

IOWA DEPARTMENT OF NATURAL RESOURCES

**NRCS
SPECIFICATIONS**

**IOWA DEPARTMENT OF NATURAL RESOURCES
ENGINEERING & REALTY SERVICES BUREAU
WALLACE STATE OFFICE BUILDING
DES MOINES, IOWA 50319-0034**

**NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION**

IA-1 SITE PREPARATION

1. SCOPE

Site preparation work shall consist of clearing, grubbing, stripping, refuse removal, banksloping and structure removal on the site as necessary to rid the site of all undesirable materials on or near the surface and prepare the site for the structure. All woody growth within the construction area shall be cleared and all stumps and roots one inch in diameter or larger shall be grubbed from the site. In addition, all areas within 25 feet of the footprint of the structure shall be cleared and grubbed except as directed by NRCS. The work shall also consist of the removal and disposal of structures (including fences) that must be removed to perform other items of work.

2. FOUNDATION PREPARATION

The construction areas shall be stripped of all unsuitable materials such as organic matter, grasses, weeds, sod, debris, and stones larger than 6 inches in diameter.

In an earth embankment foundation area, all channel banks and sharp breaks shall be sloped to no steeper than 1.5:1.

The foundation area shall be thoroughly scarified before placement of fill material. The surface shall have moisture added or shall be compacted if necessary so that the first layer of fill material can be compacted and bonded to the foundation.

3. STRIPPED MATERIAL DISPOSAL

Suitable soil material shall be stockpiled for use as topsoil. The other stripped materials shall be buried, removed from the site, or disposed of as directed by the owner or NRCS.

Stockpiled materials around a construction site should not hinder subsequent construction operations.

4. DISPOSAL OF REFUSE MATERIALS

Waste materials from clearing and structure removal shall be burned or buried at locations approved by the owner. Buried materials shall be covered with a minimum of 2 feet of earthfill.

All refuse shall be disposed of in a manner which complies with all local and state regulations.

5. SALVAGE

Items to be salvaged shall be as shown on the drawings. Structures and fencing materials that are designated to be salvaged shall be carefully removed and neatly placed in the specified storage areas.

6. SPECIAL SPECIFICATIONS

**NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION**

IA-5 POLLUTION CONTROL

1. SCOPE

The work shall consist of installing measures or performing work to control erosion and minimize the production of sediment and other pollutants to water and air during construction operations.

2. MATERIALS

All materials furnished shall meet the requirements shown on the drawings or in the specifications.

3. EROSION AND SEDIMENT CONTROL MEASURES AND WORKS

The measures and works shall include, but are not limited to, the following:

Staging of Earthwork Activities: The excavation and moving of soil materials shall be scheduled so that areas unprotected from erosion will be minimized. These areas will be unprotected for the shortest time feasible.

Seeding: Structures and disturbed areas shall be seeded as soon as possible after construction is completed.

Temporary seedings may be used as an alternative to other stabilization measures as approved by NRCS.

Mulching: Construction areas that have been disturbed but have no construction activity scheduled for 21 days or more shall have erosion protection measures applied by the 14th day. This erosion protection may be mulching or other approved temporary measures. Construction areas left open during a winter shutdown period shall be protected by mulching.

All seeding and mulching shall be completed in accordance with the seeding plan and Iowa Construction Specification IA-6, Seeding and Mulching for Protective Cover.

The following works may be temporary. If they are installed as a temporary measure, they shall be removed and the area restored to its original state when they are no longer needed or when permanent measures are installed.

Diversions: Diversions may be required to divert clean runoff water away from work areas and to collect runoff from work areas for treatment and safe disposition.

Stream Crossings: Culverts or bridges may be required where construction equipment must cross streams.

Sediment Basins: Sediment basins may be required to settle and filter out sediment from eroding areas to protect properties and streams below the construction site.

Sediment Filters: Straw bale filters, geotextile sediment fences, or other equivalent methods may be used to trap sediment from areas of limited runoff. Sediment filters shall be properly anchored to prevent erosion under them.

Waterways: Waterways may be required for the safe removal of runoff from fields, diversions, and other structures or measures.

4. CHEMICAL POLLUTION

The Contractor shall provide watertight tanks or barrels or construct a sump sealed with plastic sheets to be used to dispose of chemical pollutants, such as drained lubricating or transmission oils, greases, soaps, concrete mixer wash water, asphalt, etc., produced as a by-product of the construction work. At the completion of the construction work, sumps shall be removed and the area restored without causing pollution.

