F:\1355-01\DRAWINGS\1355-01-02x.DWG CREATED ON 2009-01-16 AT 15:57 BY ALAN
DRAWING OPEN 10.16 HOURS
2009-01-18 AT 22:11 BY ALAJAN
F:\1355-01\DRAWINGS\PDF\X.DWG.PDF CREATED ON 2009-01-18 AT 22:11 BY ALAN

Bridge Structure General Notes #1

DESIGN LOADINGS

1. AASHTO LRFD Bridge Design Specification - Fourth Edition - 2007 "HL-93".

2. This Bridge Is Designed To Comply With The Following Load Criteria:
   A. Dead Load -- Weights Of Permanent Bridge Structure Components
   B. Live Load -- AASHTO Vehicular "HL-93" Definition.
   C. Seismic Load --Acting Only In Conjunction With Bridge Dead Load.

3. Bridge Structure Designed To Comply With
   American Association Of State Highway Officials Design Provisions
   -- AASHTO LRFD Bridge Design Specifications, Fourth Edition, 2007.
   A. "Dynamic Load Allowance" (Impact) Factor - 1
      1) Applies Only To Design Of Bridge Deck Structure.
      2) Does Not Apply To Design Of Abutments And/Or Footings.
      3) Applies Only To Truck And/Or Tandem Live Loads.
      4) Does Not Apply To Dead Loads, To Lane Loads,
         To Special Equipment Live Loads, And/Or To Seismic Loads.
      5) Multiply Applicable Static Live Load Effects By:
         1) 1.33 -- For Bridge Deck Moments And Shears.
         2) 1.75 -- For Bridge Deck Joints.
   B. "Multiple Presence" Factor For All Live Loads = 1.00.
   C. Applicable AASHTO "Load Combination Limit States":
      1) "Strength I" -- AASHTO "HL-93" Loads
      2) "Extreme Event I" -- AASHTO "Seismic" Load

4. Critical Live Loads
   A. Concrete Deck Flexural Forces
      -- Strength I -- AASHTO "HS-93 - Design Live Load Definition".
   B. Concrete Deck Shear Forces
      -- Strength I -- AASHTO "HL-93 - Design Live Load Definition".
   C. Abutments Walls Acting As Retaining Walls -- Strength I.
   D. Abutments Walls Under Seismic Loading -- Extreme Event I.
   E. Foundation Soil Bearing -- Working -- Dead Load Plus Live Load.

5. Bridge Abutment Foundation/Soil Pressures
   Checked Using "Working Loads" (Not Factored Loads).

6. Design For Seismic Loading Based On Following Parameters:
   A. Location: 38 Deg 26.9 Min North / 123 Deg 06.9 Min West
   B. California Building Code (2007) Design Parameters
      Per Henry Justiniano & Associates Geotech Report Update
      Dated May 9, 2008:
      1) Site Class ..... "E".
      2) Short Period Spectral Response Acceleration ..... Fa = 0.9.
      3) One-Second Spectral Response Acceleration ..... Fv = 2.4.
      4) Short Period Near-Source Acceleration ..... Sda = 1.23.
      3) One-Second Near-Source Acceleration ..... Sd1 = 1.76.
   C. AASHTO LRFD Bridge Design Specification, Fourth Edition,
      (Near Equivalent To California Building Code) Parameters:
      1) AASHTO Acceleration Coefficient ..... 0.60.
      2) Soil Profile Coefficient For Type IV Soil Profile ,,, 2.00.
      3) Seismic Inertia-Multiplier Coefficient ..... 1.20.
   D. Bridge "Importance" = "Other" (Not "Critical" Or "Essential")
   E. Response Modification Factors:
      1) Wall-Type Piers (Abutment Walls) ..... 2.0.
      2) Connection Between Bridge Deck And Support Abutments . 0.8.

7. Bridge System Also Designed To Accommodate:
   A. Asphalt Pavement Wearing Surface Of 3" Thickness
      Weighing 21 Psf.
   B. Guardrail System Installed Along Each Side Of Bridge
      Weighing 100 Plf.
   C. Water Line Attached To Downstream Side Of Bridge
      Weighing 50 Plf.

