

Project Number: RMC 6430540001**Sheet 2****County:** GALVESTON**Control:** 6430-54-001**Highway:** SH 146, etc.**GENERAL NOTES:****Supervision:**

Plans are required. Refer questions to:

Mr. David R. Lazaro, P.E., Area Engineer
Galveston Area Engineer's Office
5407 Gulf Freeway
La Marque, Texas 77568
(409) 978-2500

All work will be scheduled and directed by, and requests for payments addressed to:

Mr. Jeffery Thomson
Area Maintenance Supervisor
5407 Gulf Freeway
La Marque, Texas 77568
(409) 978-2551

Contractor questions on this project are to be addressed to the following individual(s):

David R. Lazaro, P.E.
David.Lazaro@txdot.gov

Joel Clarke, P.E.
Joel.Clarke@txdot.gov

Questions may be submitted via the Letting Pre-Bid Q&A web page. This webpage can be accessed from the Notice to Contractors dashboard located at the following Address:

<https://tableau.txdot.gov/views/ProjectInformationDashboard/NoticetoContractors>

All contractor questions will be reviewed by the Engineer. All questions and any corresponding responses that are generated will be posted through the same Letting Pre-Bid Q&A web page.

The Letting Pre-Bid Q&A web page for each project can be accessed by using the dashboard to navigate to the project you are interested in by scrolling or filtering the dashboard using the controls on the left. Hover over the blue hyperlink for the project you want to view the Q&A for and click on the link in the window that pops up.

Project Number: RMC 6430540001**Sheet 2****County:** GALVESTON**Control:** 6430-54-001**Highway:** SH 146, etc.

This is a Routine Maintenance Non-Site Specific Call-Out contract.

The Engineer will determine the location of the day's work. Notify TxDOT's representative by 8:00 am, when scheduled work is canceled for any reason.

The Engineer will notify the Contractor will begin call out work within the required time for each work order. Work orders are expected to be completed per the contract plans within the number of days allowed for each work order. All call out work orders will have a begin date and number of working days. The Contractor will begin work within 48 hours of notification for routine call outs, unless otherwise approved by the Engineer. Work will be completed within the required number of working days. The Contractor will begin work within 4 hours of notification for emergency call outs and complete within 48 hours, unless otherwise approved by the Engineer. Failure to begin work within the required time and proceed to completion within the required time will result in the assessment of liquidated damages. "Work will not be permitted when impending bad or inclement weather may impair the quality of work.

Procure permits and licenses, which are to be issued by the City, County, or Municipal Utility District.

Mowing strips that are repaired at existing metal beam guard fence locations shall be constructed as shown on the mowing strip detail sheet.

Unless otherwise shown on the plans, RAP generated by this project will become the property of the Contractor for use in the current construction project or in future projects.

References to manufacturer's trade name or catalog numbers are for the purpose of identification only. Similar materials from other manufacturers are permitted if they are of equal quality, comply with the specifications for this project, and are approved, except for roadway illumination, electrical, and traffic signal items.

General: Site Management

Mow the grass and weeds within the project limits a maximum of 3 times a year as directed. This work is subsidiary to the various bid items.

Mark stations every 100 ft. and maintain the markings for the project duration. Remove the station markings at the completion of the project. This work is subsidiary to the various bid items.

Do not mix or store materials, or store or repair equipment, on top of concrete pavement or bridge decks unless authorized by the Engineer. Permission will be granted to store materials on surfaces if no damage or discoloration will result.

Project Number: RMC 6430540001**Sheet 2****County:** GALVESTON**Control:** 6430-54-001**Highway:** SH 146, etc.

Personal vehicles of employees are not permitted to park within the right of way, including sections closed to public traffic. Employees may park on the right of way at the Contractor's office, equipment, and materials storage yard sites.

Assume ownership of debris and dispose of at an approved location. Do not dispose of debris on private property unless approved in writing by the District Engineer.

Control the dust caused by construction operations. For sweeping the base material in preparation for laying asphalt and for sweeping the finished concrete pavement, use one of the following types of sweepers or approved equal:

Tricycle Type

Wayne Series 900
Elgin White Wing
Elgin Pelican

Truck Type - 4 Wheel

M-B Cruiser II
Wayne Model 945
Mobile TE-3
Mobile TE-4
Murphy 4042

Personal vehicles of employees are not permitted to park within the right of way, including sections closed to public traffic. Employees may park on the right of way at the Contractor's office, equipment, and materials storage yard sites.

Assume ownership of debris and dispose of at an approved location. Do not dispose of debris on private property unless approved in writing by the District Engineer.

Do not mix or store materials, or store or repair equipment, on top of concrete pavement or bridge decks unless authorized by the Engineer. Permission will be granted to store materials on surfaces if no damage or discoloration will result.

General: Traffic Control and Construction

When design details are not shown on the plans, provide signs and arrows conforming to the latest "Standard Highway Sign Designs for Texas" manual.

