



**CITY OF SAN ANTONIO  
TRANSPORTATION & CAPITAL IMPROVEMENTS**

**SPECIFICATIONS  
FOR**

**2016 - 2017 Task Order Contract for Storm Water  
Projects**

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**CITY MANAGER  
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Prepared by

**TRANSPORTATION & CAPITAL IMPROVEMENTS  
STORM WATER ENGINEERING DIVISION  
SAN ANTONIO, TEXAS**



*Dale M. Keller PE* 8-17-15  
Dale M. Keller, P.E. Date

# CITY OF SAN ANTONIO, TEXAS

## GOVERNING SPECIFICATIONS, SPECIAL SPECIFICATIONS AND SPECIAL PROVISIONS FOR

### 2016 - 2017 Task Order Contract for Storm Water Projects

All Standard Specifications, Special Specifications and Special Provisions applicable to this project are identified as follows:

#### CITY OF SAN ANTONIO STANDARD SPECIFICATIONS FOR CONSTRUCTION JUNE, 2008

ITEM	DESCRIPTION
100	Mobilization
101	Preparing Right-of-Way
103	Remove Concrete
104	Street Excavation
105	Channel Excavation
107	Embankment
108	Lime Treated Subgrade
200	Flexible Base
202	Prime Coat
203	Tack Coat
205	Hot Mix Asphaltic Concrete Pavement
208	Salvaging, Hauling, and Stockpiling Reclaimable Asphaltic Pavement
209	Concrete Pavement
210	Rolling
234	Geogrid for Base or Embankment Reinforcement
300	Concrete
301	Reinforcing Steel
302	Metal For Structures
303	Welded Wire Flat Sheets
306	Structural Excavation
307	Concrete Structures
309	Precast Reinforced Concrete Box Culverts
311	Concrete Surface Finish
401	Reinforced Concrete Pipe
403	Storm Sewer Junction Boxes and Inlets
407	Concrete Encasement, Cradles, Saddles, and Collars
410	Subgrade Filler
413	Flowable Fill
500	Concrete Curb, Gutter, and Concrete Curb and Gutter
502	Concrete Sidewalks

503	Asphaltic Concrete, Portland Cement Concrete, and Gravel Driveways
505	Concrete Riprap
506	Concrete Retaining Wall – Combination Type
507	Chain Link Wire Fence
508	Relocating Wire Fence
509	Metal Beam Guard Rail
510	Timber Guard Posts
511	Cutting and Replacing Pavements (Trench Repair)
512	Adjusting Existing Manholes and Valve Boxes
513	Removing and Relocating Mailboxes
515	Top Soil
516	Sodding
520	Hydromulching
522	Sidewalk Pipe Railing
523	Adjusting of Vehicular & Pedestrian Gates
530	Barricades, Signs and Traffic Handling
531	Signs
535	Hot Applied Thermoplastic Pavement Markings
537	Raised Pavement Markings
550	Trench Excavation Safety Protection
552	Removing and Relocating Irrigation Systems
554	Erosion Control Matting
804	New Tree and Shrub Planting and Maintenance
1000	Web Portal

**SPECIAL PROVISIONS TO CITY OF SAN ANTONIO STANDARD  
SPECIFICATIONS FOR CONSTRUCTION, JUNE 2008**

**MAY 2009:**

401	Reinforced Concrete Pipe
403	Storm Sewer Junction Boxes and Inlets
502	Concrete Sidewalks
503	Asphaltic Concrete, Portland Cement Concrete and Gravel Driveways
505	Concrete Riprap
520	Hydromulching
523	Adjusting of Vehicular & Pedestrian Gates

**NOVEMBER 2013:**

804	New Tree & Shrub Planting and Maintenance
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City of San Antonio Standard Specifications and Special Provisions may be found on the City's Transportation & Capital Improvements website @:  
<http://www.sanantonio.gov/TCI/CurrentVendorResources/StandardSpecificationsandDetails.aspx>

**SPECIAL SPECIFICATIONS FOR CONSTRUCTION:**

800	Project Signs
801	Tree and Landscape Protection
802	Tree Pruning, Soil Amendment and Fertilization
810	Tree Removal
6001	Wooden Privacy Fence

**TEXAS DEPARTMENT OF TRANSPORTATION STANDARD  
SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF  
HIGHWAYS, STREETS, AND BRIDGES 2004**

459	Gabions and Gabion Mattresses
544	Guardrail End Treatments

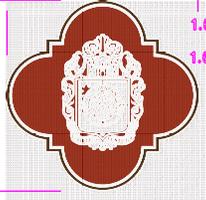
## ITEM 800

### PROJECT SIGNS

- 800.1 DESCRIPTION:** This item shall consist of providing, installing, maintaining and (at the completion of the project) removing two (2) 4'x8' project signs. The signs shall conform to the configuration and details indicated in a special sheet in the project specifications titled "PROJECT SIGN DETAILS." These signs shall be installed at locations to be determined by the inspector.
- 800.2 MATERIAL:** The signs shall be made of  $\frac{3}{4}$ " plywood, grade A-C or better and each shall be mounted on two (2) 4"x 4"x 12' - 0" posts.
- 800.3 INSTALLATION:** The installation will require embedding all posts a minimum of 3' - 0" below the ground.
- 800.4 PAYMENT:** No direct payment will be made to the contractor for the work and materials required in providing, installing, maintaining, and removing the signs. Such work and materials shall be considered subsidiary to the several items of work for which unit prices are provided in the proposal.

96 in.

48 in.