8. Vehicular Guardrail System Designed
   To Meet AASHTO Crash-Test Level 2 Critiera.

CONCRETE

1. General
   A. Provide Concrete Complying With ACI 301.
   B. Use Normal Weight (145 pcf +/- 5 pcf) Concrete.
   C. Air-Entrainment Volume ..... 5% +/- 1%.
   D. Provide Concrete Having A Minimum Cement Content Of 6 Sacks
      Per Cubic Yard.
   E. Cast Concrete Using A Maximum Water/Cement Ratio Of 5 1/2 Gals
      Per Sack Of Cement.
   F. Do Not Use Any Concrete Unit Having Cracks Over 1/16" Wide.
   G. Fabricate Block "Lugs" And "Recesses" And Plank "Recesses"
      Such That The Dimensions Detailed For Them On The Drawings
      Are Achieved To A Tolerance Of +/- 1/16 Inch.

2. Precast Bridge Deck Planks
   A. Prestressed Deck Planks
      1) Minimum Strength At 28-Days ..... F'c = 6000 Psi.
      2) Minimum Strength At Strand Release .. FcRelease = 4000 Psi.
   B. Use Aggregates No Larger Than 1".
   C. Fabricate Plank Units To The Following Dimensional Tolerances:
      1) Length ..... +/- 1/2".
      2) Width ..... +/- 1/2".
      3) Thickness ..... +/- 1/4".
      4) Twist, As Measured By "Lift" Of Corner, Where
         The Other (3) Corners Define A Horizontal Plane . +/- 1/4".
   D. Supply Plank Units Having The Following Surface Finishes:
      1) Bottom, Sides, And Ends ..... "As-Cast In Steel Forms".
      2) Top Surface ..... Transverse "Rake" Finish.
         (1/4" Wide By 1/4" Deep Grooves Spaced At 1/2" On Center)
   E. Provide Plank And Panel Units Having No "Honeycomb" Voids And
      No Corner Or Edge Chips Larger Than 1 Inch In Any Direction.

3. Precast Abutment Block, Footing Plank, And/Or Closure Panel Units
   A. Minimum Strength At 28-Days ..... F'c = 3000 Psi.
   B. Minimum Strength At Removal From Form ..... FcRemove = 2000 Psi.
   C. Use Aggregates No Larger Than 3".
   D. Fabricate Units To The Following Dimensional Tolerances:
      1) Overall Width, Length, And Thickness ..... +/- 1/8".
      2) Squareness On All (6) Sides, As Measured By
         Comparing Lengths Of Face Diagonal Distances .... +/- 1/8".
   E. Supply Units Having "As-Cast In Steel Forms" Finish.
   F. Provide Units Having No "Honeycomb" Voids And
      No Corner Or Edge Chips Larger Than 2 Inches In Any Direction.

4. Mortars And Grouts
   A. Provide "Dry-Pack" "MasterFlow 928 Natural Aggregate Grout"
      Or "Five Star Highway Patch"
      In Longitudinal Joints Between Bridge Deck Planks.
      1) Provide Pre-Molded Compressible Backer Rods
         Along Bottom And At Ends Of Joints To Retain Dry Pack.
      2) Fill Longitudinal Joints Flush With Top Surface Of Planks.
   B. Provide "Flowable" "MasterFlow 928 Natural Aggregate Grout"
      Or "Five Star Fluid Grout 100 With Devoider"
      Between Top Of Top Abutment Block Units
      And Underside Of Precast Deck Plank Units.
      1) Provide Wood Setting Blocks,
         Pre-Molded Compressible Backer Rods,
         And/Or Expandable, Closed-Cell, Expandable Foam
         Around Perimeter Of Top Abutment Block(s) To Retain Grout.
      2) Fill Vertical Cylindrical Voids
         Around Abutment Vertical Reinforcement Bars.
      3) Vibrate Grout, As Required,
         To Assure That All Voids Spaces Are Completely Filled.
      4) Note: Do Not Install Grout
         Between Bridge Deck Planks And Tops Of Abutment Walls
         Until After Transverse Rods Have Been Fully Tightened.

