

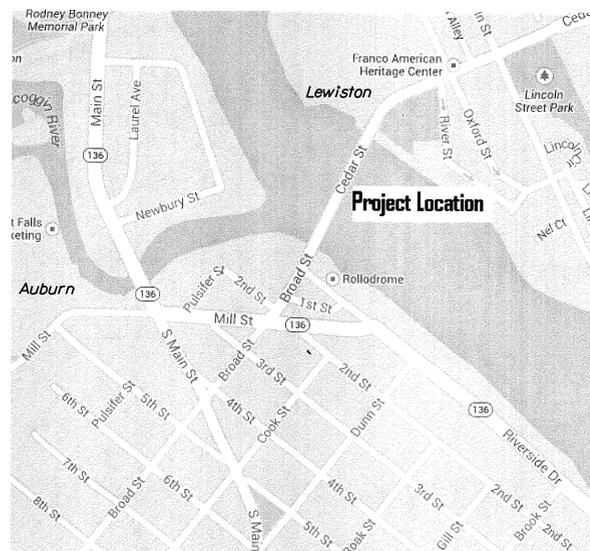
# STATE OF MAINE DEPARTMENT OF TRANSPORTATION



## LEWISTON - AUBURN ANDROSCOGGIN COUNTY BERNARD LOWN PEACE BRIDGE OVER ANDROSCOGGIN RIVER

WIN 21124.00

### BRIDGE REHABILITATION BRIDGE NO. 3330



**LOCATION MAP**

**SPECIFICATIONS**

Design: AASHTO LRFD Bridge Design Specifications, Third Edition 2004 and Interim Specifications through 2005.

**MATERIALS**

Concrete (Unless noted otherwise) Class "A"  
 Reinforcing Steel.....ASTM A615/A615M, Grade 60  
 Structural Steel:  
 All Material (except as noted).....ASTM A709/A709M, Grade 50W  
 High Strength Bolts.....ASTM A325, Type 3

**BASIC DESIGN STRESSES**

Concrete.....f 'c = 4,350 psi  
 Reinforcing Steel.....f y = 60,000 psi  
 Structural Steel:  
 ASTM A 709/A 709M, Grade 50W.....F y = 50,000 psi  
 ASTM A 709/A 709M, Grade 36.....F y = 36,000 psi  
 ASTM A 325.....F μ = 120,000 psi

Bridge #3330

STATE OF MAINE DEPARTMENT OF TRANSPORTATION	APPROVED	DATE
COMMISSIONER: <i>[Signature]</i>	7/11/14	7-11-14
CHIEF ENGINEER: <i>[Signature]</i>		

PROFESSIONAL ENGINEER  
 MAINE  
 No. 4538  
 July 10, 2014

*Brent A. Snowden*  
 SIGNATURE  
 4538  
 P.E. NUMBER  
 July 10, 2014  
 DATE

PROJECT INFORMATION	
PROGRAM	
PROJECT MANAGER	B. Snowden
DESIGNER	
CONSULTANT	
PROJECT RESIDENT	
CONTRACTOR	
PROJECT COMPLETION DATE	

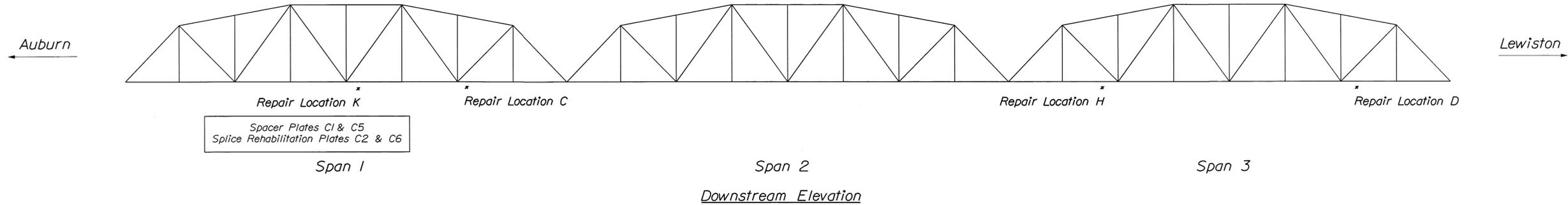
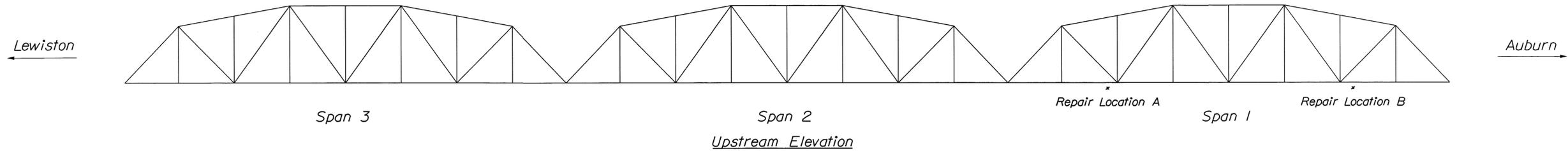
Lewiston - Auburn  
Bernard Lown Peace Bridge