Existing pavement markings removed or damaged by more than 20 ft. will be replaced with temporary striping. Temporary striping shall be paint based unless otherwise directed by the engineer. This work will be considered incidental to the item of work

General: Utilities

Consider the locations of underground utilities depicted in the plans as approximate and employ responsible care to avoid damaging utility facilities. Depending upon scope and magnitude of planned construction activities, advanced field confirmation by the utility owner or operator may

Project Number: RMC 6430540001**Sheet 2 A****County:** GALVESTON**Control:** 6430-54-001**Highway:** SH 146, etc.

be prudent. Where possible, protect and preserve permanent signs, markers, and designations of underground facilities.

If the Contractor damages or causes damage (breaks, leaks, nicks, dents, gouges, etc.) to the utility, contact the utility facility owner or operator immediately.

At least 48 hours..." the number of hours has been changed, also the telephone number." with general note to "At least 72 hours before starting work, make arrangements for locating existing Department-owned above ground and underground fiber optic, communications, power, illumination, and traffic signal cabling and conduit. Do this by calling the Department's Houston District Traffic Signal Operations Office at 713-802-5662.

If overhead or underground power lines need to be de-energized, contact the electrical service provider to perform this work. Costs associated with de-energizing the power lines or other protective measures required are no expense to the Department.

If working near power lines, comply with the appropriate sections of Texas State Law and Federal Regulations relating to the type of work involved.

Item 7: Legal Relations and Responsibilities

This project does not require a U.S. Army Corps of Engineers (USACE) Section 404 Permit before letting, but if a permit is needed during construction, assume responsibility for preparing the permit application. Submit the permit application to the Department's District Environmental Section for approval. Once the permit application is approved, the Department will submit it to the USACE. Assume responsibility for the requested revisions, in coordination with the Department's District Environmental Section.

If the work is on or in the vicinity of an at-grade railroad crossing, involves incidental work on railroad right of way, or involves construction of a railroad grade separation structure, notify the railroad company's Division Engineer and the Department's Project Engineer at least 30 days before performing any work on the railroad right of way and make arrangements for railroad flaggers unless otherwise shown in the contract. Obtain the required Railroad Right of Entry Permit from the railroad company. Payment of applicable permit fees is the responsibility of the Contractor. Acquiring the Railroad Right of Entry Permit is a lengthy process, allow sufficient time for this.

During the hurricane season (June 1 through November 30), do not close any travel lanes except when the Contractor can demonstrate that he/she can provide labor, equipment, material, a work plan, and quality of work to satisfactorily return all lanes to an open, all-weather travel surface within 3 days of receiving written or verbal notice but no later than 3 days before the predicted hurricane landfall. Construction of temporary lanes to an all-weather surface will be paid for in accordance with Article 9.7, "Payment for Extra Work and Force Account Method."

Project Number: RMC 6430540001**Sheet 2****County:** GALVESTON**Control:** 6430-54-001**Highway:** SH 146, etc.

In addition to lane closures, cease work 3 days before the predicted hurricane landfall on or near the roadway that adversely impacts the flow of traffic and reduces the capacity of the highway during an evacuation. Vehicles of the Contractor, subcontractors, or material suppliers will not be allowed to enter or exit the traffic stream, including those for the purpose of material hauling and delivery, and mobilization or demobilization of equipment. When directed, this prohibition will include a reasonable time period for the evacuees to return to their point of origin.

No significant traffic generator events identified.

This project is on a hurricane evacuation route. Provide at the pre-construction meeting a written plan outlining procedures to suspend work, secure the job site, and safely handle traffic through and across the project in the event of a hurricane evacuation.

Item 8: Prosecution and Progress

Working days will be computed and charged based on a calendar day workweek in accordance with Section 8.3.1.5

The Lane Closure Assessment Fee for each roadway is stated below. This fee applies to the Contractor for closures or obstructions that overlap into restricted hour traffic for each hour or portion thereof, per lane, regardless of the length of lane closure or obstruction. For Restricted Hours subject to Lane Assessment Fee refer to the Item, "Barricades, Signs, and Traffic Handling."

Lane Closure Assessment Fee Table

Roadway	Lane Assessment Fee	Roadway	Lane Assessment Fee
FM 188	\$50	LP 108	\$0
FM 270	\$500	LP 197	\$400
FM 517	\$500	SH 3	\$400
FM 518	\$500	SH 6	\$300
FM 519	\$200	SH 87	\$1,000
FM 528	\$1,000	SH 96	\$500
FM 646	\$500	SH 124	\$100
FM 1266	\$200	SH 146	\$500
FM 1764	\$1,000	SH 168	\$200
FM 1765	\$500	SH 275	\$300
FM 2004	\$300	SP 342	\$500
FM 2094	\$500		
FM 2351	\$500	Frontage RD	
FM 3005	\$500		
FM 3436	\$50	FM 1764	\$300

Project Number: RMC 6430540001**Sheet 2 B****County:** GALVESTON**Control:** 6430-54-001**Highway:** SH 146, etc.**Item 104: Removing Concrete**

Removing concrete curb is paid as a separate bid item if the existing pavement on which it rests is not removed at the same time.

Item 500: Mobilization

This contract consists of Call-Out Mobilization for routine work and Emergency Mobilization for any emergency or unexpected work as directed by the Engineer.

