US EPA ARCHIVE DOCUMENT

Part two of four

US EPA ARCHIVE DOCUMENT

Identification of Historic Properties
within the Area of Potential Effects for
Tenaska Brownsville Partners'
Tenaska Brownsville Generating Station,
Cameron County, Texas

US EPA ARCHIVE DOCUMENT

Appendix A

Photograph Log

December 18, 2013
Project No. 0185680

Environmental Resources Management, Inc.
CityCentre Four
840 West Sam Houston Parkway North, Suite 600
Houston, Texas 77024-3920
(281) 600-1000

Appendix A: PHOTOGRAPH LOG

Client Name: Tenaska	Site Location: Tenaska Brownsville Generating Station: Cameron County, Texas	Project No. 0185680

Photo No. 1	Date: 4/10/13

Direction: Looking Northwest

Description:

Project Site and Mesquite Encroachment

Photo No. 2	Date: 4/10/13

Direction: Looking East

Description:

Project Site and Vegetation in Western Area

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Appendix A: PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Tenaska Brownsville Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 3	**Date:** 4/10/13
Direction: Looking North	
Description: Metal Detection (MD) Area MD-5	

Photo No. 4	**Date:** 4/10/13
Direction: Looking North	
Description: MD-10 within cleared transects. Most of the metal detection finds were from MD-10	

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Appendix A: PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Tenaska Brownsville Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 5	**Date:** 1/16/13
Direction: Looking Northwest	
Description: Old Alice Road, North of the Project Site	

Photo No. 6	**Date:** 1/16/13
Direction: Looking Southeast	
Description: Old Alice Road, North of the Project Site, looking toward the Project site	

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Appendix A: PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Tenaska Brownsville Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 7	**Date:** 4/3/13
Direction: Looking Southeast	
Description: California Road, looking towards the Project site	

Photo No. 8	**Date:** 1/16/13
Direction: Looking Northeast	
Description: Old Alice Road, just North of CCDD1 Ditch No. 2	

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Appendix A: PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Tenaska Brownsville Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 9	**Date:** 1.16.13
Direction: Looking South	
Description: Old Alice Road, just North of CCDD1 Ditch No. 2, looking toward the Project site	

Photo No. 10	**Date:** 4/3/13
Direction: Looking West	
Description: Lemon Drive	

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Appendix A: PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Tenaska Brownsville Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 11	**Date:** 1/16/13
Direction: Looking West	
Description: North side of Highway 511, view toward Project site, with Southmost Regional Water Authority Desalination Plant and Rancho Verde Elementary School	

Photo No. 12	**Date:** 1/16/13
Direction: Looking Northeast	
Description: North side of Highway 511, view towards Palo Alto Battlefield National Historic Site	

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Appendix A: PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Tenaska Brownsville Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 13	**Date:** 4/3/13
Direction: Looking Southwest	
Description: North side of Highway 511, view towards U.S. Border Patrol Brownsville Station	

Photo No. 14	**Date:** 4/3/13
Direction: Looking Southeast	
Description: Paredes Line Road, South of Highway 511 overpass, showing Titan Tire Corporation warehouse	

US EPA ARCHIVE DOCUMENT

Appendix A: PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Tenaska Brownsville Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 15	**Date:** 4/3/13
Direction: Looking North	
Description: Paredes Line Road, South of Highway 511 overpass, view towards Project site	

Photo No. 16	**Date:** 1/16/13
Direction: Looking South	
Description: Old Alice Road, adjacent to CCDD1 Old Voltz (ditch) and Old Alice Road Property of Interest (Tax ID 143519)	

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Appendix A: PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Tenaska Brownsville Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 17	**Date:** 1/16/13
Direction: Looking North	
Description: Old Alice Road, adjacent to CCDD1 Old Voltz (ditch) and Old Alice Road Property of Interest (Tax ID 143519), view toward Project site	

Photo No. 18	**Date:** 1/16/13
Direction: Looking West	
Description: South boundary of Project site, showing Southmost Regional Water Authority Desalination Plant (left) and CCDD1 Olmito Branch (right)	

US EPA ARCHIVE DOCUMENT

Appendix A: PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Tenaska Brownsville Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 19	**Date:** 1/16/13
Direction: Looking Northwest	
Description: 32381 Lemon Drive	

Photo No. 20	**Date:** 4/3/13
Direction: Looking Northeast	
Description: 32381 Lemon Drive	

US EPA ARCHIVE DOCUMENT

Appendix A: PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Tenaska Brownsville Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 21	**Date:** 1/16/13
Direction: Looking West	
Description: Old Alice Road Property of Interest (Tax ID 143519)	

Photo No. 22	**Date:** 4/3/13
Direction: Looking Northwest	
Description: Old Alice Road Property of Interest (Tax ID 143519)	

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Appendix A: PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Tenaska Brownsville Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 23	**Date:** 4/3/13
Direction: Looking North	
Description: Old Alice Road, directly in front of Old Alice Road Property of Interest (Tax ID 143519)	

Photo No. 24	**Date:** 4/3/13
Direction: Looking West	
Description: CCDD1 Olmito Branch, adjacent to the Southmost Regional Water Authority Desalination Plant	

US EPA ARCHIVE DOCUMENT

Appendix A: PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Tenaska Brownsville Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 25	**Date:** 4/3/13
Direction: Looking Southeast	
Description: CCDD1 Olmito Branch, adjacent to the Southmost Regional Water Authority Desalination Plant, view toward Rancho Verde Elementary School	

Photo No. 26	**Date:** 1/16/13
Direction: Looking West	
Description: CCDD1 Olmito Branch, adjacent to the Southmost Regional Water Authority Desalination Plant	

US EPA ARCHIVE DOCUMENT

Appendix A: PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Tenaska Brownsville Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 27	**Date:** 1/16/13
Direction: Looking South	
Description: Southern Pacific Railway crossing at West Ocean Boulevard in Los Fresnos (photo taken outside of the APE)	

Photo No. 28	**Date:** 1/16/13
Direction: Looking Northwest	
Description: Palo Alto Battlefield National Historical Park entrance, view across Paredes Line Road toward Project site	

US EPA ARCHIVE DOCUMENT

Appendix A: PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Tenaska Brownsville Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 29	**Date:** 1/16/13
Direction: Looking East	
Description: Palo Alto Battlefield National Historical Park Visitor's Center	

Photo No. 30	**Date:** 1/16/13
Direction: Looking Northeast	
Description: Palo Alto Battlefield National Historical Park, view from Visitor's Center driveway towards core of the battlefield	

US EPA ARCHIVE DOCUMENT

Appendix A: PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Tenaska Brownsville Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 31	**Date:** 4/3/13
Direction: Looking Southwest	
Description: Palo Alto Battlefield National Historical Park, view Visitor's Center	

Photo No. 32	**Date:** 1/16/13
Direction: Looking Southwest	
Description: Palo Alto Battlefield National Historical Park, overlook	

US EPA ARCHIVE DOCUMENT

Appendix A: PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Tenaska Brownsville Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 33	**Date:** 1/16/13
Direction: Looking East	
Description: Palo Alto Battlefield National Historical Park, view East from overlook	

Photo No. 34	**Date:** 1/16/13
Direction: Looking Southwest	
Description: Palo Alto Battlefield National Historical Park, view Southwest from overlook	

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Appendix A: PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Tenaska Brownsville Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 35	**Date:** 1/16/13
Direction: Looking Northeast	
Description: Palo Alto Battlefield National Historical Park, section of historic road to Matamoros, east of overlook	

Photo No. 36	**Date:** 4/3/13
Direction: Looking South	
Description: Palo Alto Battlefield National Historical Park, adjacent to overlook, view south	

US EPA ARCHIVE DOCUMENT

Appendix B

Shovel Test Log

December 18, 2013
Project No. 0185680

Environmental Resources Management, Inc.
CityCentre Four
840 West Sam Houston Parkway North, Suite 600
Houston, Texas 77024-3920
(281) 600-1000

ERM/CEI Project: Tenaska - Brownsville Electric Generating Station				
Shovel Test Log				
Transect	Shovel Test	Result	Depth	Artifacts
T-17W	T17W-1	Negative	40 cmbs	0
	T17W-2	Negative	39 cmbs	0
	T17W-3	Negative	40 cmbs	0
	T17W-4	Negative	38 cmbs	0
	T17W-5	Negative	40 cmbs	0
	T17W-6	Negative	36 cmbs	0
	T17W-7	Negative	40 cmbs	0
	T17W-8	Negative	35 cmbs	0
	T17W-9	Negative	40 cmbs	0
T-16W	T16W-1	Negative	40 cmbs	0
	T16W-2	Negative	40 cmbs	0
	T16W-3	Negative	40 cmbs	0
	T16W-4	Negative	40 cmbs	0
	T16W-5	Negative	40 cmbs	0
	T16W-6	Negative	38 cmbs	0
	T16W-7	Negative	40 cmbs	0
	T16W-8	Negative	35 cmbs	0
	T16W-9	Negative	40 cmbs	0
T-15W	T15W-1	Negative	40 cmbs	0
	T15W-2	Negative	40 cmbs	0
	T15W-3	Negative	40 cmbs	0
	T15W-4	Negative	35 cmbs	0
	T15W-5	Negative	40 cmbs	0
	T15W-6	Negative	40 cmbs	0
	T15W-7	Negative	40 cmbs	0
	T15W-8	Negative	40 cmbs	0
	T15W-9	Negative	40 cmbs	0
T-14W	T14W-1	Negative	40 cmbs	0
	T14W-2	Negative	42 cmbs	0
	T14W-3	Negative	35 cmbs	0
	T14W-4	Negative	40 cmbs	0
	T14W-5	Negative	40 cmbs	0

ERM/CEI Project: Tenaska - Brownsville Electric Generating Station				
Shovel Test Log				
	T14W-6	Negative	40 cmbs	0
	T14W-7	Negative	35 cmbs	0
	T14W-8	Negative	40 cmbs	0
	T14W-9	Negative	35 cmbs	0
T-13W	T13W-1	Negative	40 cmbs	0
	T13W-2	Negative	40 cmbs	0
	T13W-3	Negative	40 cmbs	0
	T13W-4	Negative	40 cmbs	0
	T13W-5	Negative	40 cmbs	0
	T13W-6	Negative	40 cmbs	0
	T13W-7	Negative	40 cmbs	0
	T13W-8	Negative	35 cmbs	0
	T13W-9	Negative	38 cmbs	0
T-12W	T12W-1	Negative	40 cmbs	0
	T12W-2	Negative	40 cmbs	0
	T12W-3	Negative	40 cmbs	0
	T12W-4	Negative	40 cmbs	0
	T12W-5	Negative	45 cmbs	0
	T12W-6	Negative	40 cmbs	0
	T12W-7	Negative	45 cmbs	0
	T12W-8	Negative	40 cmbs	0
T-11W	T11W-0	Negative	40 cmbs	0
	T11W-1	Negative	35 cmbs	0
	T11W-2	Negative	40 cmbs	0
	T11W-3	Negative	36 cmbs	0
	T11W-4	Negative	40 cmbs	0
	T11W-5	Negative	37 cmbs	0
	T11W-6	Negative	40 cmbs	0
	T11W-7	Negative	38 cmbs	0
	T11W-8	Negative	40 cmbs	0
T-10W	T10W-1	Negative	40 cmbs	0
	T10W-2	Negative	40 cmbs	0

ERM/CEI Project: Tenaska - Brownsville Electric Generating Station				
Shovel Test Log				
	T10W-3	Negative	40 cmbs	0
	T10W-4	Negative	40 cmbs	0
	T10W-5	Negative	40 cmbs	0
	T10W-6	Negative	40 cmbs	0
	T10W-7	Negative	40 cmbs	0
	T10W-8	Negative	40 cmbs	0
T-9W	T9W-0	Negative	37 cmbs	0
	T9W-1	Negative	40 cmbs	0
	T9W-2	Negative	40 cmbs	0
	T9W-3	Negative	40 cmbs	0
	T9W-4	Negative	35 cmbs	0
	T9W-5	Negative	40 cmbs	0
	T9W-6	Negative	37 cmbs	0
	T9W-7	Negative	40 cmbs	0
	T9W-8	Negative	37 cmbs	0
T-8W	T8W-1	Negative	40 cmbs	0
	T8W-2	Negative	37 cmbs	0
	T8W-3	Negative	45 cmbs	0
	T8W-4	Negative	38 cmbs	0
	T8W-5	Negative	41 cmbs	0
	T8W-6	Negative	37 cmbs	0
	T8W-7	Negative	40 cmbs	0
	T8W-8	Negative	40 cmbs	0
T-7.5W	T7.5W-1	Negative	40 cmbs	0
	T7.5W-2	Negative	40 cmbs	0
	T7.5W-3	Negative	40 cmbs	0
	T7.5W-4	Negative	40 cmbs	0
	T7.5W-5	Negative	40 cmbs	0
	T7.5W-6	Negative	40 cmbs	0
	T7.5W-7	Negative	40 cmbs	0
T-7W	T7W-1	Negative	45 cmbs	0
	T7W-2	Negative	45 cmbs	0

ERM/CEI Project: Tenaska - Brownsville Electric Generating Station				
Shovel Test Log				
	T7W-3	Negative	45 cmbs	0
	T7W-4	Negative	45 cmbs	0
	T7W-5	Negative	45 cmbs	0
	T7W-6	Negative	45 cmbs	0
	T7W-7	Negative	45 cmbs	0
T-6.5W	T6.5W-1	Negative	40 cmbs	0
	T6.5W-2	Negative	40 cmbs	0
	T6.5W-3	Negative	40 cmbs	0
	T6.5W-4	Negative	40 cmbs	0
	T6.5W-5	Negative	40 cmbs	0
	T6.5W-6	Negative	35 cmbs	0
	T6.5W-7	Negative	40 cmbs	0
T-6W	T6W-1	Negative	36cmbs	0
	T6W-2	Negative	40 cmbs	0
	T6W-3	Negative	37 cmbs	0
	T6W-4	Negative	40 cmbs	0
	T6W-5	Negative	40 cmbs	0
	T6W-6	Negative	40 cmbs	0
	T6W-7	Negative	36 cmbs	0
T-5.5W	T5.5W-1	Negative	38 cmbs	0
	T5.5W-2	Negative	40 cmbs	0
	T5.5W-3	Negative	38 cmbs	0
	T5.5W-4	Negative	38 cmbs	0
	T5.5W-5	Negative	40 cmbs	0
	T5.5W-6	Negative	40 cmbs	0
	T5.5W-7	Negative	40 cmbs	0
T-5W	T5W-1	Negative	45 cmbs	0
	T5W-2	Negative	47 cmbs	0
	T5W-3	Negative	47 cmbs	0
	T5W-4	Negative	48 cmbs	0
	T5W-5	Negative	46 cmbs	0
	T5W-6	Negative	48 cmbs	0

ERM/CEI Project: Tenaska - Brownsville Electric Generating Station				
Shovel Test Log				
	T5W-7	Negative	45 cmbs	0
T-4.5W	T4.5W-1	Negative	40 cmbs	0
	T4.5W-2	Negative	40 cmbs	0
	T4.5W-3	Negative	40 cmbs	0
	T4.5W-4	Negative	40 cmbs	0
	T4.5W-5	Negative	40 cmbs	0
	T4.5W-6	Negative	40 cmbs	0
	T4.5W-7	Negative	40 cmbs	0
T-4W	T4W-1	Negative	35 cmbs	0
	T4W-2	Negative	40 cmbs	0
	T4W-3	Negative	40 cmbs	0
	T4W-4	Negative	35 cmbs	0
	T4W-5	Negative	40 cmbs	0
	T4W-6	Negative	40 cmbs	0
	T4W-7	Negative	45 cmbs	0
T-3.5W	T3.5W-1	Negative	40 cmbs	0
	T3.5W-2	Negative	40 cmbs	0
	T3.5W-3	Negative	40 cmbs	0
	T3.5W-4	Negative	40 cmbs	0
	T3.5W-5	Negative	40 cmbs	0
	T3.5W-6	Negative	40 cmbs	0
	T3.5W-7	Negative	40 cmbs	0
T-3W	T3W-1	Negative	40 cmbs	0
	T3W-2	Negative	40 cmbs	0
	T3W-3	Negative	40 cmbs	0
	T3W-4	Negative	45 cmbs	0
	T3W-5	Negative	40 cmbs	0
	T3W-6	Negative	35 cmbs	0
	T3W-7	Negative	40 cmbs	0
T-2.5W	T2.5W-1	Negative	40 cmbs	0
	T2.5W-2	Negative	44 cmbs	0

ERM/CEI Project: Tenaska - Brownsville Electric Generating Station				
Shovel Test Log				
	T2.5W-3	Negative	42 cmbs	0
	T2.5W-4	Negative	40 cmbs	0
	T2.5W-5	Negative	43 cmbs	0
	T2.5W-6	Negative	40 cmbs	0
	T2.5W-7	Negative	40 cmbs	0
T-2W	T2W-1	Negative	40 cmbs	0
	T2W-2	Negative	35 cmbs	0
	T2W-3	Negative	40 cmbs	0
	T2W-4	Negative	42 cmbs	0
	T2W-5	Negative	41 cmbs	0
	T2W-6	Negative	28 cmbs	0
	T2W-7	Negative	27 cmbs	0
T-1.5W	T1.5W-1	Negative	40 cmbs	0
	T1.5W-2	Negative	35 cmbs	0
	T1.5W-3	Negative	40 cmbs	0
	T1.5W-4	Negative	35 cmbs	0
	T1.5W-5	Negative	40 cmbs	0
	T1.5W-6	Negative	40 cmbs	0
T-1W	T1W-1	Negative	35 cmbs	0
	T1W-2	Negative	35 cmbs	0
	T1W-3	Negative	40 cmbs	0
	T1W-4	Negative	35 cmbs	0
	T1W-5	Negative	40 cmbs	0
	T1W-6	Negative	45 cmbs	0
T-0.5W	T0.5W-1	Negative	40 cmbs	0
	T0.5W-2	Negative	40 cmbs	0
	T0.5W-3	Negative	38 cmbs	0
	T0.5W-4	Negative	40 cmbs	0
	T0.5W-5	Negative	40 cmbs	0
	T0.5W-6	Negative	40 cmbs	0
	T0.5W-7	Negative	38 cmbs	0
	T0.5W-8	Negative	38 cmbs	0

ERM/CEI Project: Tenaska - Brownsville Electric Generating Station				
Shovel Test Log				
T-15E	T15E-1	Negative	42 cmbs	0
	T15E-2	Negative	40 cmbs	0
	T15E-3	Negative	40 cmbs	0
	T15E-4	Negative	35 cmbs	0
	T15E-5	Negative	40 cmbs	0
	T15E-6	Negative	40 cmbs	0
	T15E-7	Negative	40 cmbs	0
	T15E-8	Negative	36 cmbs	0
T-14.5E	T14.5E-1	Negative	40 cmbs	0
	T14.5E-2	Negative	40 cmbs	0
	T14.5E-3	Negative	40 cmbs	0
	T14.5E-4	Negative	40 cmbs	0
	T14.5E-5	Negative	40 cmbs	0
	T14.5E-6	Negative	40 cmbs	0
	T14.5E-7	Negative	40 cmbs	0
	T14.5E-8	Negative	40 cmbs	0
T-14E	T14E-1	Negative	43 cmbs	0
	T14E-2	Negative	42 cmbs	0
	T14E-3	Negative	41 cmbs	0
	T14E-4	Negative	32 cmbs	0
	T14E-5	Negative	31 cmbs	0
	T14E-6	Negative	32 cmbs	0
	T14E-7	Negative	31 cmbs	0
	T14E-8	Negative	27 cmbs	0
T-13.5E	T13.5E-1	Negative	40 cmbs	0
	T13.5E-2	Negative	40 cmbs	0
	T13.5E-3	Negative	40 cmbs	0
	T13.5E-4	Negative	45 cmbs	0
	T13.5E-5	Negative	40 cmbs	0
	T13.5E-6	Negative	40 cmbs	0
	T13.5E-7	Negative	45 cmbs	0

ERM/CEI Project: Tenaska - Brownsville Electric Generating Station				
Shovel Test Log				
T-13E	T13E-1	Negative	40 cmbs	0
	T13E-2	Negative	33 cmbs	0
	T13E-3	Negative	40 cmbs	0
	T13E-4	Negative	35 cmbs	0
	T13E-5	Negative	40 cmbs	0
	T13E-6	Negative	34 cmbs	0
	T13E-7	Negative	40 cmbs	0
	T13E-8	Negative	35 cmbs	0
T-12.5E	T12.5E-1	Negative	40 cmbs	0
	T12.5E-2	Negative	40 cmbs	0
	T12.5E-3	Negative	40 cmbs	0
	T12.5E-4	Negative	40 cmbs	0
	T12.5E-5	Negative	40 cmbs	0
	T12.5E-6	Negative	35 cmbs	0
	T12.5E-7	Negative	35 cmbs	0
T-12E	T12E-1	Negative	43 cmbs	0
	T12E-2	Negative	40 cmbs	0
	T12E-3	Negative	40 cmbs	0
	T12E-4	Negative	40 cmbs	0
	T12E-5	Negative	40 cmbs	0
	T12E-6	Negative	40 cmbs	0
	T12E-7	Negative	40 cmbs	0
	T12E-8	Not Excavated		0
T-11.5E	T11.5E-1	Negative	40 cmbs	0
	T11.5E-2	Negative	38 cmbs	0
	T11.5E-3	Negative	40 cmbs	0
	T11.5E-4	Negative	38 cmbs	0
	T11.5E-5	Negative	40 cmbs	0
	T11.5E-6	Negative	40 cmbs	0
	T11.5E-7	Negative	40 cmbs	0
T-11E	T11E-1	Negative	42 cmbs	0
	T11E-2	Negative	41 cmbs	0

ERM/CEI Project: Tenaska - Brownsville Electric Generating Station				
Shovel Test Log				
	T11E-3	Negative	43 cmbs	0
	T11E-4	Negative	38 cmbs	0
	T11E-5	Negative	37 cmbs	0
	T11E-6	Negative	40 cmbs	0
	T11E-7	Negative	41 cmbs	0
	T11E-8	Negative	35 cmbs	0
T-10.5E	T10.5E-1	Negative	40 cmbs	0
	T10.5E-2	Negative	40 cmbs	0
	T10.5E-3	Negative	40 cmbs	0
	T10.5E-4	Negative	40 cmbs	0
	T10.5E-5	Negative	40 cmbs	0
	T10.5E-6	Negative	40 cmbs	0
	T10.5E-7	Negative	40 cmbs	0
T-10E	T10E-1	Negative	42 cmbs	0
	T10E-2	Negative	30 cmbs	0
	T10E-3	Negative	40 cmbs	0
	T10E-4	Negative	30 cmbs	0
	T10E-5	Negative	42 cmbs	0
	T10E-6	Negative	35 cmbs	0
	T10E-7	Negative	43 cmbs	0
	T10E-8	Negative	35 cmbs	0
T-9E	T9E-1	Negative	40 cmbs	0
	T9E-2	Negative	35 cmbs	0
	T9E-3	Negative	40 cmbs	0
	T9E-4	Negative	35 cmbs	0
	T9E-5	Negative	40 cmbs	0
	T9E-6	Negative	30 cmbs	0
	T9E-7	Negative	40 cmbs	0
	T9E-8	Not Excavated		0
T-8E	T8E-1	Negative	50 cmbs	0
	T8E-2	Negative	40 cmbs	0
	T8E-3	Negative	40 cmbs	0

