Final
Environmental Assessment

FM 1488 (Magnolia Relief Route)

Houston District

From existing FM 1488 west of Magnolia to proposed SH 249 east of Magnolia

0523-09-018 & 0523-08-013

Montgomery County, Texas

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The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.

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ACRONYMS

AADT	Annual Average Daily Traffic
AOI	Area of Influence
APE	Area of Potential Effects
BMP	Best Management Practice
CBRA	Coastal Barrier Resources Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CGP	Construction General Permit
CO	Carbon Monoxide
CT	Census Tract
CWA	Clean Water Act
dB(A)	A-weighted decibel
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMST	Ecological Mapping Systems of Texas
EO	Executive Order
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FM	Farm-to-Market Road
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FWCA	Fish and Wildlife Coordination Act of 1958
ISA	Initial Site Assessment
LCWF	Land and Water Conservation Fund
LEP	Limited English Proficiency
MBTA	Migratory Bird Treaty Act
MCAD	Montgomery County Appraisal District
MOU	Memorandum of Understanding
MSATs	Mobile Source Air Toxics
NDD	National Diversity Database
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHL	National Historic Landmarks
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
NWP	Nationwide Permit
PA	Programmatic Agreements
PWC	Parks and Wildlife Code
RD	Road
ROE	Right-of-Entry
ROW	Right-of-Way
RTHL	Recorded Texas Historic Landmarks
RTP	Regional Transportation Plan
SAL	State Archeological Landmarks
SH	State Highway

SP	Sample Point
SW3P	Storm Water Pollution Prevention Plan
TCEQ	Texas Commission on Environmental Quality
THC	Texas Historical Commission
TIP	Transportation Improvement Program
TPDES	Texas Pollutant Discharge Elimination System
TPWD	Texas Parks and Wildlife Department
TSS	Total Suspended Solids
TxDOT	Texas Department of Transportation
UPRR	Union Pacific Railroad
U.S.	United States
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USIBWC	U.S. International Boundary and Water Commission
VPD	Vehicles Per Day

1.0 INTRODUCTION

The Texas Department of Transportation (TxDOT) proposes to construct Farm-to-Market (FM) 1488 (Magnolia Relief Route) around the north side of the City of Magnolia in Montgomery County, Texas. The proposed project would construct a four lane (two in each direction) divided highway on new location. This construction would include grade separated overpasses at FM 1774 and Union Pacific Railroad (UPPR) and at the proposed State Highway (SH) 249. The construction of the facility would be from existing FM 1488 west of Magnolia to proposed SH 249 east of Magnolia. The proposed construction area would be approximately 5.4 miles in length. The purpose of this Environmental Assessment (EA) is to study the potential environmental consequences of the proposed project and determine whether such consequences warrant preparation of an Environmental Impact Statement (EIS). **Appendix A** provides the project location map.

This EA has been prepared to comply with both TxDOT's environmental review rules and the National Environmental Policy Act (NEPA). This EA will be made available for public review and following the comment period, TxDOT will consider any comments submitted. If TxDOT determines that there are no significant adverse effects, it will prepare and sign a Finding of No Significant Impact (FONSI), which will be made available to the public.

The proposed project has been developed in accordance with the procedural provisions of NEPA, the Council on Environmental Quality (CEQ) *Regulations for Implementing the Procedural Provisions of NEPA*, Code of Federal Regulations (CFR) Title 23 Highways Part 771 *Environmental Impact and Related Procedures*, the Federal Highway Administration's (FHWA) Technical Advisory T 6640.8A and the Texas Administrative Code Title 43 Part 1 Chapter 2 *Environmental Review of Transportation Projects*. In addition, all planning, design, and environmental documents are being developed in accordance with applicable State and Federal laws and with TxDOT's Memoranda of Understanding (MOU) and Programmatic Agreements (PA) with the Texas Historical Commission (THC), the Texas Parks and Wildlife Department (TPWD), and the Texas Commission on Environmental Quality (TCEQ).

The project team, which included planners, engineers, natural and social scientists, and NEPA professionals, used a systematic interdisciplinary planning and design approach that integrated natural, social, and environmental sciences. The planning process was based on need and purpose, project objectives, and engineering and environmental constraints in the project area. In addition, public involvement played an integral part in project development, and project cost and funding were considered. These planning strategies were used in the formulation and analysis of the proposed project alternatives.

2.0 PROJECT DESCRIPTION

2.1 Existing Facility

Existing FM 1488 is a two-lane undivided east-west facility through the City of Magnolia. There is a separate proposed project to widen FM 1488, through the City of Magnolia, to a four lane urban roadway with minimal additional right-of-way (ROW) and impact to adjacent properties. Any additional expansion of FM 1488 beyond four lanes would require significant acquisition of commercial property to the current alignment.

2.2 Proposed Project

The proposed FM 1488 Relief Route would be an east-west facility on new location that would serve as a major arterial for the distribution of traffic around the City of Magnolia. Within the proposed construction limits, FM 1488 Relief Route would consist of a four-lane divided facility (two 12-foot lanes in each direction) with 4-foot inside shoulders and 10-foot outside shoulders

divided by a 40-foot depressed grass median. The construction length of the project would be approximately 5.4 miles. The proposed project would consist of four lanes, two in each direction. This construction would include grade separated overpasses at FM 1774 and UPPR and at the proposed SH 249.

A project schematic can be seen in **Appendix C.** The proposed Magnolia Relief Route typical sections can be seen in **Appendix D**. The proposed project would include a portion of the proposed SH 249 extension where the two projects would overlap. The proposed typical ROW varies from 200 to 900 feet in width. Approximately 155 acres of additional ROW would be required. The design speed would be 60 miles-per-hour. The proposed project would not require detours or road closures during construction. Access to homes and businesses would be maintained throughout construction.

There is a separate project involving the extension of SH 249 on new location from south of FM 1774/FM 149 in Pinehurst to FM 1774 North of Todd Mission in Montgomery and Grimes Counties. An EIS was prepared for the proposed SH 249 extension and has received a Record of Decision (ROD). There is a short segment of the proposed FM 1488 Magnolia Relief Route that overlaps the proposed SH 249 extension. This overlapping segment begins at existing FM 1488 east of Magnolia and extends approximately 0.7 mile north of existing FM 1488 at which point the proposed FM 1488 project veers off to the west and the proposed SH 249 project continues to the north. In this 0.7 mile segment, the combination of the FM 1488 and SH 249 projects would appear as a typical freeway with the mainlanes being SH 249 and the frontage roads being FM 1488. All resources, except the traffic noise, in the area where the proposed FM 1488 project overlaps with the proposed SH 249 extension were not analyzed as part of this EA. These resources where analyzed in the EIS for the proposed SH 249 extension. The traffic noise was analyzed for the overlapping section of the proposed FM 1488 project and the proposed SH 249 extension because the proposed FM 1488 project proposes to construct frontage roads in this area that are not part of the proposed SH 249 extension.

Federal regulations require that federally funded transportation projects have logical termini (23 CFR 771.111(f)(1)). Simply stated, this means that a project must have rational beginning and end points. Those end points may not be created simply to avoid proper analysis of environmental impacts. FM 1488 was selected as the western project limit and SH 249 was selected as the eastern project limit for logical termini purposes because they are major traffic generation points.

Federal regulations require that a project have independent utility and be a reasonable expenditure even if no other transportation improvements are made in the area (23 CFR 771.111(f)(2)). This means a project must be able to provide benefit by itself, and that the project not compel further expenditures to make the project useful. Stated another way, a project must be able to satisfy its purpose and need with no other projects being built. The proposed project would have independent utility (e.g., the facility would function on its own without further construction of an adjoining segment) because the project provides congestion relief along existing FM 1488 through the downtown area of Magnolia. The proposed project is not an irretrievable commitment of federal funds because the project stands alone; it cannot and does not irretrievably commit federal funds.

Federal law prohibits a project from restricting consideration of alternatives for other reasonably foreseeable transportation improvements (23 CFR 771.111(f)(3)). This means that a project must not dictate or restrict any future roadway alternatives. The proposed project would not restrict the consideration of alternatives for other foreseeable transportation improvements because it allows for and accommodates cross streets and does not restrict the consideration of future alternative

improvements to these cross streets including widening. The proposed project does not have any control of access therefore, it would not restrict the consideration of new cross streets. It provides an overpass over UPRR with adequate horizontal and vertical clearances that would not restrict the consideration of future rail improvements. The proposed project would also not restrict the consideration of future transit or multimodal transportation improvement alternatives.

The proposed project would cost an estimated $49,978,086. Although the Magnolia Relief Route is not currently funded and is not individually listed in the Statewide Transportation Improvement Program (STIP) or Transportation Improvement Program (TIP), projects for which "develop authority" has been granted by TxDOT may proceed to NEPA clearance. The Magnolia Relief Route is included in TxDOT's Project Tracker with Develop Authority (see **Appendix E**).

The proposed action is consistent with the HGAC's financially constrained 2040 Regional Transportation Plan (RTP) as amended, which was initially found to conform to the TCEQ SIP by the FHWA on September 11, 2015. Copies of the RTP pages are included in **Appendix E**. All projects in the 2040 RTP that are proposed for federal or state funds were initiated in a manner consistent with federal guidelines in Section 450, of Title 23 CFR and Section 613.200, Subpart B, of Title 49 CFR.

3.0 PURPOSE AND NEED

A Purpose and Need Technical Report for the proposed project has been completed and is on file at TxDOT.

3.1 Need

This project is needed because of inefficient operations due to congestion along FM 1488 in the vicinity of FM 1774 and UPRR, reduced mobility due to competing uses (i.e., local traffic use and through traffic use), and safety.

Due to the existing configuration of the FM 1488/UPRR/FM 1774 intersection, traffic congestion and backups occur on FM 1488 on both sides of UPRR as well as on FM 1774 on both sides of FM 1488, especially during the morning and afternoon peak rush periods. When a train comes along, the congestion and backups get even worse. Furthermore, during a train, emergency response vehicles are negatively affected and impeded and cannot cross to get from one side of Magnolia to the other. This mobility impediment creates a substantial need for the FM 1488 Relief Route project because the proposed project would overpass both UPRR and FM 1774 thereby removing this existing impediment to emergency response vehicles.

In addition, the annual Texas Renaissance Festival located on FM 1774 north of Magnolia in Todd Mission occurs every weekend from October 8 through November 27. During these weekends, traffic is horrendous and is extremely backed up in all directions of the FM 1488/UPRR/FM 1774 intersection in Magnolia; and that's without a train occurring. When a train occurs during these weekends, the FM 1488/UPRR/FM 1774 intersection becomes a nightmare. The proposed FM 1488 Relief Route would substantially improve this problem by removing through traffic on FM 1488 destined for the Texas Renaissance Festival from the downtown area of Magnolia.

3.2 Supporting Facts and Data

The Annual Average Daily Traffic (AADT) on existing FM 1488 within the project limits is 15,500 vehicles per day (vpd) for the year 2015 and the projected AADT for the proposed Relief Route is 9,900 vpd for the year 2040. FM 1488 in the vicinity of FM 1774 has experienced substantial commercial development in recent years resulting in increased traffic and congestion. The projected level of service calculated for existing FM 1488 through Magnolia is "E".

Another need for this project is safety. Crash data from the Texas Department of Public Safety for the 3-year period of 2012 to 2014 showed that there have been 165 vehicle crashes on FM 1488 within the vicinity of FM 1774.

The TxDOT statewide average crash rate for rural FM roads is 123.56 in 2012, 113.63 in 2013, and 119.17 in 2014 per 100 million vehicle miles. The crash rates along FM 1488 in the vicinity of FM 1774 per 100 million vehicle miles were 468.94 in 2012, 454.15 in 2013 and 698.69 in 2014. These rates are 379.52, 399.68 and 586.30 percent higher than the statewide average for 2012, 2013 and 2014, respectively. There was an average of one crash approximately every 7 days for the 3-year period. Out of the 165 crashes reported from 2012-2014 within the project limits, 34 resulted in injuries or possible injuries. 1 of these crashes was fatal, 2 caused incapacitating injuries, 19 caused non-incapacitating injuries and 12 caused possible injuries.

3.3 Purpose

The purpose of the proposed project is to decrease traffic congestion, increase mobility and improve operational efficiency and safety along FM 1488 within the City of Magnolia. The proposed project would accomplish this purpose by removing vehicles from existing FM 1488 within the City of Magnolia whose destinations are not located near FM 1488 within the City of Magnolia.

4.0 ALTERNATIVES

4.1 Build Alternative

The Preferred Build Alternative (Alternative C) would meet the purpose and need by removing vehicles from existing FM 1488 within the City of Magnolia whose destinations are not located near FM 1488 within the City of Magnolia.

4.2 No Build Alternative

The No-Build Alternative would not accommodate current and future traffic volumes. This alternative would not meet the purpose and need of the project. Therefore, the build alternative described above is the Preferred Alternative.

4.3 Preliminary Alternatives Considered but Eliminated from Further Consideration

Four Build Alternatives (A, B, C, and D) and the No Build Alternative were developed and analyzed at an equal level of detail. Criteria used in the alternatives analysis to eliminate some of the alternatives were displacement of residences and businesses, and other social, economic, and environmental impacts. A map of the four Build Alternatives can be found in **Appendix F** and are described below:

Alternative A –This alignment would begin at FM 1488 west of Magnolia approximately 400 feet east of Mink Branch and continue past proposed SH 249 to FM 1488 east of Magnolia and would require the acquisition of 172 acres of ROW.

Alternative A was eliminated from further study due to the fact that this alternative would require 41 displacements of residents and structures, the highest of all four alternatives, and result in community impacts. This would result in a higher cost than the other alternatives.

Alternative B – This alignment would begin at FM 1488 west of Magnolia approximately 500 feet west of Old Hempstead Road and continue to proposed SH 249 east of Magnolia and require the acquisition of 116 acres of ROW.

Alternative B was eliminated from further study due to the fact that this alternative would require more displacements of residences and businesses than Alternative C, impact a cemetery, and would have Section 4(f) impacts.

Alternative C – This alignment would begin at FM 1488 west of Magnolia approximately 400 feet east of Mink Branch and continue to proposed SH 249 east of Magnolia and require the acquisition of 155 acres of ROW.

Alternative C was chosen because it resulted in the fewest displacements as well as no community or Section 4(f) impacts.

Therefore, Alternative C was selected to be carried forward for further study as the Preferred Alternative.

Alternative D – This alignment would begin at FM 1488 west of Magnolia approximately 500 feet west of Old Hempstead Road and continue past proposed SH 249 to FM 1488 east of Magnolia and would require the acquisition of 137 acres of ROW.

Alternative D was eliminated from further study due to the fact that this alternative would require more displacements of residences and businesses than Alternative C, impact a cemetery, and would have community and Section 4(f) impacts.

The three other new location build alternatives (A, B, and D) were examined, but dismissed early in the alternatives analysis process because these alternatives would result in greater adverse social, economic, and environmental impacts than the preferred alternative.

5.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

In support of this EA, the following technical reports were prepared:

- Air Quality Technical Report
- Purpose and Need Technical Report
- Public Meeting Summary Report
- Water Resources Technical Report
- Noise Technical Report
- Biological Evaluation Form (including Tier 1 Site Assessment)
- Community Impacts Assessment Technical Report Form
- Hazardous Materials Initial Site Assessment (ISA) Report
- Project Coordination Request for Historical Studies Project
- Historical Studies Research Design
- Report for Historical Studies Survey
- Archeological Resources Background Study
- Archeological Survey Report

These technical reports may be viewed upon request at the TxDOT Houston District Office.

5.1 Right-of-Way and Displacements

A Community Impacts Assessment Technical Report Form for the proposed project which discusses ROW and displacements has been completed and is on file at TxDOT's Houston District Office. Since the preparation of the report, it was confirmed that two of the potential residential displacements have been demolished. The summary provided below is a revised description of anticipated residential displacement types.

Approximately 155 acres of additional ROW would be required. It is anticipated that the project would result in 15 displacements: 11 residential or associated outbuildings, 2 commercial displacements, 1 storm water detention pond, and 1 utility facility. These properties are listed in the Community Impacts Assessment Technical Report Form. Relocation assistance would be provided. TxDOT would ensure that the needs of all displaced residents, including any disabled, minority, or elderly persons, are considered and accommodated to the extent practicable. Any ROW acquisition would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

Of the 11 total residential structures that could be potentially displaced by the proposed project based on best available data, 2 are single-family residences, 2 are presumed agricultural buildings, and 7 are presumed to be residential outbuildings. Based on current available market data, comparable single-family housing appears to be available for the potential residential displacements within the same zip codes (77355 and 77354).

Regarding the two commercial displacements, Gulf Coast Stabilized Materials would not be able to continue operations as a result of the proposed project because of physical impacts to the batch plant machinery. It is possible that the batch plant equipment could potentially be moved to a different area of the property in order to continue operations. The proposed project would also cut off access to the Sprint Sand and Clay pit operations. It is anticipated that access to the pit operations could be altered to accommodate the proposed FM 1488 roadway and maintain access to the existing FM 1488 roadway.

A utility facility located at the proposed intersection of the FM 1488 Relief Route and FM 1486 would be impacted by the proposed roadway and would require relocation. A portion of the storm water detention basin located at Magnolia West High School would be filled to accommodate the roadway. Additional storm water capacity for the property would be required by storm water regulations, and TxDOT would address the replacement of the impacted detention pond capacity as a component of the proposed project.

In addition to those anticipated displacements, some properties would be bisected by the proposed roadway which would limit or permanently block access to portions of the property. These access impacts are discussed in the Community Impacts Assessment Technical Report Form.

There are no temporary or permanent easements required for the proposed project.

The No Build Alternative would not require any ROW acquisitions and would leave the existing surrounding area intact. No displacements or relocations would occur under the No Build Alternative.

5.2 Land Use

A Community Impacts Assessment Technical Report Form for the proposed project, which considers land use as an element of analyzing potential community impacts, has been completed and is on file at TxDOT's Houston District Office.

The proposed FM 1488 Relief Route area consists primarily of residential and undeveloped land, much of which is ranchland or forested areas, with some commercial use. The proposed FM 1488 Relief Route would convert existing land uses to a transportation use through the acquisition of approximately 155 acres of ROW.

The proposed project would cross two roadways, FM 1774 and FM 1486. There is a subdivision, Wisteria Farms, near the western terminus and there are plans for a subdivision near the intersection of the proposed project and FM 1774. Magnolia West High School is adjacent to the proposed project and is located east of FM 1486. The Crystal Springs Special Event Venue is also adjacent to the proposed project and is located south of the proposed project's intersection with FM 1774.

Table 1 lists approximate acreages of land use types that would be converted to transportation ROW as a result of the proposed project. These land use types correspond with the analysis and figures presented in the Community Impacts Assessment Technical Report Form.

Table 1: Summary of Land Use Impacts

Land Use Type	Acres
Agricultural/Undeveloped	60
Commercial	8
Mixed – Residential/Agricultural	75
Residential	5
School	7
Total	**155**

The Crystal Springs Special Event Venue would not be displaced by the proposed roadway; however, during the public involvement process this facility indicated that roadway noise may impact their ability to do business. Noise abatement is not proposed because it was determined in the traffic noise analysis that no feasible and reasonable abatement measure is possible for this receiver.

Some properties would be bisected by the proposed roadway, which would limit or permanently block access to portions of the property. The Community Impacts Assessment Technical Report Form contains a list of 21 properties that would be split by the proposed project, as well as a brief description of what impacts the roadway would have on access across these properties. A majority of the potentially bisected properties would lose access between the remnants. However, TxDOT cannot deny access to any property and would provide access to the bisected properties.

The No-Build Alternative would not result in the conversion of existing land uses. Land use changes would continue to occur based on market conditions and as parcels are platted for development.

5.3 Farmlands

The purpose of the Farmland Protection Policy Act (FPPA) is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses. The proposed project would convert farmland subject to the FPPA to a non-agricultural, transportation use, but the combined scores of the relative value of the farmland and the site assessment, as documented on the Natural Resources Conservation Service (NRCS) Form NRCS-CPA-106 and supporting documentation, are such that the site need not be given further consideration for protection and no additional sites need to be evaluated. Form NRCS-CPA-106 is located in **Appendix F** and as an attachment to the Biological Evaluation Form.

The No-Build Alternative would not require the conversion of any farmland to non-agricultural uses and would leave the existing surrounding area intact.

5.4 Utilities and Emergency Services

Utilities such as water lines, sewer lines, gas lines, telephone cables, electrical lines, and other subterranean and aerial utilities would require adjustment. Aerial and/or underground utilities would be adjusted and the required adjustments may or may not be provided for by the affected utility company. The extent of utility adjustments is not known at this time and would be determined during final design. Coordination of any utility adjustments would take place during the design phase or before construction begins. All utility adjustments would be in accordance with TxDOT, city, and county design policy guidelines. The adjustment and relocation of any utilities would be handled so that no substantial interruptions would take place while these adjustments are being made.

There would be no negative impact to emergency services. Emergency response vehicles would benefit from reduced travel times as the proposed project would overpass both UPRR and FM 1774 removing the mobility impediment created by the existing at-grade train crossing and congestion backups at the existing FM 1488/UPRR/FM 1774 intersection.

The No-Build Alternative would not require the adjustment of any utilities nor would there be any change to emergency response vehicles existing travel times.

5.5 Bicycle and Pedestrian Facilities

Due to the rural and suburban makeup of the project area, the project does not propose to construct sidewalks. The 10-foot outside shoulder would accommodate bicyclists.

The No-Build Alternative would not construct sidewalks.

5.6 Community Impacts

A Community Impacts Assessment Technical Report Form for the proposed project has been completed and is on file at TxDOT's Houston District Office.

The FM 1488 Relief Route is not an existing corridor. The proposed roadway would create a physical route around the northwestern properties of Magnolia; however, all existing roadways within this area (with the exception of a couple private or minor local dirt roads) would be maintained through the construction of intersections with FM 1488 and local roads. Neighborhoods in this general area consist of large lot single-family residences in a rural setting.

It is expected that mobility along FM 1488 and the community north and northwest of Magnolia would be enhanced. The added connectivity between major roadways would allow people to access local community assets more efficiently. The proposed project would increase connectivity

of the surrounding area with Magnolia West High School, while also resulting in a reduction of traffic passing through the downtown area. The FM 1488 Relief Route would encircle the northwestern portion of Magnolia but would maintain current travel patterns out of this area, so no members of the community would be more separated or isolated than in the existing condition. The potential impacts to local residents and businesses along the corridor would be changes in travel and access patterns for only a few properties, which could result in slightly longer or shorter travel times depending on the direction of travel. Emergency response times would benefit from decreased traffic in downtown Magnolia and the flyover of the UPPR. The FM 1488 Relief Route would allow greater community access to existing populations by connecting them to the other network roadways via FM 1488 Relief Route.

The overall impact of the FM 1488 Relief Route is anticipated to result in both positive and negative impacts to community cohesion. In some cases, the proposed project would have a positive effect on community cohesion, including increased access to Magnolia West High School. Roadway users would also benefit from a decrease in traffic downtown. The potential residential displacements could result in community members moving some distance from their present community. The proposed project would not affect, separate, or isolate any distinct neighborhoods, ethnic groups, or other specific groups.

The No-Build Alternative would not have an impact on community cohesion or any environmental justice population or persons with Limited English Proficiency.

5.6.1 Environmental Justice

For the purpose of this analysis, an environmental justice population is present when the total minority population percentage equals or exceeds 50 percent. The project area is primarily populated by Non-Hispanic White residents with smaller populations of Hispanic or Latino, Non-Hispanic Black/African-American, American Indian/Alaska Native, and Asian residents throughout the project length. The average racial make-up of the four block groups is approximately 71.2 percent white and 28.8 percent minority population. Block 2004 in Block Group 2 in Census Tract 6903 has a 66.7% minority population. There would be no displacements or impacts to travel patterns within minority and/or low-income census geographies.

None of the project area Census Block Groups were reported to have a median household income below $25,100, the 2018 poverty guideline set by the United States (U.S.) Department of Health and Human Services. Median household income averages approximately $76,432 across the four block groups in the project area, which is $51,332 above the national poverty level for a household of four.

The overall impact of the FM 1488 Relief Route is anticipated to result in both positive and negative impacts to community cohesion. Overall mobility along FM 1488 and the community north and northwest of Magnolia would be enhanced and the added connectivity between major roadways would allow people to access local community assets more efficiently. The proposed project would increase connectivity of the surrounding area with Magnolia West High School. Roadway users would also benefit from a decrease in traffic downtown. The potential residential displacements could result in community members moving some distance from their present community. The proposed project would not effect, separate, or isolate any distinct neighborhoods, ethnic groups, or other specific groups. However, the proposed roadway would separate some residences and businesses from accessing the entirety of their property once the relief route has been constructed. Additionally, the community cohesion among individual property owners could be impacted. Aerial imagery indicates that many property owners have multiple structures spread across their property and the proposed roadway would affect one or more of

these structures. Also, due to the rural nature of the project area and relatively large parcel sizes, residents do not always use existing roadways when traveling from building to building, or from property to property. Aerial imagery analysis indicates that individual property owners often use private dirt trails to access the different areas of their property or for travel between properties. The proposed roadway would adversely impact the use of some of these trails and would impact community cohesion between neighboring properties and within private properties.

The proposed project would improve mobility, add capacity, and enhance safety for existing and future residences and businesses within the project vicinity. The proposed project would enhance mobility in the downtown area due to the reduction in traffic. Environmental justice populations are present in the proposed project area. None of the relocations or displacements occurs within the census blocks or block groups containing a majority of minority or low-income populations. No existing neighborhoods would be divided, and permanent disruptions to normal daily activities are not expected. The design process aimed to minimize adverse impacts on the community but some land owners would still be adversely affected. Surrounding communities would benefit equally from increased mobility along FM 1488. No disproportionately high and adverse impacts on minority or low-income populations are anticipated as a result of the proposed project.

5.6.2 Limited English Proficiency

Executive Order (EO) 13166, “Improving Access to Services for Persons with Limited English Proficiency,” (LEP) requires agencies to examine the services they provide, identify any needs for services to those with LEP, and develop and implement a system to provide those services so that LEP persons can have meaningful access to them. This EO requires federal agencies to work to ensure that recipients of federal financial assistance provide meaningful access to their LEP applicants and beneficiaries. Failure to ensure that LEP persons can effectively participate in or benefit from federally assisted programs and activities may violate the discrimination prohibition under Title VI of the Civil Right Restoration Act of 1987 and Title VI regulations.

The LEP populations in individual census block groups within the project area range from approximately 2.1 to 13 percent. LEP is defined as persons who speak English "less than very well." Of the 6,240 people over five years of age in the adjacent four census block groups, approximately five percent speak English "less than very well." The largest LEP population speaks Spanish followed by Asian/Pacific Islander languages and then Indo-European. In tract 6903/Block Group 3, approximately 13 percent of the population speaks Spanish.

The data indicate that there is an LEP population dispersed throughout the project area. Block Group 1 of Census Tract 6633 contains a Spanish-speaking LEP population (3.9 percent), while Block Group 4 of Census Tract 6631 contains an Indo-European language LEP population (0.3 percent). An average of 1.4 percent of the population within the project area block groups is Asian and Pacific Island languages LEP. There were no LEP populations speaking ‘other languages’ identified within the project area. No indicators of LEP populations such as signage in languages other than English were observed during an August 2015 windshield survey.

In order to comply with EO 13166, TxDOT has provided opportunities for citizens to request language interpreters (e.g. Spanish and/or Asian and Pacific Island languages). The Notice of the Public Meeting was published on August 23, 2015 and September 13, 2015, in the La Voz Spanish newspaper. Notices were mailed out to adjacent property owners in both English and Spanish. Handouts at the public meeting were available in English and Spanish. The Notice of Public Hearing was published on August 20, 2017 and September 3, 2017, in the La Voz Spanish Newspaper. Notices were mailed to adjacent property owners along existing FM 1488 and the proposed FM 1488 Relief Route in both English and Spanish. Flyers were hand delivered to local

area businesses in both English and Spanish as well. Handouts, comment cards, and speaker registration cards were available in English and Spanish and Spanish speakers were available at the public hearing. TxDOT would continue to comply with EO 13166 by offering to meet the needs of persons requiring special communication or accommodations in all public involvement activities and notices. Therefore, the requirements of EO 13166 would be met.

5.7 Visual and Aesthetic Impacts

Any environmental effects anticipated may result from grade separating roadway lanes, additional highway lighting systems, and other visual elements introduced to the corridor. Elevated lanes may impact visual quality and aesthetics by blocking the line-of-sight for sensitive viewers and by increasing viewer exposure. Highway lighting systems sometimes cause disruptions to adjacent neighborhoods by creating unacceptable light levels at night.

Visual and aesthetic resources within the project area were identified through field survey. Most of the visual and aesthetic resources within the project area are undeveloped timberland and open spaces dedicated to ranching.

Temporary impacts on the visual character of the surrounding environment related to construction activities include those related to vehicle and equipment activity, construction staging, stockpiling of excavated material, temporary signage, and traffic congestion. Developed and naturally vegetated areas within the proposed ROW may be cleared for the construction of the roadway lanes, and topography would be modified to fill and cut slopes for retaining walls. Construction activities would result in increased levels of dust, indirect transfer of dirt between locations, and localized glare from lighting sources assembled to ensure the safety of construction crews and vehicle drivers. Staging areas would be located away from visually sensitive areas where practicable and where land is available. Construction activities would be primarily limited to daylight hours to eliminate the need to use high-wattage lighting sources to operate during nighttime hours. Revegetation would take place in areas disturbed during construction.

Construction of the roadway in new ROW would possibly result in homes and businesses being located closer to the roadway. Removal of vegetation in the form of scattered trees and hedges along the new ROW would result in a reduction of vegetative screening. Commercial and residential structures located near elevated structures would have a new visual component introduced to their viewshed. Additional light impacts may result from new illumination, particularly at grade separated overpasses. The elevated structures that would be constructed as part of the proposed project would all consist of grade separated overpasses at FM 1774 and UPPR and at proposed SH 249.

Stream crossings would be constructed at the same grade as the natural ground and the proposed adjacent roadway; as such, they are not considered elevated structures for the purposes of the above discussion. At most crossings their visual impact would be the same as the new relief route road of which they would be a part.

Overall, the proposed FM 1488 Relief Route project would not have substantial impacts on visual quality and aesthetics.

The No-Build Alternative would not have visual or aesthetic impacts.

5.8 Cultural Resources

5.8.1 Archeology

An Archeological Resources Background Study has been prepared and is on file at TxDOT's Houston District Office. The 199.88-acre Area of Potential Effects (APE) ranges from 220 to 280 feet above mean sea level along the 5.4 mile proposed alignment between the existing FM 1488 and SH 249 in eastern Montgomery County.