Item 502: Barricades, Signs and Traffic Handling

The Contractor Force Account "Safety Contingency" that has been established for this project is intended to be utilized for work zone enhancements, to improve the effectiveness of the Traffic Control Plan, that could not be foreseen in the project planning and design stage. These enhancements will be mutually agreed upon by the Engineer and the Contractor's Responsible Person based on weekly or more frequent traffic management reviews on the project. The Engineer may choose to use existing bid items if it does not slow the implementation of enhancement.

Use a traffic control plan for handling traffic through the various phases of construction. Follow the phasing sequence unless otherwise agreed upon by the Area Engineer and the Project Manager. Ensure this plan conforms to the latest "Texas Manual on Uniform Traffic Control Devices" and the latest Barricade and Construction (BC) Standard Sheets.

Submit changes to the traffic control plan to the Area Engineer. Provide a layout showing the construction phasing, signs, striping, and signalizations for changes to the original traffic control plan.

Furnish and maintain the barricades and warning signs, including the necessary temporary and portable traffic control devices, during the various phases of construction. Place and construct these barricades and warning signs in accordance with the latest "Texas Manual on Uniform Traffic Control Devices" for typical construction layouts.

Cover work zone signs when work related to the signs is not in progress, or when any hazard related to the signs no longer exists.

Keep the delineation devices, signs, and pavement markings clean. This work is subsidiary to the Item, "Barricades, Signs, and Traffic Handling."

Use traffic cones for daytime work only. Replace the cones with plastic drums during nighttime hours.

Project Number: RMC 6430540001

Sheet 2

County: GALVESTON

Control: 6430-54-001

Highway: SH 146, etc.

Temporary Rumble Strips are required when using a one-lane, two-way application or for lane closures on conventional roadways. This work is subsidiary to the various bid items.

Do not mount signs on drums or barricades, except those listed in the latest Barricades and Construction standard sheets.

Do not reduce the existing number of lanes open to the traffic except as shown on the following time schedule.

All lane closures are considered subsidiary to the various bid items.

**One Lane Closure
FM 188, FM 519, FM 3436, SH 124, SH 168, LP 108,**

Day	Daytime Work Hours	Nighttime Work Hours	Restricted Hours Subject to Lane Assessment Fee
Monday Through Friday	No Restrictions	No Restrictions	No Restrictions

**One Lane Closure
FM 1266, FM 2094, SH96, SH 3,
FM 270, FM 517, FM 518, FM 528, FM 646, FM 1764, FM 1765, FM 2004,
FM 2351, FM 3005, LP 197, SH 6, SP 342, SH 146, SH 275 FM 1764 FRD**

Day	Daytime Work Hours	Nighttime Work Hours	Restricted Hours Subject to Lane Assessment Fee
Monday Through Friday	9:00 AM -3:00 PM	12:00 AM – 5:00 AM 7:00 PM - 12:00 AM	5:00 AM – 9:00 AM 3:00 PM - 7:00 PM

One Lane Closure SH 87

Day	Daytime Work Hours	Nighttime Work Hours	Restricted Hours Subject to Lane Assessment Fee
Monday Through Friday	None	12:00AM – 5:00AM 7:00PM – 12:00AM	5:00 AM – 7:00 PM

**Two Lane Closure
FM 519**

Day	Daytime Work Hours	Nighttime Work Hours	Restricted Hours Subject to Lane Assessment Fee
Monday Through Friday	No Restrictions	No Restrictions	No Restrictions

Project Number: RMC 6430540001

Sheet 2 C

County: GALVESTON

Control: 6430-54-001

Highway: SH 146, etc.

**Two Lane Closure
FM 518, FM 528, FM 1764, FM 1765, FM 3005, LP 197, SH 6, SH 3, SH96, FM 2094
SH 146, SH 275, SP 342, FM 1764 FRD**

Day	Daytime Work Hours	Nighttime Work Hours	Restricted Hours Subject to Lane Assessment Fee
Monday Through Friday	None	12:00 AM – 5:00 AM 9:00 PM - 12:00 AM	5:00 AM - 9:00 PM

**Weekend One/Two Lane Closure
FM 188, FM 270, FM 517, FM 518, FM 519, FM 528, FM 646, FM 1266, FM 1764,
FM 1764 FRD, FM 1765, FM 2004, FM 2094, FM 2351, FM 3005, FM 3436, LP 197, SH 3,
SH 6, SH 87, SH 96, SH 124, SH 146, SH 168, SH 275, SP 342**

Day	Daytime Work Hours	Nighttime Work Hours	Restricted Hours Subject to Lane Assessment Fee
Saturday Through Sunday	None	12:00 AM – 11:00 AM 8:00 PM - 12:00 AM	11:00 AM - 8:00 PM

**Full Closure of Highway Facility
FM 188, FM 270, FM 517, FM 518, FM 519, FM 528, FM 646, FM 1266, FM 1764,
FM 1764 FRD, FM 1765, FM 2004, FM 2094, FM 2351, FM 3005, FM 3436, LP 197, SH 3,
SH 6, SH 87, SH 96, SH 124, SH 146, SH 168, SH 275, SP 342**

Day	Daytime Work Hours	Nighttime Work Hours	Restricted Hours Subject to Lane Assessment Fee
Saturday Through Sunday	None	12:00 AM – 5:00 AM 10:00 PM - 12:00 AM	5:00 AM - 10:00 PM

The above times are approved for the traffic control conditions listed. The Area Engineer may approve other closure times if traffic counts warrant. The Area Engineer may reduce the above times for special events.