TITLE SHEET

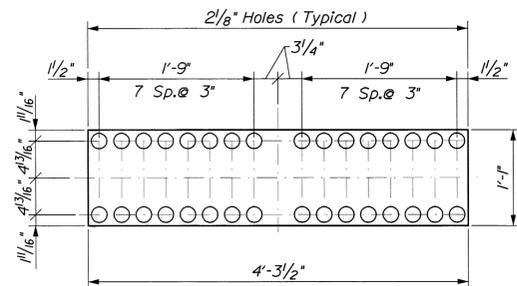
SHEET NUMBER

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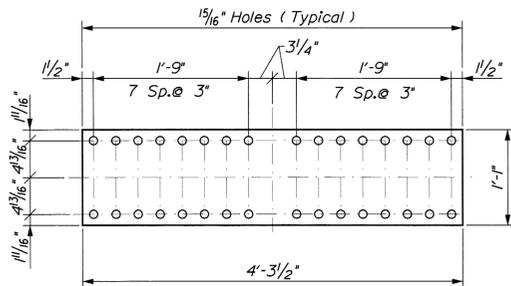
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 Division: BRIDGE  
 Username: Kevin.McLaggon  
 Date: 7/9/2014



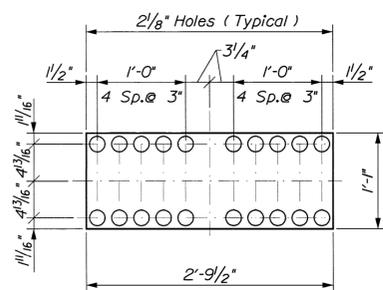
Spacer Plates C1 & C5  
Splice Rehabilitation Plates C2 & C6



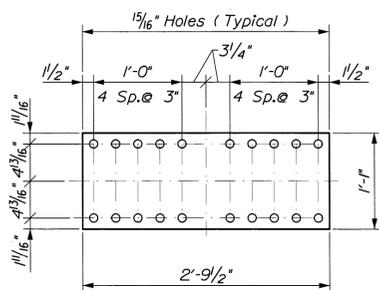
**C1 Bottom Chord Spacer Plate**  
1/4" Thick ( 1 Required ) 196 lbs  
@ Repair Location K



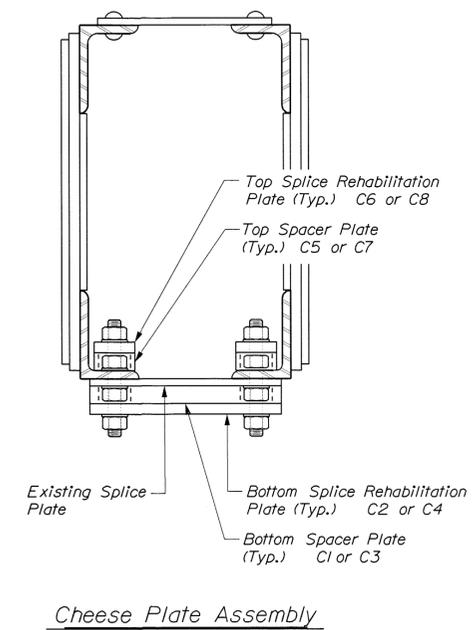
**C2 Bottom Chord Splice Rehabilitation Plate**  
3/4" Thick ( 1 Required ) 137 lbs  
@ Repair Location K