A review of the Texas Archeological Sites Atlas maintained by the THC and the Texas Archeological Research Laboratory was conducted in order to identify archeological sites, Recorded Texas Historic Landmarks (RTHLs), properties or districts listed on the National Register of Historic Places (NRHP), State Antiquities Landmarks (SALs), cemeteries, or other cultural resources that may have been previously recorded in the APE, as well as previous surveys undertaken in the area. In addition, a review of the Houston Potential Archeological Liability Map was undertaken to determine archeological probability in the APE.

Based on a review of the Houston Potential Archeological Liability Map (PALM), 73 percent of the 199.88 acre (80.8 hectare) project area (146.91 acres or 59.45 hectares) is designated as Map Unit 2, for which a surface survey is recommended. The total acreage includes right-of-way that overlaps with the proposed SH 249 project. PALM data also indicated that the remaining area, 27 percent (52.97 acres or 21.43 hectares), is located within Map Unit 4, for which surface survey is not recommended.

An intensive archeological survey to inventory and evaluate archeological resources within the APE was conducted April 11-13, 2017, under Texas Antiquities Permit 7914. Only 48 percent of the total acreage was surveyed since access was not granted for the remaining 52 percent. The majority of accessible parcels where intensive survey was conducted was determined to have been heavily disturbed by activities associated with agriculture and cattle grazing, as well as erosion.

No new archeological sites were identified during the survey and no artifacts were identified or recovered.

Results of the survey indicated that extensive disturbances have occurred in a majority of the APE due to previous construction activities, utility installations, commercial and residential development, sand mining operations, and cattle or horse grazing. No evidence was found of any preserved cultural deposits in any of the 39 shovel test locations or on the surface with a high degree of integrity. Additionally, personal communication with one landowner at the least disturbed environmental setting south of Old Hempstead Road confirmed that no cultural deposits or remains were ever observed or encountered on their property. No additional archeological investigations on parcels in the western half of the APE are warranted prior to construction activities. However, the eastern half of the APE starting at S. Buckhorn Lane falls entirely within Map Unit 2 where surface survey is recommended and should be surveyed prior to any construction activities in this area.

Coordination with the THC and Tribal coordination is required and has been completed and can be found in **Appendix G**.

The archeological survey is documented in a report titled "Intensive Archeological Survey of FM 1488 from Existing FM 1488 West of Magnolia to Proposed SH 249 Montgomery County, Texas" and is on file at TxDOT's Houston District Office.

The No-Build Alternative would not have any impacts to archeological resources and would not require archeological studies to be performed.

5.8.2 Historic Properties

A Project Coordination Request for Historical Studies Project and a Report for Historical Studies Survey documenting the results of a reconnaissance survey have been prepared and is on file at TxDOT's Houston District Office.

The reconnaissance survey was conducted in the APE, which was the proposed ROW and the area extending 300 feet from the proposed ROW. In all, 51 historic-age resources (constructed before 1976) located on 18 parcels were documented. Additionally, 19 nonhistoric-age resources associated with historic-age resources were documented in the inventory. None of the documented resources are recommended eligible for the National Register of Historic Places as a result of the survey.

A search of the Texas Historic Sites Atlas maintained by the THC was conducted in order to identify properties or districts listed on the NRHP, National Historic Landmarks (NHLs), RTHLs, Official Texas Historical Markers, cemeteries, or other cultural resources that may have been previously recorded in the APE, defined as all parcels intersected by a 150-foot buffer from the proposed ROW. According to the Texas Historic Sites Atlas, there are no NHL, NRHP, SAL, or RTHL resources located within the APE. There is one historic age bridge within the project area, located at FM 1488 over Mink Branch, its National Bridge Inventory number is 121700052308013, and it is not eligible for the NRHP.

Therefore, pursuant to Stipulation IX, Appendix 6 "Undertakings with the Potential to Cause Effects per 36 CFR 800.16(i)" of the Section 106 PA and the MOU, TxDOT historians determined that there are no historic, non-archeological properties in the APE. Individual project coordination with SHPO is not required.

The No-Build Alternative would not have any impacts to historic properties.

5.9 DOT Act Section 4(f), LWCF Act Section 6(f) and PWC Chapter 26

The proposed project would not require the use or substantially impair the purposes of any publicly owned land from a public park, recreational area, wildlife and waterfowl refuge lands or historic sites of national, State, or local significance; therefore, a Section 4(f) evaluation would not be required.

There are no Land and Water Conservation Fund (LCWF) 6(f) or Parks and Wildlife Code (PWC) Chapter 26 properties in the project area.

The No-Build Alternative would not require the use of any publicly owned land from a public park, recreational area, wildlife and waterfowl refuge lands or historic sites of national, State, or local significance.

5.10 Water Resources

5.10.1 Clean Water Act Section 404

A Water Resources Technical Report which includes Wetlands/Waters of the U.S. has been completed and is on file with TxDOT's Houston District Office. The results of wetlands determinations, delineations, and permitting are documented in the technical report. The U.S. Army Corps of Engineers (USACE) regulates impacts to jurisdictional waters, including waters of the U.S. and wetlands, under Section 404 of the Clean Water Act (CWA).

Seven intermittent tributary crossings were identified within the project ROW. These crossings include a tributary of Mink Branch and six tributaries of Mill Creek. Mill Creek is a tributary of Spring Creek. As report in the Water Resources Technical Report, all seven intermittent tributaries are considered jurisdictional waters of the U.S. within the project limits. However, due to project changes this statement should be revised. Crossings #1 through #6 are all intermittent tributaries and are considered jurisdictional waters of the U.S. within the project limits. However, in our opinion crossings #7 is a jurisdictional wetland and would be considered a water of the U.S. The amount of estimated impacted wetland for crossing #7 would equal 0.005 acre.

Since construction of the proposed project at these tributary crossings would not cause the loss of more than 0.5 acre of jurisdictional waters of the U.S. at each crossing (single and complete project), the proposed project would qualify for authorization under Nationwide Permit 14 (NWP 14), Linear Transportation Projects. Water crossings were avoided where possible. The proposed Relief Route would avoid Mink Branch to the west of the ROW and Kachel Lake north of the ROW. Proposed tributary crossings would be culverted. Because construction at crossings #1, #2, #3 and #6 would be more than 0.1 acre and construction crossing #7 would impact 0.005 acre of a jurisdictional wetland, Pre-Construction Notification would be required for this project. These crossings would be considered single and complete projects and therefore, 7 NWP 14s would be required for the proposed project. The design of the culverts would comply with the conditions required for use of NWP 14. No Individual Permit is anticipated for any crossing.