Sanitary facilities such as chemical toilets or septic tanks shall not be placed adjacent to live streams, wells, or springs. They shall be located at a distance sufficient to prevent contamination of any water sources. At the completion of construction work, facilities shall be disposed of without causing pollution.

5. AIR POLLUTION

The burning of brush or trash or disposal of other materials shall adhere to local and state regulations.

Fire prevention measures shall be taken to prevent the start or the spreading of wild fires, which result from project work. Fire breaks or guards shall be constructed at locations shown on the drawings.

All public access or haul roads used by the contractor during construction of the project shall be sprinkled or otherwise treated to fully suppress dust. All dust control methods shall insure safe operations at all times. If chemical dust suppressants are used, the material shall be a commercially available product specifically designed for dust suppression and the application shall follow manufacturer's requirements and recommendations. A copy of the product data sheet and manufacturer's recommended application procedures shall be provided to the Engineer five working days before use.

6. MAINTENANCE, REMOVAL, AND RESTORATION

All pollution control measures and works shall be adequately maintained in a functional condition as long as needed during the construction operation. All temporary measures shall be removed and the site restored to as near original conditions as practical.

7. SPECIAL SPECIFICATIONS

CONSTRUCTION SPECIFICATION

IA-6. SEEDING AND MULCHING FOR PROTECTIVE COVER

1. SCOPE

The work shall consist seeding, mulching, and fertilizing all disturbed areas and other areas as indicated on the drawings or otherwise designated.

2. SEEDBED PREPARATION AND APPLICATION

The entire area to be seeded shall be reasonably smooth and all washes and gullies shall be filled to conform to the desired cross-section before actual seedbed preparation is begun. At this stage of the operation, the required fertilizer and lime shall be applied uniformly and incorporated into the top 3 inches of the soil with suitable tillage equipment. The seedbed preparation operation shall be suspended when the soil is too wet or too dry. The seedbed shall be prepared with loose surface at least three inches thick.

On side slopes steeper than 2 ½:1, the 3 inch minimum depth of seedbed preparation is not required, but the soil shall be worked enough to insure sufficient loose soil to provide adequate seed cover.

Unless otherwise specified, the seeding operation shall be performed immediately after preparation of the seedbed. The seed shall be drilled or broadcast by equipment that will insure uniform distribution of the seed. The fertilizer shall be applied in a separate operation and prior to seed application.

3. MATERIALS

The seeding, fertilizing, and mulching requirements are as specified in Section 6 of this specification.

Straw from cereal grains or hay will be used as mulching material. It shall be relatively free of weeds.

4. MULCH APPLICATION

The required mulching shall be performed as soon as possible after seeding unless otherwise specified. The mulch shall be applied uniformly over the area. The type and rate shall be as specified. When mulching is required, all areas seeded during any one day shall be mulched within 24 hours. The mulch may be spread by any means that results in a uniform cover.

The mulch shall be anchored. Anchoring of the mulch may be performed by a mulch anchoring tool or regular farm disk weighted and set nearly straight, by installation of mulch netting, or by other methods approved by the NRCS inspector.

5. MEASUREMENT AND PAYMENT

For items of work for which specific unit prices are established in the contract, each area treated is measured as specified in section 6 and the area calculated to the nearest 0.1 acre. Payment for treatment is made at the contract unit price for the

designated treatment, which will constitute full compensation for completion of the work.

For items of work for which lump sum prices are established in the contract, payment for seeding is made at the contract lump sum price. Such payment constitutes full compensation for the completion of the work.

6. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and the construction details therefor are:

- (1) Seeding rates are as follows:

<u>Grasses</u>	
Bromegrass	14 lbs./acre
Timothy	5 lbs./acre
Companion crop, oats	1.5 bushels/acre
Mulch	2000 lbs./acre
Lime(ECCE)	3500 lbs./acre
Nitrogen	50 lbs./acre
Phosphate(P ₂ O ₅)	100 lbs./acre
Potash(K ₂ O)	100 lbs./acre

- (2) Seed shall be uniformly applied with a broadcast seeder.
- (3) Measurement will be based on the area successfully seeded.

**NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION**

IA-11 REMOVAL OF WATER

1 SCOPE

The work shall consist of the removal of surface water and ground water as needed to perform the required construction in accordance with the plans and specifications.

2. DIVERTING SURFACE WATER

The Contractor shall build, maintain and operate all cofferdams, channels, diversions, flumes, sumps, and other temporary protective works needed to divert surface water away from the construction site while construction is in progress.

3. DEWATERING THE CONSTRUCTION SITE

Foundations, cutoff trenches, borrow areas and other parts of the construction site shall be dewatered as needed for proper execution of the construction work. The Contractor shall furnish, install, operate and maintain all works and equipment needed to perform the dewatering.

4. EROSION AND POLLUTION CONTROL

Removal of water from the construction site, including the borrow areas shall be accomplished in such a manner that erosion and the transmission of sediment and other pollutants are minimized.

5. REMOVAL OF TEMPORARY WORKS

After temporary works have served their purposes and before the Contractor leaves the site, they shall be removed.

6. SPECIAL SPECIFICATIONS

**NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION**

IA-21 EXCAVATION

1. SCOPE

The work shall consist of the excavation required by the drawings and specifications and disposal of the excavated materials.

2. USE OF EXCAVATED MATERIALS

Suitable materials from the specified excavations shall be used in the construction of required permanent earth fill. The suitability of materials for specific purposes shall be determined by the NRCS Inspector.

3. DISPOSAL OF WASTE MATERIAL

All surplus or waste material shall be disposed of in areas shown on the drawings or as approved by the NRCS Inspector. The waste material shall be smoothed and sloped to provide drainage.

4. STRUCTURE AND TRENCH EXCAVATION

Structure or trench excavations will conform with all safety requirements of OSHA.

5. BORROW EXCAVATION

When the quantities of suitable materials obtained from specified excavations are insufficient to construct the specified fills, additional materials shall be obtained from the designated borrow areas as shown on the drawings or as approved by the NRCS and the landowner.

Borrow areas shall be excavated and finally graded in a manner to eliminate steep or unstable side slopes or hazardous or unsightly conditions.

6. OVER-EXCAVATION

Excavation beyond the specified lines and grades shall be corrected by filling the resulting voids with compacted earthfill, except that if the earth is to become the subgrade for riprap, sand or gravel bedding or drainfill, the voids shall be filled with material conforming to the specifications for the riprap, bedding or drainfill, as appropriate.

7. SPECIAL SPECIFICATIONS

**NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION**

IA-23 EARTHFILL

1. SCOPE

The work shall consist of the construction of earthfills required by the drawings and specifications.

2. MATERIALS

All fill materials shall be obtained from required excavations and designated borrow areas. Fill materials shall contain no sod, brush, roots or other bio-degradable materials. Rocks larger than 6 inches in diameter shall be removed prior to compaction of the fill.

3. FOUNDATION PREPARATION

Foundations for earthfill shall be stripped to remove vegetation and other unsuitable materials. Foundation surfaces shall be scarified to a minimum depth of 2 inches.

Foundation and abutment surfaces shall not be sloped steeper than 1.5:1 unless otherwise shown on the drawings.

4. PLACEMENT

Fill shall not be placed until the required excavation and foundation preparation have been completed and the foundation has been inspected and approved by NRCS. Fill shall not be placed upon a frozen surface, nor shall snow, ice, or frozen material be incorporated in the fill.

Adjacent to structures or pipes, fill shall be placed in a manner which will prevent damage. The height of the fill adjacent to structures or pipes shall be increased at approximately the same rate on all sides.

The materials used throughout the earthfill shall be essentially uniform. Selective placement shall be as shown on the drawings or approved by NRCS.

If the surface of any layer becomes too hard and smooth for proper bond with the succeeding layer, it shall be scarified to a depth of not less than 2 inches before the next layer is placed.

The top surfaces of embankments shall be maintained approximately level during construction, except that a cross-slope of approximately 2% shall be maintained to ensure effective drainage.

5. CONTROL OF MOISTURE CONTENT

The moisture content of the fill material shall be adequate for obtaining the required compaction. Material that is too wet shall be dried to meet this requirement, and material that is too dry shall have water added and mixed until the requirement is met.

The moisture content of the fill material shall be such that a ball formed with the hands does not crack or separate when struck sharply with a pencil and will easily ribbon out between the thumb and finger.

