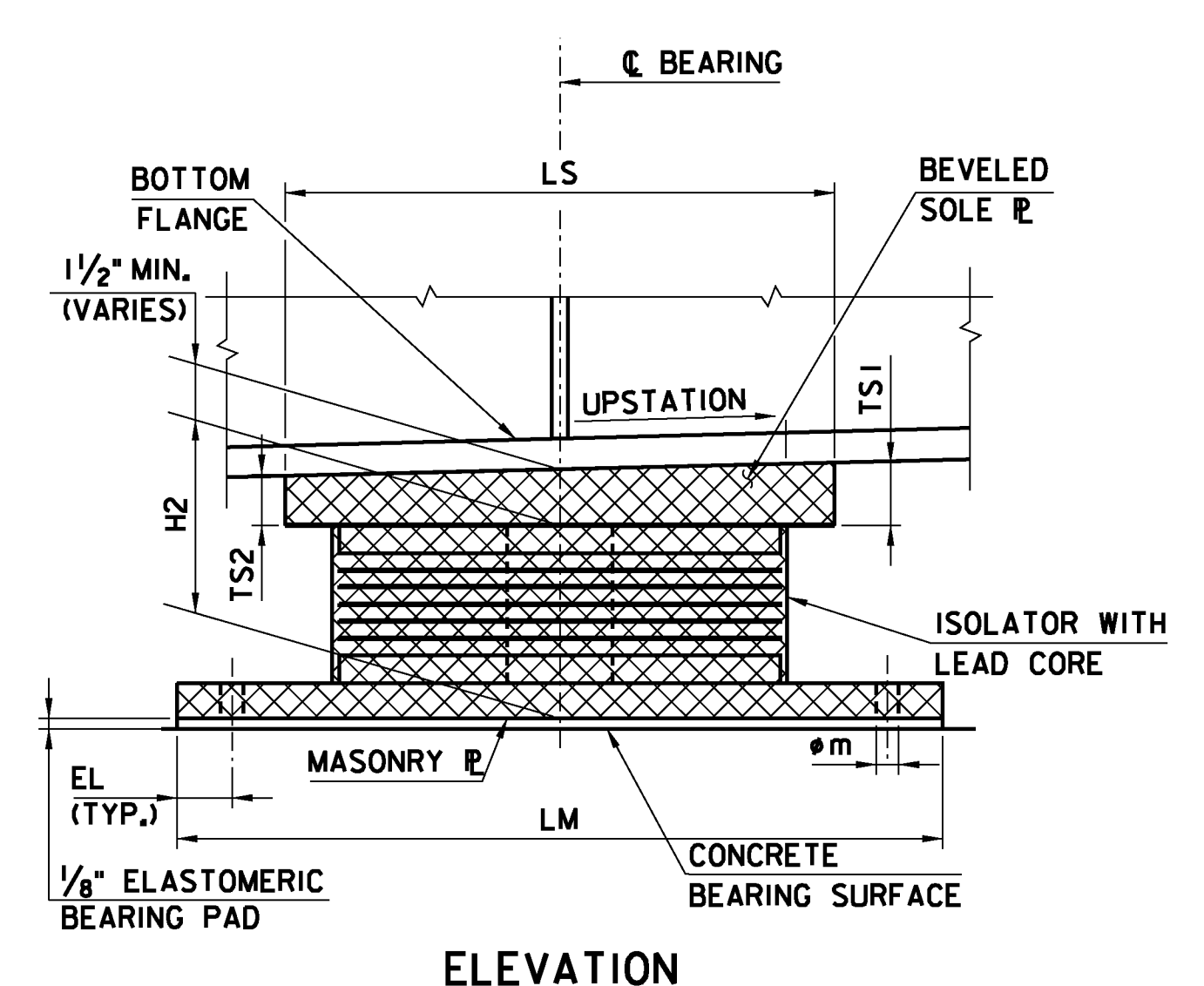