ERM/CEI Project: Tenaska - Brownsville Electric Generating Station				
Shovel Test Log				
	T8E-4	Negative	35 cmbs	0
	T8E-5	Negative	40 cmbs	0
	T8E-6	Negative	37 cmbs	0
	T8E-7	Negative	40 cmbs	0
	T8E-8	Negative	40 cmbs	0
T-7E	T7E-1	Negative	30 cmbs	0
	T7E-2	Negative	34 cmbs	0
	T7E-3	Negative	35 cmbs	0
	T7E-4	Negative	40 cmbs	0
	T7E-5	Negative	38 cmbs	0
	T7E-6	Negative	40 cmbs	0
	T7E-8	Negative	40 cmbs	0
	T7E-8	Negative	50 cmbs	0
T-2E	T2E-1	Negative	35 cmbs	0
	T2E-2	Negative	35 cmbs	0
	T2E-3	Negative	40 cmbs	0
	T2E-4	Negative	35 cmbs	0
	T2E-5	Negative	42 cmbs	0
	T2E-6	Negative	50 cmbs	0
	T2E-7	Negative	55 cmbs	0
	T2E-8	Negative	50 cmbs	0
	T2E-9	Negative	45 cmbs	0
	T2E-10	Negative	55 cmbs	0
	T2E-11	Negative	47 cmbs	0
	T2E-12	Negative	50 cmbs	0
	T2E-13	Negative	52 cmbs	0
	T2E-14	Negative	40 cmbs	0
	T2E-15	Negative	30 cmbs	0
T-1.5E	T1.5E-1	Negative	30 cmbs	0
	T1.5E-2	Negative	40 cmbs	0
	T1.5E-3	Negative	40 cmbs	0
	T1.5E-4	Negative	50 cmbs	0
	T1.5E-5	Negative	50 cmbs	0

ERM/CEI Project: Tenaska - Brownsville Electric Generating Station				
Shovel Test Log				
	T1.5E-6	Negative	50 cmbs	0
	T1.5E-7	Negative	70 cmbs	0
	T1.5E-8	Negative	50 cmbs	0
	T1.5E-9	Negative	75 cmbs	0
	T1.5E-10	Negative	70 cmbs	0
	T1.5E-11	Negative	70 cmbs	0
	T1.5E-12	Negative	65 cmbs	0
	T1.5E-13	Negative	60 cmbs	0
	T1.5E-14	Negative	55 cmbs	0
	T1.5E-15	Negative	30 cmbs	0
T-1E	T1E-1	Negative	35 cmbs	0
	T1E-2	Negative	35 cmbs	0
	T1E-3	Negative	35 cmbs	0
	T1E-4	Negative	35 cmbs	0
	T1E-5	Negative	40 cmbs	0
	T1E-6	Negative	35 cmbs	0
	T1E-7	Negative	35 cmbs	0
	T1E-8	Negative	30 cmbs	0
	T1E-9	Negative	35 cmbs	0
	T1E-10	Negative	30 cmbs	0
	T1E-11	Negative	35 cmbs	0
	T1E-12	Negative	37 cmbs	0
	T1E-13	Negative	35 cmbs	0
	T1E-14	Negative	40 cmbs	0
	T1E-15	Negative	35 cmbs	0

TRANSECT CONVERSION

ERM/CEI Project: Tenaska - Brownsville Power Generating Station	
Conversion Chart: Transects - Field Designations to Report Designations	
Transects	
Field Designation	Report Designations
E940	T-1E
E910	T-1.5E
E880	T-2E
E580	T-7E
E520	T-8E
E460	T-9E
E400	T-10E
E370	T-10.5E
E340	T-11E
E310	T-11.5E
E280	T-12E
E250	T-12.5E
E220	T-13E
E190	T-13.5E
E160	T-14E
E130	T-14.5E
E100	T-15E
E70	T-0.5W

SHOVEL TEST CONVERSION

ERM/CEI Project: Tenaska - Brownsville Power Generating Station	
Conversion Chart: Shovel Test Numbers - Field Designations to Report Designations	
Shovel Test Numbers	
Field Designations	Report Designations
E70, N1080	T0.5W-1
E70, N1140	T0.5W-2
E70, N1200	T0.5W-3
E70, N1260	T0.5W-4
E70, N1320	T0.5W-5
E70, N1380	T0.5W-6
E70, N1450	T0.5W-7
E70, N1510	T0.5W-8
E100, N 1060	T15E-1
E100, N 1120	T15E-2
E 100, N1180	T15E-3
E100, N1240	T15E-4
E100, N1300	T15E-5
E100, N1360	T15E-6
E100, N1420	T15E-7
E100, N1480	T15E-8
E130, N1090	T14.5E-1
E130, N1150	T14.5E-2
E130, N1210	T14.5E-3
E130, N1270	T14.5E-4
E130, N1340	T14.5E-5
E130, N1400	T14.5E-6
E130, N1450	T14.5E-7
E130, N1510	T14.5E-8
E160, N1060	T14E-1
E160, N1120	T14E-2
E160, N1180	T14E-3
E160, N1240	T14E-4
E160, N1300	T14E-5
E160, N1360	T14E-6
E160, N1420	T14E-7
E160, N1480	T14E-8
E190, N1090	T13.5E-1
E190, N1150	T13.5E-2
E190, N1210	T13.5E-3
E190, N1270	T13.5E-4
E190, N1340	T13.5E-5
E190, N1400	T13.5E-6
E190, N1450	T13.5E-7
E220, N1060	T13E-1
E220, N1120	T13E-2
E220, N1180	T13E-3
E220, N1240	T13E-4
E220, N1300	T13E-5
E220, N1360	T13E-6
E220, N1420	T13E-7
E220, N1480	T13E-8
E250, N1090	T12.5E-1
E250, N1150	T12.5E-2
E250, N1210	T12.5E-3
E250, N1270	T12.5E-4

ERM/CEI Project: Tenaska - Brownsville Power Generating Station	
Conversion Chart: Shovel Test Numbers - Field Designations to Report Designations	
Shovel Test Numbers	
E250, N1350	T12.5E-5
E250, N1390	T12.5E-6
E250, N1450	T12.5E-7
E280, N1060	T12E-1
E280, N1120	T12E-2
E280, N1180	T12E-3
E280, N1240	T12E-4
E280, N1300	T12E-5
E280, N1360	T12E-6
E280, N1420	T12E-7
E280, N1480	T12E-8
E310, N1090	T11.5E-1
E310, N1150	T11.5E-2
E310, N1210	T11.5E-3
E310, N1270	T11.5E-4
E310, N1390	T11.5E-5
E310, N1450	T11.5E-6
E310, N1510	T11.5E-7
E340, N1060	T11E-1
E340, N1120	T11E-2
E340, N1180	T11E-3
E340, N1240	T11E-4
E340, N1300	T11E-5
E340, N1360	T11E-6
E340, N1420	T11E-7
E340, N1480	T11E-8
E370, N1090	T10.5E-1
E370, N1150	T10.5E-2
E370, N1210	T10.5E-3
E370, N1270	T10.5E-4
E370, N1390	T10.5E-5
E370, N1450	T10.5E-6
E370, N1510	T10.5E-7
E400, N1060	T10E-1
E400, N1120	T10E-2
E400, N1180	T10E-3
E400, N1240	T10E-4
E400, N1300	T10E-5
E400, N1360	T10E-6
E400, N1420	T10E-7
E400, N1480	T10E-8
E460, N1060	T9E-1
E460, N1120	T9E-2
E460, N1180	T9E-3
E460, N1240	T9E-4
E460, N1300	T9E-5
E460, N1360	T9E-6
E460, N1420	T9E-7
E460, N1480	T9E-8
E520, N1060	T8E-1
E520, N1120	T8E-2
E520, N1180	T8E-3
E520, N1240	T8E-4
E520, N1300	T8E-5

ERM/CEI Project: Tenaska - Brownsville Power Generating Station	
Conversion Chart: Shovel Test Numbers - Field Designations to Report Designations	
Shovel Test Numbers	
E520, N1360	T8E-6
E520, N1420	T8E-7
E520, N1480	T8E-8
E580, N1060	T7E-1
E580, N1120	T7E-2
E580, N1180	T7E-3
E580, N1240	T7E-4
E580, N1300	T7E-5
E580, N1360	T7E-6
E580, N1420	T7E-7
E580, N1480	T7E-8
E880, N1030	T2E-1
E880, N1060	T2E-2
E880, N1090	T2E-3
E880, N1120	T2E-4
E880, N1150	T2E-5
E880, N1180	T2E-6
E880, N1210	T2E-7
E880, N1240	T2E-8
E880, N1270	T2E-9
E880, N1300	T2E-10
E880, N1330	T2E-11
E880, N1360	T2E-12
E880, N1390	T2E-13
E880, N1420	T2E-14
E880, N1450	T2E-15
E910, N1030	T1.5E-1
E910, N1060	T1.5E-2
E910, N1090	T1.5E-3
E910, N1120	T1.5E-4
E910, N1150	T1.5E-5
E910, N1180	T1.5E-6
E910, N1210	T1.5E-7
E910, N1240	T1.5E-8
E910, N1270	T1.5E-9
E910, N1300	T1.5E-10
E910, N1330	T1.5E-11
E910, N1360	T1.5E-12
E910, N1390	T1.5E-13
E910, N1420	T1.5E-14
E910, N1450	T1.5E-15
E940, N1030	T1E-1
E940, N1060	T1E-2
E940, N1090	T1E-3
E940, N1120	T1E-4
E940, N1150	T1E-5
E940, N1180	T1E-6
E940, N1210	T1E-7
E940, N1240	T1E-8
E940, N1270	T1E-9
E940, N1300	T1E-10
E940, N1330	T1E-11
E940, N1360	T1E-12
E940, N1390	T1E-13

ERM/CEI Project: Tenaska - Brownsville Power Generating Station	
Conversion Chart: Shovel Test Numbers - Field Designations to Report Designations	
Shovel Test Numbers	
E940, N1420	T1E-14
E940, N1450	T1E-15

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Appendix C

Resumes of Principal Investigators

December 18, 2013
Project No. 0185680

Environmental Resources Management, Inc.
CityCentre Four
840 West Sam Houston Parkway North, Suite 600
Houston, Texas 77024-3920
(281) 600-1000

Carrie Albee, M.A.

Senior Consultant

Carrie Albee is an architectural historian with sixteen years of experience researching, documenting, and evaluating built heritage resources. She holds an MA in Architectural History and Certificate in Historic Preservation from the University of Virginia. Ms. Albee specializes in cultural heritage management and regulatory compliance throughout a project lifecycle, including: baseline survey to identify built heritage resources; evaluation of historical significance; condition and impact assessments; engaging with cultural heritage stakeholders; development of avoidance, minimization, and mitigation approaches; and execution of mitigation measures. She is proficient in on-site survey and recordation, archival research, and developing historic contexts for built heritage resources. Ms. Albee possesses expertise in disaster planning, response, and recovery for cultural heritage, and in assessing cultural heritage impacts within the broader environmental impact assessment process both in the U.S. and internationally.

Ms. Albee's major projects have included a baseline study and impact assessment for a 15th-century caravanserai in Azerbaijan; high profile, high priority U.S. National Historic Preservation Act (NHPA) regulatory compliance consultation in the St. Augustine, FL, National Historic Landmark Historic District; an historic context for 84 historic rural communities in the Fort Campbell, KY, area prior to military occupation; Historic American Building Survey (HABS) recordation for East Ward School in Gulfport, MS; comprehensive architectural and landscape identification and evaluation and historic preservation master plan for the Armed Forces Retirement Home in Washington, DC; two comprehensive, large-scale building surveys of neighborhoods in Arlington, VA; and a county-wide thematic survey of public buildings in Calvert County, MD.

Professional Affiliations & Registrations

- Exceeds the U.S. Secretary of the Interior's Professional Qualification Standards for Architectural History and History

Fields of Competence

- Impact Assessment for Cultural Heritage
- Architectural Survey and Documentation (HABS)
- Determinations of Historic Designation Eligibility, including resources of the recent past
- Preparation of Historic Contexts for the Built Environment
- U.S. NHPA/Section 106 Compliance, Consultation, and Agreement Documents (PA, MOAs)
- Quality Control for Cultural Heritage Deliverables

Key Industry Sectors

- U.S. Federal
- Oil & Gas
- Commercial Development

Education

- MA, Architectural History, University of Virginia, 1998
- Certificate in Historic Preservation, University of Virginia, 1998
- BA, History, University of North Carolina at Chapel Hill, 1996

Training

- URS Project Manager Certification, 2010
- Vernacular Architectural Forum (VAF) Annual Conference, Falmouth, Jamaica, 2011
- US/ICOMOS International Symposium: Disaster Preparedness, Rapid Response, and Sustainable Recovery in the 21st Century, New Orleans, Louisiana, 2009
- VAF Annual Conference, Savannah, Georgia, 2007
- Advisory Council on Historic Preservation Section 106 Essentials Course, Washington, D.C., 2006
- VAF Annual Conference, Harrisburg, PA, 2004
- Victorian Society Summer School, Newport, RI, 2003
- Attingham Trust Summer School, United Kingdom/Recipient of the Duchess of Devonshire Scholarship, 2001

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Carrie Albee, M.A.

Senior Consultant

Key Projects

Cultural Resources Investigations in Support of Industrial Facility Expansion, U.S. (Ascension Parish, Louisiana), Confidential Client, 2012-Present, Lead Architectural Historian

Ms. Albee serves as the Lead Architectural Historian for the National Register of Historic Places (NRHP) evaluation of an approximately 2,400-acre cultural landscape for a major oil & gas company facility expansion. The property exemplifies a spectrum of significant historical phases of the lower Mississippi River delta, from its occupation by the Houmas Indians prior to European settlement, to Acadian small farmers in the late 18th and early 19th centuries, wealthy French and English sugar planters in the antebellum period through the 19th century, sugar corporations into the 20th century, and now industrial petroleum production beginning in the mid-20th century. The NRHP evaluation involves extensive background research, survey, and consideration of multiple archaeological sites, extant and former buildings and hardscape elements, a cemetery, and extensive landscape features representing over four centuries of utilization.

NHPA Section 106 Compliance in Support of EPA GHG Permit, U.S. (Cameron County, Texas), Tenaska Brownsville Partners, 2013-Present, Cultural Lead and Architectural Historian

Ms. Albee is the Lead for cultural resources compliance activities associated with a proposed 800-MW natural gas-fueled combined cycle electrical generating station outside of Brownsville in southeast Texas. Work has included an archaeological Phase I survey of the 270-acre project site, aboveground survey within an approximately 1.5-mile indirect Area of Potential Effects (APE), and coordinating with historic preservation stakeholders on the effects of the project on historic properties, including the National Historic Landmark Palo Alto Battlefield, significant for its role in the Mexican-American War, and the Cameron County Irrigation District No. 6, established in 1902. Ms. Albee has led the Tenaska team in Section 106 negotiations with the EPA, Texas Historical Commission, the National Park Service, and the Cameron County Historical Commission.

NHPA Section 106 Compliance in Support of EPA GHG Permit, U.S. (San Patricio County, Texas), voestalpine, 2013, Architectural Historian

Ms. Albee conducted a survey to identify aboveground historic properties within 1 km of a proposed hot iron briquette manufacturing facility proposed by voestalpine. The project area, located on the north shore of Corpus Christ Bay, was part of the vast area holdings of the Coleman-Fulton Pasture Company, which was, within a few years of its 1871 incorporation, one of the largest cattle ranching operations in Texas. Work included the NRHP evaluation of the nearby towns Gregory and Portland, established in the late 19th century as stops along the San Antonio and Aransas Pass Railway, the early 20th century multi-cultural Portland-Gregory Cemetery, and the mid-20th century Sherwin Alumina facility.

Environmental and Cultural Resources Compliance Support for HMA Non-Disaster Programs, U.S. (Nationwide), DHS/FEMA, 2011-2012, QA/QC Coordinator

Ms. Albee served as the Quality Assurance/Quality Control (QA/QC) Coordinator for $2M+ Department of Homeland Security (DHS)/Federal Emergency Management Agency (FEMA) Task Order to provide Environmental and Historic Preservation (EHP) technical support to the Hazard Mitigation Assistance (HMA) Grant Program. This involved working on programmatic approaches to decrease the time and money spent on achieving legally sufficient EHP compliance., including an EHP "At-a-Glance" tool that enabled non-specialists to quickly identify the grant project's potential to adversely affect environmental and cultural resources during the early planning stages. Ms. Albee provided cultural resources guidance to company regional staff and technical assistance leads, and conducted technical reviews of deliverables. She also directed the HMA contractual QA/QC process for EHP deliverables, including coordinating with subject matter experts and the editing team.

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Carrie Albee, M.A.

Senior Consultant

EHP National Technical Review for HMA Program Grant Subapplications, U.S. (Nationwide), DHS/FEMA, 2011-2012, Technical Assistance Lead

FEMA's annual National Technical Review (NTR) involves the independent review of all competitive grant subapplications in a calendar year to assess their engineering feasibility, benefit cost, and EHP compliance implications. As EHP Technical Assistance Lead, Ms. Albee was responsible for developing and implementing an approach for assessing EHP compliance implications for an estimated 25-50 FEMA grant subapplications in a highly expedited three-week timeframe. This involved the daily mobilization of a team of 20+ technical staff and development of a coordinated, assembly-line approach to producing three standardized deliverables: a 6-10 page Desktop Review identifying expected affects to environmental and cultural resources, a scope of work recommending steps needed to complete EHP compliance, and estimated costs to perform the work. These deliverables enabled FEMA to evaluate the relative difficulty and cost of EHP compliance moving forward, and to consider these factors in determining grant awards. The 2012 NTR team received a company-wide award for excellence.

FEMA Historic Preservation Program Support, U.S. (Nationwide), DHS/FEMA, 2008-2012, Company-wide Lead

For four years, Ms. Albee served as her company's Nationwide Coordinator and single point-of-contact for all cultural resources services to FEMA under 2 separate multi-year, $1B+ indefinite delivery indefinite quantity (IDIQ) contracts. This position consisted of oversight of major cultural projects for the purpose of directing technical approach, and ensuring quality, consistency, and client satisfaction. Responsibilities included: working with the agency FPO and regional personnel to develop approaches to NHPA compliance work; acting as a client liaison; developing and maintaining relationships with FEMA cultural personnel at headquarters and in the regions; tracking company cultural services and resolving policy and technical issues; developing and presenting cultural training to FEMA and company staff; and managing individual projects and tasks as assigned. In this role, Ms. Albee conducted technical and quality reviews of 100+ Section 106 compliance deliverables throughout the country.

EHP Review of FEMA Mitigation Grant Subapplications, U.S. (Nationwide), DHS/FEMA, 2008-2012, Technical Assistance Lead

Ms. Albee was the Technical Lead for the development of company's nationwide approach to EHP compliance review of FEMA mitigation grant subapplications. Ms. Albee's work with company environmental and mitigation staff resulted in a standardized three-product deliverable – technical review, scope of work, and cost – that provided FEMA with a user-friendly general assessment of the potential impacts of a proposed project on environmental and cultural resources, and the expected level of effort required to comply with NEPA and NHPA. To date, this approach has been used in the review of 100+ grant subapplications throughout FEMA's 10 Regions, including in the NTR, referenced above.

Section 106 Compliance for Goldthwaite Brook Flood Mitigation Project, U.S. (Peabody, MA), DHS/FEMA, 2008-2012, Technical Assistance Lead

Ms. Albee served as the Technical Assistance Lead for Section 106 compliance support to FEMA for a large-scale culvert project through downtown historic Peabody. Work included on-site survey and National Register of Historic Places (NRHP) evaluations of above-ground historic properties and the assessment of archaeological sensitivity within three possible project alignments, development of a Programmatic Agreement (PA) between FEMA, the City of Peabody, and the Massachusetts SHPO to resolve the adverse effects of the project alternatives and to enable completion of the NEPA documentation; and preparation of a PA Implementation Plan to guide the subgrantee in fulfilling the terms of the PA. Upon changes to the project scope, Ms. Albee prepared an amendment to the PA and conducted review of the Resources Avoidance and Protection Plan, prepared by the City of Peabody.

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Carrie Albee, M.A.

Senior Consultant

ICRMP for Fort Campbell, U.S. (Clarksville, TN), USACE, 2008-2012, Technical Contributor and Reviewer

Initially, Ms. Albee served as the Architectural Historian supporting the preparation of an Integrated Cultural Resources Management Plan (ICRMP) for the over 100,000-acre U.S. Army installation. Work included development of enhanced identification standards and management approaches for above-ground resources. Ms. Albee also served as the overall technical reviewer, confirming adherence to DoD and Army requirements, and corporate and professional standards.

Architectural Baseline Survey and Cultural Heritage Management and Monitoring Plan, Shah Deniz 2 Project, Azerbaijan (Sangachal Terminal), BP, 2011-2012, Architectural Historian

For this terminal expansion project for British Petroleum (BP), Ms. Albee served as the Architectural Historian for recordation, conditions assessment, and a protection plan for above-ground cultural heritage resources within the project area for the expansion of the Sangachal Terminal on the west bank of the Caspian Sea. Work focused on the Sangachal Caravanserai, constructed in 1440 by Shirvanshah Khalilullah I along the major transportation route from Baku south to Iran, and included research, collaboration with the Azerbaijan Ministry of Culture and Tourism, on-site investigation and recordation (i.e., photography, measurement, and sketch drawings), and preparation of a written report. The report presented the known history of the Sangachal Caravanserai within the context of the caravanserai building type, prevalent throughout the Islamic world from the 5th Century B.C. through the 18th Century A.D. The physical conditions of the building and surrounding property were documented, material sensitivities noted, and recommendations made for protection of the resource during construction activities.

ICRMP for Dover Air Force Base, U.S. (Dover, DE), USACE, 2009-2011, Sub-PM and Technical Lead

Ms. Albee acted as Sub-PM and Technical Lead for the update and revision of the 2005 Dover Air Force Base (Dover AFB) ICRMP in response to updated DoD and USAF instructions. Work included development of the document to more fully account for architectural and other above-ground resources, including the addition of new Standard Operating Procedures (SOPs) and standards for the identification of above-ground historic properties and Section 106 assessments of effects.

Survey and NRHP Evaluations at Dover Air Force Base, U.S. (Dover, DE), USACE, 2010-2012, PM and Technical Lead

Ms. Albee served as the PM and Technical Lead for the completion of NRHP evaluations, Delaware SHPO survey forms, and an expanded historic context and property type analysis for 90+ primarily Cold War-era buildings and structures at Dover AFB. Delaware SHPO Survey Forms integrated construction drawings and digital photographs, and the Dover AFB-specific Cold War-Era historic context analyzed the various missions, programs, and activities during the period and their significance to the installation and the USAF in general.

Section 106 Support and MOA for St. Augustine Seawall Flood Mitigation Project, U.S. (St. Augustine, FL), DHS/FEMA, 2010-2011, Technical Assistance Lead

Ms. Albee served as the Technical Assistance Lead for Section 106 and NEPA compliance for the burial of the deteriorating circa 1840 coquina seawall along St. Augustine's historic waterfront and construction of a new seawall to provide flood protection for the National Historic Landmark (NHL) St. Augustine Town Plan Historic District. Ms. Albee served as the lead advisor to FEMA's regional staff on the Section 106 process for this politically sensitive, high-profile project, providing direct, hands-on support during the year-long Section 106 consultation process, including preparing consultation letters and an assessment of effects, and authoring the Memorandum of Agreement (MOA) to resolve adverse effects to the seawall and Historic District. Work also included a Phase I Archaeological Survey with both terrestrial and underwater investigations, and the development of a draft Environmental Assessment (EA) concurrent with the MOA. The project, and Ms. Albee's support, received accolades from the Florida SHPO.

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Carrie Albee, M.A.

Senior Consultant

Course Materials for FEMA's *Advanced Methods of Historic Preservation Compliance* (E265) Course, U.S. (Nationwide), DHS/FEMA, 2009-2012, Task Order Manager and Technical Lead

Under multiple Task Orders and several versions, Ms. Albee served as the Task Order Manager and Technical Lead for the the substantial revision of 4-day advanced historic preservation training course delivered at FEMA's Emergency Management Institute (EMI) nationwide training center. This course is FEMA's most in-depth historic preservation training course, and is required for all senior-level EHP staff. Ms. Albee's work included preparation of substantial new technical content, case studies and examples, and exercises on the Section 106 review process as well as daily face-to-face collaboration with FEMA senior specialists to refine the course materials over a week-long work session at EMI. Following the 2010 pilot offering, course materials were further refined and enhanced for the 2012 offering, including the expansion of the Historic Preservation Compliance Desk Reference, a key reference tool used by FEMA's EHP Cadre nationwide.