**C3 Bottom Chord Spacer Plate**  
1/4" Thick ( 5 Required ) 128 lbs



**C4 Bottom Chord Splice Rehabilitation Plate**  
3/4" Thick ( 5 Required ) 89 lbs

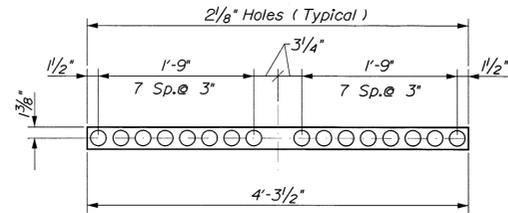


STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
WIN 21124.00
Bridge #3330

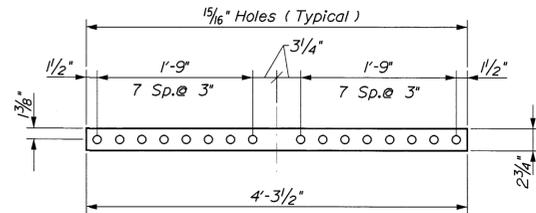
SIGNATURE	P.E. NUMBER	DATE
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PROJ. MANAGER	BY	7/9/14
DESIGN-DETAILED	B. Snowden	K. McLoggan
CHECKED-REVIEWED		
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

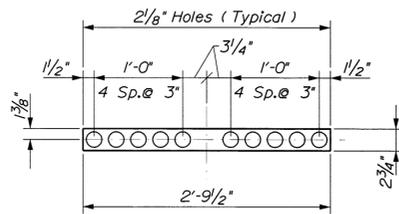
**Lewiston - Auburn  
Bernard Lown Peace Bridge  
Bottom Splice Plate  
Rehabilitation**



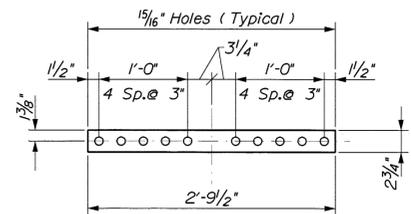
**C5 Bottom Chord Spacer Plate**  
 1/4" Thick ( 2 Required ) 30 lbs  
 @ Repair Location K



**C6 Bottom Chord Splice Rehabilitation Plate**  
 3/4" Thick ( 2 Required ) 28 lbs  
 @ Repair Location K



**C7 Bottom Chord Spacer Plate**  
 1/4" Thick ( 10 Required ) 20 lbs



**C8 Bottom Chord Splice Rehabilitation Plate**  
 3/4" Thick ( 10 Required ) 18 lbs

MATERIAL	QUANTITY REQUIRED	QUANTITY SUPPLIED BY MAINE DOT	QUANTITY PROVIDED BY CONTRACTOR	NOTES
3/8" Diameter Threaded Rod, 12" Length	132	54	78	ASTM A449 Galvanized in accordance with ASTM A153
3/8" Diameter Heavy Hex Nuts	528	60	468	Galvanized
3/8" Diameter, Flat Washers	264	60	204	Galvanized
3/8" Diameter, Lock Washers	264	60	204	Galvanized

**General Notes:**

- Prior to starting any work removing deteriorated concrete on the pier, steel blocking will be placed between the top of the pier and the steel superstructure in such a manner as to support the steel superstructure in case of any movement at the bearings when deteriorated concrete is being removed. The steel blocking will be placed in a manner such that it will not interfere with the pier rehabilitation project. The steel blocking will be removed once the pier has been rehabilitated and post tensioned. All labor, equipment, scaffolding and materials required to place and remove the steel blocking will be incidental to the lump sum item "910.301 Special Work - Pier Repair and Post Tensioning".
- A minimum of two lanes of two way traffic and one sidewalk must be maintained across the bridge at all times.

