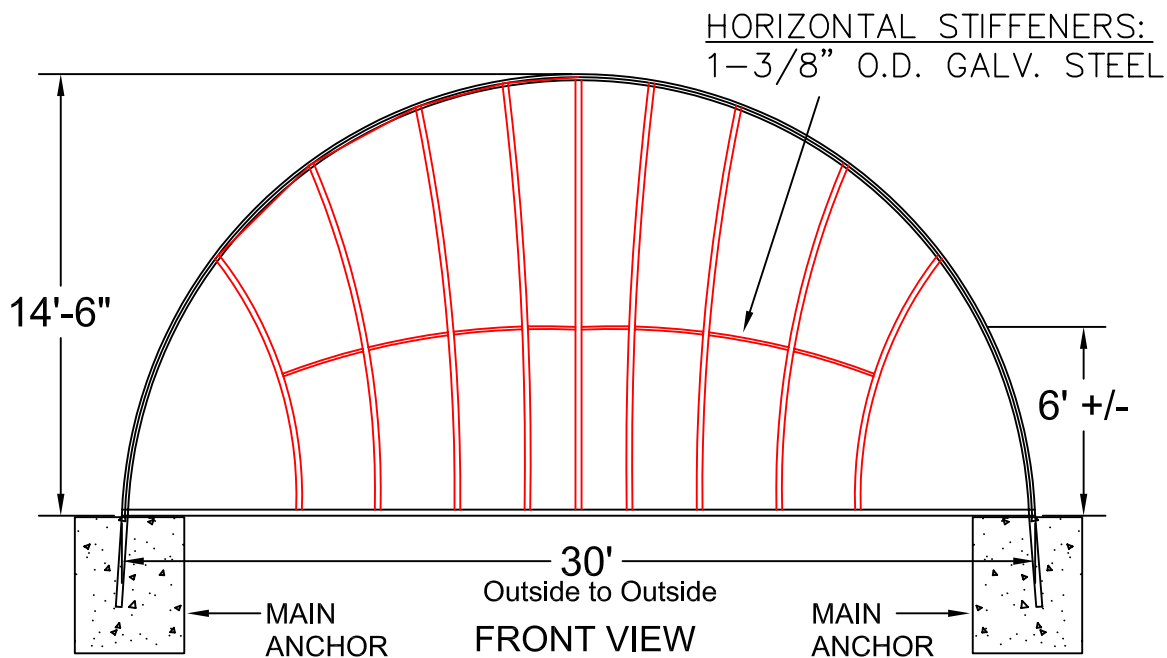
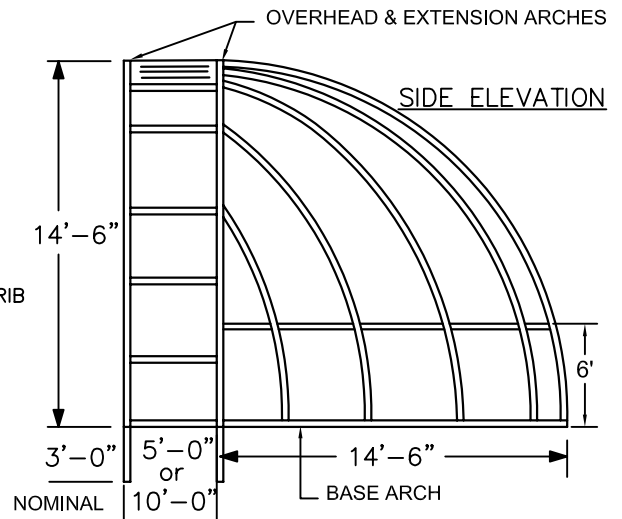
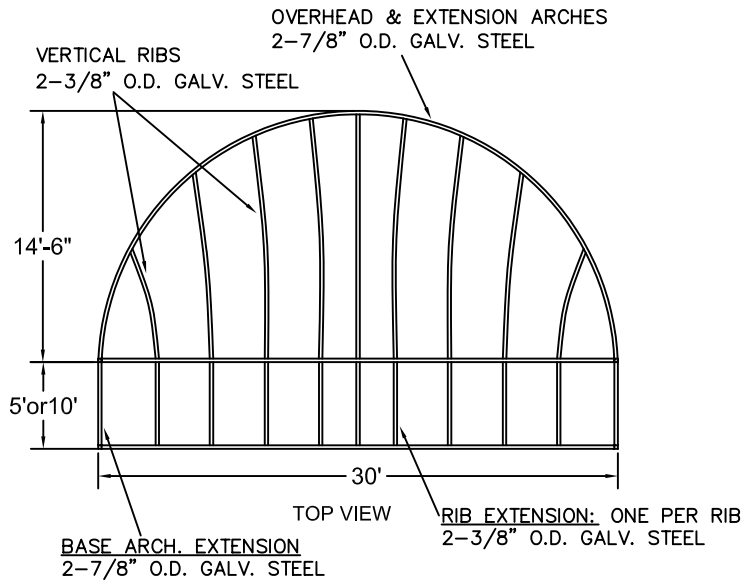


30' PERPENDICULAR ARCH BACKSTOP

- MODEL #1214-05 14'6"H, 30' W, 19'6" D (2450 LBS)
- MODEL #1214-10 14'6"H, 30' W, 24'6" D (3430 LBS)



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SCALE: N.T.S.
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DRAWN BY: AMC
REV: 05-09-12

TITLE: Specification/Installation Instructions

30' PERPENDICULAR ARCH BACKSTOP

DWG. NO.

MODEL #1214-05, 1214-10

SHEET
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Specifications:

Overhead and Base Arches: 2-7/8" O.D. galvanized steel.

Vertical Ribs: 2-3/8" O.D. galvanized steel. Ribs shall be formed to a smooth continuous radius throughout the entire length of each rib.

Flattened Sleeves: 1 7/8" O.D. galvanized tube factory flattened and punched.