NHPA Section 106 Support for the Georgetown Custom House and Post Office, U.S. (Washington, DC), USPS and EastBanc, 2009-2012, Section 106 Advisor

For this three-year redevelopment project, Ms. Albee supported the company national historic preservation compliance lead in provided historic research, analysis, and Section 106 support to the USPS and their preferred developer on the transfer out of Federal ownership of the NRHP-listed 1858 Italianate Georgetown Custom House and Post Office, a contributing property within the NHL Georgetown Historic District. In this capacity, Ms. Albee worked directly with the USPS FPO on the development of implementation of a Section 106 approach, with the goal of avoiding adverse effects. Services included Ms. Albee's participation in Section 106 consultation meetings and presentations to the general public, as well as the preparation of formal Section 106 correspondence. Responsibilities also included the direction of junior staff in the research and preparation of a summary report on assessing the contributing status of the 1926 east addition of the property for circulation to consulting parties.

Historic Preservation Program Development, U.S. (Nationwide), NASA Headquarters, 2007-2011, Section 106 Advisor

For four years, Ms. Albee, along with Chris Polglase, also of ERM, acted as a Section 106 Advisor to NASA Headquarters and the FPO on a broad scope of cultural resources services related to the continuing development of the agency's HP program. Work included advising the client on the agency's Section 106 responsibilities with respect to the termination of the Space Shuttle Program and participation in consultation with NASA management and the ACHP. Ms. Albee authored a series of white papers on aspects of the NHPA including professional qualification standards, Criteria Consideration G, and the applicability of the NHPA to personal property, and provided planning and technical support on NASA's 2008 EO 13287 Section 3 Report. In this role, Ms. Albee directed URS technical staff and is a substantial technical contributor to individual tasks that included the development of NHPA training modules for NASA's SATERN training system, and the preparation of a series of full-color pamphlets on Section 106 topics of special relevance to NASA's unique cultural resources. Ms. Albee also prepared and delivered presentations on NHPA special topics at NASA's annual Cultural Resources Management (CRM) Panel Meetings for three consecutive years, including a day-long session at Michoud Assembly Facility in New Orleans, LA, in 2009.

Survey and Local Historic Designation Evaluation for Tschiffely-Kent Farm, U.S. (Gaithersburg, MD), City of Gaithersburg, 2011, Technical Lead

Ms. Albee was the Technical Lead for the on-site survey and preparation of Maryland Inventory of Historic Properties (MIHP) forms for the cluster of buildings and structures associated with the Tschiffely-Kent Farm, now the location of new urbanist community, The Kentlands. Work included historical research and physical analysis of the extant resources, including the large main dwelling, a secondary dwelling, a garage (aka, firehouse), and a springhouse ruin to determine the period of construction. Each resource was assessed for eligibility for local landmark designation, both individually and as part of a larger historic district. The City of Gaithersburg used this information to inform the local historic district commission's decision on a proposed alteration to the firehouse. This project received praise from the client,

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who requested that staff participate in follow-on meetings with the public and historic commission.

NHPA Section 106 Compliance for NASA Wallops Flight Facility, U.S. (Wallops Island, VA), NASA, 2007-2010, Section 106 Advisor

Ms. Albee supported NASA's Wallops Flight Facility (WFF) environmental and cultural resources management team for three years, developing a Section 106 compliance approach for three major projects and integrating Section 106 review with the NEPA process. Ms. Albee worked on: the Alternative Energy project, which involved the construction of industrial-scale and residential-scale wind turbines and solar panels at WFF; the development of the Mid-Atlantic Regional Spaceport (MARS); and the Shoreline Restoration and Infrastructure Protection Project (SRIPP). Ms. Albee supervised the recordation of an early 20th-century lifesaving station at WFF as stipulated in an MOA for demolition.

Arkansas Army National Guard Historic Structures Reconnaissance Survey, U.S. (Statewide, AR), AR ARNG, 2006-2010, Architectural Historian, Technical Lead, and Reviewer

Initially, Ms. Albee conducted research and on-site survey of armories and associated buildings and structures throughout Arkansas, including Camp Robinson in Little Rock, and evaluated their NRHP eligibility. Ms. Albee then served as Technical Lead and Reviewer for two subsequent phases of survey and evaluation of armories throughout Arkansas, including the evaluation of the Little Rock Armory, associated with the Civil Rights Movement.

Flower Avenue Theater and Shopping Center, , U.S. (Silver Spring, MD), Private Developer, 2010, PM and Technical Lead

Ms. Albee served as the PM for this project, providing strategic counsel to the property owner, developer, and attorney seeking to redevelop the Art Moderne Flower Theater and shopping center, constructed between 1950 and 1954. She directed the primary research and assessment of the historical significance and physical integrity of the property using the NRHP and local Montgomery County criteria and the contextual research on theater designer John Zink. Ms. Albee prepared and delivered a written statement provided expert testimony and a PowerPoint presentation to the Montgomery County Historic Preservation Commission.

Historic Context for Pre-Fort Campbell Landscape and Communities, U.S. (Clarksville, TN), USACE, 2007-2008, Architectural Historian and Technical Lead

Ms. Albee served as the Architectural Historian and Technical Lead for preparation of historic context of rural communities present in the Fort Campbell area prior to military presence (1941) for Fort Campbell CRM personnel and USACE-Louisville District. Ms. Albee conducted extensive research in local and state repositories; on-site investigation of former community sites; and worked with GIS staff to georeference historic maps and prepare an atlas of community locations by time period and community type. Ms. Albee authored the final report, which identified and analyzed property types significant within the historic community context; and synthesized physical and statistical information of identified communities. Fort Campbell uses this report to aid in the understanding of the archaeological resources associated with the historical communities, no longer extant on the base.

Buildings 20 (Lincoln Building) and 17 at Fort McNair, U.S. (Washington, DC), National Defense University, 2008, Architectural Historian

Ms. Albee conducted extensive primary and archival research and preparation of a report on two 19th-Century buildings actively utilized by the National Defense University (NDU). Building 20 was originally constructed in the 1830s as part of the Federal Penitentiary on the site, and was the location of the trial of the accused Lincoln assassination conspirators in 1865. It was completely renovated in the Italianate style in the late 1860s by noted German immigrant architect Adolph Cluss. Using historic research and documentary photographs and drawings, Ms. Albee identified physical features of the building from the various historic and non-historic periods. The design team and NDU utilized this information to determine how to renovate the buildings for current use. Renovation of Building 20 was completed in 2012, and included the recreation of the third-floor room where the accused Lincoln assassins were convicted.

Carrie Albee, M.A.

Senior Consultant

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HABS Recordation of East Ward School, U.S. (Gulfport, MS), DHS/FEMA, 2007, Architectural Historian and Technical Assistance Lead

Ms. Albee was the lead Architectural Historian and Technical Lead for the recordation of the NRHP-eligible elementary school, constructed in 1921 and heavily damaged by surge waters from Hurricanes Katrina and Rita in 2005, as stipulated in the MOA. Ms. Albee conducted primary research and prepared the written portion of the recordation package, and directed a multi-disciplinary team comprised of architects and a large-format photographer. She also prepared the final recordation package for submission to FEMA and MS SHPO, prior to the demolition of the building.

Section 106 Consultation for St. Frances Xavier Cabrini Catholic Church, U.S. (New Orleans, LA), DHS/FEMA, 2007, Section 106 Advisor

Ms. Albee provided intensive support to FEMA during a two-month on-location assignment to carry out Section 106 compliance for this highly contentious, high-visibility project involving the NRHP-eligible St. Frances Xavier Cabrini Catholic Church, constructed in 1963 and damaged by floodwaters from Hurricanes Katrina and Rita in 2005. Her responsibilities included working directly with the FEMA Deputy Environmental Liaison Officer on a daily basis to facilitate productive Section 106 consultation between fourteen stakeholders, the execution of an MOA within a highly-expedited schedule, and administering the organization and documentation of public consultation through website, public meeting, and regular consultation meetings.

Section 106 Project Reviews for Hurricanes Katrina and Rita, U.S. (New Orleans, LA), DHS/FEMA, 2006, Architectural Historian

Ms. Albee served as an Architectural Historian for a three-month on-location assignment to assist FEMA with Section 106 compliance as part of the relief and rebuilding efforts associated with 2005 Hurricanes Katrina and Rita in LA. Her work included determinations of NRHP eligibility for properties proposed for demolition; tracking demolition and debris removal submissions for the agency's Historic Preservation Division; and managing the public notice process for demolition in Orleans Parish. Responsibilities also included the preparation of recommendations to FEMA regarding adverse effects to the NRHP-eligible buildings at Fontainebleau State Park.

Historical Research for the Anderson Branch Site (18MO595), U.S. (Montgomery County, MD), MD SHA, 2006, Historian

Ms. Albee served as the Historian for research and preparation of a historic context for a late 19th-century African American farmstead in support of Phase II archaeological investigations for the Maryland State Highway Administration (MD SHA). Work included archival research tracing the property back to the original 18th-Century 4,992-acre tract (Bradford's Rest), and authoring a historic context that enabled project archaeologists to understand the resources uncovered on the site.

NRHP Determination of Eligibility for Nixon's Farm (Hayfield), U.S. (Howard County, MD), MD SHA, 2006, Architectural Historian

For this project, Ms. Albee conducted survey and research, and prepared a determination of NRHP eligibility for an African American recreational farm (established 1961) prior to MD SHA improvements. Her work included conducting oral history interviews with the property owner on the larger property and the 1960 Modern dwelling, designed by local architect Seymour Tatar, research on the Baltimore City African American community in the 1960s to develop a contextual understanding of the significance of the property to the African American community during the period, and tracing the history of the parcel back to 1810 and the original 602-acre tract (Hayfield). Ms. Albee prepared the full documentation package, including Maryland SHPO MIHP and Determination of Eligibility (DOE) forms. The depth of research and quality of the analysis on Nixon's Farm received positive feedback from MD SHA.

Historic Research and Report on Circle Manor, U.S. (Kensington, MD), Bristol Capital Corporation, 2005-2006, Architectural Historian

Ms. Albee was the lead Architectural Historian supporting the prospective property owner and developer, Bristol Capital Corporation, of the 1891 Circle Manor. Her work included extensive primary research and preparation of a report on the history of the property, original owners, and building chronology from summer residence for Kensington Park real estate developer and philanthropist B. H. Warner to its use as the Carroll Hall Nursing Home. This report enabled the consideration of the history and historic characteristics of the property in the redevelopment plans.

Carrie Albee, M.A.

Senior Consultant

NRHP Nomination for the Watergate Complex, U.S. (Washington, DC), Watergate West, 2004-2006, PM and Architectural Historian

As the PM and lead Architectural Historian for this project, Ms. Albee directed the preparation of a successful local landmark nomination and NRHP Nomination for the famous Watergate, a complex of six building constructed in the 1960s. Ms. Albee conducted original research on the design of the building by well-known Italian and sometimes Fascist architect Luigi Moretti and the lengthy and complicated construction of the building. She also prepared the written nomination forms and presentations to the DC Historic Preservation Review Board, and garnering support for the designation from key individuals in the local and historic preservation communities.

Historic Preservation Support for the Redevelopment of Southeast Federal Center, U.S. (Washington, DC), Forest City, 2003-2006, Architectural Historian and Historic Preservation Advisor

For three years, Ms. Albee served as the lead Architectural Historian and Historic Preservation Advisor for a large redevelopment team that included the General Services Administration (GSA), Forest City (developer), and building and landscape architects. Her work included: research on the complex of industrial resources remaining extant on the NRHP-eligible 42-acre redevelopment site, formerly the U.S. Navy Yard Annex and Gun Factory; consultation with architects on design development with regard to the *Secretary of Interior's Standards for Rehabilitation*; preparation of a PA for the redevelopment; and serving as liaison between team and historic preservation regulatory agencies that included the DC SHPO.

Historic Preservation Planning and Survey and NRHP Evaluation for the Armed Forces Retirement Home – Washington, U.S. (Washington, DC), Armed Forces Retirement Home, 2003-2006, Architectural Historian and Historic Preservation Advisor

Ms. Albee supported the company owner in providing historic preservation support to the multi-disciplinary redevelopment team that included the GSA, a real-estate investment firm, and a master planner. For this project Ms. Albee conducted a comprehensive survey and documentation of over 355 built and natural resources on the 272-acre NHL property; identified and prepared graphic representations of historic landscape features; and evaluated the NRHP contributing status of each resource on the property. Ms. Albee also prepared historic preservation design guidelines, advised the redevelopment team on the preparation of the master plan for submission to the National Capital Planning Commission; and served as team liaison with the DC SHPO.

Historic Preservation Design Charrette for Lorton Reformatory and Penitentiary, U.S. (Lorton, VA), Urban Land Institute, 2003, Historic Preservation Advisor

Ms. Albee served as the Historic Preservation representative on a two-day Urban Land Institute (ULI) working panel and design charrette examining redevelopment possibilities for the NRHP-eligible early 20th-Century Lorton reformatory and penitentiary campus. Her work included collaboration with developers, architects, and master planners on incorporating historic preservation interests into viable private redevelopment schemes. Results of the panel were published by ULI in a summary booklet distributed to the public to engender interest in the reuse of the government-owned site.

Historic Context and Property Recordation for the Samuel Madden Homes, U.S. (Alexandria, VA), Private Developer, 2003, Architectural Historian and Technical Lead

For this project, Ms. Albee was the Architectural Historian and Technical Lead for the preparation of historical documentation of the Samual Madden Homes, a World War II-era defense housing complex in "the Berg," a historically African American area of downtown Alexandria. Work included extensive original research and preparation of written documentation to HABS standards, prior to the demolition of the complex and redevelopment for high-end rowhouses.

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Carrie Albee, M.A.

Senior Consultant

US EPA ARCHIVE DOCUMENT

NRHP Nomination for Stratford Junior High School, U.S. (Arlington, VA), Arlington County, 2003, Architectural Historian

Ms. Albee served as the Architectural Historian and preparer of a NRHP Nomination for this school, constructed in the 1950s and significant in the history of desegregation in Virginia. Work included extensive original research and preparation of National Register Nomination form for International-style building. As a result of her work, Stratford Junior High School was listed in the NRHP under Criteria A and C and Criterion Consideration G in 2004.

Historical Research and Report for 219 East 2nd Street and Tehan's Row, U.S. (Frederick, MD), Private Owners, 2003, Architectural Historian

Ms. Albee conducted primary research and prepared a written history of 219 East 2nd Street, an 1857 rowhouse that is part of a prominent block of six sets of large Greek Revival-style double houses built by noted local builder John Tehan and located within the NRHP-listed Frederick Historic District. Known as Tehan's Row, these dwellings were built speculatively for middle- and upper-class families and reflect the rise of the merchant and professional classes in the city during the mid-19th Century.

Historic Context for Capehart Wherry-Era Army Housing, U.S. (Nationwide), Department of the Army, 2001-2002, Architectural Historian

This project was part of the Department of the Army's (DA's) nationwide Program Comment resolving their treatment of Capehart-Wherry family housing throughout the various DA installations. As Architectural Historian for this project, Ms. Albee contributed to the historic context for Army family housing built under the Wherry and Capehart Act, 1948-1961, by conducting extensive primary research at five installations, and local, state, and national repositories; preparing background history on the Wherry and Capehart Acts, and Army family housing; and preparing architectural analyses of housing types and characteristics nationwide.

NRHP Nomination for Cherrydale Historic District, U.S. (Arlington, VA), Arlington County, 2002, Architectural Historian

Ms. Albee prepared a NRHP Nomination for this early- to mid-20th-Century suburban neighborhood. Her work included survey of the 500-property neighborhood, extensive original research, and preparation of the NRHP Nomination form. As a result, Cherrydale Historic District was listed in the NRHP under Criteria A and C in 2003.

NRHP Nomination for Maywood Historic District, U.S. (Arlington, VA), Arlington County, 2002, Architectural Historian

Ms. Albee prepared a NRHP Nomination for this early 20th-Century streetcar neighborhood. Her work included survey of the 100-property neighborhood, extensive original research, and preparation of the NRHP form. Maywood Historic District was listed in the NRHP under Criteria A and C in 2003.

Survey and Historic Context for Public Meeting Places in Calvert County, U.S. (Calvert County, MD), Calvert County Board of Commissioners, 2002, Architectural Historian

For this project, Ms. Albee served as Architectural Historian and author of a historic context for public buildings and meeting places in this highly rural, agricultural county with a traditional tobacco economy. Her work included survey of post offices, polling houses, general stores, grange halls, and community halls throughout the county; extensive primary research at local and state repositories; execution of oral history interviews; and preparation of written historic context for distribution throughout the county.

Survey and Historic Context for Baltimore East-South Clifton Park Historic District, U.S. (Baltimore, MD), City of Baltimore, 2002, Architectural Historian

Ms. Albee served as an Architectural Historian contributing to the survey and preparation of a NRHP Nomination for Baltimore's largest historic district, encompassing 110 blocks that formed the northeast corner of the City of Baltimore prior to 1888. Her work included block-by-block survey and development of a formal typology for rowhouses in the neighborhood to establish character-defining features and integrity thresholds.

Tara McClure-Cannon

Archaeologist (Consultant), IAP

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Tara McClure-Cannon is a Consultant within ERM based in Houston, TX.

Ms. McClure-Cannon has over 6 years experience in archaeology and cultural resource management consulting. She has experience with both prehistoric and historic archaeological resources. Ms. McClure-Cannon's experience includes management of large-scale archaeological survey, mitigation and monitoring projects for large mining companies and alternative energy companies.

These projects included historic research at various repositories, fieldwork, laboratory analysis of artifacts, and the preparation of cultural resource reports adhering to local, state and federal regulations.

Ms. McClure-Cannon has worked with various land management agencies and State Historic Preservation Officers (SHPOs), especially throughout the Western United States.

Professional Affiliations & Registrations

- Register of Professional Archaeologists (RPA)
- Society for American Archaeology (SAA)
- Society for Historical Archaeology (SHA)
- Council of Texas Archeologists

Fields of Competence

- Prehistoric Archaeology
- Historical Archaeology
- Southwestern Archaeology
- Great Basin Archaeology
- Prehistoric Ceramics
- Historic Mining Sites
- Section 106

Education

- M.A. Anthropology, NMSU, USA
- B.A. Anthropology, UNLV, USA

Languages

- English

Professional Training

- Section 106 (Instructor: Dr. Thomas King)
- Compliance with NEPA (through UNR)
- Workshop: Topics Related to Preservation Issues (Cultural Resources Compliance, Consultation, and Native American issues) (Instructor: Claudia Nissley)
- Environmental Conflict Resolution Training (Udall Foundation): 101 Introduction to Managing Environmental Conflict
- Environmental Conflict Resolution Training (Udall Foundation): 110 Negotiating Environmental Solutions
- Mine Safety and Health Administration (MSHA) Certification

Publications

- 2012 *The Freckles Mine: An Example of Mid-20th Century Mercury Mining in the Great Basin.* Paper presented at the 33rd Great Basin Anthropological Conference.
- 2007 *Survey in the Deming Plain: A Co-operative Project between the La Frontera Program and the BLM.* Paper presented at the 15th Biennial Jornada Mogollon Conference.

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Key Projects

- NEPA Compliance Program, Nationwide, USA, Telecommunications Client (Confidential), 2013 – Present (On-going)
  Principal Investigator
  Conduct Cultural Inventories, Architectural Inventories, Submit E106 Filings, and NEPA submissions.
- Phase I Investigations for an Electric Generating Station, TX, USA, (Client is Confidential), August 2013 to Present
  Principal Investigator
  Phase I field investigations and report submission
- Phase I Investigations for Wastewater Discharge Project, TX, USA, (Client is Confidential), August 2013 to Present
  Principal Investigator
  Phase I field investigations and report submission
- Mitigation of Six Sites at the Robinson Nevada Mine, USA, KGHM, 2012-2013
  Project/Field Supervisor
  Managed day-to-day operations of the project including the mitigation, laboratory work, and final report for six archaeological sites.
- McGinness Hills Data Recovery Project, USA, ORMAT Technologies, Inc., 2011
  Field Supervisor
  Supervised the mitigation of 11 loci within the McGinness Hills Archaeological District.
- Inventory of 4,023 Acres for the Hasbrouck Project, USA, Allied Nevada Gold, 2011
  Field Supervisor
  Supervised the archaeological inventory of 4,023 acres and prepared the cultural resources report.
- Inventory of 3,386 Acres for the Mirror Geothermal Project, USA, EMPSi, 2011
  Field Supervisor
  Supervised the archaeological inventory of 3,386 acres and prepared the cultural resources report.
- Inventory of 1,567 Acres for the Wildcat Project, USA, Allied Nevada Gold, 2010
  Field Supervisor
  Supervised the archaeological inventory of 1,567 acres and prepared the cultural resources report.

Selected Publications

2012 *A Class III Cultural Resources Inventory of 3,329 Acres for the Ormat Technologies, Inc., Dixie Valley to Jersey Valley Transmission Line and Infrastructure Locations in Churchill and Pershing Counties, Nevada.* BLM Report No. CRR3-2597. Submitted to the Bureau of Land Management, Carson City and Winnemucca District Offices, Nevada.

2011 *A Class III Cultural Resources Inventory of the Ann Mason Mineral Exploration Project Expansion in Lyon County, Nevada.* BLM Report CRR3-2551(P). Report prepared for the Entree Gold, Inc. (US) and MIM, Inc. (US). Submitted to the Bureau of Land Management, Carson City District Office, Nevada.

2011 *A Class III Cultural Resources Inventory of Approximately 126 Acres for the PMMR Mine Expansion and Access Road Project in Lyon County, Nevada*. USFS report R2010041702038. Prepared for PMMR. Submitted to the United States Forest Service, Bridgeport, California.

2011 *A Class III Cultural Resource Inventory of Approximately 1.9 Miles of Road to be Upgraded for the Gradient Resources Patua Geothermal Project, Churchill County, Nevada.* BOR Report 09-LBAO-293, BLM Report CRR3-2580. Prepared for Gradient Resources, Reno, Nevada. Submitted to the Bureau of Reclamation, Sacramento, California, and the Bureau of Land Management, Carson City, Nevada.

2013 *A Class III Cultural Resources Inventory of 8,438 Acres for the Allied Nevada Gold Corporation's Hycroft Water Supply Right-of-Way Well and Sites in Pershing and Humboldt Counties, Nevada.* BLM Report No. CR2-3214 (P). Submitted to the Bureau of Land Management, Winnemucca District Office, Nevada.

2012 *A Class III Cultural Resources Inventory of 1,567 Acres for the Allied Nevada Gold Corporation Target Drilling Area Project in the Wildcat Canyon Archaeological District.* BLM Report No. CR2-3146. Submitted to the Bureau of Land Management, Winnemucca District Office, Nevada.

2011 *A Class III Cultural Resource Inventory of 6,903 Acres for the Terra-Gen Power, LLC, Geothermal Development Project in Buena Vista and Antelope Valleys, Pershing County, Nevada.* BLM report No. CR2-3143. Report prepared for Terra-Gen Power, LLC. Submitted to the United States Bureau of Land Management, Winnemucca, Nevada.

2009 *A Class III Cultural Resource Inventory of Approximately 247 Acres for the Robinson Nevada Mining Company Johnson Claim Block In White Pine County, Nevada.* BLM report 811NV-04-09-1024AN. Prepared for Robinson Nevada Mining Company. Submitted to the United States Bureau of Land Management.

Dave Port, RPA

Cultural Resources Consultant - IAP

Mr. Dave Port is a Cultural Resources Consultant within ERM based in the Houston office (Southern Division) and is part of the Environmental Impact Assessment and Planning (IAP) Group. He has over 13 years of cultural resources management (CRM) experience field directing and project managing various archeological investigations as well as participating in the development/planning of community-based support initiatives for programs concerning advocacy, education, interpretation, and self-governance/ management. Further, he has worked with over a dozen State Historic Preservation Officers (SHPOs) across the Mid-Atlantic, Southeastern and Southwestern states. He has over 20 years of combined experience in historical research, architectural history, and archeological fieldwork with a primary emphasis in archeology and with over 90 projects/reports that he has field directed, completed, and published. He also has extensive experience with impact assessments, agency consultations, and project management.

Mr. Port has completed work for and consulted with the following state and federal agencies: Georgia Department of Transportation (GDOT); Alabama Historical Commission (AHC); Florida Bureau of Archaeological Research; South Florida Water Management District; Federal Highway Administration (FHWA); U.S. Army Corps of Engineers (USACE) Districts in Mobile, AL; Jacksonville and Clewiston, FL; Wilmington, NC; and Savannah, GA; U.S. Department of the Army at Fort Bragg, NC, and Fort McClellan, AL; National Park Service (NPS) Southeast Region; U.S. Department of Agriculture – National Forest Service (NFS): Nantahala District, NC; Sumter, Long Cane, and Enoree Districts, SC; and Chattahoochee District, GA; and the U.S. Fish and Wildlife Service (FWS). He has also consulted with various natural gas pipeline companies including Williams Gas – Transco, Duke Energy, and East Tennessee Natural Gas (ETNG).

