SH 99 GRAND PARKWAY
ATTACHMENT 11-1
Cross Street Design Criteria Matrix
Segment H

Intersecting Street	Ultimate Typical Section	Jurisdiction	Roadway Classification	Design Speed (mph)	Position (over/under)	Design Vehicle	NORTHBOUND					Turn Lanes	Median	SOUTHBOUND				
							U-Turn (each)	Clear Zone for Cross Street Thru Lanes	Sidewalk and Min. Usable Width (LF)	Curb and Gutter	Through Lanes			Through Lanes	Curb and Gutter	Sidewalk and Min. Usable Width (LF)	Clear Zone for Cross Stet Thru Lanes	U-Turn (each)
Future Road 2G	A	Montgomery Co.	Urban Local	45	Under SH 99	WB-50	1	6'	5'	Y	2 (12')	2 (12')	4' Curbed	2 (12')	Y	5'	6'	1
IH69/US59 Northbound Frontage Road	J	TxDOT	Urban Collector	45	Under SH 99	WB-50	1	6'	5'	Y	2 (12')	1 (12')	0	N/A	N/A	N/A	N/A	N/A
IH69/US59 Mainlanes	N/A	TxDOT	Rural Freeway	70	Under SH 99	N/A	0	30'	Match Existing Mainlanes and Structures								30'	0
IH69/US59 Southbound Frontage Road	J	TxDOT	Urban Collector	45	Under SH 99	WB-50	N/A	N/A	N/A	N/A	N/A	1 (12')	0	2 (12')	Y	5'	6'	1
Loop 494	C	TxDOT	Rural Collector	45	Under SH 99	WB-50	0	16'	N/A	N	1 (12')	2 (12')	0	1 (12')	N	N/A	16'	0
Future Thoroughfare #1	A	Montgomery Co.	Urban Local	45	Under SH 99	WB-50	0	6'	5'	Y	1 (12') 1 (14')	2 (12')	2	1 (12') 1 (14')	Y	5'	6'	0
Baptist Encampment Road	B	Montgomery Co.	Rural Local	45	Under SH 99	WB-50	0	10'	N/A	N	2 (12')	N	0	2 (12')	N	N/A	10'	0
FM1485	G	TxDOT	Rural Collector	45	Under SH 99	WB-50	1	10'	N/A	N	1 (12')	2 (12')	0	1 (12')	N	N/A	10'	0
Wilderness Road	H	Montgomery Co.	Rural Local	45	Under SH 99	WB-50	1	10'	N/A	N	1 (12')	N	0	1 (12')	N	N/A	10'	0
Galaxy Blvd.	A	Montgomery Co.	Urban Local	45	Under SH 99	WB-50	0	6'	5'	Y	1 (12') 1 (14')	2 (12')	2	1 (12') 1 (14')	Y	5'	6'	0
FM1485 EB (Westbound Frontage Rd)	I	TxDOT	Rural Collector	45	Under SH 99	WB-50	1	N/A	N/A	N/A	N/A	N	0	2 (12')	N	N/A	16'	0
Cypress Hollow/ Roots Down Rd.	H	Harris Co.	Rural Local	45	Under SH 99	WB-50	0	10'	N/A	N	1 (12')	N	0	1 (12')	N	N/A	10'	0
Huffman - Cleveland Road	A	Harris Co.	Urban Local	45	Under SH 99	WB-50	0	6'	5'	Y	1 (12') 1 (14')	2 (12')	26	1 (12') 1 (14')	Y	5'	6'	0

Assumptions:

Urban - Curb and gutter with minimum 5' sidewalk on all urban roadways. Pedestrian accommodations only on Urban Facilities.

Rural - No curb and gutter, minimum 6' shoulders, minimum 10' clear zone (unless otherwise shown).

SH 99 GRAND PARKWAY
ATTACHMENT 11-1
Cross Street Design Criteria Matrix
Segment H

Intersecting Street	Ultimate Typical Section	Jurisdiction	Roadway Classification	Design Speed (mph)	Position (over/under)	Design Vehicle	EASTBOUND					Turn Lanes	Median	WESTBOUND				
							U-Turn (each)	Clear Zone for Cross Street Thru Lanes	Sidewalk and Min. Usable Width (LF)	Curb and Gutter	Through Lanes			Through Lanes	Curb and Gutter	Sidewalk and Min. Usable Width (LF)	Clear Zone for Cross Stet Thru Lanes	U-Turn (each)
Future Thoroughfare #2 (Miller Wilson)	A	Liberty Co.	Urban Local	45	Under SH 99	WB-50	0	6'	5'	Y	1 (12') 1 (14')	2 (12')	26	1 (12') 1 (14')	Y	5'	6'	0
Future Thoroughfare #3 (Community)	A	Liberty Co.	Urban Local	45	Under SH 99	WB-50	0	6'	5'	Y	1 (12') 1 (14')	2 (12')	26	1 (12') 1 (14')	Y	5'	6'	0
Future Thoroughfare #3A* (Wolf Trot)	A	Liberty Co.	Urban Local	45	Under SH 99	WB-50	0	6'	5'	Y	1 (12') 1 (14')	2 (12')	26	1 (12') 1 (14')	Y	5'	6'	0
Future Thoroughfare #4 (Kingwood)	A	Liberty Co.	Urban Collector	45	Under SH 99	WB-50	0	6'	5'	Y	1 (12') 1 (14')	2 (12')	2	1 (12') 1 (14')	Y	5'	6'	0
CR622	B	Liberty Co.	Rural Local	45	Under SH 99	WB-50	0	10'	N/A	N	2 (12')	N	0	2 (12')	N	N/A	10'	0
FM686	D	TxDOT	Rural Collector	45	Under SH 99	WB-50	0	16'	N/A	N	2 (12')	2 (12')	0	2 (12')	N	N/A	16'	0
CR621	B	Liberty Co.	Rural Local	45	Under SH 99	WB-50	0	10'	N/A	N	2 (12')	N	0	2 (12')	N	N/A	10'	0
FM1960	D	TxDOT	Rural Arterial	45	Under SH 99	WB-50	0	16'	N/A	N	2 (12')	2 (12')	0	2 (12')	N	N/A	16'	0
CR605	B	Liberty Co.	Rural Local	45	Under SH 99	WB-50	0	10'	N/A	N	2 (12')	N	0	2 (12')	N	N/A	10'	0
CR603	B	Liberty Co.	Rural Local	45	Under SH 99	WB-50	0	10'	N/A	N	2 (12')	N	0	2 (12')	N	N/A	10'	0
CR602	B	Liberty Co.	Rural Local	45	Under SH 99	WB-50	0	10'	N/A	N	2 (12')	N	0	2 (12')	N	N/A	10'	0

Assumptions:

Urban - Curb and gutter with minimum 5' sidewalk on all urban roadways. Pedestrian accommodations only on Urban Facilities.

Rural - No curb and gutter, minimum 6' shoulders, minimum 10' clear zone (unless otherwise shown).

*NOTE: Crossing includes 14' wide Luce Bayou Canal access road south of roadway; see Sheet 7 of Attachment 19-2.

SH 99 GRAND PARKWAY
ATTACHMENT 11-1
Cross Street Design Criteria Matrix
Segment I-1

Intersecting Street	Ultimate Typical Section	Jurisdiction	Roadway Classification	Design Speed (mph)	Position (over/under)	Design Vehicle	EASTBOUND					Turn Lanes	Median	WESTBOUND				
							U-Turn (each)	Clear Zone for Cross Street Thru Lanes	Sidewalk and Min. Usable Width (LF)	Curb and Gutter	Through Lanes			Through Lanes	Curb and Gutter	Sidewalk and Min. Usable Width (LF)	Clear Zone for Cross Stet Thru Lanes	U-Turn (each)
US90	E	TxDOT	Rural Arterial	45	Under SH 99	WB-50	0	30'	N/A	N	2 (12')	N/A	0	2 (12')	N	N/A	30'	0
CR491	H	Liberty Co.	Rural Local	30	N/A	WB-50	0	10'	N/A	N	1 (10')	N	0	1 (10')	N	N/A	10'	0
FM1413	D	TxDOT	Rural Collector	45	Under SH 99	WB-50	0	16'	N/A	N	2 (12')	2 (12')	0	2 (12')	N	N/A	16'	0
Future Thoroughfare #5A	D	Liberty Co.	Rural Local	45	Under SH 99	WB-50	0	16'	N/A	N	2 (12')	2 (12')	0	2 (12')	N	N/A	16'	0
Future Thoroughfare #5B (Sta 2549+95)	H	Liberty Co.	Rural Local	45	Under SH 99	WB-50	0	10'	N/A	N	1 (12')	N	0	1 (12')	N	N/A	10'	0
Future Thoroughfare #5B (Sta 2551+25)	B	Liberty Co.	Rural Local	45	Under SH 99	WB-50	0	10'	N/A	N	2 (12')	N	0	2 (12')	N	N/A	10'	0
Future Thoroughfare #5C	D	Liberty Co.	Rural Local	45	Under SH 99	WB-50	0	16'	N/A	N	2 (12')	2 (12')	0	2 (12')	N	N/A	16'	0
SH146	D	TxDOT	Rural Arterial	45	Under SH 99	WB-50	0	16'	N/A	N	2 (12')	2 (12')	0	2 (12')	N	N/A	16'	0
FM565* (North Crossing)	D	TxDOT	Rural Collector	45	Under SH 99	WB-50	1	10'	N/A	N	2 (12')	2 (12')	0	2 (12')	N	N/A	10'	0
Future Thoroughfare #6	A	Chambers Co.	Urban Local	45	Under SH 99	WB-50	1	6'	5'	Y	1 (12') 1 (14')	2 (12')	4	1 (12') 1 (14')	Y	5'	6'	1
IH10 Eastbound Frontage Road	J	TxDOT	Urban Collector	45	Under SH 99	WB-50	N/A	N/A	N/A	N/A	N/A	1 (12')	0	2 (12')	Y	5'	6'	1
IH10 Mainlanes	N/A	TxDOT	Rural Freeway	70	Under SH 99	N/A	0	30'	Match Existing Mainlanes and Structures								30'	0
IH10 Westbound Frontage Road	J	TxDOT	Urban Collector	45	Under SH 99	WB-50	1	6'	5'	Y	2 (12')	1 (12')	0	N/A	N/A	N/A	N/A	N/A
Future Thoroughfare #7	A	Chambers Co.	Urban Local	45	Under SH 99	WB-50	0	6'	5'	Y	1 (12') 1 (14')	2 (12')	2	1 (12') 1 (14')	Y	5'	6'	0
Kilgore Road	A	Chambers Co.	Urban Local	45	Under SH 99	WB-50	0	6'	5'	Y	1 (12') 1 (14')	2 (12')	2	1 (12') 1 (14')	Y	5'	6'	0

Assumptions:

Urban - Curb and gutter with minimum 5' sidewalk on all urban roadways. Pedestrian accommodations only on Urban Facilities.

Rural - No curb and gutter, minimum 6' shoulders, minimum 10' clear zone (unless otherwise shown).

*NOTE: Crossing includes 14' wide Barbers Hill Canal access road south of roadway; see Sheet 18 of Attachment 19-2.

SH 99 GRAND PARKWAY
ATTACHMENT 11-1
Cross Street Design Criteria Matrix
Segment I-2

Intersecting Street	Ultimate Typical Section	Jurisdiction	Roadway Classification	Design Speed (mph)	Position (over/under)	Design Vehicle	NORTHBOUND					Turn Lanes	Median	SOUTHBOUND				
							U-Turn (each)	Clear Zone for Cross Street Thru Lanes	Sidewalk and Min. Usable Width (LF)	Curb and Gutter	Through Lanes			Through Lanes	Curb and Gutter	Sidewalk and Min. Usable Width (LF)	Clear Zone for Cross Stet Thru Lanes	U-Turn (each)
Wyoming	F	City of Baytown	Urban Local	45	Under SH 99	WB-50	0	6'	5'	Y	1 (14')	2 (12')	0	1 (14')	Y	5'	6'	0
Lee Drive	A	City of Baytown	Urban Local	45	Under SH 99	WB-50	1	6'	5'	Y	1 (12') 1 (14')	2 (12')	2	1 (12') 1 (14')	y	5'	6'	1
Wismer Road	A	City of Baytown	Urban Local	45	Under SH 99	WB-50	0	6'	5'	Y	1 (12') 1 (14')	2 (12')	2	1 (12') 1 (14')	Y	5'	6'	0
BS146	A	TxDOT	Urban Arterial	45	Under SH 99	WB-50	1	6'	5'	Y	2 (12')	2 (12')	12	2 (12')	Y	5'	6'	1
Tri-Cities Beach Road	G	Harris Co.	Rural Local	45	Under SH 99	WB-50	0	10'	N/A	N	1 (12')	2 (12')	0	1 (12')	N	N/A	10'	1
FM1405	A	TxDOT	Rural Collector	45	Under SH 99	WB-50	1	6'	5'	Y	2 (12')	2 (12')	4	2 (12')	Y	5'	6'	1
Fisher Road	A	Chambers County	Urban Local	45	Under SH 99	WB-50	1	6'	5'	Y	2 (12')	2 (12')	16	2 (12')	Y	5'	6'	1

Assumptions:

Urban - Curb and gutter with minimum 5' sidewalk on all urban roadways. Pedestrian accommodations only on Urban Facilities.

Rural - No curb and gutter, minimum 6' shoulders, minimum 10' clear zone (unless otherwise shown).

TEXAS DEPARTMENT OF TRANSPORTATION

TECHNICAL PROVISIONS

FOR

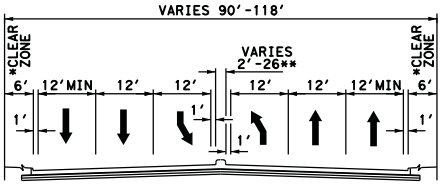
SH 99 GRAND PARKWAY SEGMENTS H, I-1 AND I-2

ATTACHMENT 11-2

ULTIMATE CROSS STREET TYPICAL SECTIONS

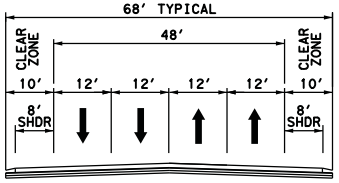
RFP ADDENDUM #8

DECEMBER 19, 2016



SECTION A

* INCLUDES MIN 5' SIDEWALK
**OVER 4' WIDE, USE RAISED MEDIAN WITH 1' OFFSETS



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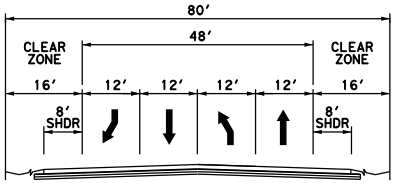
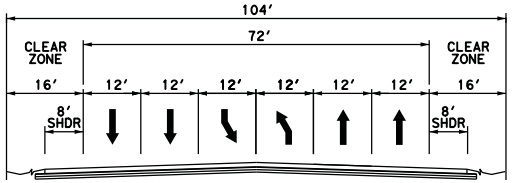
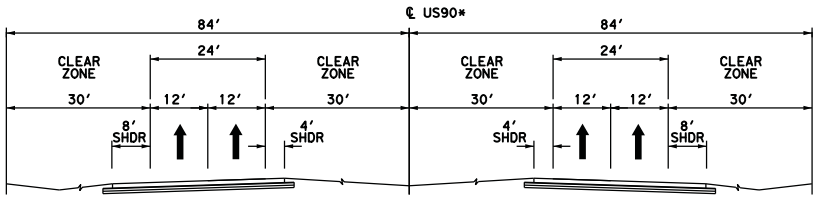


SECTION C

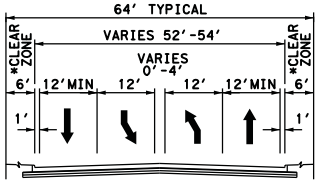


SECTION D



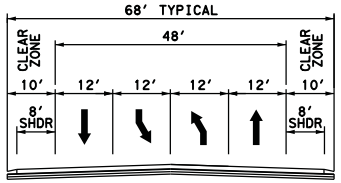
SECTION E

* CENTER COLUMN ALLOWED (PROTECT WITHIN CLEAR ZONE)



SECTION F

* INCLUDES MIN 5' SIDEWALK



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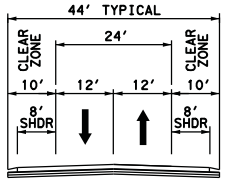
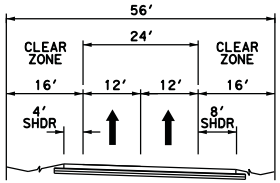
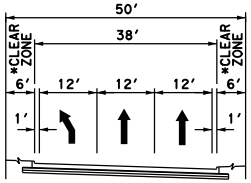


SECTION H



SECTION I



SECTION J

* INCLUDES MIN 5' SIDEWALK

NOTE: NORTHBOUND AND EASTBOUND FR SHOWN SOUTHBOUND AND WESTBOUND MIRRORED

N.T.S.

Texas Department of Transportation

99 TEXAS

PROPOSED ULTIMATE
CROSS STREET
TYPICAL SECTIONS
GRAND PARKWAY (SH 99)
SEGMENTS H, I1 & I2

TEXAS DEPARTMENT OF TRANSPORTATION

TECHNICAL PROVISIONS

FOR

SH 99 GRAND PARKWAY SEGMENTS H, I-1 AND I-2

ATTACHMENT 13-1

TxDOT STANDARD BRIDGE RAILING

RFP ADDENDUM #8

DECEMBER 19, 2016

Table 1 lists currently approved TxDOT Bridge Railing Standards:

Table 1: TxDOT Standard Bridge Railing

TRAFFIC RAILS		
Rev Date	**Std Name**	**Description**
05-11	T1F	Stl Post w/Alum Tube & Opt Curb Drains (33” tall)
05-11	T1W	Stl Post w/Stl Tube & Opt Curb Drains (32” tall)
04-09	T101	Steel Post with W-Beam (27” tall)
05-11	T221	Concrete Parapet (32” tall)
05-11	T223	Conc Bm & Post w/6’ Openings (32” tall)
05-11	T401	Concrete Parapet w/Stl Post and Rail (33” tall)
05-11	T402	Concrete Parapet w/Stl Post and Rail (42” tall)
05-11	T411	Conc Traf Rail w/Windows(Tx Classic)(32” tall)
05-11	T551	Concrete Safety F-Shape (32” tall)
05-11	T552	T551 w/Multiple Drain Slots (32” tall)
04-09	T6	Steel Post w/Doubled W-Beams (27.125” tall)
05-11	T66	Conc Bm, Post & Curb w/5.25’ Max Open (32” tall)
05-11	SSCB	Single Slope Concrete Barrier, Type 1 (42” tall)
05-11	SSTR	Conc Single Slope Traffic Rail (36” tall)
COMBINATION RAILS		
Rev Date	**Std Name**	**Description**
05-11	C1W	Steel Post w/Stl Tube & Opt Curb Drain (42” tall)
05-11	C221	T221 w/Steel Pipe Rail (42” tall)
05-11	C223	T223 w/Steel Pipe Rail (42” tall)
05-11	C402	T402 w/Steel Pipe Rail (42” tall)
05-11	C411	Comb Rail w/windows (Tx Classic) (42” tall)
05-11	C412	Conc Comb Rail w/Windows (TL-4) (42” tall)
MISCELLANEOUS RAILS		
Rev Date	**Std Name**	**Description**
05-11	C-RAIL-R	Retrofit Guide for Concrete Rails
04-09	T101RC	Retrofit Guide for T101 on Curbs
04-09	T1-101R	Retrofit (Convert T1 to T101)
04-09	T2/T201TR	Guide for T2/T201(Retrofit Thrie-Beam Transition)
04-09	T202TR	Guide for T202 (Retrofit Thrie-Beam Transition)
05-11	TRF	Traffic Rail Foundation
04-09	PR1	Pedestrian Rail,Steel Pipe (42” tall)
05-11	PR2	Pedestrian Rail,Steel Pipe on Parapet (42” tall)
04-09	PR3	Pedestrian Rail,Steel and Conc (43.75” tall)
04-09	PR3-HD	Handrail Details for PR3 Pedestrian Rail
04-09	CLF-RO	8 Ft Chain Link Fence for Railroad Overpass
05-11	C-RAIL-R	Retrofit Guide for Concrete Rails

TEXAS DEPARTMENT OF TRANSPORTATION

TECHNICAL PROVISIONS

FOR

SH 99 GRAND PARKWAY SEGMENTS H, I-1 AND I-2

ATTACHMENT 19-1

PERFORMANCE AND MEASUREMENT TABLE DURING CONSTRUCTION

RFP ADDENDUM #8

DECEMBER 19, 2016

ATTACHMENT 19-1
PERFORMANCE AND MEASUREMENT TABLE DURING CONSTRUCTION

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	DEFECT REMEDY PERIOD			INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
1) PAVEMENT									
							Unless stated otherwise, measurements shall be conducted using procedures, techniques, and measuring equipment consistent with TxDOT's *Pavement Management Information System Rater's Manual.* Unless otherwise stated, pavement performance measurement records relate to 0.1-mile sections as described in the *Pavement Management Information System Rater's Manual*.		
	1.1	Ruts	All roadways are free from surface depressions in wheel path.	24 hrs	28 days	6 months	Visual inspection at travel speed 10 ft straight edge used to measure rut depth for localized areas.	 Depth of rut at any location greater than 0.5"	N/A Nil
	1.2	Ride quality	All roadways have a smooth surface course (including bridge decks, covers, gratings, frames and boxes).	24 hrs	28 days	6 months	Ride quality will not be measured.		N/A
	1.3	Failures	All roadways are free from failures.	24 hrs	28 days	6 months	Instances of failures exceeding the failure criteria set forth in the TxDOT PMIS Rater's Manual, including potholes, base failures, punchouts and jointed concrete pavement failures	Occurrence of any failure	Nil

ATTACHMENT 19-1
PERFORMANCE AND MEASUREMENT TABLE DURING CONSTRUCTION

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	DEFECT REMEDY PERIOD			INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
	1.4	Edge drop-offs	All roadways are free from edge drop-offs	24 hrs	28 days	6 months	Physical measurement of edge drop-off level compared to adjacent surface	Instances of edge drop-off greater than 2"	Nil
	1.5	Skid resistance	All roadways have adequate skid resistance Road Users warned of potential skidding hazards	24 hrs	7 days	N/A	Skid resistance will not be measured	 Instances where road Users warned of potential skidding hazard	 100%
	1.6	Crossovers and other paved areas	Crossovers and other paved areas are free of defects based on visual survey	24 hrs	28 days	6 months	Instances of failures exceeding the failure criteria set forth in the TxDOT PMIS Rater's Manual, including potholes, base failures, punchouts and jointed concrete pavement failures	Occurrence of any failure N/A	Nil
	1.7	Joints in concrete	Joints in concrete paving are sealed and watertight Longitudinal joint separation	24 hrs	28 days	6 months	Visual inspection of joints Measurement of joint width and level difference of two sides of joints	Length of unsealed joints greater than ¼" Joint width more than 1" or faulting more than ¼"	Nil Nil