# CITY OF SAN ANTONIO

TRANSPORTATION & CAPITAL IMPROVEMENTS DEPT.

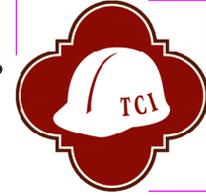
PROJECT NAME

\$ AMOUNT CAPITAL IMPROVEMENTS PROJECT

FUNDING SOURCE

DESIGN ENGINEER/ARCHITECT

CONTRACTOR



**CITY OF SAN ANTONIO  
TRANSPORTATION &  
CAPITAL IMPROVEMENTS**

CITY MANAGER  
Sheryl Sculley

MAYOR  
IVY R. TAYLOR

CITY ENGINEER/  
TCI DEPT. DIRECTOR  
Mike Frisbie, P.E.

CITY COUNCIL  
Roberto C. Treviño  
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Rebecca J. Viagran  
Rey Saldaña  
Shirley Gonzales

Ray Lopez  
Cris Medina  
Ron Nirenberg  
Joe Krier  
Mike Gallagher

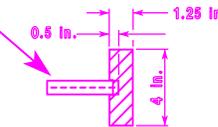
ALL TEXT FILLED IN  
BLACK LETTERS

WHITE  
BACK-  
GROUND

FOR MORE INFORMATION CALL 207-8140  
AFTER HOURS EMERGENCIES CALL 311 AND REFER TO PROJECT: PROJECT NAME

LEFT BORDER SHALL BE  
DETERMINED USING THE  
LONGEST LINE CENTERED  
ON THE SIGN PROVIDING  
EQUAL BORDERS

EXTERIOR TYPE HIGH DENSITY  
OVERLAID PLYWOOD OR OTHER  
APPROVED MATERIAL SUITABLE  
FOR SIGNS.



PROVIDE ADEQUATE SUPPORTS FOR SIGN AS  
SITE CONDITIONS MAY REQUIRE AND KEEP SIGN  
PROPER DISTANCE ABOVE PREVAILING GRADE TO  
PERMIT PUBLIC VIEWING

GRADE

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
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## ITEM 801

### **TREE AND LANDSCAPE PROTECTION**

This item shall govern the placing of protection for trees and other landscape plant material or natural areas to be protected during construction. No site preparation work shall begin in areas where tree preservation and treatment measures have not been completed and approved. *Where removal of trees is indicated on the drawings, they shall be marked as directed by the engineer or designated representatives.* This item shall also govern the excavation, filling, *trenching and boring* around trees described on the plans, and for furnishing all materials, water, labor, tools, equipment and supplies required as specified by this item or as indicated on the plans.

Reference Standards: City of San Antonio Tree Preservation ordinance # 85262

#### **MATERIALS:**

##### **LEVEL I FENCE PROTECTION (Detail 1.1.2):**

Fabric: Fabric (4 foot height or 1.2 m) shall consist of orange plastic fencing as shown on the plans and shall be woven with 2-inch (50 mm) mesh openings such that in a vertical dimension of 23 inches (584 mm) along the diagonals of the openings there shall be at least seven meshes.

1. Installation Posts: Installation posts shall be a minimum of 72 inches (1.5 m) long and steel “T” shaped with a minimum weight of 1.3 pounds per linear foot (6.3 kg per meter).
2. Tie Wire: Wire for attaching the fabric to the t-posts shall be not less than No. 12 gauge galvanized wire. Sufficient fastening material shall be furnished to provide for the securing of the fabric to the “T” line posts.
3. Used Materials: Previously-used materials, meeting the above requirements and when approved by the Engineer, may be used.

##### **LEVEL IIA FENCE PROTECTION (Detail 1.1.3):**

Materials same as Level I -OR-

##### **LEVEL IIB FENCE PROTECTION (Detail 1.1.4):**

1. Sleeve: 2x4 lumber to a height of 4 feet above the root crown.
2. 2x4 shall be utilized as called for on plan.
3. Tie Wire: Wire for securing the 2x4s shall not be less than No. 12 gauge.

#### **OTHER MATERIALS:**

1. Tree Dressing - Asphaltic Tree Wound Paint

#### **CONSTRUCTION METHODS:**

##### **LEVEL I FENCE PROTECTION:**

All trees and shrubs in the proximity of the construction site shall be protected prior to beginning any development activity.

Protective fencing shall be erected outside the dripline at locations shown in the plans or as directed by the Inspector and/or City Arborist or in accordance with the details shown on the plans at the drip line of trees (Root Protection Zone, RPZ) and/or landscape plant material including natural areas. Fencing shall be maintained and repaired by the contractor during site construction.

Protective fence locations in close proximity to street intersections or drives shall adhere to the City of San Antonio’s site distance criteria.

The protective fencing shall be erected before site work commences and shall remain in place during the entire construction phase. Access to fenced areas will be permitted only with the approval of the engineer.

The installation posts will be placed every 6 feet (2 m) around the drip line or RPZ and embedded to 18 inches (457 mm) deep. Fabric attachment shall be attached to the installation posts by the use of sufficient wire ties to securely fasten the fabric to the “T” posts as to hold the fabric in a stable and upright position.

1. Do not clear, fill or grade in the RPZ of any tree.
2. Do not store, stockpile or dump any job material, soil or rubbish under the spread of the tree branches.
3. Do not park or store any equipment or supplies under the spread of the tree branches.
4. Do not set up any construction operations under the spread of the tree branches. (E.g. pipe cutting and threading, mortar mixing, painting or lumber cutting)
5. Do not nail or attach temporary signs, meters, switches, wires, bracing or any other item to the trees.
6. Do not permit runoff from waste materials including solvents, concrete washouts, asphalt tack coats (MC-30 oil), etc. to enter the RPZ. Barriers are to be provided to prevent such runoff substances from entering the RPZ whenever possible, including in an area where rain or surface water could carry such materials to the root system of the tree.

