with working knowledge of the Contractor's equipment, approved shop drawings, and materials to build the project.

The following list details the minimum criteria that should be included in the Assembly Plan:

- A. A detailed schedule showing the sequence of operations that the Contractor will follow. The schedule shall include all traffic control related requirements, as well as a timeline for installation of all major elements of the bridge superstructure accounting for the installation of temporary works and cure times of closure pour.
- B. Calculations that support the schedule outlined above should be included verifying that the selected materials have adequate interim strength to proceed from one step to another. Final material strengths are not normally required until the bridge is opened to vehicular traffic. The minimum factor of safety of two (2) will be required for the interim strength of grouts in between precast elements before construction is allowed to proceed to subsequent steps. The factor of safety is applied to the service loads that are supported by the elements and materials during various stages of construction. The required strength of materials for subsequent construction stages shall also be calculated and the material strength verified.
- C. The Contractor is responsible for determining the center of gravity for all PBUs. These elements may require special lifting hardware to allow for installation in the correct position as indicated on the plans.
- D. Include a work area plan, depicting items such as utilities within the immediate vicinity of the work, drainage structures, etc. The Contractor is required to coordinate the various subcontractors that will need to occupy the same area and ensure that there are no conflicts.
- E. Include details of all equipment that will be employed for the construction of the bridge superstructure.
- F. Include details of all equipment to be used to lift elements including cranes, excavators, lifting slings, sling hooks, and jacks. Include crane locations, operation radii, and lifting calculations. It is anticipated that the Contractor will use the Fabricator's lifting inserts, but this needs to be coordinated prior to approval of the precast shop drawings. Follow Chapter 8 of the PCI Design Handbook (seventh edition) for handling and erection bracing requirements.
- G. The Contractor is required to provide field survey to determine that the PBUs are placed within the horizontal and vertical tolerances stated on the plans and/or the special provisions.
- H. Include procedures for controlling tolerance limits both horizontal and vertical.
- I. The Contractor is solely responsible for testing of closure pour concrete placed in the field to proceed with construction. RIDOT will test concrete cylinders for acceptance purposes only.
- J. Include methods of forming closure pours.

Quality Control for Installation of PBUs

The field personnel shall have knowledge of and follow the approved Assembly Plan. If changes are warranted due to varying site conditions, resubmit the plan for review and approval.

Establish working points, working lines, and benchmark elevations prior to placement of all elements. The Contractor is responsible for field survey as necessary to complete the work. The District reserves the right to perform additional independent survey. This survey does not relieve the contractor from performing survey for the construction. If discrepancies are found, the contractor may be required to verify previous survey data.

Place elements in the sequence and according to the methods outlined in the Assembly Plan. Ensure that the PBU is in the proper horizontal and vertical location and is properly seated on all

four bearing locations prior to releasing from the crane and setting the next unit. The connection plates for the cross frames between PBU's are shop drilled on one side only. This allows for some tolerance in setting the PBU's. The Contractor shall field drill the remaining connection plate after the PBU's have been placed within the acceptable tolerances.

Check the condition of the receiving bonding surface prior to connecting PBUs and take any necessary measures to remove items such as dust, rust, and debris to provide the satisfactory bonding required between the existing concrete surfaces and the precast concrete elements. Saturate surface dry (SSD) all surfaces receiving closure pour concrete. Form, place reinforcing, and place HP closure pour concrete in accordance with the Standard Specifications and approved QC Plan.

Provisions for Uneven Bearing of PBU:

In the event that setting the PBU's results in uneven bearing contact, the following methods should be employed to correct this gap:

1. Uneven bearing is defined as a gap greater than 1/8" between the top of the elastomeric bearing and the bottom of the sole plate when the PBU is under its own selfweight (i.e. the rear of the bearing is in contact, but the front of the bearing has a gap greater than 1/8")
2. The bearing location and dimension of the gap should be noted.
3. The bearing area below the adjacent bearing on the same substructure unit and the bearing on the opposite end of the span along the same girder line as the affected bearing shall be ground down 1/2 of the total gap dimension.

Example:

PBU exhibits 1/2" gap at the NE elastomeric bearing between the sole plate and the top of the elastomeric bearing. Therefore, the PBU would be raised and properly supported. The elastomeric bearings would be set aside and the bridge seats below the NW and SE bearings would be ground down 1/4". The PBU would then be reset and the gap would be rechecked.

Note: 1/2" of sacrificial concrete shall be included at all bearing locations for grinding purposes.