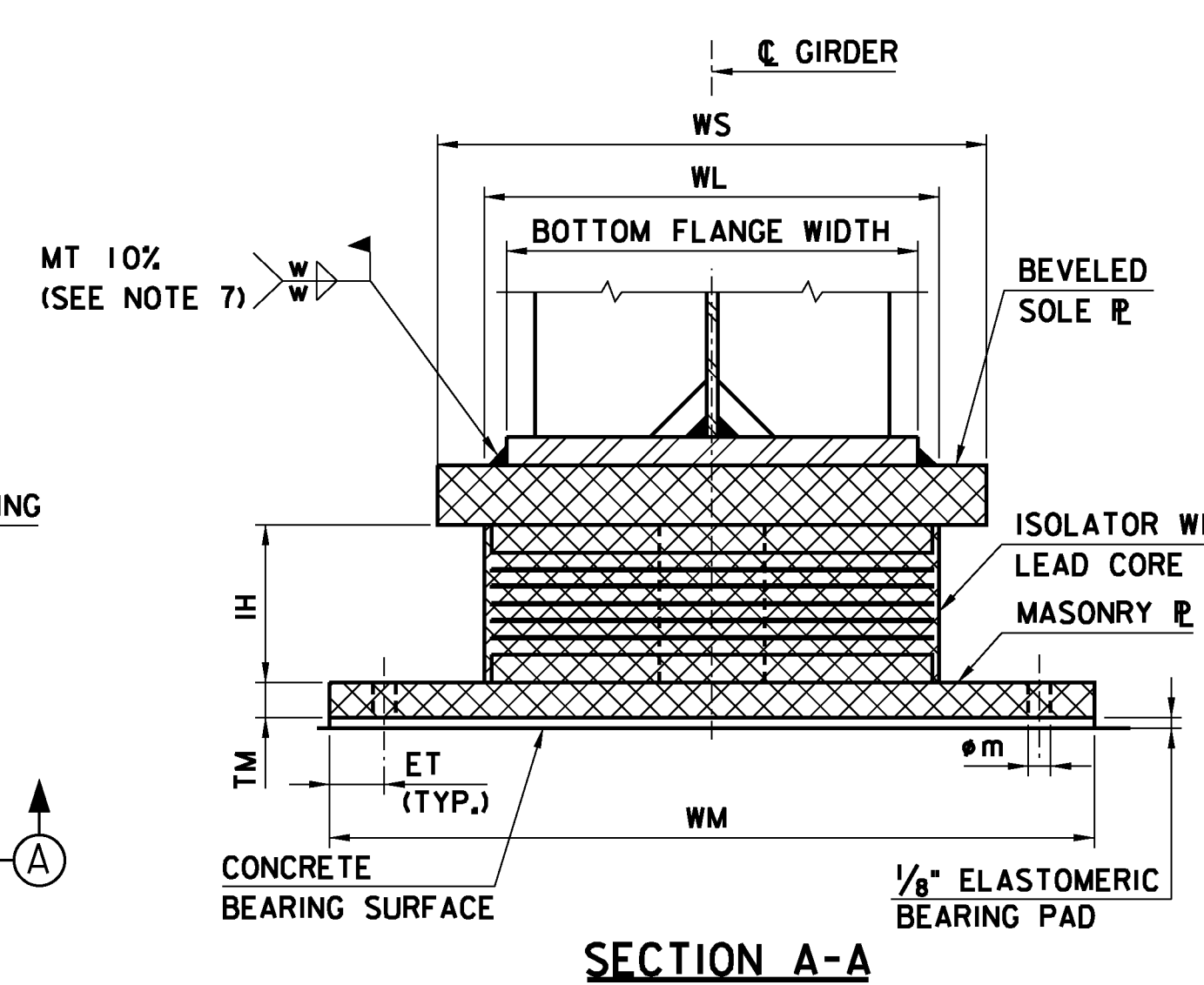
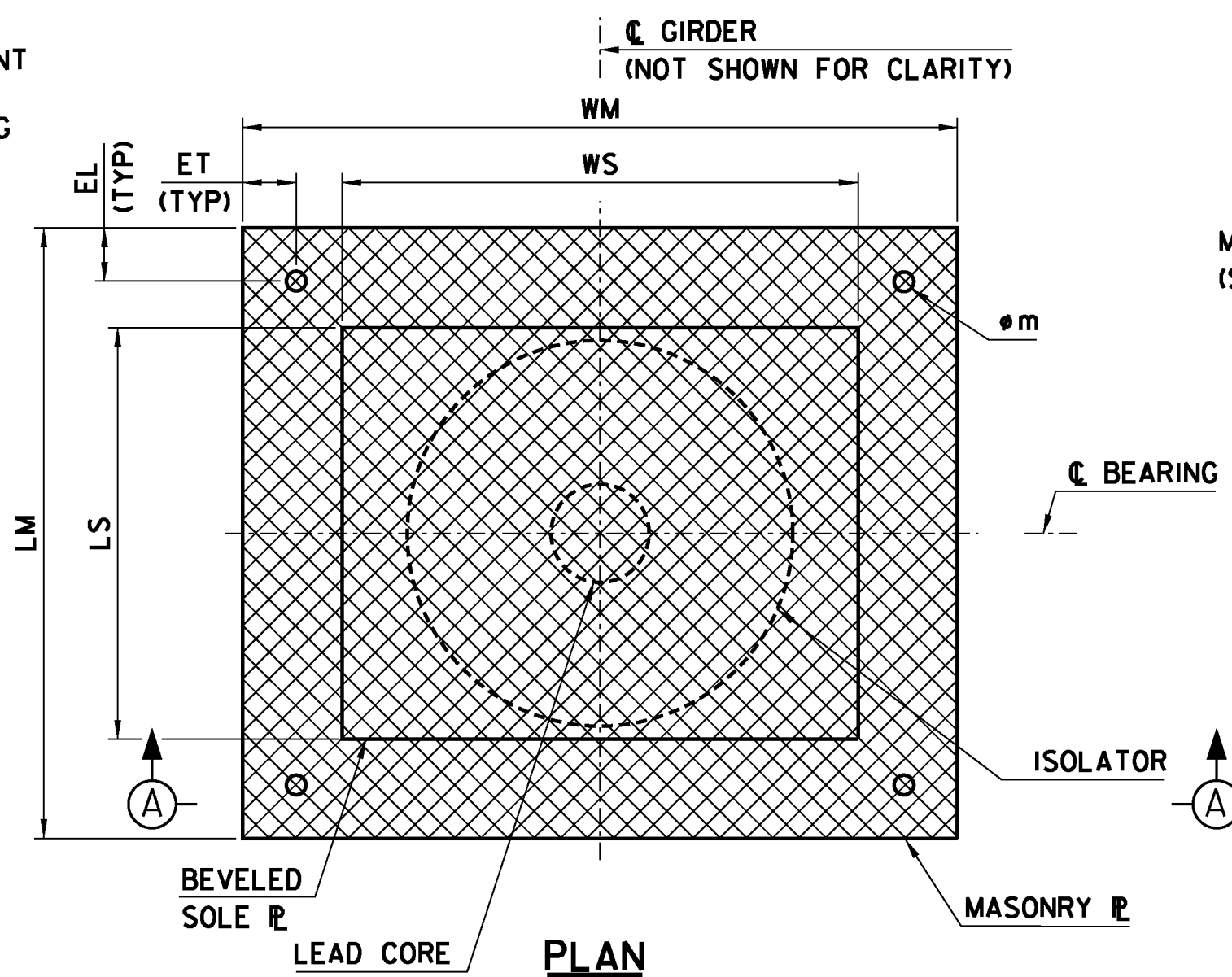