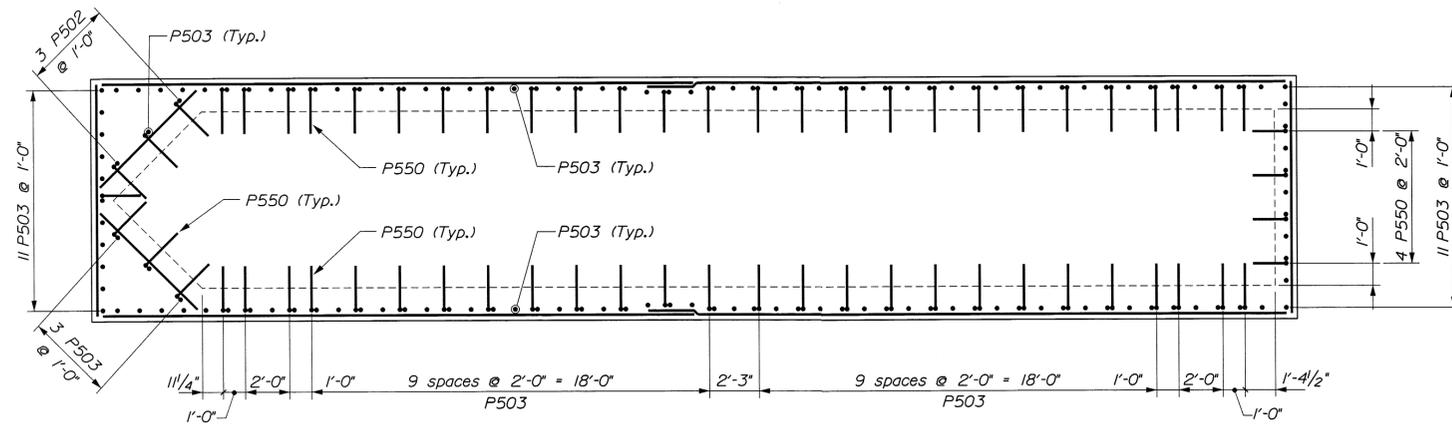
**Erection of Steel Splice Rehabilitation Plates:**

- Replace rivets on existing bottom splice plate with 7/8" diameter threaded rod and two flat washers and two nuts. Only 1 rivet at a time can be replaced, replace all bottom rivets at a splice before proceeding.
- Place top 1/4" spacer plates over new nuts and washers on angles on top side of bottom splice, and then place both 3/4" splice rehabilitation plates and fasten with nuts and lock washers.
- Place bottom 1/4" spacer plate over nuts and washers on existing splice plate and secure in place.
- Place bottom 3/4" splice rehabilitation plate under bottom 1/4" spacer plate and fasten with nuts and lock washers.
- All required steel plates will be supplied by MaineDOT. Some of the 7/8" diameter threaded rod, washers and nuts will be supplied, what is not supplied will be furnished by the Contractor as outlined in the table provided. The 7/8" threaded rod will be ASTM A449 galvanized in accordance with ASTM A153. Each piece of threaded rod shall have four heavy hex nuts and four ASTM F436 washers, all galvanized. Both ends of 7/8" threaded rod will be re-tapped for nut threads.
- Primed side of steel plates will be placed on existing steel leaving the painted side exposed. The bridge has a lead paint coating system, any lead paint removed or disturbed during the Contractor's operation, on steel that will be exposed, shall be touched-up by the Contractor. MaineDOT will supply any lead paint needed for the touch up work upon Contractor's request to the Resident Engineer. Any required surface preparation, field painting, containment and pollution control and disposal of special waste or hazardous waste materials will be done according to industry standards as well as state and federal requirements for working with lead paint and as approved by the Resident Engineer. All materials, labor, tools, equipment, scaffolding, QC inspections, permits, tests, transportation, tipping fees and any other incidentals necessary for the satisfactory performance of the touch-up painting will be incidental to the lump sum item "504.5101 Misc. Bridge Repairs – Erection of Steel Splice Rehabilitation Plates".

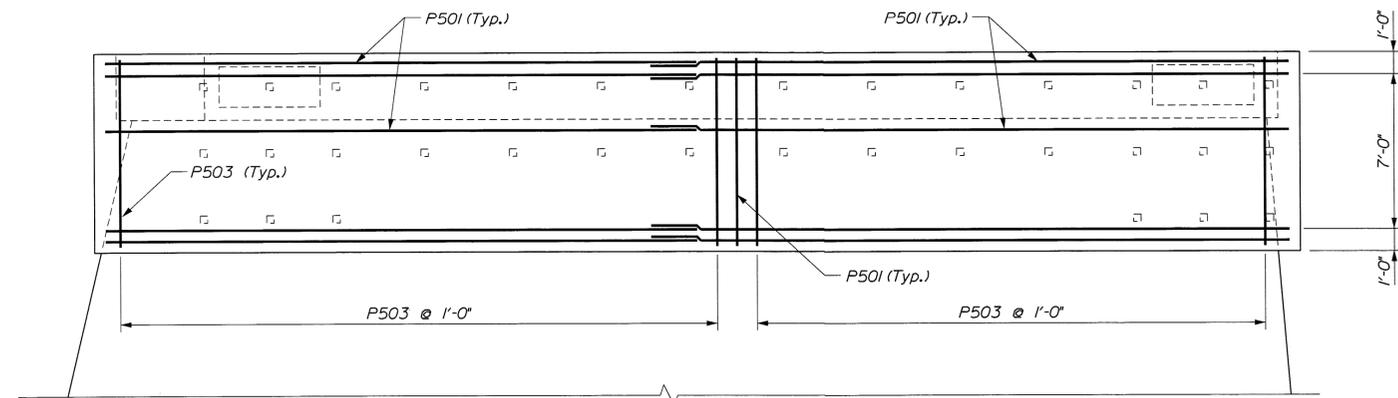
STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION  
 WIN 21124.00  
 Bridge #3330  
 Bridge Plans