The contractor shall avoid cutting roots larger than one inch in diameter when excavation occurs near existing trees. Excavation in the vicinity of trees shall proceed with caution. The contractor shall contact the city inspector.

Remove all trees, shrubs or bushes to be cleared from protected root zone areas as directed by engineer by hand.

Trees damaged or lost due to contractor’s negligence during construction shall be mitigated at the contractor’s expense and to the engineer’s satisfaction.

Any tree removal shall be approved by the city arborist prior to its removal.

Cover exposed roots at the end of each day with soil, mulch or wet burlap.

*In critical root zone areas that cannot be protected during construction and where heavy traffic is anticipated, cover those areas with (8) inches of organic mulch to minimize soil compaction. This (8) inch depth of mulch shall be maintained throughout construction.*

*Water all trees, most heavily impacted by construction activities, deeply once a week during periods of hot dry weather. Spray tree crowns with water periodically to reduce dust accumulation on the leaves.*

*When installing concrete adjacent to the root zone of a tree, use a plastic vapor barrier behind the concrete to prohibit leaching of lime into the soil. See related specifications.*

*When an excavation or embankment is placed within the dripline of any tree greater than (8) inches in diameter, a Tree well shall be constructed to protect the tree as indicated, when the cut or fill exceeds (8) inches. See related specifications.*

*Where paving or filling is necessary within the dripline of any tree (8) inches or greater, a permeable pavement and aeration system must be installed as indicated. See related specifications.*

## **CONSTRUCTION METHODS:**

### **LEVEL II A FENCE PROTECTION:**

Protective fencing shall be erected within the RPZ at locations shown in the plans or as directed by the Inspector and/or City Arborist or in accordance with the details shown on the plans at the drip line of trees (Root Protection Zone, RPZ) and/or landscape plant material including natural areas. Fencing shall be maintained and repaired by the contractor during site construction.

Fabric: Fabric (4 foot height or 1.2 m) shall consist of orange plastic fencing as shown on the plans and shall be woven with 2-inch (50 mm) mesh openings such that in a vertical dimension of 23 inches (584 mm) along the diagonals of the openings there shall be at least seven meshes.

1. Installation Posts: Installation posts shall be a minimum of 72 inches (1.5 m) long and steel "T" shaped with a minimum weight of 1.3 pounds per linear foot (6.3 kg per meter).
2. Tie Wire: Wire for attaching the fabric to the t-posts shall be not less than No. 12 gauge galvanized wire. Sufficient fastening material shall be furnished to provide for the securing of the fabric to the "T" line posts.
3. Used Materials: Previously-used materials, meeting the above requirements and when approved by the Engineer, may be used.

### **LEVEL II B FENCE PROTECTION:**

Trunk protection shall be erected at locations shown in the plans or as directed by the Inspector and/or City Arborist shall be maintained and repaired by the contractor during site construction.

1. Installation Sleeve: 2x4 lumber to a height of 4 feet above the root crown.
2. Tie Wire for securing the 2x4s shall not be less than No. 12 gauge

### **MEASUREMENT:**

Protective fencing will be measured by the linear foot of accepted work, complete in place for the duration of construction activity.

### **PAYMENT:**

Tree and Landscape Protective Fencing will be paid for at the unit price bid per linear foot (meter), which price shall be full compensation for furnishing and placing all materials, manipulation, labor, tools, equipment and incidentals necessary to complete the work.

## **BID ITEMS**

Item 801.1: Level I Protective Fencing - per linear foot (meter)

Item 801.2: Level IIA Protective Fencing - per linear foot (meter)

Item 801.3: Level IIB Protective Fencing - per linear foot (meter)

## ITEM 802

### **TREE PRUNING, SOIL AMENDING AND FERTILIZATION**

#### **PART 1 GENERAL**

##### **1.1 DESCRIPTION:**

The purpose of this specification is to describe a procedure for maintaining preserved trees before, during and after construction and for furnishing all materials, water, labor, tools, equipments and supplies required as specified by this item or as indicated on the plans.

##### **1.2 REFERENCE STANDARDS:**

The contractor shall comply with the applicable provisions and recommendations of the publication listed below and these shall be utilized as reference standards, and form a part of this specification to the extent indicated by reference:

American National Standard Institute - ANSI A300-2002

#### **PART 2 PRODUCTS**

##### **2.1 MATERIALS:**

1. Tree pruning paint: Any latex, oil or asphalt base wound dressing.
2. Soil amendment: Organic soil amendment with nitrogen content 10% or less.
3. Commercial fertilizer: Urea form based liquid suspension, which is soil injected. Salt Index is less than 3.5 (True Green, Boost) and a longevity period of up to 2 years.
4. Mulch: Shredded wood residue with size of pieces not more than 6 inches in length.
5. Water-By truck for trees.