Professional Affiliations & Registrations

- Register of Professional Archeologists (RPA), 2002 –
- Georgia Council of Professional Archeologists (GCPA), 2001 –
- Council of Texas Archeologists (CTA), 2012

Fields of Competence

- Historical Archeology
- Industrial Archeology
- Southeastern Archeology
- Plantation Archeology
- African American Archaeology
- Highland Mayan/Central American Archeology
- Ethnographies and Oral Histories and TCPs
- HABS/HAER Documentation
- Architectural History
- NEPA Documentation/Analyst/Reviewer

Education

- PhD Program, (ABD), Public Archeology, University of South Florida (2003-06)
- MA, Anthropology, Northern Arizona University (1999)
- BA, History, University of Alabama at Birmingham (1993)

Professional Training

- Georgia DOT Certificates in NEPA Documentation; Archaeology; and Historic Resources
- 24-Hour OSHA HAZWOPER

Professional Memberships

- Archaeological Society of South Carolina (ASSC), 2010 –
- Archaeological Institute of America (AIA) (North Alabama chapter), 2010 –
- Alabama Archaeological Society (AAS), 2009 –
- Southeastern Archaeological Conference (SEAC), 2003 –
- Society of Georgia Archaeology (SGA), 2001 –
- Society for Historical Archaeology (SHA), 2010-
- Society for American Archaeology (SAA), 2010-

Key Projects for ERM

- ***Nebula Gulf Coast Gas-to-Liquids (GC GTL).*** Phase I, II, and III Cultural Resources Assessments supporting ESHIA and Environmental Compliance/Permitting conducted for ERM's oil/gas Client: Louisiana, 2012-13.
- ***Eagleford P-Ranch GTL***. Scoping and Baseline Studies of Cultural Resources supporting ESHIA and Environmental Compliance/Permitting conducted for ERM's oil/gas Client: Texas, 2012-13
- ***Arrowhead GTL***. Scoping and Baseline Studies of Cultural Resources supporting ESHIA and Environmental Compliance/Permitting conducted for ERM's oil/gas Client: Kansas, 2012-13
- ***La Quinta Terminal.*** Phase II Cultural Resources Assessment supporting ESHIA and Environmental Compliance/Permitting conducted for ERM's international Client: Texas, 2012-13.
- ***Tenaska – Brownsville.*** Phase I Cultural Resources Assessment supporting ESHIA and Environmental Compliance/Permitting conducted for ERM's domestic energy Client: Texas, 2012-13.
- ***Tenaska – Grimes County.*** Phase I Cultural Resources Assessment supporting ESHIA and Environmental Compliance/Permitting conducted for ERM's domestic energy Client: Texas, 2012-13.
- ***PPG/Axiall.*** Phase I Cultural Resources Assessment supporting ESHIA and Environmental Compliance/Permitting conducted for ERM's domestic chemical industries Client: Louisiana, 2012-13.
- ***Verizon Nationwide.*** Phase I Cultural Resources Assessments supporting NEPA and FCC Compliance/Permitting conducted for ERM's telecommunication Client: Nationwide, 2012-13.

Additional Key Projects

- ***Haile Gold Mine Site, Lancaster Co., SC.*** Phase I and II investigation reports submitted to Romarco Minerals Co., Toronto, Canada– please see: http://www.heraldonline.com/2011/04/01/2954685/epa-opposes-gold-mine.html?storylink=addthis
- ***Blair Mountain, Piney Branch Mountain Top Coal Removal Survey, Logan Co., WV.*** Phase I investigation conducted for the Aracoma Coal Co., WV, for the contested Blair Mountain National Register (NR)-eligible battlefield: http://blogs.wvgazette.com/coaltattoo/2009/07/06/blair-mountain-news-its-coming-of-the-list/
- ***Vanderbilt Mansion, Hyde Park, New York.*** Phase II Evaluation/Assessment of Effects (AoE) conducted for the NPS, 2011.
- ***GDOT's Transportation Enhancement (TE) Projects Environmental Coordinator, Atlanta, GA.*** Managed environmental compliance/NEPA regulations on over 150 TE Projects in coordination with GDOT, FHWA, SHPO/HPD, and FWS, totalling over $60 million, Fiscal Year 2010-11.

Selected Publications

2011 ***The Spiritual Flash: A Glass Filled Chimney at Site 1MA748*** with Diana Vaulk and J.W. Joseph, PhD, New South Associates. In ***Stones & Bones – The Newsletter of the AAS***, Vol. 53, Issue 2, March 2011, pp. 4-5.

2009 ***Joys and Sorrows of This Passing Life: African American Archeological Investigations at the 1818 Hickman Log Cabin and the Cook's House at Pond Spring Plantation (1LA663), Lawrence County, Alabama*** (in review: Cultural Heritage Study Series, University of Florida Press).

2009 ***Cultural Resources Survey Strategy for the Comprehensive Everglades Restoration Project (CERP) for Southern Florida.*** http://newsouthassoc.com/notable/everglades.html
Report submitted to the Florida Bureau of Archaeological Research; the USACE-Jacksonville and Clewiston Districts, FL; and the South Florida Water Management District.

2004 ***The History of Lake Okeechobee: Headwaters of the Everglades and the Origins of the Okeechobee Waterway***. Level II HABS/HAER documentation submitted to NPS Southeast Regional Office, Tallahassee, FL, and presented at the 2001 Congressional Hearings for the Everglades Restoration Project by the USACE-Jacksonville District, FL.

2004 ***Historical Archaeology in Georgia***. Report submitted to the Georgia Archaeological Research Design Paper No. 14, and the University of Georgia (UGA) Laboratory of Archaeology Series, Report Number **39**, Athens, GA. http://www.valdosta.edu/~aesanfor/historical%20architecture.pdf

2003 ***Thirteen Site Phase II Testing and Evaluation, Fort Bragg, North Carolina***. Report submitted to U.S. Department of the Army, Fort Bragg, NC, and the NPS, Southeast Regional Office, Tallahassee, FL. Contract # C5890020435. Online at www.PalmettoHistory.org South Carolina Archaeology Reports: http://www.palmettohistory.org/archaeology/ftbraggSM3.pdf

1999 ***Collecting Close to Home: Local and Family Histories From Southside, Flagstaff Minority Residents: 1930s-1950s***. Published in cooperation with Northern Arizona University (NAU) and Pioneer Historical Society, Flagstaff, AZ.

Sean R. Nash, M. A., RPA

Archaeological Principal Investigator and Geoarchaeologist

Coastal Environments, Inc.

Corpus Christi Office, Texas

Mr. Nash is an Archaeologist with extensive geo-sciences expertise specializing in Cultural Resources Management. He has 16 years of experience as an Archaeological Principal Investigator and Geoarchaeologist. Projects he has completed as Principal Investigator stretch across Texas and include projects in Louisiana, Missouri and Florida. As a Geoarchaeologist Mr. Nash has performed assessments in all parts of Texas and in the Midwest. As a Principal Investigator, Task Manager, and Project Manager, Mr. Nash has completed large and complex projects in compliance with state and federal laws and regulations. He has authored numerous technical reports and cultural resource sections for NEPA documents for many public and private entities.

Mr. Nash' s extensive knowledge of geomorphic processes and fluvial environments, has been applied to large scale predictive models through cultural research and identifying landforms favorable for the preservation of historic and prehistoric archaeological sites. Mr. Nash has completed research, fieldwork, and analysis of historic and prehistoric artifacts and features from National Register sites. Early experience at the Texas Archeological Research Laboratory has given Mr. Nash a foundation in academic research.

Fields of Competence

Historic and Prehistoric Archaeology
Geoarchaeological assessments
Predictive modeling
Artifact analysis
NEPA compliance

Education

M.A., Anthropology
University of Texas, Austin, Texas
B.A., Anthropology/Archaeological Studies
University of Texas, Austin, Texas

Professional Affiliations and Registrations

Register of Professional Archaeologists (RPA)
Society for American Archaeology (SAA)
Council of Texas Archaeologists
- Texas Archeological Society

Key Projects

Cultural Resources Probability Modeling for areas over 1000 acres in South Central and South Texas

A large oil pipeline company plans to place a multitude of well pads over a shale formation in south central and south Texas. Large scale predictive modeling based on geomorphic and cultural traits allowed for the general assessment of the likelihood of impact to archaeological sites. Data

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time assessments of specific locations from the desktop while client and other consultants are still in the field. Data and report submitted to Client

Geomorphologic study of the causes and effects of erosion on coastlines and submerged geomorphic features of the Toledo Bend Reservoir

Completed detailed background geomorphologic research in support of an assessment of Cultural Resources Management at the Toledo Bend Reservoir. Identified the types and sources of erosion within and adjacent to the massive water body. The various wave types, currents, and other erosional forces that occur within the reservoir as well as the morphology and composition of the land features were considered. This study identified the areas most at risk for rapid erosion. The Sabine River Authority references the background of the work throughout the Toledo Bend Final License Application's Exhibit entitled *Environmental Analysis of Geology, Geomorphology, and Soils* (SRA Texas and SRA Louisiana 2001)

Cultural Resource Surveys at Sienna Plantation, Fort Bend County, Texas

Several surveys added to the understanding of the property and research conducted on the historic plantation provided new data on the lives of the enslaved and political favoritism shown to planters.

Intensive survey and geoarchaeological assessment of the Barton Hills Retrofit Project, within the Barton Springs National Register Historic District, Austin, Texas

A pollution source had contaminated a small area along a left bank tributary of Barton Creek affecting the edge of the National Register Site and District. Geomorphic assessment and archaeological deep testing were conducted to assess the potential of the area to contain archaeological sites in good context and test specific areas to find alternative locations for pollution control constructions. Report submitted to City of Austin, Texas.

Intensive survey of Union Pacific Railroad second track addition to a 27-mile existing track between El Paso and Belina, Texas

Extensive training and intensive archaeological and historic structures survey Report Submitted to the Union Pacific Railroad.

Intensive survey and testing at Cedar Breaks Bridge Williamson County, Texas

Conducted intensive survey, NR testing, and geoarchaeological investigation of the terraces on USACE property by Lake Georgetown. Report submitted to USACE.

Cultural resource compliance Task Manager for the BNSF Gardner Inter-modal and Logistics Park in Gardner, Kansas

Tasks included intensive archaeological survey, historic research of the Oregon Trail, remote sensing, and historic structures survey. Authored cultural resources summary for modified Environmental Assessment submitted to USACE

Geomorphic investigations for 18-mile pipeline near Canton, Ohio

Multiple deep tests across glacial till fields, lacustrine deposits, and other glacial geomorphic features. Report submitted to Marathon Oil.

Geomorphic investigation of a proposed bridge location at Bessie Creek in Brookshire, Texas for a TxDOT Interstate 10 Improvements

Deep testing identified sediments known to contain intact archaeological sites. Project location in Brookshire, Texas. Submitted to TxDOT.

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Attachment 1

Finding of No Adverse Effect to
Archeological and Historic Resources
Associated with the
Water Discharge Pipeline:
Brownsville, Cameron County, Texas

December 18, 2013
Project No. 0185680

Environmental Resources Management, Inc.
CityCentre Four
840 West Sam Houston Parkway North, Suite 600
Houston, Texas 77024-3920
(281) 600-1000

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Attachment 1 - Finding of No Adverse Effect to
Archeological and Historic Resources
Associated with the Tenaska
Brownsville Generating Station
Water Discharge Pipeline:
Brownsville, Cameron County, Texas

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Cultural Resources Assessment (CRA) - Tenaska Brownsville Generating Station – *Water Discharge Pipeline*

Tenaska Brownsville Partners, LLC
Cameron County, Texas

www.erm.com

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Tenaska Brownsville Partners, LLC

Cultural Resources Assessment (CRA) – *Tenaska Brownsville Generating Station – Water Discharge Pipeline*

EPA Submission

December 18, 2013

Project No. 0185680
Tenaska Brownsville Generating Station
Cameron County, Texas

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ABSTRACT

Report Title: Tenaska Brownsville Partners, LLC – Cultural Resources Assessment: Water Discharge Pipeline

Report Date: December 13, 2013

Sponsor: Tenaska Brownsville Partners, LLC (Tenaska)

Agency: U.S. Environmental Protection Agency (EPA)

Permit Number: Texas Archeological Commission (TAC) Permit # 6615

Report Background: Environmental Resources Management (ERM) completed cultural resources investigations for a water discharge pipeline located in Cameron County, Texas related to the anticipated Tenaska Brownsville Generating Station Project and in support of a Greenhouse Gas (GHG) Prevention of Significant Deterioration (PSD) Permit Application for the generating station project. Coastal Environments, Inc., (CEI), under contract to ERM, assisted with the background research, Phase I intensive archeological survey, and metal detection survey of the Water Discharge Pipeline (or Water Discharge Pipeline Project). The GHG permit will be issued by the U.S. Environmental Protection Agency (EPA) under the PSD program of the Clean Air Act (CAA). Because the Tenaska Brownsville Generating Station Project will require a permit issued from the EPA, it and its connected actions are subject to Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended.

The purposes of the information presented in this report are to:

1) Identify historic properties (archeological and aboveground) located within the Area of Potential Effect (APE) for the Water Discharge Pipeline Project; and
2) Describe the effects of the Water Discharge Pipeline Project on identified historic properties.

The information provided in this report is intended for utilization by the EPA in the agency's compliance with Section 106 of the NHPA pursuant to the issuance of the GHG PSD Permit. This current report has been prepared to support the Section 106 process as outlined in ERM's cultural resources report (*Cultural Resources Assessment: Tenaska Brownsville Generating Station* [ERM: August 6, 2013]), which is being submitted to support Tenaska's GHG permit application.

Tenaska is planning to build and operate a natural gas-fueled, combined cycle electric generating station with a nominal capacity of approximately 800 megawatts. Additionally, Tenaska proposes an alternative version with a nominal capacity of 400 megawatts. The generating station proposal includes up

to two combustion turbines with supplementary fired heat recovery steam generators (HRSGs), one steam turbine generator, one cooling tower, auxiliary equipment, storm water retention structure(s), storm water outfall(s), one transmission interconnect line, access roads, and construction laydown area. This report discusses a water discharge pipeline leading to the Brownsville Bay Ship Channel that will be utilized by Tenaska's generating station.

Identification of Historic Properties: The APE for this project was established as 100 feet on either side of the Water Discharge Pipeline center line. Archeology was investigated within the direct impact area which extended 50 feet out from both sides of the Water Discharge Pipeline center line within the APE. Aboveground resources were investigated for direct (within 50-feet of the centerline) and indirect impacts (within 100-feet of the centerline) within the APE.

Prior to the survey, two historic properties were known to be in the project vicinity: the Palo Alto Battlefield National Historic Site National Historic Landmark (NHL); and features associated with Cameron County Drainage District No. 1 (CCDD1) that were identified as potentially eligible in ERM's *CRA* (2013). In addition to conducting field survey and documentary research, ERM coordinated with the THC and the National Park Service (NPS) to identify historic properties in the direct and indirect APEs of the Water Discharge Pipeline Project.

ERM's CRA Additional Action #1: Water Discharge Pipeline reports the findings of the 11.05 mile survey area/ utility line ROW. The ROW falls within the TxDOT and the BPUB's Right-of-way (ROW) Corridor, and which runs parallel to Farm-to-Market 511 Road (FM 511, which is now State Highway 550 Toll Road), then southward across State Highway 48. The subject corridor continues southeastward within the ROW of secondary roads to its terminus at the southwestern bank of the Brownsville Bay Ship Channel. Of the total 11.05 mile utility line corridor, 5.40 miles have been surveyed as part of previous archeological investigations. The remaining 5.65 miles had not been surveyed.

The archeological investigation examined the direct APE, which includes the Water Discharge Pipeline survey area (identified as a 20-foot-wide ROW Corridor that runs parallel to FM 511/Hwy 550 and secondary roads leading southeastward toward the Brownsville Bay Ship Channel). By definition, the ROW typically extends 50-feet from the centerline of the highway; therefore ERM's archeological investigation examined the furthest extent of the ROW's Corridor's boundaries and in areas least disturbed. The surface inspection, shovel testing, and metal detection survey did not identify any archeological resources or artifacts.

Aboveground investigation identified one additional resource with the potential to be eligible for listing in the NRHP, the Port of Brownsville, a potential historic district that includes the ship channel (completed in 1936) and its associated buildings, roads, and railroads.

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No additional historic properties with the potential to be eligible for listing in the NRHP were observed within the APE of the Water Discharge Pipeline Project.

Coordination with Potential Stakeholders: ERM, on behalf of Tenaska, coordinated with the THC and the NPS in spring of 2013. An additional face-to-face meeting was conducted with Rolando Garza of the NPS to solicit his input on the archeological methodology for the Water Discharge Pipeline Project in August of 2013.

Assessment of Effects: No archeological historic properties were identified within the Water Discharge Pipeline Project APE. Two (2) aboveground historic properties were identified within this APE: the Port of Brownsville and the CCDD1, both of which are located within the direct and indirect APEs. Application of the Criteria of Adverse Effect resulted in the finding that these historic properties will be affected by the project, but not adversely. The boundaries of the Palo Alto Battlefield National Historic Landmark are outside of the established Water Discharge Pipeline Project APEs.

Recommendations: Based upon the results of the cultural resources investigations, ERM recommends no further cultural resources investigations to identify historic properties in the APE.

Project Number: ERM Project No. 0185680

Project Location: Cameron County

Acres Surveyed: 5.65 linear miles (3,616 acres) Archeology
11.05 linear miles Aboveground

Identified Resources:
- 0 (Archeology)
- 6 (Aboveground)
  - Cameron County Drainage District No. 1
  - Irrigation and Drainage Ditches (unassociated)
  - Port of Brownsville
  - Southern Pacific Railroad
  - Port Isabel and Rio Grande Valley Railroad
  - Rancho Viejo Floodway

NRHP-Listed Properties:
- 0 (Archeology)
- 0 (Aboveground)

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NRHP-Eligible Properties:

- 0 (Archeology)
- 2 (Aboveground)
  - Cameron County Drainage District No. 1 (potentially eligible)
  - Port of Brownsville Historic District (potentially eligible Historic District)

NRHP-Ineligible Properties:

- 0 (Archeology)
- 4(Aboveground)
  - Irrigation and Drainage Ditches (unassociated)
  - Southern Pacific Railroad
  - Port Isabel and Rio Grande Valley Railroad
  - Rancho Viejo Floodway

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Environmental Resources Management (ERM) completed a cultural resources assessment (CRA) for a water discharge pipeline located in Cameron County, Texas related to the anticipated Tenaska Brownsville Generating Station. In accordance with the Prevention of Significant Deterioration (PSD) provisions of the Clean Air Act and the implementing regulations at 40 CFR 52.21 as administered by the U.S. Environmental Protection Agency (EPA), Tenaska Brownsville Partners, LLC (Tenaska) submitted a Greenhouse Gas (GHG) PSD Permit Application for a proposed electric generating station (the Project) on February 15, 2013.

If the Project is issued a GHG PSD Permit by the EPA, the Project is subject to Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. Tenaska plans to initiate construction of the Project, known as the Tenaska Brownsville Generating Station, in early 2015 and begin operation by mid-2017.

The purposes of the information presented in this report are to:

1. Identify historic properties (archeological and aboveground) located within the Water Discharge Pipeline Project's Area of Potential Effects (APE); and
2. Describe the effects of the Water Discharge Pipeline Project on identified historic properties.

The information provided in this report is intended for utilization by the EPA in the agency's compliance with Section 106 of the NHPA pursuant to the issuance of the GHG PSD Permit. This current report has been prepared to support the Section 106 process as outlined in ERM's completed cultural resources report (*Cultural Resources Assessment (CRA): Tenaska Brownsville Generating Station* [ERM: August 6, 2013]), which is being submitted to support Tenaska's GHG permit application.

Prior to the survey, two historic properties were known to be in the project vicinity the Palo Alto Battlefield National Historic Site NHL; and features associated with the potentially eligible Cameron County Drainage District No. 1 (CCDD1).

The archeological investigation examined the direct impact area of the APE, which includes the Water Discharge Pipeline survey area (identified as a 20-foot-wide ROW that runs parallel to FM 511/Hwy 550 and secondary roads leading southeastward toward the Brownsville Bay Ship Channel). By definition, the ROW typically extends 50-feet from the centerline of the highway; therefore ERM's archeological investigation examined the furthest extent of the ROW's boundaries and in areas least disturbed. The surface inspection, shovel testing, and metal detection survey did not identify any archeological resources or artifacts.

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Aboveground investigation identified one additional resource with the potential to be eligible for listing in the NRHP, the Port of Brownsville, a potential historic district that includes the ship channel (completed in 1936) and its associated buildings, roads, and railroads.

For the two potentially eligible historic properties (the Port of Brownsville and the CCDD1) the application of the Criteria of Adverse Effect resulted in the finding that these historic properties will be affected by the project, but not adversely. The Palo Alto Battlefield National Historic Landmark boundaries are outside of the APEs for Water Discharge Pipeline Project.

Based upon the results of the cultural resources investigations, ERM recommends no further cultural resources investigations to identify historic properties in the APE.

Tenaska understands that the EPA, as the lead federal agency and in consultation with relevant stakeholders, will make the final determinations regarding the effects of the project on historic properties.

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1.0 INTRODUCTION

Tenaska Brownsville Partners, LLC (Tenaska) is proposing construction of a new natural gas-fueled power plant, the Tenaska Brownsville Generating Station (Project), in south central Cameron County, Texas, outside of Brownsville (Figure 1-1). Tenaska has retained ERM to assist them in conducting investigations and preparing documentation expected to be required as part of the federal permitting process for the facility. Construction of the plant is projected to commence in early 2015 and the plant is proposed to begin commercial operations in mid- 2017.

Tenaska is seeking a Greenhouse Gas (GHG) Permit under the Environmental Protection Agency's (EPA's) Prevention of Significant Deterioration (PSD) program of the Clean Air Act (CAA). Because the EPA is, as of the date of this report, the authority issuing GHG permit in the state of Texas, the requirements of Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, become part of the EPA's GHG permitting process. The EPA has requested that Tenaska undertake cultural resources investigations within the project's Area of Potential Effects (APE) to identify historic properties and to conduct preliminary coordination with expected stakeholders to the Section 106 process.

An investigation of the 275-acre power plant site was completed and the results are reported in *Cultural Resources Assessment (CRA): Tenaska Brownsville Generating Station* (ERM: August 6, 2013). However, the installation of the water discharge pipeline from west of Palo Alto Battlefield National Historic Landmark (NHL) to the Brownsville Bay Ship Channel requires the use of additional rights of way (ROWs) not considered in that CRA report.

The Water Discharge Pipeline Project is a connected action to the generating station undertaking. Section 106 of the NHPA requires the cultural investigation of the additional APE. Specifically, the Brownsville Public Utilities Board (BPUB) proposes to install a utility line from west of Palo Alto Battlefield NHL extending southeastward toward the Brownsville Bay Ship Channel within its existing ROW, which also overlaps into the TxDOT's ROW. The possible direct effects of the construction are limited by Tenaska's proposed use of existing BPUB's and TxDOT' ROW corridors. Potential indirect effects are also limited because the utility is buried. For the purposes of the intensive archeological survey and metal detection survey, the additional direct impact area is assumed to be the entire ROW.

The Project maps in Appendix A show the routes, and identify those areas previously surveyed (5.4 miles in blue, which included aboveground surveys), and well as those areas previously the unsurveyed (5.65 miles in red). Since the previous areas were surveyed (between 2005 and 2008), the FM 511 roadway expansion has resulted in the completion of the State Hwy 550 Toll Road as well as the ongoing construction of connecting roads and bypasses to the State Hwy 550 Toll Road network.

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FIGURE 1-1: Location of Tenaska Brownsville Generating Station Water Discharge Pipeline (Source: CEI 2013)

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It was ERM's conclusion that the 5.4 miles of previously-surveyed areas included in the water discharge pipeline route had been sufficiently surveyed and that construction activities to create the State Hwy 550 Toll Road have largely disturbed the subject ROW adjacent to the Toll Road. The Texas Historical Commission (THC) concurred that it was not necessary to resurvey this ROW portion and a Texas Antiquities Committee's (TAC) Permit was granted for archeological and aboveground investigations on August 1, 2013.