PROJ. MANAGER	BY	SIGNATURE
CHECKED-REVIEWED	B. Snowden	
DESIGN-REVIEWED	K. McLoggin	
DESIGN-REVIEWED	7/9/14	
REVISIONS 1		P.E. NUMBER
REVISIONS 2		DATE
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

Lewiston - Auburn  
 Bernard Lown Peace Bridge  
 Bottom Splice Plate  
 Rehabilitation

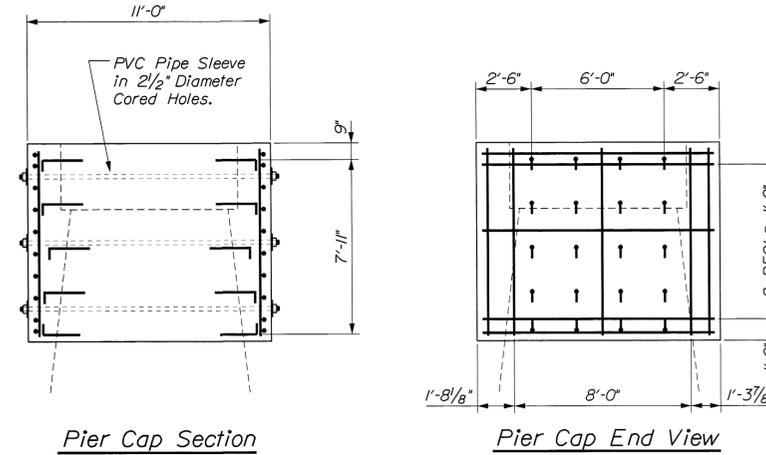
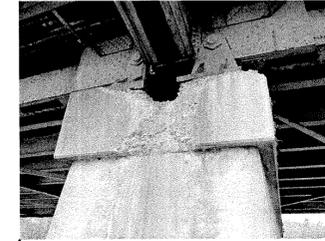


Pier Cap Reinforcing Plan



Pier Elevation

STRAIGHT BARS				Bending Diagram	
MARK	QTY.	LENGTH			
P501	40	28'-0"			
P502	10	6'-3"			
P503	134	8'-6"			
P504	20	10'-6"			
BENT BARS					
MARK	QTY.	LENGTH	TYPE	A	B
P550	315	2'-4"	L	1'-10"	6"