Law enforcement assistance will be required for this project and is expected to be required for major traffic control changes and lane closures. Coordinate with local law enforcement and arrange for law enforcement as directed or agreed by the Engineer. Before payment will be made, complete the “Daily Report on Law Enforcement Force Account Work” (Form 318), provided by the Department and submit daily invoices that agree with this form for any day during the month in which approved services were provided.

Provide full-time, off-duty, uniformed, certified peace officers, as part of traffic control operations. The peace officers must be able to show proof of certification by the Texas

Project Number: RMC 6430540001**Sheet 2****County:** GALVESTON**Control:** 6430-54-001**Highway:** SH 146, etc.

Commission on Law Enforcement Officers Standards. The cost of the officers is paid for on a force account basis.

A minimum of 7 days in advance of any total closure, notify the Houston District Public Information Office of which roadways, ramps, intersections, or lanes will be closed, the dates they will remain closed, and when they will be opened again to traffic.

A minimum of 7 days in advance of any total closure, place a portable changeable message (PCM) sign at the location of each total closure which informs the traveling public of the details of the closure. Alternately, if the Traffic Control Plan provides a positive barrier at the location, a non-trailer mounted static message board sign behind the positive barrier may be used in place of a PCM.

Changes to the Traffic Control Plan will require two (2) weeks notice in writing and written approval.

All work and materials furnished with this item are subsidiary to the pertinent bid items except:

- Truck mounted attenuators payable under Item 6185-6002
- Law enforcement personnel payable under force account.

Item 506: Temporary Erosion, Sedimentation, and Environmental Controls

The use of hay bales is not permitted as Storm Water Pollution Prevention Plan (SWP3) measures.

The Storm Water Pollution Prevention Plan (SWP3) consists of temporary erosion control measures needed and provided for under this Item. The disturbed area is less than one acre and use of erosion control measures is not anticipated. If physical conditions encountered at the job site require necessary controls, BMP installation, maintenance, and removal will be paid as extra work on a force account basis per Articles 4.4 and 9.7. Since the disturbed area is less than 5 acres, a "Notice of Intent" (NOI) is not required.

Use appropriate measures to prevent, minimize, and control the spill of hazardous materials in the construction staging area. Remove and dispose of materials in compliance with State and Federal laws.

Implement temporary and permanent erosion control measures to comply with the National Pollution Discharge Elimination System (NPDES) general permit under the Clean Water Act.

Project Number: RMC 6430540001**Sheet 2 D****County:** GALVESTON**Control:** 6430-54-001**Highway:** SH 146, etc.**Item 512: Portable Traffic Barrier**

Realign Concrete Traffic Barrier back to original placement.

Transport Low Profile Concrete Barriers (LPCB) used for traffic handling from the Department's stockpile located on the north side of IH 610 at Long Drive.

Where required by the Engineer, provide anchor pins for Type 2 Low Profile Concrete Barriers (LPCB) as shown on the current LPCB standard. Anchor pins are subsidiary to the Low Profile Concrete Barrier.

Transport Standard Height Portable Traffic Barriers (including J-J Hook and Safety Shape) used for traffic handling from the Department's stockpile located on the south side of IH 610 at Cedar Crest Blvd. (located across IH 610 from Long Drive).

Use only the J-J Hook type connection between barriers.

After completing the project, return Low Profile Concrete Barriers (LPCB) used for traffic handling, to the Department's stockpile located on the north side of IH 610 at Long Drive. After completing the project, return the associated LPCB connecting hardware to the area office or as directed.

After completing the project, return Standard Height Portable Traffic Barriers (including J-J Hook and Single Slope) used for traffic handling, to the Department's stockpile located on the south side of at IH 610 at Cedar Crest Blvd. (located across IH 610 from Long Drive). After completing the project, return the associated Single Slope barrier connecting hardware to the area office or as directed.

After completing the project, Standard Height Safety Shape Portable Traffic Barriers used for traffic handling and the associated connecting hardware will become the property of the Contractor.

If placing the portable traffic barrier on pre-stressed concrete box beams with exposed reinforcing steel, protect the reinforcing steel by supporting the portable traffic barrier on 4 in. by 4 in. timbers. Place the timbers transversely and space them on 4 ft. centers. The cost of the labor and materials to perform this work are subsidiary to the Item, "Portable Traffic Barrier.

Item 540: Metal Beam Guard Fence

Painting the timber posts is not required.

Use timber posts for galvanized steel metal beam guard fence, except for anchorage at turned down ends.

Furnish and install wood blocks between the rail elements and the timber posts as detailed on the plans. These block-outs are subsidiary to this bid Item.

Project Number: RMC 6430540001**Sheet 2****County:** GALVESTON**Control:** 6430-54-001**Highway:** SH 146, etc.

The quantity of the metal beam guard fence is subject to change.

Provide a mow strip as shown on the plans, at metal beam guard fence locations, including any guardrail end treatments.