The background research and fieldwork were completed between July 31 and August 9, 2013. These investigations and a discussion with Palo Alto Battlefield National Historical Park archeologist Rolando Garza were conducted to evaluate the potential for and the occurrence of cultural resources within and immediately adjacent to the APE. The background research and discussions conducted with NPS staff focused on the possibility that archeological sites and artifacts associated with the Battle of Palo Alto may be located within the water discharge pipeline's APE. These discussions with the background research as well as the data gathered for ERM's *CRA* (2013) indicated that no activities related to the battle, the Civil War, or other notable historic events were known to have occurred within the direct APE.

The review of the THC Archeological Sites Atlas and the NRHP database confirmed the presence of one (1) previously recorded historic property (the Palo Alto Battlefield National Historic Site); one (1) Historical Marker (#4080); and two (2) archeological sites (41CF107 and 41CF207) adjacent to the direct APE. The two sites 41CF107 and 41CF207 were located within the FM 511/Hwy 550 TxDOT ROW and were investigated as part of the aforementioned TxDOT cultural survey of the highway. The THC concurred with investigators conclusions that the sites are not significant (Bonine 2006). The USGS topographic quadrangle maps (East Brownsville and Los Fresnos) dating back as far as 1930 were reviewed for the presence of any other historic-aged resources within the direct APE. Other resources identified were the Southern Pacific Railroad, the Port Isabel to Rio Grande Valley Railroad, and drainage ditches.

The intensive archeological survey of the direct impact area within the APE consisted of surface inspection and shovel testing at 30-meter intervals along each of the ROW's Water Dis that were not obviously disturbed. Transects 2, 3, 4 and 5 were also subjected to metal detection survey to investigate for the possible presence of military artifacts associated with the Battle of Palo Alto. A total of 128 STPs was excavated across all 5 transects for the length of the 4.38 mile (7.05 kilometer [km]) survey area. A 1.17-mile (1.89 km) section within the Port of Brownsville running from State Highway 48 southeastward toward the Brownsville Bay Ship Channel was not archeologically surveyed due to the highly industrialized character at the southern terminus. Thick, tall shrubbery across the metal detection areas along Transect 4 and Transect 5 allowed for survey only in small areas with less vegetation. No archeological sites, features, or artifacts were recorded during any part of the survey. This report summarizes the findings of the cultural research, results, and aboveground survey to locate cultural resources within the water discharge pipeline's APEs.

The reconnaissance-level aboveground survey of the APE consisted of a vehicular and pedestrian visual investigation. In addition to the aboveground resources noted above, one potentially eligible property was identified, the Port of Brownsville Historic District. This resource was identified through on-site investigation and review of documentary maps and photographs.

1.1 SECTION 106 UNDERTAKING

The Antiquities Code of Texas of 1969 requires state agencies and political subdivisions of the state — including cities, counties, river authorities, municipal utility districts, and school districts — to notify the THC of ground-disturbing activity on public land. Since the majority of the unsurveyed 5.65 mile route fell within public land, specifically the TxDOT and the BPUB ROW, a Texas Antiquities Permit was required from the TAC, a division under the THC's State Historic Preservation Officer (SHPO). The TAC Permit #6615 was issued on August 1, 2013.

In addition to conducting field surveys and documentary research, ERM coordinated with the THC and the NPS to identify historic properties in the Water Discharge Pipeline APEs. Tenaska understands that a formal assessment of the effects of Federal agency undertaking on historic properties must be made as part of the Section 106 process.

1.2 PROJECT DESCRIPTION

A complete description of the Tenaska Brownsville Generating Station has been provided in the ERM *CRA* (2013); please refer to that document for information specific to the generating station.

The current project (Water Discharge Pipeline Project) is considered a connected action to the generating station project along with other possible connected actions including:

- Storm Water Outfall Structure(s);
- Transmission Interconnect Line;
- Sewer Interconnect Line;
- Make-up Water Supply Line Interconnect Line; and
- Potable Water Interconnect Line(s)
- Natural Gas Interconnect Line

An interconnect sewer utility line will be constructed to provide connection to carry Project sanitary waste into the city systems. Non-contact storm water runoff from the site will drain into a drainage ditch via storm water outfall(s) located along the southern boundary of the property, which is owned and operated by Cameron County Drainage District No. 1 (CCDD1).

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The water discharge pipeline was originally designated for discharge to the city sewer and wastewater system under terms of a pretreatment permit; however, recent adjustments to the facility plans now include the possibility of a water discharge pipeline running from the electric generating station to an outfall located on the Brownsville Ship Channel. Upon addition of a wastewater discharge design option, Tenaska initiated additional cultural field surveys along the entire length of this route and the results are presented within this supplemental report.

Potable water will be provided by the BPUB by an interconnect line from the vicinity of the Southmost Regional Water Authority (SRWA) Treatment Plant located immediately south of the site property.

Natural gas and water supply for the generating station will be provided through pipelines and facilities constructed, owned, and operated by the BPUB that serves other sites as well. A 24-inch diameter natural gas pipeline will originate from near Edinburg, Texas and extend southeasterly for approximately 58 miles, near the Project property, then to the Port of Brownsville. An interconnect line will be constructed within the property boundary of Project from this line to provide natural gas to the generating station.

The generating station will utilize reclaimed municipal treated effluent provided by the BPUB Robindale Wastewater Treatment Plant located approximately 6 miles southeast of the generating station project location. General alignment of the discharge pipeline indicates that it will be run northwesterly from the Robindale Plant up to the future industrial park area located along FM 511 near SRWA Treatment Plant. The Project estimates an average make-up water demand of 5-6 million gallons per day (MGD) with a peak demand of 8 MGD.

As previously described, the generating station project (ERM *CRA*: 2013) will have several interconnects including electrical transmission, wastewater, make-up water, and potable water. Although the layouts and designs for the interconnect lines are not finalized, each of the lines are located entirely within the Action Area [50 CFR 402.02] determined for the overall project.

1.3 *SITE LOCATION AND HISTORY*

The Water Discharge Pipeline Project is located within Cameron County, TX, and consists of an 11.05-mile water discharge pipeline extending from a 275-acre tract of undeveloped land located near the intersection of FM 511 and Old Alice Road to the Brownsville Bay Ship Channel. The ROW begins at the southwestern corner of the 275-acre tract where the power generating station will be constructed. An alternative ROW segment is also considered that runs west of the SRWA Treatment Plant and proceeds southeastward along FM 511/Hwy 550.

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The main corridor follows a filled-in irrigation canal for approximately 0.13 mile (0.21 km) and turns south at a section of Southern Pacific Railroad track. The water discharge pipeline ROW follows this track for 1.09 miles until it intersects FM 511/Hwy 550. From this intersection the ROW follows FM 511/Hwy 550 for approximately 6 miles within existing road and utility easements before it heads south along existing railroad easements down to the southwest corner of the Brownsville Bay Ship Channel within the Port of Brownsville.

According to the Natural Resources Conservation Service (NRCS) the Water Discharge Pipeline Project area is composed of six different soil series (Lomalta, Chargo, Benito, Laredo, Sejita, and Cameron). Based on the review of historic topographic maps and aerial imagery, the Water Discharge Pipeline Project route was historically located in areas primarily utilized for agriculture. More recently, portions of the project area have been utilized for road and utility ROWs and industrialized areas (Port of Brownsville) with other portions still located within agricultural fields.

Known historic-era resources in the vicinity of the Water Discharge Pipeline Project include:

- Cameron County Drainage District No. 1;
- Irrigation and Drainage Ditches (unassociated);
- Port of Brownsville;
- Southern Pacific Railroad;
- Port Isabel and Rio Grande Valley Railroad;
- Rancho Viejo Floodway; and
- Palo Alto Battlefield.

1.4 *AREA OF POTENTIAL EFFECTS*

As defined in 36 CFR §800.4(a)(1) and 36 CFR §800.16(d), the APE of an undertaking is "the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist." According to the Texas Historical Commission (THC) State Historic Preservation Officer's (SHPO) *Section 106 Regulations Users Guide*, the APE includes "all areas of construction, demolition, and ground disturbance (direct effects) and the broader surrounding area that might experience visual or other effects from the project (indirect effects)".

1.4.1 DIRECT IMPACT AREA

The project is located within Cameron County, TX, and consists of an 11.05-mile water discharge pipeline extending from a 275-acre tract of undeveloped land located near the intersection of FM 511 and Old Alice Road to the Brownsville Bay Ship Channel (Figure 1-1). The ROW corridor begins at the southwestern

corner of the 275-acre tract where the power generating plant will be constructed. An alternative corridor segment is also considered that runs west of the SRWA Treatment Plant and proceeds southeastward along FM 511/Hwy 550.

The main corridor follows a filled-in irrigation canal for approximately 0.13 mile (0.21 km) and turns south at a section of Southern Pacific Railroad track. The water discharge pipeline ROW follows this track for 1.09 miles until it intersects FM 511/Hwy 550. From this intersection the ROW follows FM 511/Hwy 550 for approximately 6 miles within existing road and utility easements before it heads south along existing railroad easements down to the southwest corner of the Brownsville Bay Ship Channel within the Port of Brownsville.

The entire 11.05-mile water discharge pipeline ROW is considered the survey area as well as the direct impact area for this investigation. The utility line ROW consists primarily of disturbed lands adjacent to railroads and highways. Figure 1-1 provides an overview of the entire water discharge pipeline ROW and the parts that make up the archeological survey area. Of the total 11.05-mile route, 5.40 miles have been recently surveyed for archeological resources. The remaining 5.65 miles of water discharge pipeline includes 1.17 miles (1.89 km) of highly industrialized area at the southern terminus. This area was confirmed as having previously been completely disturbed in the field and was not included as part of the current field survey. The remaining 4.38 miles (7.05 km) constitute the intensive archeological survey area. The archeological fieldwork primarily consisted of shovel testing and metal detection to investigate cultural resources within the direct impact area.

1.4.2 INDIRECT IMPACT AREA

The aboveground (architectural) investigation examined the entire APE, which included a visual inspection of aboveground buildings, structures, objects, sites and districts within 100 feet (0.06 km) from either side of the water discharge pipeline's centerline. Given that the utility line will be installed primarily below ground, a 200-foot corridor was determined by ERM to be a reasonable APE for assessing the project's direct and indirect effects on aboveground historic properties.

1.5 GENERAL APPROACH

Cultural resources investigations conducted for compliance purposes are often divided into multiple phases to enable the consideration of information resulting from each phase in determining the need for and planning the next.

ERM's cultural resources investigations as summarized in this report consisted of a Phase I archeological survey within the direct impact area within the APE and a reconnaissance survey of aboveground resources within the full APE (direct and indirect). The Phase I archeological survey did not result in the identification of any archeological resources with the potential to be historic properties, and no Phase II was conducted or recommended. ERM further

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determined that the aboveground investigations conducted in this study and the work performed in ERM's *CRA* (2013) was sufficient to identify potentially-eligible aboveground resources in the APE. It is ERM's opinion that these efforts represent a sufficient, good-faith effort to identify historic properties that may be affected by Tenaska's Project.

Background research was conducted prior to, during, and after field investigations, and included review of: the THC's Atlas online database, site files and library; other cultural resources reports for projects in the area; NRHP data layers and other online inventories; historic maps; selected scholarly research; and desktop reference materials. Two historic properties were identified adjacent to the Survey area prior to conducting the cultural resources surveys: the Palo Alto Battlefield National Historic Site, an NHL also listed in the NRHP and historically significant as the site of the first battle of the U.S.-Mexican War on May 8, 1846; and features associated with the CCDD1. Features of the CCDD1 were identified as potentially eligible in ERM's *CRA* (2013).

The boundaries of the Palo Alto National Historical Park were designated in 1991 and amended in 2008 include approximately 3,434 acres of public and private lands. This large parcel borders the east side of Paredes Line Road for approximately two miles. The Battlefield is partially owned and operated by the NPS.

The archeological survey and metal detection survey were completed between August 5 and August 9, 2013. The aboveground survey was conducted between August 5 and August 6, 2013. These efforts are in compliance with the *Secretary of the Interior's (SOI's) Standards and Guidelines for Archeology and Architectural History (48 FR 44716).*

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Six (6) different soil series are mapped in the organic, saline, fine sediments of the survey area. These soils are distinct but texturally and structurally very similar. These distinct soils have developed as a result of differences in the original deposition of the parent material. Because the parent material was deposited as distinct landforms they have different histories of surface water and water table interactions. All of the soils are very hard, very firm, and very sticky and have significant components of humus, and sodium and other salts. Eolian deposits are part of the parent material and all the soils have formed in Holocene deposits. Shrink-swell cracks frequently exceeded a meter in depth in the Benito and Chargo soils. Animal burrows are common and locally the soils have a strong organic component. Fiddler crabs and their burrows are very common in the ROW (SSS NRCS USDA 2013).

The Lomalta Series forms on level to slight depressions, typically, marshy surfaces. The A horizon is usually 0-12 centimeters (0-5 inches) thick and composed of gray to dark gray clay. This soil has a moderate fine and medium angular and subangular blocky structure. It is saline, strongly effervescent, and moderately alkaline. A gradual, smooth boundary separates the A horizon from the first B horizon. The first B horizon is gleyed due to frequent longterm saturation. The soil is a saline, gray clay (5Y 6/1) and displays a weak course prismatic structure that parts to medium blocky. This horizon is 12-36 cm thick and terminates in a gradual, smooth boundary. The next B horizon (Bssgz1 and 2) has two parts. Both are 10YR 5/1 clay, display a medium wedge structure, and have prominent slickensides. Both are also saline, strongly effervescent, and moderately alkaline. They are separated by a gradual, smooth boundary. In addition to these descriptors, the lower part includes 5 percent (by volume) salt masses and crystals. A gradual wavy boundary separates this 20-69 cm thick horizon from the next B horizon. The next B horizon is composed of a lighter and browner gray (2.5YR 6/2) clay loam 0-12 cm (0-8 in) thick. Included in this horizon are yellowish brown concentrations of iron and gray sediment-filled land-crab krotovinas. Below a gradual, smooth boundary is a very pale gray (10YR 7/3), silt loam C horizon (SSS NRCS USDA 2013b).

Chargo series soils form on stream terraces and typically have an Ap horizon 0-13 cm (0-5 in) thick. This horizon is a mix of loose gray aeolian sediment and dark grayish brown silty clay that create a massive and cloddy structured gray (10YR 5/1) silty clay. Below an abrupt, smooth boundary is a two part Az horizon totaling 10-40 cm (4-16 in) thick. The upper part is dark grayish brown (10YR 4/2) silty clay and the lower part is grayish brown (10YR 5/2) and has the same texture. Both parts have moderate fine and medium subangular structure with a few wedge shaped peds. Like all the soils in the direct impact area this horizon is very hard, very firm, and very sticky. Threads and masses of salt are common. This horizon is strongly effervescent, moderately alkaline, and saline. Below a gradual wavy boundary are a Bz followed by a Bkz horizon. The Bz horizon is slightly browner (10YR 5/3) than the lowest part of the A horizon but otherwise share composition and structure. It is typically 13-40 cm (5-19 in)

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thick. A gradual boundary separates the Bz and the Bkz horizon. The Bkz horizon is light brownish gray (10YR 6/2) silty clay and displays a weak, fine, angular blocky structure. This horizon is 8-30 cm (3-12 in) thick and displays a weak, fine angular blocky structure and common masses and concretions of calcium carbonate. Below a clear, wavy boundary are two C horizons. The Cz horizon is 10-40 cm (4-10 in) thick and very pale brown (10YR7/3), massive, silt loam that is violently effervescent. The final horizon is a Ckz composed of massive, light brown (7.5 6/4) silty clay with common masses and concretions of calcium carbonate (SSS NRCS USDA 2013b).

Benito series soils form on level terraces at higher elevations than overflow would typically reach. All of the horizons are saline and all but the top A horizon have accumulation of salts more soluble than gypsum. The profile has three A horizons that total 50-87 in thick. The top 5-12 inches constitute an Az horizon comprised of gray (N 6/0) clay with a weak, fine granular and subangular blocky structure. Below a gradual smooth boundary is a Anz horizon that is light grayish brown (10YR 6/2) with a fine angular blocky structure. This horizon is 102-152 cm (40-60 in) thick and is very hard, very firm, very sticky and very plastic. Salt threads are common and it is strongly effervescent and saline A diffuse, gradual boundary separates the Anz from the ACnz horizon. The ACnz horizon is a pale brown silt loam that is 13-38 cm (5-15 in) thick. Iron concentrations and depletions are common and many calcium carbonate concretions and soft masses are present. Land crab krotovinas are common. An abrupt, smooth boundary separates this horizon from the lower 2CKnz horizon. The 2CKnz horizon is pale brown (10YR 6/3) silt loam and has inclusions similar to the ACnz horizon. This horizon is also burrowed by land crabs (SSS NRCS USDA 2013b).

Laredo soils form on sloping tributary drainages or Holocene stream terraces. The Laredo series consists of very deep, well-drained, moderately permeable soils that formed in calcareous, silty alluvium derived from mixed sources. Slope ranges from 0 to 3 percent. Its Taxonomic Class is fine, silty, mixed, superactive, and contains hyperthermic torrifluventic haplustolls. Typical pedon described is Laredo silty clay loam on east-facing linear 0 to 1percent slopes, in cropland at an elevation of 12 meters (40 feet). The Ap horizon is 0-20 cm (0-8 in) thick. The soil found here is dark grayish brown (10YR 4/2) silty clay loam. Its structure is weak, fine, subangular blocky to moderate, very fine, and angular. Its composition is hard, friable, sticky and plastic. Also, it is strongly effervescent, moderately alkaline, and has a smooth abrupt boundary 10-31 cm (4-12 in) thick, separating it from the A horizon below. The A horizon is 20-46 cm (8-18 in) thick, and contains dark grayish brown (10YR 4/2) silt loam. Its structure is moderate, very fine, and granular to fine, subangular blocky. Its composition is hard, friable, sticky, and plastic with few fine pores. It is strongly effervescent, moderately alkaline, and has a clear wavy boundary 20-41 cm (8-16 in) thick, separating it from the Bw horizon below. The Bw horizon is 46-104 cm (18-41in) thick, and contains light brownish gray (10YR 6/2) silt loam. It has a weak, fine, medium sub angular blocky structure. Its composition is slightly hard, friable, sticky, and plastic, with many fine pores. The horizon contains few insect

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tunnels and root channels filled with slightly darker material from the horizons above. Also, it contains 2 percent films and threads of calcium carbonate. It is violently effervescent, moderately alkaline, and has a clear wavy boundary 41-91 centimeters (16-36 in) thick separating it from the Bk/Ck horizon below. The Bk/Ck horizon is 104-125 cm (41-49 in) thick. It contains 80 percent light brownish gray (10YR6/2) silty clay loam, with a thin stratum of silt loam (20 percent). Its composition is massive, slightly hard, friable, sticky, and plastic, with many fine pores. Also, there are 4 percent masses and concretions of calcium carbonate. The horizon is violently effervescent, moderately alkaline, and separated from the C horizon below by a clear wavy boundary 10-25 cm (4-10 in) thick. The C horizon is 125-203 cm (49-80 in) thick and contains light gray (10YR 7/2) silt loam with a thin strata of silty clay loam and very fine sandy loam. Its composition is massive, slightly hard, friable, violently effervescent, and moderately alkaline (SSS NRCS USDA 2013b).

Sejita series soils are found in channels of streams and drainages. They form in stratified alluvial and marine sediments and have been modified by deposits of eolian silt and clay blown from nearby tidal flats. It is taxonomically classified as fine, silty, mixed, active, and contains hyperthermic typic aquisalids. The typical pedon described is rangeland sejita silt loam. The Anz horizon is 0-5 cm (0-2 in) thick and contains light brownish gray (10YR 6/2) silt loam. Its structure is weak, fine, and subangular blocky. Its composition is slightly hard, friable, sticky, and plastic and also contains common salt threads. The horizon is strongly saline, strongly effervescent, and strongly alkaline. It is separated from the horizon below by a clear wavy boundary 3-13 cm (1-5 in) thick. The Bynz horizon is 5-17 cm (2-7 in) thick, and contains a light gray (10YR 7/2) silty clay loam, and common medium distinct gray (10YR 6/2) streaks. Its structure is weak, course, angular, and blocky, and its composition is hard, friable, sticky, and plastic. Within this horizon are few gypsum crystals, few iron-manganese concretions, and common salt threads. The horizon is strongly saline, strongly effervescent, and strongly alkaline. It is separated from the horizon below by a gradual wavy boundary 8-25 cm (3-10 in) thick. The second Bynz horizon is 18-50 cm (7-20 in) thick, and contains light gray (10YR 7/2) silty clay loam, and a few gray (10YR 6/1) streaks. It has a weak, coarse prismatic structure, and the horizon is massive, hard, friable, sticky, and plastic. It also contains few gypsum crystals, and common masses and threads of salt. The horizon is strongly saline, strongly effervescent, and strongly alkaline. It is separated from the Cynz horizon below by a diffuse wavy boundary 25-43 cm (10-17 in) thick. The final horizon is Cynz, which is 50-152 centimeters (20-60 in) thick. It contains a very pale brown (10YR 7/3) stratified silt loam, silty clay loam, and clay loam. It has a massive, hard, friable, sticky, and plastic structure. It also contains common to medium distinct dark gray (10YR 4/1), and strong brown (7.5 YR 5/6) masses of iron accumulation. Also, within the horizon are few gypsum crystals and few black concretions, and it is strongly saline, strongly effervescent, and strongly alkaline (SSS NRCS USDA 2013b).

Cameron series soils form in alluvial sediments of nearly level bottomlands, and are taxonomically classified as clayey over loamy, mixed, active, and

hyperthermic vertic haplustolls. The typical pedon described is cultivated Cameron silty clay. The Ap horizon is 0-18 cm (0-7 in) thick and contains gray (10YR 3/2) silty clay. The structure is weak, very fine, granular, very hard and firm, but also crumbly and calcareous. It is separated from the next A horizon by an abrupt smooth boundary 13-23 cm (5-9 in) thick. The A1 horizon is 18-38 cm (7-15 in) thick, and contains gray (10YR 5/1) silty clay. The structure is moderate, fine, subangular blocky and the composition is hard, firm, crumbly, and has many fine pores. It contains a few fragments of snail shell, and is calcareous as well. The horizon is moderately alkaline, and is separated from the next horizon by a clear smooth boundary 13-28 cm (5-11 in) thick. The B2 horizon is 13-58 cm (5-23 in) thick, and contains gray (10YR 6/1) silty clay. It has a weak, medium, subangular blocky structure. Also, its composition is hard and firm but crumbly. The horizon is porous, with a few films and threads of secondary carbonates. It is also calcareous, moderately alkaline, and is separated from the horizon below by a clear wavy boundary 15-40 cm (6-16 in) thick. The IICca horizon is 58-74 cm (23-29 in) thick, and contains light gray (10YR 7/2) silt loam. The horizon is without structure, and the composition is hard, friable, and contains 4 percent of soft fine masses of calcium carbonate by volume. The horizon is calcareous, moderately alkaline, and is separated from the IIC horizon by a gradual wavy boundary 15-40 cm (6-16 in) thick. The IIC horizon is 74-160 cm (29-63 in) thick, and contains very pale brown (10YR 7/3) silt loam. This horizon is structure-less, and is slightly hard, friable, calcareous, and moderately alkaline (SSS NRCS USDA 2013b).

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Cultural resources investigations were conducted to determine if historic properties, defined as those listed in or eligible for listing in the NRHP, are present in the APE for the Project. For a property to be eligible for listing in the NRHP, it must possess historical significance under at least one of the NRHP Criteria – A, B, C, or D – and retain integrity, often described as the physical characteristics of the property that convey the historical significance. The NRHP Criteria as defined in 36 C.F.R. §60.4 include properties:

A. that are associated with events that have made a significant contribution to the broad patterns of our history; or

B. that are associated with the lives of persons significant in our past; or

C. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. that have yielded or may be likely to yield, information important in prehistory or history.