ATTACHMENT 19-1
PERFORMANCE AND MEASUREMENT TABLE DURING CONSTRUCTION

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	DEFECT REMEDY PERIOD			INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
2) DRAINAGE									
	2.1	Pipes, ditches, channels, catch basins, inlets, manholes and outfalls	Each element of the drainage system is maintained in its proper function by cleaning, clearing and/or emptying as appropriate including any vegetation, debris and silt from the point at which water drains from the travel way to the outfall or drainage way.	24 hrs	28 days	6 months	Visual inspection following heavy rain	Identify areas of water back-up	Nil
	2.2	Drainage treatment devices	Drainage treatment and balancing systems, flow and spillage control devices function correctly and their location and means of operation is recorded adequately to permit their correct operation in Emergency.	24 hrs	28 days	6 months	Visual inspection	Devices functioning correctly with means of operation displayed	100%
	2.3	Travel way	The travel way is free from water to the extent that such water would represent a hazard because of its position or depth.	24 hrs	28 days	6 months	Visual inspection of water on surface	Instances of hazardous water build-up	Nil
	2.4	Discharge systems	Surface water discharge systems perform their proper function and discharge to groundwater and waterways complies with the relevant legislation and permits.	24 hrs	28 days	6 months	Visual inspection and records	Instances of noncompliance with legislation and permits	Nil
	2.5	Protected species	Named species and habitats are protected.	24 hrs	28 days	6 months	Visual inspection	Compliance with the requirement	100%
	2.6	Erosion	Address erosion greater than 12” deep along ditches, swales, ponds, and channels	24 hrs	28 days	3 months	Visual inspection and records	Compliance with the requirement	100%

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	DEFECT REMEDY PERIOD			INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
	2.7	Channels and ditches – Permanent Erosion Control Measures	Where permanent erosion control measures such as rock or concrete riprap are utilized: repair undermined or damaged erosion control measures	24 hrs	28 days	3 months	Visual inspection	Inspection records showing compliance	100%
3) STRUCTURES									
	3.1	Structure components (Structures having an opening measured along the center of the roadway of more than 20 feet between undercopings of abutments or springlines of arches or extreme ends of openings or multiple boxes)	(i) Substructures and superstructures are free of: • undesirable vegetation • debris and bird droppings • blocked drains, weep pipes manholes and chambers • blocked drainage holes in structural components • defects in joint sealants • defects in pedestrian protection measure • scour damage • corrosion of rebar • paint system failures • impact damage (ii) Expansion joints free of: • dirt, debris and vegetation • defects in drainage systems • loose nuts and bolts • defects in gaskets (iii) The deck drainage system is free of all debris and operates as intended. (iv) Parapets free of:	24 hrs	28 days	6 months	Inspection and assessment in accordance with the requirements of federal National Bridge Inspection Standards (NBIS) of the Code of Federal Regulations, 23 Highways – Part 650, the TxDOT Bridge Inspection Manual, and the Federal Highway Administration's Bridge Inspector's Reference Manual.	Records as required in the TxDOT Bridge Inspection Manual Occurrences of condition rating below seven (7) for any deck, superstructure or substructure	100% Nil

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	DEFECT REMEDY PERIOD			INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
	3.1 cont.	•	loose nuts and bolts • blockages of hollow section drain holes • graffiti • vegetation • accident damage (v) Bearings and bearing shelves are clean. (vi) Sliding and roller surfaces are clean and greased to ensure satisfactory performance. Additional advice contained in bearing manufacturers' instructions in the Structure Maintenance Manual is followed. (vii) Special finishes are clean and perform to the appropriate standards. (viii) All non-structural items such as hoists and electrical fixings, operate correctly, are clean and lubricated as appropriate, in accordance with the manufacturer's recommendations and certification of lifting devices is maintained.	24 hrs	28 days	6 months			
	3.2	Non-bridge class culverts	Non-bridge-class culverts are free of: • vegetation and debris and silt • defects in sealant to movement joints • scour damage	24 hrs	28 days	6 months	Visual inspection	Number with vegetation, debris and silt Number with defects in sealant and movement joints Number with scour damage	Nil Nil Nil

ATTACHMENT 19-1
PERFORMANCE AND MEASUREMENT TABLE DURING CONSTRUCTION

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	DEFECT REMEDY PERIOD			INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
	3.3	Load ratings	All structures maintain the design load capacity.	24 hrs	28 days	6 months	Load rating calculations in accordance with the Manual for Bridge Evaluation and the TxDOT Bridge Inspection Manual. Load restriction requirements as per the TxDOT Bridge Inspection Manual	Number of load restrictions for Texas legal loads (including legally permitted vehicles)	Nil
	3.4	Gantries and high masts	Sign signal gantries, high masts are structurally sound and free of: • loose nuts and bolts • defects in surface protection systems	24 hrs	28 days	6 months	Visual inspection	Number with loose assemblies Number with defects in surface protection	Nil Nil
	3.5	Access points	All hatches and points of access have fully operational and lockable entryways.	24 hrs	28 days	6 months	Visual inspection	Number of Defects in locks or entryways	Nil
	3.6	Mechanically stabilized earth and retaining walls	Mechanically stabilized earth and retaining walls free of: • blocked weep holes • undesirable vegetation • defects in joint sealants • defects in pedestrian protection • scour damage • corrosion of reinforcing bars • paint system failure • concrete spalling • impact damage Parapets free of: • loose nuts and bolts	24 hrs	28 days	6 months	Perform inspection and assessment using Good Industry Practice of all mechanically stabilized earth and retaining walls	Mechanically stabilized earth and retaining walls are 95% free of blocked weep holes, undesirable vegetation, defects in joint sealants, defects in pedestrian protection, scour damage, corrosion of reinforcing bars, paint system failure, concrete spalls and impact damage Number of parapet areas with loose nuts & bolts, blockage, undesirable vegetation, impact damage or concrete spalling in the Performance Section.	100% Nil

ATTACHMENT 19-1
PERFORMANCE AND MEASUREMENT TABLE DURING CONSTRUCTION

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	DEFECT REMEDY PERIOD			INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
	3.6 cont.		blockage of drain holes • undesirable vegetation • impact damage • concrete spalling	24 hrs	28 days	6 months			
	3.7	Sound walls •	(i) Sound walls act as designed and serve the purpose for which they were intended. (ii) Integrity and structural condition of the sound wall is maintained. (iii)Sound walls are free of: • blocked weep holes • undesirable vegetation • defects in joint sealants • defects in pedestrian protection • scour damage • corrosion of reinforcing bars • paint system failure • concrete spalling • impact damage	24 hrs	28 days	6 months	(i) Visual inspection (ii) Structural assessment if visual inspection warrants (iii) Visual Inspection	Inspection records showing compliance in each Performance Section Inspection records showing compliance in each Performance Section Inspection records showing compliance in each Performance Section	100% 100% 100%
4) PAVEMENT MARKINGS, OBJECT MARKERS, BARRIER MARKERS AND DELINEATORS									
	4.1	Pavement markings	Pavement markings are: • clean and visible during the day and at night • whole and complete and of the correct color, type, width and length • placed to meet the TMUTCD and TxDOT's Pavement Marking Standard Sheets	24 hrs	28 days	6 months	a) Markings - General Visual inspection at 300 ft with low beams as per earlier TxDOT practice Physical measurement	Length found defective Length with more than 5% loss of area of material at any point Length with spread more than 10%	Nil Nil Nil

ATTACHMENT 19-1
PERFORMANCE AND MEASUREMENT TABLE DURING CONSTRUCTION

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	DEFECT REMEDY PERIOD			INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
	4.1 cont.			24 hrs	28 days	6 months		of specified dimensions.	
							b) Profile Markings Visual inspection	Length performing its intended function and compliant with relevant regulations	100%
	4.2	Raised reflective markers	Raised reflective pavement markers are: • clean and clearly visible • of the correct color and type • reflective or retroreflective as per TxDOT standard • correctly located, aligned and at the correct level • are firmly fixed • are in a condition that will ensure that they remain at the correct level.	24 hrs	28 days	6 months	Visual inspection	Number of markers associated with road markings that are ineffective in any 10 consecutive markers. (Ineffective includes missing, damaged, settled or sunk) A minimum of four markers should be visible at 80’ spacing when viewed under low beam headlights Uniformity (replacement raised reflective pavement markers have equivalent physical and performance characteristics to adjacent markers).	Nil 100% 100%
	4.3	Delineators & markers	Object markers, mail box markers and delineators are: • clean and visible • of the correct color and type • legible and reflective • straight and vertical	24 hrs	28 days	6 months	Visual inspection	Less than 5% of object markers or delineators defective or missing	100%

ATTACHMENT 19-1
PERFORMANCE AND MEASUREMENT TABLE DURING CONSTRUCTION

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	DEFECT REMEDY PERIOD			INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
5) CURBS, GUARDRAILS, SAFETY BARRIERS AND IMPACT ATTENUATORS									
	5.1	Curbs	Curbs are free of cracks, chips and separation and are in good alignment.	24 hrs	28 days	6 months	Visual inspection	Continuous curb lengths where more than 10% of the length has defects such as cracks and chips	Nil
							Physical measurement	Continuous curb lengths where more than 5% of the length has a separation exceeding 0.25" between curb face and adjacent roadway surface	Nil
							10 feet straight edge will be used to measure each curb alignment	Deviation from original alignment greater than 1”	Nil
	5.2	Guard rails and safety barriers	All guardrails, safety barriers, and concrete barriers are maintained free of Defects. They are appropriately placed and correctly installed at the correct height and distance from roadway or obstacles. Installation and repairs shall be carried out in accordance with the requirements of NCHRP 350 standards.	24 hrs	28 days	6 months	Visual inspection	Length of road restraint systems correctly installed	100%
								Length free from defects	100%
								Length at correct height	100%
								Length at correct distance from roadway and obstacle	100%
	5.3	Impact attenuators	All impact attenuators are appropriately placed, correctly installed, and free of damage.	24 hrs	7 days	6 months	Visual inspection	Number correctly placed and installed	100%
6) TRAFFIC SIGNS									
	6.1	General – All signs	(i) Signs are clean, correctly located, clearly visible, legible, reflective, at the correct height and free from structural and electrical defects	24 hrs	28 days	6 months	a) Retroreflectivity Visual inspection at 300 ft with low beams as per earlier TxDOT practice	Number of signs found nonreflective	Nil

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	DEFECT REMEDY PERIOD			INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
	6.1 cont.	(ii)	Identification markers are provided, correctly located, visible, clean and legible (iii) Sign mounting posts are vertical, structurally sound and rust free (iv) All break-away sign mounts are clear of silt or other debris that could impede break-away features and shall have correct stub heights (v) Obsolete and redundant signs are removed or replaced as appropriate (vi) Visibility distances meet the stated requirements (vii) Sign information is of the correct size, location, type and wording to meet its intended purpose and any statutory requirements (viii) All structures and elements of the signing system are kept clean and free from debris and have clear access provided. (ix) All replacement and repair materials and equipment are in accordance with the requirements of the TMUTCD	24 hrs	28 days	6 months	b) Face damage Visual inspection c) Placement Visual inspection d) Sign Information Visual inspection	Number of signs with face damage greater than 5% of area Signs are placed in accordance with TxDOT's Sign Crew Field Book including not twisted or leaning Sign information is of the correct size, location, type and wording to meet its intended purpose	Nil 100% 100%
	6.2	General - Safety	Requirements as 6.1, Plus:	2 hrs	7 days	N/A	Visual inspection	Number of damaged safety critical	Nil

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	DEFECT REMEDY PERIOD			INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
	6.2 cont.	critical signs	"Stop," "Yield," "Do Not Enter," "One Way" and "Wrong Way" signs are clean legible and undamaged.	2 hrs	7 days	N/A		signs	
7) TRAFFIC SIGNALS									
	7.1	General	(i) Traffic Signals and their associated equipment are: • clean and visible • correctly aligned and operational • free from damage caused by accident or vandalism (ii) Signal timing and operation is correct (iii) Contingency plans are in place to rectify Category 1 defects not immediately repairable to assure alternative traffic control is provided during a period of failure	2 hrs	24 hrs	6 months	a) General condition Visual inspection b) Damage Visual inspection c) Signal timing Timed measurements d) Contingency plans Records review	Signals are clean and visible Signals are undamaged Installations have correct signal timings Full contingency plans are in place	100% 100% 100% 100%
	7.2	Soundness	Traffic signals are structurally and electrically sound	24 hrs	28 days	6 months	a) Structural soundness Visual inspection b) Electrical soundness Testing to meet NEC regulations	Inspection records showing safe installation and maintenance	100%
	7.3	Identification marking	Signals have identification markers and the telephone number for reporting faults are correctly located, clearly visible, clean and legible	N/A	28 days	6 months	Visual inspection	Inspection records showing identification markers and other information are easily readable	100%

100%

ATTACHMENT 19-1
PERFORMANCE AND MEASUREMENT TABLE DURING CONSTRUCTION

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	DEFECT REMEDY PERIOD			INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
	7.4	Pedestrian elements and vehicle detectors	All pedestrian elements and vehicle detectors are correctly positioned and fully functional at all times	24 hrs	28 days	6 months	Visual Inspection	Inspection records showing compliance	100%
8) LIGHTING									
	8.1	Roadway lighting – General	(i) All lighting is free from defects and provides acceptable uniform lighting quality (ii) Lanterns are clean and correctly positioned (iii) Lighting units are free from accidental damage or vandalism (iv) Columns are upright, correctly founded, visually acceptable and structurally sound	24 hrs	28 days	6 months	a) Mainlane lights operable Night time inspection or automated logs b) Mainlane lights out of action Night time inspection or automated logs	Performance Sections with less than 90% of lights functioning correctly at all times Instances of more than two consecutive lights not functioning	Nil Nil
	8.2	Sign lighting	Sign lighting is fully operational	24 hrs	28 days	6 months	Night time inspection or automated logs	Instances of more than one bulb per sign not working	Nil
	8.3	Electrical supply	Electricity supply, feeder pillars, cabinets, switches and fittings are electrically, mechanically and structurally sound and functioning	24 hrs	7 days	28 days	Testing to meet NEC regulations, visual inspection	Inspection records showing safe installation and maintenance	100%
	8.4	Access panels	All access panels in place at all times.	24 hrs	7 days	28 days	Visual inspection	Instances of missing access panels	Nil
	8.5	High mast lighting	(i) All high mast luminaries functioning on each pole (ii) All obstruction lights are present and working (if required)	24 hrs	7 days	28 days	Night time inspections or automated logs	Instances of two or more lamps not working per high mast pole	Nil

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	DEFECT REMEDY PERIOD			INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
	8.5 cont.		(iii) Compartment door is secure with all bolts in place (iv) All winch and safety equipment are correctly functioning and maintained without rusting or corrosion (for structural requirements refer to Element Category 3)	24 hrs	7 days	28 days		Identification of other defects	Nil
9) FENCES AND SOUND ABATEMENT (EXCLUDING SOUND WALLS)									
	9.1	Design and location	Fences act as designed and serve the purpose for which they were intended	24 hrs	28 days	6 months	Visual inspection	Inspection records showing compliance in each Performance Section	100%
	9.2	Construction - fences	Integrity and structural condition of the fence is maintained	24 hrs	28 days	6 months	Structural assessment if visual inspection warrants	Inspection records showing compliance in each Performance Section	100%
	9.4	Operation	Fences, and sound abatement elements free of: • blocked weep holes • undesirable vegetation • defects in joint sealants • defects in pedestrian protection • scour damage • corrosion of reinforcing bars • paint system failure • concrete spalling • impact damage	24 hrs	28 days	6 months	Structural assessment if visual inspection warrants	Inspection records showing compliance in each Performance Section	100%
10) ROADSIDE MANAGEMENT									

ATTACHMENT 19-1
PERFORMANCE AND MEASUREMENT TABLE DURING CONSTRUCTION

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	DEFECT REMEDY PERIOD			INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
	10.1	Vegetated areas – Except landscaped areas – General	Vegetation is maintained so that: (i) Height of grass and weeds is kept within the limits described for rural areas. Mowing begins before vegetation reaches the maximum height. (ii) Spot mowing at intersections, ramps or other areas maintains visibility of appurtenances and sight distance. (iii) Grass or vegetation does not encroach into or on paved shoulders, mainlanes, sidewalks, islands, riprap, traffic barrier or curbs. (iv) A herbicide program is undertaken in accordance with the TxDOT Herbicide Manual to control noxious weeds and to eliminate grass in pavement or concrete. (v) A full width mowing cycle is completed after the first frost (vi) Wildflowers are preserved utilizing the guidelines in the mowing specifications and TxDOT Roadside Vegetation Manual.	24 hrs	7 days	28 days	a) Rural areas Physical measurement of height of grass and weeds b) Encroachment Visual inspection of instances of encroachment of vegetation c) Wildflowers Visual inspection with audit of process. d) Sight lines Visual inspection	Individual measurement areas to have 95% of height of grass and weeds between 5” and 30” Occurrences of vegetation encroachment in each Performance Section Adherence to vegetation management manuals Instances of impairment of sight lines or sight distance to signs	100% Nil 100% Nil
	10.2	Landscaped areas	(i) All landscaped areas are maintained to their originally	24 hrs	7 days	28 days	Visual inspection	Inspection records showing compliance	100%

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	DEFECT REMEDY PERIOD			INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
	10.2 cont.		constructed condition. Landscaped areas are as designated in the Plans. (ii) Mowing, litter pickup, irrigation system maintenance and operation, plant maintenance, pruning, insect, disease and pest control, fertilization, mulching, bed maintenance, watering is undertaken as per MMP. (iii) The height of grass and weeds is kept between 2“ and 8”. Mowing begins before vegetation reaches 8”. (iv) Damaged or dead vegetation is replaced.	24 hrs	7 days	28 days			
	10.3	Fire hazards	Fire hazards are controlled	24 hrs	7 days	28 days	Visual inspection	Instances of dry brush or vegetation forming fire hazard	Nil
	10.4 10.4 cont.	Trees, brush and ornamentals	(i) Trees, brush and ornamentals on the right of way, except in established no mow areas, are trimmed in accordance with TxDOT standards. (ii) Trees, brush and ornamentals are trimmed to insure they do not interfere with vehicles or sight distance, or inhibit the visibility of signs.	24 hrs 24 hrs	7 days 7 days	28 days 28 days	Visual inspection	Inspection records showing compliance	100%

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	DEFECT REMEDY PERIOD			INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
			(iii) Dead trees, brush, ornamentals and branches are removed. Potentially dangerous trees or limbs are removed. (iv) All undesirable trees and vegetation are removed. Diseased trees or limbs are treated or removed by licensed contractors.						
	10.5	Wetlands	Wetlands are managed in accordance with the permit requirements	24 hrs	7 days	28 days	Visual inspection, assessment of permit issuers	Instances of permit requirements not met	Nil
	10.6	Sidewalks and pedestrian curb ramps	Maintain at a standard to be free of defects as follows: (i) unsealed cracks or joints (ii) broken sections (iii) vertical displacement or misalignment	24 hrs	7 days	28 days	Visual inspection	Inspection records showing compliance with TxDOT Design Standards and Americans with Disabilities Act (ADA) requirements.	100%
11) REST AREAS AND PICNIC AREAS (Not Used)									
12) EARTHWORKS, EMBANKMENTS AND CUTTINGS									
	12.1	Slope failure	All structural or natural failures of the embankment and cut slopes of the Project are repaired	24 hrs	28 days	6 months	Visual inspection by geotechnical specialist and further tests as recommended by the specialist	Recorded instances of slope failure	Nil
	12.2	Slopes - General	Slopes are maintained in general conformance to the original graded cross-sections, the replacement of landscaping materials, reseeding and re-vegetation for erosion control purposes and removal and disposal of all eroded materials from the roadway and shoulders	24 hrs	28 days	6 months	Visual inspection	Inspection records showing compliance	100%

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	DEFECT REMEDY PERIOD			INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
	12.3	Slopes – Erosion	Slopes are maintained to prevent erosion leading to further deterioration	24 hrs	28 days	3 months	Visual inspection	Length of erosion greater than six inches (> 6") deep	Nil
	12.4	Slopes - Permanent Erosion Control Measures	Where permanent erosion control measures such as rock or concrete riprap are utilized: repair undermined or damaged erosion control measures	24 hrs	28 days	3 months	Visual inspection	Inspection records showing compliance	100%
13) ITS EQUIPMENT									
	13.1	ITS Equipment	All ITS equipment is fully functional and housing is functioning and free of defects. (i) All equipment and cabinet identification numbers are visible, sites are well drained and access is clear (ii) Steps, handrails and accesses are kept in a good condition (iii) Access to all communication hubs, ground boxes, cabinets and sites is clear (iv) All drainage is operational and all external fixtures and fittings are in a satisfactory condition (v) All communication cable markers, cable joint markers and duct markers are visible and	24 hrs	14 days	28 days	Visual inspection	Inspection records showing compliance with requirements for maintenance of ITS equipment in each Performance Section.	100%

ATTACHMENT 19-1
PERFORMANCE AND MEASUREMENT TABLE DURING CONSTRUCTION

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	DEFECT REMEDY PERIOD			INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
	13.1 cont.		missing markers are replaced (vi) Backup power supply system is available at all times	24 hrs	14 days	28 days			
	13.2	Dynamic message sign equipment	Dynamic message signs are free from faults such as: (i) Any signal displaying a message which is deemed to be a safety hazard (ii) Failure of system to clear sign settings when appropriate. (iii) 2 or more contiguous sign failures that prevent control office setting strategic diversions (iv) Signs displaying an incorrect message.	2 hrs	24 hrs	14 days	Defect measurement dependent on equipment	Inspection records showing compliance	100%
	13.3 13.3	CCTV equipment	CCTV Systems are free from faults that limit the availability of the operators to monitor the area network, such as: (i) Failure of CCTV Systems to provide control offices with access and control of CCTV images (ii) Failure of a CCTV camera or its video transmission system.	2 hrs	24 hrs 24 hrs	14 days	Defect measurement dependent on equipment	Inspection records showing compliance	100%

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	DEFECT REMEDY PERIOD			INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
	cont		(iii) Failure of a pan / tilt unit or its control system. (iv) Moisture ingress onto CCTV camera lens (v) Faults that result in significant degradation of CCTV images	2 hrs		14 days			
	13.4	Vehicle detection equipment	All equipment free of defects and operational problems such as; (i) Inoperable loops. (ii) Malfunctioning camera controllers.	2 hrs	24 hrs	28 days	Defect measurement dependent on equipment Traffic detector loops: Loop circuit's inductance to be > 50 and < 1,000 micro henries. Insulation resistance to be > 50 meg ohms.	Inspection records showing compliance Instances of loops out of compliance	100% Nil
14) TOLLING Facilities and Buildings (Not Used)									

ATTACHMENT 19-1
PERFORMANCE AND MEASUREMENT TABLE DURING CONSTRUCTION

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	DEFECT REMEDY PERIOD			INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
15) AMENITY									
	15.1	Graffiti	Graffiti is removed in a manner and using materials that restore the surface to a like appearance similar to adjoining surfaces	4 hrs	7 days	N/A	All graffiti is considered a Category 1 defect.	Inspection records showing compliance	100%
	15.2	Animals	All dead or injured animals are removed	2 hrs	N/A	N/A	Visual inspection	No dead or injured animals are present	100%
	15.3	Abandoned vehicles and equipment	All abandoned vehicles and equipment are removed	1 hr	3 days	N/A	Visual inspection	No abandoned vehicles or equipment present	100%
16) SNOW AND ICE CONTROL									
	16.1	Travel lanes	Maintain travel way free from snow and ice	1 hr or 2 hrs as noted.	N/A	N/A	Maximum 1 hr response time to complete manning and loading of spreading vehicles Maximum 2 hrs from departure from loading point to complete treatment and return to loading point Maximum 1 hr response time for snow and ice clearance vehicles to depart from base	Inspection records showing compliance	100%
	16.2	Weather forecasting	Weather forecast information is obtained and assessed and appropriate precautionary treatment is carried out to prevent ice forming on the travel way	2 hrs	N/A	N/A	MMP details the process and procedures in place and followed	Inspection records showing compliance	100%