Horizontal Stiffeners: 1-3/8" O.D., secured between vertical ribs with 2-way galvanized split clamps, 5/16" x 1-1/4" carriage bolts and hex nuts. Where stiffeners connect to outside ribs, galvanized steel brace bands shall be used along with 5/16" x 1" carriage bolts and hex nuts. Exposed threads shall be destroyed.

Main Footing Anchors: 2-7/8" O.D. tube, internally welded sleeves that fit into base and overhead arch ends (2 3/8" O.D. steel). Footing anchors shall extend 3 feet into footings and shall be welded at the bottom with 1 piece of 2" x 2" x 6" long angle to form an anchor in the concrete footing.

Anchor Bolts: 5/8" x 12" foundation bolts, extending throughout base arch and shall be evenly spaced between vertical ribs. Exposed threads shall be destroyed.

Tension Bars: 3/4" galvanized and shall be secured with galvanized tension bands spaced 18 inches on center and bolted with 5/16" x 1" zinc-plated carriage bolts and hex nuts. Threads shall be destroyed by installer along base arch and 10 feet up on overhead arch. Tension bars shall be installed along base; overhead and overhead extension arches to secure chain link fabric.

Chain Link Fabric: Fabric shall be 9-gauge on all 1214 models. It shall be installed horizontally in single lengths to outside of backstop using 12-gauge galvanized tie wire every 12 inches along vertical ribs. Edges shall be lapped approximately 1" and tied together with 9-gauge, #3 galvanized hog rings every 6 inches along seams. Fabric shall be pulled tight around curvature of backstop and shall be cut and trimmed in a neat and professional manner. Where wire is cut, exposed barbs shall be bent double to leave a knuckled edge.

PW Heavy Duty Adjustable galvanized Clamps: Custom made 2-7/8" P.W. Heavy Duty Adapter Collars.

PW Overhead Arch Adapter Sleeve for Rib#1: Custom made 3-1/2" P.W. Overhead Adapter Sleeve.

Concrete Footing: Footings for overhead arch shall be 4' deep x 3' wide. Footings for base arch anchor bolts shall be 18" deep x 18" wide. Concrete not included.

Finish: All tube and hardware is galvanized. All fasteners are zinc-plated except anchor bolts.


Overhead Extension Installation:

Specifications:

Overhead Arch Extension: 2-7/8" O.D. galvanized steel.

Rib Extensions: 2-3/8" O.D. galvanized steel. Rib extensions are included only on models equipped with optional overhead extension arch. There shall be one rib extension per vertical rib plus two ribs per side, equally spaced between the top of the end ribs and the base arch. Rib extensions connect the overhead extension arch to the overhead arch.

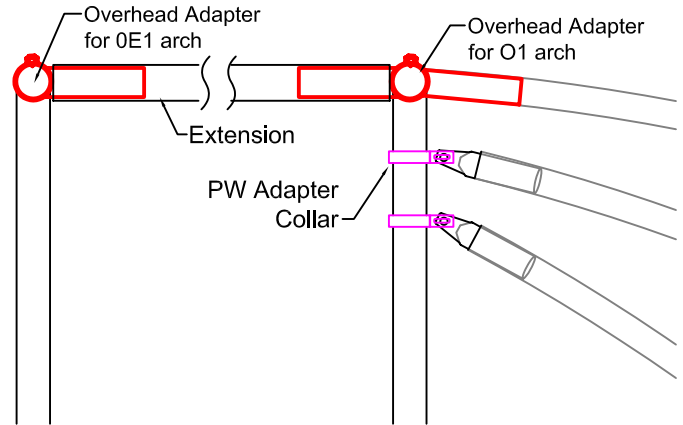
Overhead Extension Arch & Base Extension: 2-7/8" O.D. galvanized steel, same as overhead and base arches described above. Extensions of 5-feet and 10-feet are available on perpendicular models only.

 ATHLETIC MFG. CO. Patterson-Williams QUALITY ATHLETIC AND PARK EQUIPMENT SINCE 1919	P.O. Box 9028 Ph: 800-687-5768 Fax: 866-888-1110 Mesa, AZ 85214	SCALE: N.T.S.	TITLE: Specification/Installation Instructions	
		DATE: 10-08-04	30' PERPENDICULAR ARCH BACKSTOP	
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		REV: 05-09-12		
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GENERAL NOTES:

- I. Check materials received with the parts list (Page 10) to make sure that all components are included and to assure that the unit is complete.
- II. The site must be level not more than + 1" variation from mean elevation over the entire length and depth of the base arch.
- III. A construction-type forklift with a 20-foot boom capacity and scaffold will be necessary to assemble frames and attach wire mesh.
- IV. For maximum ball-capture, the overhead arch should be directly over home plate.
- V. The base and overhead arches are 2-7/8" O.D. and consist of two curved sections.

They are marked as follows:



The base and overhead arches are marked as follows:

Left Base Arch:	B-1	Right Base Arch:	B-2
Left Overhead Arch:	O-1	Right Overhead Arch:	O-2
Left Overhead Arch Ext.:	OE-1	Right Overhead Arch Ext.:	OE-2

Extremely Important:

DO NOT POUR CONCRETE UNTIL ENTIRE FRAME IS ASSEMBLED.

Before assembling the overhead arch & extension arch:

1. Slide ten adapter collars on each arch section before assembly.
2. Slide the Overhead Arch Adapter Sleeve onto left side of overhead arch (O1).
3. Secure sections with 5/8" x 4" Hex Bolts, Washer, and Nylocks.

PW has noted the size of the main anchor footings as a guide line, and asks that you check with your local permit authorizing personnel, or your architect before proceeding, as your area of the country might require larger footings.

PW has also noted this particular size, so the main anchors may swivel on the base arch to properly align with the overhead arch, the anchor must freely hang in footing and not touch sides of footing. When installing, place the anchors in the base arch, and leave them FINGER TIGHT ONLY, at this time. Place the overhead arch onto the main anchors and finger tighten at this time. This allows the overhead arch to settle in the proper angle and sphere to insure trouble free alignment with the ribs.

