PART 1 - GENERAL

1.01 Description: Furnish materials, labor, transportation, services, and equipment necessary to install all Metal Fabrications for the skate park as indicated on the Drawings complete as shown and as specified herein.

1.02 Related Sections

Section 03 10 00 - Concrete Formwork (Skate Park)
Section 03 20 00 - Concrete Reinforcement (Skate Park)
Section 03 30 00 - Cast-In-Place Concrete (Skate Park)
Section 03 37 13 - Shotcrete (Skate Park)

1.03 Quality Assurance

A. Qualifications of Fabricators: Experienced in fabrication of miscellaneous metals.

B. Qualifications of Welders: Welding shall be done only by certified welding operators currently qualified according to AWS 01.1.

C. Qualifications of Workmen: Provide at least one person who shall be present at all times during execution of this portion of the Work, and who shall be thoroughly familiar with the type of materials being installed, the referenced standards, the requirements of this Work, and who shall direct all work performed under this Section. Welds indicated may be made in shop or field with approval.

D. Comply with the applicable reference specifications as specified in the GENERAL PROVISIONS and in accordance with applicable laws, codes and regulations required by the City of Seattle. At a minimum comply with the current provisions of the following Codes and Standards:

E. ASTM - American Society for Testing and Materials:

1. ASTM A36 - Structural Steel.
2. ASTM A 120 - Steel Pipe and Tubing.
3. ASTM F2480 - Standard Guide for In-ground Concrete Skate Park.

F. UBC - Uniform Building Code

G. AWS - American Welding Society

1. AWS D1.1 - Structural Welding Code (latest edition)

H. CRSI - Concrete Reinforcing Steel Institute: "Manual of Standard Practice," latest edition.

I. AISC - American Institute of Steel Construction, Inc: "Specifications of Architecturally Exposed Structural Steel," latest edition.

1.04 Submittals:

A. Product Data: Submit manufacturer's published literature for specified products and accessories as applicable including manufacturer's specifications, performance calculations, and physical characteristics.

B. Shop Drawings:

1. Submit shop drawings for all custom fabricated items under this section for approval by the Parks Engineer. Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners and accessories. Indicate welded connections using standard AWS welding symbols.
2. Verification: Verify all measurements at the job. Show dimensions, sizes, thicknesses, gauges, finishes, joining, attachments, and relationship of work to adjoining construction. Where items must fit and coordinate with finished surfaces and/or constructed spaces, take measurements at site and not from drawings.

C. Samples:

1. Contractor to provide fabricated, onsite sample of metal item(s), complete with approved finish, for approval by the Parks Engineer before fabrication of total quantities.
2. Any fabrication of project item(s) by Contractor before Owner review and approval is subject to rejection.
3. Approved sample(s) shall be used as the standard of workmanship and shall remain on site until work has been completed and accepted in writing by the Parks Engineer.
4. The Parks Engineer must approve all samples prior to delivery to site.
5. Attach name, address of manufacturer and/or supplier to each sample.

1.05 Delivery, Storage and Handling:

A. Ship, store, and handle all items so as to protect metal components from damage on site.

B. Store in a safe location, out of pedestrian and vehicular traffic and protected from weather.

C. Repair or replace any damaged components before installation.

D. Where items must be incorporated or built into adjacent work, deliver to trade responsible for such work in sufficient time that progress of work is not delayed. Be responsible for proper location of such items.

PART 2 - PRODUCTS

2.01 Materials:

A. 2" ROUND STEEL PIPE COPING: HSS 2.375 X 0.154, ASTM A-500 GRADE B, (FY=46 KSI).

B. 2-1/2" ROUND STEEL PIPE COPING: HSS 2.875 X 0.203, ASTM A-500 GRADE B, (FY=46 KSI).

C. 3" ROUND STEEL PIPE COPING: HSS 3.500 X 0.216, ASTM A-500 GRADE B, (FY=46 KSI).

D. 3-1/2" ROUND STEEL PIPE COPING: HSS 4.000 X 0.226, ASTM A-500 GRADE B, (FY=46 KSI).

E. 2" X 2" SQUARE STEEL TUBING: HSS 2.000 X 2.000 X 0.1875, ASTM A-500 GRADE B, (FY=46 KSI).

F. 3" X 3" SQUARE STEEL TUBING: HSS 3.000 X 3.000 X 0.1875, ASTM A-500 GRADE B, (FY=46 KSI).

G. 4" X 4" SQUARE STEEL TUBING: HSS 4.000 X 4.000 X 0.1875, ASTM A-500 GRADE B, (FY=46 KSI).

H. 2" X 3" RECTANGULAR STEEL TUBING: HSS 2.000 X 3.000 X 0.1875, ASTM A-500 GRADE B, (FY=46 KSI).

I. 2" X 6" RECTANGULAR STEEL TUBING: HSS 2.000 X 6.000 X 0.1875, ASTM A-500 GRADE B, (FY=46 KSI).

J. 2" X 8" RECTANGULAR STEEL TUBING: HSS 2.000 X 8.000 X 0.1875, ASTM A-500 GRADE B, (FY=46 KSI).

K. 2-1/2" X 4" RECTANGULAR STEEL TUBING: HSS 2.500 X 4.000 X 0.1875, ASTM A- 500 GRADE B, (FY=46 KSI).

L. WELDING RODS: E-70 series low hydrogen unless otherwise noted on drawings.

2.2 Grout:

A. Non-shrinking Master Builder'S "Embedco", Conrad Sovig's "Metel-Mxs, Sonneborn's "Ferrolith G Redi-Mixed Grout", or approved equal.