Galvanize the rail elements supplied for this project by using a Type II Zinc Coating.

At locations requiring attachment of Metal Beam Guard Fence (MBGF) to concrete railing or concrete traffic barrier, repair and fill any existing holes in the railing or barrier that are not in the correct location for attaching the new MBGF. Perform this work in accordance with the Item, "Concrete Structure Repair." Existing anchor bolt holes that cannot be utilized must be filled with an epoxy grout before drilling new holes. Then core-drill new holes in the correct locations and repair any resulting spalls at no expense to the Department. This work is considered subsidiary to the MBGF transition section (Item 540).

These standards listed below are only to be used for the repair of existing installations of these devices. These standards are not to be used for the new installation of these devices.

MBGF(MS)-17, MBGF(SR)-11, MBGF(TR)-11, MBGF(TL2)-11, MBGF(T101)-11, REACT(N)-16, TRACC(N)-13, PCTB

These standards listed below are only for the new installation of these devices. These standards shall only be used for new installations of these devices only.

GF(31)-14, GF(31)DAT-14, GF(31)LS-17, GF(31)TR-14, GF(31)TL2-11, GF(31)MS-17, SGT(10S)31-16, SGT(11S)31-18, SGT(12S)31-18, SGT(13S)31-18, SGT(14W)31-18, SMTC(N)-16, SMTC(W)-16

The standards listed below shall only be used for the repair of existing MBGF's that are less than 25% damaged. These standards below shall not be used with the installation of new devices.

Item 542: Removing Metal Beam Guard Fence

Remove and assume ownership of unsalvageable metal beam guard fence rail elements and posts. Transport and store any functional, salvageable rail elements, including steel posts, which are not reused in this project, to the Department stockpile located at 5407 Gulf Freeway, LaMarque, Texas 77568

Replace removed wood posts which are unusable because of damage by the Contractor, at no expense to the Department.

Project Number: RMC 6430540001**Sheet 2 E****County:** GALVESTON**Control:** 6430-54-001**Highway:** SH 146, etc.**Item 770: Guard Fence Repair**

Object markers will be incidental to the various bid items.

All new holes for guardrail connections to any concrete structure (wingwalls, CTB, etc.) which require drilling will be considered subsidiary to the various bid items. This will include holes required when raising or upgrading guardrail.

For purposes of guardrail post replacement, a mowing strip is considered a foundation. When replacing posts, the mow strip has to be replaced as well. Supply all materials used to repair mow strips. Mow strip repair requires repairing the leave out as shown on the plans. This work is subsidiary to the various bid items.

Furnish a welding unit and a cutting torch, with competent operators, each day of work.

Provided the work is available and weather permitting, satisfactory prosecution of the work will be based on each crew placing not less than 20 posts and 250 feet of railing or fence in any one day's period.

If in the opinion of the Engineer, a terminal anchor post is beyond repair, replace the entire terminal anchor in accordance with the standard detail sheet.

Removing and replacing reusable items for the Contractor's convenience will not be paid for directly, but will be incidental to the various bid items. An example is when an undamaged section of rail is removed from the post and set on the ground in order to make a repair to damaged post or another damaged item. In this case the rail is not damaged and is to be reused at this same location; therefore it will not be paid for because no repair was done to the rail.

When repairing damaged rail in the center median, repairing and/ or replacing (6") channel rail will not be paid for directly, but will be considered incidental to the various bid items.

Item 774: Attenuator Repair

All material will be furnished by the Contractor.

Make repairs and installations in accordance with the manufacturer's instructions and recommendations.

For the bid item to REPAIR REACT (N) (MISC HARDWARE), payment is by the each and consists of repairing one or all of the following miscellaneous hardware per one unit repaired: Channel Stake, Front Anchor Pin, Slotted Washer Plate, Front Anchor Plate, Chain, Cable Strap, Side Cable Anchor Plate, Cable Wedge, Cable, Folded Transition Plate, and Transition Plate with W-Beam Connector.

Remove and replace with a MASH compliant system as directed by the Engineer.

Project Number: RMC 6430540001

Sheet 2

Project Number: RMC 6430540001

Sheet 2 F

County: GALVESTON

Control: 6430-54-001

Highway: SH 146, etc.

Repairs shall be made within 48 hours of notification.

All damaged material not reusable will become the property of the Contractor or, as directed.

Measurement for the Repair of (Energy Absorbing System) will be made by each bay complete in place.

Repair of (Quad Guard Narrow Bay) System will consist of repairing each damaged bay. Removing and replacing reusable items for the Contractor's convenience will not be paid for directly, but will be incidental to the bid items.

Item 6185: Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA)

A shadow vehicle with Truck Mounted Attenuators (TMAs) or Trailer Attenuators (TAs) is required as shown on the appropriate Traffic Control Plan (TCP) sheets. TMAs/TAs must meet the requirements of the Compliant Work Zone Traffic Control Device List.

Level 3 Compliant TMAs/TAs are required for this project.

A total of one (1) shadow vehicle with a TMA/TA is required for the work with the exception of Pavement Marking Operations. The Contractor is responsible for determining if one or more of these operations will be ongoing at the same time to determine the total number of TMAs/TAs needed on the project.