ONLY after assembling the entire arch, go back and tighten all set screws with proper sized allen wrenches at this time.

FRAME ASSEMBBLY

1. Assemble the Base Arch: (See Detail H page 10)
 - 1.1 Locate the two sections of the base arch. (B-1, B-2) (Standing inside the base arch B-1 and B-2 are on your left and right respectively).
 - 1.2 Begin by connecting the two sections (B-1, B-2) of the base arch together using the set screws provided. Make sure the end sleeves on B-2 are fully seated. Set in proper field location. Measure 30' outside dimensions and adjust as necessary to conform to the 30' dimension. Mark the location of the main footings at each end of the base arch. Mark the 8 anchor bolt locations at each pre-drilled hole on B-1, B-2.
 - 1.3 Move base arch aside and dig footings. Main anchor footing dimensions are 36" wide x 48" deep. Note: MAIN ANCHOR FOOTINGS SHOULD BE DUG TO ACCOMODATE THE ANGLE OF THE ANCHORS. Center the anchors in footing hole. (See Detail page 9 & 10)
 - 1.4 Relocate base arch to match footing locations. Measure center to center on base arch ends again and hold 30' dimension. Stake rear of base arch to prevent sliding when installing overhead arch. Note: Footing sizes are based on average soil conditions. Loose and/or sandy soil is not average and footing sizes must be increased accordingly to meet local soil conditions.



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Before assembling the overhead arch & extension arch:

1. Slide ten adapter collars on each arch section of Overhead Arch O1 before assembly.
Slide six adapter collars on each arch section of Overhead Arch Extension OE1 before assembly.
2. Slide the Overhead Arch Adapter Sleeve onto left side of arch (O1).
Slide the Overhead Arch Extension Sleeve onto left side of arch OE1.
3. Secure sections with 5/8" x 4" Hex Bolts, Washer, and Nylocks.
Tighten before lifting overhead arch in the air.

2. Assemble the Overhead Arch:

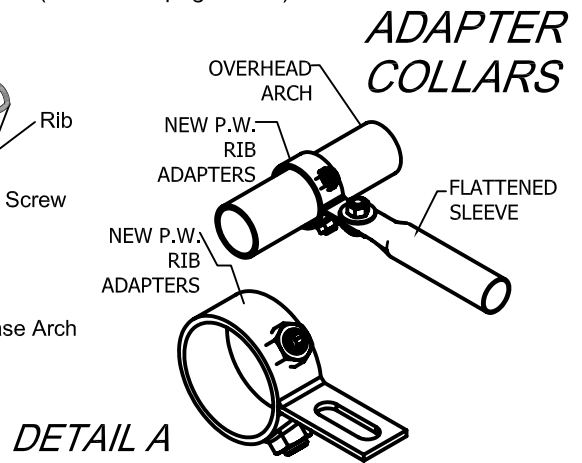
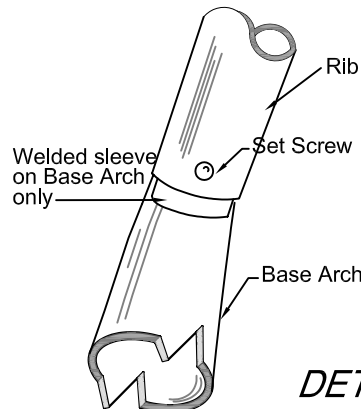
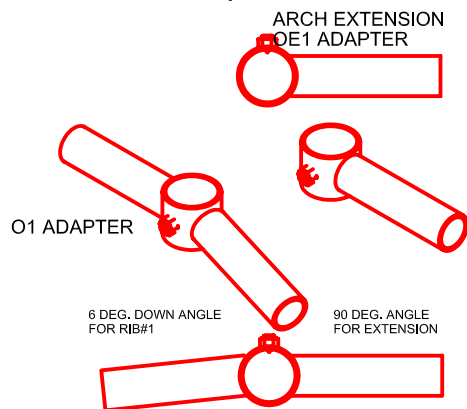
- 2.1 Locate two sections of overhead arch (O-1 and O-2) and lay them on the ground in front of and directly opposite the base arch. (Standing inside the overhead arch) O-1 and O-2 will be on your left and right respectively).
- 2.2 Raise assembled overhead arch into position using a forklift. Insert main footing anchors into both ends of base arch. Lower the overhead arch onto main footing anchors until fully seated. Leave forklift in position to support the overhead arch until vertical ribs are installed.
- 2.3 At connecting locations on the main footing anchors use set screws to hold in place.

CRITICAL NOTE: AFTER OVERHEAD ARCH, BASE ARCH, AND RIB#1 IS UP, STOP TO VERIFY OVERALL MEASUREMENTS (WIDTH, HEIGHT, AND DEPTH) BEFORE PROCEEDING.

3. Install Vertical Ribs:

- 3.1.1 **All vertical ribs are marked with numbers and should be installed in this order.** Rib #1 is the center fixed rib. Insert (1-7/8" O.D.) welded stub on base into bottom of rib. Hold back overhead arch and insert the insert Rib#1 into adapter sleeve. Tighten set screws to hold in place.
- 3.1.2 Horizontal stiffeners are used between the ribs. There are different lengths of horizontal stiffeners. See Clamp Spacing Detail C on page 8 for correct location of each stiffener. Assemble one split half clamp (See Detail G Page 8) on rib #1 using 5/16" x 1-1/4" carriage bolts and attach stiffener (54") to each side of clamp. Slide stiffeners and clamps up the rib to approximately 6' above finish grade. Use another half clamp to attach stiffener to #2 and #3 ribs. Only tighten bolts enough to hold in place. (See Detail C page 8)
- 3.1.3 To install remaining ribs, locate the adjustable clamps that were slid onto the overhead arches done before step 1. Locate the flattened end sleeves. (See Detail below) Insert flattened sleeve into top of rib #2 and assemble to adjustable clamp.
- 3.1.4 In an alternating sequence, install the remaining ribs, 2, 3, 4, 5, installing one rib to each side of previous rib. (See Detail B) Do not tighten bolts fully tight until all stiffeners and clamps are in place. Note: Also remember to slide an additional adjustable clamp between each rib to use for the pipe extensions later.
- 3.1.5 Attach ribs #5 to top and bottom arches and use short stiffeners to hold them in place. Use 2-3/8" brace bands on end of short (48") stiffener. Adjust ribs and stiffeners as needed for horizontal and vertical continuous curved appearance.
- 3.1.6 Make sure all sleeved joints are fully seated and proceed to tighten all bolts and set screws.
- 3.1.7 Install anchor bolts and nuts in the holes on base arch. Thread nuts on anchor bolts until two threads are protruding out of nut. Make sure the anchors are centered in footing holes. (See Detail page 9&10)