Integrity may be defined as the authenticity of a property's historic identity, demonstrated by the survival of physical characteristics that existed during the historic property's period of significance. The seven aspects of integrity are:

- Location: the place where the historic property was constructed or the place where the historic event occurred;
- Design: the combination of elements that create the form, plan, space, structure, and style of a property;
- Setting: the physical environment of a historic property;
- Materials: the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property;
- Workmanship: the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory;
- Feeling: a property's expression of the aesthetic or historic sense of a particular period of time; and
- Association: the direct link between an important historic event or person and a historic property.

As explained in the NPS *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation*, "The evaluation of integrity is sometimes a subjective judgment, but it must always be grounded in an understanding of a property's physical features and how they relate to its significance. To retain historic integrity a property will always possess several, and usually most, of

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these aspects. The retention of specific aspects of integrity is paramount for a property to convey its significance. Determining which of these aspects are most important to a particular property requires knowing why, where, and when the property is significant"(NPS 1990).

3.1 SITE FILE AND LITERATURE REVIEW

ERM conducted background research including a site file search, a review of literature, and a review of historic maps to determine if any known cultural resources (including properties listed on the NRHP, archeological sites, structures, historical markers, historical districts, and cemeteries) existed within the Water Discharge Pipeline Project's APE or within a 0.5 mile (0.8 km) distance of the ROW centerline. A review of previous archeological projects within this area was also conducted. Inventories of projects, sites and markers, cemeteries and previous surveys have been assembled. The following repositories were consulted:

- The THC SHPO – Archeological Sites Atlas
- Texas General Land Office (GLO)
- The University of Texas (Austin) Briscoe Center Map Collection
- The University of Texas (Arlington) Special Collections Library
- Texas State Historical Association Archives
- Texas State Archeological Landmarks
- National Park Service – National Register of Historic Places (NRHP) Properties
- Texas State Library and Archives Commission Collection – Texas Heritage Online
- U.S. Library of Congress
- USGS 7.5-minute series, Topographic, Historic Quadrangle Maps
- Handbook of Texas Online

A total of three (3) archeological sites (including one NHL) and one Historical Marker are located within the 0.5 mile (0.8 km) file search area. One of the sites, 41CF107, was located within the direct APE. However, it was not reinvestigated since it had been adequately surveyed by SWCA in 2008. The sites and Historical Marker are listed in Table 3-1. A total of 16 cultural resource investigations have been conducted within 0.5 mile (0.8 km) of the current survey area (Table 3-2; Figure 3-1).

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TABLE 3-1: Archeological Sites and Historical Marker within 0.5 mile (0.8 km) of the Survey Area

Site No.	Date Recorded	Site Type	Site Description	Age	NR Eligibility
41CF92	1970, 1981	Historic	Palo Alto Battlefield	1846	Eligible (NR District/NRL)
41CF107	1974	Prehistoric	Burned clay and shell scatter	Unknown Prehistoric	Not Eligible
41CF207	2009	Historic	Two isolated lead ingots	Unknown Historic	Not Eligible
Historical Marker 4080	1986	Historic	Port of Brownsville Historical Marker	1936	State Landmark

The following features are found on USGS topographic and historic maps of the area within the Water Discharge Pipeline Project's direct or indirect APE, which are not previously documented in the research above:

- Ditches: Extant irrigation/drainage ditches are present on USGS maps as early as 1928; and
- Railroads: The survey area crosses over the Port Isabel and Rio Grande Valley Railroad, as it is depicted on the 1930 East Brownsville 7.5-minute quadrangles and subsequent USGS maps. The Southern Pacific Railroad is noted on the 1930 Los Fresnos 7.5-minute quadrangles.

Based on the map data and later confirmed by visual inspection, the majority of the Water Discharge Pipeline Project's direct impact area within the APE has been disturbed by railroad construction and maintenance and by the construction of the new FM 511/Hwy 550 Toll Road. An intensive archeological survey of the direct impact area consisted of surface inspection and shovel testing at 30-meter intervals along a single transect within the ROWs. Some areas along Transect 1, 2 and 5 were completely disturbed and only a pedestrian reconnaissance with a surface inspection was performed in these areas.

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Table 3-2: Cultural Resources Investigations with 0.5 Mile (0.8KM) of the Survey Area

SHPO Polygon ID No.	Report Date	Agency	Consultant	Project Type	Principal Investigator	Report Authors	TAC Permit No.
438	1980	FMHA	Unknown	Survey	Unknown	Unknown	Unknown
441	1974	Unknown	Unknown	Boat Survey	Unknown	Unknown	Unknown
442	1981	COE-Vicksburg District (VD)	Unknown	Survey	Unknown	Unknown	Unknown
443	1986	EPA	Unknown	Survey	Unknown	Unknown	Unknown
908	1999	EPA	Unknown	Survey	Unknown	Unknown	Unknown
1168	1982	TxDOT	Unknown	Survey	Unknown	Unknown	Unknown
1170	1990	SDHPT	Unknown	Unknown	Unknown	Unknown	Unknown
10557/10780/ 12713/12952	2003	Southmost Regional Water Authority	SWCA, Inc.	Recon & Survey	Brett A. Houk	Brett A. Houk and Kerri S. Barile	2900
10998/12234	2004	TxDOT	Hicks and Co.	Archival and Survey	Rachel Feit	Bryan King and Rachel Feit	3553
11458	2005	NPS	NPS	Survey	Rolando Garza	Rolando Garza	-
11648	2006	TxDot	SWCA, Inc.	Survey and Archival	Kevin Miller	Mindy L. Bonine	3637
13513	2004	COE-VD	COE-VD	Survey	Nicole Minnichbach	Nicole Minnichbach	-
15254	2008	NPS	NPS	Survey	Rolando Garza	Rolando Garza	-
15255	2008	NPS	NPS	Survey	Rolando Garza	Rolando Garza	-
16059	2009	TxDOT	SWCA, Inc.	Survey	Kevin Miller	Mindy Bonine, C.T. Hartnet, A. Peyton	4938
16060	2006	TxDOT	SWCA, Inc.	Survey	Kevin Miller	Mindy Bonine, L.A. Acuna, K. Lawrence	Unknown

FIGURE 3-1: Texas Archeological Sites Atlas: Sites and Inventories within 0.5 mile (0.8 km) of the Survey Area

3.2 ARCHEOLOGICAL INVESTIGATIONS

Archival research combined with accurate field recordings and documentation become integral components that build the foundations for all cultural resources investigations. The efforts outlined below are in compliance with the *Secretary of the Interior's Standards and Guideline: Standards for Identification* (as well as the *Secretary's Professional Qualification Standards for Archeologists and Historians* 36 CFR Part 61) as prepared under the authority of Sections 101(f) (g), and (h), and Section 110 of the NHPA (*48 Federal Register 44716*: September 29, 1983). Moreover, documentation generally results in both greater factual knowledge about the specific property and its values, and a broader understanding of the property in its

historical context. In addition to increasing factual knowledge about a property and its significance in one historical context, documentation may also serve to link the property to or define its importance in other known or yet-to-be defined historic contexts.

3.2.1 FIELD METHODS

The archeological field investigation associated with the current undertaking was designed to identify and assess all sites, historic-aged and prehistoric, within the direct impact area of the project's APE (Figure 1-1). Potential, buried (subsurface), surface archeological resources and/or structural ruins fall within the purview of this investigation. In addition to site identification, the investigation also must provide sufficient data to determine whether or not additional investigations will be required to evaluate fully the potential eligibility of any newly defined site location for inclusion in the NRHP or as a State Archeological Landmark (SAL).

The majority of the direct impact area has been disturbed by railroad construction and maintenance and by the construction of the new Toll Road 550. An intensive archeological survey of the water discharge pipeline consisted of surface inspection and shovel testing at 30-meter intervals along a single transect in the ROWs. Although there was a single transect, surveyors were instructed to place the STPs in the part of the ROW that appeared least disturbed. Some shovel test locations were obviously completely disturbed and only a surface inspection was performed.

The survey was divided into five (5) continuous linear segments for ease of discussion (Figure 1-1). These arbitrary segments are identified as Transects 1-5. Transect 1 is in the southern part of the water discharge pipeline ROW along one (1) leg of railroad tracks belonging to the Southern Pacific (Figure 3-2). It is approximately 0.13 mile (0.21 kilometer) long, and 7 shovel tests were planned and excavated at 30-meter intervals. Transect 2 is the next segment of ROW north of Transect 1 just east of Resaca De Rancho Viejo and adjacent to the Southern Pacific Railroad. It is oriented north-south and is 1.09 miles (1.76 kilometers) long. Fifty-six (56) shovel tests were planned and 39 were excavated. Transect 3 begins at the northern end of Transect 2 and runs east-west along a new section of State Highway 550 Toll Road. Fifty-one (51) shovel tests were planned and 47 were excavated. Transect 4 and 5 are located at the northern end of the water discharge pipeline. Transect 4 is oriented east-west and follows a filled-in canal. At this location, a total of 20 shovel tests were planned and 19 were excavated. Transect 5 starts at the eastern end of Transect 4 and follows a north-south section of the Southern Pacific Railroad. This transect terminates at FM 511/Hwy 550. Twenty (20) shovel tests were planned and 18 were excavated.

All shovel tests were excavated by hand and were 30-40 cm (12-16 in) in diameter and 25-100 cm (10-39 in) deep. Twenty-cm (8-in) arbitrary levels were screened and hand-sorted separately. Notes were taken describing levels in terms of soil

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horizons, color, texture, soil structure, and presence of artifacts. Additional notes were taken describing vegetation and general environment.

The metal detection survey employed Fisher model F2, with a 10-inch coil. According to the owner's manual (2013), these metal detectors are self-calibrating and effective to 25 cm (10 in) below the surface. Surveyors attempted to use sweeping 1-meter (3.3-foot) arcs of the metal detector, however, dense brush was encountered in those areas that were not disturbed, and in most parts of the APE surveyors were typically limited to sweeping areas less than 2 square meters. The coil was kept within 10 cm (4 in) of the surface within these areas. Because of the dense brush, each transect except Transect 1 was covered by two (2) surveyors walking each transect in succession. All hits were excavated but modern trash was not collected or recorded. Surveyors were careful to maintain a 20-meter buffer from other metal detectors and avoided other metals such as the steel toes of boots, shovels, and other equipment.

3.2.2 RESULTS OF ARCHEOLOGICAL INVESTIGATIONS

The primary purpose of this investigation was to determine whether any previously unidentified and intact archeological were present within the direct impact area of the APE by conducting an intensive archeological survey and metal detection survey and provide recommendations based on the research and survey activities. No archeological sites were recorded during the survey.

The length of the five (5) transects totaled 3.13 miles (5.15 kilometers) and a total of 128 shovel tests were excavated. Observation points were planned at 30-meter intervals totaling 141. Two (2) additional shovel tests were excavated between STPs 37 and 38 to investigate a metal detector hit for a total of 143. Shovel tests were excavated at all observation points unless the surveyor believed the ground was disturbed to a depth of at least 50 centimeters. The THC minimum standards for linear projects require 16 shovel tests for every mile of 100-foot wide survey area that is not disturbed and has more than 30 percent ground visibility. The water discharge pipeline ROW is only 50 feet wide so only 8 were required per mile of the 3.13 mile survey area. Therefore, only 26 shovel tests were required by THC minimum standards. The current survey exceeded the minimum standards by approximately 500 percent. There were no positive shovel tests on any transect and there were no surface finds. A few aboveground features of interest were observed and these are discussed in the "Aboveground Investigations" section of this report. Appendix B is the photo log and images from the five (5) transects is include and labeled.

Each of the five (5) transects were previously disturbed to some level. The degree and type of disturbance at each transect were sufficiently distinct that each will be discussed separately. Transect 1 was located next to a train track and the entire ROW was within the roadbed of the curving track (Figure 3-2). Shovel tests were located as close to the outside edge of the ROW as possible. Profiles of STPs 3, 4, and 5 on Transect 1 show a truncated Chargo soil, however, no disturbance below the current surface was evident. Six (6) shovel tests were

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excavated from a total of seven (7) observation points and every one was negative.

Transect 2 is a 1.09-mile (1.76-kilometer) straight segment located north of Transect 1 along the same railroad (Figure 3-3). The southern two-thirds (2/3 rds) of the transect was located on the outside edge of a railroad access road that was built on fill adjacent to the railroad track. The northern third (1/3 rd) of the transect is adjacent to a new access road for FM 511/Hwy 550. This third (1/3 rd) of the ROW was completely disturbed by the construction of roadway and ground visibility was approximately 80 percent. Tested locations at the edge of the ROW exhibited a profile comprised of fill that was typically 10 to 30 centimeters thick over a shallowly disturbed natural soil. Thirty-nine (39) shovel tests were excavated and all of these were on the southern two-thirds (2/3 rds) of the transect. The disturbances and fill made this area very low probability for preserved archeological sites. Excellent ground visibility allowed a sufficient archeological survey and notes were made at each of the observation points. No artifacts or features were encountered during any part of the Transect 2 survey.

Transect 3 begins at a ninety-degree turn at the northern end of Transect 2 (Figure 3-3). This is a straight 1.09 miles (1.76 kilometers) east-west oriented transect located adjacent to a Hwy 550 access road. Fill washed in from the nearby construction covered most of the surface of the transect and a cow path with ruts as deep as 25 centimeters (10 inches) and a two-track dirt road disturbed the surface. Various thicknesses of road fill from the nearby construction capped most of the shovel tests. All 46 shovel tests that were excavated along this transect were negative. A ditch crosses the eastern part of the transect. Ditches are discussed in the "Aboveground Investigations" section. The canal was the only feature or artifact encountered during the Transect 3 survey.

Transect 4 is located on the northern end of the water discharge pipeline survey area (Figure 3-4). This is the northernmost transect and it is located within the ROW along filled canal. This segment is one of the two (2) closest transects to the Palo Alto Battlefield National Historical Park. It is oriented east-west and is 0.38 mile (0.61 kilometer) long. This transect was covered with a low but dense brush. The soil appears to be a natural and intact sandy loam over and clayey loam conforming to the description of Chargo series soils. Nineteen (19) shovel tests were excavated and all of them were negative.

Transect 5 connects to Transect 4 at its western end (Figure 3-4). The ROW turns south and runs straight to the end of the transect at FM 511/Hwy 550. This transect parallels the western border of the Palo Alto Battlefield National Historical Park and lies within the Southern Pacific Railroad ROW. The railroad is discussed in the "Aboveground Investigations" section. The water discharge pipeline ROW is located at the edge of the railroad access road and similar to Transect 3 a cap of fill overlies the entire transect. This transect is 0.44 mile (0.71 kilometer) long, and 20 observation points were plotted with 18 excavated. All of the shovel tests were negative for artifacts but revealed railroad roadbed up to

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30 centimeters thick over shallowly disturbed natural soil. A photograph and profile of a typical shovel test is provided in Figure 3-5. A complete log of shovel tests including location, depth, and result are included as Appendix C.

3.2.3 METAL DETECTION SURVEY

All five (5) survey transects were surveyed with metal detectors. The metal detector survey resulted in finding no historic-aged artifacts. Most transects had a considerable amount of modern trash such as aluminum cans, train track hardware, fencing fragments, and other miscellaneous metal objects. Notably, Transect 4 had very little metal of any sort and the modern trash finds were limited to the area around the eastern terminus. All of the finds came from the fill that caps most of the transect surfaces.

The plan to complete a metal detector survey of 100 percent of the survey area was intended to offset the possibility that the sample was insufficient due to unfavorable conditions. A number of variables reduced the potential effectiveness of the metal detector survey. These conditions that impeded complete metal detector survey of the survey area included modern fill from the railroads and highways that abut the 5 transects and capped the natural surface in the last 50 years. In addition, the effectiveness of metal detectors is limited by depth. The additional thickness of the fill limits the range of the metal detector's depth of optimum effectiveness below the natural surface. The surface of the natural soil has also been disturbed, likely as part of the construction process, and this further reduces the likelihood of detecting historic-aged metal artifacts in good context.

3.2.4 ARTIFACTS

No prehistoric or historic-aged artifacts were recovered from any of the shovel tests, the metal detection survey, or the surface inspection conducted within the APE.

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FIGURE 3-2: Tenaska Water Discharge Pipeline Survey Transect 1

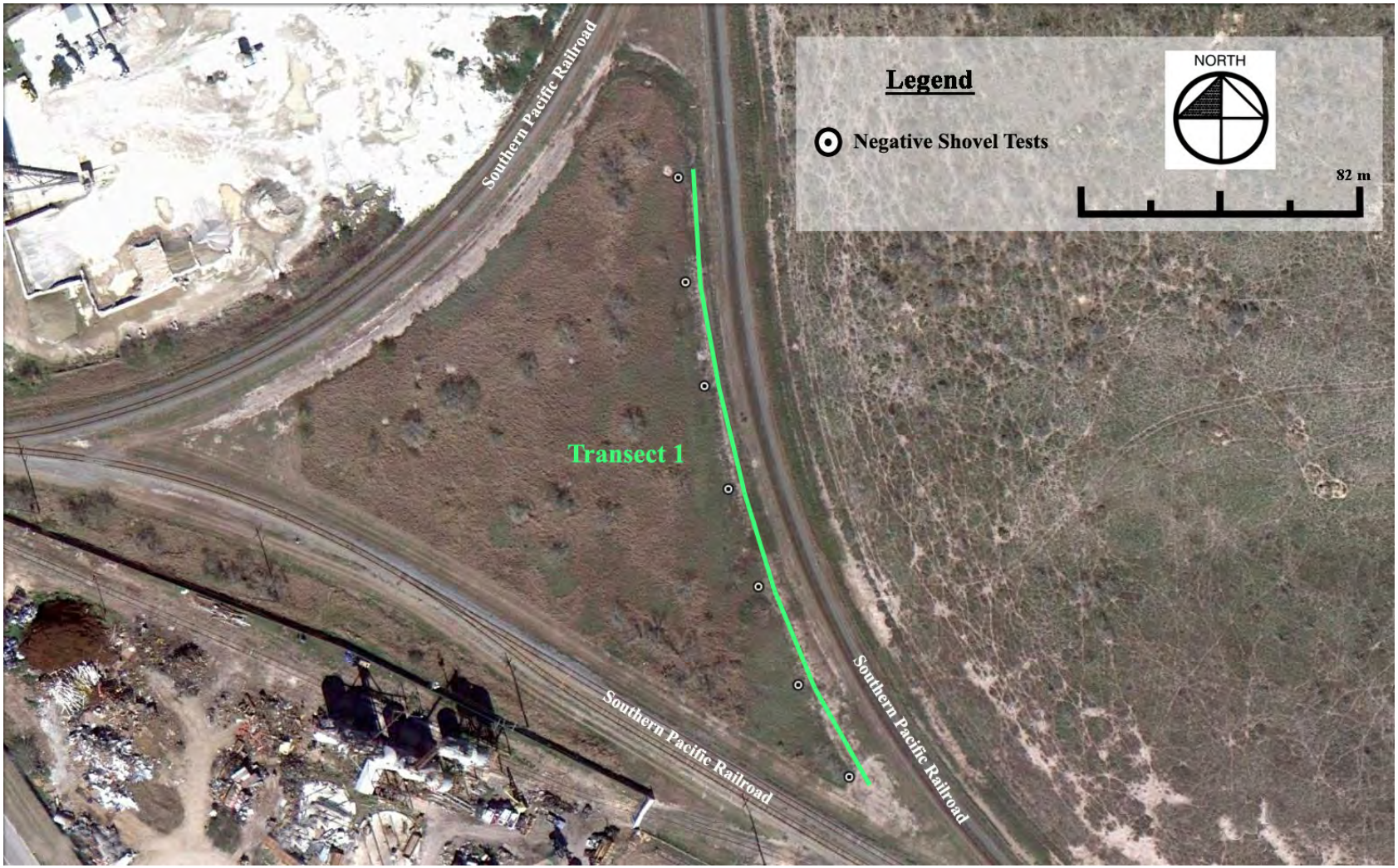

FIGURE 3-3: Tenaska Water Discharge Pipeline Survey Transects 2 and 3

FIGURE 3-4: Tenaska Water Discharge Pipeline Survey Transects 4 and 5

FIGURE 3-5: Typical Shovel Test and Profile

Shovel Test Profile

I Brown (10YR 5/3) clay loam; weak, fine crumb structure.

II Dark grayish brown (10YR 4/2) clay/silt loam; subangular blocky structure.

III Light brownish gray (10YR 6/2) clay/silt loam; subangular blocky structure.

3.2.5 EVALUATION OF ARCHEOLOGICAL RESOURCES

ERM conducted a 100 percent intensive archeological survey and a metal detection survey of 5 relatively undisturbed segments of the water discharge pipeline ROW. No archeological artifacts, features, or sites were found. Similar to the survey of the power plant location, there were no prehistoric sites found in the APE (ERM *CRA*: 2013). There are many possible reasons that no sites were found but it is probably related to the very active depositional environment that has built this delta with glacial and storm sediments from the Rio Grande over the last ca. 14,000 years. The sediments within the APE are likely relatively deep Holocene deposits (Gustavson and Collins 1998, Brown et al. 1980). The history of the landform suggested by the soils and geological characteristics suggest this area has been swampy and subject to flooding by tropical storms for thousands of years. If any people spent a significant amount of time in this very wet environment, any evidence of their visit was likely washed away.

No historic-aged archeological artifacts, features, or sites were found. Although some parts of the water discharge pipeline ROW are adjacent to the Palo Alto Battlefield National Historic Site, no related artifacts or historic-aged artifacts at all were recovered. This was largely predicted by the background research and Rolando Garza archeologist at the Palo Alto Battlefield National Historic Park.

Because no archeological resources were identified within the direct APE, the water discharge pipeline will have no effect on archeological historic properties.

3.3 ABOVEGROUND INVESTIGATIONS

3.3.1 FIELD METHODS

ERM conducted the aboveground resource reconnaissance survey on August 5, 2013. Efforts were focused on identifying and documenting any readily identifiable cultural resources that have potential to be eligible for listing in the NRHP in the APE; and gaining an understanding of the physical and developmental character of the area for the purpose of informing the cultural resources work.

An Architectural Historian meeting the Secretary of the Interior's Professional Qualification Standards, accompanied by an additional ERM employee, drove the full length of the water discharge pipeline from the survey area to the outfall location, reviewing the right-of-way for the line and immediately adjacent properties. Aerial photography of the survey area and road maps were taken into the field, and notations were made regarding the APE and resources of interest. Digital photographs were taken to document the general character of the APE and resources of interest.

Prior to the survey, several historic properties were already known to be in the project vicinity: the Palo Alto Battlefield National Historic Site National Historic Landmark; and extant irrigation and drainage ditches associated with Cameron

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County Drainage District No. 1. The points at which the water discharge pipeline will cross these ditches were examined to enable an assessment of effects.

3.3.2 RESULTS OF THE ABOVEGROUND INVESTIGATION

Aboveground survey and background research resulted in the identification of six aboveground resources or categories of resources of interest within the APE:

- Cameron County Drainage District No. 1 (CCDD1);
- Irrigation and drainage ditches (unassociated);
- Port of Brownsville;
- Southern Pacific Railroad;
- Port Isabel and Rio Grande Valley Railroad; and
- Rancho Viejo Floodway.

Two of these, the CCDD1 and the Southern Pacific Railroad, were identified and discussed in ERM's *CRA* (2013) for the generating station. The survey, therefore, focused on documenting the portions of these resources located within the APE for the water discharge pipeline to confirm their NRHP eligibility and to aid in the assessment of effects.

Review of the *Environmental Assessment FM 511 from US 77/83 to SH 48 and the Port of Brownsville, Cameron County, Texas*, prepared by the Federal Highway Administration and TxDOT in May 2007 revealed additional structures over 50 years of age in the APE for the water discharge pipeline (FHWA 2007). Correspondence from TxDOT to the THC in 2005 included in the environmental assessment (EA) and on file at the THC listed 11 resources over 50 years of age that fall within the APE for the water discharge pipeline: two within the Palo Alto Battlefield National Historical Park; the Rancho Viejo Floodway, discussed below; and four (4) culverts, two (2) ditches, and two (2) canals, all eight (8) of which TxDOT determined to be ineligible for listing in the NRHP due to lack of historical significance. ERM did not evaluate these resources further in this study.