A total of three (3) shadow vehicles with a TMA/TA are required for Pavement Marking Operations. The Contractor is responsible for determining if one or more of these operations will be ongoing at the same time to determine the total number of TMAs/TAs needed on the project.



CONTROLLING PROJECT ID 6430-54-001

DISTRICT Houston
HIGHWAY SH0146

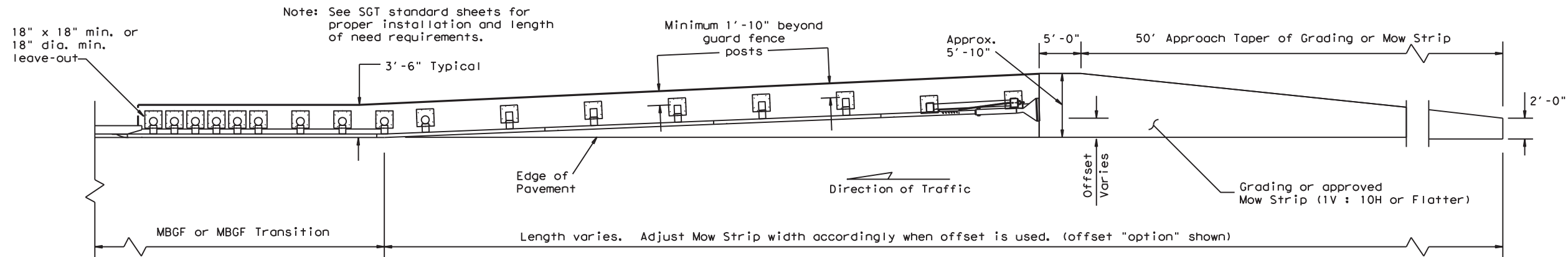
COUNTY Galveston

Estimate & Quantity Sheet

CONTROL SECTION JOB				6430-54-001		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00192618			
COUNTY				Galveston			
HIGHWAY				SH0146			
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL		
	432-6045	RIPRAP (MOW STRIP)(4 IN)	CY	150.000		150.000	
	500-6033	MOBILIZATION (CALLOUT)	EA	15.000		15.000	
	500-6034	MOBILIZATION (EMERGENCY)	EA	5.000		5.000	
	540-6001	MTL W-BEAM GD FEN (TIM POST)	LF	1,000.000		1,000.000	
	540-6006	MTL BEAM GD FEN TRANS (THRIE-BEAM)	EA	5.000		5.000	
	540-6016	DOWNSTREAM ANCHOR TERMINAL SECTION	EA	25.000		25.000	
	540-6020	MTL W - BEAM GD FEN (LOW FILL CULVERT)	LF	200.000		200.000	
	542-6001	REMOVE METAL BEAM GUARD FENCE	LF	150.000		150.000	
	542-6002	REMOVE TERMINAL ANCHOR SECTION	EA	3.000		3.000	
	544-6001	GUARDRAIL END TREATMENT (INSTALL)	EA	3.000		3.000	
	544-6002	GUARDRAIL END TREATMENT (MOVE & RESET)	EA	10.000		10.000	
	658-6028	INSTL DEL ASSM (D-SY)SZ (BRF)GF1	EA	50.000		50.000	
	658-6068	INSTL DEL ASSM (D-DY)SZ 1(BRF)GF2	EA	50.000		50.000	
	770-6001	REPAIR RAIL ELEMENT (W - BEAM)	LF	2,000.000		2,000.000	
	770-6003	REP RAIL ELMNT(THRIE-BM TRANS TO W -BM)	LF	12.600		12.600	
	770-6004	REPAIR RAIL ELEMENT (CURVED RAIL)	LF	500.000		500.000	
	770-6010	REM / REPL TIMBER/STL POST W/O CONC FND	EA	250.000		250.000	
	770-6011	REM / REPL TIMBER / STL POST W/CONC FND	EA	100.000		100.000	
	770-6017	REALIGN POSTS	EA	80.000		80.000	
	770-6021	REPLACE SINGLE GDRAIL TERMINAL RAIL	LF	1,000.000		1,000.000	
	770-6022	REPLACE SINGLE GDRAIL TERMINAL POST	EA	150.000		150.000	
	770-6027	REMOVE GDRAIL END TRT / REPL WITH SGT	EA	45.000		45.000	
	770-6028	REPL SINGLE GDRAIL TERM IMPACT HEAD	EA	20.000		20.000	
	770-6029	REM & RESET SGT IMPACT HEAD	EA	25.000		25.000	
	770-6030	REPLACE SGT CABLE ASSEMBLY	EA	15.000		15.000	
	770-6032	REPLACE SGT STRUT	EA	10.000		10.000	
	774-6007	REPAIR (TRACC)	LF	10.000		10.000	
	6185-6002	TMA (STATIONARY)	DAY	100.000		100.000	

DISTRICT	COUNTY	CCSJ	SHEET
Houston	Galveston	6430-54-001	3

DISCLAIMER: THIS STANDARD IS GOVERNED BY THE "TEXAS ENGINEERING PRACTICE ACT". NO WARRANTY OF ANY KIND IS MADE BY TxDOT FOR ANY PURPOSE WHATSOEVER. THE USE OF THIS STANDARD FOR THE CONVERSION OF THIS STANDARD TO OTHER FORMATS OR FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE. TxDOT ASSUMES NO RESPONSIBILITY FOR THE CONVERSION OF THIS STANDARD TO OTHER FORMATS OR FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.