Overhead Adapter Sleeve



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- 3.2 Assemble the OVERHEAD arch extension
- 3.2.1 Extend the BASE arch on ends with 2-7/8" OD X 5ft or 10ft pipe. Sleeve the pipe onto the main footing anchors and setscrew to hold in place. (See Footing Details on page 9 & 10)
- 3.2.2 Insert footing anchors into other end.
- 3.2.3 Assemble the OVERHEAD arch extension. Locate the two sections (OE-1, OE-2) Before sliding the two sections OE1 to OE2 insure to put the overhead adapter sleeve on OE1 first & slide six adapter collars on each arch section.
- 3.2.4 Raise OVERHEAD arch extension and sleeve onto footing anchor as in Step 3. Note: Stake anchors to hold in place until extension ribs are installed.
- 3.3 Assemble rib extensions (See Detail on page 7)
- 3.3.1 Sleeve the 2-3/8" OD x 56-1/2" for 5' Ext. or 116-1/2" for 10' Ext. pipe onto the adapter sleeve on O-1 of the 1st OVERHEAD ARCH and the adapter sleeve on OE-2 of the OVERHEAD arch extension.
- 3.3.2 At each rib location use a 2-3/8" OD x 46" for 5' Ext. or 106" for 10' Ext. pipe, 2-7/8" clamp and flattened sleeve to extend the ribs out to the OVERHEAD arch extension. Setscrew to hold in place.
- 3.3.3 Evenly space the last two pipe extensions on either side of the arch between the last rib extension and the ground.
- 3.4 Installation of CONCRETE (See Footing Details on page 9 & 10)
- 3.4.1 Check for overall frame alignment and adjust frame before pouring concrete.
- 3.4.2 Pour concrete in the large main footing holes to within 2" of finished grade (See Footing Details page 9).
- 3.4.3 Pour anchor bolt footings up to finished grade.
- 3.4.4 Allow concrete to set for 3-days before completion of the installation.
- 3.4.5 After footings have set, cover the main footings with dirt or turf.
- 3.4.6 Important Note: Footing sizes are based on average soil conditions. Loose and/or sandy soil is not average and footing sizes must be increased accordingly to meet local soil conditions.
4. Mesh Installation: Mesh goes on in 2 courses:
- 4.1 FIRST COURSE: - 1st or Bottom Course: 2"-9ga x 12' width, 50' long
- 4.2 Cut 10' off of one roll to make a 40' length.
- 4.3 Stand the wire up on edge and position on the outside of the frame so the bottom edge is flush with the bottom of the base arch and so it is centered. Secure the mesh to the center rib only with tie-wire on 12" centers. Pull the mesh tight to each end. Trim the excess on the bias about 2" short of the overhead arch at both ends to allow room for tension bars and bands.
- 4.4 Install one 12' tension bar in the mesh at each end (parallel to overhead arch) so the top of the bars are flush with the top of the mesh. Where the bars do not fit through the mesh properly the cut ends of the wire must be twisted around the bars to prevent unraveling of the mesh. Make sure there are no exposed sharp wires. (See Detail E page 6)
- 4.5 Pull mesh tight as possible as it will save having extra work later. Install tension bands on 18" centers on the overhead arch up to the top of the mesh. Secure bands with 5/16" x 1" carriage bolts facing outside. Tighten hardware securely.
- 4.6 If the top few feet of the mesh are still loose or sag between ribs, proceed with this step. Starting at the center rib at the top of the mesh cut the mesh along the rib downward to about 12" above where the mesh is tight. NOTE: Never cut the mesh more than 12" below the stringers (1-1/16" O.D. pipe between the ribs). Pull the mesh tight starting at the bottom of the cut working upward using hog rings to secure approximately every other diamond. Cut away the excess (the usual amount of excess at the top is 4" to 6") allowing enough wire left to twist the cut ends together. Use more hog rings and/or tie wire as necessary to completely secure the seam. (See Detail E page 6)
- 4.7 If the top of the mesh is still loose or sags, repeat step #5 for each rib until it is tight. NOTE: This does not necessarily mean this needs to be done at every rib, only until tight. Work from center rib outward alternating right and left. At some of the outer ribs cutting may not be necessary, but it may be necessary to gather one or two strands of mesh and secure with hog rings.
- 4.8 Secure the mesh to all of the ribs with tie wire on 18" centers.