#### **PART 3 EXECUTION**

##### **LEVEL I:**

##### **3.1 CARE OF TREES PRIOR TO AND DURING CONSTRUCTION:**

1. Prior to erecting tree enclosure and the start of any phase of construction, arborist will provide mycorrhizal inoculation and deep root fertilization to the tree roots, using 3 lbs. of actual nitrogen per 1000 square feet of root area in a slow release soil injection method. Then a certified arborist will perform pruning before construction to remove dead wood, improve the health of the trees to better tolerate the stresses endured during construction activities. In addition all pruning shall adhere to the standard practices in the American National Standard Institute ANS/A300-1995, and to improve the level of safety
  - a. Crown Cleaning – shall consist of the removal of dead, dying, and diseased wood one inch in diameter and greater. Many of the existing trees are above and within the proposed walkway. This dead wood shall be removed to improve safety and liability issues.
2. No site preparation work shall begin in areas where tree preservation and treatment measures have not been completed and approved.
  - a. Crown Raising – shall consist of removing lower limbs to provide a clearance specification of 8 feet over walkways and 13 feet over the main road for vehicle clearance. Branches may be tied back instead of removed, in order to alleviate conflict.

These specifications should protect the existing trees. Tree contractor is to be briefed by Project Engineer/Arborist prior to project commencement. All pruning and removals shall be overseen by a Certified Arborist. The awarded company shall have a Certified Arborist on staff to be able to bid on this Project.

3. No pruning or removal of limbs shall be allowed to provide clearance for work unless approved by the engineer.
4. Removal of limbs which are 6 inches in diameter or greater is prohibited without consent of the City Arborist. Occasional branches, up to 1/4 inch in diameter, which are dead, dying, diseased may remain when it is not practical to remove it.
5. Oak wounds must be painted with wound paint within 30 minutes to prevent infection of the Oak Wilt fungal organism.
6. Soil amendments will be applied within the drip line (RPZ).
7. Soil fertilization will be completed by a soil injection method, which will occur at a spacing of 3 feet on center around the tree within the drip line (Root Protection Zone, RPZ) only for those trees specified.
8. Excavate within drip line of trees only where required. Where excavating for new construction is required within drip line of trees, hand excavate to minimize damage to root systems. Use narrow spading forks and comb soil to expose roots. Relocate roots back into backfill areas wherever possible. If large main lateral roots are encountered, expose beyond excavation limits as required to bend and relocate without breaking. If root relocation is not practical, then contact Client representative for approval to cut roots 1/2" or greater. If approved, clean cut roots using handsaw or chainsaw approximately 3 inches back from new construction. Where existing grade is above new finish grade, carefully excavate within the drip line to the new finish grade. Carefully hand excavate an additional 8 inch below the finish grade. Use narrow line spading forks to comb the soil to expose the roots and prune the exposed root structure as recommended by the Arborist. After pruning and treatment is complete, backfill to within the finish grade with 8" of approved landscape fill material. Temporarily support and protect roots against damage until permanently relocated and do not allow exposure of root to air to occur beyond 12 hours. Cover with damp soil, peat moss, 8" bark or gunny sacks in order to keep moist so as not to dry out and permanently cover roots as soon as possible. Where it has been determined that trenching for utilities can seriously impact the roots of a desirable tree, then bore or tunnel under tree to minimize root impact.
9. The Contractor shall be responsible for coordinating all construction activities that may impact trees with client's representative and the Arborist, who will do the necessary pruning and deep root fertilization deemed necessary by the Arborist.

### **3.2 POST CONSTRUCTION CARE OF TREES:**

1. The Contractor shall water when it is necessary to supplement natural rainfalls required preventing excess drying of the tree root area.

2. The Contractor is responsible for a fall and spring fertilization of the following year using a deep root fertilization method on trees deemed necessary by the Client.
3. The Contractor shall perform post construction care under the supervision of the arborist.

### **3.3 QUALITY ASSURANCE:**

All tree pruning and fertilization work shall be performed by a single firm specializing in tree pruning work, with a minimum of 3 years experience in the acceptable performance of similar work to that specified. Pruning is to be performed by personnel who, by training and on the job experience, are familiar with the techniques and hazards of this work. The firm performing the work shall have the following minimum qualifications and certifications.

NAA - National Arborist Association Certified or  
ISA - International Society of Arborists Certification  
Be licensed for application and use of pesticides  
Meet state requirements for insurance  
Must be bonded

The Arborist shall:

- a. Establish lines of communication for all work which may potentially impact trees, under story, or areas that are to be protected from construction activity.
- b. Locate and properly identify or mark in the field trees, under story and areas that are to be protected from construction activity and are the responsibility of the Prime Contractor to protect.
- c. Identify limits and extent of protective fencing around these trees, under story vegetation and other areas.

### **LEVEL II:**

#### **3.4 CARE OF TREES PRIOR TO AND DURING CONSTRUCTION:**

1. Prior to erecting tree enclosure and the start of any phase of construction; provide mycorrhizal inoculation and deep root fertilization to the tree roots, using 3 lbs. of actual nitrogen per 1000 square feet of root area. Then pruning will be performed by a certified arborist before construction to remove dead wood, improve the health of the trees to better tolerate the stresses endured during construction activities. In addition all pruning shall adhere to the standard practices in the American National Standard Institute ANS/A300-1995, and to improve the level of safety
2. No site preparation work shall begin in areas where tree preservation and treatment measures have not been completed and approved.
3. No pruning or removal of limbs shall be allowed to provide clearance for work unless approved by the engineer.
4. Removal of limbs which are 6 inches in diameter or greater is prohibited without consent of the City Arborist. Occasional branches, up to 1/4 inch in diameter, which are dead, dying, diseased may remain when it is not practical to remove it.
5. Oak wounds must be painted with wound paint within 30 minutes to prevent infection of the Oak Wilt fungal organism.