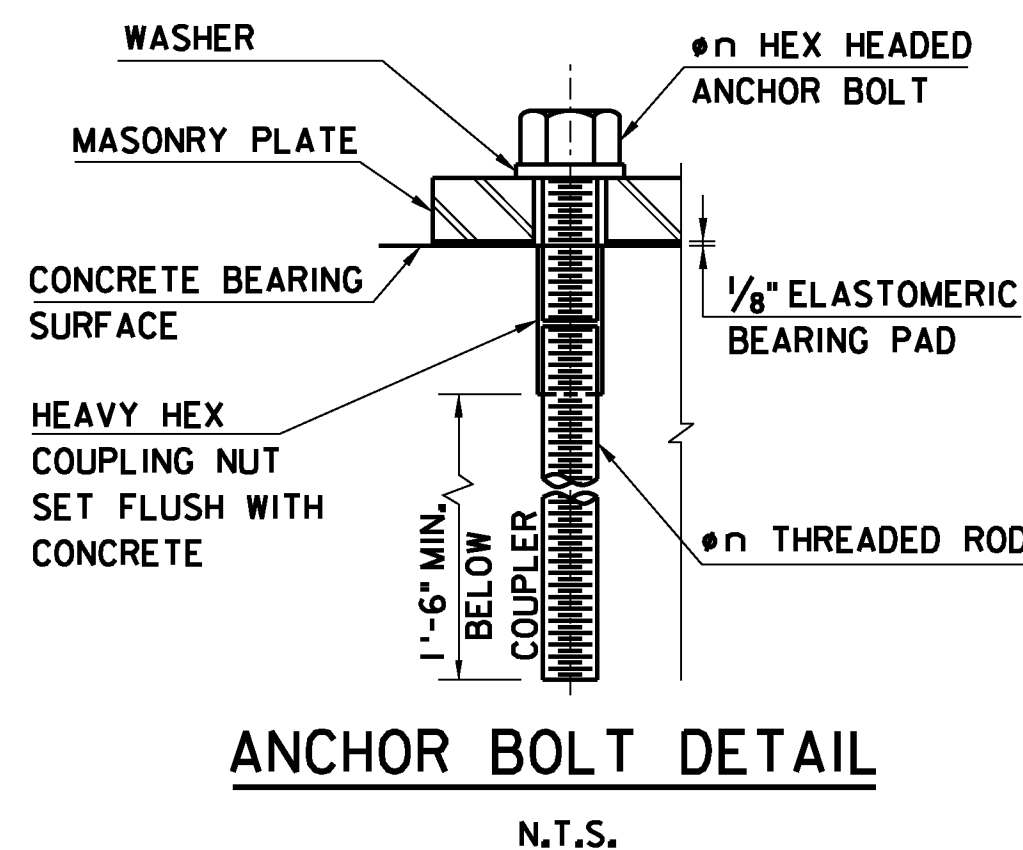


