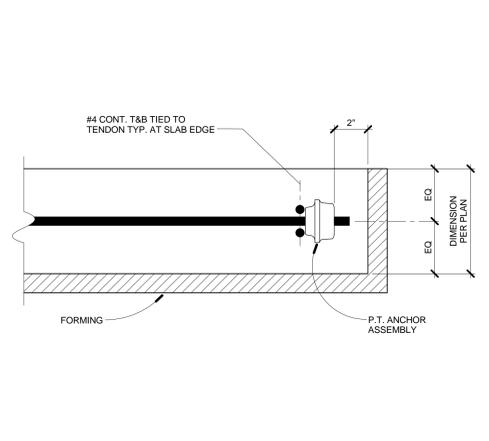
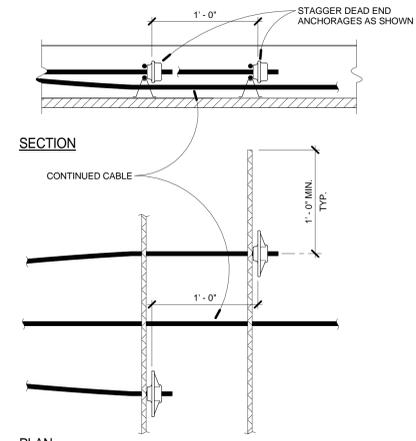


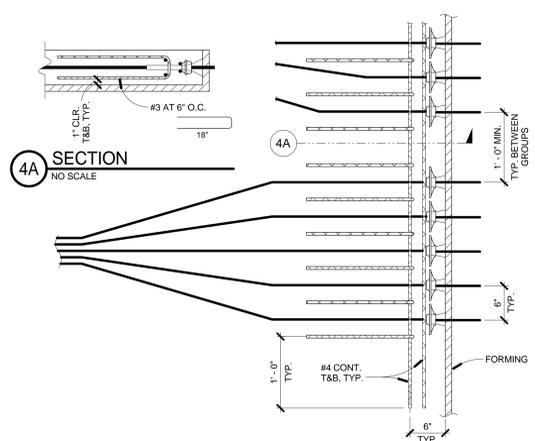
**1 STRESSING END ANCHOR**  
SS021 NO SCALE



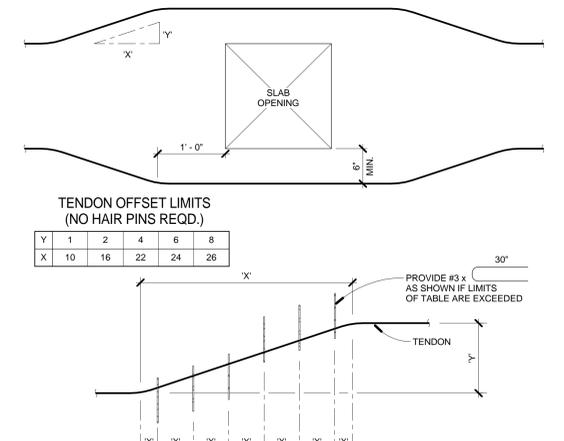
**2 DEAD END ANCHOR**  
SS021 NO SCALE



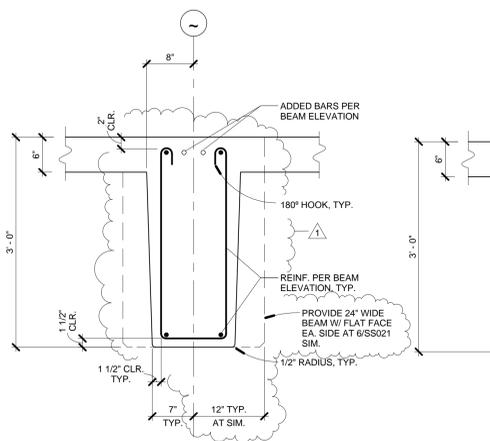
**3 DEAD END ANCHORS AT ADDED TENDONS**  
SS021 NO SCALE