6. Excavate within drip line of trees only where required. Where excavating for new construction is required within drip line of trees, hand excavate to minimize damage to root systems. Use narrow spading forks and comb soil to expose roots. Relocate roots back into backfill areas wherever possible. If large main lateral roots are encountered, expose beyond excavation limits as required to bend and relocate without breaking. If root relocation is not practical, then contact Client representative for approval to cut roots 1/2" or greater. If approved, clean cut roots using a handsaw or chainsaw approximately 3 inches back from new construction. Where existing grade is above new finish grade, carefully excavate within the drip line to the new finish grade. Carefully hand excavate an additional 8 inch below the finish grade. Use narrow line spading forks to comb the soil to expose the roots and prune the exposed root structure as recommended by the Arborist. After pruning and treatment is complete, backfill to within the finish grade with 8" of approved landscape fill material. Temporarily support and protect roots against damage until permanently relocated and do not allow exposure of root to air to occur beyond 12 hours. Cover with damp soil, peat moss, bark or gunny sacks in order to keep moist so as not to dry out and permanently cover roots as soon as possible. Where it has been determined that trenching for utilities can seriously impact the roots of a desirable tree, then bore or tunnel under tree to minimize root impact.
7. Water deeply trees that are substantially trimmed or within drip line of excavation work for the duration of this contract.
8. Water deeply trees that show signs of stress and are located in areas where the groundwater table has been lowered due to construction activities.
9. The Contractor shall be responsible for coordinating all construction activities that may impact trees with client's representative and the Arborist, who will do the necessary pruning and deep root fertilization deemed necessary by the Arborist.

### **3.5 POST CONSTRUCTION CARE OF TREES:**

1. The Contractor shall water when it is necessary to supplement natural rainfalls required preventing excess drying of the tree root area. Barring natural rainfall, the Contractor should apply 1" per week over entire root protection zone.
2. The Arborist shall monitor and authorize for removal the trees which show symptoms of stress, which might be indicated by branch die back chlorosis or fringe browning of the leaves. This would indicate that the crown is not in equilibrium with roots and additional pruning would be necessary. Subsequent pruning should remove only as much green wood as deemed necessary to reestablish equilibrium. If trees die during construction due to contractor negligence up to a one year post construction period, the Contractor will be required to replace trees at his or her own expense as called for in Paragraph 3.6.
3. The Contractor shall perform post construction care under the supervision of an arborist.

### **3.6 MEASUREMENT:**

"Level I Pruning, Soil Amendment, and Fertilization" will be measured by each tree which has received Level I Pruning, Soil Amendment, and Fertilization.

"Level II Pruning, Soil Amendment, and Fertilization" will be measured by each tree which has received Level II Pruning, Soil Amendment, and Fertilization.

The work performed, materials furnished, equipment, labor, tools, hauling and incidentals for minor Pruning without the addition of Soil Amendment and Fertilization will not be measured directly but will be subsidiary to pertinent items.

**3.7 PAYMENT:**

Work performed and materials furnished as prescribed by this item and measured as provided under "Measurement" will be paid for as follows:

"Level I Pruning, Soil Amendment, and Fertilization" will be paid for at the unit price bid per each tree receiving "Level I Pruning, Soil Amendment, and Fertilization" which price shall be full compensation for furnishing all materials; preparation, hauling, handling charges, placement, labor, tools, and incidentals necessary to complete the work.

"Level II Pruning, Soil Amendment, and Fertilization" will be paid for at the unit price bid per each tree receiving "Level II Pruning, Soil Amendment, and Fertilization" which price shall be full compensation for furnishing all materials; preparation, hauling, handling charges, placement, labor, tools, and incidentals necessary to complete the work.

**3.8 BID ITEM:**

Item 802.1 - Level I Pruning, Soil Amendment, and Fertilization - per each tree

Item 802.2 - Level II Pruning, Soil Amendment, and Fertilization - per each tree

## **Item 810**

### **TREE REMOVAL**

*This item shall govern for the removal of trees of the sizes specified herein and when directed by the City. All other trees not specified under the provision of this specification and which are directed by the City to be removed shall be compensated for and shall conform to the provisions of Item No. 101, "Preparing Right-of-Way".*

Reference Standards: City of San Antonio Tree Preservation ordinance # 85262 and 2006 Tree Ordinance Amendments.

#### **MEASUREMENT:**

Tree removal will be measured by each tree removed of the size specified, completed to the stage of construction required by the plans.

#### **PAYMENT:**

Tree Removal will be paid for at the unit price bid per each, which price shall be full compensation for furnishing and placing all materials, manipulation, labor, tools, equipment, hauling, disposal and incidentals necessary to complete the work.

### **BID ITEMS**

Item 810: Tree Removal (6" Diameter and larger) – per each

# SPECIAL SPECIFICATION

## ITEM 6001

### WOODEN PRIVACY FENCE

**DESCRIPTION:** *This item shall govern for the removing and replacing of the wooden privacy fence, maximum six feet high, at the locations designated on the plans, and for furnishing and installing any additional materials required as specified by this item.*

**MATERIALS:** All materials furnished shall be equal to or better than the materials of the existing fence unless specifically designated otherwise on the plans. Use only new materials.

Concrete shall be in accordance with Item 300, "Concrete," Class "B". Wood shall be Wolmanized pine, cedar or as specified. The timber shall be sound and free from all decay, shakes, splits or any other defects, which would make it structurally unsuitable for the intended purpose. Post shall be (nominal) 4x4 by 8' cedar. Backer rails shall be nominal 2x4 by 8' pine. Pickets shall be nominal 1x4 by 6' cedar, dog-eared on one end. Fasteners shall be steel common nails

**EQUIPMENT:** Provide the machinery, tools and equipment necessary for proper prosecution of the work. All machinery, tools and equipment used shall be maintained in a satisfactory and workmanlike manner.