Earth foundations under and adjacent to concrete structures shall be prevented from drying and cracking before concrete and backfill are placed.

The application of water to the fill materials shall be accomplished at the borrow areas insofar as possible.

6. COMPACTION

Earthfill shall be compacted by one of the following methods as specified on the plans. If no method is specified, compaction will be in accordance Method 1.

Method 1 - Earthfill shall be placed so that the wheels of the loaded, rubber tired, hauling equipment traveling in a direction parallel to the centerline of fill pass over the entire surface of the layer being placed.

Method 2 - Two (2) complete passes of a tamping-type roller will be made over each layer. The roller shall be capable of exerting a minimum of one-hundred (100) pounds per square inch.

Method 3 - Minimum density shall be 90% of the maximum density as determined by ASTM 698.

The maximum thickness of a lift of fill before compaction shall be 9 inches, unless otherwise indicated on the drawings

Fill adjacent to structures, pipe conduits, and anti-seep collars shall be placed in layers not more than 4 inches thick and compacted to a density equivalent to that of the surrounding fill by hand tamping, manually directed power tampers, or plate vibrators. Care should be taken so that compaction around the spillway pipe does not cause uplift of the pipe resulting in a void beneath the pipe. Hand tamping only shall be used to compact the earthfill under the bottom half of circular pipes. Equipment shall not be operated within 2 feet of any structure or pipe.

Compacting of fill adjacent to structures shall not be started until the concrete is 7 days old.

7. SPECIAL SPECIFICATIONS

**NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION**

IA-26 TOPSOILING

1. SCOPE

The work shall consist of salvaging topsoil from borrow areas or required excavations and spreading it on the exposed disturbed areas.

2. QUALITY OF TOPSOIL

Topsoil shall consist of friable surface soil reasonably free of grass, roots, weeds, sticks, stones, or other foreign materials.

3. EXCAVATION

After the site has been cleared and grubbed, the topsoil shall be removed from borrow areas and required excavation areas to the depth as shown on the drawings. Topsoil shall be stockpiled at locations approved by NRCS.

4. SPREADING

Spreading shall not be done when the ground or topsoil is frozen, excessively wet, or otherwise in a condition detrimental to the work. Surfaces designated to be covered shall be lightly scarified just prior to the spreading operation. Where compacted fills are designated to be covered by topsoil, the topsoil shall be placed concurrently with the fill and shall be bonded to the compacted fill with the equipment.

Topsoil shall be placed to the minimum depth shown on the drawings. After the spreading operation is completed, the surface shall be finished to a reasonably smooth surface.

5. SPECIAL SPECIFICATIONS

**NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION**

IA-45 PLASTIC (PVC, PE) PIPE

1. SCOPE

The work shall consist of furnishing and installing plastic pipe and the necessary fittings specified herein or as shown on the drawings. This specification does not cover subsurface drainage systems.

2. MATERIALS

Corrugated Polyethylene (PE) Tubing. Corrugated PE tubing and fittings shall conform to the requirements of the applicable specification listed below:

<u>Kind of Pipe</u>	<u>ASTM Specification</u>
Corrugated PE Tubing and Fittings, Size 3 to 6 inch, inclusive	F 405
Large Diameter Corrugated PE Tubing and Fittings, Size 8 to 24 inch, inclusive	F 667
PE Large Diameter Profile Wall Sewer and Drain Pipe	F 894

Poly Vinyl Chloride (PVC) Plastic Pipe. PVC pipe and fittings shall conform to the requirements of the applicable specification listed below:

<u>Kind of Pipe</u>	<u>ASTM Specification</u>
PVC Plastic Pipe, Schedules 40, 80 and 120	D 1785
PVC Pressure-Rated Pipe (SDR Series)	D 2241

3. FITTINGS AND JOINTS

Pipe joints shall conform to the details shown on the drawings. Pipe shall be installed and joined in accordance with the manufacturer's recommendations.

Joints may be bell and spigot type with elastomeric gaskets, coupling type with elastomeric gasket on each end, or solvent cemented. Solvent cemented joints may not be used for ponds. Solvent cemented joints for PVC pipe and fittings shall be in accordance with ASTM D 2855. When a lubricant is required to facilitate joint assembly, it shall be a type having no detrimental effect on the gasket or pipe material.