2.3 Other Materials:

A. All other materials, not specifically described but required for a complete and proper installation of miscellaneous metals, shall be new, first quality of their respective kinds and subject to the approval of the Engineer.

PART 3 - EXECUTION

3.01 Existing Conditions:

A. Prior to commencing any work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.

B. Notify the Engineer if conditions are unacceptable to begin work.

C. Do not proceed with the work until all unsatisfactory conditions have been corrected.

3.02 Coordination:

A. General: Carefully coordinate with all other trades to insure proper and adequate interface of the work of other trades with the Work of this Section.

B. Templates and Built-ins:

1. Furnish all anchors, fastenings, sleeves, setting templates and layouts affecting or installed in the work of other trades in sufficient time that progress of work is not delayed.

C. Delivery:

1. Insure timely delivery of all metal fabrications where items must be incorporated or built into adjacent work.
2. Be responsible for to field verify the proper location all metal fabrications prior to final installation in sufficient time that progress of work is not delayed.

3.03 Installation:

A. Workmanship:

1. Employ only workmen specifically skilled in such work.
2. Install metal fabrications in strict accordance with the Drawings, the approved Shop Drawings, and all applicable codes, regulations and standards.
3. Obtain Owner's Representative review prior to site cutting or making adjustments which are not parts of the scheduled work.
4. Set all work plumb, true, rigid, and neatly trimmed out.
5. Miter corners and angles of exposed molding and frames unless otherwise noted.

6. Fit exposed connections accurately together to form tight hairline joints.
7. Align all metal fabrications as shown on the Drawings, and where vertical or horizontal members are shown. Align them straight, plumb and level within tolerance.
8. Make provisions for erection stresses by temporary bracing. Keep work in alignment.
9. Replace all work damaged in course of installation. Perform field welding in accordance with AWS 01.1.
10. After installation, grind smooth and touch-up field welds.

3.04 Fabrication:

A. The Contractor shall shop assemble all work in the largest practicable dimensions, making members true to length so assembling may be done without fillers.

B. Provide all surfaces free of file marks, dents, hammer marks, wire edges or any unsightly surface defects.

C. Roll all steel pipe coping to conform with top radius curve of each bowl and/or ledge as shown on drawings. Refer to drawings for relational tolerance to concrete surface and other steel.

D. For all attachments and reinforcements do all cutting, shearing, drilling, punching, threading, tapping, etc., required for site metalwork or for attachment of adjacent work. If applicable, drill or punch holes; do not use cutting torch.

E. Make all permanent connections in ferrous metal surfaces using welds where at all possible; do not use bolts or screws.

3.05 Welding

A. Preparation: Remove all rust, paint, scale and other foreign matter. Wire brush all flame-cut edges. Clamp members as required and alternate welds, all as necessary to prevent warping or misalignment.

B. Exposed Welds: Uniformly grind smooth (no tolerance) all welds normally exposed to view and feel in the finished work.

C. Faulty and Defective Welding: Chip out and replace all welding showing cracks, slag inclusion, lack of fusion, bad undercut or other defects ascertained by visual or other means of inspection. Replace and re-weld at no cost to Owner.

F. Field Welding:

1. Procedure: Comply with AWS code of manual shielded metal-arc welding, appearance and quality of welds made, and methods used in correcting welding work.

2. Protection: Protect all adjacent surfaces from damage due to weld sparks, spatter, or tramp metal.

3.06 Surface treatment & protective coatings:

A. Cleaning:

1. Thoroughly clean all mill scale, rust, dirt, grease and other foreign matter from ferrous metal prior to any galvanizing, or painting.

2. Conditions which are too severe to be removed by hand cleaning, shall be cleaned using appropriate methods for solvent cleaning, power tool cleaning and brush-off blast cleaning.

B. Exterior Ferrous Metal:

1. Grind smooth all welds, burrs, and rough surfaces. Clean all coping from grease.
2. Shop coat iron metal items; using anti-rust primer (red color).
3. All welds to be painted with primer after appropriate connections and grinding has taken place. Touch-up all scratched primer prior to shotcrete application.

3.07 Clean-up:

A. Keep all areas of work clean, neat and orderly at all times. Keep paved areas clean during installation.

B. Clean up and remove all debris from the entire work area prior to final acceptance by of the Engineer.

END OF SECTION