SECTION 03200

CONCRETE REINFORCEMENT

PART 1 - GENERAL

The provisions of the Standard Specifications for Public Works Construction (SSPWC) latest edition apply except as modified herein.

A. Work Included in this Section:

Bundle reinforcement and tag with suitable identification to facilitate sorting and placing. Store all reinforcement to protect from rust, oil, dirt, and splash.

B. Related Work Specified Elsewhere:

Concrete formwork: Section 03100

C. Quality Assurance:

Material quality standards and testing procedures shall be in accordance with the American Society for Testing Materials, hereinafter referred to as "ASTM". All ASTM standards and testing procedures shall be the latest requirements.

Fabrication and installation of reinforcing steel shall be in conformance with the Manual of Standard Practice for Detailing Reinforced Concrete Structures ACI 315.

Tests and Inspections:

Tests and inspections shall be made by a testing laboratory approved by the Structural Engineer.

The cost of sampling and testing required by these Specifications shall be borne by the Owner.

Sampling of reinforcing steel shall be done by a representative of the testing laboratory.

One tensile and one bend test shall be made of each ten tons or fraction thereof for each size reinforcing steel bar #5 and larger. These tests shall be performed only if required by the Test and Inspection Request Form prepared by the Structural Engineer.

Prepare and distribute copies of test reports to the Owner and Architect.

Additional tests shall be made when and as directed by the Structural Engineer. Costs of test shall be borne by the Contractor.

D. Submittals:

The Contractor is not required to submit placing drawings for approval. All reinforcing will be checked in its installed position.

PART 2 - PRODUCTS

A. Materials:

Reinforcing steel bars shall be of the Intermediate Grade conforming to ASTM A615, Grade 40, and shall be rolled from new billets. All bars shall be identified by mill. heat numbers.

Steel reinforcing bar supports shall be CMU support (ADobi@) blocks with attached wire ties or approved equal.

Tie wire shall be 16 gauge annealed wire.

Welded wire fabric shall conform to ASTM A-185.

B. Fabrication:

Fabricate bars of indicated size. Accurately form to shapes and lengths indicated by methods not injurious to the materials. Do not heat reinforcement for bending. Bars with kinks or bends not scheduled will be rejected.

PART 3 - EXECUTION

A. Placing:

Coordinate all work with other trades.

All bars shall be as shown on the drawings, accurately placed and wired in position by 16 gauge annealed wire. Tie stirrups to bars at both top and bottom. Bend wire ties away from forms.

Maintain proper distance and clearance between parallel bars and forms. Provide metal spreaders and spacers to hold steel in position as necessary.

Support steel at proper height upon approved support system, transverse steel bars with hangers, or in other manner as necessary to accurately place and secure bars. Maintain clear spacing between parallel bars of not less than 1 2 times the bar diameter, but in no case less than 1 2". Lap and splice bars in the manner and at the locations shown on the drawings.

Bars on footings or slabs on grade shall be supported on concrete blocks. Reinforcing steel in beams and suspended slabs shall be supported on steel chairs.

Provide additional reinforcing bars at sleeves and openings.

Before placing reinforcing and again before concrete is placed, clean reinforcement of loose mill scale, oil or other coating that might destroy or reduce bond.

Splices shall be made with a lap of 30 bar diameters unless noted otherwise.

END OF SECTION - 03200

SECTION 03200
CONCRETE REINFORCEMENT (SITE)

PART 1 – GENERAL

1.1 The provisions of the Standard Specifications for Public Works Construction (SSPWC) latest edition apply except as modified herein.

1.2 Work Included in this Section:

a. Bundle reinforcement and tag with suitable identification to facilitate sorting and placing.

b. Store all reinforcement to protect from rust, oil, dirt, and splash.

1.3 Related Work Specified Elsewhere:

a. Concrete formwork: Section 03100

b. Cast-in-Place Concrete: Section 03300

c. Miscellaneous Metals: Section 05010

1.4 Quality Assurance:

a. Material quality standards and testing procedures shall be in accordance with the American Society for Testing Materials, hereinafter referred to as "ASTM". All ASTM standards and testing procedures shall be the latest requirements.

b. Fabrication and installation of reinforcing steel shall be in conformance with the Manual of Standard Practice for Detailing Reinforced Concrete Structures ACI 315.

c. Tests and Inspections:

1. Tests and inspections shall be made by a testing laboratory approved by the Structural Engineer.
2. The cost of sampling and testing required by these Specifications shall be borne by the Owner.
3. Sampling of reinforcing steel shall be done by a representative of the testing laboratory.
4. One tensile and one bend test shall be made of each ten tons or fraction thereof for each size reinforcing steel bar #5 and larger. These tests shall be performed only if required by the Test and Inspection Request Form prepared by the Structural Engineer.
5. Prepare and distribute copies of test reports to City Engineer.
6. Additional tests shall be made when and as directed by the Structural Engineer.
7. Costs of test shall be borne by the Contractor.