Crossing #7 wetland is the same wetland as Wetland 8 identified and assessed in the SH 249 EIS. The SH 249 EIS determined Wetland 8 to be jurisdictional. Wetland 8 will be culverted by the SH 249 extension project. Permitting of Wetland 8 is being pursued through the SH 249 permitting process. The proposed FM 1488 Relief Route would extend these culverts by approximately 100 feet. Impacts to Crossing #7 wetland from the FM 1488 culvert extension will be covered under the proposed FM 1488 Relief Route permitting process.

Wetland determinations were performed at sample points (SPs) within the proposed ROW. Four ponds and a detention basin were also identified within the project ROW. Right-of-Entry (ROE) was not granted for the entire length of the ROW. While there are tributary crossings that were not assessed, there are no wetland signatures on the USGS topographical map or the U.S. Fish and Wildlife Service (USFWS) NWI map. None of the proposed project ROW is located within the Federal Emergency Management Agency (FEMA) designated 100 year floodplain. Where ROW was not assessed due to lack of ROE, the ROW is approximately 800 feet or more from the nearest creek and approximately 500 feet or more from the FEMA designated 100 year floodplain. It is likely that any wetlands not associated with tributary crossings would be isolated and non-jurisdictional. Any additional wetland determinations would need to be conducted once ROW is acquired.

Pond #1
A pond was identified south of Old Hempstead Road during the field visit in August 2016. A sample point was taken at this location. Hydrophytic vegetation and hydric soil were not present. This pond is not located within or near a 100 year floodplain and does not appear to have any hydrological connection to any waters of the U.S. Therefore, it is extremely likely that this pond is isolated and non-jurisdictional.

Pond #2
A pond was observed to the east of SP-1 during the field visit but could not be assessed as ROE had not been granted. There is no wetland signature on the USGS topographical map or the

USFWS NWI map. Surrounding vegetation was consistent with maintained upland pastureland. This pond appears to be dug by man in uplands. This pond does not appear to have any hydrological connection to any waters of the U.S. It is also not located within a 100 year floodplain or even close to a 100 year floodplain. Therefore, it is extremely likely that this pond is isolated and non-jurisdictional.

Pond #3
A pond was observed east of Magnolia West High school that could not be assessed as ROE had not been granted. There is no wetland signature on the USGS topographical map or the USFWS NWI map. This pond is not located within or near a 100 year floodplain and does not appear to have any hydrological connection to any waters of the U.S. Therefore, it is extremely likely that this pond is isolated and non-jurisdictional as well.

Pond #4
A pond was observed south of SP-4 and could not be assessed as ROE had not been granted. This area is in the proposed ROW and signatures appear on the USGS topographical map as well as the USFWS NWI map.

Man-made Detention Basin
There is a man-made detention basin for Magnolia West High School located on the north side of the school on school property east of FM 1486. Based on current and historical USGS maps, aerial photographs, and NWI maps, it's apparent that this detention pond was dug by man in uplands and would therefore be considered non-jurisdictional.

The proposed project's impact on waters of the U.S., including wetlands, have been avoided or minimized. The cumulative impact of reasonably foreseeable future actions to waters of the U.S. would also be avoided or minimized by enforcement of applicable USACE regulations.

Assuming appropriate implementation of regulation control strategies and policies, future potential impacts to the area's waters of the U.S., including wetlands could be expected to be reduced, or have no net loss. The proposed project would not contribute to substantial cumulative impacts to the area's waters of the U.S.

The No Build Alternative would not involve any impacts to wetlands or other waters of the U.S. and would not require any permits.

5.10.2 Clean Water Act Section 401

A USACE NWP 14 would be required. The Texas Commission on Environmental Quality (TCEQ) issued conditional Section 401 Water Quality Certification for NWP 14. The certification approval condition is that at least one Best Management Practice (BMP) is used for Erosion Control, Sedimentation Control, and Post-Construction total suspended solids (TSS) Control. TxDOT would ensure that this condition is met.

No long-term water quality impacts are expected as a result of the proposed project. Subsurface water would not be required for this project; therefore, no adverse effects to groundwater are expected to occur. The proposed project is not expected to alter rainfall drainage patterns or contaminate or otherwise adversely affect the public water supply, water treatment facilities, or water distribution systems.

The No Build Alternative would not involve any impacts to water quality.

5.10.3 Executive Order 11990 Wetlands

EO 11990 prohibits new construction in wetlands unless there is no practicable alternative to such construction and the project includes all practicable measures to minimize harm to wetlands.

Project Build Alternatives were analyzed and are summarized in Section 4.3. The three additional Build Alternatives were eliminated due to increased displacement of residences and businesses, and other social, economic, and environmental impacts. The proposed Relief Route would avoid water crossings and wetlands when possible. The proposed Relief Route would avoid Mink Branch to the west of the ROW and Kachel Lake north of the ROW. One wetland was identified. Where ROW was not assessed due to lack of ROE, it is likely that any wetlands not associated with tributary crossings would be isolated and non-jurisdictional. Once ROE is granted or access to the remaining project area becomes available, wetland determinations will be completed including assessments of the remaining tributary crossings.

The No Build Alternative would not involve any impacts to wetlands or other waters of the U.S.

5.10.4 Rivers and Harbors Act

None of the waterways in the project area meet the definition of a navigable water of the U.S. (e.g. is used to transport substantial interstate commerce or is subject to tidal influence); therefore Section 9 of the General Bridge Act and Section 10 of the Rivers and Harbors Act do not apply. Coordination with the U.S. Coast Guard (Section 9) and USACE (Section 10) would not be required.

The No Build Alternative would not involve any impacts to navigable waters of the U.S. and would not require any coordination.

5.10.5 Clean Water Act Section 303(d)

The proposed project is within five linear miles of an impaired creek. Runoff from this project would discharge into Segment 1008A_01 of Mill Creek which is listed as threatened/impaired for depressed dissolved oxygen on the 2014 EPA approved 303(d) list. At least one BMP would be used for erosion control, sedimentation control, and post-construction TSS. This project is not expected to contribute to the depressed dissolved oxygen of Mill Creek. Coordination with TCEQ under TxDOT's MOU is required and has been completed (**Appendix G**).