**CONSTRUCTION:** Fence shall be erected to lines and grades indicated on the plans.

**A. Erection of Posts:** Posts shall be set plumb and permanently positioned and anchorages firmly set before fabric is placed. Posts shall be set in concrete, unless otherwise indicated on the Drawings. Concrete footings shall be carried to a depth of 24 inches and width of 12 inches minimum. Where rock is encountered within the required depth to which the post is to be erected, a hole of a diameter slightly larger than the largest dimension of the post may be drilled into the rock and the post grouted in. The regular dimensioned concrete footing as indicated on the Drawings shall then be placed between the top of the rock and required grade indicated on the Drawings. Posts shall be approximately centered in their footings. All concrete shall be placed promptly and compacted by tamping or other approved methods. Concrete shall be finished in a dome and shall be cured a minimum of 48 hours before further work is done on the posts.

**B. Erection of Wood Fencing Material:** After all posts have been permanently positioned and anchorages firmly set, two (2) backer rails shall be placed and fastened between each post and pickets fastened to the backer rails. No gap shall be present between pickets.

**MEASUREMENT:** The work performed and the materials furnished as prescribed by this item will be paid for at the bid price per linear foot for "Wooden Privacy Fence", which price shall be full compensation for removing and reinstalling the existing fence gate and for furnishing all additional materials, all labor, tools, equipment and incidentals necessary to complete the work. Fence will be measured by the linear foot of fence at the bottom of the fence along the centerline of the fence from center to center of end post. "Wooden Privacy Fence" shall include all posts, backer rails, and pickets, complete in place.

**PAYMENT:** “Wooden Privacy Fence” measured as prescribed above, will be paid for at the contract unit price bid per linear foot for “Wooden Privacy Fence”. The price shall be full compensation for furnishing and installing all fencing materials, end posts, backer rails, and pickets; digging post holes ‘ furnishing and placing concrete for posts; all hauling and hauling charges; and for all manipulation, labor, tools, equipment, and incidentals necessary to complete the work.

**BID ITEM:**

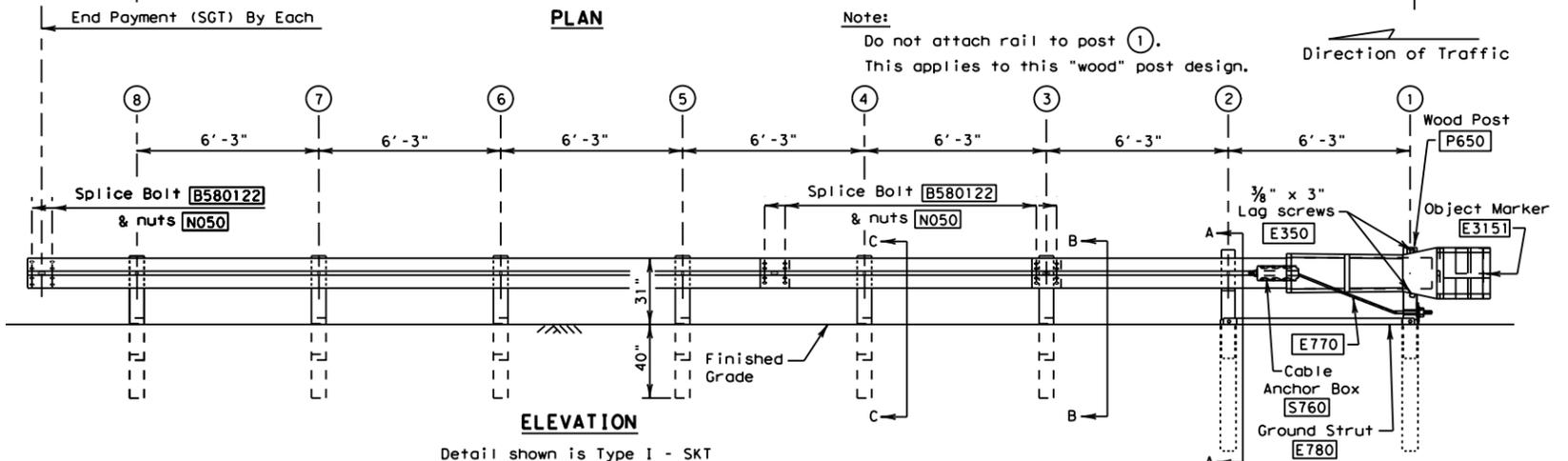
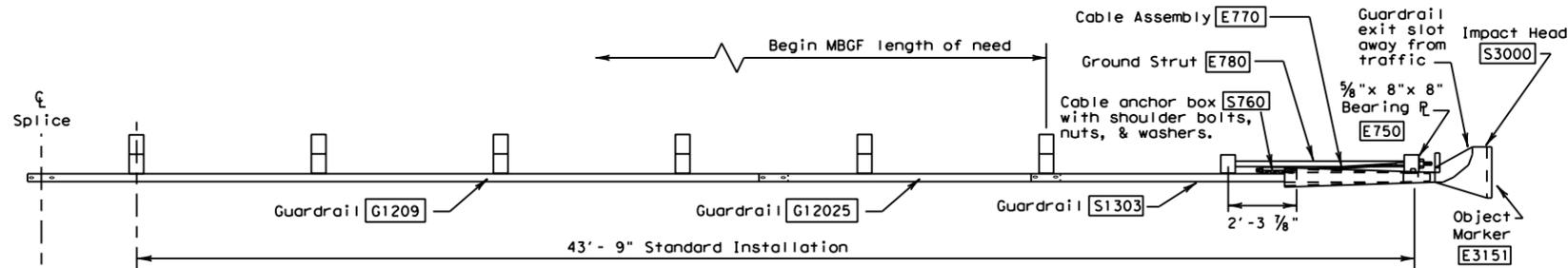
Item 6001.1 – Wooden Privacy Fence – per linear foot