Pier Cap Section

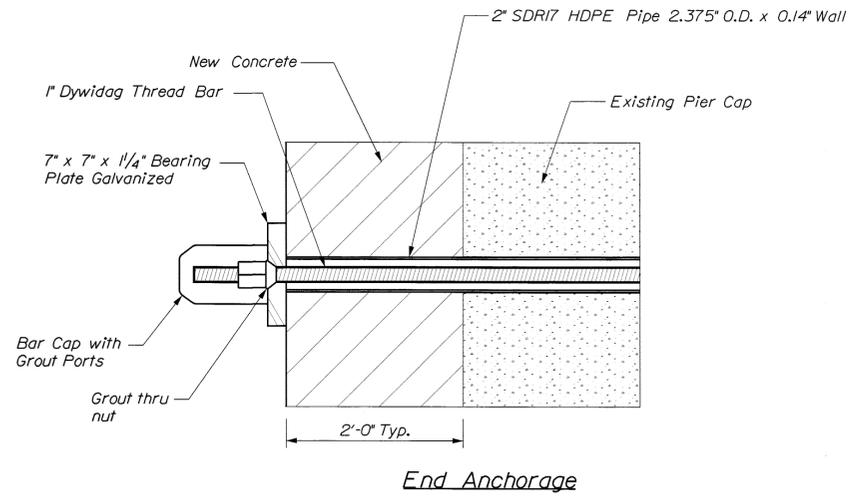
Pier Cap End View

**PIER REPAIR PROCEDURE**

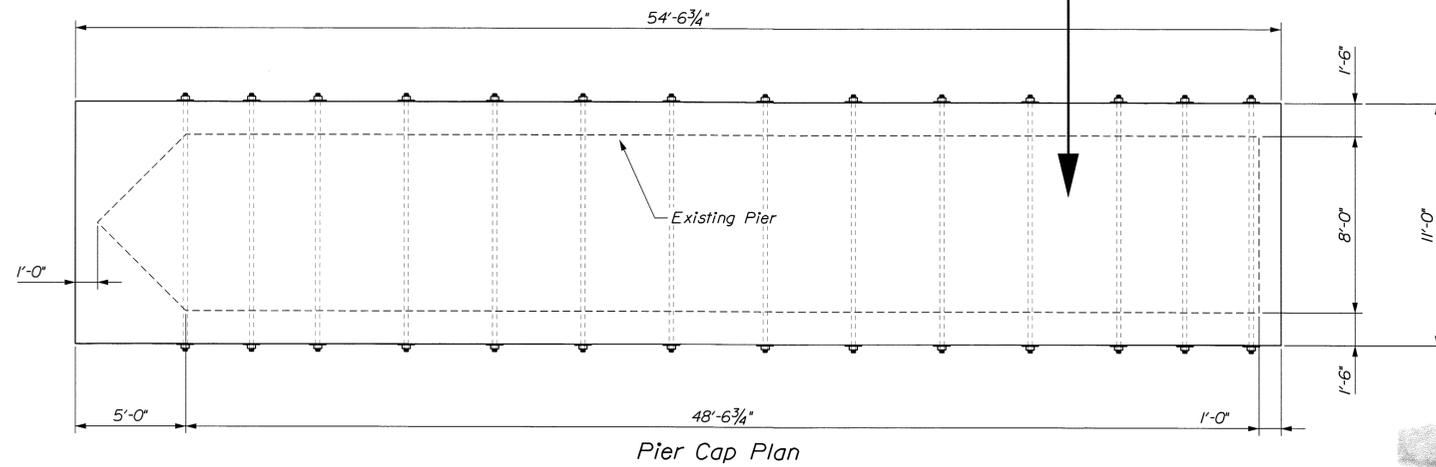
1. Set up an appropriate contamination/debris collection system.
2. Prevent feathered edges of concrete repair. Indicated areas are the approximate anticipated removal limits and are subject to change.
3. After the removal of the concrete the surface area should be cleaned of loose debris using high pressure water or air.
4. Exposed rebar shall be cleaned per an SSPC-SP-6 to remove loose scaly rust. If it is determined by the Resident that the rust is tight and bonded then the cleaning may be omitted.
5. Core 2 1/2" diameter holes as shown for post tensioning. Insert 2" HDPE duct.
6. Drill and Anchor #5 Bars (Bar # P550) at 2'-0" O.C. as indicated on the plans. Bars shall be embedded a minimum of 12", place hooked bars no closer than 9" from edge of existing pier. Grout shall be from MaineDOT approved materials list.
7. Once all new anchored rebar and ducts are in place the surface shall be cleaned of loose debris prior to the placement of any new concrete.
8. Install all new additional reinforcement.
9. Construct and place forms and block outs.
10. Place new concrete. Formwork shall be placed in a manner to allow the concrete to be vibrated and reach all locations. Formwork shall be inspected and approved by the Resident prior to the placement of concrete.
11. Allow concrete to cure to 4350 psi.
12. Install plate anchorage assembly and thread bars.
13. Grout duct through grout tubes using an approved cable grout. Grout from one end only. Only grout one bar at a time. Remove nipple after the grout has hardened and insert plug.
14. Contractor to supply all required hardware, equipment and grout. All labor, equipment and materials required to post tension the pier cap will be incidental to the lump sum item "910.301 Special Work - Pier Repair and Post Tensioning".