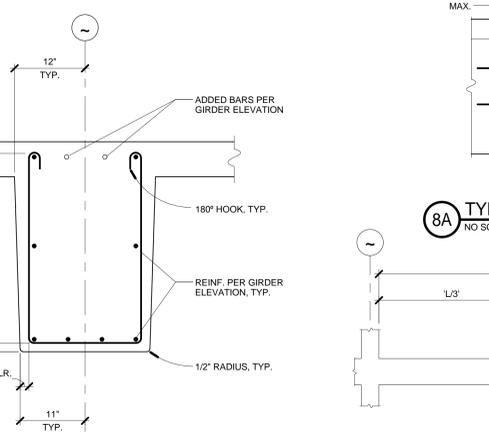
**4 SLAB REINFORCEMENT AT ANCHORS AT SLABS**  
SS021 NO SCALE



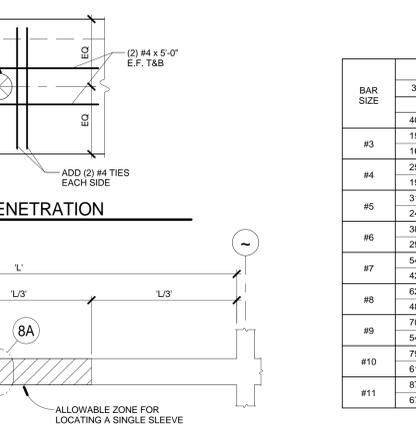
**5 TENDON OFFSET LIMITS**  
SS021 NO SCALE



**6 TYP. BEAM SECTION**  
SS021 NO SCALE



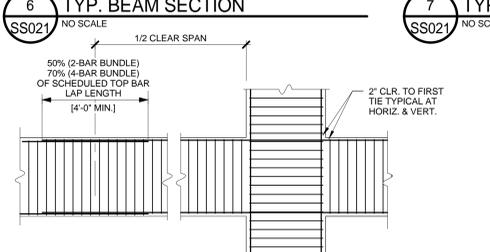
**7 TYP. GIRDER SECTION**  
SS021 NO SCALE



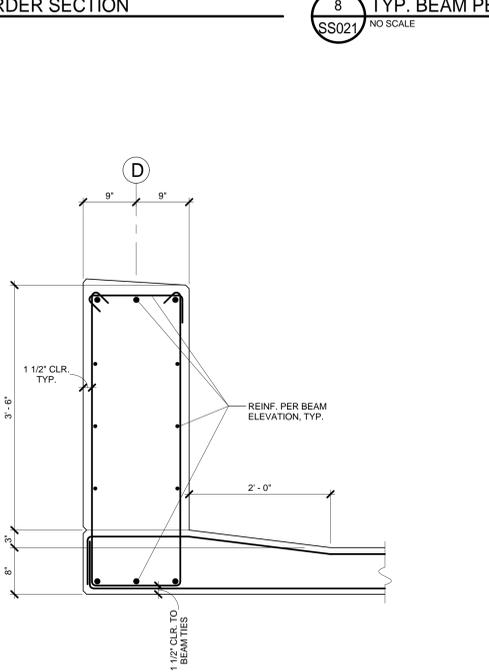
**8 TYP. BEAM PENETRATION**  
SS021 NO SCALE

BAR SIZE	CONCRETE (NOTE 1)	
	3,000 PSI	≥ 4,000 PSI
#3	40	60
	19	28
#4	25	37
	19	29
#5	31	47
	24	36
#6	38	56
	29	43
#7	54	81
	42	63
#8	62	93
	48	72
#9	70	104
	54	80
#10	79	118
	61	91
#11	87	131
	67	101