Item 6001.2 – Wooden Privacy Fence (Vehicular Gates) – per linear foot

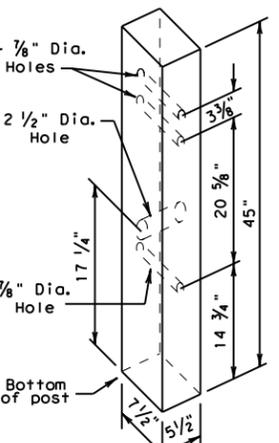
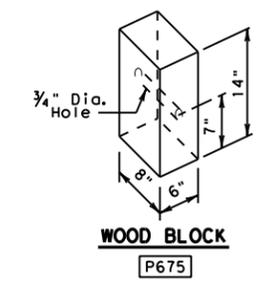
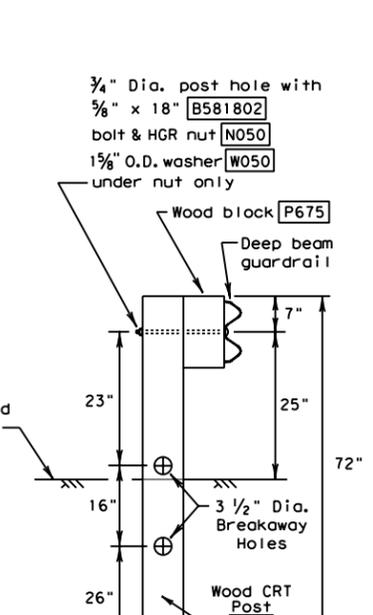
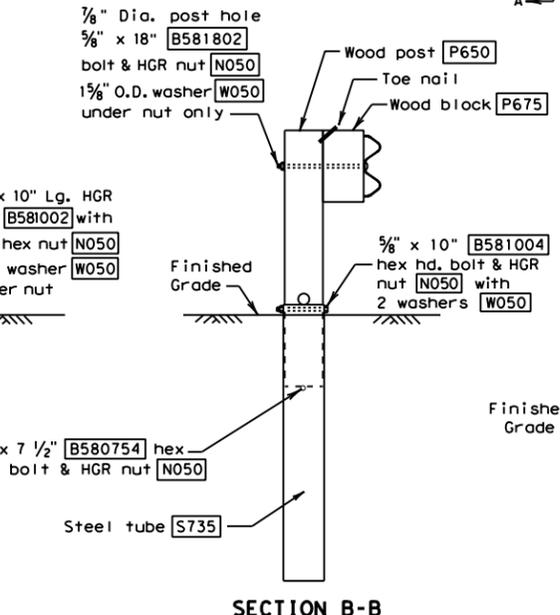
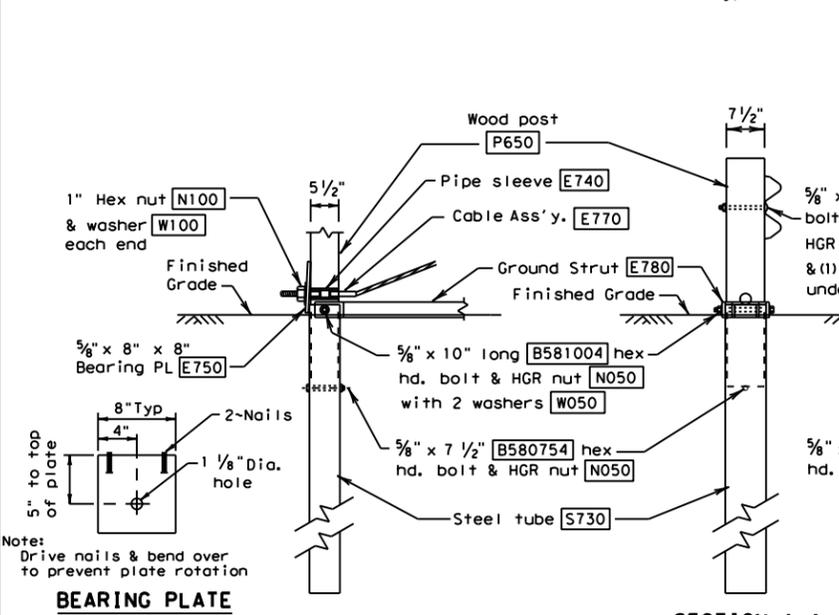
Item 6001.3 – Wooden Privacy Fence (Pedestrian Gates) – per linear foot

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: FILE:



Detail shown is Type I - SKT



All measurements should be taken from bottom of posts.