SOILS, FOUNDATIONS, AND BACKFILLS

1. This Project Has Been Designed In Accordance With Recommendations
   Provided By Henry Justiniano & Associates, San Ramon, California
   In Their Geotechnical Report Dated April 13, 2006
   Their Letter Of Affirmation Dated May 9, 2008,
   EMail Communication With Mr. Justiniano On November 25, 2008,
   And Telephone Communication With Mr. Justiniano On January 14, 2009.
   A. Design Working Load Bearing Pressure
      Under Permanent Plus Transient Loading
      Is Limited To A Maximum Of 1800 Psf.
   B. Design Working Load Bearing Pressure
      Under Permanent Plus Transient Plus Wind And/Or Seismic Loading
      Is Limited To A Maximum Of 2400 Psf.
   C. Design Working Load Bearing Pressure Limits
      Apply Only To Increase In Soil Bearing Pressure
      Due To Bridge Structure Loadings That Are Additional
      To Pre-Existing Soil Pressure At The Footing Bearing Elevation.

2. Remove Any Existing Fill, Any Existing Silty, Sand-Silt,
   Or Clay-Silt Soil, Or Any Soil That Is Loose Or Has Been Disturbed
   Down To Existing Very Dense Gravel For A Minimum Width Of 8'-6"
   Extending At Least 6" Beyond Front And Back Ends
   Extending At Least 6" Beyond Front And Back Ends

3. Where Excavation Of Fill And/Or Silt Extends Below Bottom Elevation
   Of Abutment Blocks, Provide Imported Angular Crushed Rock Base
   Down To Very Dense Gravel To Create An Acceptable Bearing Surface
   Of Precast Concrete Footing Block Units..

4. Compact Imported Base Material To At Least 95% Relative Compaction.

5. Provide A Scour-Resistive Armor Assemblage Of Well-Graded,
   Highly-Interlocking Mix Of Hard Rock Of Up To 36" Dimension
   Well-Compacted To Be Capable Of Reliably Functioning
   As A Monolithic Gravity Retaining Wall In Front Of Each Support Abutment
   To Resist Horizontal Pressures Induced By Backfill Earth And Road Traffic
   In Accordance With Project Civil Engineering Requirements
   Provided By Prunuske Chatham, Inc.

6. Use Only Free-Draining Granular Material As Backfill
   Behind Abutment Walls And Wingwalls.
   Compact Material Placed Behind Walls To 90% Relative Compaction
   Using Only Light Or Hand-Operated Compaction Equipment.

CONCRETE REINFORCING STEEL

1. Provide Deformed Steel Bars Complying With ASTM A615:
   A. Bars Size #4 And Larger ..... Grade 60.
   B. Bars Size #3 ..... Grade 40.

2. Provide All Bars Full Length.
   A. Do Not Lap-Splice Any Bar.
   B. Do Not Weld-Splice Any Bar.

3. Position Deck Plank Longitudinal Bars Not Required To Be Full Length
   Mid-Length Of Deck Planks.

4. Shop-Fabricate All Bars Required To Be Bent.
   A. Cold-Bend All Bars.
   B. Do Not Apply Heat To Any Bar Or "Tack Weld" Any Bar.

5. Provide Minimum Concrete Cover For Reinforcing Bars As Follows:
   A. At Bottom And Sides Of Precast Bridge Planks ..... 1" +/- 1/4".
   B. At Ends Of Precast Bridge Planks ..... 1 1/2" +/- 1/4".
   C. At Top Surface Of Precast Bridge Planks ..... 2" +/- 1/4".
   D. At All Surfaces Of Reinforced Abutment Blocks ..... 3" +/- 1/4".

6. Position Bars As Shown On The Drawings To The Following Tolerances:
   A. Bar Location As Measured Perpendicular To Bar Length . +/- 1/4".
   B. Bar Location As Measured Parallel To Bar Length . +/- 1/2".
   C. Longitudinal Location Of Bends And Ends Of Bars ..... +/- 1/2".

REGISTERED PROFESSIONAL ENGINEER ALAN M. GAYLORD 09-30 NO. 17473 STRUCTURAL STATE OF CALIFORNIA

Project: Replacement Bridge For Jenner Community Club, Jenner, California
Client: Pacific Bridge And Construction, Inc. -- Sandy, Oregon -- 503-668-4798

STRUCTURAL SYSTEMS CONSULTING ENGINEERS, LLC
3515 N.E. 112th Avenue
Portland, Oregon 97220-2402
Voice: 503-255-4492
Fax: 503-255-4485
EMail: Engineers@StruSys.com

Revision 1 Date	Drawing Date	Designer	Drafter	Project
2009-01-20	January 12, 2009	Alan Gaylord	Alan Gaylord	1355-01

Drawing 2 | Title: Bridge Structure General Notes #1