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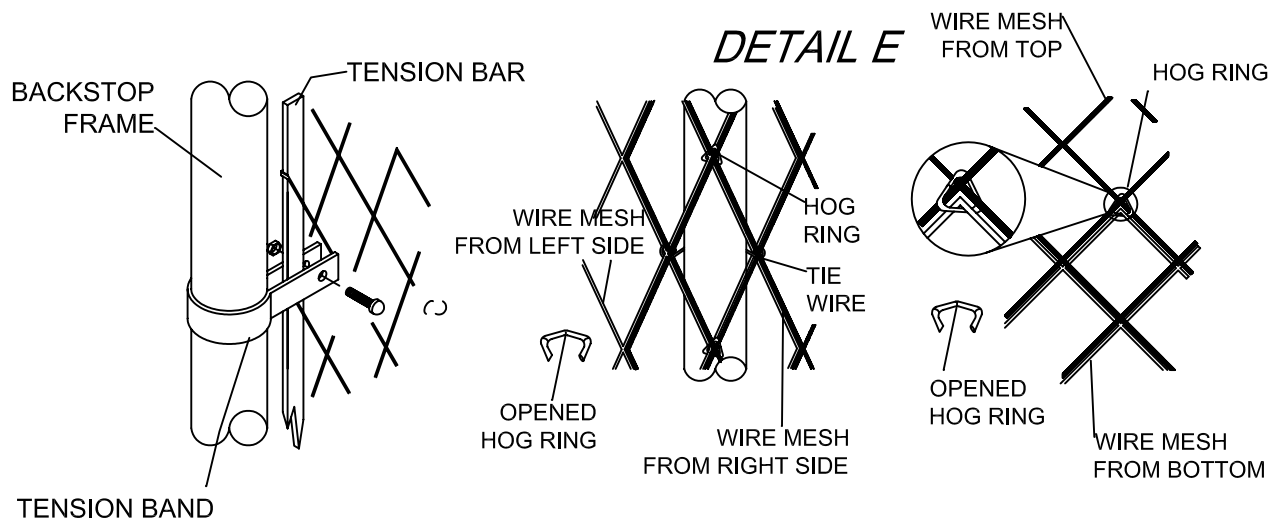
30' PERPENDICULAR ARCH BACKSTOP

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- 4.9 Install the bottom 8' tension bars in the second diamond up from the bottom of the mesh. Feed the bars through the mesh starting at one end working to the opposite end. Overlap the ends of the tension bars a few inches at the ends. The last tension bar must be cut to size so it fits flush with the inside edge of the overhead arch. NOTE: The bars must be installed after the mesh is tight (if not, the mesh will not conform to the shape of the backstop).
- 4.10 To install tension bands, it may be necessary to loosen nuts on anchor bolts and raise the base arch slightly so they will fit underneath. Install bands on 18" centers all along the base arch. Secure with 5/16" x 1" carriage bolts with heads facing outside of the tension bars along the base arch. Use hog rings to secure overlap of tension bars.
- 4.11 Tighten anchor bolt nuts securely so the base arch is in contact with the anchor bolt footings. Peen any excess threads to prevent removal.
5. SECOND TOP COURSE: - 2nd or Top Course: 2"-9ga x 10' width, 30' long
- 5.1 The remaining wire, 2" -9ga x 10' wide x 30' long, is the second course. Center the mesh on the frame so the top edge of the second course is flush with and parallel to overhead arch. The excess mesh at the bottom of the second course will overlap the top of the first course (DO NOT trim at this time).
- 5.2 Install an 8' tension bar in the mesh at the center where the center rib (rib #1) sleeves to the overhead arch. Working from the center out, install tension bands on 18" centers while stretching mesh tight in an outward direction.
- 5.3 Stretch the mesh downward and secure to the center rib with tie wire on 12" centers.
- 5.4 Add remaining bars and bands as before alternating from left to right center. While pulling the mesh tight in an outward direction along the overhead arch. Allow 2" of overlap at the ends of the tension bars. Cut the tension bars to size where they meet the first course at the overhead arch, again allowing a few inches of overlap. Where tension bars overlap, use hog rings to secure. (See Detail E page 6)
- 5.5 Pull the wire mesh tight in a downward direction and secure to every rib with tie wire on 18" centers.
- 5.6 If the mesh on the second course is loose or sags, proceed with this step. The top few feet and the bottom few feet of the mesh (on the second course) may be loose. Gather one or two strands at the center rib and use hog rings to secure at every diamond. If still loose, repeat this step alternating from right to left of center. This does not necessarily mean this has to be done at every rib; only do so until tight.
- 5.7 Trim the bottom edge of the second course even with the top of the first course, allowing a one-diamond overlap.
- 5.8 Secure the two courses of mesh together with hog rings every other diamond. Twist cut wire ends around the first course making sure no sharp wires are exposed. (See Detail E page 6)
- 5.9 Inspect complete backstop for loose hardware, fittings, and sharp wires. Repair as necessary. Place turf over main anchor footings.



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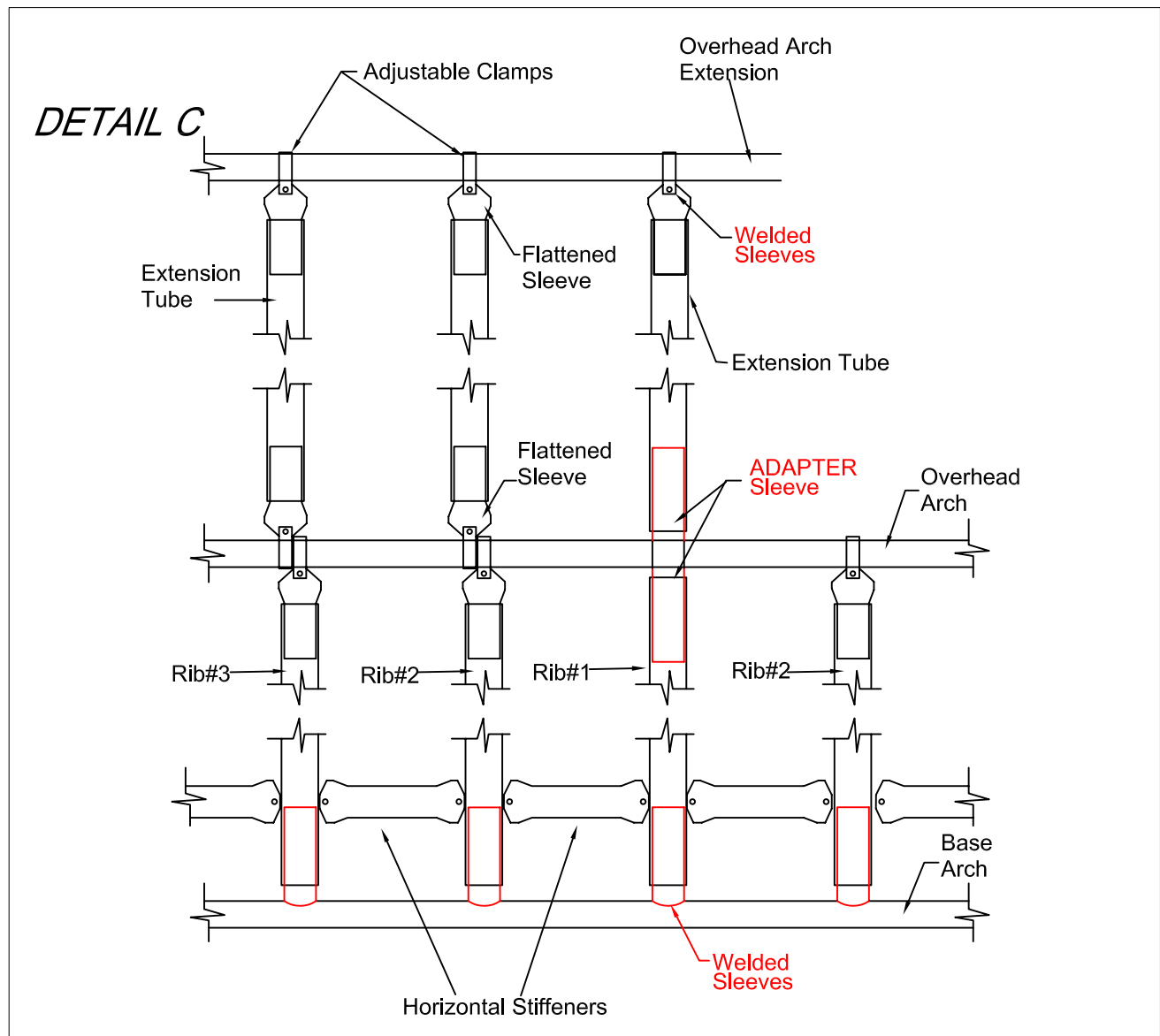
30' PERPENDICULAR ARCH BACKSTOP

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6. INSTALLATION OF 3RD COURSE

- 6.1 For 5' extension cut a 10ft tension bar in half and install one in the end of the 5ft wire mesh. Attach at bottom of arch extension with tension bands.
- 6.2 For 10' extension install one in the end of the 10ft wire mesh. Attach at bottom of arch extension with tension bands.
- 6.3 Pull mesh tightly over the arch extension and secure at other bottom with the other 5ft tension bar and tension bands. Note: At the bottom it may be necessary to trim excess mesh in order to remove any sagging in the mesh.
- 6.4 Use tie wires to tie mesh off to the pipe extensions.
- 6.5 Inspect complete backstop for loose hardware, fittings, and sharp wires. Repair as necessary.



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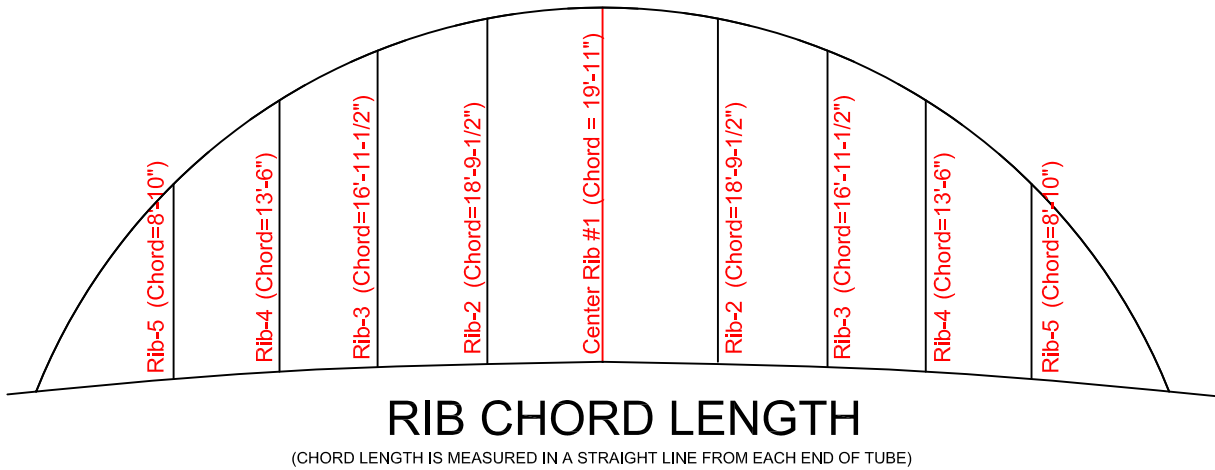
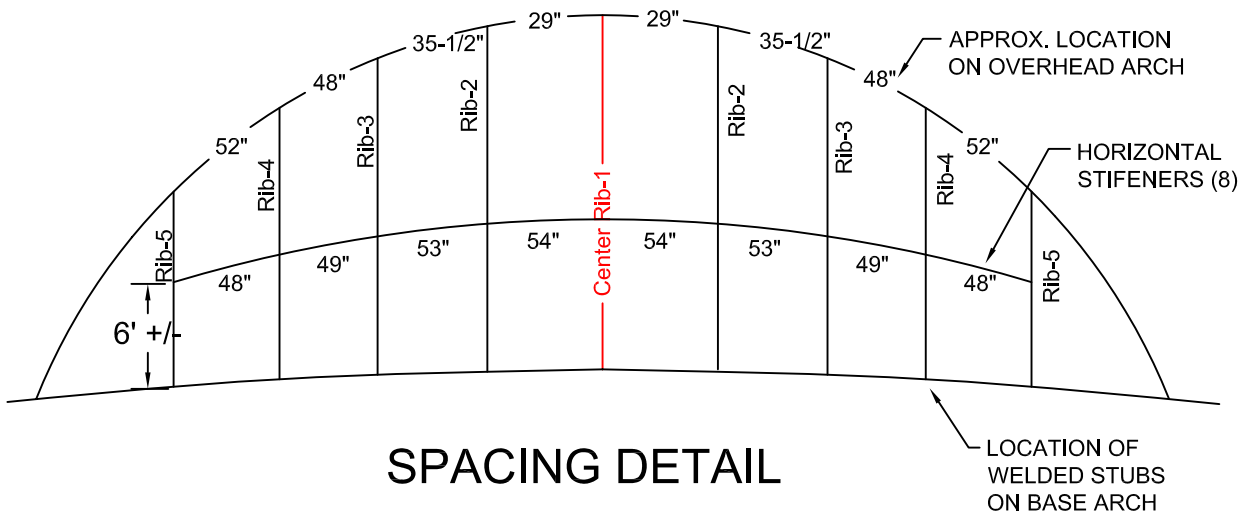
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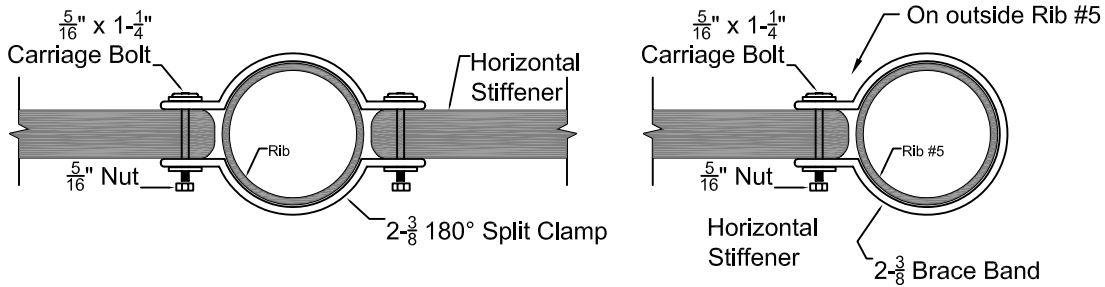
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DETAIL G - Horizontal Stiffeners



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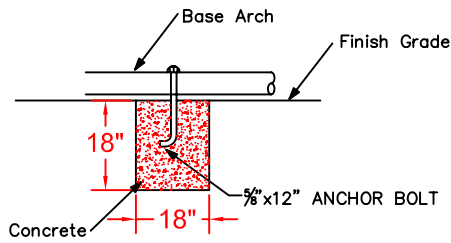
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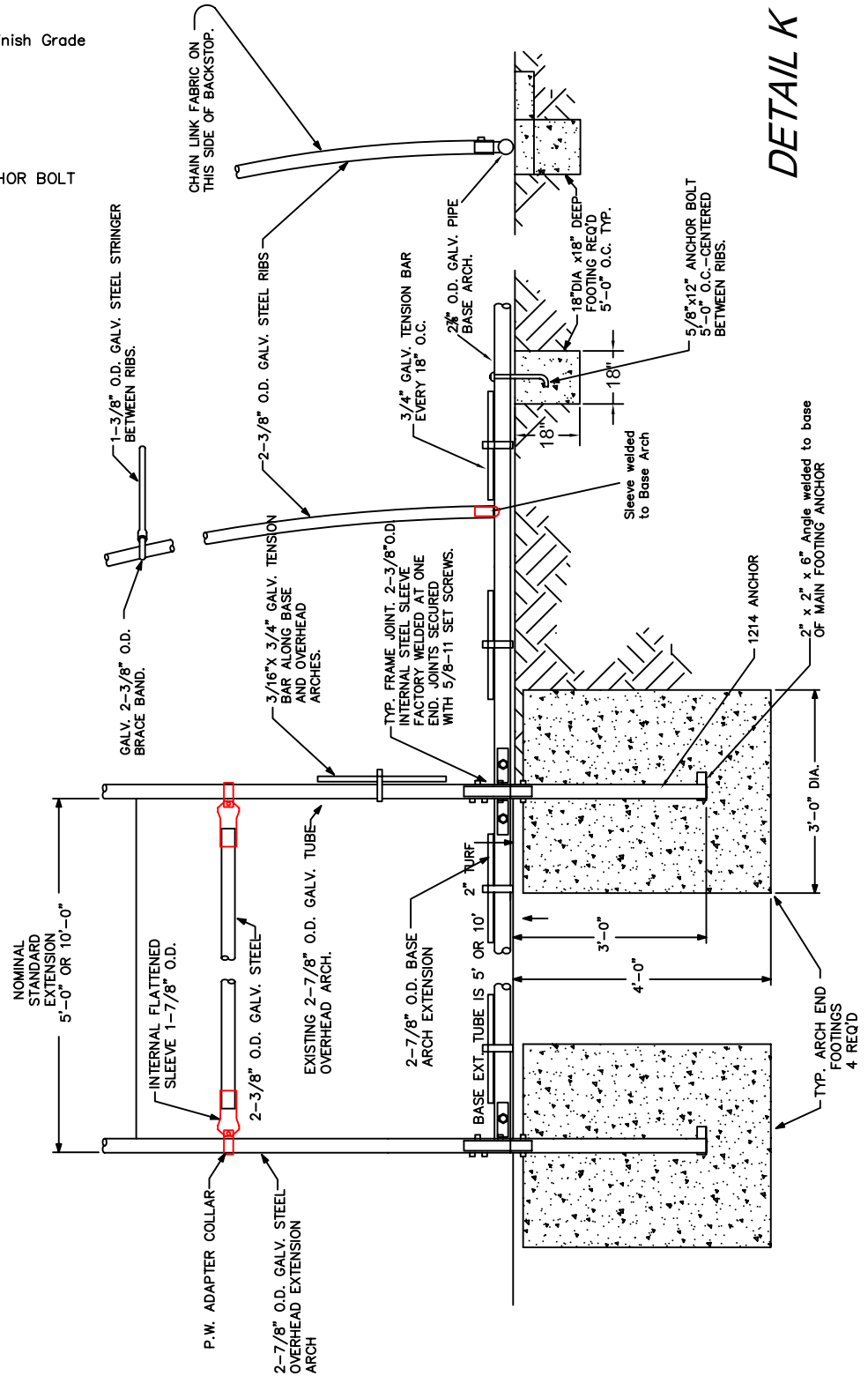
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DETAIL J