**NOTES:**

- ISOLATION BEARING ASSEMBLIES AND ANCHOR BOLTS SHALL BE DESIGNED IN CONFORMANCE WITH THE CURRENT EDITION OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND THE PROVISIONS OF THE SEISMIC ISOLATION BEARING SUPPLEMENTARY SPECIFICATION. BEARING FABRICATION, DELIVERY, STORAGE, AND HANDLING SHALL BE IN ACCORDANCE WITH THE SEISMIC ISOLATION BEARING SUPPLEMENTARY SPECIFICATION.
- CROSS HATCHED COMPONENTS OF THE BEARINGS ARE SHOWN FOR REPRESENTATIVE PURPOSES ONLY. A CIRCULAR LEAD CORE ELASTOMERIC BEARING IS SHOWN, BUT NOT MANDATORY. THE ACTUAL DETAILS AND CONFIGURATION OF THE COMPONENTS WILL BE DEPENDENT UPON THE SPECIFIC BEARING AS FURNISHED BY THE SELECTED BEARING MANUFACTURER. SEE THE SEISMIC ISOLATION BEARING SUPPLEMENTARY SPECIFICATION FOR APPROVED ISOLATION BEARING SUPPLIERS. THE BEARINGS PROVIDED SHALL HAVE A CAPACITY SUFFICIENT TO CONTROL ALL LOAD COMBINATION FORCES, ROTATIONS AND MOVEMENTS AS PROVIDED IN THE ISOLATION BEARING DESIGN TABLE ON THIS SHEET. HORIZONTAL THERMAL FORCES ARE DEPENDENT ON SPECIFIC BEARING SELECTED AND ARE NOT INCLUDED IN THE AS DESIGNED ISOLATION BEARING TABLE. THE BEARING MANUFACTURER SHALL INCLUDE APPLICABLE THERMAL FORCES IN BEARING DESIGN.
- STRUCTURAL STEEL FOR SOLE PLATES, MASONRY PLATES SHALL BE IN ACCORDANCE WITH THE PROVISIONS OF THE SEISMIC ISOLATION BEARING SUPPLEMENTARY SPECIFICATION. ALL STEEL WORK SHALL BE COATED IN ACCORDANCE WITH THE SUPPLEMENTARY SPECIFICATIONS.
- FULLY THREADED ANCHORS AND HEX HEADED ANCHOR BOLTS SHALL CONFORM TO ASTM F1554, GRADE 105. SWEDGED ANCHOR BOLTS WITH THREADED ENDS MAY BE SUBSTITUTED AT THE APPROVAL OF THE ENGINEER. THREADED COUPLER NUTS SHALL CONFORM TO ASTM A563 GRADE A OR SHALL BE FABRICATED FROM APPROVED MATERIAL. WASHERS SHALL CONFORM TO ASTM F436. ANCHOR BOLTS, COUPLER NUTS, NUTS AND WASHERS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A153. ANY DAMAGE TO THE GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH ASTM A780.
- WELDING SHALL BE IN ACCORDANCE WITH CURRENT ANSI/AASHTO/AWS BRIDGE WELDING CODE D1.5, WITH LATEST AASHTO REVISIONS.
- THE CONTINUOUS WELD CONNECTING THE BOTTOM FLANGE TO THE BEVELED SOLE PLATE SHALL BE ALLOWED TO COOL AFTER EACH PASS. THE TEMPERATURE OF THE STEEL ADJACENT TO THE PTFE SHEET LOW FRICTION SLIDING SURFACE OR ELASTOMER (WHERE PRESENT) SHALL NOT EXCEED 200°F. TEMPERATURE SHALL BE CONTROLLED BY THE WELDING PROCEDURES AND TEMPERATURE INDICATING CRAYONS OR OTHER DEVICES APPROVED BY THE ENGINEER. QUENCHING TO ACCELERATE COOLING IS NOT PERMITTED.
- THE SIZE OF THE WELDS BETWEEN THE BOTTOM FLANGE AND BEVELED SOLE PLATE SHALL BE AS SHOWN ON THE CONTRACT PLANS. MINIMUM WELD SIZE SHALL BE 5/16". THE TRANSVERSE JOINTS BETWEEN THE BOTTOM FLANGE AND THE SOLE PLATE SHALL BE FILLED WITH A NON-HARDENING CAULK COMPOUND IN ACCORDANCE WITH SECTION 923.05 OF THE STANDARD SPECIFICATIONS.
- THE CONTRACTOR SHALL PROTECT THE BEARINGS FROM DAMAGE DUE TO SHEAR DEFORMATION AND ROTATION OF BEARING CAUSED BY THE APPLICATION OF THE GIRDER SELF-WEIGHT AND DECK DEAD LOAD. THE METHOD OF PROTECTION SHALL BE DEFINED IN THE BEARING INSTALLATION SCHEME TO BE SUBMITTED AS A WORKING DRAWING IN ACCORDANCE WITH SECTION 104.08 OF THE STANDARD SPECIFICATIONS (WHERE APPLICABLE).
- THE FILLET WELD BETWEEN THE BOTTOM FLANGE AND THE BEVELED SOLE PLATE SHALL BE MADE AFTER THE DECK HAS BEEN POURED AND THE BEARING ASSEMBLIES HAVE BEEN SET INTO FINAL POSITION (WHERE APPLICABLE).
- MT INDICATES MAGNETIC PARTICLE TESTING. 10% MT INDICATES THAT AT LEAST 1 FOOT OF EVERY 10 FOOT LENGTH, 1 FOOT OF WELDS LESS THAN 10 FEET, AND 2 INCHES OF WELDS LESS THAN 1 FOOT, SHALL BE MAGNETIC PARTICLE TESTED.
- ANCHOR BOLTS MAY BE SET IN FORMS PRIOR TO POURING OF THE SUBSTRUCTURE CONCRETE OR SET IN OVERSIZED (3" DIAMETER MAX.) CORRUGATED METAL SLEEVES PREVIOUSLY PLACED. ANCHOR ROD HOLES MAY BE CORE DRILLED OR STAR DRILLED ONLY AS APPROVED BY THE ENGINEER. WASH AND DRY HOLE BEFORE FILLING WITH RESIN OR EPOXY GROUT IN ACCORDANCE WITH SUBSECTION 403.09(B) OF THE STANDARD SPECIFICATIONS. DRILLED HOLE DIAMETER SHALL BE AS PER EPOXY GROUT OR RESIN MANUFACTURER RECOMMENDATIONS.
- PERMITTED MOVEMENT IS THE MAXIMUM ONE WAY MOVEMENT (EXPANSION OR CONTRACTION) PLUS 1 INCH OF TOLERANCE.
- SOLE PLATE SHALL BE BEVELED AS NECESSARY TO ACCOMMODATE THE VERTICAL GEOMETRY OF THE SUPERSTRUCTURE. THE SOLE PLATE SHALL BE BEVELED IF THE LONGITUDINAL GRADE OF THE BOTTOM FLANGE IS 1/2" OR MORE, OR IF THE REQUIRED BEVEL IS 1/8" OR MORE. UNDER FULL DEAD LOAD, THE BOTTOM OF THE SOLE PLATE SHALL BE TRUE LEVEL. A MINIMUM THICKNESS OF 1/2" AT THE CENTERLINE OF THE PLATE SHALL BE MAINTAINED.
- SOLE PLATES AND MASONRY PLATES SHALL BE DESIGNED AND FURNISHED BY THE BEARING MANUFACTURER. MASONRY PLATES SHALL BE DESIGNED TO BEAR ON THE SUBSTRUCTURE BASED ON THE CONCRETE DESIGN STRENGTH AS SPECIFIED IN THE PLANS.
- DIMENSION "H2" REPRESENTS THE ASSUMED HEIGHT OF THE BEARING ASSEMBLY BETWEEN THE SOLE PLATE AND MASONRY PLATE. THE CONTRACTOR SHALL ADJUST THE BEARING SEAT ELEVATIONS BASED ON THE EXACT HEIGHTS OF THE BEARING ASSEMBLIES AND THE SOLE PLATE AND MASONRY PLATE THICKNESSES AS PROVIDED BY THE BEARING MANUFACTURER.
- BEARING SEATS SHALL NOT BE POURED UNTIL THE BEARINGS ARE SELECTED, THE BEARING WORKING DRAWINGS ARE APPROVED, AND THE SEAT ELEVATIONS HAVE BEEN APPROVED BY THE ENGINEER (WHERE APPLICABLE).
- DESIGN AND FINAL LOCATION OF ANCHOR BOLTS TO BE DETERMINED BY THE CONTRACTOR BASED ON APPROVED BEARING ASSEMBLY AND MASONRY PLATE SHOP DRAWINGS. THE MINIMUM NUMBER OF ANCHOR BOLTS PER BEARING ASSEMBLY SHALL BE TWO. LOCATIONS SHALL BE SET TO AVOID CONFLICTS AND INTERFERENCES WITH SUBSTRUCTURE REINFORCEMENT, BEARING COMPONENTS, AND STRUCTURAL STEEL DURING INSTALLATION AND TIGHTENING OF THE ANCHOR BOLTS. METHOD OF ANCHOR BOLT INSTALLATION SHALL BE CLEARLY DEPICTED ON THE CONTRACTOR'S WORKING DRAWINGS.
- FINAL LOCATION AND INSTALLATION OF ANCHOR BOLTS AS DETERMINED BY THE CONTRACTOR SHALL ALLOW FOR THE FUTURE REMOVAL OF THE HEX HEADED ANCHOR BOLT FOR REPLACEMENT OF THE BEARING ASSEMBLY.



**ISOLATION BEARING DETAILS**



AS DESIGNED ISOLATION BEARING TABLE			
DESCRIPTION	UNITS	BEARING DESIGNATION	
OVERALL BEARING HEIGHT (H2)	IN		
MAXIMUM DEAD LOAD	KIP		
MAXIMUM LIVE LOAD	KIP		
MINIMUM DEAD LOAD	KIP		
MINIMUM LIVE LOAD	KIP		
LIVE LOAD ROTATION	RAD		
FABRICATION MISALIGNMENT ROTATION	RAD		
HORIZONTAL THERMAL DISPLACEMENT	IN		
MAXIMUM HORIZONTAL THERMAL FORCE (ONEWAY)	KIP		
FACTORED NON-SEISMIC HORIZONTAL FORCE	KIP		
MAXIMUM HORIZONTAL NON-SEISMIC DISPLACEMENT	IN		
MAXIMUM SEISMIC DISPLACEMENT	IN		
MAXIMUM HORIZONTAL SEISMIC FORCE	KIP		
MINIMUM SEISMIC CHARACTERISTIC STRENGTH	KIP		
MINIMUM SEISMIC ELASTIC STIFFNESS	KIP/IN		
MINIMUM POST-ELASTIC STIFFNESS	KIP/IN		
EFFECTIVE STIFFNESS, SEISMIC LOADING	KIP/IN		
MINIMUM ENERGY DISSIPATED PER CYCLE	KIP-IN		