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	DEFECT REMEDY PERIOD			INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
	16.3	Snow and ice control	Operate snow and ice clearance plans to maintain traffic flows during and after precipitation resulting in snowfall or ice and restore the travel way to a clear condition as soon as possible.	2 hrs	N/A	N/A	MMP details the process and procedures in place and followed	Inspection records showing compliance	100%
17) INCIDENT RESPONSE									
	17.1	General	Respond to Incidents in accordance with the MMP.	1 hr	N/A	N/A	Response times met for 98% of Incidents measured on a 1 year rolling basis. No complaints from Emergency Services.	Inspection records showing compliance	100%
	17.2	Hazardous Materials	For any Hazardous Materials spills, comply with the requirements of the MMP.	1 hr	N/A	N/A	MMP details the process and procedures in place and followed.	Inspection records showing compliance	100%
	17.3	Structural assessment	Evaluate structural damage to structures and liaise with Emergency Services to ensure safe working in clearing the Incident	1 hr	N/A	N/A	Inspections and surveys as required by Incident	Inspection reports showing compliance	100%
	17.4	Temporary and permanent remedy	Propose and implement temporary measures and permanent remedies or repairs to Defects arising from the Incident. Ensure the structural safety of any structures affected by the Incident	24 hrs	28 days	N/A	Review and inspection of the Incident site	Performance Section inspection records showing compliance	100%

ATTACHMENT 19-1
PERFORMANCE AND MEASUREMENT TABLE DURING CONSTRUCTION

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	DEFECT REMEDY PERIOD			INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
18) CUSTOMER RESPONSE									
	18.1	Response to inquiries	Timely and effective response to customer inquiries and complaints.	48 hrs	14 days	N/A	Contact the customer within 48 hours following initial customer inquiry. All work resulting from customer requests is scheduled within 48 hours of customer contact. Follow-up contact with the customer within 72 hours of initial inquiry. All customer concerns/requests are resolved to TxDOT's satisfaction within 2 weeks of the initial inquiry.	Number of responses within specified times	100%
	18.2	Customer contact line	Telephone line manned during business hours and 24 hour availability of messaging system. Faults to telephone line or message system rectified	24 hrs	N/A	N/A	Instances of line out of action or unmanned	Operations records showing non availability including complaints from public.	Nil
19) SWEEPING AND CLEANING									
	19.1	Obstructions and debris	Roadway and clear zone free from obstructions and debris including at a minimum objects, luminaire poles, and tires.	2 hrs	N/A	N/A	Visual Inspection	Number of obstructions and debris	Nil

ATTACHMENT 19-1
PERFORMANCE AND MEASUREMENT TABLE DURING CONSTRUCTION

ELEMENT CATEGORY	REF	ELEMENT	PERFORMANCE REQUIREMENT	DEFECT REMEDY PERIOD			INSPECTION AND MEASUREMENT METHOD	MEASUREMENT RECORD	TARGET
				Cat 1 Hazard Mitigation	Cat 1 Permanent Remedy	Cat 2 Permanent Repair			
	19.2	Sweeping	(i) Keep all channels, hard shoulders, gore areas, ramps, intersections, islands and frontage roads swept clean, (ii) Clear and remove debris from traffic lanes, hard shoulders, verges and central reservations, footways and cycle ways (iii) Remove all sweepings without stockpiling in the right of way and dispose of at approved tip.	24 hrs	3 days	N/A	Buildup of dirt, ice rock, debris, etc. on roadways and bridges not to accumulate greater than 24" wide or 1/2" deep	Inspection records showing compliance	100%
	19.3	Litter	(i) Keep the Project in a neat condition, remove litter regularly (ii) Pick up large litter items before mowing operations. (iii) Dispose of all litter and debris collected at an approved solid waste site.	24 hrs	3 days	N/A	No more than 20 pieces of litter per roadside mile shall be visible when traveling at highway speed.	Inspection records showing compliance	100%

NOTES FOR PERFORMANCE AND MEASUREMENT TABLE DURING CONSTRUCTION

[1] "Cat 1 Hazard Mitigation" shall be an action taken by DB Contractor to mitigate a hazard to Users or imminent risk of damage or deterioration to property or the environment.

[2] "Cat 1 Permanent Remedy" shall be an action taken by DB Contractor to restore the condition of an Element following "Cat 1 Hazard Mitigation" of a Category 1 Defect: (a) to the standard required for new construction; or (b) to a condition such that the Target is achieved for each "Measurement Record".

[3] "Cat 2 Permanent Repair" shall be an action taken by DB Contractor to restore the condition of an Element for which a Category 2 Defect has been recorded: (a) to the standard required for new construction; or (b) to a condition such that the Target is achieved for each "Measurement Record".

TEXAS DEPARTMENT OF TRANSPORTATION

TECHNICAL PROVISIONS

FOR

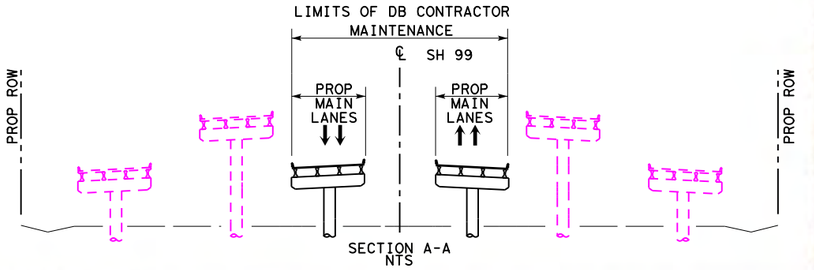
SH 99 GRAND PARKWAY SEGMENTS H, I-1 AND I-2

ATTACHMENT 19-2

O&M LIMITS

RFP ADDENDUM #8

DECEMBER 19, 2016



NOTE: I-69/ US 59 GENERAL PURPOSE LANES AND FRONTAGE ROADS TO BE OPERATED AND MAINTAINED BY TxDOT

BEGIN PROJECT STA 1016+60

1000+00

PROP ROW

PROP ROW

A

1050+00

US 59

B

PROP ROW

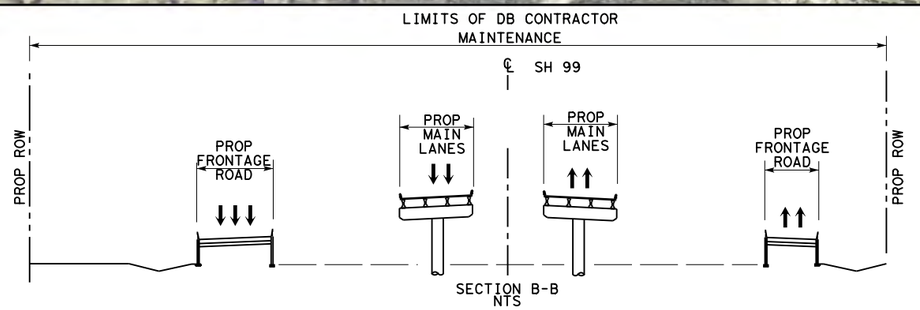
PROP ROW

MATCH LINE STA 1070+00

US 59

A

B



LEGEND

- LIMITS OF DB CONTRACTOR'S CONSTRUCTION, OPERATIONS, AND MAINTENANCE RESPONSIBILITIES
- PROPOSED GRAND PARKWAY
- PROP ROW
- PROP CONTOL OF ACCESS
- EXISTING ROW
- PROPOSED GRAND PARKWAY BY OTHERS

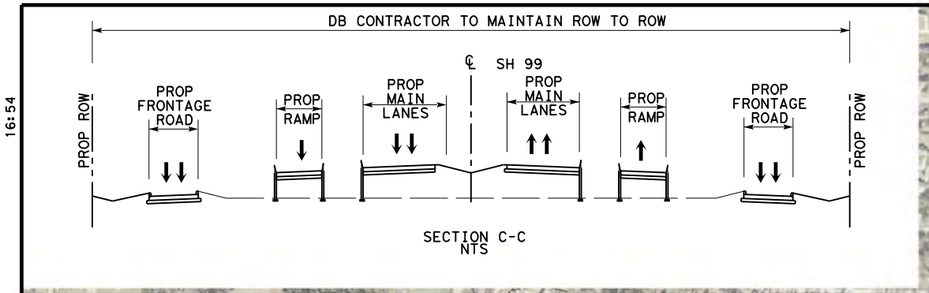
0 200 400 800 (H)

Texas Department of Transportation

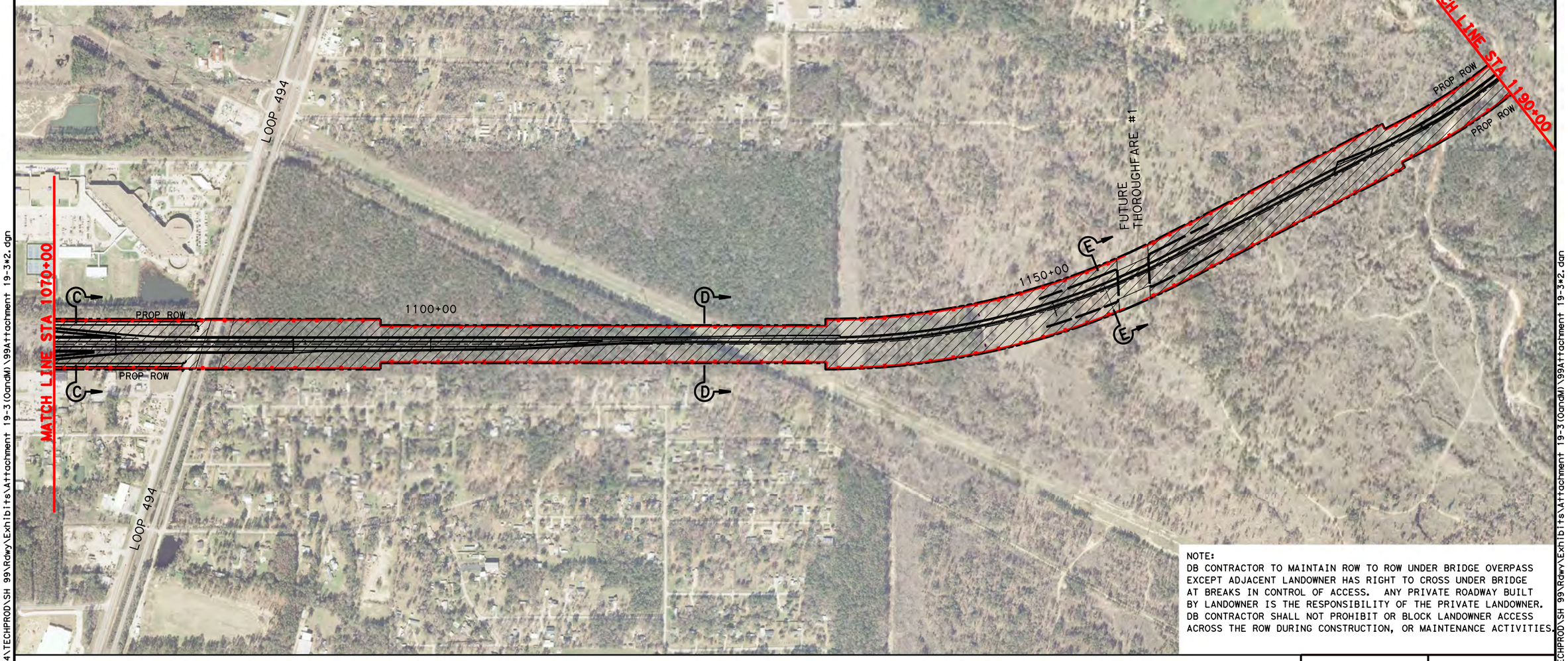
STATE HIGHWAY 99 GRAND PARKWAY H&I

ATTACHMENT 19-2
O & M LIMITS, H & I-1

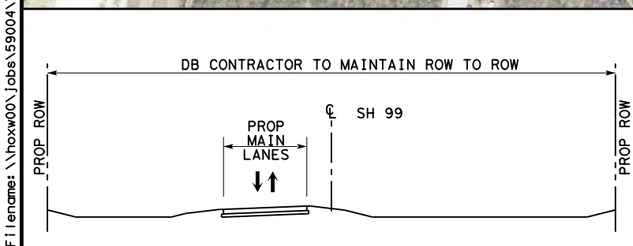
DSN:	FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
CK:	6	TEXAS				SH 99
DRN:	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CK:						1



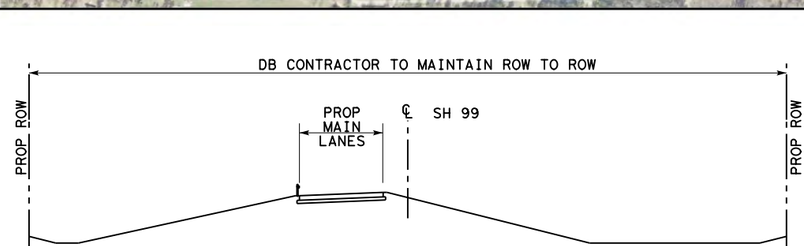
SECTION C-C
NTS



NOTE:
DB CONTRACTOR TO MAINTAIN ROW TO ROW UNDER BRIDGE OVERPASS EXCEPT ADJACENT LANDOWNER HAS RIGHT TO CROSS UNDER BRIDGE AT BREAKS IN CONTROL OF ACCESS. ANY PRIVATE ROADWAY BUILT BY LANDOWNER IS THE RESPONSIBILITY OF THE PRIVATE LANDOWNER. DB CONTRACTOR SHALL NOT PROHIBIT OR BLOCK LANDOWNER ACCESS ACROSS THE ROW DURING CONSTRUCTION, OR MAINTENANCE ACTIVITIES.



SECTION D-D
NTS



SECTION E-E
NTS

LEGEND

LIMITS OF DB CONTRACTOR'S CONSTRUCTION, OPERATIONS, AND MAINTENANCE RESPONSIBILITIES
PROPOSED GRAND PARKWAY
PROP ROW
PROP CONTOL OF ACCESS
EXISTING ROW
PROPOSED GRAND PARKWAY BY OTHERS

0 200 400 800(H)

Texas Department of Transportation

STATE HIGHWAY 99 GRAND PARKWAY H&I

ATTACHMENT 19-2
O & M LIMITS, H & I-1

DSN:	FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
CK:	6	TEXAS				SH 99
DRN:	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CK:						2

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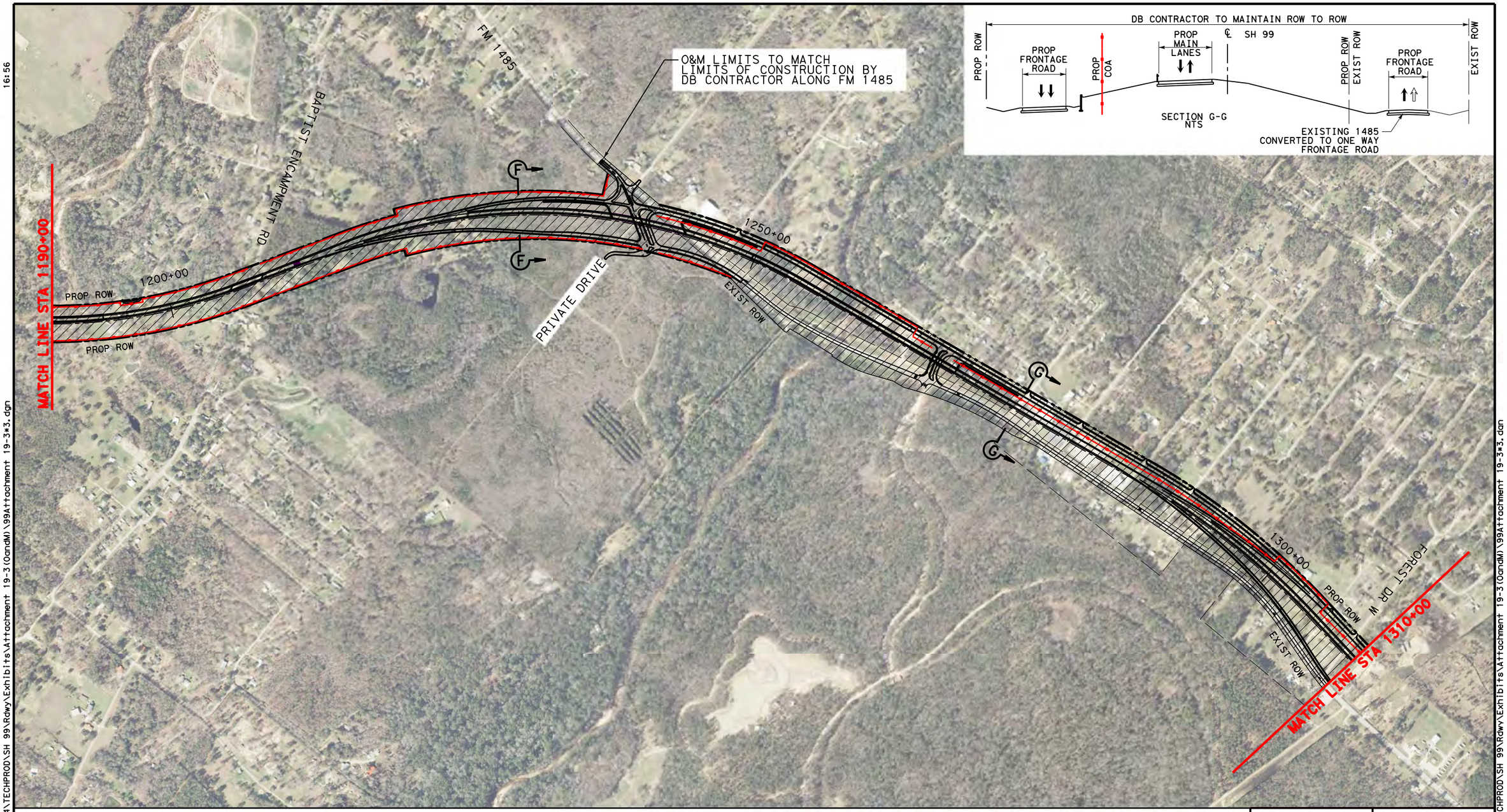

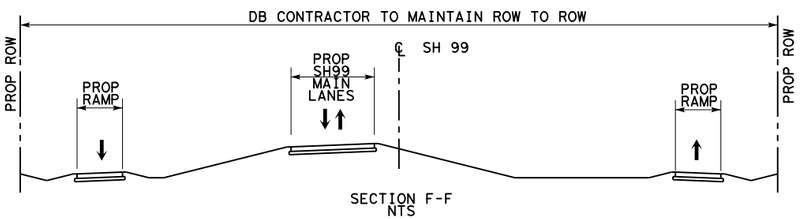

LEGEND

- LIMITS OF DB CONTRACTOR'S CONSTRUCTION, OPERATIONS, AND MAINTENANCE RESPONSIBILITIES
- PROPOSED GRAND PARKWAY
- PROP ROW
- PROP CONTOL OF ACCESS
- EXISTING ROW
- PROPOSED GRAND PARKWAY BY OTHERS

0 200 400 800 (H)

Texas Department of Transportation

STATE HIGHWAY 99 GRAND PARKWAY H&I

ATTACHMENT 19-2
O & M LIMITS, H & I-1

DSN:	FED. RD. DIV. NO.	STATE	PROJECT NO.				HIGHWAY NO.
CK:	6	TEXAS					SH 99
DRN:	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.		SHEET NO.
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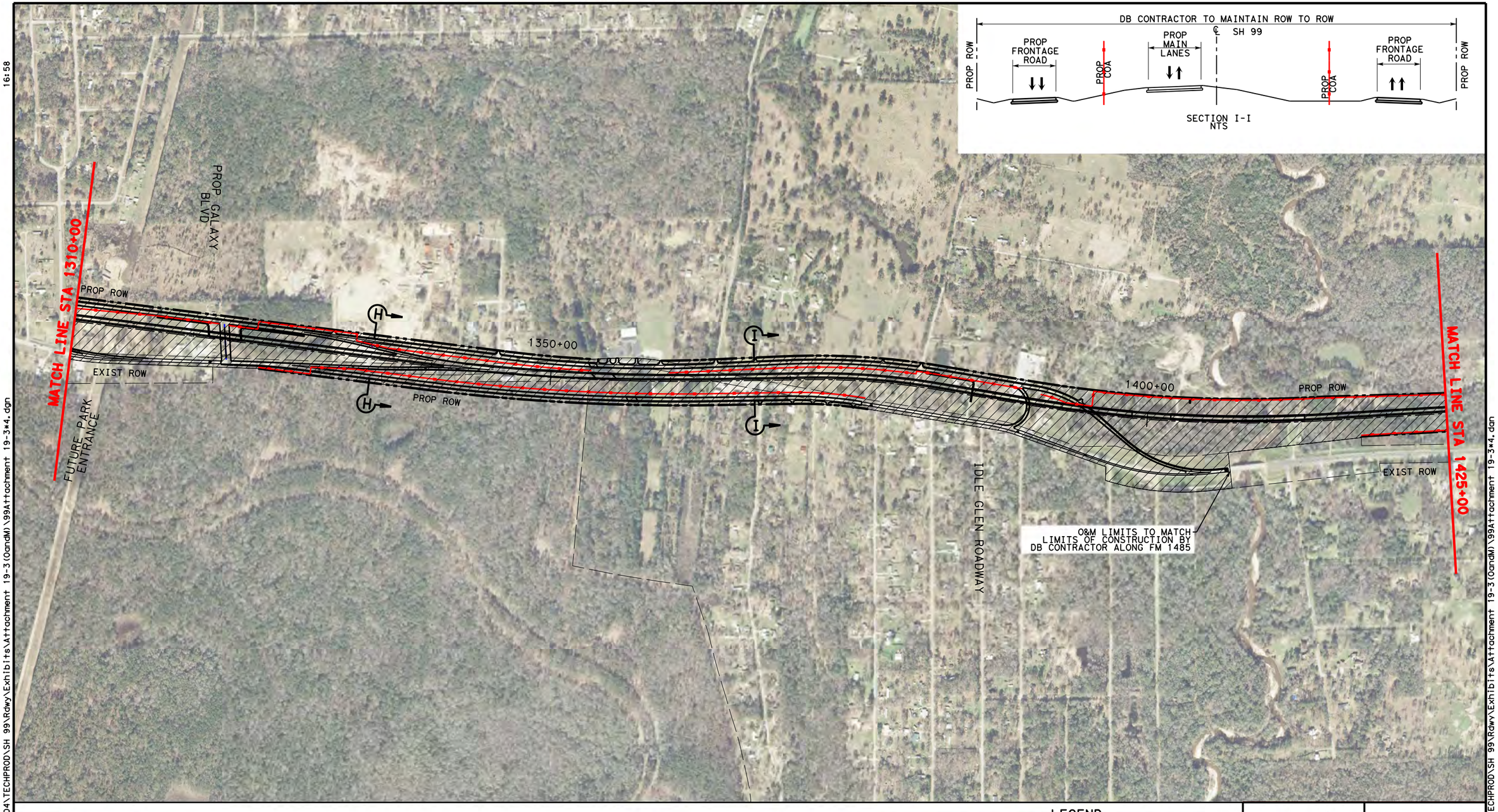

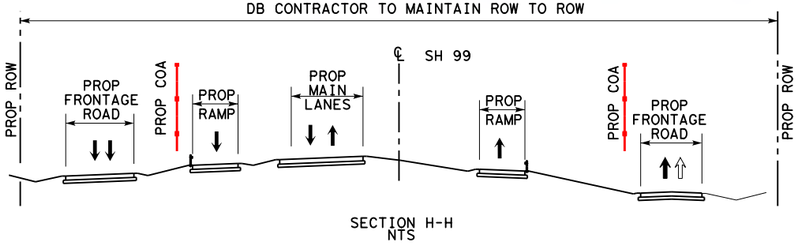

LEGEND

- LIMITS OF DB CONTRACTOR'S CONSTRUCTION, OPERATIONS, AND MAINTENANCE RESPONSIBILITIES
- PROPOSED GRAND PARKWAY
- PROP ROW
- PROP CONTOL OF ACCESS
- EXISTING ROW
- PROPOSED GRAND PARKWAY BY OTHERS

0 200 400 800 (H)

Texas Department of Transportation

STATE HIGHWAY 99 GRAND PARKWAY H&I

ATTACHMENT 19-2
O & M LIMITS, H & I-1

DSN:	FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
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DRN:	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
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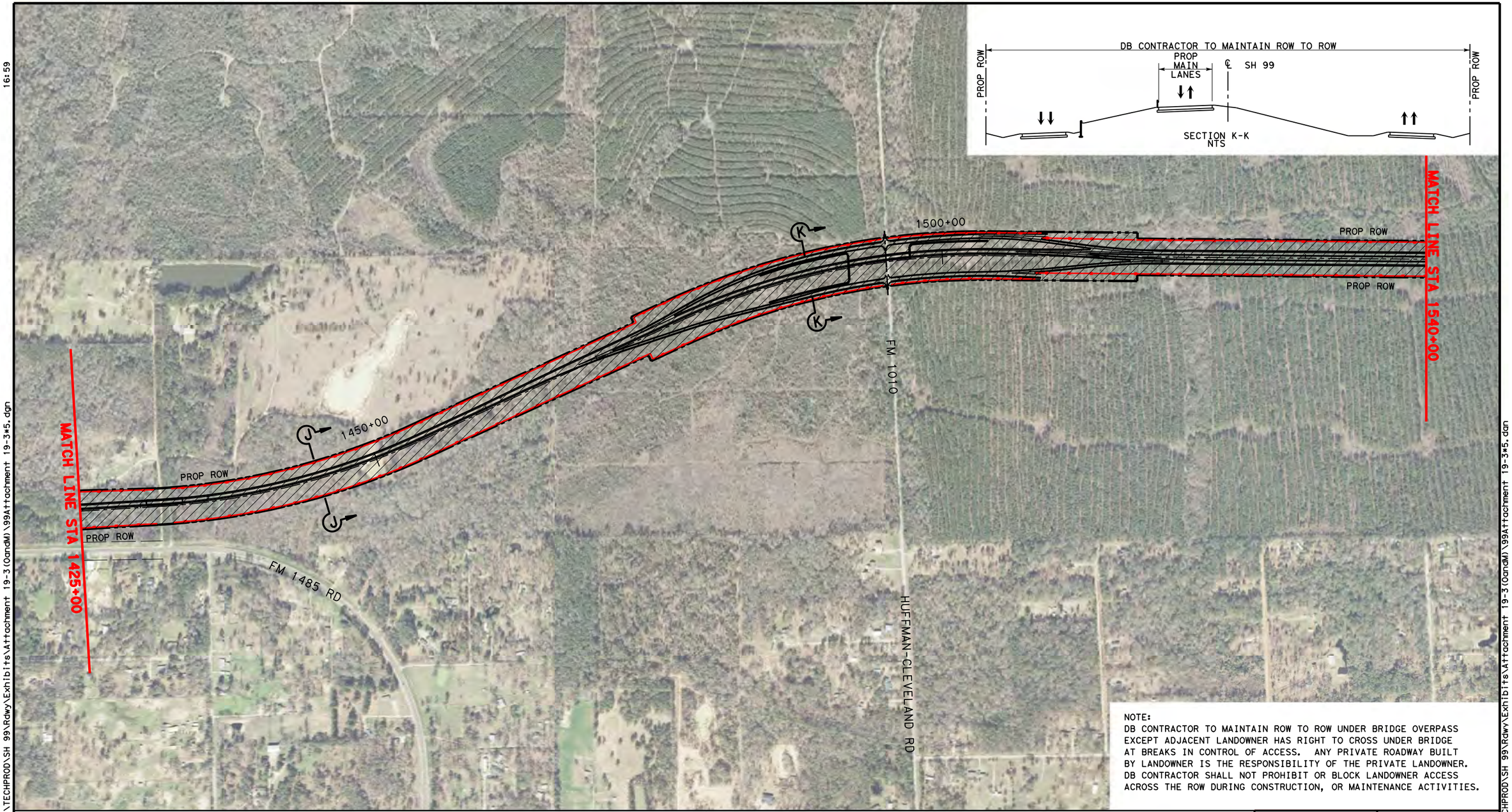
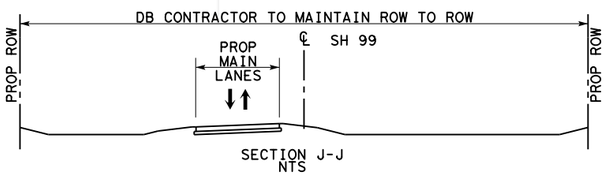


NOTE:
DB CONTRACTOR TO MAINTAIN ROW TO ROW UNDER BRIDGE OVERPASS EXCEPT ADJACENT LANDOWNER HAS RIGHT TO CROSS UNDER BRIDGE AT BREAKS IN CONTROL OF ACCESS. ANY PRIVATE ROADWAY BUILT BY LANDOWNER IS THE RESPONSIBILITY OF THE PRIVATE LANDOWNER. DB CONTRACTOR SHALL NOT PROHIBIT OR BLOCK LANDOWNER ACCESS ACROSS THE ROW DURING CONSTRUCTION, OR MAINTENANCE ACTIVITIES.



LEGEND

- LIMITS OF DB CONTRACTOR'S CONSTRUCTION, OPERATIONS, AND MAINTENANCE RESPONSIBILITIES
- PROPOSED GRAND PARKWAY
- PROP ROW
- PROP CONTOL OF ACCESS
- EXISTING ROW
- PROPOSED GRAND PARKWAY BY OTHERS

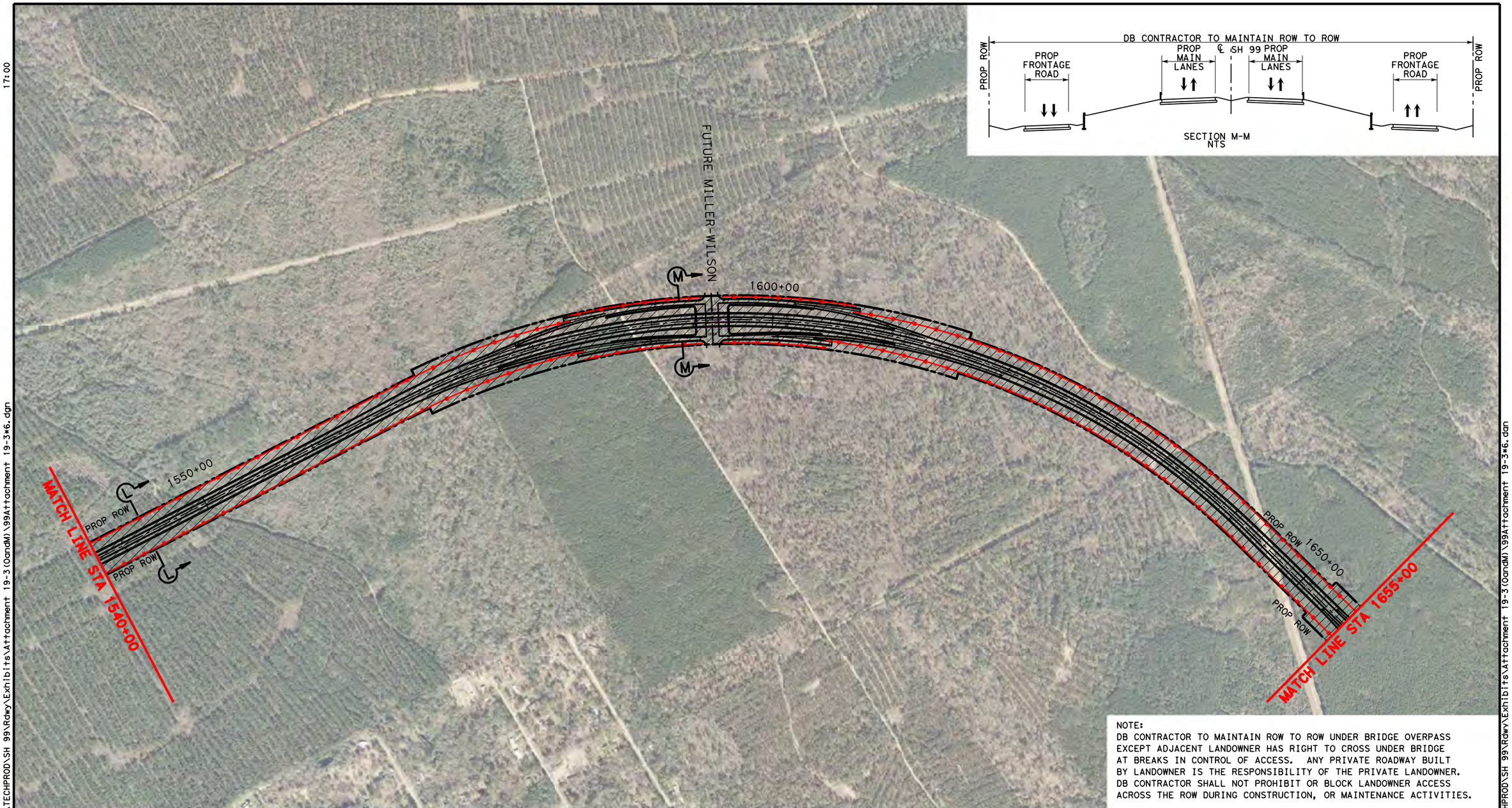
0 200 400 800(H)

Texas Department of Transportation

STATE HIGHWAY 99 GRAND PARKWAY H&I

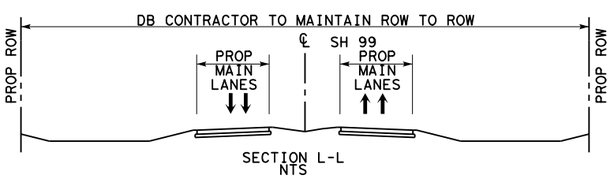
ATTACHMENT 19-2
O & M LIMITS, H & I-1

DSN:	FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
CK:	6	TEXAS				SH 99
DRN:	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CK:						5



SECTION M-M
NTS

NOTE:
DB CONTRACTOR TO MAINTAIN ROW TO ROW UNDER BRIDGE OVERPASS EXCEPT ADJACENT LANDOWNER HAS RIGHT TO CROSS UNDER BRIDGE AT BREAKS IN CONTROL OF ACCESS. ANY PRIVATE ROADWAY BUILT BY LANDOWNER IS THE RESPONSIBILITY OF THE PRIVATE LANDOWNER. DB CONTRACTOR SHALL NOT PROHIBIT OR BLOCK LANDOWNER ACCESS ACROSS THE ROW DURING CONSTRUCTION, OR MAINTENANCE ACTIVITIES.



SECTION L-L
NTS

LEGEND

- LIMITS OF DB CONTRACTOR'S CONSTRUCTION, OPERATIONS, AND MAINTENANCE RESPONSIBILITIES
- PROPOSED GRAND PARKWAY
- PROP ROW
- PROP CONTOL OF ACCESS
- EXISTING ROW
- PROPOSED GRAND PARKWAY BY OTHERS

0 200 400 800(H)

Texas Department of Transportation

STATE HIGHWAY 99 GRAND PARKWAY H&I

ATTACHMENT 19-2
O & M LIMITS, H & I-1

DSN:	FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
CK:	6	TEXAS				SH 99
DRN:	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
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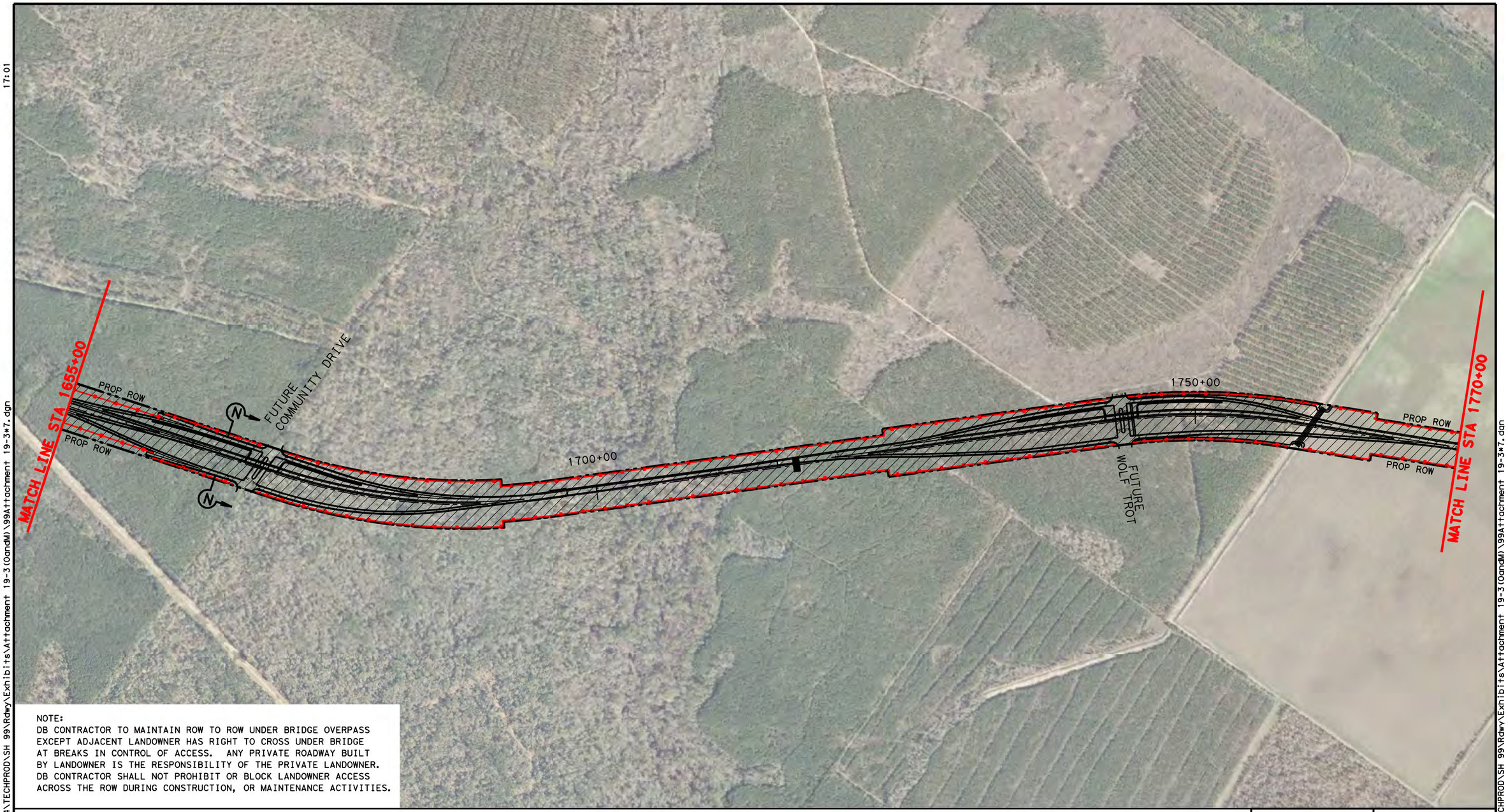

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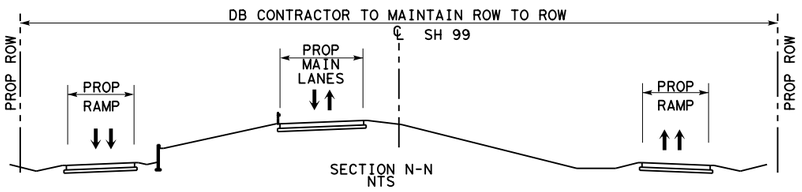

LEGEND

- LIMITS OF DB CONTRACTOR'S CONSTRUCTION, OPERATIONS, AND MAINTENANCE RESPONSIBILITIES
- PROPOSED GRAND PARKWAY
- PROP ROW
- PROP CONTOL OF ACCESS
- EXISTING ROW
- PROPOSED GRAND PARKWAY BY OTHERS

0 200 400 800 (H)

Texas Department of Transportation

STATE HIGHWAY 99 GRAND PARKWAY H&I

ATTACHMENT 19-2
O & M LIMITS, H & I-1

DSN:	FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
CK:	6	TEXAS				SH 99
DRN:	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
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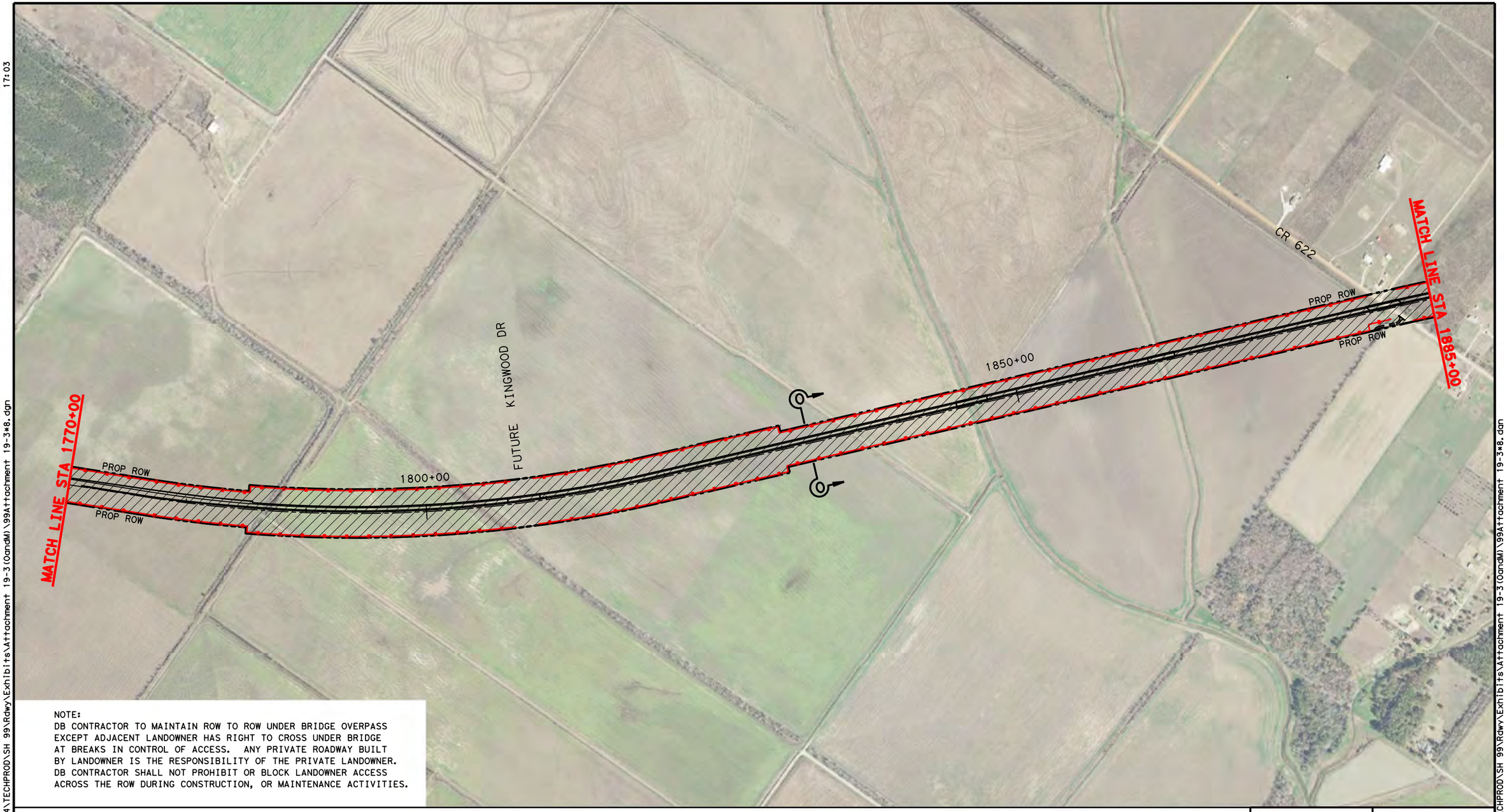

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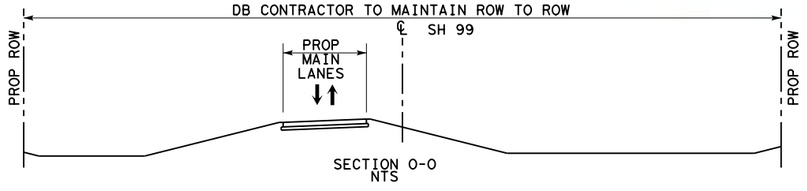

LEGEND

- LIMITS OF DB CONTRACTOR'S CONSTRUCTION, OPERATIONS, AND MAINTENANCE RESPONSIBILITIES
- PROPOSED GRAND PARKWAY
- PROP ROW
- PROP CONTOL OF ACCESS
- EXISTING ROW
- PROPOSED GRAND PARKWAY BY OTHERS

0 200 400 800(H)

Texas Department of Transportation

STATE HIGHWAY 99 GRAND PARKWAY H&I

ATTACHMENT 19-2
O & M LIMITS, H & I-1

DSN:	FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
CK:	6	TEXAS				SH 99
DRN:	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
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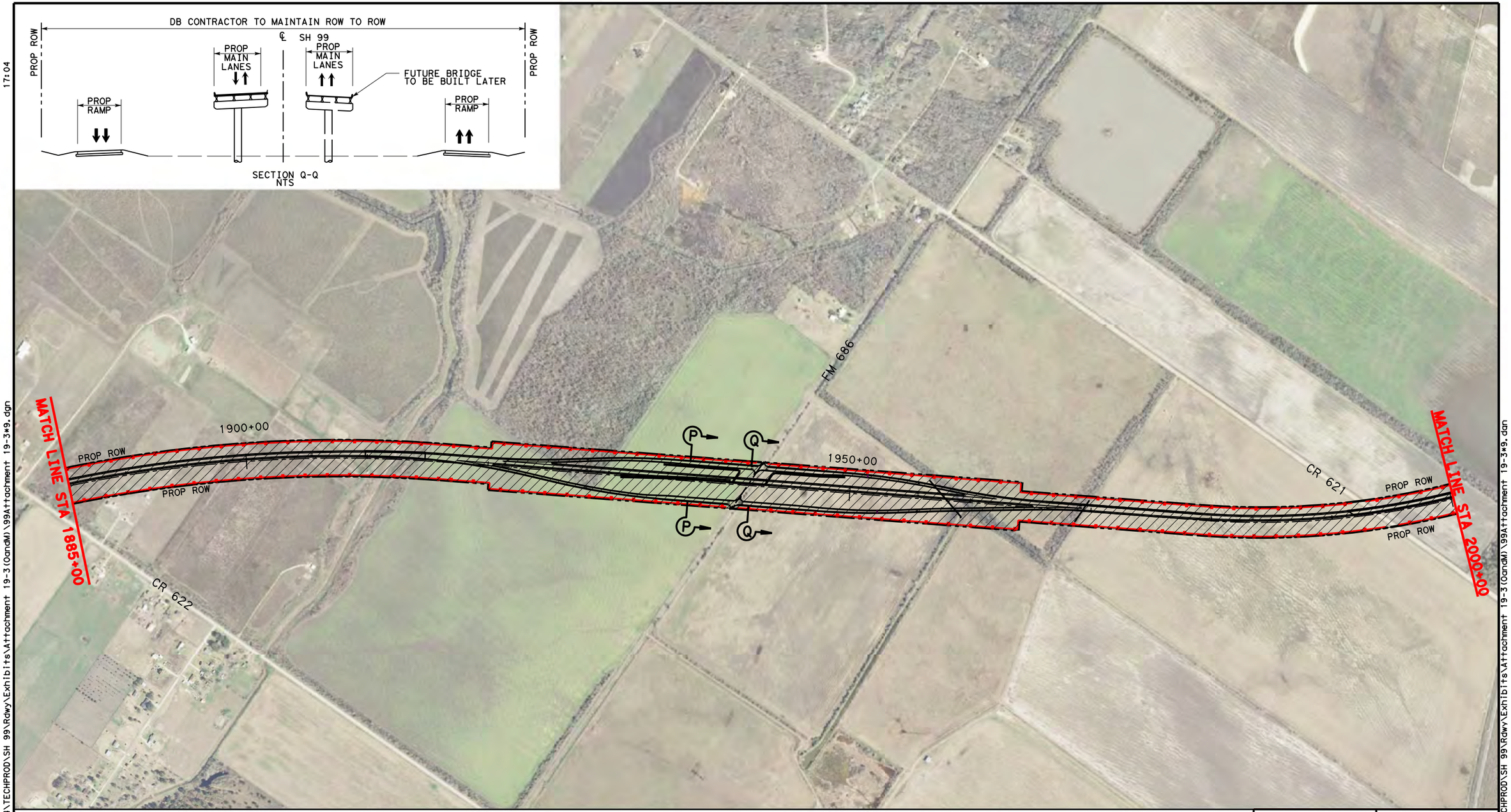

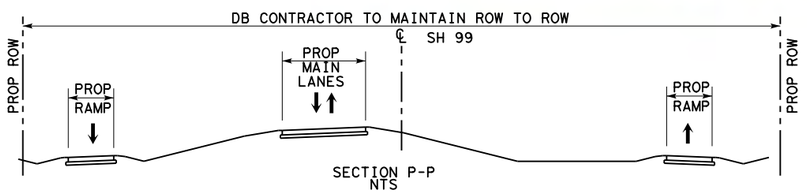

LEGEND

- LIMITS OF DB CONTRACTOR'S CONSTRUCTION, OPERATIONS, AND MAINTENANCE RESPONSIBILITIES
- PROPOSED GRAND PARKWAY
- PROP ROW
- PROP CONTOL OF ACCESS
- EXISTING ROW
- PROPOSED GRAND PARKWAY BY OTHERS

0 200 400 800 (H)

Texas Department of Transportation

STATE HIGHWAY 99 GRAND PARKWAY H&I

ATTACHMENT 19-2
O & M LIMITS, H & I-1

DSN:	FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
CK:	6	TEXAS				SH 99
DRN:	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
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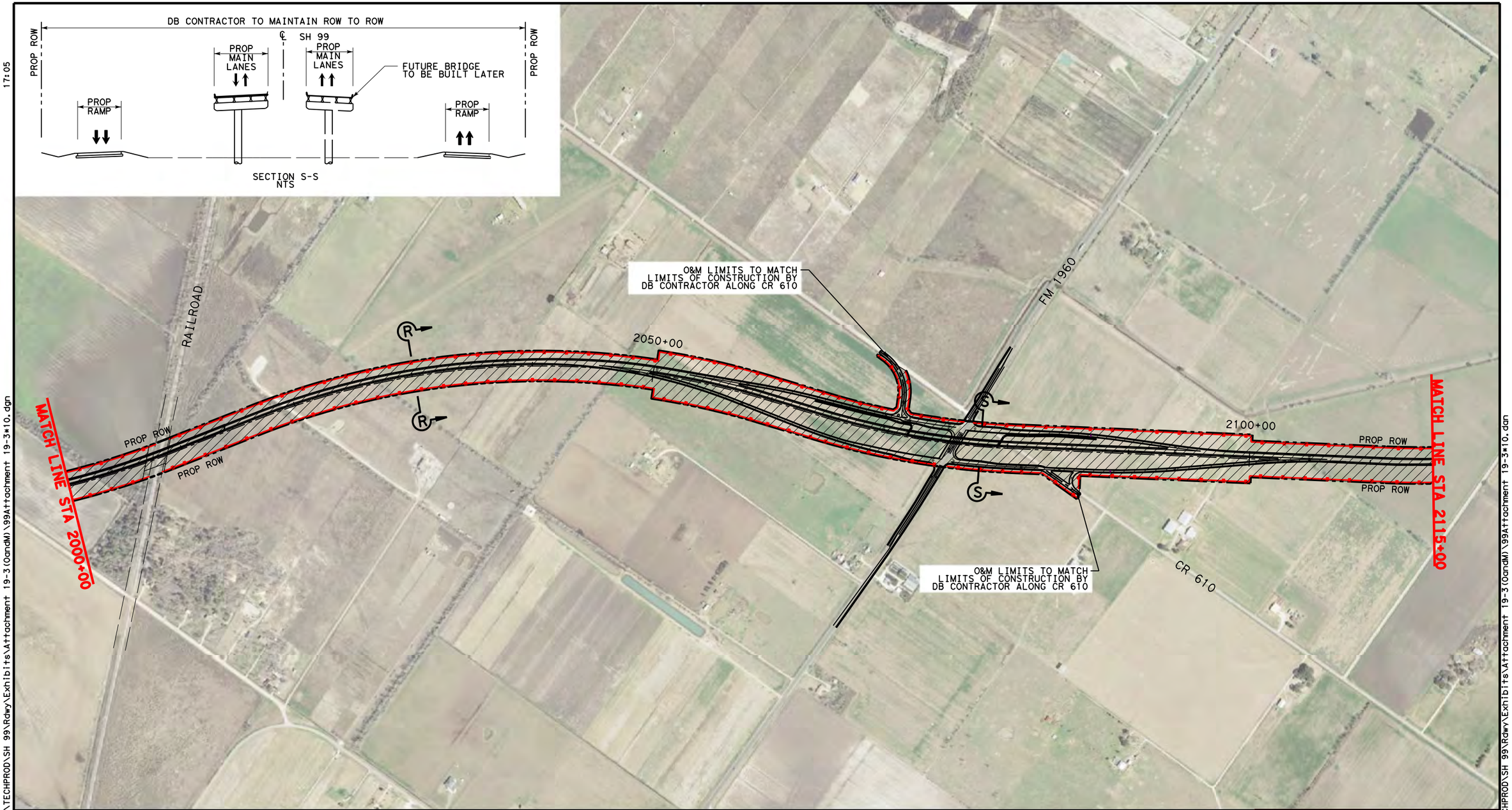

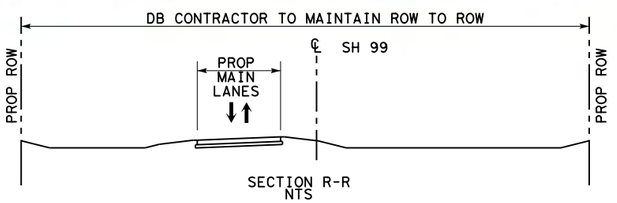

LEGEND

- LIMITS OF DB CONTRACTOR'S CONSTRUCTION, OPERATIONS, AND MAINTENANCE RESPONSIBILITIES
- PROPOSED GRAND PARKWAY
- PROP ROW
- PROP CONTOL OF ACCESS
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- PROPOSED GRAND PARKWAY BY OTHERS

0 200 400 800(H)

Texas Department of Transportation

STATE HIGHWAY 99 GRAND PARKWAY H&I

ATTACHMENT 19-2
O & M LIMITS, H & I-1

DSN:	FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
CK:	6	TEXAS				SH 99
DRN:	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CK:						10

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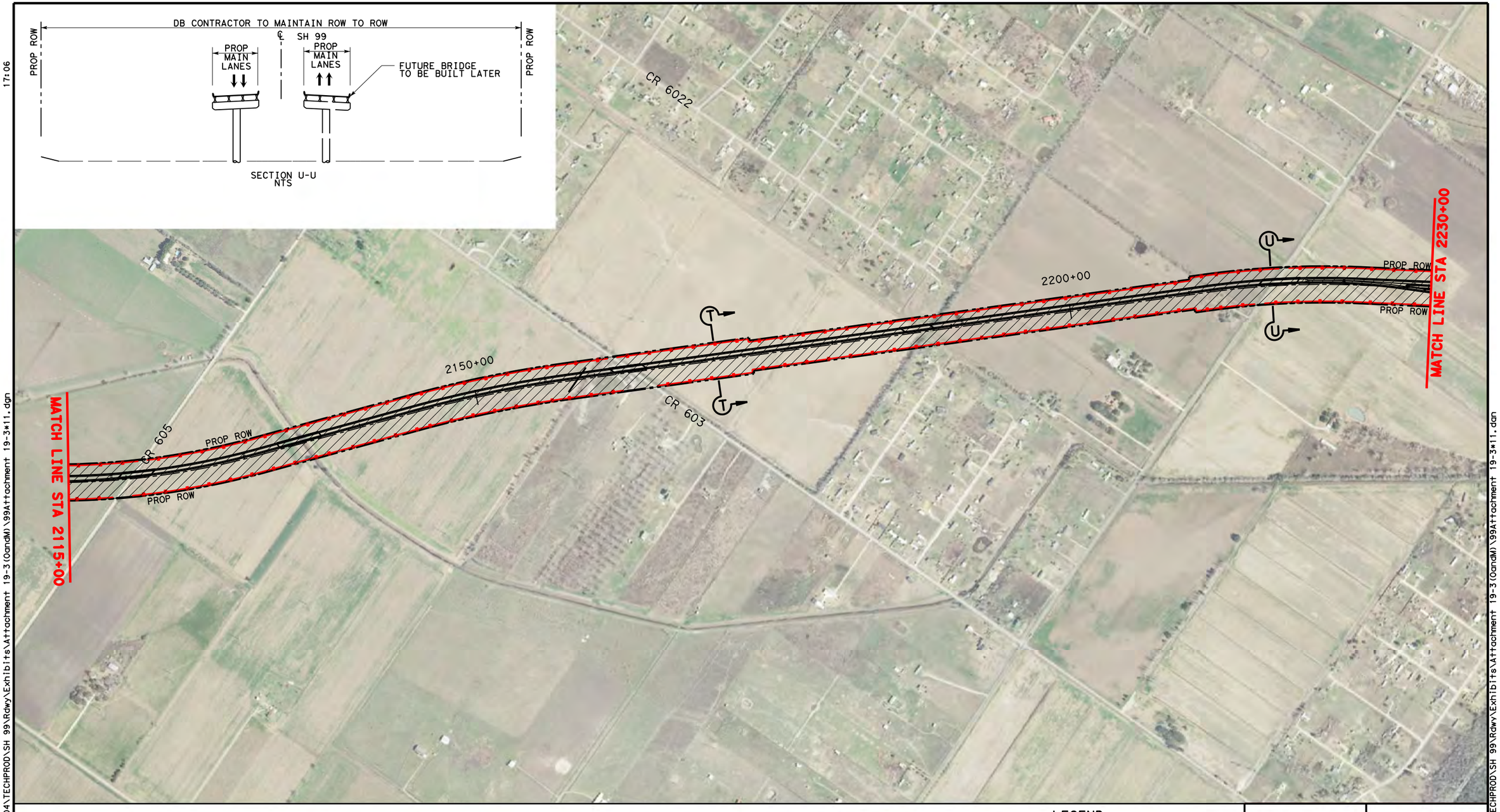

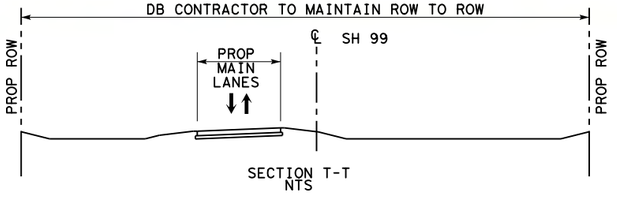

LEGEND

- LIMITS OF DB CONTRACTOR'S CONSTRUCTION, OPERATIONS, AND MAINTENANCE RESPONSIBILITIES
- PROPOSED GRAND PARKWAY
- PROP ROW
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- PROPOSED GRAND PARKWAY BY OTHERS

0 200 400 800(H)

Texas Department of Transportation

STATE HIGHWAY 99 GRAND PARKWAY H&I

ATTACHMENT 19-2
O & M LIMITS, H & I-1

DSN:	FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
CK:	6	TEXAS				SH 99
DRN:	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CK:						11

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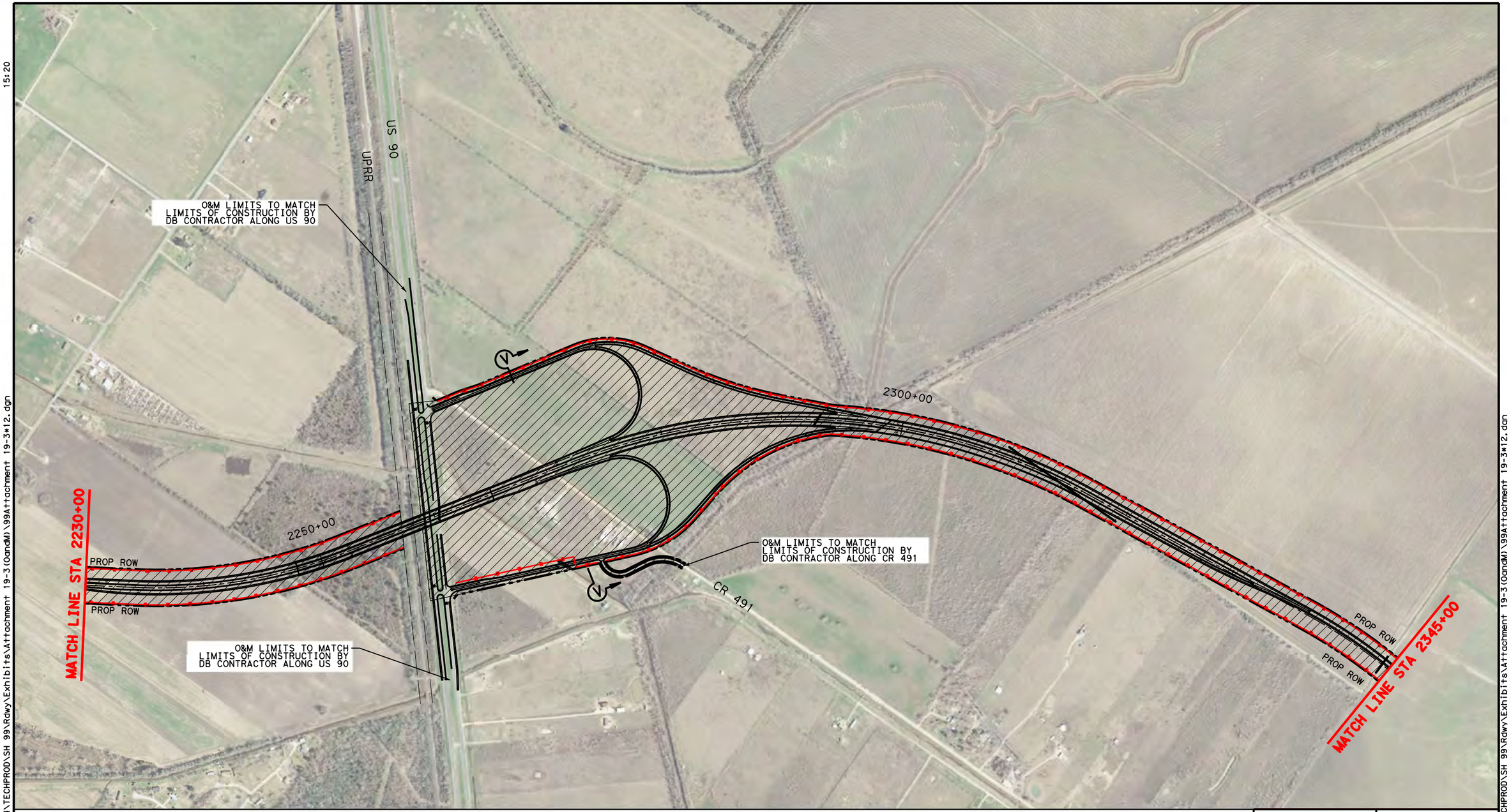

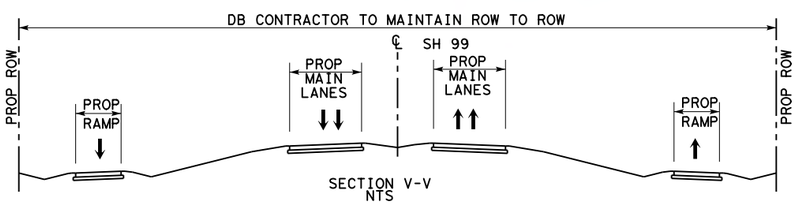

LEGEND

- LIMITS OF DB CONTRACTOR'S CONSTRUCTION, OPERATIONS, AND MAINTENANCE RESPONSIBILITIES
- PROPOSED GRAND PARKWAY
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Texas Department of Transportation

STATE HIGHWAY 99 GRAND PARKWAY H&I

ATTACHMENT 19-2
O & M LIMITS, H & I-1

DSN:	FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
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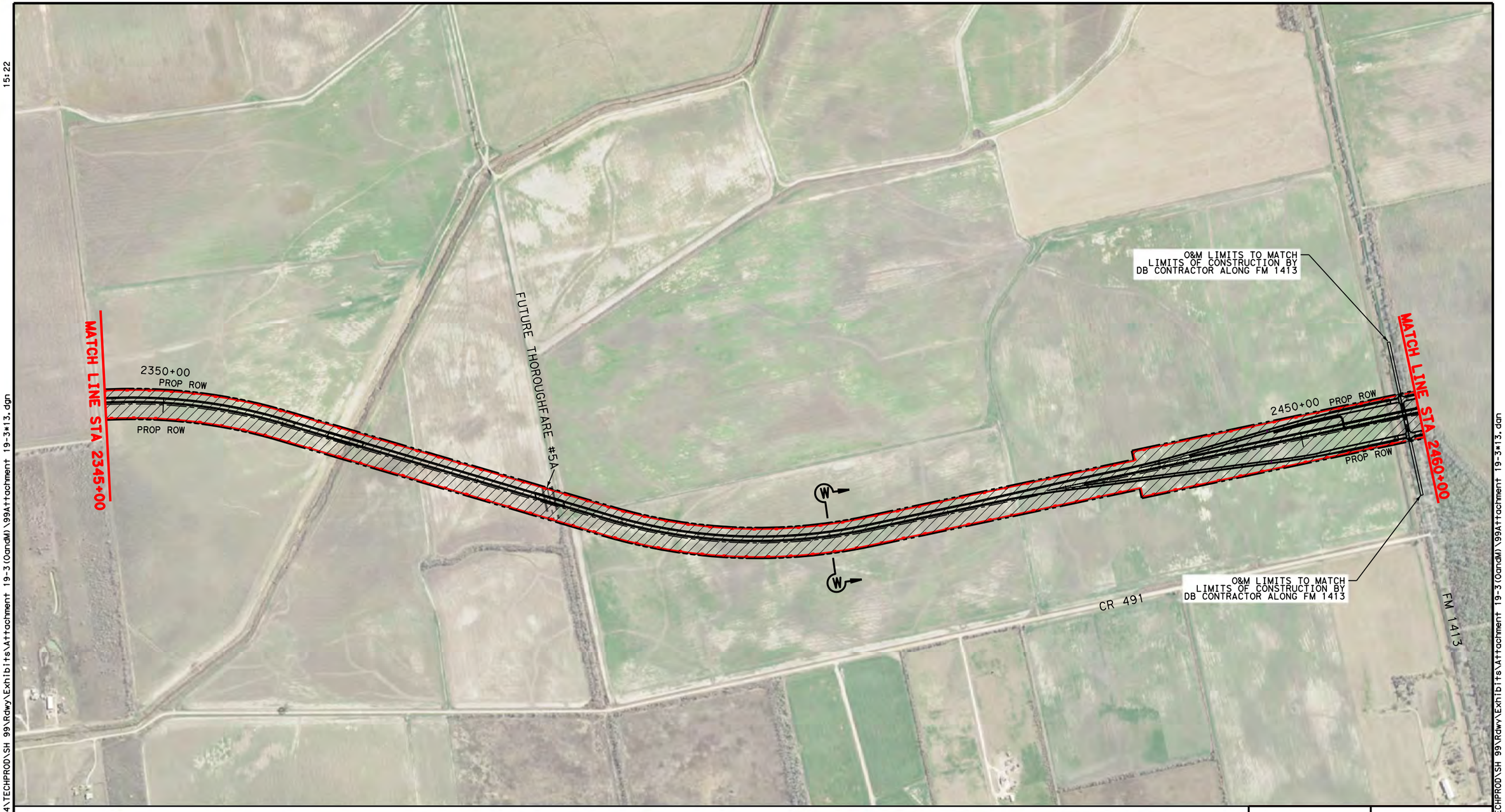

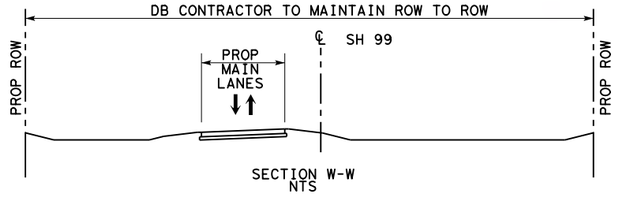

LEGEND

- LIMITS OF DB CONTRACTOR'S CONSTRUCTION, OPERATIONS, AND MAINTENANCE RESPONSIBILITIES
- PROPOSED GRAND PARKWAY
- PROP ROW
- PROP CONTOL OF ACCESS
- EXISTING ROW
- PROPOSED GRAND PARKWAY BY OTHERS

0 200 400 800 (H)

Texas Department of Transportation

STATE HIGHWAY 99 GRAND PARKWAY H&I

ATTACHMENT 19-2
O & M LIMITS, H & I-1

DSN:	FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
CK:	6	TEXAS				SH 99
DRN:	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CK:						13

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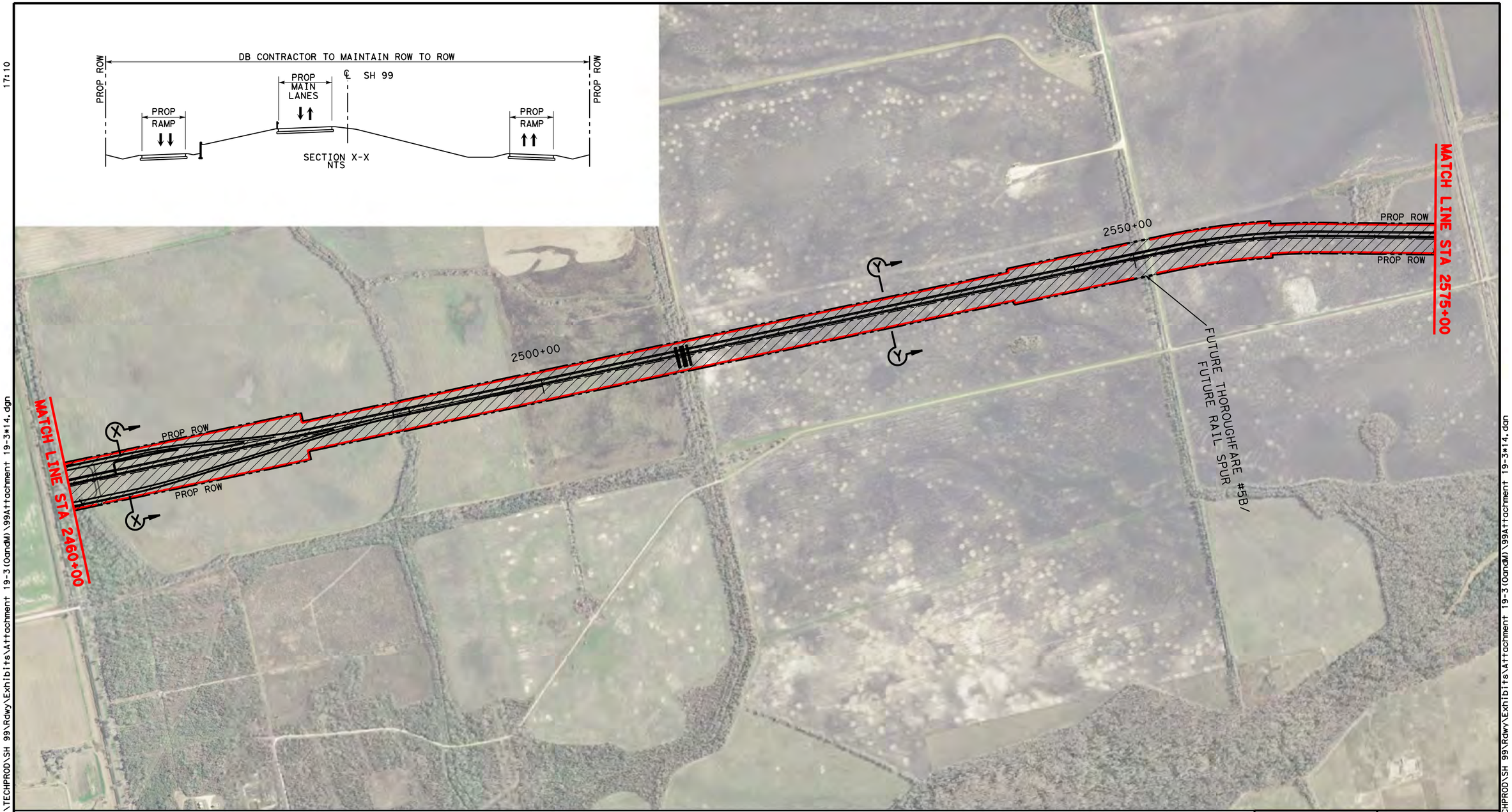

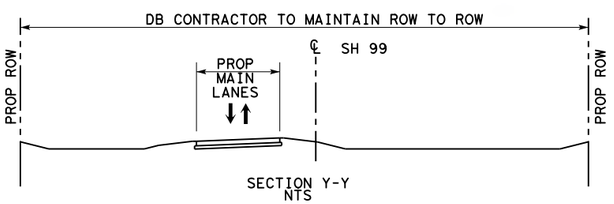

LEGEND

- LIMITS OF DB CONTRACTOR'S CONSTRUCTION, OPERATIONS, AND MAINTENANCE RESPONSIBILITIES
- PROPOSED GRAND PARKWAY
- PROP ROW
- PROP CONTOL OF ACCESS
- EXISTING ROW
- PROPOSED GRAND PARKWAY BY OTHERS

0 200 400 800 (H)

Texas Department of Transportation

STATE HIGHWAY 99 GRAND PARKWAY H&I

ATTACHMENT 19-2
O & M LIMITS, H & I-1

DSN:	FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
CK:	6	TEXAS				SH 99
DRN:	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CK:						14

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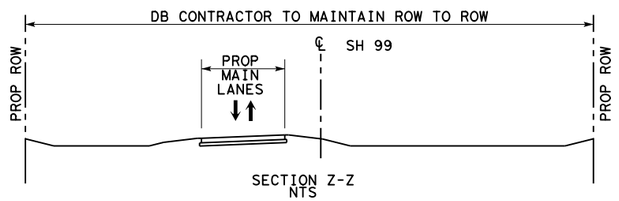

LEGEND

- LIMITS OF DB CONTRACTOR'S CONSTRUCTION, OPERATIONS, AND MAINTENANCE RESPONSIBILITIES
- PROPOSED GRAND PARKWAY
- PROP ROW
- PROP CONTOL OF ACCESS
- EXISTING ROW
- PROPOSED GRAND PARKWAY BY OTHERS

0 200 400 800 (H)

Texas Department of Transportation

STATE HIGHWAY 99 GRAND PARKWAY H&I

ATTACHMENT 19-2
O & M LIMITS, H & I-1

DSN:	FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
CK:	6	TEXAS				SH 99
DRN:	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CK:						15

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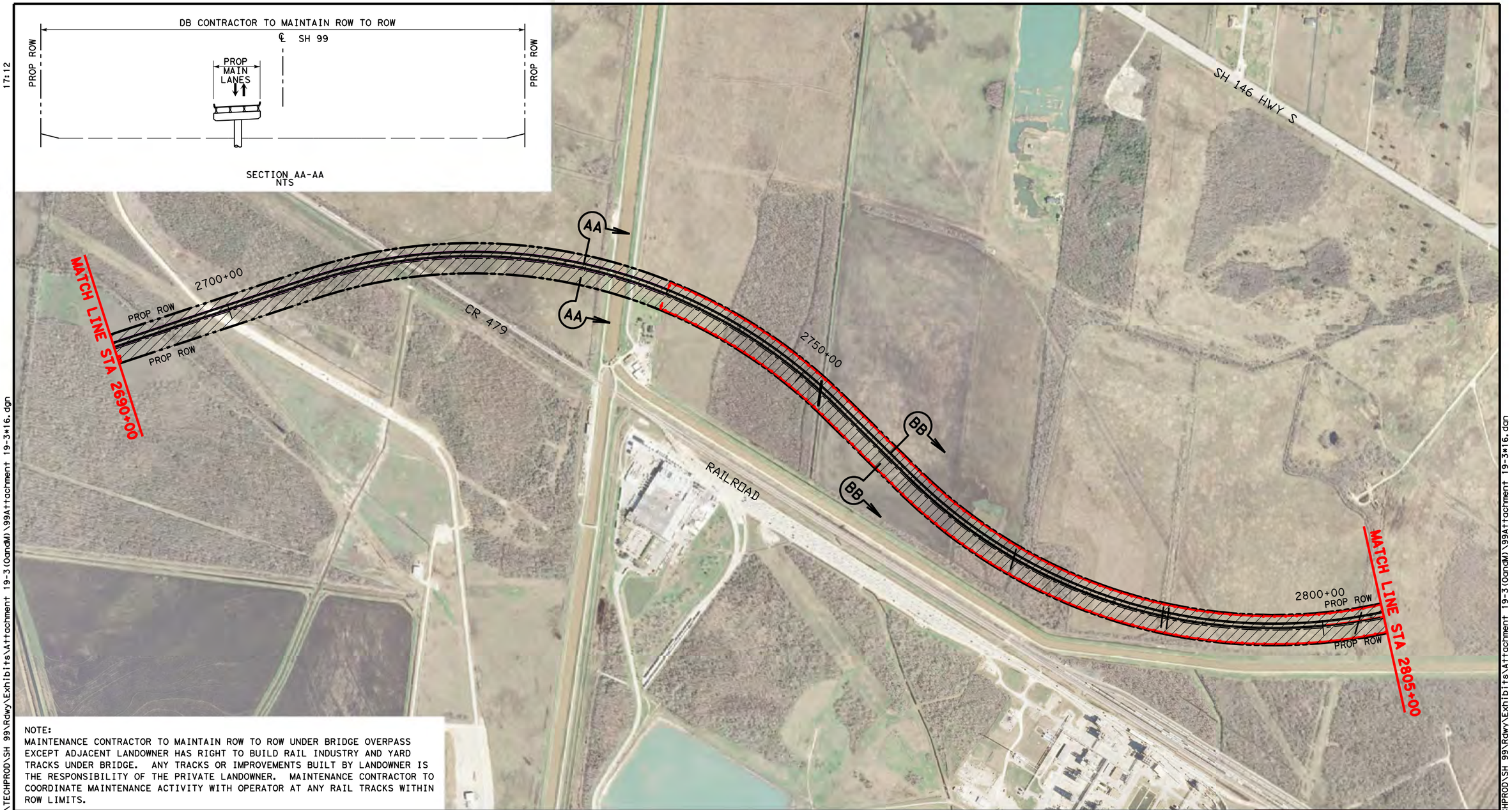
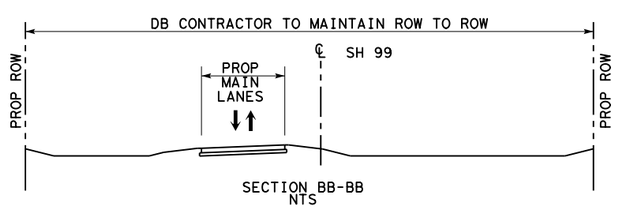
SECTION AA-AA
NTS



NOTE:
MAINTENANCE CONTRACTOR TO MAINTAIN ROW TO ROW UNDER BRIDGE OVERPASS EXCEPT ADJACENT LANDOWNER HAS RIGHT TO BUILD RAIL INDUSTRY AND YARD TRACKS UNDER BRIDGE. ANY TRACKS OR IMPROVEMENTS BUILT BY LANDOWNER IS THE RESPONSIBILITY OF THE PRIVATE LANDOWNER. MAINTENANCE CONTRACTOR TO COORDINATE MAINTENANCE ACTIVITY WITH OPERATOR AT ANY RAIL TRACKS WITHIN ROW LIMITS.



SECTION BB-BB
NTS

LEGEND

- LIMITS OF DB CONTRACTOR'S CONSTRUCTION, OPERATIONS, AND MAINTENANCE RESPONSIBILITIES
- PROPOSED GRAND PARKWAY
- PROP ROW
- PROP CONTOL OF ACCESS
- EXISTING ROW
- PROPOSED GRAND PARKWAY BY OTHERS

0 200 400 800(H)

Texas Department of Transportation

STATE HIGHWAY 99 GRAND PARKWAY H&I

ATTACHMENT 19-2
O & M LIMITS, H & I-1

DSN:	FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
CK:	6	TEXAS				SH 99
DRN:	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CK:						16

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SECTION DD-DD
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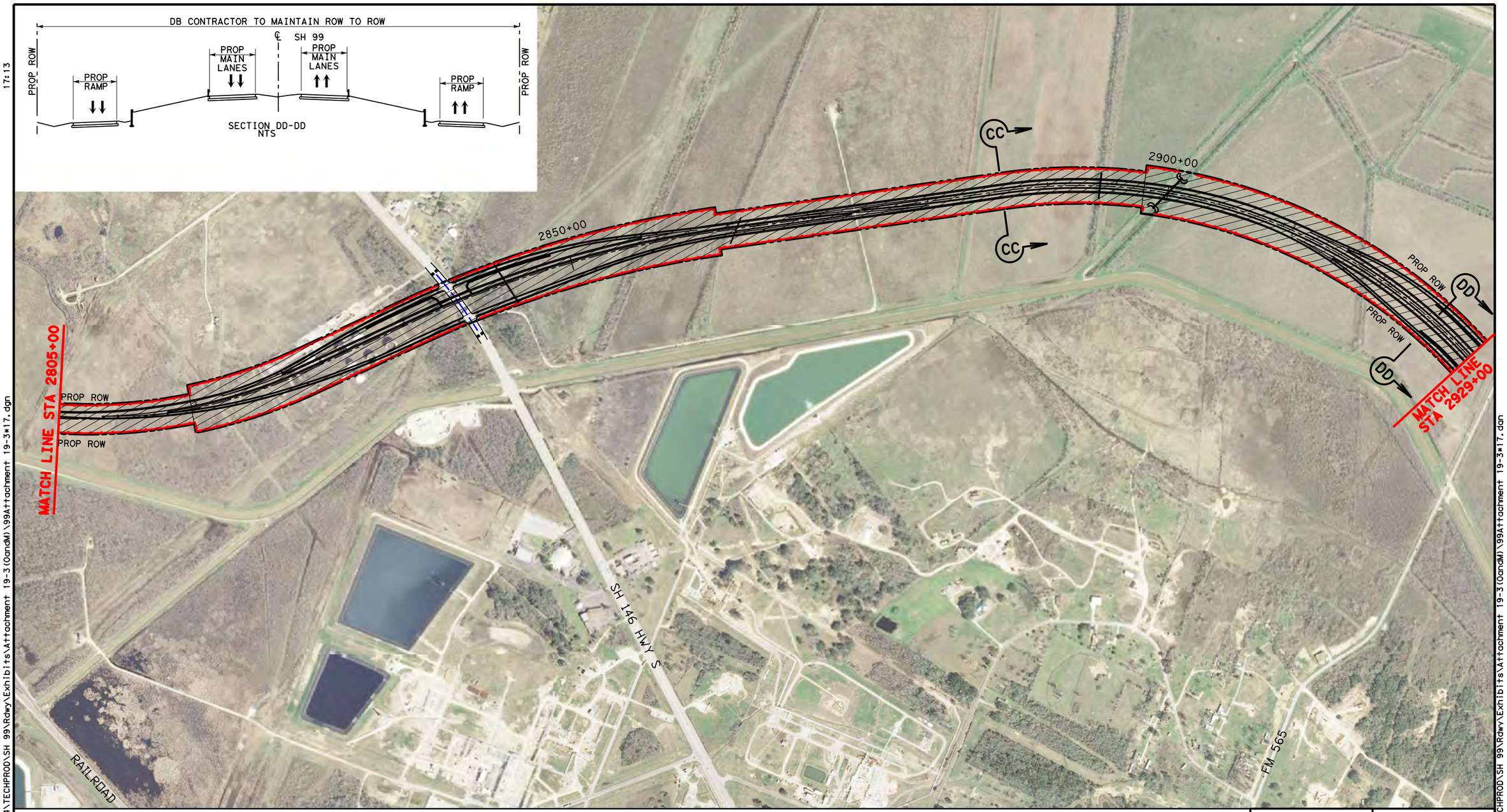

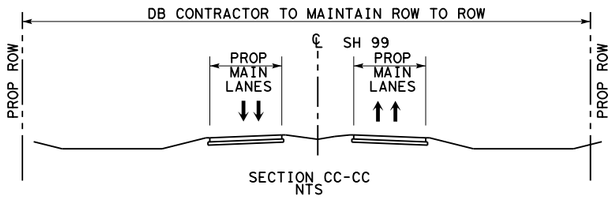

SECTION CC-CC
NTS

LEGEND

- LIMITS OF DB CONTRACTOR'S CONSTRUCTION, OPERATIONS, AND MAINTENANCE RESPONSIBILITIES
- PROPOSED GRAND PARKWAY
- PROP ROW
- PROP CONTOL OF ACCESS
- EXISTING ROW
- PROPOSED GRAND PARKWAY BY OTHERS

0 200 400 800 (H)

Texas Department of Transportation

STATE HIGHWAY 99 GRAND PARKWAY H&I

ATTACHMENT 19-2
O & M LIMITS, H & I-1

DSN:	FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
CK:	6	TEXAS				SH 99
DRN:	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CK:						17

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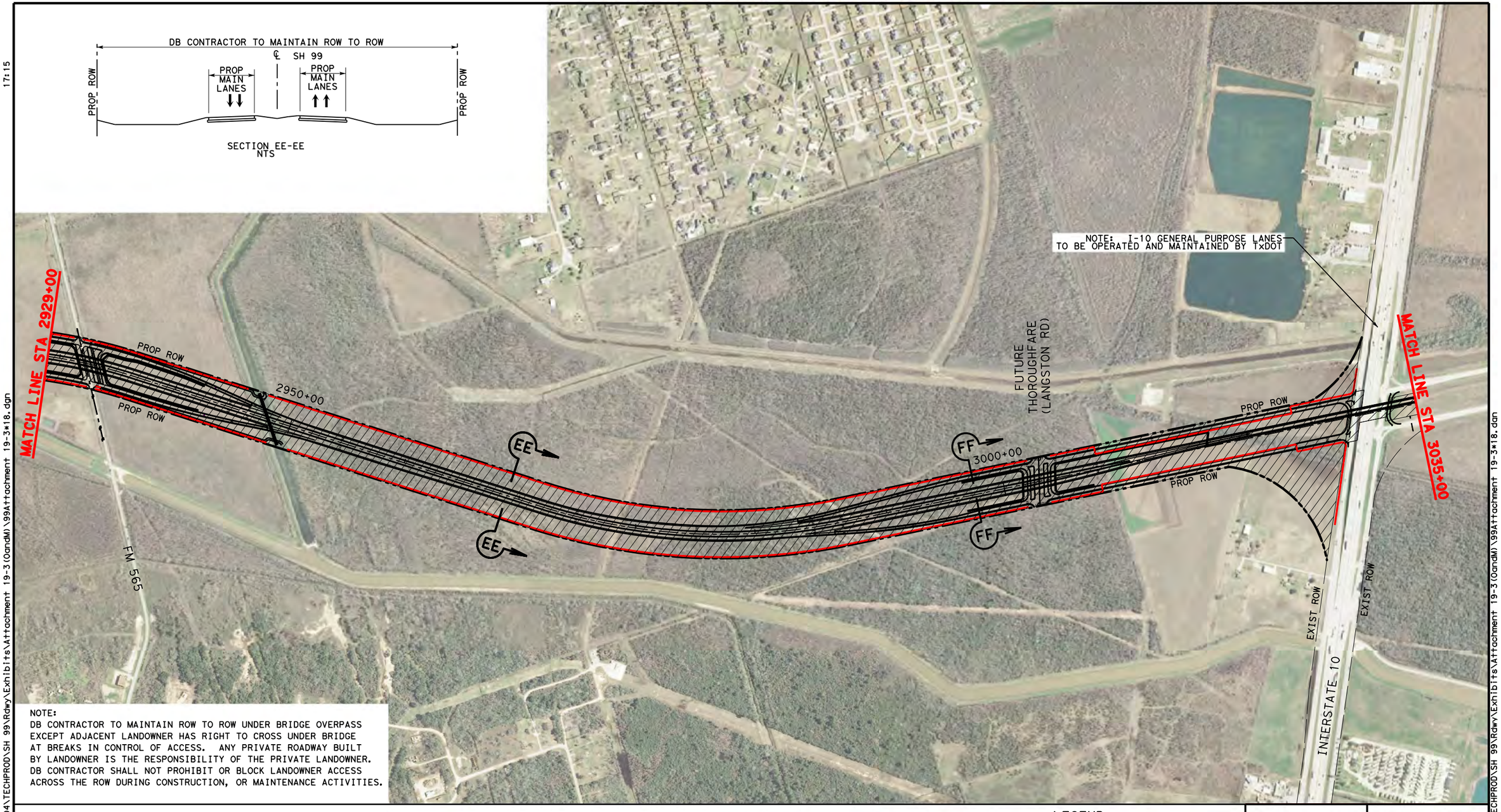
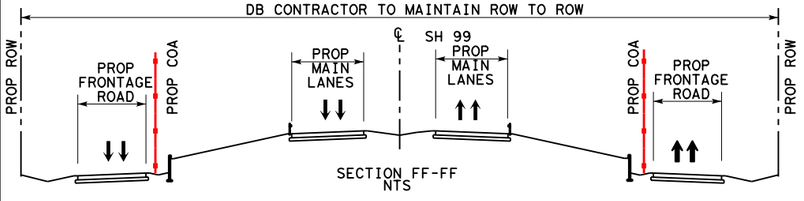


NOTE:
DB CONTRACTOR TO MAINTAIN ROW TO ROW UNDER BRIDGE OVERPASS EXCEPT ADJACENT LANDOWNER HAS RIGHT TO CROSS UNDER BRIDGE AT BREAKS IN CONTROL OF ACCESS. ANY PRIVATE ROADWAY BUILT BY LANDOWNER IS THE RESPONSIBILITY OF THE PRIVATE LANDOWNER. DB CONTRACTOR SHALL NOT PROHIBIT OR BLOCK LANDOWNER ACCESS ACROSS THE ROW DURING CONSTRUCTION, OR MAINTENANCE ACTIVITIES.



LEGEND

- LIMITS OF DB CONTRACTOR'S CONSTRUCTION, OPERATIONS, AND MAINTENANCE RESPONSIBILITIES
- PROPOSED GRAND PARKWAY
- PROP ROW
- PROP CONTOL OF ACCESS
- EXISTING ROW
- PROPOSED GRAND PARKWAY BY OTHERS

0 200 400 800 (H)

Texas Department of Transportation

STATE HIGHWAY 99 GRAND PARKWAY H&I

ATTACHMENT 19-2
O & M LIMITS, H & I-1

DSN:	FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
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DRN:	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
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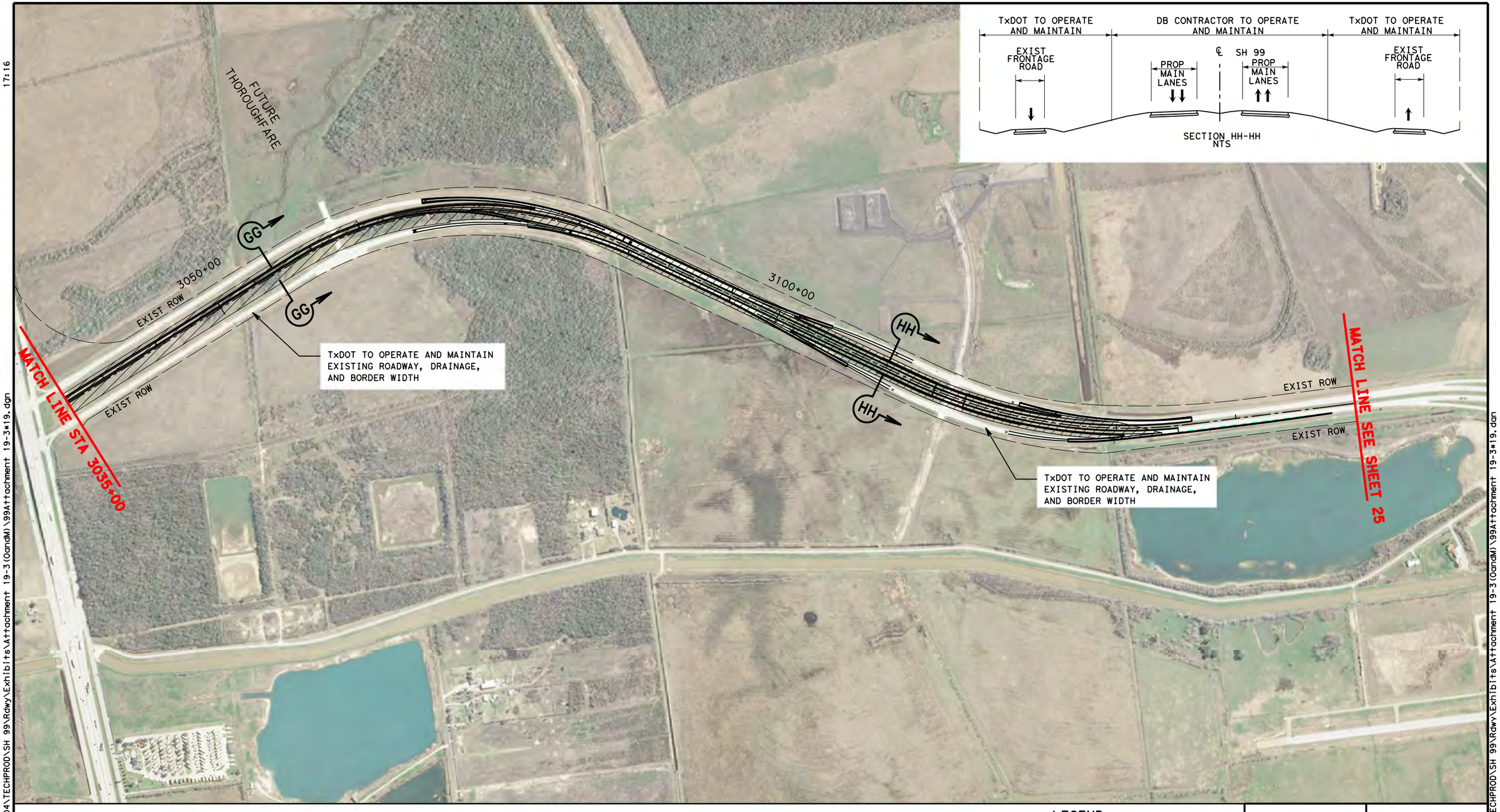

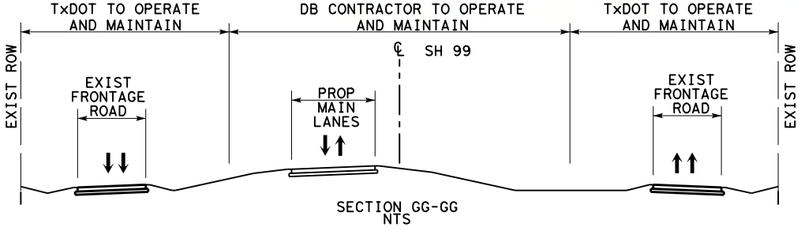

LEGEND

- LIMITS OF DB CONTRACTOR'S CONSTRUCTION, OPERATIONS, AND MAINTENANCE RESPONSIBILITIES
- PROPOSED GRAND PARKWAY
- PROP ROW
- PROP CONTOL OF ACCESS
- EXISTING ROW
- PROPOSED GRAND PARKWAY BY OTHERS

0 200 400 800 (H)

Texas Department of Transportation

STATE HIGHWAY 99 GRAND PARKWAY H&I

ATTACHMENT 19-2
O & M LIMITS, H & I-1

DSN:	FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
CK:	6	TEXAS				SH 99
DRN:	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
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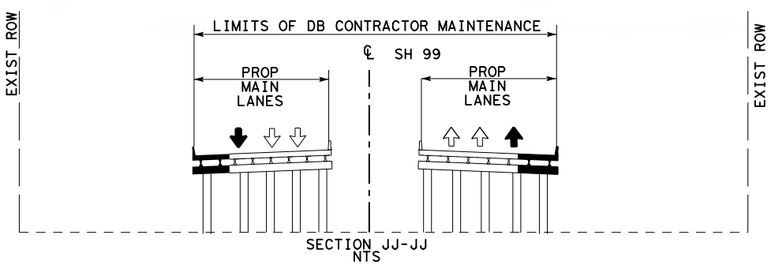

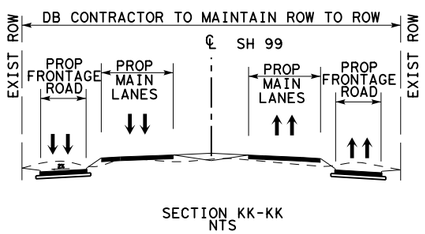

LEGEND

- LIMITS OF DB CONTRACTOR'S CONSTRUCTION, OPERATIONS, AND MAINTENANCE RESPONSIBILITIES
- PROPOSED GRAND PARKWAY
- PROP ROW
- PROP CONTOL OF ACCESS
- EXISTING ROW
- PROPOSED GRAND PARKWAY BY OTHERS

0 200 400 800 (H)

Texas Department of Transportation

STATE HIGHWAY 99 GRAND PARKWAY H&I

ATTACHMENT 19-2
O & M LIMITS, I-2

DSN:	FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
CK:	6	TEXAS				SH 99
DRN:	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
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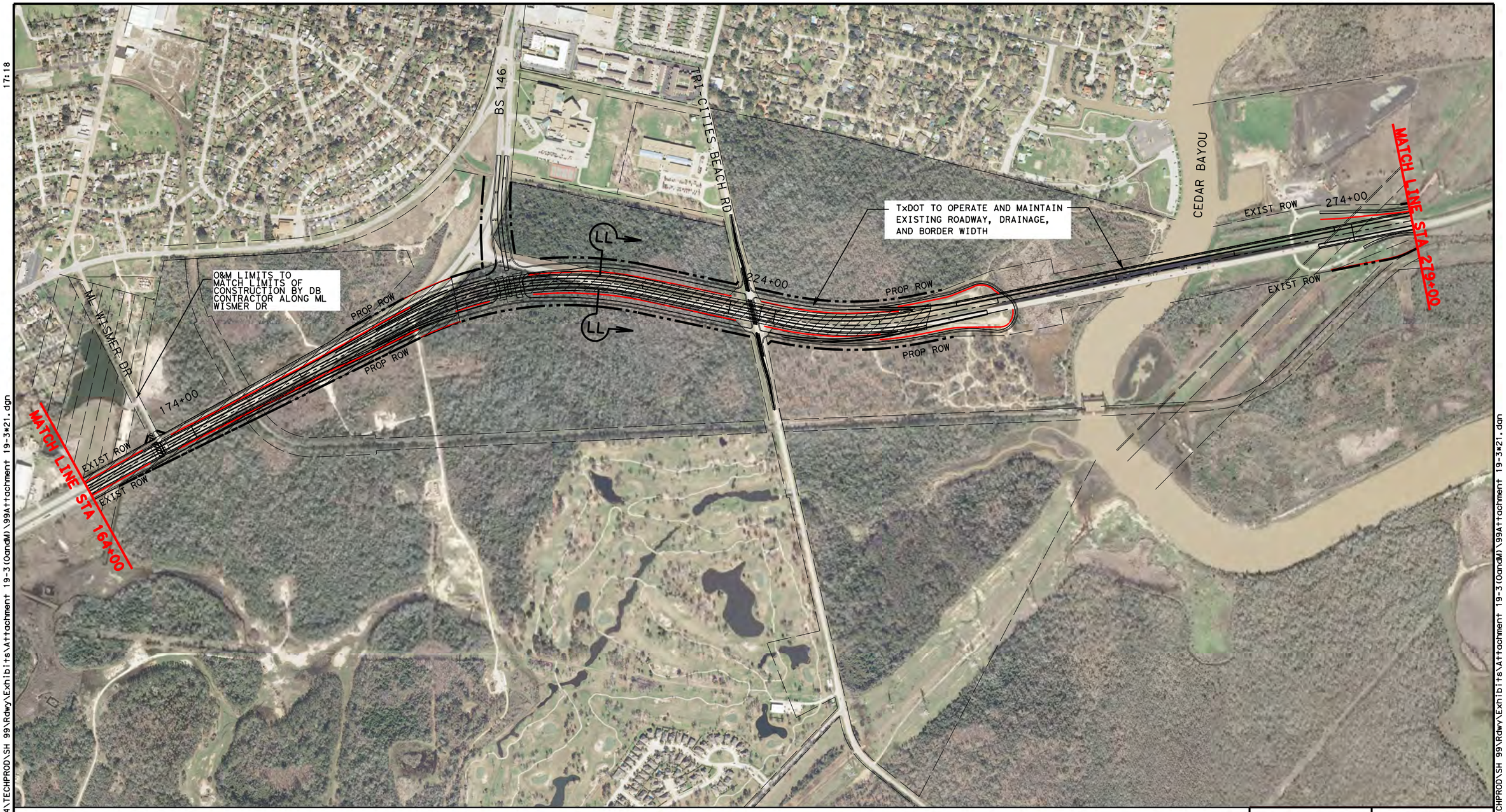

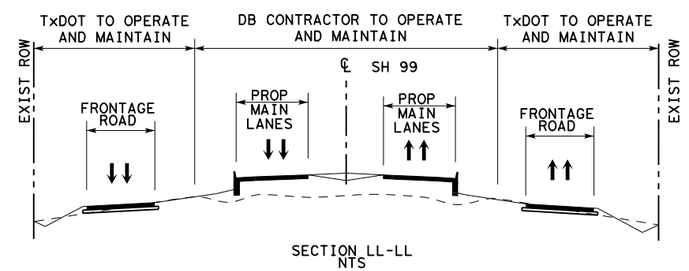

LEGEND

- LIMITS OF DB CONTRACTOR'S CONSTRUCTION, OPERATIONS, AND MAINTENANCE RESPONSIBILITIES
- PROPOSED GRAND PARKWAY
- PROP ROW
- PROP CONTOL OF ACCESS
- EXISTING ROW
- PROPOSED GRAND PARKWAY BY OTHERS

0 200 400 800 (H)

Texas Department of Transportation

STATE HIGHWAY 99 GRAND PARKWAY H&I

ATTACHMENT 19-2
O & M LIMITS, I-2

DSN:	FED. RD. DIV. NO.	STATE	PROJECT NO.				HIGHWAY NO.
CK:	6	TEXAS					SH 99
DRN:	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.		SHEET NO.
CK:							21

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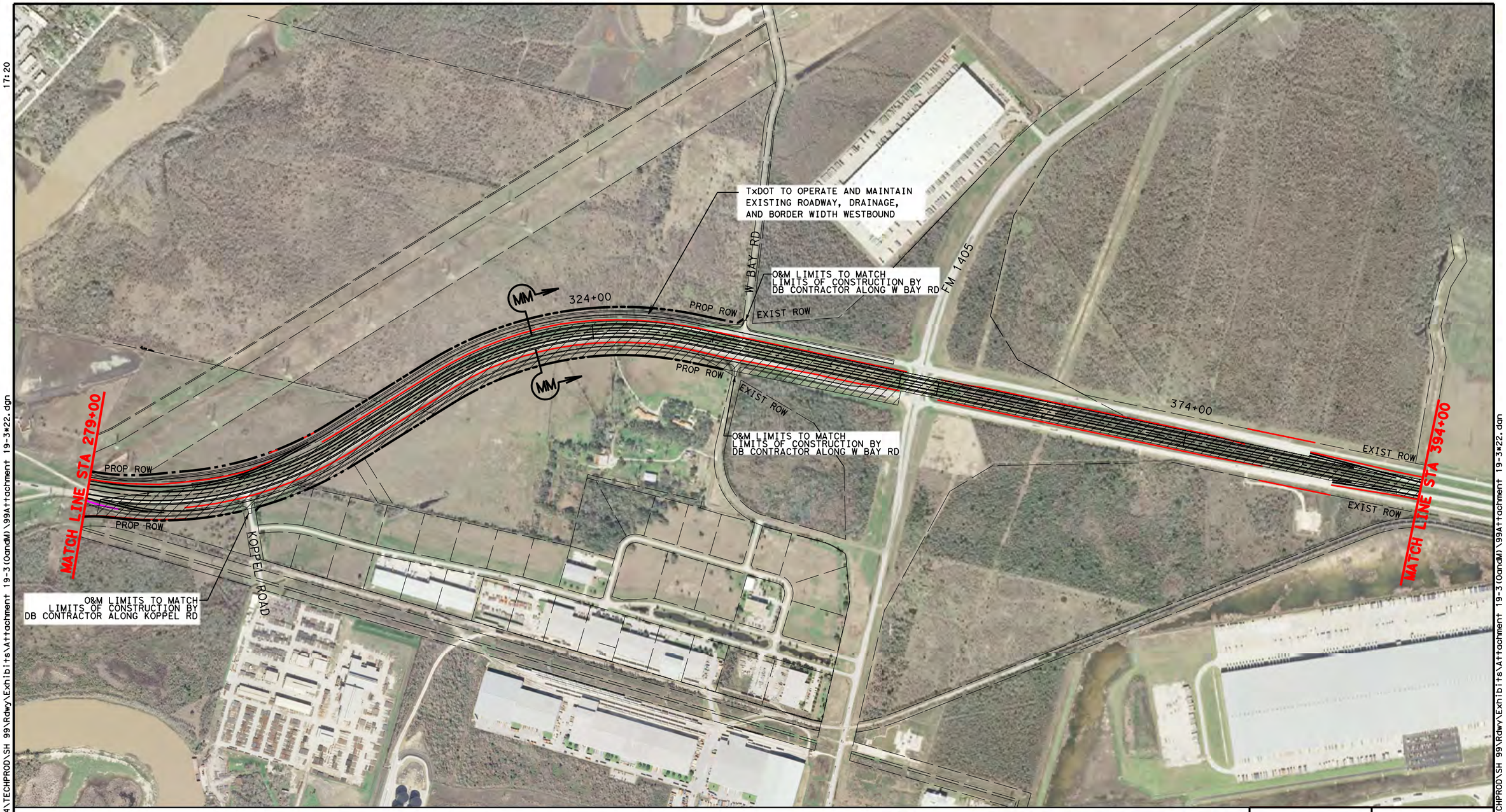

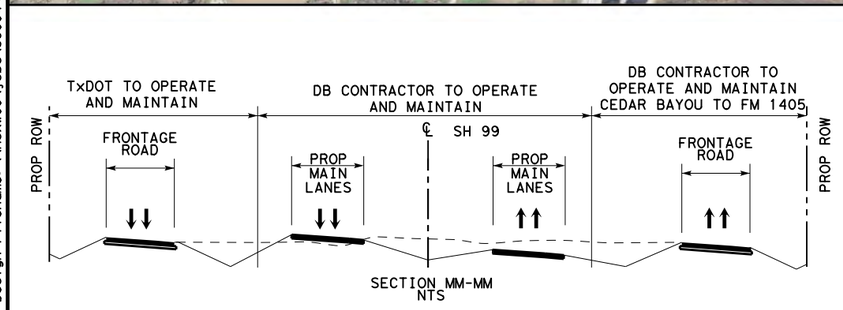

SECTION MM-MM
NTS

LEGEND

- LIMITS OF DB CONTRACTOR'S CONSTRUCTION, OPERATIONS, AND MAINTENANCE RESPONSIBILITIES
- PROPOSED GRAND PARKWAY
- PROP ROW
- PROP CONTOL OF ACCESS
- EXISTING ROW
- PROPOSED GRAND PARKWAY BY OTHERS

0 200 400 800 (H)

Texas Department of Transportation

STATE HIGHWAY 99 GRAND PARKWAY H&I

ATTACHMENT 19-2
O & M LIMITS, I-2

DSN:	FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
CK:	6	TEXAS				SH 99
DRN:	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CK:						22

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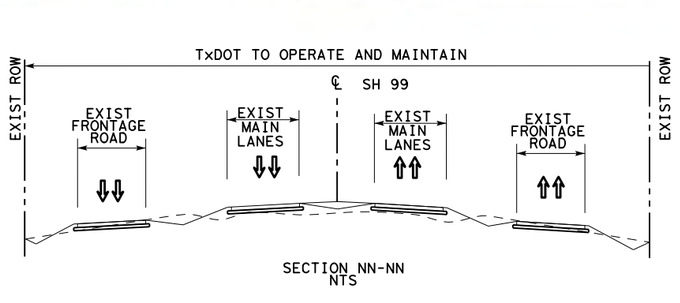

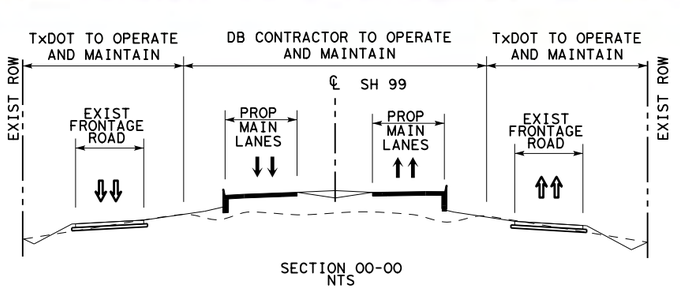

LEGEND

- LIMITS OF DB CONTRACTOR'S CONSTRUCTION, OPERATIONS, AND MAINTENANCE RESPONSIBILITIES
- PROPOSED GRAND PARKWAY
- PROP ROW
- PROP CONTOL OF ACCESS
- EXISTING ROW
- PROPOSED GRAND PARKWAY BY OTHERS

0 200 400 800(H)

Texas Department of Transportation

STATE HIGHWAY 99 GRAND PARKWAY H&I

ATTACHMENT 19-2
O & M LIMITS, I-2

DSN:	FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
CK:	6	TEXAS				SH 99
DRN:	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CK:						23

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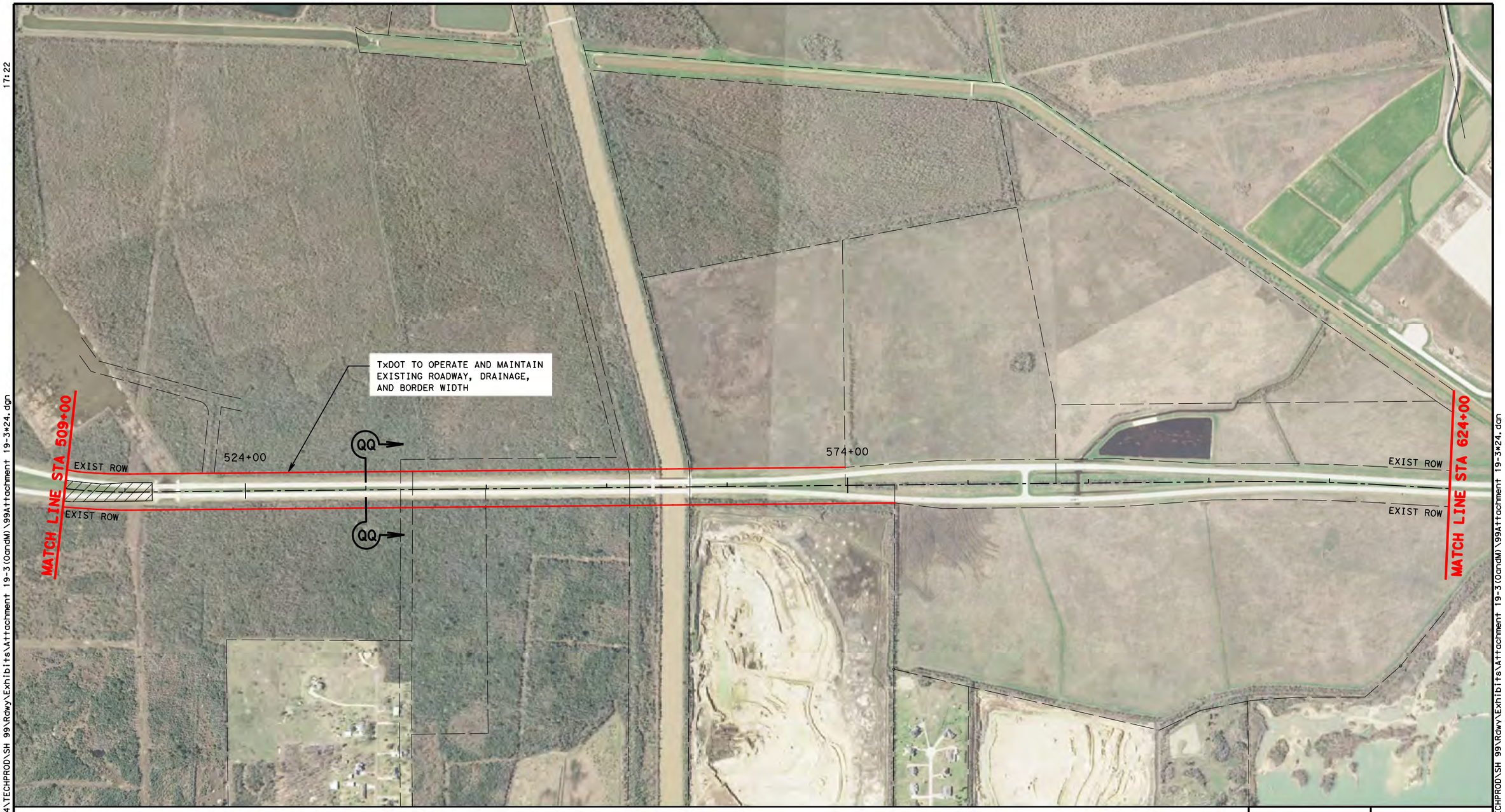

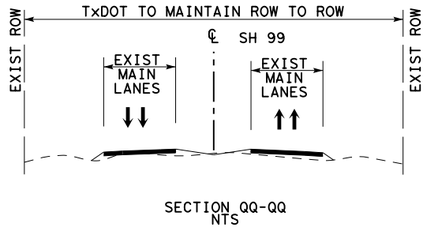

SECTION QQ-QQ
NTS

LEGEND

- LIMITS OF DB CONTRACTOR'S CONSTRUCTION, OPERATIONS, AND MAINTENANCE RESPONSIBILITIES
- PROPOSED GRAND PARKWAY
- PROP ROW
- PROP CONTOL OF ACCESS
- EXISTING ROW
- PROPOSED GRAND PARKWAY BY OTHERS

0 200 400 800 (H)

Texas Department of Transportation

STATE HIGHWAY 99 GRAND PARKWAY H&I

ATTACHMENT 19-2
O & M LIMITS, I-2

DSN:	FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
CK:	6	TEXAS				SH 99
DRN:	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CK:						24

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TxDOT TO OPERATE AND MAINTAIN
EXISTING ROADWAY, DRAINAGE,
AND BORDER WIDTH

MATCH LINE STA 624+00

RR

EXIST ROW

EXIST ROW

RR

674+00

NEEDLEPOINT RD

MATCH LINE SEE SHEET 19

EXIST ROW

EXIST ROW

FM 2354

FM 565

TxDOT TO MAINTAIN ROW TO ROW

℄ SH 99

EXIST ROW

EXIST MAIN LANES

EXIST MAIN LANES

EXIST ROW

SECTION RR-RR
NTS

LEGEND

LIMITS OF DB CONTRACTOR'S CONSTRUCTION, OPERATIONS, AND MAINTENANCE RESPONSIBILITIES

PROPOSED GRAND PARKWAY

PROP ROW

PROP CONTOL OF ACCESS

EXISTING ROW

PROPOSED GRAND PARKWAY BY OTHERS

0 200 400 800 (H)

Texas Department of Transportation

STATE HIGHWAY 99 GRAND PARKWAY H&I

ATTACHMENT 19-2
O & M LIMITS, I-2

DSN:	FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
CK:	6	TEXAS				SH 99
DRN:	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CK:						25

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TEXAS DEPARTMENT OF TRANSPORTATION

TECHNICAL PROVISIONS

FOR

SH 99 GRAND PARKWAY SEGMENTS H, I-1 AND I-2

ATTACHMENT 21-1

TOLL SYSTEMS RESPONSIBILITY MATRIX

RFP ADDENDUM #8

DECEMBER 19, 2016

Attachment 21-1
Toll Systems Responsibility Matrix

LEGEND		Work Description		
Primary Responsibility	A	**1**	**2**	**3**
Support Responsibility	B	Design	Procure	Install and/or Construct
Coordination Responsibility Only	C			
No Responsibility	D			

Element/Task/Component/ Sub-system	TxDOT (TOD Design) (T)			DB Contractor			Systems Integrator (SI)			Comments Other Responsibility/Information
	1	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**	
FACILITIES										
Toll plaza design layout	A	N/A	N/A	B	N/A	N/A	B	N/A	N/A	See Sec 21.3 of TPs
Metered power service to roadside equipment cabinet	B	D	C	A	A	A	B	D	C	SI to provide power requirements and special requirements for DB Contractor to construct utilities near toll collection points
Electrical conductors from equipment pad to Toll Zone equipment	C	D	C	C	D	C	A	A	A	DB Contractor will coordinate access to roadway for installations
Complete backup power systems: generators, automatic transfer switches, and fuel tanks	C	D	C	D	D	C	A	A	A	DB Contractor will coordinate access to roadway for installations
Concrete pad/foundation and conduits for backup power systems	A	D	C	D	D	C	B	A	A	T to design for SI. DB Contractor to construct grading, earthwork and subgrade for SI work. DB Contractor will coordinate access to roadway for installations
Uninterruptible power supplies for the lane controllers/tolling equipment at Toll Zones	C	D	C	D	D	C	A	A	A	DB Contractor will coordinate access to roadway for installations

Attachment 21-1
Toll Systems Responsibility Matrix

LEGEND		Work Description		
Primary Responsibility	A	1	2	3
Support Responsibility	B	Design	Procure	Install and/or Construct
Coordination Responsibility Only	C			
No Responsibility	D			

Element/Task/Component/ Sub-system	TxDOT (TOD Design) (T)			DB Contractor			Systems Integrator (SI)			Comments Other Responsibility/Information
	1	2	3	1	2	3	1	2	3	
FACILITIES										
Lightning protection & grounding	A	D	C	D	D	C	B	A	A	DB Contractor will coordinate access to roadway for installations. DB Contractor to coordinate with SI for SI placement of conduit prior to DB Contractor placing pavement.
Concrete encased duct bank for dedicated toll fiber	C	D	C	A	A	A	C	D	C	DB Contractor to install conduit in concrete encased Duct Bank complete with pull strings
Fiber optic cables in conduit and concrete encased duct bank for toll systems	B	D	C	A	A	A	B	D	C	DB Contractor to provide fiber with 4 strands single mode dedicated fiber to each toll zone (E.g. 24 toll zones would require 96 fiber strands). No daisy chaining. DB Contractor to install pull strings, fiber optic markers, test stations and tracer wire with fiber optic cables
Termination cabinet and fiber optic data/communication to termination cabinet	B	D	C	A	A	A	B	D	C	SI to provide communication/data requirements. DB Contractor to provide and test fiber to DB Contractor provided fiber termination cabinets adjacent to each toll zone equipment cabinet pad.
Data/communication wire/fiber from termination cabinet to toll systems equipment	C	D	C	D	D	C	A	A	A	SI to install from roadside termination cabinet to toll systems equipment

Attachment 21-1
Toll Systems Responsibility Matrix

LEGEND		Work Description		
Primary Responsibility	A	1	2	3
Support Responsibility	B	Design	Procure	Install and/or Construct
Coordination Responsibility Only	C			
No Responsibility	D			

Element/Task/Component/ Sub-system	TxDOT (TOD Design) (T)			DB Contractor			Systems Integrator (SI)			Comments Other Responsibility/Information
	1	2	3	1	2	3	1	2	3	
FACILITIES										
Toll Zone pavement and structure, using special pavement section and conduit stub ups for pavement sensors (see Attachment 21-3 of Technical Provisions)	B	D	C	A	A	A	B	D	C	SI to provide pavement loop details with stub-up locations. T will coordinate with DB Contractor for joint layouts. DB Contractor to construct Stub Ups to terminate in junction boxes, provided by DB Contractor, adjacent to toll zone pavement
Loop conduit from junction box to roadside equipment cabinet	A	D	C	D	D	C	B	A	A	DB Contractor will coordinate access to roadway for installations
Gantry equipment conduit from roadside equipment cabinet to toll systems equipment	A	D	C	D	D	C	B	A	A	DB Contractor will coordinate access to roadway for installations
Pavement sensors	A	D	C	D	D	C	B	A	A	DB Contractor to provide access to SI to saw cut and install pavement sensors
Gantries and foundations (includes columns and trusses)	A	D	C	D	D	C	B	A	A	T to design and SI to construct. DB Contractor to provide access for T geotechnical borings and SI construction.
Toll equipment mounts on gantries	C	D	C	D	D	C	A	A	A	SI to install any required equipment mounts on gantries. SI to coordinate with T during the design phase to incorporate any required framing to support equipment mounts.

Attachment 21-1
Toll Systems Responsibility Matrix

LEGEND		Work Description		
Primary Responsibility	A	**1**	**2**	**3**
Support Responsibility	B	Design	Procure	Install and/or Construct
Coordination Responsibility Only	C			
No Responsibility	D			

Element/Task/Component/ Sub-system	TxDOT (TOD Design) (T)			DB Contractor			Systems Integrator (SI)			Comments Other Responsibility/Information
	1	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**	
FACILITIES										
Concrete traffic barrier and foundation, MBGF, barrier end treatments, Toll Zone drainage, grading, & earthwork, SW3P and retaining walls within Toll Zone	C	D	D	A	A	A	C	D	C	All reinforcement (barrier, pavement, etc.) within the Toll Zone shall be epoxy coated.
Roadside equipment cabinet concrete pads/foundations	A	D	C	D	D	C	B	A	A	T to design for SI to construct. DB Contractor to provide grading, earthwork and subgrade for SI's slabs. DB Contractor to provide SI access for construction.
Toll Zone maintenance driveways	A	D	C	B	B	B	C	A	A	T to design for SI to construct maintenance driveway pavement surface. DB Contractor to construct grading, earthwork, flexible base and subgrade for SI work.
Roadside equipment cabinets (incl power, comm and HVAC systems)	C	D	C	D	D	C	A	A	A	SI to install complete. DB Contractor will coordinate access to roadway for installations.
Toll rate signage (Toll rate signs and Toll entrance signs)	A	D	C	D	D	C	C	A	A	DB Contractor will coordinate access to roadway for installations and provide finished grades at each sign location.

Attachment 21-1
Toll Systems Responsibility Matrix

LEGEND		Work Description		
Primary Responsibility	A	**1**	**2**	**3**
Support Responsibility	B	Design	Procure	Install and/or Construct
Coordination Responsibility Only	C			
No Responsibility	D			

Element/Task/Component/ Sub-system	TxDOT (TOD Design) (T)			DB Contractor			Systems Integrator (SI)			Comments Other Responsibility/Information
	1	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**	
ELECTRONIC TOLL COLLECTION SUB-SYSTEMS (ETC)										
Automatic Vehicle Classification System and Image Capturing System (ICS) Hardware	C	D	C	D	D	C	A	A	A	DB Contractor will coordinate access to roadway for installations.
Computer rack system, routers, hubs, switches, firewalls, VPN, modems, patch/distribution panels,	C	D	C	D	D	C	A	A	A	DB Contractor will coordinate access to roadway for installations.
Toll plaza host computer	C	D	C	D	D	D	A	A	A	
Lane controller hardware	C	D	C	D	D	C	A	A	A	DB Contractor will coordinate access to roadway for installations
Communication equipment	C	D	C	D	D	C	A	A	A	DB Contractor will coordinate access to roadway for installations.
Support equipment at TxDOT designated customer service center	C	D	C	D	D	D	A	A	A	
Commissioning and site acceptance testing	C	D	B	D	D	C	A	A	A	DB Contractor will coordinate access to roadway for testing
Lane controller software	C	D	C	D	D	D	A	A	A	
Plaza computer Software	C	D	C	D	D	D	A	A	A	
Host computer software	C	D	C	D	D	D	A	A	A	
Toll collection system application software	C	D	C	D	D	D	A	A	A	

Attachment 21-1
Toll Systems Responsibility Matrix

LEGEND		Work Description		
Primary Responsibility	A	**1**	**2**	**3**
Support Responsibility	B	Design	Procure	Install and/or Construct
Coordination Responsibility Only	C			
No Responsibility	D			

Element/Task/Component/ Sub-system	TxDOT (TOD Design) (T)			DB Contractor			Systems Integrator (SI)			Comments Other Responsibility/Information
	1	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**	
Maintenance Online Management System Software	C	D	C	D	D	D	A	A	A	
Operational test	C	D	B	D	D	D	A	A	A	
Training: (user and maintenance)	C	D	C	D	D	D	A	A	A	
Documentation: (user and maintenance)	C	D	C	D	D	D	A	A	A	
Documentation: ETS installation/electrical design and plans	C	D	C	D	D	D	A	A	A	
Documentation: civil as-built drawings, and contract closeout documents	C	D	C	D	D	D	A	A	A	
Documentation: ETS as-built drawings	C	D	C	D	D	D	A	A	A	
FCC licenses/regulations as applies to toll systems	C	D	C	D	D	D	A	A	A	

TEXAS DEPARTMENT OF TRANSPORTATION

TECHNICAL PROVISIONS

FOR

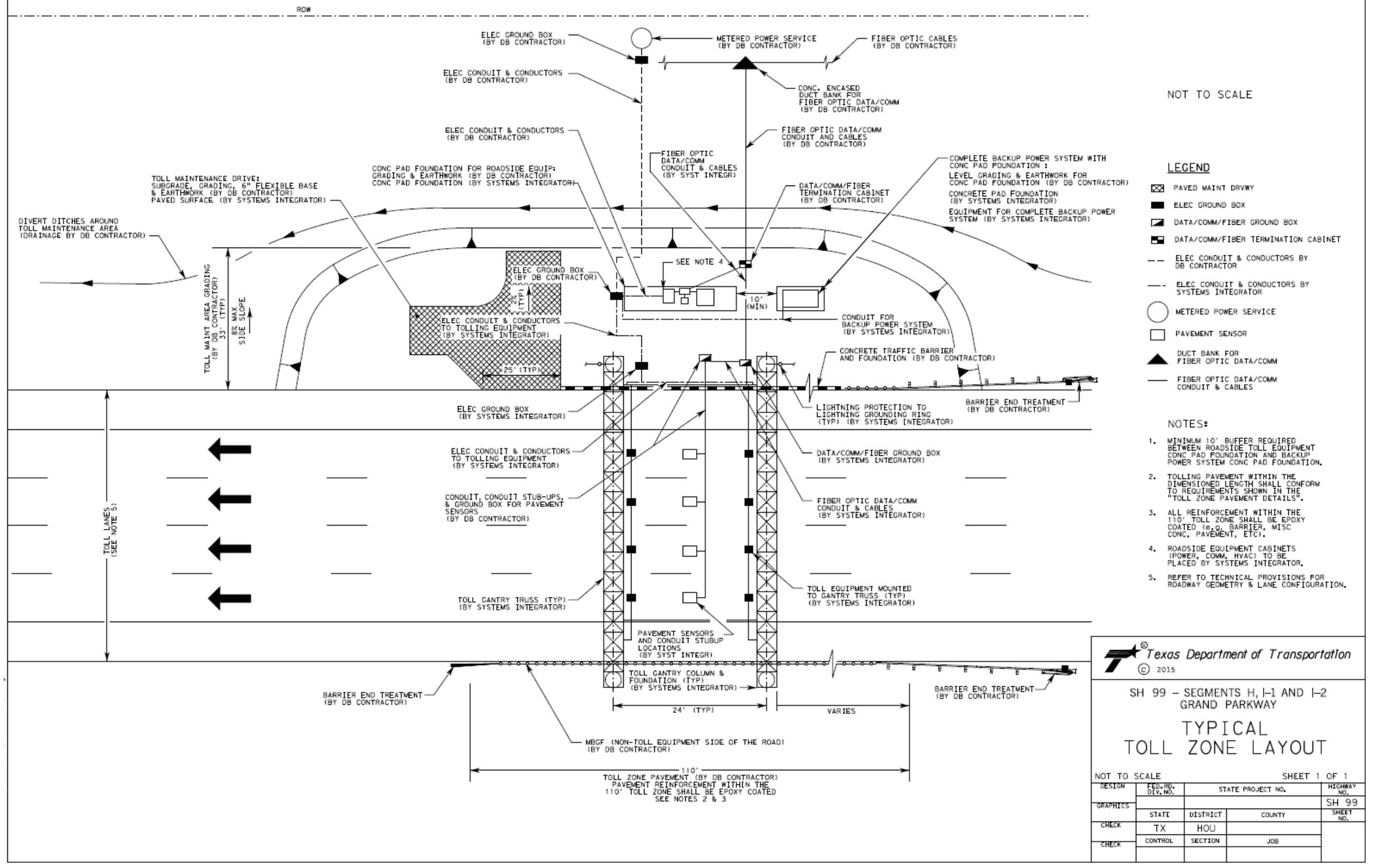
SH 99 GRAND PARKWAY SEGMENTS H, I-1 AND I-2

ATTACHMENT 21-2

TYPICAL TOLL ZONE LAYOUT

RFP ADDENDUM #8

DECEMBER 19, 2016



NOT TO SCALE

LEGEND

- PAVED MAINT DRVWY
- ELEC GROUND BOX
- DATA/COMM/FIBER GROUND BOX
- DATA/COMM/FIBER TERMINATION CABINET
- ELEC CONDUIT & CONDUCTORS BY DB CONTRACTOR
- ELEC CONDUIT & CONDUCTORS BY SYSTEMS INTEGRATOR
- METERED POWER SERVICE
- PAVEMENT SENSOR
- DUCT BANK FOR FIBER OPTIC DATA/COMM
- FIBER OPTIC DATA/COMM CONDUIT & CABLES

NOTES:

1. MINIMUM 10' BUFFER REQUIRED BETWEEN ROADSIDE TOLL EQUIPMENT CONC PAD FOUNDATION AND BACKUP POWER SYSTEM CONC PAD FOUNDATION.
2. TOLLING PAVEMENT WITHIN THE DIMENSIONED LENGTH SHALL CONFORM TO REQUIREMENTS SHOWN IN THE "TOLL ZONE PAVEMENT DETAILS".
3. ALL REINFORCEMENT WITHIN THE 110' TOLL ZONE SHALL BE EPOXY COATED (e.g. BARRIER, MISC CONC, PAVEMENT, ETC).
4. ROADSIDE EQUIPMENT CABINETS (POWER, COMM, HVAC) TO BE PLACED BY SYSTEMS INTEGRATOR.
5. REFER TO TECHNICAL PROVISIONS FOR ROADWAY GEOMETRY & LANE CONFIGURATION.

SH 99 – SEGMENTS H, I-1 AND I-2
GRAND PARKWAY

TYPICAL TOLL ZONE LAYOUT

NOT TO SCALE SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	STATE PROJECT NO.		HIGHWAY NO.
GRAPHICS				SH 99
	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TX	HOU		
CHECK	CONTROL	SECTION	JOB	

TEXAS DEPARTMENT OF TRANSPORTATION

TECHNICAL PROVISIONS

FOR

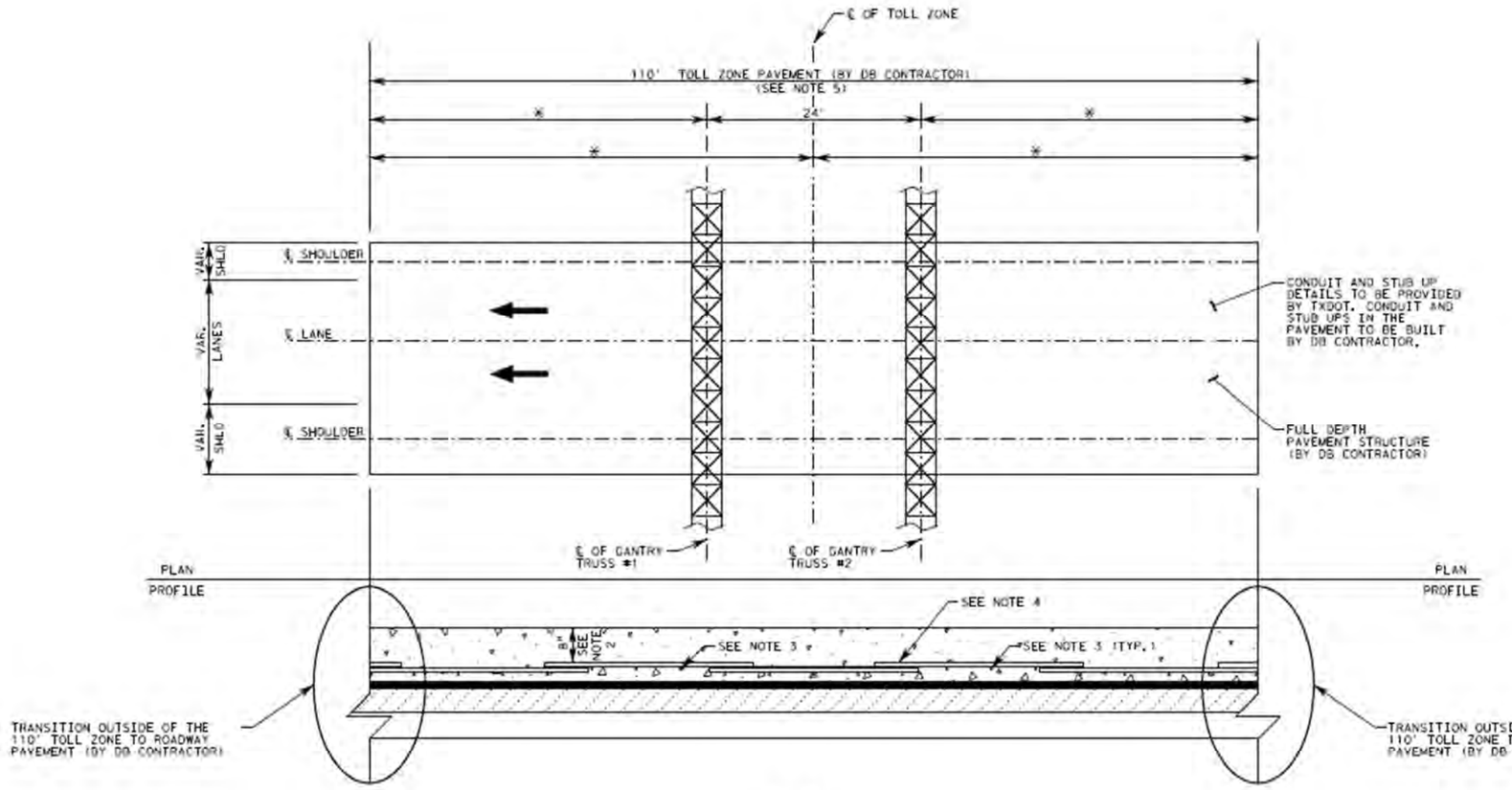
SH 99 GRAND PARKWAY SEGMENTS H, I-1 AND I-2

ATTACHMENT 21-3

TOLL ZONE PAVEMENT DETAILS

RFP ADDENDUM #8

DECEMBER 19, 2016



N.T.S.

* DIMENSIONS TO BE PROVIDED BY SYSTEMS INTEGRATOR

NOTES:

1. FINAL PAVEMENT DESIGN SHALL BE THE RESPONSIBILITY OF THE DB CONTRACTOR. DETAILS AND DIMENSIONS PROVIDED ON THIS SHEET ARE REQUIREMENTS FOR THE SYSTEMS INTEGRATOR AND SHALL BE INCORPORATED INTO THE DB CONTRACTOR'S PAVEMENT DESIGN.
2. 8" IS MEASURED FROM TOP OF PAVEMENT TO TOP OF STEEL.
3. ALL TOLL ZONE PAVEMENT SHALL BE CONCRETE AND THE REINFORCING STEEL SHALL BE EPOXY COATED (CONTINUOUSLY REINFORCED CONCRETE PAVEMENT, CRCP).

   WHEN CONCRETE PAVING IS USED IMMEDIATELY OUTSIDE THE TOLL ZONE PAVEMENT LIMITS, THE TOLL ZONE CONCRETE TYPE AND REINFORCING STEEL SIZE ARE TO MATCH EXISTING OR PROPOSED CONCRETE PAVEMENT. WHEN ASPHALTIC CONCRETE PAVING (ACP) IS USED IMMEDIATELY OUTSIDE THE TOLL ZONE PAVEMENT LIMITS, THE DB CONTRACTOR SHALL DESIGN AN APPROPRIATE TRANSITION AND SUBSTRUCTURE BETWEEN TOLL ZONE CONCRETE AND ACP.
4. A MINIMUM OF 2/3 OF SPLICES SHALL BE OFFSET FROM ADJACENT SPLICES. THIS OFFSET SHOULD BE A MINIMUM OF 2'.
5. NO CONSTRUCTION JOINTS ARE ALLOWED WITHIN THE 110' TOLL ZONE PAVEMENT AREA. LONGITUDINAL AND TRANSVERSE EXPANSION JOINTS ARE ONLY ALLOWED PER JOINT AND STUB UP DETAIL SHEETS THAT ARE TO BE PROVIDED BY TXDOT AND THE SYSTEMS INTEGRATOR.
6. ALL ACCESSORIES SUCH AS TIES, BAR CHAIRS, SUPPORTS OR CLIPS SHALL BE NON-FERROUS, PLASTIC, PRECAST MORTAR OR CONCRETE BLOCK SUPPORTS OR AS APPROVED BY THE ENGINEER.

LEGEND

- PROPOSED CONC PVMT (CRCP)
- PAVEMENT STRUCTURE
- PAVEMENT STRUCTURE
- PAVEMENT STRUCTURE
- DIRECTION OF TRAFFIC

Texas Department of Transportation®

SH 99 – SEGMENTS H, I-1 AND I-2
GRAND PARKWAY
TOLL ZONE PAVEMENT DETAILS

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	STATE PROJECT NO.		HIGHWAY NO.
GRAPHICS				SH 99
	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TX	HOU		
CHECK	CONTROL	SECTION	JOB	