It should be noted that the Palo Alto Battlefield National Historical Park is within the indirect impact area of the APE for Water Discharge Pipeline, as the southwest boundary of the park is immediately adjacent to Highway 550. However, the Palo Alto Battlefield National Historic Site NHL is entirely outside of the APE for this undertaking, as the southwest boundary for the NHL is approximately 1,000 feet from the highway. Because the park unit is not itself a historic property as defined by the NHPA, the effects of the water discharge pipeline on the park are not addressed in this report.

3.3.3 EVALUATION OF ABOVEGROUND RESOURCES

Cameron County Drainage District No. 1

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Ditches associated with the CCDD1 are located within the direct and indirect APEs (Figure 1-1). The first county-managed drainage district in the Cameron County, CCDD1 was established in 1905 to improve soils in the area for rice cultivation following authorization by the Texas Legislature in that year (Knight 2009). A discussion of the CCDD1 is provided ERM's *CRA* (2013) for the generating station. Consistent with this CRA, ERM recommends that the CCDD1 be treated as eligible for listing in the NRHP.

Irrigation and Drainage Ditches (Unassociated)

Other irrigation and drainage ditches are located throughout the APE. Some of these are present on maps as early as 1928. It is presumed that these ditches reflect irrigation and drainage measures constructed for agricultural purposes for both individual farms and larger agricultural ventures, and many of the ditches observed in the APE were still surrounded by open land. These ditches are not currently associated with a recognized planned system, such as the Cameron County Irrigation District No. 6, and were not observed to be associated with more localized collections of resources (i.e., ranch, orchard, etc.) with the potential to be eligible for listing in the NRHP. Accordingly, ERM recommends unassociated ditches as ineligible for listing in the NRHP.

Port of Brownsville

The water discharge pipeline terminates at the Port of Brownsville and ultimately at the Brownsville Bay Ship Channel on the south bank of the turning basin. The Port of Brownsville was constructed between 1934 and 1936 as an inland deep-water port linking Brownsville with the Gulf of Mexico. Documentary photographs depicting the opening of the Port in May 1936 show the long, narrow ship channel with a five-sided turning basin (Chilton 1997). At the north side of the turning basin is a long, low, windowless one-story warehouse accessed by two parallel rail lines coming from the west (Chilton 1997). Partially built on piers over the water, the warehouse building is distinguished by a stuccoed fenestrated two-story block at the southwest corner with a stepped parapet and a Spanish colonial flavor (Chilton 1997). This building remains extant at the Port. A second warehouse (no longer extant) is located along the west shoreline of the turning basin, and several additional warehouses are located north of the waterfront warehouse. Oil companies were among the first to establish permanent facilities at the Port, including the Texas Company (Texaco) and the Magnolia Petroleum Company (later acquired by Mobil Oil) (Chilton 1997). Carthage Hydrocol, Inc., built a major industrial complex at the Port for commercial production of gasoline, diesel oil, industrial alcohol, and commercial oxygen from natural gas (Chilton 1997). This facility was later operated by Stanolind Oil and Gas Company (later Amoco), and then Union Carbide (Chilton 1997). Facilities for storage and shipping of cotton, citrus, vegetables, sugar, lumber, and timber were also constructed at the Port in the first few years (Chilton 1997).

In the late 1940s, improvements were made to the Port including the deepening of the ship channel from 25 to 32 feet, construction of new railroad tracks and docks, and purchase of additional land (Chilton 1997). The extension of the Gulf

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Intracoastal Waterway to southern Texas in 1949 enabled use of the ship channel by barge traffic, a major boost for the Port (Chilton 1997). In the 1950s, the Port of Brownsville became the biggest cotton port in the United States, handling over 860,000 bales in 1956 (Chilton 1997). With technical advances enabling shipping of frozen foods in the 1940s, the shrimp trawling industry became a significant contributor to the Port of Brownsville, necessitating the construction of a small boat harbor, completed in 1952 and located on the north side of the ship channel approximately four miles up from the turning basin (Chilton 1997). A grain elevator was completed at the Port in 1965, handling 3.5 million bushels of grain sorghum and 7 million bushels of Mexican corn in its first year of operation (Chilton 1997). The grain elevator, which remains extant, is no longer operated by the Port (Chilton 1997).

In the 1970s, the Marathon Manufacturing Company built a facility at the Port of Brownsville for the construction of off-shore oil drilling rigs (Chilton 1997). In the 1990s, this facility was taken over by Amfels and a floating drydock installed (Chilton 1997). At the same time, three ship dismantling companies were operating at the Port: Luria Brothers and Company (1969), Consolidated Steel Corporation (1970), and Andy International (Chilton 1997). The ship channel was deepened to 42 feet in the 1990s (Chilton 1997). Also in the 1990s, the Railroad Relocation Project, which diverted the Missouri Pacific and Southern Pacific Railroad lines from downtown Brownsville to the Port (Chilton 1997).

A Texas Historical Marker (No. 4080) was erected for the port in 1986; it reads:

> The first serious attempt to study the possibility of construction of a deep water seaport in this part of South Texas was undertaken in 1854 when a survey was conducted by United States Army Engineers. At that time, the only natural harbor in the area was located at Brazos de Santiago Pass near Point Isabel (16 mi NE). Shipping through that pass dated to the 16th Century, but the presence of shifting sandbars prevented large vessels from anchoring at that point. In 1906 Louis Cabolini, a commercial fisherman in Point Isabel, took on the cause for a deep water port. He compiled data that convinced U.S. Army Engineers that such an undertaking was practical and deserved federal economic support. During the next 20 years, various attempts at dredging channels and eliminating the sandbars were made without much success. Recognizing the need for deep water transportation to assure sound economic growth, the citizens of Brownsville created a navigation district in 1929 to provide local support for the Federal Government to build a deep water port. Between 1934 and 1936, this ship channel, linking Brownsville and the Gulf of Mexico, was dredged. The port facilities were formally dedicated in May 1936. [Texas Historical Commission, Historical Marker No. 4080]

The Port of Brownsville possesses historical significance on a local and State level under NRHP Criterion A for Commerce for its role in developing and expanding the economy of the Lower Rio Grande Valley from the time of its construction in 1936 through the 1980s and possibly to the present day. The Brownsville Bay Ship Channel may also possess historical significance under NRHP Criterion C for Engineering for its approximately 17-mile entirely man-made ship channel,

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although a contextual analysis of comparable inland ports was not conducted for this study.

On-site survey and map research confirms that original built resources remain intact, including the main warehouse, the street layout, and railroad spur. Other historically significant resources that remain extant include the small boat harbor and grain elevator. However, a full survey and analysis of the NRHP integrity of the Port of Brownsville and ship channel was not within the scope of ERM's cultural resources investigations. In the absence of a comprehensive analysis of integrity and based upon the information available, as a conservative measure, ERM recommends that the entire 40,000-acre Port of Brownsville be treated as a potentially NRHP-eligible historic district for the purposes of this undertaking.

Southern Pacific Railroad

The water discharge pipeline runs parallel to the Southern Pacific Railroad for approximately 0.5 mile before heading southeast along FM 511. Constructed in 1927, the Southern Pacific Line ran 28 miles from Brownsville to Harlingen (Keillor n.d.). This segment of the Southern Pacific Railroad was discussed and evaluated in ERM's *CRA* (2013) for the generating station. Consistent with the CRA, ERM recommends this segment of the Southern Pacific Railroad as ineligible for listing in the NRHP.

Port Isabel and Rio Grande Valley Railroad

The water discharge pipeline crosses the berm of the former Port Isabel and Rio Grande Valley Railroad approximately 0.75 mile northwest of the Port of Brownsville. The following history of the railroad is from Nancy Beck Young's article on the subject in the Handbook of Texas online.

The Port Isabel and Rio Grande Valley Railroad was chartered on August 14, 1928, to acquire the Rio Grande Railway, which was operating between Brownsville and Port Isabel, a distance of twenty-six miles. The line had originally been constructed in 1872 as a narrow-gauge railroad but had been converted to standard gauge in 1925. The capital stock was $30,000. The principal place of business was Brownsville. The members of the first board of directors were C. R. Tyrrell, W. B. Sellers, Ada Pattee Tyrrell, L. B. Brady, C. P. Miller, V. L. Conrad, L. S. Bourne, F. W. O'Brien, W. D. Sullivan, and F. K. Matejka, all of Brownsville. In 1931 the Port Isabel and Rio Grande Valley reported passenger earnings of $5,000 and freight earnings of $10,000 and owned one locomotive and eight cars. The PI&RGV handled intrastate traffic until 1929, when it received authority to engage in interstate commerce. The road discontinued operation on December 31, 1940. The six miles from Brownsville to a connection with the port of Brownsville was sold to the St. Louis, Brownsville and Mexico Railroad, and nine miles from Port Isabel was sold to the San Benito and Rio Grande Valley Railroad, which built a three-mile connection to its existing track. Both of these companies were part of the Missouri Pacific. The rest of the Port Isabel and Rio Grande Valley was abandoned. The Missouri Pacific abandoned the Port Isabel branch in 1969. In 1990 a few miles in

Brownsville remained in service as a connection with the railroad at the port [Young, n.d].

A 1955 USGS quad map confirms that the segment of the railroad north of the spur to the Port of Brownsville was no longer in service and the tracks had been removed. The segment from Brownsville to the Port of Brownsville is identified as the Missouri Pacific. Today the former Port Isabel and Rio Grande Valley Railroad line between Brownsville and the Port of Brownsville is operated by the Brownsville and Rio Grande International Railroad for the sole purpose of servicing the port.

The water discharge pipeline crosses the segment of the former Port Isabel and Rio Grande Valley Railroad that is no longer extant – only the berm remains. While the history of the Port Isabel and Rio Grande Valley Railroad may have local significance, the resource is no longer intact and cannot convey that significance. Accordingly, ERM recommends this resource as ineligible for listing in the NRHP.

Rancho Viejo Floodway

The water discharge pipeline crosses over the Rancho Viejo Floodway parallel to the Brownsville and Rio Grande International Railroad line. The Rancho Viejo Floodway was completed by 1940 as part of the Lower Rio Grande Flood Control Project (LRGFCP). The LRGFCP is a large-scale flood control system for Hidalgo, Cameron, and Willacy Counties developed first at the municipal level in 1926 and federalized under the International Border Commission (now the International Boundary and Water Commission) in 1932 (Plimpton and Blackwell 2012). According to a cultural resources report prepared for the U.S. Army Corps of Engineers in 2012, the LRGFCP includes:

Levees to protect developed areas and divert floodwaters; floodways to convey floodwaters to the Gulf of Mexico; two diversion dams to allow for even distribution of floodwaters into U.S. and Mexican floodways; 420 drain structures; 180 irrigation structures; and numerous gauging stations (Plimpton and Blackwell 2012).

The Rancho Viejo Floodway was one of three planned during the early years of the LRGFCP in the late 1920s (Plimpton and Blackwell 2012). Completed by 1940, the Rancho Viejo Floodway was 27 miles long and diverted waters to the Laguna Madre (Plimpton and Blackwell 2012). In 1950 the Rancho Viejo Floodway was abandoned by the LRGFCP as part of improvements made to the system and turned over to Cameron County (Plimpton and Blackwell 2012). The 2012 report indicates that the LRGFCP is eligible for listing in the NRHP as a rural historic landscape under "Criterion A for Conservation because of its historical association with the management of the Rio Grande for flood control and to regulate irrigation diversions. The LRGFCP is also significant under Criterion C for Engineering for representing the practical application of design and construction of engineering structures used for flood protection in the LRGV [Lower Rio Grande Valley]" (Plimpton and Blackwell 2012).

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The 2012 report indicates that because the Rancho Viejo Floodway was removed from the LRGFCP in 1950, it was not evaluated in detail. However, the report states that the floodway "has a degraded level of integrity of design and association because of its removal from the LRGFCP" (Plimpton and Blackwell 2012). Additionally, the Rancho Viejo Floodway was evaluated by TxDOT in the 2005 consultation with the THC regarding the work on FM 511, referenced above. TxDOT found the floodway ineligible for listing in the NRHP because it had "no significant associations" and the floodway had been "reconfigured and lined with concrete in recent years" (FHWA 2007). Given the existence of these two evaluations, ERM did not conduct further research or analysis on the resource. In consideration of these findings, ERM recommends the Rancho Viejo Floodway as ineligible for listing in the NRHP.

TABLE 1-3: NRHP Eligibility Recommendations for Aboveground Resources of Interest within the APE

Resource Name	Date of Origin	Resource Type	NRHP Eligibility Recommendation	Project Effects
Cameron County Drainage District No. 1	1905	District	Potentially Eligible	No Adverse Effects
Irrigation and Drainage Ditches (Unassociated)	Various	Structures	Not Eligible	N/A
Port of Brownsville	1936	District	Potentially Eligible	No Adverse Effects
Southern Pacific Railroad	1927	Structure	Not Eligible	N/A
Port Isabel and Rio Grande Valley Railroad	1872	Structure	Not Eligible	N/A
Rancho Viejo Floodway	1940	Structure	Not Eligible	N/A

Cameron County Drainage District No. 1

The water discharge pipeline will intersect with ditches associated with the CCDD1 in four locations (Figure 1-1). It is understood, however, that the water discharge pipeline will be fully underground in these locations, and the excavated area restored to its original appearance. As such, ERM finds the undertaking will directly affect the CCDD1, but the effects will not be adverse.

Port of Brownsville

The water discharge pipeline will terminate at the Port of Brownsville with an outfall into the ship channel on the south side of the turning basin. Within the boundaries of the Port of Brownsville, the pipeline is to follow the path of existing roads and railroads, which may be contributing elements to a potential Port of Brownsville Historic District. It is understood that the pipeline will be entirely underground with the exception of the outfall point, located adjacent to roads and railroads. As such, ERM finds that undertaking will directly affect the Port of Brownsville; however, given the industrial character and use of the Port, ERM finds that the effects will not be adverse.

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5.0 REFERENCES

5.1 PRINCIPAL INVESTIGATORS

Albee, Carrie. ERM: Architectural Historian; Senior Project Manager: Northern Division, Washington, DC.

Cannon, Tara. ERM: Archeologist, RPA; Cultural Resources Consultant – Impact and Assessment Planning (IAP) Group: Southwest Division, Houston, TX.

Nash, Sean. CEI: Archeologist, RPA: Corpus Christi, TX.

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Appendix A

Project Maps

December 18, 2013
Project No. 0185680

Environmental Resources Management
CityCentre Four
840 West Sam Houston Parkway North, Suite 600
Houston, Texas 77024-3920
T: 281-600-1000

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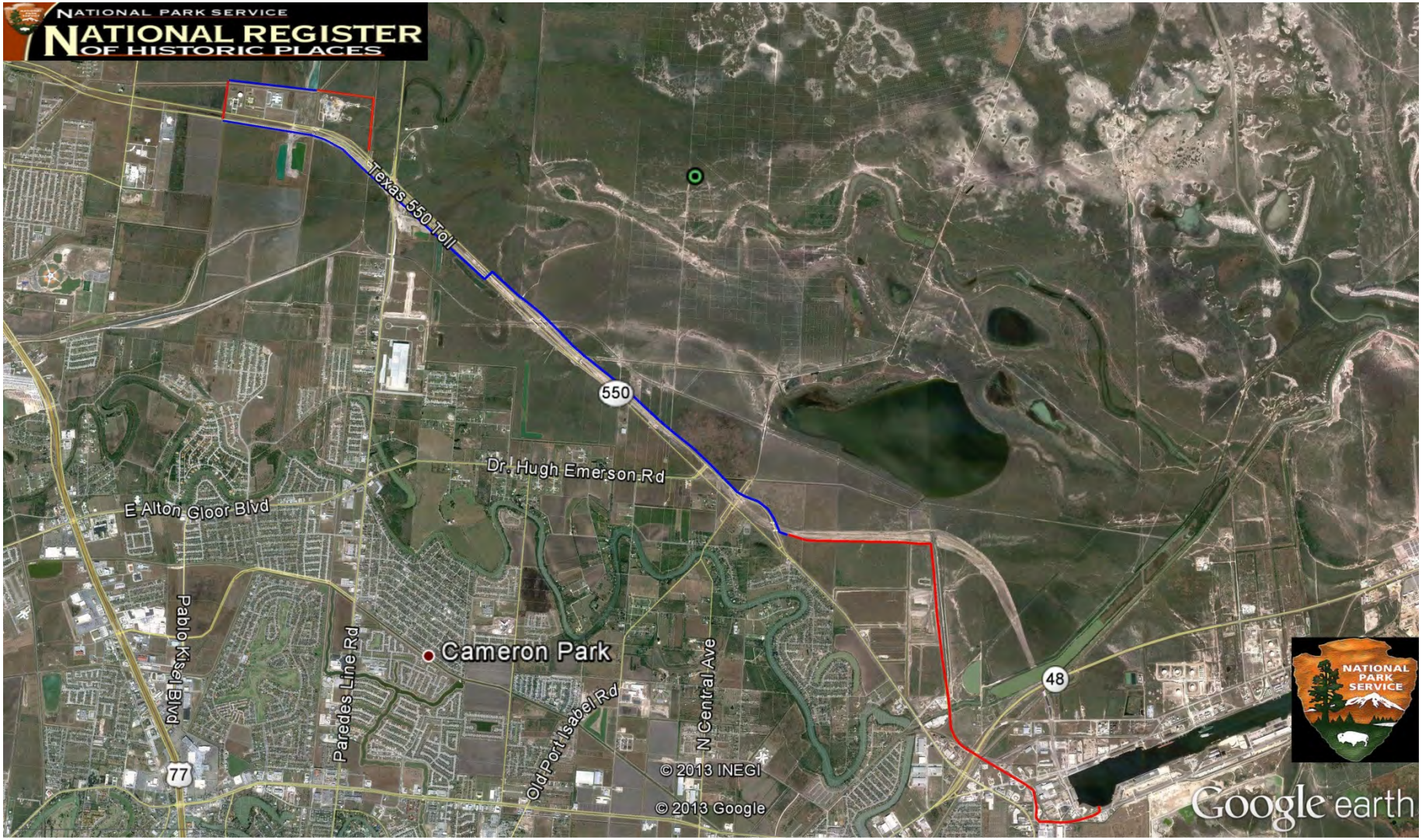

Project site Map (**blue** – previously surveyed; **red** – surveyed for current project)

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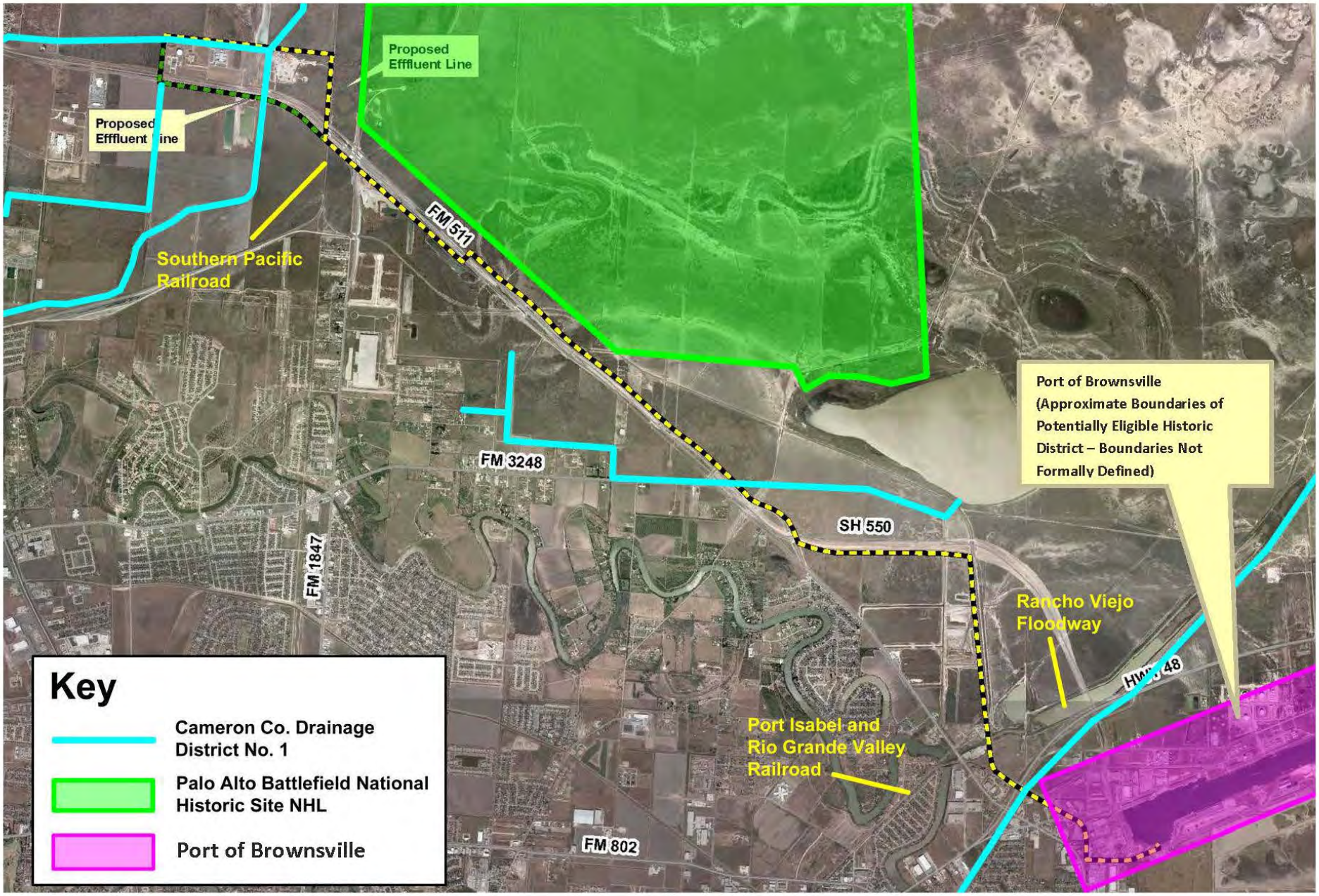

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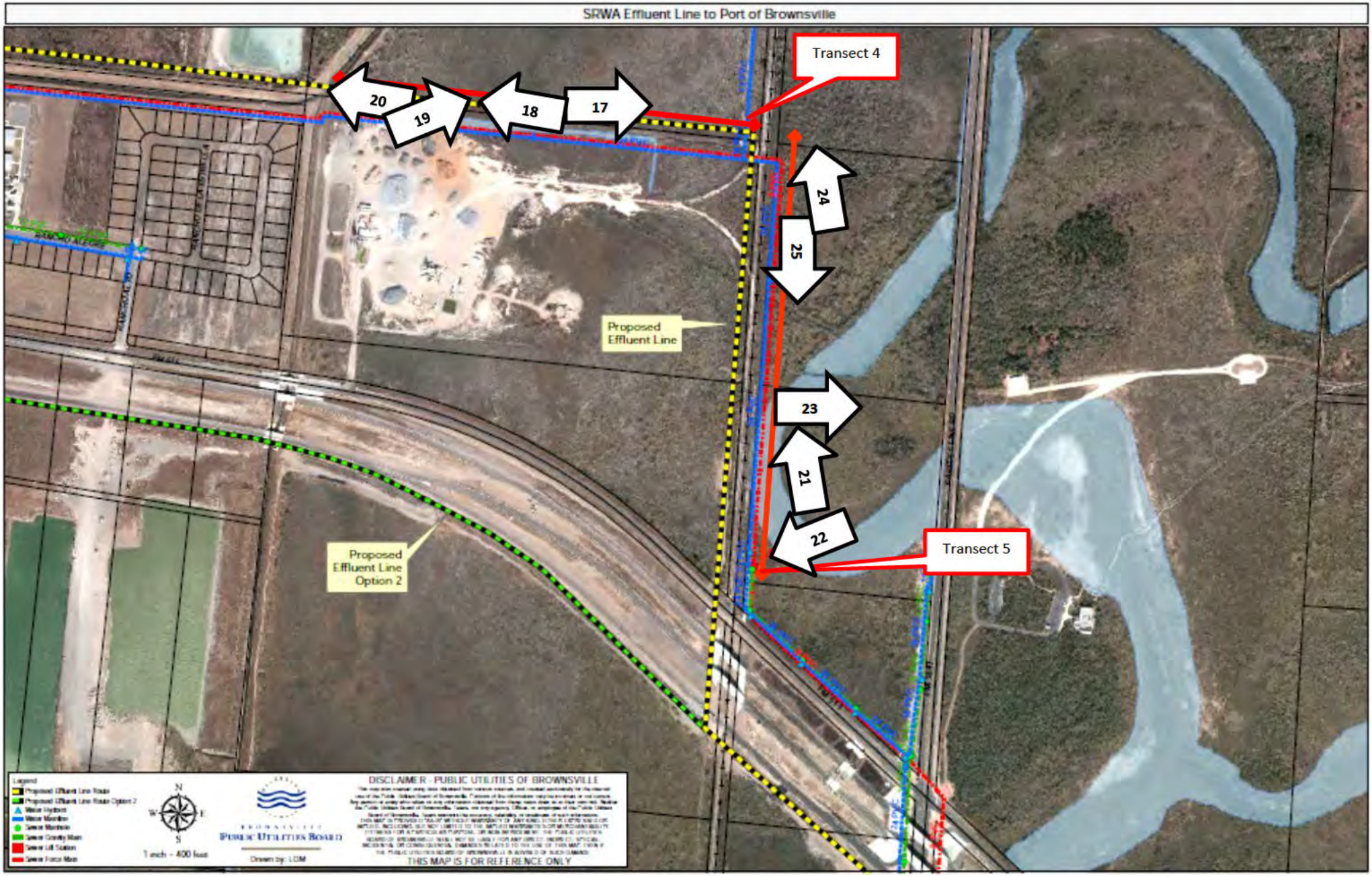
Appendix B