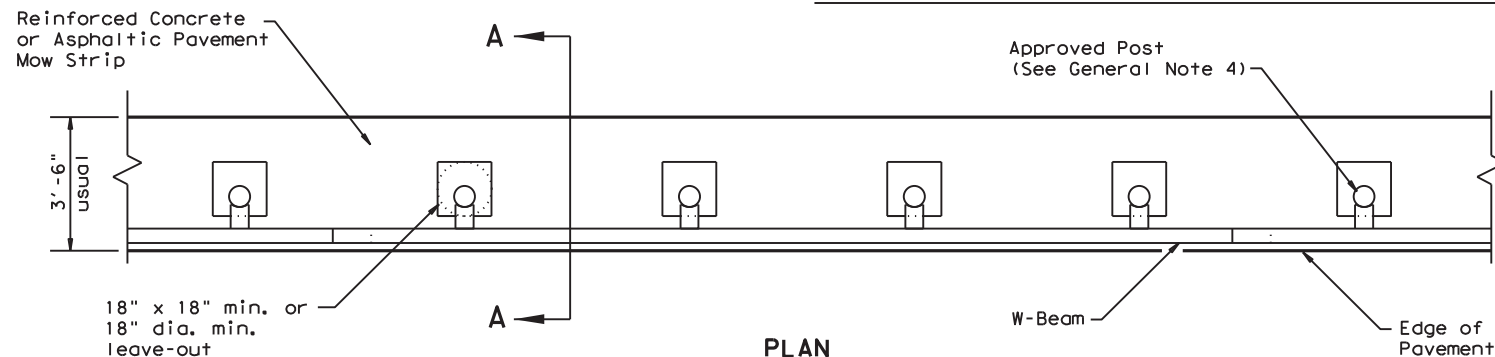
GRADING AND MOW STRIP AT GUARDRAIL END TREATMENTS

Note: Site Condition(s)

Site conditions may exist where grading is required for the proper installation of metal guard fence and end treatments. Approach grading or mow strip may be decreased or eliminated, as directed by the Engineer.

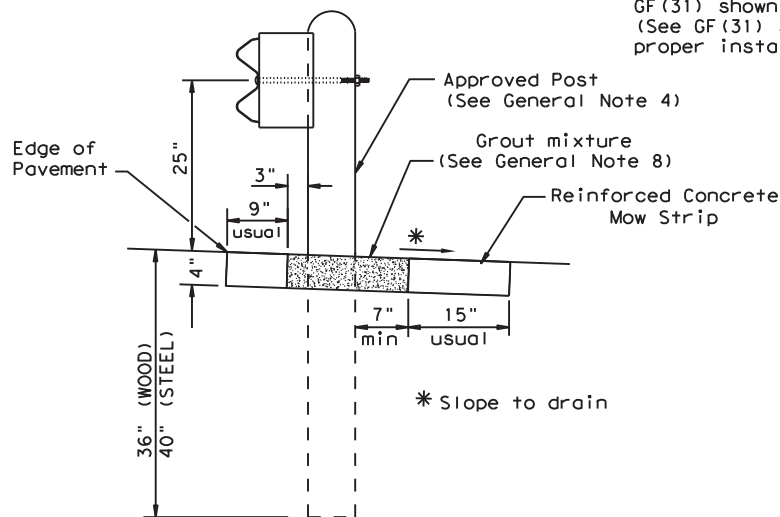
GENERAL NOTES

1. This mow strip design is for use with metal beam guard fence, guard fence transitions, and guard fence end treatments. See applicable GF(31) MBGF or GF(31) Transition Standard sheet for additional information.
2. Mow strips shall be reinforced concrete with (wire mesh or synthetic fiber), as shown on the plans and will be paid for under the pertinent bid item. Reinforced concrete shall be placed in accordance with Item 432, "Riprap." The use of the synthetic fiber in lieu of steel reinforcing is acceptable, provided the fiber producer is on the Department Material Producer List (MPL), maintained by TxDOT, Construction Division.
3. The leave-out behind the post shall be a minimum of 7".
4. Only steel (W6 x 8.5 or W6 x 9.0), or 7 1/2" Dia. round wood posts are acceptable for use in the mow strip. See GF(31) Standard for additional details.
5. Other curb placement options may be used. Curbs are not considered part of the mow strip and will be paid for under other pertinent bid item.
6. Thickness of the mow strip will be 4".
7. The limits of payment for reinforced concrete will include leave-outs for the posts.
8. The leave-outs shall be filled with a Grout mixture consisting of: 2719 pounds sand, 188 pounds Type 1 or II cement, and 550 pounds of water per cubic yard, with a 28-day compressive strength of approximately 230 psi or less. Provide grout with a consistency that will flow into and completely fill all voids. Due to auger size, larger leave-out dimensions are acceptable from both an impact performance and maintenance repair standpoint (Suggested Maximum leave-out of 20"). Payment for furnishing and placing the grout mixture will be subsidiary to the pay item of riprap mow strip.