Mechanical joints (split couplings and snap couplings) may be used when joining PE pipe and fittings when the pipe is used for non-pressure flow and a free draining sand or gravel bedding material is provided. Elastomeric-sealed mechanical joints shall be used when joining PE pipe and fittings under pressure flow or where seepage cannot be tolerated.

Where non-pressure pipe is specified, the fittings shall be of the same or similar materials as the pipe and shall provide the same durability and strength as the pipe.

Where pressure pipe is specified, fittings shall have a design capacity equal to or exceeding that specified for the pipe to which it is attached. Fittings shall be cast iron, steel, one piece injection molded plastic fitting or fabricated from plastic pipe and one piece injection molded plastic fittings. Pressure pipe fittings shall conform to the requirements of the applicable specification listed below.

<u>Kind of Fitting</u>	<u>ASTM Specification</u>
Threaded PVC Plastic Pipe Fittings, Schedule 80	D 2464
PVC Plastic Pipe Fittings, Schedule 40	D 2466
Socket-Type PVC Plastic Pipe Fittings, Schedule 80	D 2467
Butt Heat Fusion PE Plastic Fittings for PE Plastic Pipe and Tubing	D 3261
Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals	D 3139
PVC Pressure Pipe, 4-12 in., for Water	C 900
PVC Water Transmission Pipe, Nominal Diameters, 14-36 in.	C 905

4. HANDLING AND STORAGE

Pipe shall be delivered to the job site and handled by means which provide adequate support to the pipe and does not subject it to undue stresses or damage. When handling and placing plastic pipe, care shall be taken to prevent impact blows, abrasion damage, and gouging or cutting (by metal surfaces or rocks). All special handling requirements of the manufacturer shall be strictly observed. Special care shall be taken to avoid impact when the pipe must be handled at temperatures of 40°F (4.4°C) or less.

Pipe shall be stored on a relatively flat surface so that the barrels are evenly supported. Unless the pipe is specifically coated to withstand exposure to ultraviolet radiation, it shall be covered with an opaque material when stored outdoors for a period of 15 days or longer.

5. LAYING AND BEDDING THE PIPE

Plastic pipe conduits and fittings shall be installed as shown on the drawings and specified herein. The pipe shall be laid so that there is no reversal of grade between joints, unless otherwise shown on the drawings. The pipe shall be placed with the bell end upstream, unless otherwise specified. The pipe shall be carefully placed on the bedding or into the pipe trench.

Care shall be taken to prevent distortion and damage during unusually hot (over 90°F) or cold weather (under 40°F). After the pipe has been assembled in the trench, it shall be allowed to reach ground temperature before backfilling to prevent pull out of joints due to thermal contraction.

The pipe ends and the couplings shall be free of foreign material when assembled. During the placement of the pipe, each open end of the pipeline shall be closed off by a suitable cover or plug at the end of work on the pipeline each day and until work resumes or installation is complete.

Perforated pipe shall be laid with the perforations down and oriented symmetrically about the vertical centerline. Perforations shall be clear of any obstructions when the pipe is laid.

Pipe shall be firmly and uniformly supported throughout the entire length. Bell-holes shall be made in the bedding under bells or couplings and other fittings to prevent the pipe from being supported by fittings.

- a. Earth Bedding. When bedding is specified, the pipe shall be firmly and uniformly bedded in a shaped bedding groove that closely conforms to the bottom of the pipe for a depth equal to a minimum of 1 inch or 5 percent of the diameter of the pipe, whichever is greater. The bedding material shall be free of rocks or stones greater than 0.5 inch diameter and earth clods greater than 2 inch diameter.
- b. Sand or Gravel Bedding. When sand or gravel bedding is specified, the pipe shall be firmly and uniformly placed on a sand or gravel bed. Sand or gravel fill shall be carefully placed and compacted as specified herein and as shown on the drawings.

6. BACKFILL

The pipe shall be held down during backfilling to the top of the pipe to prevent its being lifted from its original placement.

Within 2 feet of the pipe, backfill shall be carefully placed and compacted by means of hand tamping or manually directed power tampers or plate vibrators to form a continuous uniform support around the pipe. Maximum thickness of layers before compaction within 2 feet of the pipe shall be 4 inches and at more than 2 feet from the pipe a maximum thickness before compaction shall be 9 inches. Unless otherwise specified, the initial backfill shall be compacted to a density equivalent to that of the adjacent fill or foundation materials.