Photograph Log

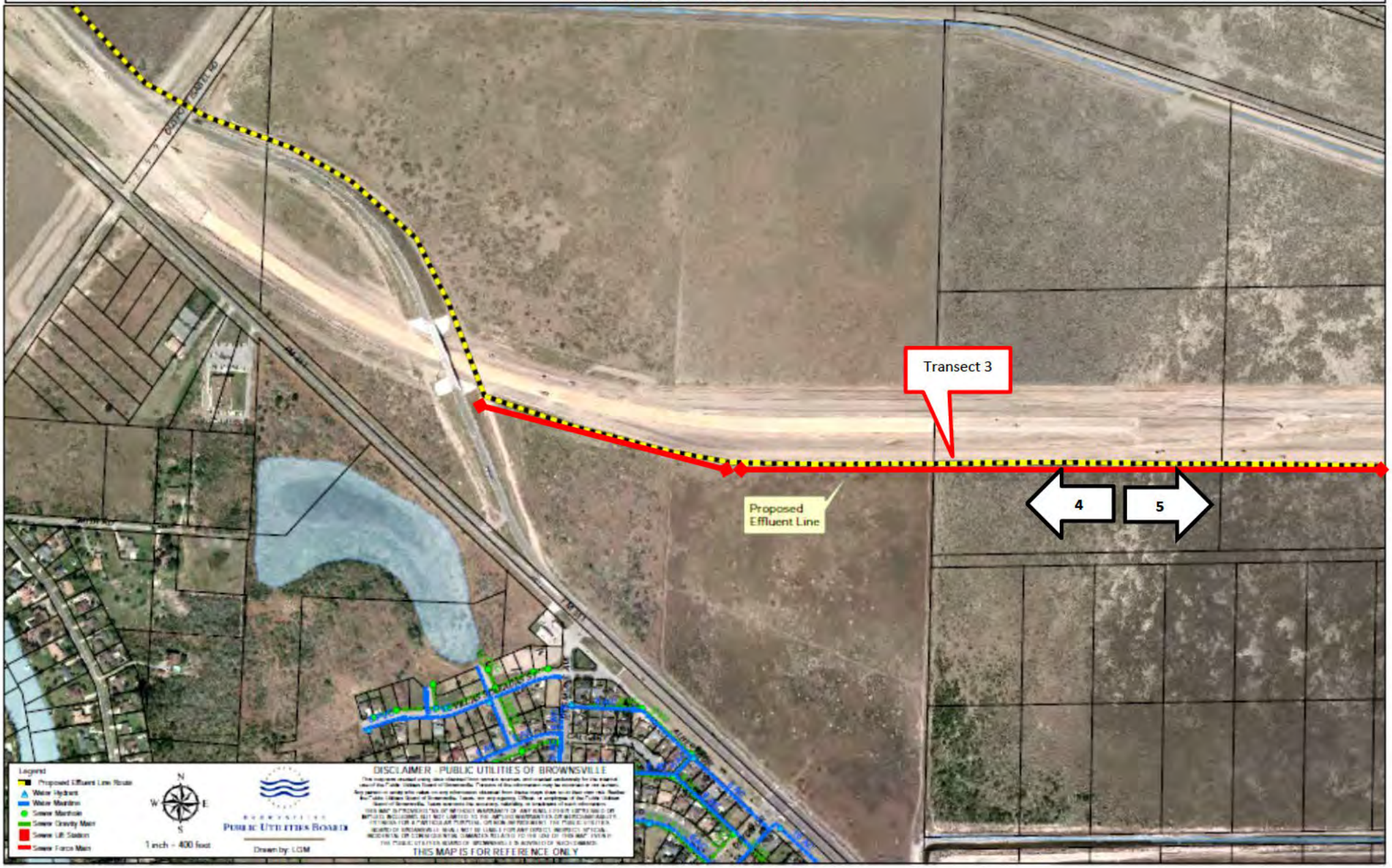
December 18, 2013
Project No. 0185680

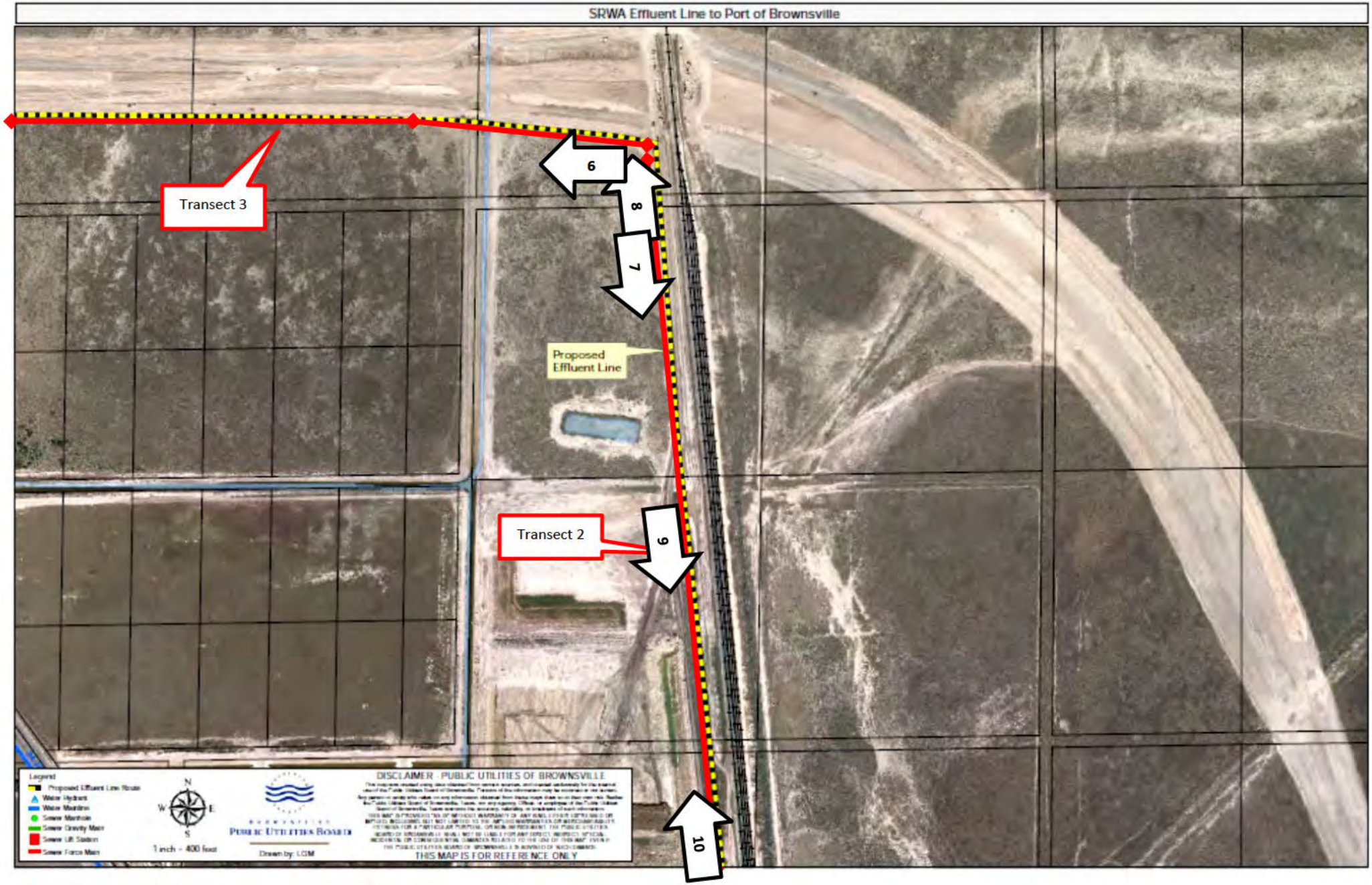
Environmental Resources Management
CityCentre Four
840 West Sam Houston Parkway North, Suite 600
Houston, Texas 77024-3920
281-600-1000



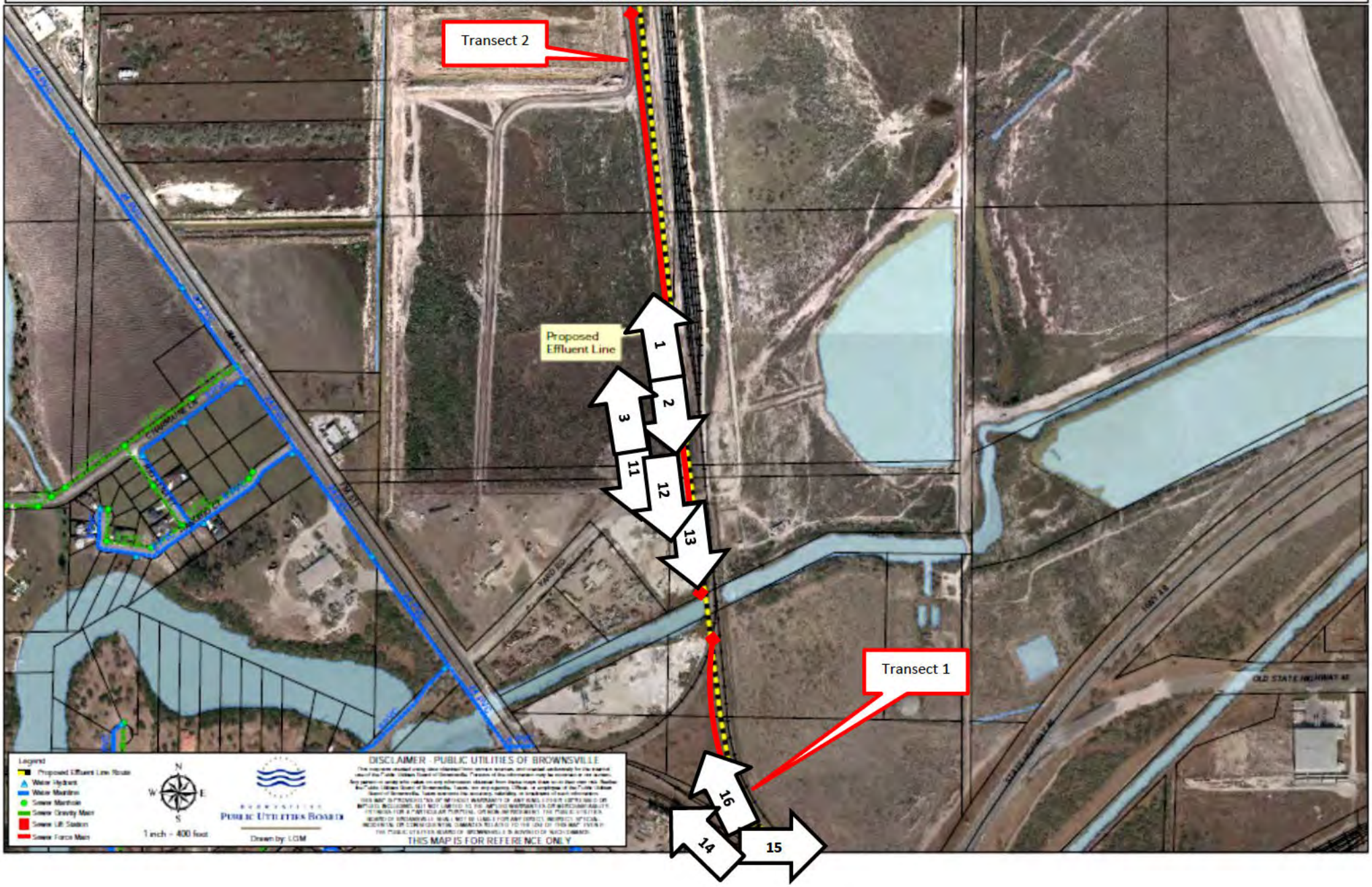
1 Observation Points (Photos) and Direction Facing

SRWA Effluent Line to Port of Brownsville




SRWA Effluent Line to Port of Brownsville
Transect 3
6
8
7
Proposed Effluent Line
Transect 2
9
10
Legend
Proposed Effluent Line Route
Water Hydrant
Water Manifold
Sewer Manhole
Sewer Gravity Main
Sewer Lift Station
Sewer Force Main
N
W
E
S
1 inch = 400 feet
Public Utilities Board
Drawn by: LGM
DISCLAIMER - PUBLIC UTILITIES OF BROWNSVILLE
THIS MAP IS FOR REFERENCE ONLY

SRWA Effluent Line to Port of Brownsville



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PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Wastewater Discharge Utility Line – Additional Action #1: Brownsville Electric Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 1	**Date:** 8/7/13
Direction Photo Taken: N	
Description: Start of Transect 2 @ STP 1	

Photo No. 2	**Date:** 8/7/13
Direction Photo Taken: S	
Description: Start of Transect 2	

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PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Wastewater Discharge Utility Line – Addendum I: Brownsville Electric Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 3	**Date:** 8/7/13
Direction Photo Taken: N	
Description: Transect 2; STP 1: Profile @ 40 cmbs	

Photo No. 4	**Date:** 8/7/13
Direction Photo Taken: W	
Description: End of Transect 3 @ STP 50	

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PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Wastewater Discharge Utility Line – Additional Action #1: Brownsville Electric Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 5	**Date:** 8/7/13
Direction Photo Taken: E	
Description: End of Transect 3	

Photo No. 6	**Date:** 8/7/13
Direction Photo Taken: W	
Description: Start of Transect 3 @ STP 1	

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PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Wastewater Discharge Utility Line – Additional Action #1: Brownsville Electric Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 7	**Date:** 8/7/13
Direction Photo Taken: S	
Description: End of Transect 2 @ STP 56	

Photo No. 8	**Date:** 8/7/13
Direction Photo Taken: N	
Description: End of Transect 2 @ STP 56	

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PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Wastewater Discharge Utility Line – Additional Action #1: Brownsville Electric Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 9	**Date:** 8/7/13
Direction Photo Taken: S	
Description: Transect 2: Midway at STP 29 – View of Disturbance/Fill Episode (From Curve in the Road Southward)	

Photo No. 10	**Date:** 8/7/13
Direction Photo Taken: N	
Description: Transect 2; STP 23: Profile @ 70 cmbs	

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PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Wastewater Discharge Utility Line – Additional Action #1: Brownsville Electric Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 11	**Date:** 8/7/13
Direction Photo Taken: S	
Description: South of Start of Transect 2, Unsurveyed Area	

Photo No. 12	**Date:** 8/7/13
Direction Photo Taken: S	
Description: South of Start of Transect 2, Unsurveyed Area	

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PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Wastewater Discharge Utility Line – Additional Action #1: Brownsville Electric Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 13	**Date:** 8/7/13
Direction Photo Taken: S	
Description: South of Start of Transect 2, Unsurveyed Area	

Photo No. 14	**Date:** 8/7/13
Direction Photo Taken: NW	
Description: Start of Transect 1	

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PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Wastewater Discharge Utility Line – Additional Action #1: Brownsville Electric Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 15	**Date:** 8/7/13
Direction Photo Taken: E	
Description: Start of Transect 1, View E of Unsurveyed Area East of State Highway (SH) 48	

Photo No. 16	**Date:** 8/7/13
Direction Photo Taken: NNW	
Description: Start of Transect 1 @ STP 1	

PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Wastewater Discharge Utility Line – Additional Action #1: Brownsville Electric Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 17	**Date:** 8/7/13
Direction Photo Taken: E	
Description: Midway at Transect 4 @ STP 10	

Photo No. 18	**Date:** 8/7/13
Direction Photo Taken: W	
Description: Midway at Transect 4 @ STP 10	

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PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Wastewater Discharge Utility Line – Additional Action #1: Brownsville Electric Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 19	**Date:** 8/7/13
Direction Photo Taken: NE	
Description: View of BPUB Escort along Transect 4 @ STP 19	

Photo No. 20	**Date:** 8/7/13
Direction Photo Taken: W	
Description: End of Transect 4 @ STP 20	

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PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Wastewater Discharge Utility Line – Additional Action #1: Brownsville Electric Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 21	**Date:** 8/7/13
Direction Photo Taken: N	
Description: Start of Transect 5 @ STP 4	

Photo No. 22	**Date:** 8/7/13
Direction Photo Taken: SW	
Description: Start of Transect 5 @ STP 4	

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PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Wastewater Discharge Utility Line – Additional Action #1: Brownsville Electric Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 23	**Date:** 8/7/13
Direction Photo Taken: E	
Description: View East Toward Palo Alto NHL and Battlefield Site Entrance along Transect 5 @ STP 5	

Photo No. 24	**Date:** 8/7/13
Direction Photo Taken: N	
Description: End of Transect 5 @ STP 20; Start of Transect 4 @ STP 1	

PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Wastewater Discharge Utility Line – Additional Action #1: Brownsville Electric Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. **25**	**Date:** **8/7/13**
Direction Photo Taken: S	
Description: End of Transect 5 @ STP 20	

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1
2
Proposed
Effffluent Line
Proposed
Effffluent Line
FM 511
3
FM 3248
SH 550
4
FM 1847
US77/83
HWY 48
5
13
6
7-12
FM 802

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Appendix B: PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Wastewater Discharge Utility Line – Additional Action #1: Brownsville Electric Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 1	**Date:** 8/5/13
Direction: Looking West	
Description: CCDD1 Olmito Branch, view from the north side, across from the Southmost Regional Water Authority Desalination Plant (along proposed wastewater line)	

Photo No. 2	**Date:** 8/5/13
Direction: Looking Northeast	
Description: CCDD1 Olmito Branch, view from the south side, adjacent to asphalt plant (proposed wastewater line crossover)	

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Appendix B: PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Wastewater Discharge Utility Line – Additional Action #1: Brownsville Electric Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 3	**Date:** 8/5/13
Direction: Looking Northwest	
Description: Highway 550, view from the south side, looking towards Paredes Line Road overpass (along proposed wastewater line [west of road])	

Photo No. 4	**Date:** 8/5/13
Direction: Looking North	
Description: Highway 550 overpass at the Brownsville and Rio Grande International Railroad (proposed wastewater line west [left] of the railroad)	

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Appendix B: PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Wastewater Discharge Utility Line – Additional Action #1: Brownsville Electric Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 5	**Date:** 8/5/13

Direction: Looking North

Description:

Brownsville and Rio Grande International Railroad from Highway 48 overpass (proposed wastewater line west [left] of the railroad)

Photo No. 6	**Date:** 8/5/13

Direction: Looking Southeast

Description:

Port of Brownsville, extant industrial building on Milo Road (proposed wastewater line in foreground)

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Appendix B: PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Wastewater Discharge Utility Line – Additional Action #1: Brownsville Electric Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 7	**Date:** 8/5/13
Direction: Looking Southwest	
Description: Port of Brownsville, R.L. Ostos Road, adjacent to the outfall location (proposed wastewater line in foreground)	

Photo No. 8	**Date:** 8/5/13
Direction: Looking South	
Description: Port of Brownsville, R.L. Ostos Road, adjacent to the outfall location (proposed wastewater line in foreground)	

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Appendix B: PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Wastewater Discharge Utility Line – Additional Action #1: Brownsville Electric Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 9	**Date:** 8/5/13
Direction: Looking West	
Description: Port of Brownsville, view west from outfall location, with turning basin on the right	

Photo No. 10	**Date:** 8/5/13
Direction: Looking Northwest	
Description: Port of Brownsville, view from outfall location, looking towards turning basin	

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Appendix B: PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Wastewater Discharge Utility Line – Additional Action #1: Brownsville Electric Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 11	**Date:** 8/5/13
Direction: Looking Northeast	
Description: Port of Brownsville, view from outfall location, looking towards original 1936 warehouse	

Photo No. 12	**Date:** 8/5/13
Direction: Looking East	
Description: Port of Brownsville, view from outfall location with turning basin on the left	

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Appendix B: PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Wastewater Discharge Utility Line – Additional Action #1: Brownsville Electric Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 13	**Date:** 8/5/13
Direction: Looking Southeast	
Description: Port of Brownsville central offices	

Photo No. 14	**Date:** 8/5/13
Direction: Looking Southeast	
Description: Port of Brownsville, turning basin under construction in 1935 (Chilton, 1997)	

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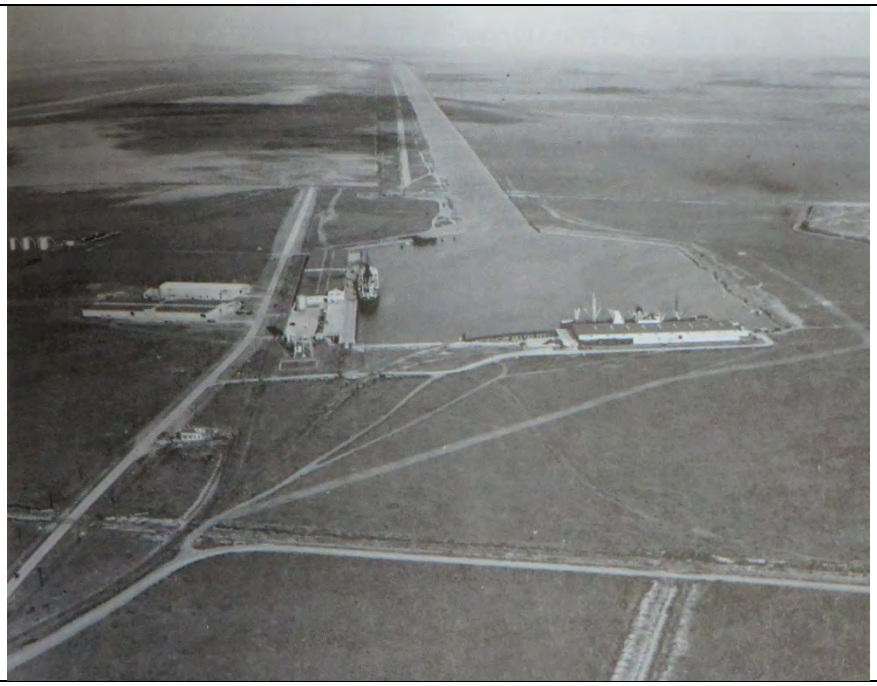
Appendix B: PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Wastewater Discharge Utility Line – Additional Action #1: Brownsville Electric Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 15	**Date:** 8/5/13
Direction: Looking East	
Description: Port of Brownsville under construction in 1936 (photograph on display at the central office building)	

Photo No. 16	**Date:** 8/5/13
Direction: Looking East	
Description: Port of Brownsville in 1936 (Chilton, 1997)	



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Appendix B: PHOTOGRAPH LOG

Client Name: Tenaska	**Site Location:** Wastewater Discharge Utility Line – Additional Action #1: Brownsville Electric Generating Station: Cameron County, Texas	**Project No.** 0185680

Photo No. 17	**Date:** 8/5/13
Direction: Looking Southwest	
Description: Port of Brownsville, small boat harbor, 1950s (Chilton, 1997)	

Photo No. 18	**Date:** 8/5/13
Direction: Looking Southwest	
Description: Port of Brownsville grain elevator (Chilton, 1997)