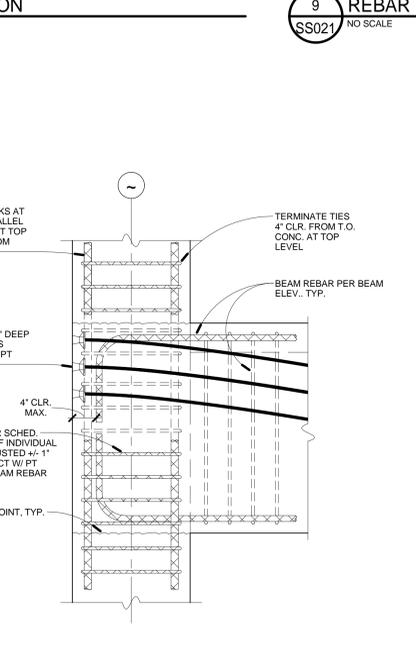
**9 REBAR LAP SCHEDULE**  
SS021 NO SCALE



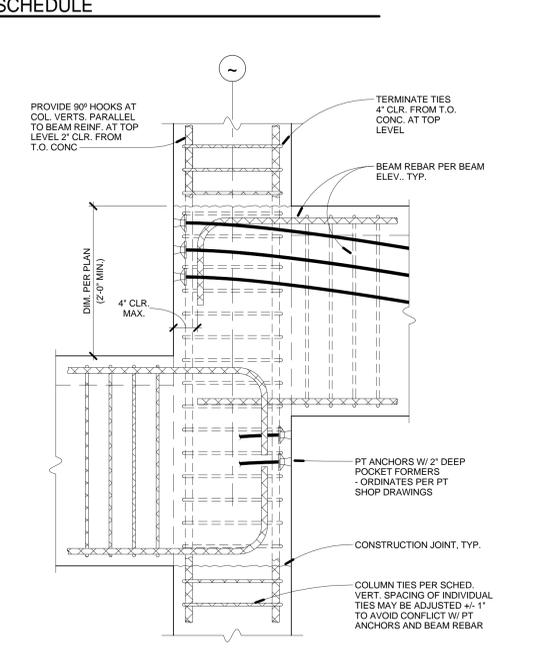
**10 DETAIL**  
SS021 NO SCALE



**11 TYP. BEAM SECTION**  
SS021 NO SCALE



**12 BEAM SECTION**  
SS021 NO SCALE



**13 TYP. COLUMN/BEAM JOINT SECTION**  
SS021 NO SCALE



**14 TYP. COLUMN/BEAM JOINT SECTION**  
SS021 NO SCALE

**POST TENSIONING NOTES**

- PRESTRESSING STEEL
  - PRESTRESSING STEEL SHALL BE SEVEN-WIRE LOW RELAXATION STRAND FOR PRESTRESSED CONCRETE, MANUFACTURED IN ACCORDANCE WITH ASTM A-416, FREE FROM CORROSION, HAVING A GUARANTEED MINIMUM ULTIMATE TENSILE STRENGTH OF 270 KSI, NOMINAL DIAMETER EQUAL TO 1/2", AND AN AREA EQUAL TO 0.153 SQUARE INCHES.
  - FOR TYPICAL POST-TENSIONING DETAILS, SEE THIS SHEET.
- ANCHORAGE AND TENDON PLACEMENT
  - ALL ANCHORING HARDWARE SHALL MEET THE MINIMUM REQUIREMENTS SET FORTH IN THE LATEST EDITION OF ACI 318 (CHAPTER 18) OR PRESTRESSED CONCRETE INSTITUTE "PCI STANDARD CODE FOR PRESTRESSED CONCRETE".
  - ANCHOR CASTING WITH PLASTIC POCKET FORMER SHALL BE USED AT ALL STRESSING ENDS WHERE ANCHORAGE MUST BE RECESSED IN CONCRETE IN ORDER TO ACHIEVE REQUIRED COVER.
  - WHERE TENDONS INTERFERE WITH EACH OTHER, ONE TENDON MAY BE MOVED HORIZONTALLY IN ORDER TO AVOID THIS INTERFERENCE, WHERE THERE IS INTERFERENCE BETWEEN TENDONS AND ANY KIND OF CONDUIT OR REBAR, THE TENDON PROFILE COVERS.
  - TENDONS SHALL CLEAR OPENINGS AND DRAINS PER DETAIL 5/.
  - ALL SUPPORT STEEL AND POST-TENSIONING TENDONS SHALL BE FIRMLY SECURED IN FORMS TO OBTAIN DIMENSIONS AND LOCATIONS SHOWN ON PLACING DRAWINGS.
  - SUFFICIENT BAR CHAIRS SHALL BE PROVIDED AS REQUIRED TO HOLD THE TENDONS IN TRUE VERTICAL POSITION. TENDONS SHALL BE CHAIRED AT EACH INTERSECTION OF SUPPORT BARS.
  - SUPPORT BARS SHALL BE #4 OR LARGER AND SPACED NOT MORE THAN 4'-0" ON CENTER. LAP CONTINUOUS SUPPORT BARS 2'-3" MINIMUM.
  - AT TENDON ANCHORS, PROVIDE ENCAPSULATING HARDWARE TO CREATE A WATER-TIGHT ASSEMBLY. ALSO WRAP ANY CRACK LONGER THAN 1/2" IN THE TENDON PLASTIC COATING WITH WATER-PROOF TAPE. CONCRETE SHALL BE PLACED IN SUCH A MANNER AS NOT TO DISTURB THE TENDON PROFILES. WORKMEN MUST BE CAUTIONED AGAINST WALKING ON TENDONS OR SUPPORT BARS. ANY TENDON DISPLACED DURING CONCRETE PLACEMENT MUST BE RESTORED TO ITS ORIGINAL PROFILE BEFORE CONCRETE SETS.
- STRESSING
  - THE STRESSING OPERATION SHALL BE UNDER THE IMMEDIATE CONTROL OF A PERSON EXPERIENCED IN THIS TYPE OF WORK. HE MUST EXERCISE CLOSE CHECK AND CONTROL OF ALL OPERATIONS. THE STRESSING SHALL NOT COMMENCE UNTIL CONCRETE TEST CYLINDERS, CURED UNDER JOB SITE CONDITIONS, HAVE BEEN TESTED AND INDICATE THE CONCRETE HAS REACHED A MINIMUM STRENGTH OF 9750 PSI. ALL PRESTRESSING STEEL SHALL BE STRESSED BY MEANS OF HYDRAULIC JACKS EQUIPPED WITH ACCURATE READING CALIBRATED HYDRAULIC PRESSURE GAUGES. A CALIBRATION SHEET SHALL ACCOMPANY EACH JACK-PUMP COMBINATION. IF INCONSISTANCIES BETWEEN THE MEASURED ELONGATION AND THE JACK GAUGE READING OCCUR, THE JACK-GAUGE-PUMP UNIT SHALL BE RECALIBRATED. AN AGREEMENT OF WITHIN 5% SHALL BE SATISFACTORY.
  - THE MAXIMUM JACKING FORCE TO OVERCOME FRICTION SHALL NOT EXCEED 80% OF THE ULTIMATE FORCE OF THE TENDON (270 x 153 x .80 = 33 KIPS). TENDONS SHALL BE ANCHORED AT A FORCE NOT TO EXCEED 70% OF THE ULTIMATE FORCE OF THE TENDON (41.3 x .70 = 28.9 KIPS). FORCES SHOWN ON THE STRUCTURAL DRAWINGS ARE EFFECTIVE FORCES AFTER ALL LOSSES. LUMP SUM LONGTERM LOSSES DUE TO ELASTIC SHORTENING, CREEP, SHRINKAGE AND TENDON RELAXATION SHALL BE ASSUMED TO BE 15 KSI (MAXIMUM EFFECTIVE FORCE PER TENDON EQUALS 28.6 KIPS). IMMEDIATE LOSSES DUE TO FRICTION SHALL BE CALCULATED BY THE POST TENSIONING CONTRACTOR AND LOSS CALCULATIONS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW. WOBBLE AND CURVATURE FRICTION COEFFICIENTS USED IN FRICTION LOSS CALCULATIONS SHALL BE VERIFIED DURING TENDON STRESSING OPERATIONS AND APPROPRIATE ADJUSTMENTS MADE AS REQUIRED.
  - TENDONS STRESSED FROM ONE END ONLY SHALL BE INDICATED ON THE PLACING DRAWINGS. TENDONS THAT ARE STRESSED FROM BOTH ENDS NEED NOT BE STRESSED FROM BOTH ENDS SIMULTANEOUSLY IF IT CAN BE SHOWN THAT THE WEDGES ON THE OPPOSITE END ARE PRESEALED AND CAUSE NO SLIPPAGE OF THE TENDON. THESE TENDONS MAY HAVE MORE ELONGATION AT ONE END THAN AT THE OPPOSITE END. ELONGATIONS FROM BOTH ENDS SHALL TOTAL THE ELONGATIONS SHOWN ON SHOP DRAWINGS. TENDONS STRESSED FROM BOTH ENDS SHALL HAVE FULL GAUGE PRESSURE ATTAINED AT EACH END.
  - STRESSING SEQUENCE:
    - ALL TEMPERATURE TENDONS.
    - ALL UNIFORM SLAB TENDONS.
    - ALL BEAM TENDONS.
    - ALL GIRDER TENDONS.
  - TAKE SAFETY PRECAUTIONS AS NECESSARY. DO NOT PERMIT WPKMEN TO STAND BEHIND JACKS WHILE STRESSING TENDONS.
  - NO ANCHORAGE OF ANY TYPE SHALL BE SHOT OR DRILLED IN THE POST-TENSION SLAB AFTER CONCRETE IS PLACED WHERE DAMAGE OR CONTACT MAY OCCUR TO THE POST TENSIONED STRAND. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO COORDINATE THE LOCATIONS OF ALL SUCH ANCHORAGES.
  - THE PRESTRESSING SUPPLIER SHALL FURNISH TENDON LAYOUT AND SUPPORT BAR SHOP DRAWINGS TO THE ENGINEER PRIOR TO FABRICATION. PLACING SHEETS SHALL CONTAIN ALL INFORMATION NECESSARY TO POSITION ALL PRESTRESSING AND SUPPORT REINFORCING IN THE FIELD WITHOUT HAVING TO REFER TO THE STRUCTURAL DRAWINGS. CONTRACTOR SHALL NOT PLACE ANY PRESTRESSING AND SUPPORT REINFORCING UNTIL SHOP DRAWINGS REVIEWED AND APPROVED BY THE ENGINEER ARE RECEIVED ON THE JOB SITE.

three inches = one foot.  
one and one half inches = one foot.  
one inch = one foot.  
three quarters inch = one foot.  
one half inch = one foot.  
three eighths inch = one foot.  
one quarter inch = one foot.  
one eighth inch = one foot.  
one sixteenth inch = one foot.  
VA FORM 08-R231

Revisions:	Date:
1 Beam Revision	2-24-14

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Drawings Title  
**Typical Post Tension Concrete Details**

Approved: Project Director

Project Title  
**VA Sierra Nevada Parking Structure**

Project Number  
**654-CSI-914**

Building Number  
**16**

Drawing Number  
**SS021**

Location  
**975 Kirman Ave., Reno, Nevada**

Date  
**January 20, 2014**

Checked  
**RH**

Drawn  
**NVGI**

Office of Construction and Facilities Management  
Department of Veterans Affairs