The water content of cohesive backfill material shall be such that, kneaded in the hand, the soil will form a ball which does not readily separate. For non-cohesive sand and gravel backfill material, water content is not a concern for thin lifts.

7. SPECIAL SPECIFICATIONS

**NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION**

IA-52 STEEL PIPE CONDUITS

1. SCOPE

The work shall consist of furnishing and installing steel pipe complete with appurtenances.

2. MATERIALS

Steel pipe shall be new, new reject or used seamless and welded steel pipe. Reject or used pipe may be accepted if inspected by the Soil Conservation Service before installation and found to be in good condition. All pipe must have the following minimum wall thickness.

<u>Pipe Diameter</u>	<u>Minimum Wall Thickness</u>
4-16"	1/4"
18-26"	9/32"
over 26"	3/8"

Unless otherwise specified, special fittings and appurtenances shall be of the same material as the pipe.

Steel welding electrodes shall conform to the requirements of American Welding Society specifications AWS A5.1. "Specification for Mild Steel Covered Arc-Welding Electrodes," except that they shall be uniformly and heavily coated (not washed) and shall be of such a nature that the coating will not chip or peel while being used with the maximum amperage specified by the manufacturer.

3. LAYING AND BEDDING THE PIPE

Pipe shall be laid to the line and grade shown on the drawings. Unless otherwise specified, the pipe shall be laid so that there are no reversals of grade between joints, and shall also be installed in accordance with the manufacturer's recommendations. The pipe shall be firmly and uniformly bedded to the depth and in the manner specified on the drawings. An ample "bell hole" working area may be left at pipe joints to perform welding, coating, etc., activities. The "bell hole" area shall then be bedded, as specified, prior to backfill operations.

The pipe shall be weighed down sufficiently to prevent its displacement from the bedding during placement of the backfill under the haunches.

4. JOINTS

Pipe joints shall conform to the details shown on the drawings and shall be sound and watertight.

Welded Joints. Welding and welded joints shall conform to the welding procedure details and requirements of AWWA Standard C 206. Field welding shall be done in such a way as to avoid burning the protective coating on the pipe except in the immediate vicinity of the weld.

Welded field joints shall be single welded butt joints or lap welded slip joints, as shown on the drawings. Special closure lap joints shall be used as described in AWWA Standard C 206.

5. HANDLING THE PIPE

The Contractor shall furnish such equipment as is necessary to place the pipe without damaging the pipe.

6. BACKFILLING

Backfill material shall have sufficient moisture so that optimum compaction can be obtained. Backfill around the pipe shall be placed in layers not more than 4 inches thick before compaction.

Each layer of backfill shall be compacted with power tampers, hand tampers, or plate vibrators to the same density requirements as specified for the adjacent embankment. Backfill over and around the pipe shall be brought up uniformly on all sides. The passage of earth moving equipment will not be allowed over the pipe until backfill has been placed above the top of the pipe surface to a depth of two (2) feet.

7. SPECIAL SPECIFICATIONS

**NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION**

IA-81. METAL FABRICATION AND INSTALLATION

1. SCOPE

The work shall consist of furnishing, fabricating, and installing metalwork including metal parts of composite structures.

2. MATERIALS

Steel shall be of structural quality. Finished surfaces shall be smooth and true to assure proper fit.

Bolts, nuts, washers, rods, rivets, etc., shall be of a material equal to the steel being fastened.

3. PROTECTIVE COATINGS

Protective coatings will consist of either galvanizing or painting and shall be applied by the fabricator.

Galvanizing shall consist of a zinc coating by the hot dip process, except that bolts, nuts, and washers may have a electrodeposited zinc coating.

Paint System for this specification shall consist of the application of one coat of Epoxy Polyamide Primer (lead and chromate free) and one or more coats of Epoxy Polyamide (intermediate or finish), lead free. When finished, it will have a minimum dry film thickness of 8.0 mils.

4. FABRICATION

Materials shall be carefully fabricated as shown on the drawings. The fabrication shall be smooth and true to assure proper fit. Galvanized items shall not be cut, welded, or drilled after the zinc coating is applied.

5. ERECTION

The metal shall be erected true and plumb, closely conforming to the drawings.

6. SPECIAL SPECIFICATIONS