**UNIVERSAL WOOD POST**

P650

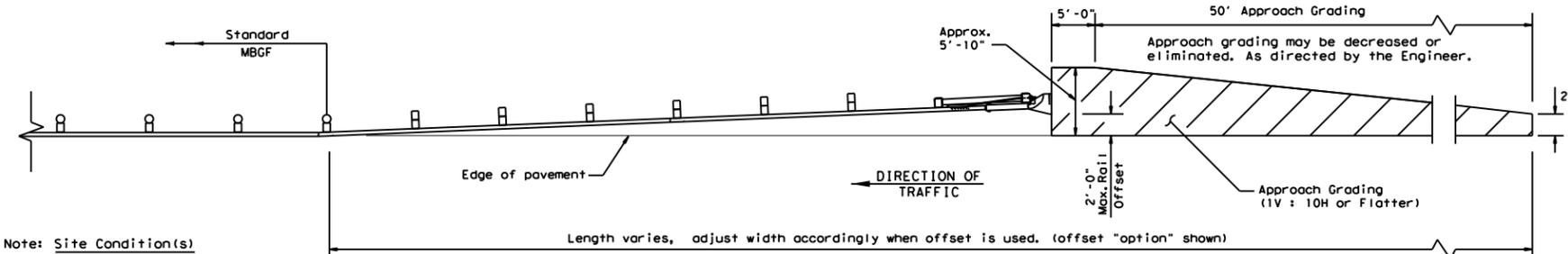
POST & TUBE OPTIONS	
Type I	post ① thru ②
Type II	post ① thru ④
Type III	post ① thru ⑧

**GENERAL NOTES**

- For additional information contact: Interstate Steel Inc. (432) 263-3725
- The Type of SGT unit will be specified elsewhere in the plans. The numbers in the circles indicate post position. The Type of SGT unit chosen is a maintenance consideration and does not affect the systems performance.
 

Post & Tube Options		Post Only	
Type I Posts	① thru ②	Posts ③ thru ⑧	
Type II Posts	① thru ④	Posts ⑤ thru ⑧	
Type III Posts	① thru ⑧	None	
- SGT's placed within the "minimum" 150 ft. radius, shall be installed straight. Standard rail elements may be installed within the radius, without special fabrication.
- All bolts, nuts cable assemblies, cable anchors, steel tubes & bearing plates shall be galvanized.
- A flare rate of 25:1 may be used over the first 50 ft. of the system to prevent the terminal head from encroaching the shoulder. The flare may be decreased or eliminated for specific installations, if directed by the Engineer.
- The steel tubes shall not protrude more than 4 inches above ground. Site grading may be necessary to meet this requirement.
- The steel tubes may be driven with an approved driving head. They shall not be driven with the wood post in the tube. If the steel tubes are placed in drilled holes, the backfill material must be satisfactorily compacted to prevent tube settlement.
- If solid rock is encountered. See the Manufacturer's installation manual for the proper installation guidance.
- The breakaway cable assembly must be taut. A locking device, (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening the nuts.
- The wood blocks shall be "toe nailed" to the rectangular wood posts to prevent them from turning when the wood shrinks. The bearing plate on the front post shall also be "toe nailed" to prevent rotation.
- For curb installations, the soil tubes and posts shall be installed at the proper ground elevation behind the curb. The posts will then require field drilling new holes to accommodate the rail to post connection bolt to maintain the proper height of the rail above the gutter pan. The excess post length above the rail will be removed if directed by the Engineer.
- An object marker shall be installed on the front of the impact head as detailed on D&OM(VIA).

POST & TUBE OPTIONS				BILL OF MATERIAL	
Item #	Type I	Type II	Type III	DESCRIPTION	
S1303	1	1	1	Guardrail (12 Ga.) 12'- 6" SKT	
G12025	1	1	1	Guardrail (12 Ga.) 9'- 4 1/2"	
G1209	1	1	1	Guardrail (12 Ga.) 25'- 0"	
S730	2	2	2	Steel Tube - 6" x 8" x 72" x 1/8" min. or 3/16"	
S735	0	2	6	Steel Tube - 6" x 8" x 54" x 1/8" min. or 3/16"	
P650	2	4	8	Wood Posts - 5 1/2" x 7 1/2" x 45"	
P671	6	4	0	Wood CRT Posts - 6" x 8" x 72"	
P675	6	6	6	Wood Block - 6" x 8" x 14"	
E740	1	1	1	Pipe Sleeve - 2" Std. Pipe x 5 1/2"	
E750	1	1	1	Bearing Plate - 5/8" x 8" x 8"	
S760	1	1	1	Cable Anchor Box	
E770	1	1	1	Cable Assembly	
E780	1	1	1	Ground Strut	
S3000	1	1	1	Impact Head	
HARDWARE					
B580754	2	4	8	5/8" x 7 1/2" Hex Hd. Bolt	
B581004	2	4	8	5/8" x 10" Hex Hd. Bolt (Top of Tubes)	
W050	11	15	23	3/8" Washers	
B581002	1	1	1	5/8" x 10" HGR Post Bolt (Post 2)	
B580122	16	16	16	5/8" x 1 1/4" HGR Splice Bolt	
B581802	6	6	6	5/8" x 18" HGR Post Bolt (Posts ③ thru ⑧)	
N050	35	39	47	3/8" HGR Nut (24-Spl, Varies-Posts, 2-Strut)	
E350	2	2	2	3/8" x 3" Lag Screw	
N100	2	2	2	1" Hex Nut (Anchor Cable)	
W100	2	2	2	1" Washer (Anchor Cable)	
SB12A	8	8	8	Cable Anchor Box Shoulder Bolts	
N012A	8	8	8	1/2" Structural Nut	
W012A	8	8	8	1/2" Structural Washer	
E3151	1	1	1	Object Marker - (18" x 18")	



**APPROACH GRADING AT GUARDRAIL END TREATMENTS**

Design Division Standard

**SINGLE GUARDRAIL TERMINAL (SKT-31) (WOOD POST) SGT (8) 31-14**

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