- MASONRY PLATES SHALL BE SET SUCH THAT THEY WILL BE LOCATED AT THE SUBSTRUCTURE UNIT CENTERLINE OF BEARING AT THE CENTERLINE OF GIRDER WEB. SOLE PLATES SHALL BE SET SUCH THAT THEY WILL BE LOCATED AT THE CENTERLINE OF THE GIRDER WEB AT THE CENTERLINE OF THE BEARING STIFFENER OR STIFFENER ARRANGEMENT.
- THE PERFORMANCE CHARACTERISTICS SHOWN ON THE AS-DESIGNED ISOLATION BEARING TABLE WAS SPECIFIED BY THE ENGINEER TO DERIVE SATISFACTORY SEISMIC PERFORMANCE OF THE GLOBAL STRUCTURE SYSTEM DURING THE DESIGN SEISMIC EVENT. THE ISOLATION BEARING FABRICATOR SHALL DESIGN THE BEARING TO MEET THESE MINIMUM PERFORMANCE CHARACTERISTICS. WHERE THE FABRICATOR'S PROPOSED BEARING DESIGN MAY VARY FROM THESE CHARACTERISTICS BY MORE THAN 10%, THE ENGINEER WILL REANALYZE THE GLOBAL MODEL AND ADVISE THE FABRICATOR AS TO WHETHER THE PROPOSED REVISED PERFORMANCE CHARACTERISTICS ARE ACCEPTABLE. THE ENGINEER SHALL HAVE SOLE JUDGMENT OF WHETHER OR NOT THE PROPOSED CHARACTERISTICS ARE ACCEPTABLE.

AS BUILT ISOLATION BEARING TABLE			
DESCRIPTION	UNITS	BEARING DESIGNATION	
OVERALL BEARING HEIGHT (H2)	IN		
ISOLATOR HEIGHT (IH)	IN		
MASONRY PLATE THICKNESS (TM)	IN		
MASONRY PLATE WIDTH (WM)	IN		
MASONRY PLATE LENGTH (LM)	IN		
MASONRY PLATE ANCHOR BOLT HOLE DIAMETER (φm)	IN		
MASONRY PLATE BOLT LONG. EDGE DISTANCE (EL)	IN		
MASONRY PLATE BOLT TRANS. EDGE DISTANCE (ET)	IN		
SOLE PLATE UPSTATION THICKNESS (TS1)	IN		
SOLE PLATE DOWNSTATION THICKNESS (TS2)	IN		
SOLE PLATE WIDTH (WS)	IN		
SOLE PLATE LENGTH (LS)	IN		
LOAD PLATE WIDTH (WL) (WHERE REQUIRED)	IN		
LOAD PLATE LENGTH (LL) (WHERE REQUIRED)	IN		
LOAD PLATE UPSTATION THICKNESS (TL1) (WHERE REQUIRED)	IN		
LOAD PLATE DOWNSTATION THICKNESS (TL2) (WHERE REQUIRED)	IN		
ANCHOR BOLT DIAMETER (φn)	IN		
BOLTS PER BEARING	EA		
MAXIMUM DEAD LOAD	KIP		
MAXIMUM LIVE LOAD	KIP		
MINIMUM DEAD LOAD	KIP		
MINIMUM LIVE LOAD	KIP		
LIVE LOAD ROTATION	RAD		
FABRICATION MISALIGNMENT ROTATION	RAD		
HORIZONTAL THERMAL DISPLACEMENT	IN		
MAXIMUM HORIZONTAL THERMAL FORCE (ONEWAY)	KIP		
FACTORED NON-SEISMIC HORIZONTAL FORCE	KIP		
MAXIMUM HORIZONTAL NON-SEISMIC DISPLACEMENT	IN		
MAXIMUM SEISMIC DISPLACEMENT	IN		
MAXIMUM HORIZONTAL SEISMIC FORCE	KIP		
MINIMUM SEISMIC CHARACTERISTIC STRENGTH	KIP		
MINIMUM SEISMIC ELASTIC STIFFNESS	KIP/IN		
MINIMUM POST-ELASTIC STIFFNESS	KIP/IN		
EFFECTIVE STIFFNESS, SEISMIC LOADING	KIP/IN		
MINIMUM ENERGY DISSIPATED PER CYCLE	KIP-IN		

ACCELERATION RESPONSE SPECTRUM									
T (SEC)									
So (g)									

SITE-SPECIFIC ACCELERATION RESPONSE SPECTRUM CORRESPONDING TO A XX% PROBABILITY OF EXCEEDANCE IN XX YEARS

App.	No.	DATE	REVISION
	0	6/12	ISSUED DRAWING



NEW JERSEY TURNPIKE AUTHORITY

SEISMIC ISOLATION BEARING DETAILS

OFFICE OF THE CHIEF ENGINEER  
WOODBRIDGE, NEW JERSEY

2012 STANDARD DRAWING  
BR-9