PROJ. MANAGER	BY	DATE	SIGNATURE	P.E. NUMBER	DATE
B. Snowden	K. McLoggan	7/9/14			
DESIGN-DETAILED					
CHECKED-REVIEWED					
DESIGN2-DETAILED2					
DESIGN3-DETAILED3					
REVISIONS 1					
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REVISIONS 4					
FIELD CHANGES					

Lewiston - Auburn  
Bernard Lown Peace Bridge  
Pier Cap Rehabilitation



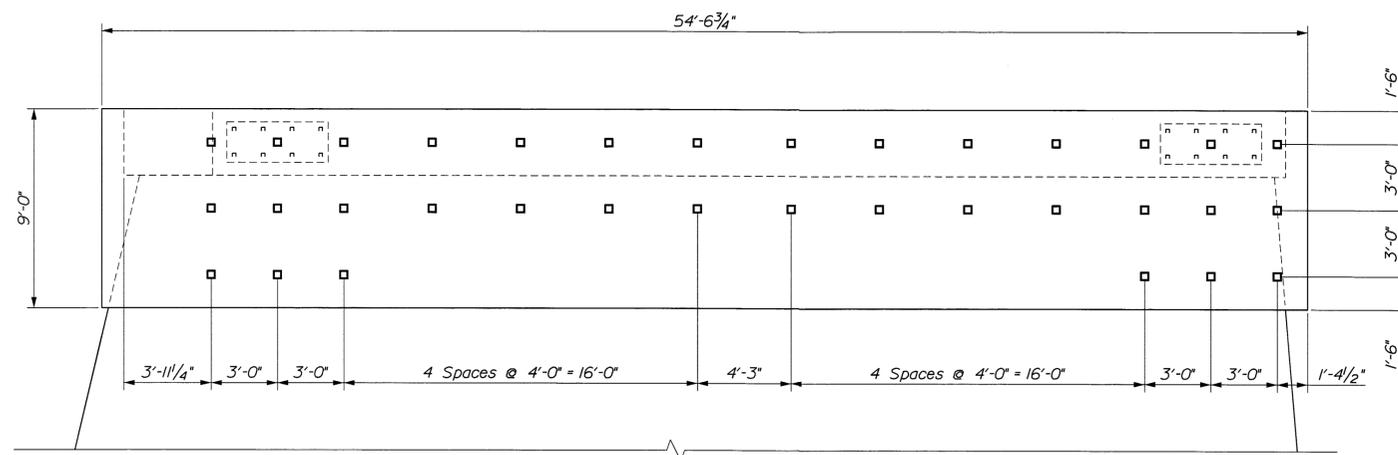
End Anchorage



Pier Cap Plan



Far Side



Dywidag Location At Pier Cap

**PIER REPAIR NOTES**

1. Removal of unsound concrete and placement of new pier concrete and reinforcement will be incidental to the lump sum item "910.301 Special Work - Pier Repair and Post Tensioning".
2. The contractor shall provide an acceptable means of access at the pier to allow the Resident to safely perform an inspection of all repair work to the concrete. Payment for access will be incidental to the lump sum item "910.301 Special Work - Pier Repair and Post Tensioning".
3. Chamfer all exposed edges 3/4" unless noted otherwise.
4. All unsound concrete shall be removed to sound concrete as directed by the Engineer from the top of the pier to 9 feet below the top of the pier, prior to the placement of concrete. See photos and detail on Plan Sheets 4 & 5 for known areas of deteriorated concrete.
5. All post tensioning Thread Bars are to be 1" diameter, Grade 150ksi, and conform to the requirements of ASTM A722, Type II, or approved equal.
6. Thread Bars shall be tensioned and locked off at 89k.
7. All anchor plates shall conform to ASTM A709, Grade 50ksi and shall be galvanized in accordance with ASTM A123.
8. All cable grout shall conform to one of the following:  
SikaGrout 300PT  
Master Flow 816  
Five Star Special Grout 400  
Approved Equal
9. Use Class A/Method C concrete per Standard Specification Section 502. Concrete shall have a minimum of 7 days cure time and shall reach a compressive strength of 4350 psi before bars may be tensioned.

PROJ. MANAGER	BY	DATE	SIGNATURE
DESIGN-REVIEWED	B. Snowden	7/9/14	
DESIGN-DETAILED			
DESIGN-DETAILED			
REVISIONS 1			P.E. NUMBER
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FIELD CHANGES			

Lewiston - Auburn  
Bernard Lown Peace Bridge  
Pier Cap Rehabilitation