DETAIL K



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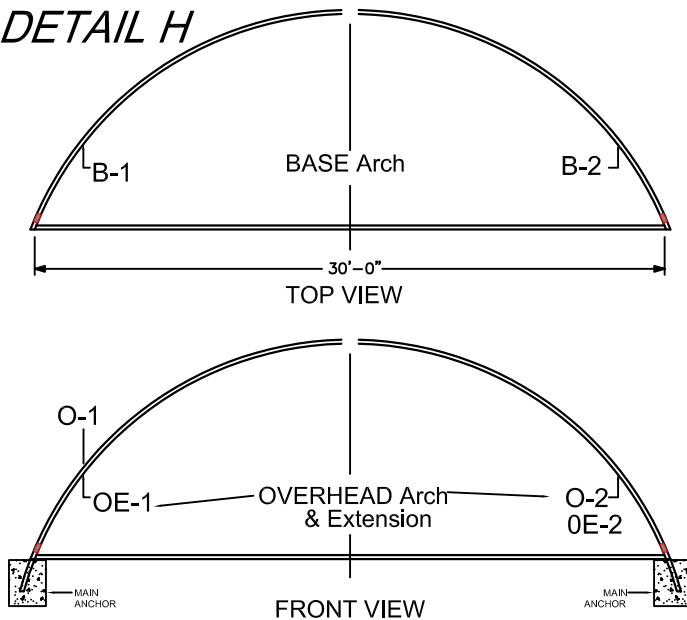
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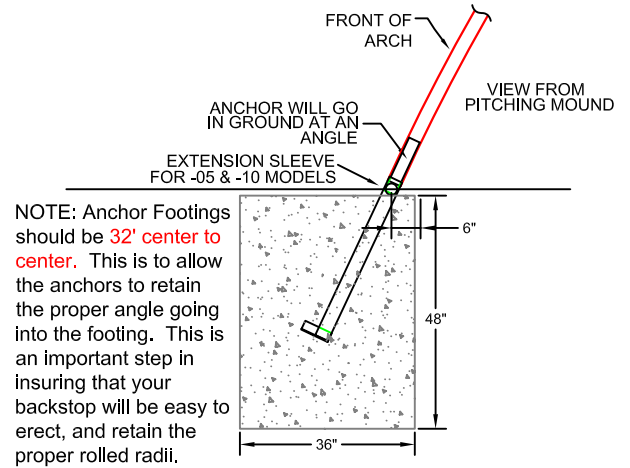
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DETAIL H



DETAIL I



1214 MATERIAL LIST: -05 -10

Description	Qty	Qty
Left Base Arch Section - (B-1)	1	1
Base Arch Section (B-2)	1	1
Stringer - Horiz. Stiffener - #1 - 48"	2	2
Stringer - Horiz. Stiffener - #2 - 49"	2	2
Stringer - Horiz. Stiffener - #1 - 53"	2	2
Stringer - Horiz. Stiffener - #2 - 54"	2	2
Rib Assembly - (1)	1	1
Rib Assembly - (2)	2	2
Rib Assembly - (3)	2	2
Rib Assembly - (4)	2	2
Rib Assembly - (5)	2	2
Left Overhead Arch Section (O-1)	1	1
Right Overhead Arch Section (O-2)	1	1
Overhead Adapter Sleeve on OE1	1	1
Left Overhead Arch Section (OE-1)	1	1
Right Overhead Arch Section (OE-2)	1	1
Main Backstop Anchor	2	2
Extension Backstop Anchor	2	2
8' Tension Bar	12	12
12' Tension Bar	4	4
5' Tension Bar	2	
10' Tension Bar		2
2" X 9 Gauge X 10' Wire Mesh - (ft)	30	80
2" X 9 Gauge X 12' Wire Mesh - (ft)	50	50
2" X 9 Gauge X 5' Wire Mesh - (ft)	50	0
Extension Pipe 2-3/8" x 46"	12	12
Extension Pipe 2-3/8" x 56-1/2"	1	1
Base Extension 2-7/8" x 56-1/2"	2	2

1214 MATERIAL LIST Continued: -05 -10

Component Description	Qty	Qty
2-7/8" Tension Band	98	106
2-3/8" Brace Band	2	2
2-3/8" 180 Degree Split Clamp Band	14	14
Hog Ring #3 Galvanized - (lbs)	4	5
5/16"-18 X 1" Carriage Bolt	98	98
5/16"-18 X 1-1/4" Carriage Bolt	16	16
5/16"-18 Hex Nut	114	122
5/16"-11 Split Washer	114	122
5/8"-11 X 12" Anchor Bolt	8	8
5/8"-11 Hex Nut	8	8
11 Gauge Tie Wire (lbs)	8lbs	8lbs
2-7/8" HD PW Adjustable Clamp	32	32
3/8"-16 X 1" Grade 5 Hex Head Bolt	32	32
3/8" Flat Washer	64	64
3/8"-16 Lock Nut (Nylock)	32	32
5/8" -11 X 7/8" Set Screws	70	70
Flattened Sleeves	32	36
5/8" x 4" Hex Bolts-Overhead Arch	4	4
5/8" Nylock-Overhead Arch	4	4



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30' PERPENDICULAR ARCH BACKSTOP

DWG. NO.

MODEL #1214-05, 1214-10

SHEET
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