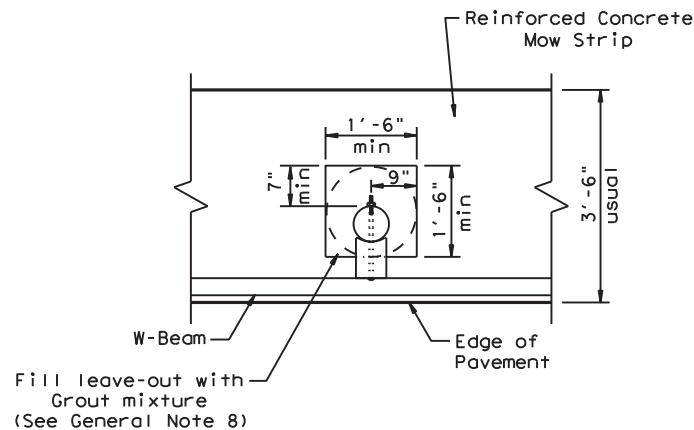
PLAN

GF(31) shown with Mow Strip (See GF(31) standard sheet for proper installation)



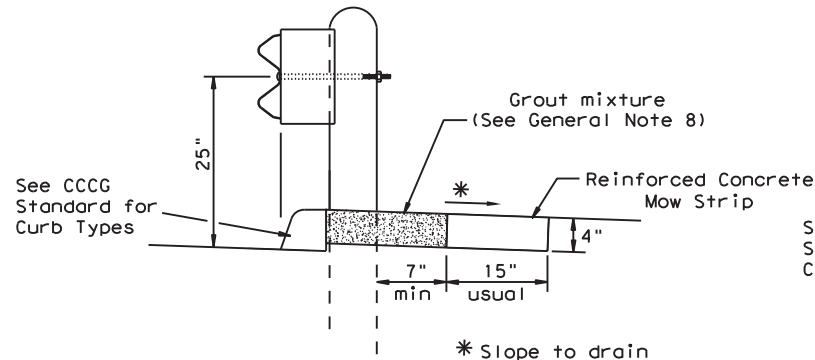
SECTION A-A

Typical



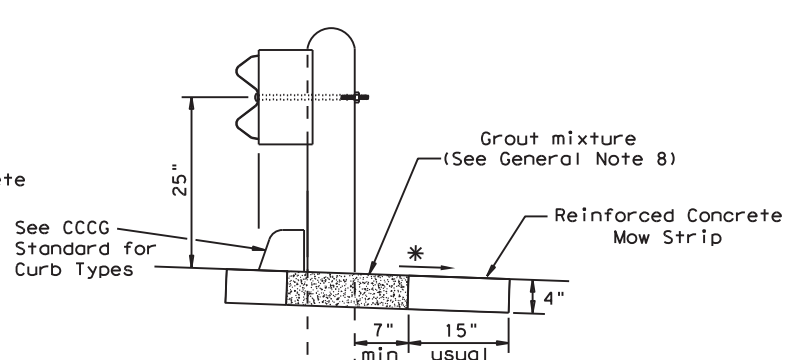
MOW STRIP DETAIL

Reinforced Concrete Mow Strip with 18" x 18" Square or 18" Dia. minimum leave-out.



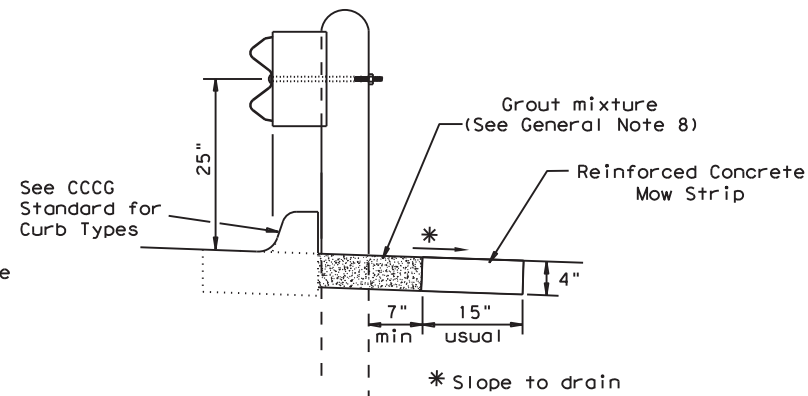
CURB OPTION (1)

This option will increase the post embedment throughout the system.



CURB OPTION (2)

Curb shown on top of mow strip



CURB OPTION (3)

		Design Division Standard	
METAL BEAM GUARD FENCE (MOW STRIP) TL-3 MASH COMPLIANT GF(31)MS-19			
FILE: gf31ms19.dgn	DN: TxDOT	CK: KM	DW: VP
© TxDOT: NOVEMBER 2019	CONT SECT	JOB	HIGHWAY
REVISIONS	6430 54	001	SH 146, etc.
DIST	COUNTY	SHEET NO.	
HOU	GALVESTON	5	

DATE: FILE: