

Type II-A-A Markers

3-4"

Yellow Solid

DETAIL A

DETAIL C

20"

Type I-C

8" white solid

20"

Type I-C

8" white solid

DETAIL C

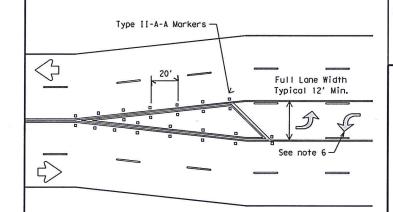
and Crosswalk shall be approved by the Engineer in the field.

DETAIL B

Final placement of Stop Bar

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



TYPICAL TRANSITION FOR TWLTL
AND DIVIDED HIGHWAY

GENERAL NOTES

- Refer elsewhere in plans for additional RPM placement and details.
- 2. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows as shown in the Standard Highway Sign Designs for Texas.
- 3. When lane used word and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
- Other crosswalk paterns as shown in the "Texas Manual on Uniform Traffic Control Devices" may be used.
- Raised povement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Raised povement marker Type II-C-R with divided highways and raised medians.
- 5. A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.



Texas Department of Transportation
Traffic Operations Division

PAVEMENT MARKINGS FOR TWO-WAY LEFT TURN LANES DIVIDED HIGHWAYS AND RURAL LEFT TURN BAYS

PM(3) - 12

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REVISIONS 5-00 2-12	CONT	SECT	JOB		н	GHWAY
8-00 3-03					SOUT	HLAND
	DIST		COUNTY	0)		SHEET NO.
2-10			TOM GR	EEN		58

SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

SM RD SGN ASSM TY XXXXX(X)XX(X-XXXX)

Post Type -

FRP = Fiberglass Reinforced Plastic Pipe (see SMD(FRP))

TWT = Thin-Walled Tubing (see SMD(TWT)) 10BWG = 10 BWG Tubing (see SMD(SLIP-1) to (SLIP-3)) S80 = Schedule 80 Pipe (see SMD(SLIP-1) to (SLIP-3))

Number of Posts (1 or 2) -

Anchor Type

UA = Universal Anchor - Concreted (see SMD(FRP) and (TWT))

- UB = Universal Anchor Bolted down (see SMD(FRP) and (TWT))
- WS = Wedge Anchor Steel (see SMD(TWT))

No more than 2 sign

posts should be located

within a 7 ft. circle.

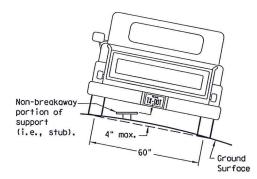
- WP = Wedge Anchor Plastic (see SMD(TWT))
- SA = Slipbase Concreted (see SMD(SLIP-1) to (SLIP-3)) SB = Slipbase - Bolted Down (see SMD(SLIP-1) to (SLIP-3))

Sign Mounting Designation

P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))

- 1EXT or 2EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))|
- BM = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3)) WC = 1.12 #/ft Wing Channel (see SMD(SLIP-1) to (SLIP-3))
- EXAL = Extruded Aluminum Sign Panels (see SMD(SLIP-3))

REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths)

7 ft.

digmeter

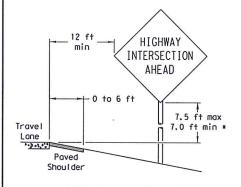
circle

Not Acceptable

Not Acceptable

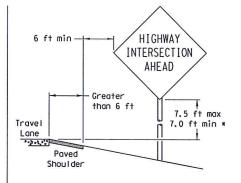
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

When the shoulder is 6 ft. or less in width. the sign must be placed at least 12 ft. from the edge of the travel lane.



GREATER THAN 6 FT. WIDE

When the shoulder is greater than 6 ft in width. the sign must be placed at least 6 ft. from the edge of the shoulder.

When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.

Shoul der

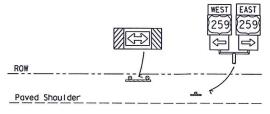
T-INTERSECTION

12 ft min

— 6 ft min

7.5 ft max

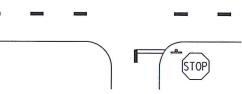
7.0 ft min *



Edge of Travel Lane

Travel

Lane



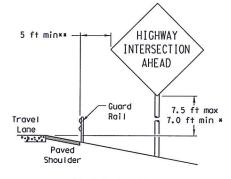
- * Signs shall be mounted using the following condition that results in the greatest sign elevation:
- (1) a minimum of 7 to a maximum of 7.5 feet above the edge of the travel lane or
- (2) a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

The maximum values may be increased when directed by the Engineer.

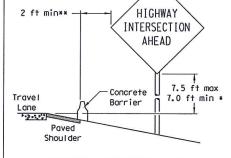
See the Traffic Operations Division website for detailed drawings of sign clamps, Triangular Slipbase System components and Wedge Anchor System components.

The website address is: http://www.txdot.gov/publications/traffic.htm

BEHIND BARRIER



BEHIND GUARDRAIL



RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)

7.5 ft max

7.0 ft min

HIGHWAY

INTERSECTION

AHEAD

BEHIND CONCRETE BARRIER

Maximum

Travel

Lane

possible

**Sign clearance based on distance required for proper guard rail or concrete barrier performance.

EAST

3713 ROAD

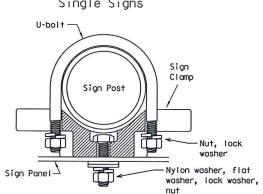
TYPICAL SIGN ATTACHMENT DETAIL

Not Acceptable

7 ft.

diameter

circle



7 ft.

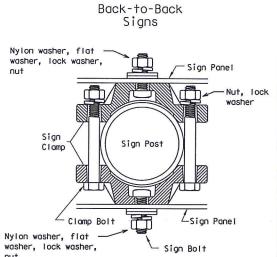
digmeter

circle

Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut. nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

When two sign clamps are used to mount signs back-to-back, use a 5/16-18 UNC galvanized hex head per ASTM A307 with nut and helical-spring lock washer. The approximate bolt lengths for various post sizes and sign clamp types are given in the table at right. The bolt length may need to be adjusted depending upon field conditions.

Sign clamps may be either the specific size clamp or the universal clamp.



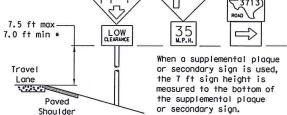
Acceptable

7 ft.

diometer

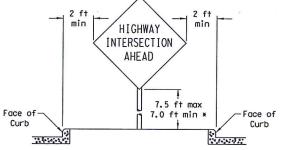
circle

	Approximate Bolt Length			
Pipe Diameter	Specific Clamp	Universal Clamp		
2" nominal	3"	3 or 3 1/2"		
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"		
3" nominal	3 1/2 or 4"	4 1/2"		



SIGNS WITH PLAQUES

CURB & GUTTER OR RAISED ISLAND



Shoul de Right-of-way restrictions may be created by rocks, water, vegetation, forest, buildings, a narrow island, or other

In situations where a lateral restriction prevents the minimum horizontal clearance from the edge of the travel lane, signs should be placed as far from the travel lane as practical.

*** Post may be shorter if protected by quardrail or if Engineer determines the post could not be hit due to extreme

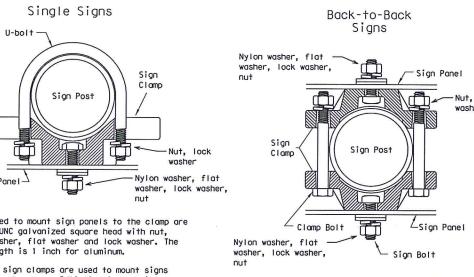


Texas Department of Transportation Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD (GEN) -08

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9-08 REVISIONS	CONT	SECT	JOB		H1GHWAY	
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	DIST		COUNTY		SHEET NO.	
			TOM CR	EEN	50	



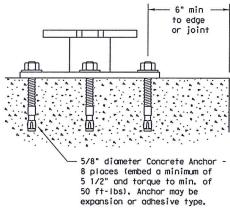
TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS

10 BWG Tubing or Bolt Keeper Plate Schedule 80 Pipe (See General Note 3) Slip Base 5/8" structural bolts (3), nuts (3), and washers Washers (6) per ASTM A325 if required by or A449 and galvanized per Item 445 "Galvanizing." Bolt length is 2 1/2". Stub 3/4 " diameter hole. 36" Provide a 7" x 1/2" diameter rod or #4 rebar. Class A concrete 42 12" min. 24" max. Non-reinforced concrete footing (shall be used unless noted elsewhere in the plans). Foundation should take approx. 2.5 cf of concrete. SM RD SGN ASSM TY XXXXX(X)SA(X-XXXX)

NOTE

There are various devices approved for the Triangular Slipbase System. Please reference the Material Producer List for approved slip base systems. http://www.txdot.gov/business/producer list.htm The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

CONCRETE ANCHOR



SM RD SGN ASSM TY XXXXX(X)SB(X-XXXX)

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. Heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations. Top of bolt shall extend at least flush with top of the nut when installed. The anchor. when installed in 4000 psi normalweight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively.

GENERAL NOTES:

- 1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
- 2. Material used as post with this system shall conform to the following specifications: 10 BWG Tubing (2.875" outside diameter)

0.134" nominal wall thickness

Seamless or electric-resistance welded steel tubing or pipe Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008

Other steels may be used if they meet the following:

55,000 PSI minimum yield strength 70,000 PSI minimum tensile strength

20% minimum elongation in 2"

Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"

Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"

Galvanization per ASTM A123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.

Schedule 80 Pipe (2.875" outside diameter)

0.276" nominal wall thickness

Steel tubing per ASTM A500 Gr C

Other seamless or electric-resistance welded steel tubing or pipe with equivalent

outside diameter and wall thickness may be used if they meet the following:

46,000 PSI minimum yield strength 62,000 PSI minimum tensile strength

21% minimum elongation in 2"

Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"

Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"

Galvanization per ASTM A123

- 3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is: http://www.txdot.gov/publications/traffic.htm
- 4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

Foundation

- 1. Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
- 2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
- 3. Push the pipe end of the slip base stub into the center of the concrete. Rotate the stub back and forth while pushing it down into the concrete to assure good contact between the concrete and stub. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
- 4. Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
- 5. The triangular slipbase system is multidirectional and is designed to release when struck from any

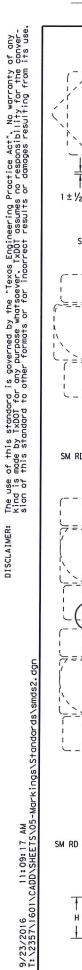
- 1. Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the travelway (i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the travelway. The cut shall be plumb and straight.
- 2. Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-2) for clearances based on sign types.



SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD (SLIP-1) -08

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9-08 REVISIONS	CONT	SECT	JOB		HIGHWAY
				SO	JTHLAND
	DIST		COUNTY		SHEET NO.
			TOM GRI	EEN	60

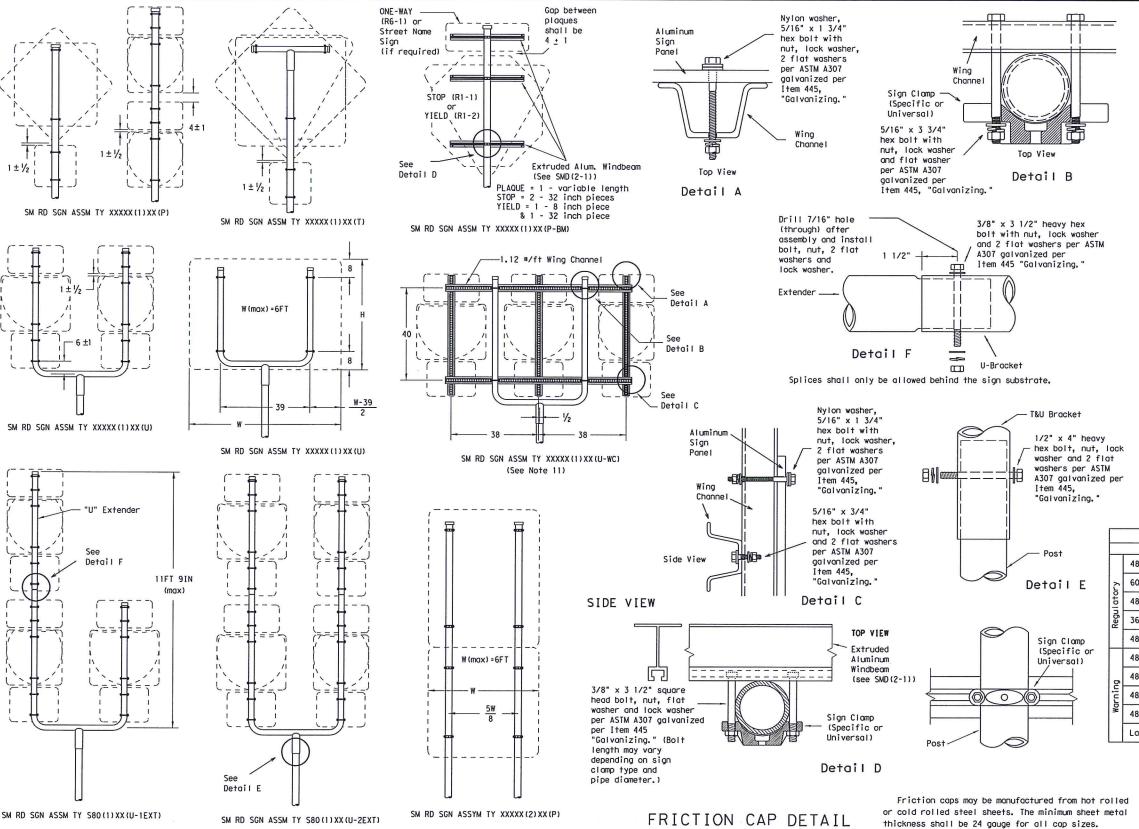


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W(max)=8FT

0.6W

- 0.2W



±.05"

Skirt

Variation

Depth

Rolled Crimp to

engage pipe O.D.

All dimensions are in english

unless detailed otherwise.

SM RD SGN ASSM TY XXXXX(1)XX(T)

(* - See Note 12)

GENERAL NOTES:

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.

3. Sign supports shall not be spliced except where shown.

Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft., Signs that require specific supports due to reasons in addition to windloading are indicated on the

"REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.

7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently

when impacted by an errant vehicle. 8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.

Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."

10. Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.

11. Additional sign clamp required on the "T-bracket" post for 24 inch height signs. Place the clamp 3 inches above bottom of sign when possible.

12.Post open ends shall be fitted with Friction Caps.

13. Sign blanks shall be the sizes and shapes shown on the

	REQUIRED SUPPORT	
	SIGN DESCRIPTION	SUPPORT
	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
تر	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
Jatory	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
Regul	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
0	48x60-inch signs	TY S80(1)XX(T)
Warning	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
W	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

The rim edges shall be reasonably straight and smooth. Caps shall be sized and formed in such a manner as to produce a drive-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture.

1" min,

-. 025"±. 010"

Pipe O.D.

+. 025" +. 010"

Caps shall have an electrodeposited coating of zinc in accordance with the requirements of ASTM B633 Class FE/ZN 8.



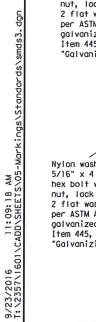
SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-2)-08

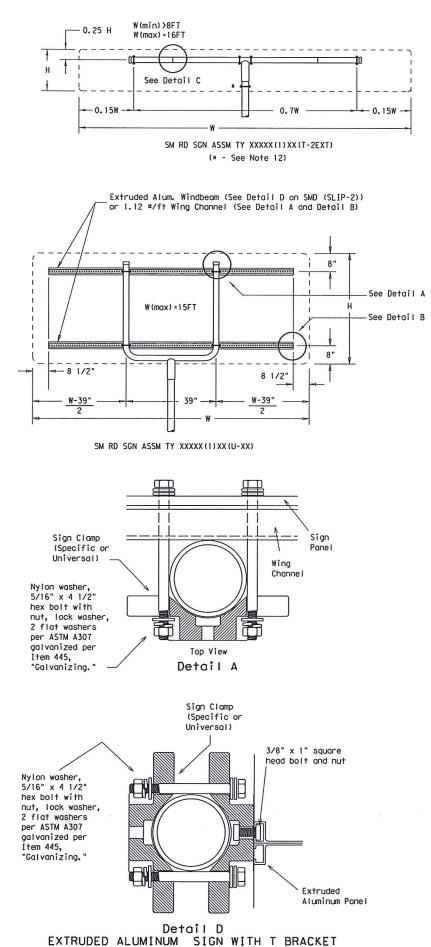
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9-08 REVISIONS	CONT	SECT	JOB		HIGHWAY	
				SOL	JTHLAND	
	DIST	Γ	COUNTY		SHEET NO.	
			TOM GRI	EEN	61	

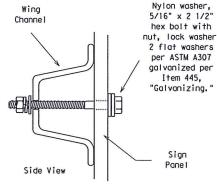


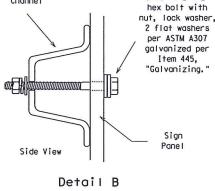


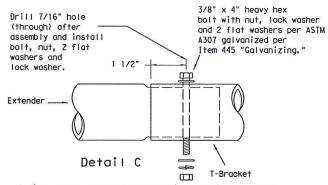


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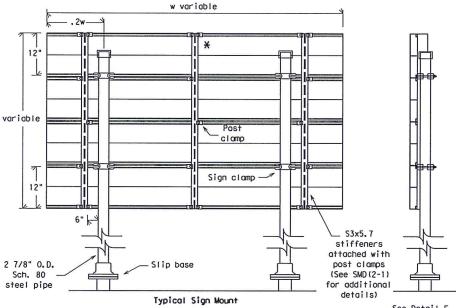


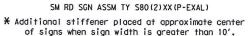


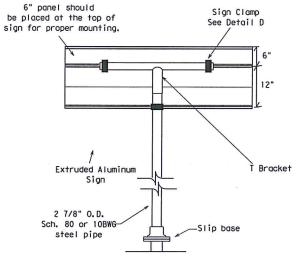




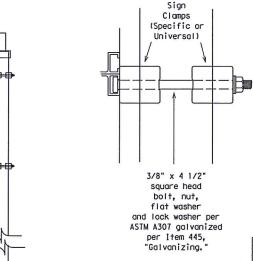
Splices shall only be allowed behind the sign substrate.





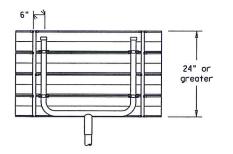


Extruded Aluminum Sign With T Bracket



Detail E

See Detail E for clamp installation



Use Extruded Alum. Windbeam as stiffeners See SMD (2-1) for additional details See Detail E

for clamp installation

GENERAL NOTES:

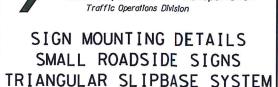
1.	SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
1	10 BWG	1	16 SF
ı	10 BWG	2	32 SF
Ì	Sch 80	1	32 SF
1	Sch 80	2	64 SF

- The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
- Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
- 4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
 5. Signs that require specific supports due to reasons
- in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
- 6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
- When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
- when impacted by an errant vehicle.

 8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.

 9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized conting at a support and so I them 45. "Calvanizian coating at cut support ends per Item 445, "Galvanizing."
- 10. Sign blanks shall be the sizes and shapes shown on the plans.
- 11. Additional sign clamp required on the "T-bracket" post for 24 inch high signs. Place the clamp 3 inches above bottom of sign when possible.
- 12. Post open ends shall be fitted with Friction Caps.

	REQUIRED SUPPORT	
	SIGN DESCRIPTION	SUPPORT
	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
] ج	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
חוחוחה	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
اءِ	48x60-inch signs	TY S80(1)XX(T)
DI 101	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
¥ [48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)



Texas Department of Transportation

SMD (SLIP-3) -08

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9-08 REVISIONS	CONT	SECT	JOB		н	GHWAY
3 00					SOUT	HLAND
	DIST		COUNTY			SHEET NO.
			TOM GR	EEN		62

SITE DESCRIPTION

The site description is accomplished using various sheets, each revealing separate details. This sheet's purpose is to direct the user to the appropriate location where the information required by the NPDES CGP can be found.

General location map, project limits, and project description; see title sheet of plans.

Intended sequence of major soil disturbing activities: see proposed sequence of construction

Total project area (acres): 0.539 AC

Total area to be disturbed (acres): 0.397 AC

Pre- construction weighted runoff coefficient: 0.376 AC

Post- construction weighted runoff coefficient: 0.732 AC

Existing condition of soil and vegetative cover: VEGETATIVE COVER= 0.397 AC

Percent of existing vegetative cover: 74%

Name and segment number of receiving waters: SOUTH CONCHO RIVER 1421 (TCEQ)

Storm water management:

Location of wetland or special aquatic sites on or near the project shall be shown on the site map for the SW3P sheets.

Drainage patterns, locations where storm water discharges to surface waters, slopes after major grading activities, typical areas of soil disturbance, areas which will not be disturbed, locations of control measures, and locations where stabilization practice will occur are depicted on the erosion control measures plan sheets and the landscape plan sheets.

Sediment must be removed from sediment traps and sedimentation ponds no later than the time that design capacity has been reduced by 50%.

SW3P REQUIREMENTS

(i) drainage patterns and approximate slopes anticipated after major grading activities; This is usually addressed by adding a copy of the typical sections to the living document.

(iv) locations where temporary or permanent stabilization practices are expected to be used;

(vi) surface waters (including wetlands) either at, adjacent, or in close proximity to the site,

(vii) locations where storm water discharges from the site directly to a surface water body or a municipal separate storm sewer system;

(v) locations of construction support activities, including off-site activities, that are authorized under the permittee's NOI, including material, waste, borrow, fill, or equipment or chemical storage areas;

THE SWP3 MUST HAVE A DETAILED SITE MAP INDICATING THE FOLLOWING:

(iii) locations of all controls and buffers, either planned or in place;

A detailed site map (or maps) indicating the following:

(ii) areas where soil disturbance will occur;

and also indicating those that are impaired waters

(viii) vehicle wash areas: and

If sediment escapes the site, accumulations must be removed at a frequency to minimize further negative effects, and whenever feasible, prior to the next rain.

Dust will be minimized by watering as necessary.

SEEDING OR SODDING
MULCHING
SOIL RETENTATION TOPSOIL OR COMPOST FLEXIBLE CHANNEL LINERS GROUND COVER MULCHING SOIL RETENTION BLANKETS

PERMANENT SOIL STABILIZATION PRACTICES:

INTERIM SOIL STABILIZATION PRACTICES:

MULCHING

MULCHING

SOIL RETENTION BLANKETS

TOPSOIL OR COMPOST FLEXIBLE CHANNEL LINERS GROUND COVER

INTERIM STRUCTURAL PRACTICES:

TEMPORARY SEDIMENT CONTROL FENCE
BALED HAY FOR EROSION CONTROL
ROCK FILTER DAMS
PIPE SLOPE DRAINS
SCHANNEL LINERS
STORM SEWERS
STORM INLET SEDIMENT TRAPS
STONE OUTLET STRUCTURES
DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
DIVERSION, INTERCEPTOR, OR PERIMETER DIKES PAVED FLUMES
CONSTRUCTION EXITS
DROP INLET SEDIMENT TRAPS
CURB INLET SEDIMENT TRAPS
SEDIMENT BASINS CURB AND GUTTER
VELOCITY CONTROL DEVICES
BIODEGRADABLE EROSION CONTROL LOGS

CONTROLS

(Check all that apply)

PERMANENT STRUCTURAL PRACTICES:

TEMPORARY SEDIMENT CONTROL FENCE
BALED HAY FOR EROSION CONTROL
ROCK FILTER DAMS
PIPE SLOPE DRAINS
CHANNEL LINERS
STORM SEWERS
STORM INLET SEDIMENT TRAPS
STONE OUTLET STRUCTURES
DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
DIVERSION, INTERCEPTOR, OR PERIMETER DIKES PAYED FLUMES
CONSTRUCTION EXITS
DROP INLET SEDIMENT TRAPS
CURB INLET SEDIMENT TRAPS
SEDIMENT BASINS
CURB AND GUTTER
VELOCITY CONTROL DEVICES
BIODEGRADABLE EROSION CONTROL LOGS

NARRATIVE (sequence of construction for storm water management activities) The order of activities will be as follows:

Install silt fence/ECL/RFD as shown in the plans or as directed by the engineer.

Begin excavation and embankment for roadway.

Place storm drain and place proposed pavement structure.

Place remaining roadway items, i.e. sidewalks, driveways, signs, etc.

Construct surface course pavement

Replace topsoil and drill seed fill and cut slopes in widened areas.

When all construction activity is complete and the site is stabilized and approved by the Project Engineer, remove all temporary structural controls.

Perform project cleanup.

NOTE: Limit the disturbed area such that construction activities will commence in that portion of the site within 14 days. Place stabilization measures in portions of the site no later than 14 days after construction activity has temporarily ceased.

The above indicated practices are proposed to control pollutants in storm water discharges. These practices are based on information contained in TxDOT storm water management guidelines. The schedule of implementation of these practices will be based on the intended sequence of major soil disturbing activities. Stabilization measures shall be initiated no later than 14 days after construction activity in that portion of the site has temporarily or permanently ceased.

Describe construction and waste materials expected to be stored on site and proposed controls to reduce pollutants from these materials (include storage practices, spill prevention and response): Expected construction waste may include concrete rubble and concrete washout waste. Construction waste shall be removed from the project. Temporary stockpiles for waste material shall be located at an upland location approved by the Engineer. Any rubble waste stockpiled for more than 14 days shall require sedimentation control. This will not be paid for directly, but shall be considered subsidiary to the various bid items. Concrete wash-out waste shall be placed on concrete truck cleanout box and then disposed off project.

Describe pollutant sources from areas other than construction and measures implemented at those sites to minimize pollutant discharges: Storm sewer system (if present) will be protected with structural controls.

INFORMATION

All erosion and sediment control and other protective measures identified in the SW3P must be maintained in effective operating conditions. If site inspections required by this permit identify BMP's that are not operating effectively, maintenance shall be performed before the next anticipated storm event, or as necessary to maintain the continued effectiveness of storm water controls. If maintenance prior to the next anticipated storm event impracticable, maintenance must be scheduled and accomplished as soon as possible.

Qualified personnel shall inspect disturbed areas of the construction site that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation, structural control measures, and locations where vehicles enter or exit the site, at intervals as indicated by check mark below:

- ☐ At least once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater as recorded on a non-freezing rain gauge to be located at the project site.
- of At least once every 7 calendar days. An inspection must occur regardless of whether or not there has been a rainfall event since the previous inspection.

Disturbed areas that are exposed to precipitation shall be inspected for evidence of, or the potential for pollutants entering the drainage system. Sediment and erosion control measures identified on the SW3P shall be observed to ensure that they are operating correctly. Locations where vehicles enter or exit site shall be inspected for evidence of off-site sediment tracking. Based on the result of the inspection, the SW3P shall be revised to include additional or modified BMP's designed to correct the observed deficiency.

A report summarizing the scope, date, name and qualifications of Inspector, and major observations relating to the implementation of the SW3P shall be produced and retained as part of the SW3P for three years from date of final stabilization.

WASTE MAIERIALS:
All waste materials will be collected and stored in a securely lidded metal dumpster. The dumpster will meet all state and local city solid waste management regulations. All trash and construction debris from the site will be deposited in the dumpster. The dumpster will be emptied as necessary or as required by local regulation, and the trash will be hauled to a local dump. No construction waste material will be buried on-site. This will not be paid directly, but shall be considered subsidiary to the various SW3P items.

All sanitary waste will be collected from the portable units as necessary or as required by local regulation, by a licensed sanitary waste management contractor.

HAZARDOUS WASTE:
HAZARDOUS WASTE includes paints, cleaning solvents, asphalt products, chemical additives for soil stabilization, or concrete curing compounds and additives. All hazardous waste shall be disposed of in accordance with all federal, state, and local regulations.

Provide MSDS sheets prior to beginning work.

REMARKS:
Disposal areas, stockpiles, and haul roads shall be constructed in a manner that will minimize and control the amount of sediment that may enter receiving waters. Disposal areas shall not be located in any wetland, water body or stream bed.
Construction staging areas and vehicle maintenance areas shall be constructed by the Contractor in a manner to minimize the runoff of pollutants.
All waterways shall be cleared as soon as practicable of temporary embankment, temporary bridges, matting, false work, piling, debris or other obstructions placed during construction operations that are not a part of the finished work.

INSPECTOR PAPERWORK CHECKLIST:

INSPECTOR PAPERWORK CHECKLIST:

If Contact Form (#)

NOI (# and %)

NOI (%)

Project Diary (%)

SW3P Plan (%)

Inspection and Maintenance Report (%)

NOI SW3P Plan (%)

Inspection and Maintenance Report (%)

NOI NODES General Permit (Federal Register, dated July 6, 1998) (%)

Historic Resources Information - EPIC Sheet (%)

Inspector Qualification Form (%)

Delegation of Signature Authority (all Inspectors signing reports) (%)

Minne

MICHAEL C. COYLE

95634 SCENSE STONAL ENSTANCE

The symbol (#) indicates that the information should be displayed on the Project Bulletin Board.

The symbol (%) indicates that the information should be a part of the permanent SW3P file maintained at the office managing construction. Any reportable quantity of Hazardous Material release must be reported to National Response Center at (800) 424-8802.

A copy of the Construction General Permit is a part of the SW3P

LJA Engineering, Inc.



SOUTHLAND BOULEVARD

SW3P INDEX

SHEET 1 OF 1

SHEET NO.

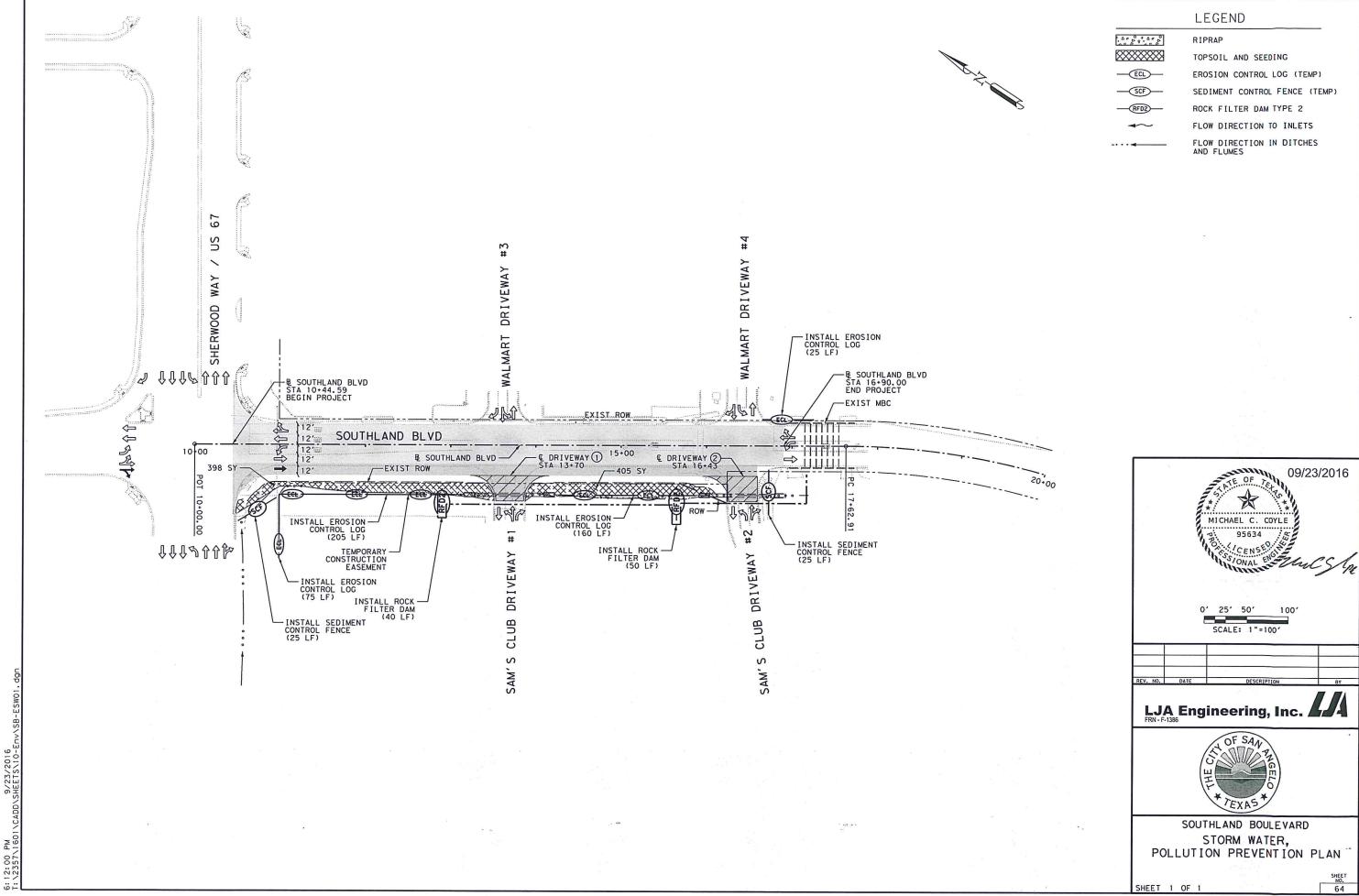
ABBREVIATIONS USED

BMP - Best Management Practice CGP - Construction General Permit EPIC - Environmental Permits, Issues, and Commitments MSDS - Material Safety Data Sheet NOI - Notice of Intent NOT - Notice of Termination NPDES - National Pollutant Discharge Elimination System SW3P - Storm Water Pollution Prevention Plan

(ix) designated points on the site where vehicles will exit onto paved roads (for instance, this applies to construction transition from unstable dirt areas to exterior paved roads). THE SW3P MUST INCLUDE A DESCRIPTION OF CONSTRUCTION AND WASTE MATERIALS EXPECTED TO BE STORED ON-SITE AND A DESCRIPTION OF CONTROLS TO MINIMIZE POLLUTANTS FROM THESE MATERIALS. THE SW3P MUST INCLUDE VELOCITY DISSIPATION DEVICES AT DISCHARGE LOCATIONS AND ALONG THE LENGTH OF ANY OUTFALL CHANNEL (I.E. RUNOFF CONVEYANCE) TO PROVIDE A NON-EROSIVE FLOW VELOCITY FROM THE STRUCTURE TO A WATER COURSE, SO THAT THE NATURAL PHYSICAL AND BIOLOGICAL CHARACTERISTICS AND FUNCTIONS ARE MAINTAINED AND PROTECTED.

9/23/201 SHEFTS/10

202



RETAINING WALL EROSION CONTROL LOG

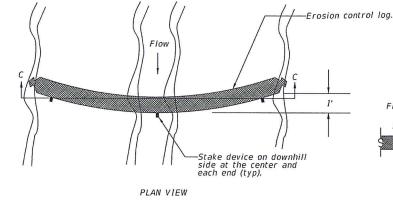
-Sandbag supports.



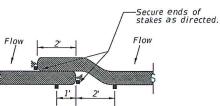
Curb.

Erosion control log.

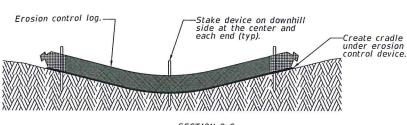
CURB INLET EROSION CONTROL LOG



Sandbag supports.



TYPICAL LAP DETAIL

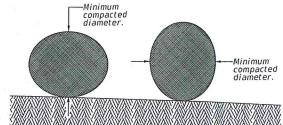


–Erosion Control log.

-Back of curb.

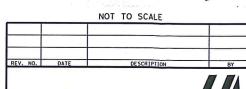
-Lip of gutter.

SECTION C-C DOWNSTREAM EROSION CONTROL LOG



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS





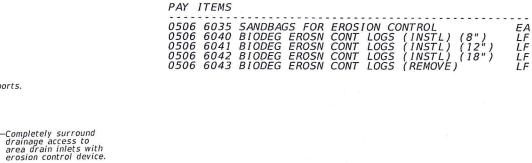


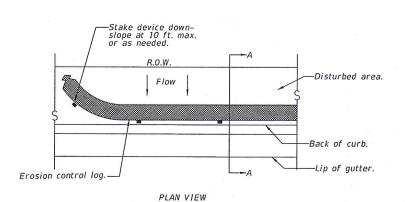


SOUTHLAND BOULEVARD BIODEGRADABLE EROSION CONTROL LOG DETAILS

SHEET NO.

SHEET 1 OF 1





GENERAL NOTES

-Overlap ends tightly 24" minimum.

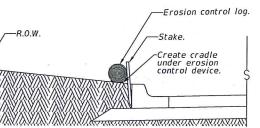
Furnish core material consisting of compost, mulch, aspen excelsior wood fibers, chipped site vegetation, coconut fiber, or 100% recyclable fibers.

DROP INLET EROSION CONTROL LOG

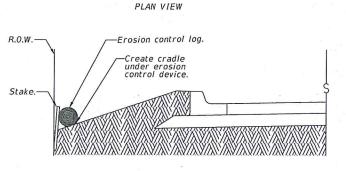
- Erosion control logs that are not designated for removal are considered temporary installations. For temporary erosion control logs, slice open the containment mesh and spread the core material evenly.
- Recommended locations of erosion control logs include:

 a) Within drainage ditches spaced at ±500 ft. on center,
 b) Immediately preceding ditches, curb inlets and drop inlets,
 c) Just before the drainage enters a water course, and
 d) Just before the drainage leaves the right-of-way.
- Erosion control logs should be cleaned when the capacity has been reduced by one half or the sediment has accumulated to a depth of one foot, whichever is less.
- 5. Laps will not be measured or paid separately.

Erosion control log.



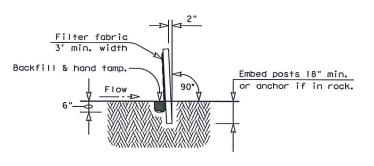
SECTION A-A BACK OF CURB EROSION CONTROL LOG



-Stake device down-slope at 10 ft. max. or as needed.

Flow

SECTION B-B EDGE OF RIGHT-OF-WAY EROSION CONTROL LOG



SECTION A-A

GENERAL NOTES

 The guidelines shown hereon are suggestions only and may be modified by the Engineer.

PLAN SHEET LEGEND

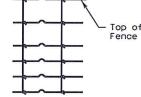
Sediment Control Fence — SCF

SEDIMENT CONTROL FENCE USAGE GUIDELINES

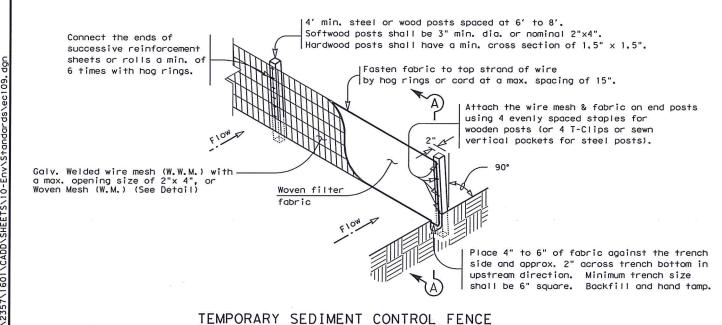
A sediment control fence may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A 2 year storm frequency may be used to calculate the flow rate to be filtered.

Sediment control fence should be sized to filter a max. flow through rate of 100 GPM/FT². Sediment control fence is not recommended to control erosion from a drainage area larger than 2 acres.

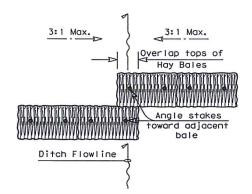
Galv. Hinge joint knot woven mesh (12.5 Ga. Min.) requires a minimum of five horizontal wires spaced at a max.12 inches apart and all vertical wires spaced at a max. 12 inches apart.



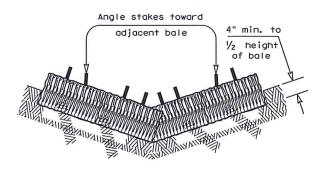
Hinge Joint Knot Woven Mesh (Option)



(SCF)



PLAN VIEW



PROFILE VIEW

PLANS SHEET LEGEND

Baled Hay ————BH——

BALED HAY USAGE GUIDELINES

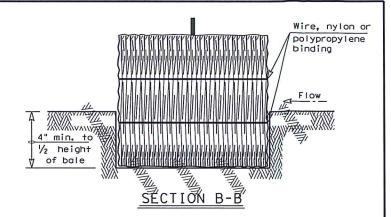
A Baled Hay installation may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A two year storm frequency may be used to calculate the flow rate to be filtered. The installation should be sized to filter a maximum flow thru rate of 5 GPM/FT² of cross sectional area. Baled hay may be used at the following locations:

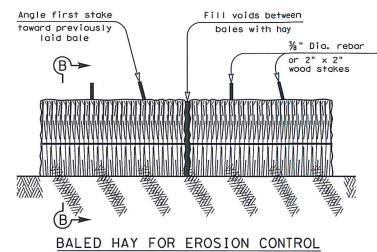
- Where the runoff approaching the baled hay flows over disturbed soil for less than 100'. If the slope of the disturbed soil exceeds 10%, the length of slope upstream the baled hay should be less than 50'.
- 2. Where the installation will be required for less than 3 months.
- 3. Where the contributing drainage area is less than $\frac{1}{2}$ acre.

For Baled Hay installations in small ditches, the additional following considerations apply:

- The ditch sideslopes should be graded as flat as possible to maximize the drainage flowrate thru the hay.
- The ditch should be graded large enough to contain the overtopping drainage when sediment has filled to the top of the baled bay

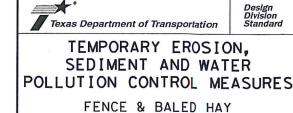
Bales should be replaced usually every 2 months or more often during wet weather when loss of structural integrity is accelerated.



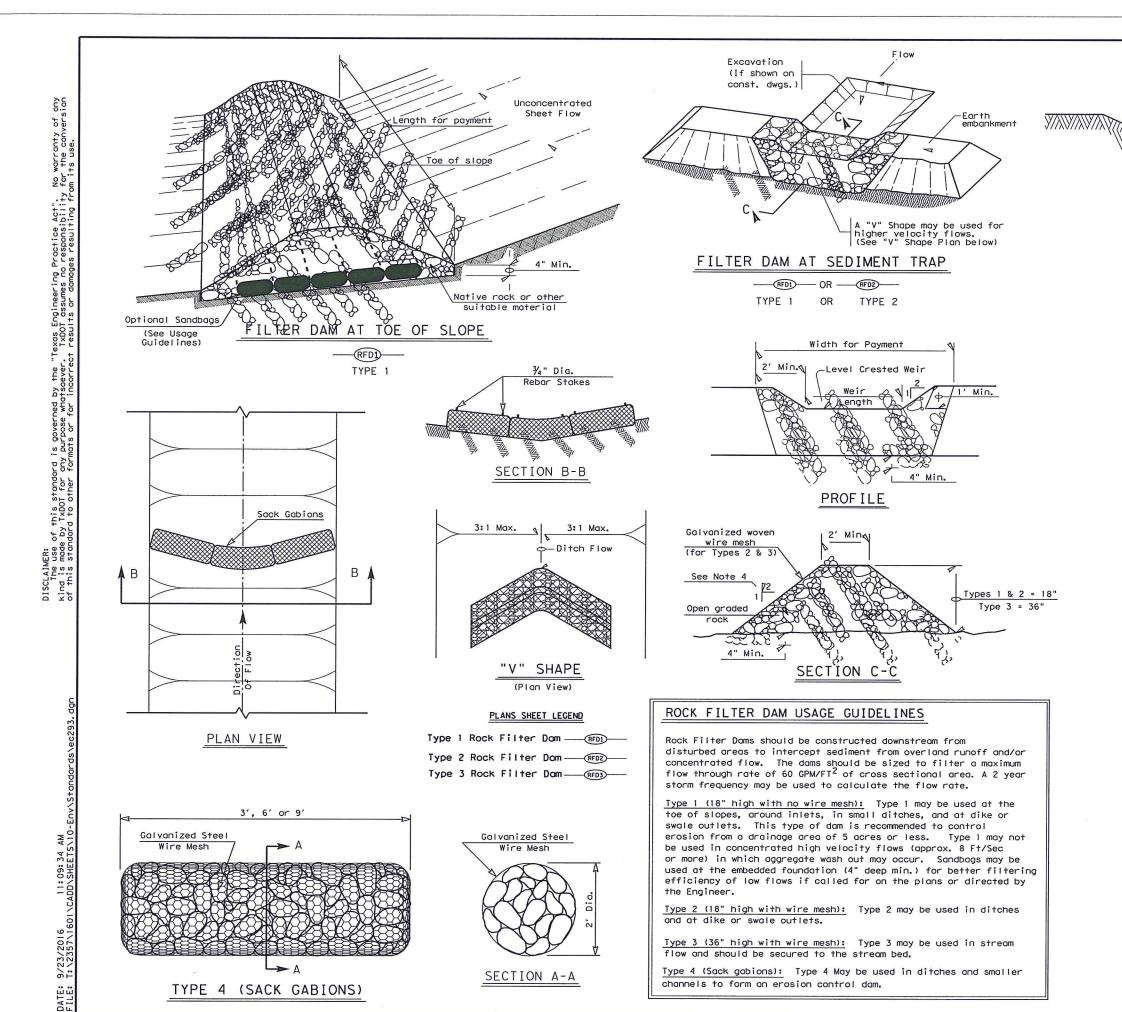


GENERAL NOTES

- 1. Hay bales shall be a minimum of 30" in length and weigh a minimum of 50 Lbs.
- Hay bales shall be bound by either wire or nylon or polypropylene string. The bales shall be composed entirely of vegetative matter.
- 3. Hay bales shall be embedded in the soil a minimum of 4" and where possible $\frac{1}{2}$ the height of the bale.
- Hay bales shall be placed in a row with ends tightly abutting the adjacent bales. The bales shall be placed with bindings parallel to the ground.
- 5. Hay bales shall be securely anchored in place with ½" Dia. rebar or 2" x 2" wood stakes, driven through the bales. The first stake shall be angled towards the previously laid bale to force the bales together.
- The guidelines shown hereon are suggestions only and may be modified by the Engineer.



EC(1)-09



Width for payment

SEE NOTE 6

FILTER DAM AT CHANNEL SECTIONS

OR OFFD OR OR OFFD

GENERAL NOTES

TYPE 1

 If shown on the plans or directed by the Engineer, filter dams should be placed near the toe of slopes where erosion is anticipated, upstream and/or downstream at drainage structures, and in roadway ditches and channels to collect sediment.

OR TYPE 2

- Materials (aggregate, wire mesh, sandbags, etc.) shall be as indicated by the specification for "Rock Filter Dams for Erosion and Sedimentation Control".
- The rock filter dam dimensions shall be as indicated on the SW3P plans.
- 4. Side slopes should be 2:1 or flatter. Dams within the safety zone shall have sideslopes of 6:1 or flatter.
- Maintain a minimum of 1' between top of rock filter dam weir and top of embankment for filter dams at sediment traps.
- 6. Filter dams should be embedded a minimum of 4" into existing ground.
- The sediment trap for ponding of sediment laden runoff shall be of the dimensions shown on the plans.
- 8. Rock filter dam types 2 & 3 shall be secured with 20 gauge galvanized woven wire mesh with 1" diameter hexagonal openings. The aggregate shall be placed on the mesh to the height & slopes specified. The mesh shall be folded at the upstream side over the aggregate and tightly secured to itself on the downstream side using wire ties or hog rings. In stream use the mesh should be secured or staked to the stream bed prior to aggregate placement.
- 9. Sack Gabions should be staked down with $\frac{1}{4}$ " dia. rebar stakes.
- Flow outlet should be onto a stabilized area (vegetation, rock, etc.).
- The guidelines shown hereon are suggestions only and may be modified by the Engineer.



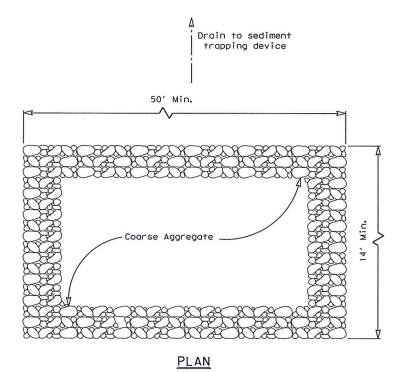
Design Division Standard

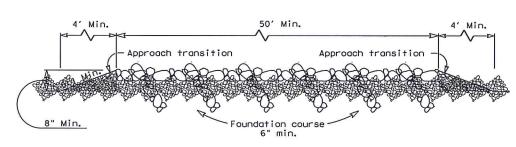
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

ROCK FILTER DAMS

EC(2) - 93

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©TxDOT June 1993		CONT	SECT	JOB		HIGHWAY
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		DIST		COUNT	Y	SHEET NO.
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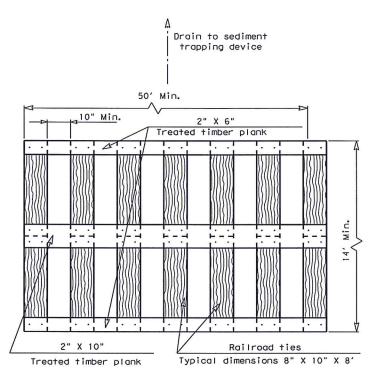


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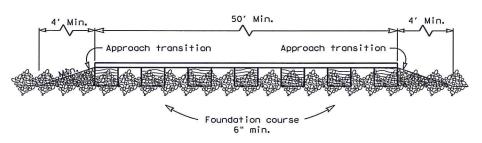
CONSTRUCTION EXIT (TYPE 1)

GENERAL NOTES

- The length of the type 1 construction exit shall be as indicated on the plans, but not less than 50'.
- 2. The coarse aggregate should be open graded with a size of 4" to 8".
- The approach transitions should be no steeper than 6:1 and constructed as directed by the Engineer.
- The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other material as approved by the Engineer.
- 5. The construction exit shall be graded to allow drainage to a sediment trapping device.
- The guidelines shown hereon are suggestions only and may be modified by the Engineer.



PLAN

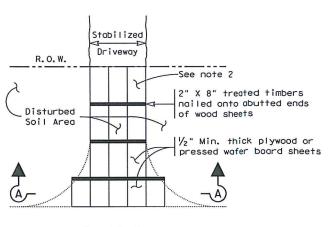


PROFILE

CONSTRUCTION EXIT (TYPE 2)

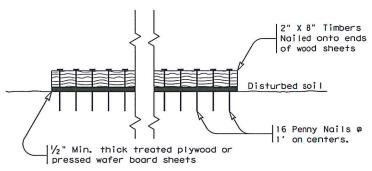
GENERAL NOTES

- The length of the type 2 construction exit shall be as indicated on the plans, but not less than 50'.
- 2. The treated timber planks shall be attached to the railroad ties with V_2 "x 6" min. lag bolts. Other fasteners may be used as approved by the Engineer.
- The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
- 4. The approach transitions shall be no steeper than 6:1 and constructed as directed by the Engineer.
- The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other material as approved by the Engineer.
- The guidelines shown hereon are suggestions only and may be modified by the Engineer.



Paved Roadway

PLAN



SECTION A-A

CONSTRUCTION EXIT (TYPE 3)

GENERAL NOTES

- The length of the type 3 construction exit shall be as shown on the plans, or as directed by the Engineer.
- The type 3 construction exit may be constructed from open graded crushed stone with a size of two to four inches spread a min. of 4" thick to the limits shown on the plans.
- The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
- 4. The guidelines shown hereon are suggestions only and may be modified by the Engineer.



TEMPORARY EROSION,
SEDIMENT AND WATER
POLLUTION CONTROL MEASURES

CONSTRUCTION EXITS

EC(3) - 93

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