1.5 Submittals:

a. The Contractor is not required to submit placing drawings for approval. All reinforcing will be checked in its installed position.

PART 2 – PRODUCTS

2.1 Materials:

a. Reinforcing steel bars shall be of the Intermediate Grade conforming to ASTM A615, Grade 40, and shall be rolled from new billets. All bars shall be identified by mill. heat numbers.

b. Steel reinforcing bar supports shall be CMU support ("Dobi") blocks with attached wire ties or approved equal.

c. Tie wire shall be 16 gauge annealed wire.

d. Welded wire fabric shall conform to ASTM A-185.

2.2 Fabrication:

a. Fabricate bars of indicated size. Accurately form to shapes and lengths indicated by methods not injurious to the materials. Do not heat reinforcement for bending. Bars with kinks or bends not scheduled will be rejected.

PART 3 – EXECUTION

3.1 Placing:

a. Coordinate all work with other trades.

b. All bars shall be as shown on the drawings, accurately placed and wired in position by 16 gauge annealed wire. Tie stirrups to bars at both top and bottom. Bend wire ties away from forms.

c. Maintain proper distance and clearance between parallel bars and forms. Provide metal spreaders and spacers to hold steel in position as necessary.

d. Support steel at proper height upon approved support system, transverse steel bars with hangers, or in other manner as necessary to accurately place and secure bars. Maintain clear spacing between parallel bars of not less than 1 ½ times the bar diameter, but in no case less than 1 ½". Lap and splice bars in the manner and at the locations shown on the drawings.

e. Bars on footings or slabs on grade shall be supported on concrete blocks. Reinforcing steel in beams and suspended slabs shall be supported on steel chairs.

f. Provide additional reinforcing bars at sleeves and openings.

g. Before placing reinforcing and again before concrete is placed, clean reinforcement of loose mill scale, oil or other coating that might destroy or reduce bond.

h. Splices shall be made with a lap of 30 bar diameters unless noted otherwise.

END OF SECTION - 03200

SECTION 03231
ORNAMENTAL WELDED FENCING

PART 1 - GENERAL

1. 1 WORK INCLUDED

a. The contractor shall provide all labor, materials and appurtenances necessary for installation of the welded ornamental steel fence system defined herein at Perris Valley – Big League Dreams

1. 2 RELATED WORK

a. Section 02200 - Earthwork

b. Section 03100 - Concrete

1. 3 SYSTEM DESCRIPTION

a. The manufacturer shall supply a total fence system of Montage Plus ATF® standard picket space Welded Ornamental Steel Classic design. The system shall include all components (i.e., panels, posts, gates and hardware) required.

1. 4 QUALITY ASSURANCE

a. The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified.

1. 5 REFERENCES

a. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.

b. ASTM B117 - Practice for Operating Salt-Spray (Fog) Apparatus.

c. ASTM D523 - Test Method for Specular Gloss.

d. ASTM D714 - Test Method for Evaluating Degree of Blistering in Paint.

e. ASTM D822 - Practice for Conducting Tests on Paint and Related Coatings and Materials using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus.

f. ASTM D1654 - Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments.

g. ASTM D2244 - Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.

h. ASTM D2794 - Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).

i. ASTM D3359 - Test Method for Measuring Adhesion by Tape Test.

1.6 SUBMITTAL

a. The manufacturer's literature shall be submitted prior to installation.

1.7 PRODUCT HANDLING AND STORAGE

a. Upon receipt at the job site, all materials shall be checked to ensure that no damage occurred during shipping or handling. Materials shall be stored in such a manner to ensure proper ventilation and drainage, and to protect against damage, weather, vandalism and theft.

PART 2 - MATERIALS

2. 1 MANUFACTURER

a. The fence system shall conform to Montage Plus ATF standard picket space Welded Ornamental Steel, Classic design, 2-Rail style manufactured by Ameristar Fence Products, Inc., in Tulsa, Oklahoma or equal

2.2 MATERIAL

a. Steel material for fence panels and posts shall conform to the requirements of ASTM A653/A653M, with a minimum yield strength of 50,000 psi (344 MPa) and a minimum zinc (hot-dip galvanized) coating weight of 0.60 oz/ft^2 (184 g/m^2), Coating Designation G-60.

b. For fence systems 7 feet and 8 feet tall, material for pickets shall be ¾" square x 14 Ga. tubing. The rails shall be steel channel, 1.5" x 1.4375" x 14 Ga. Picket holes in the rail shall be spaced 3.500" o.c. For fence systems 7 feet and 8 feet tall, posts shall be a minimum of 2-1/2" square x 14 Ga. Gate posts shall meet the minimum requirements of Table 1.

2. 3 FABRICATION

a. Pickets, rails and posts shall be pre-cut to specified lengths. Rails shall be pre-punched to accept pickets.

b. Pickets shall be inserted into the pre-punched holes in the rails and shall be aligned to standard spacing using a specially calibrated alignment fixture. The aligned pickets and rails shall be joined at each picket-to-rail intersection by Ameristar's proprietary fusion welding process, thus completing the rigid panel assembly (Note: The process produces a virtually seamless, spatter-free good-neighbor appearance, equally attractive from either side of the panel).

c. The manufactured panels and posts shall be subjected to an inline electrode position coating (E-Coat) process consisting of a multi-stage pretreatment/wash (with zinc phosphate), followed by a duplex application of an epoxy primer and an acrylic topcoat. The minimum cumulative coating thickness of epoxy and acrylic shall be 2 mils (0.058 mm). The color shall be Black. The coated panels and posts shall be capable of meeting the performance requirements for each quality characteristic shown in Table 2.

d. Gates shall be fabricated using welded ornamental panel material and gate ends having a 1-3/4" square cross-sectional size. All rail and upright intersections shall be joined by welding. All picket and rail intersections shall also be joined by welding.

PART 3 - EXECUTION

3.1 PREPARATION

a. All new installation shall be laid out by the contractor in accordance with the construction plans.

3. 2 INSTALLATION

a. Fence posts shall be set according to Table 3, plus or minus ½". Fence panels shall be attached to posts with brackets supplied by the manufacturer. Gate posts shall be spaced according to the gate openings specified in the construction plans. The "Earthwork" and "Concrete" sections of this specification shall govern post base material requirements.

3.3 CLEANING

a. The contractor shall clean the jobsite of excess materials; post-hole excavations shall be scattered uniformly away from posts.

Table 1 – Minimum Sizes for Montage Plus Gate Posts

Gate Opening	Gate Height: Up To & Including 4'	Over 4', Up To & Including 6'	Over 6', Up To & Including 8'
Up To & Including 4'	2-1/2" x 14 Ga	3" x 12 Ga.	3" x 12 Ga.
Over 4', Up To & Including 6'	3" x 12 Ga.	3" x 12 Ga.	4" x 12 Ga
Over 6', Up To & Including 8'	3" x 12 Ga	4" x 12 Ga.	6" x 12 Ga

Table 2 – Coating Performance Requirements

Quality Characteristics	ASTM Test Method	Performance Requirements
Adhesion	D3359 – Method B	Adhesion (Retention of Coating) over 90% of test area (Tape and knife test).
Corrosion Resistance	B117, D714 & D1654	Corrosion Resistance over 1,500 hours (Scribed per D1654; failure mode is accumulation of 1/8" coating loss from scribe or medium #8 blisters).
Impact Resistance	D2794	Impact Resistance over 60 inch lb (Forward impact using 0.625" ball).
Weathering Resistance	D822, D2244, D523 (60° Method)	Weathering Resistance over 1,000 hours (Failure mode is 60% loss of gloss or color variance of more than 3 delta-E color units).

Table 3 – Montage Plus - Post Spacing By Bracket Type

Span	For INVINCIBLE" 8' Nominal (90.445" Rail)		For CLASSIC, GENESIS & MAJESTIC 8' Nominal (91.95" Rail)				
Post Size	2-1/2"	3"	2-1/2"	2-1/2"	2-1/2"	3"	2-1/2"	3"
Bracket Type	Montage Plus Invincible Flat Mount (BB118)		Montage Plus Universal (BB112)	Montage Plus Line Boule-vard (BB114)	Montage Plus Flat Mount (BB111)		Montage Plus Swivel (BB113)*	
Post Settings ± ⅛" O.C.	94"	94-1/2"	95-1/2"	95-1/2"	95-1/2"	96"	95-1/2"	96"

* Note: When using BB113 swivel brackets on either or both ends of a panel installation, care must be taken to ensure the spacing between post and adjoining pickets meets applicable codes. This will require trimming one or both ends of the panel.

END OF SECTION - 03231