The No Build Alternative would not impact water quality.

5.10.6 Clean Water Act Section 402

The proposed project would disturb approximately 155 acres. TxDOT would comply with the TCEQ Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit (CGP).

A Storm Water Pollution Prevention Plan (SW3P) would be implemented, and a construction site notice would be posted on the construction site. A Notice of Intent (NOI) would be required. This proposed project is not located within the boundaries of a regulated Municipal Separate Storm Sewer System.

The No Build Alternative would not require a TPDES permit.

5.10.7 Floodplains

According to the FEMA Flood Insurance Rate Maps for Montgomery County, the entire proposed project ROW is not located within FEMA designated 100 year floodplains. Floodplain maps for

the project area are included in **Appendix F**. Montgomery County is a participant in the National Flood Insurance Program (NFIP); coordination with the local Floodplain Administrator is not required.

The No Build Alternative would not result in any encroachment on the floodplain.

5.10.8 Wild and Scenic Rivers

This project would not involve work near any designated Wild and Scenic River; therefore, no impacts would occur.

The No-Build Alternative would not impact any designated Wild and Scenic River.

5.10.9 Coastal Barrier Resources

The Coastal Barrier Resources Act (CBRA) established the Coastal Barrier Resources System to protect a defined set of geographic units along the coast of the U.S.

This project is not located within a designated CBRA map unit. Coordination with the USFWS is not required.
The No-Build Alternative would not impact any CBRA units or require coordination with the USFWS.

5.10.10 Coastal Zone Management

This project is located within Montgomery County but is not within the Texas Coastal Management Program boundary; therefore, no impacts would occur.

The No-Build Alternative would not involve any impacts to the Coastal Management Program.

5.10.11 Edwards Aquifer

This project is located within Montgomery County; therefore, this project is not subject to regulation under TCEQ's Edwards Aquifer rules.

The No-Build Alternative would not involve any impacts to the Edwards Aquifer.

5.10.12 International Boundary and Water Commission

This project does not cross or encroach upon the floodplains of the U.S. International Boundary and Water Commission (USIBWC) flood control projects or ROW; therefore, a license or permit from the USIBWC is not needed.

The No-Build Alternative would not involve any impacts to floodplains of the USIBWC.

5.10.13 Drinking Water Systems

A Water Resources Technical Report, which includes Water Wells, has been completed and is on file with TxDOT's Houston District Office. A total of 70 water supply wells are located within a one-half mile radius of the proposed project. These wells consist of 6 water supply wells, 49 domestic water supply wells, two industrial supply wells, one irrigation well, one closed loop geothermal well, three wells listed as other, and eight wells listed as plugged or destroyed or unused. One water well is located within the proposed ROW and would be plugged and abandoned in accordance with all applicable local, state, and federal laws.

The No-Build Alternative would not involve any impacts to drinking water systems.

5.11 Biological Resources

A Biological Evaluation Form has been completed for the proposed project and is on file with TxDOT's Houston District Office. The results are summarized below.

5.11.1 Texas Parks and Wildlife Coordination

See Section 6.3.

5.11.2 Impacts to Vegetation

The project area is located within South Central Plains Ecoregion (TPWD 2012). The footprint of the proposed ROW was overlaid on Ecological Mapping Systems of Texas (EMST) vegetation type maps. The EMST Vegetation Types correspond to NatureServe Ecological System Types and the vegetation types outlined in TxDOT's 2013 MOU with the TPWD. Field investigations performed in August of 2016 were observed to be a variety of different vegetation types since the project is on new location.

No rare plant communities, as identified by the Texas Conservation Action Plan, are mapped as occurring within or adjacent to the project area (TPWD, 2012).

Special Habitat Features – Special habitat features can include bottomland hardwoods, caves, cliffs and bluffs, native prairies, seeps or springs, snags or groups of snags, existing bridges with known or observed bird or bat colonies, rookeries, and prairie dog towns. No special habitat features occur within the existing proposed ROW.

Unusual Vegetation Features – Unusual vegetation features can include unmaintained vegetation, fencerow vegetation, riparian vegetation, trees that are considered historically significant, ecologically significant, or locally important, and unusual stands or islands of vegetation. It is anticipated that there may be some riparian vegetation along the stream crossings that the proposed ROW crosses.

Impacts exceed the disturbance threshold indicated in the Threshold Table PA for Longleaf Pine Woodland, Mixed Woodlands and Forest, Coastal Grassland, and Disturbed Prairie. Early coordination with TPWD has been completed. Correspondence can be found in **Appendix G**.

The No-Build Alternative would not impact any vegetation communities and would not require coordination with TPWD.

5.11.3 Executive Order 13112 on Invasive Species

Re-vegetation of disturbed areas would be in compliance with EO 13112 on Invasive Species. Regionally native and non-invasive plants would be used to the extent practicable.

5.11.4 Executive Memorandum on Environmentally and Economically Beneficial Landscaping

No landscaping would be part of the proposed project. Disturbed areas would be re-vegetated according to TxDOT's standard practices for rural areas, which to the extent practicable, is in compliance with Executive Memorandum on Beneficial Landscaping.

5.11.5 Impacts to Wildlife

Wildlife located within the vicinity of the project area may include those common species normally found in rural areas. The species for this area may include squirrels, rabbits, raccoons, migratory songbirds, and various rodents. Other species could include opossums, frogs, lizards, and snakes. Additionally, the plains spotted skunk can be found in Montgomery County. Any

disturbance beyond the normal conditions of the study area is expected to be limited to the immediate vicinity of construction of the proposed project.

The proposed project is not located in the designated Critical Habitat of the Red-cockaded Woodpecker. No elements of occurrences were identified in the Natural Diversity Database (NDD) search. Visual inspections were limited to where Right of Entry (ROE) had been granted and public Right of Way (ROW). In the areas visited, while habitat for the Red-cockaded Woodpecker was observed, no individuals of the species were identified. Based on aerial photography, the United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) tool, and Texas Parks and Wildlife (TPWD) county lists, areas of the project for which ROE was not granted could contain habitat for and individuals of the species, therefore, the proposed project may affect the Red-cockaded Woodpecker. TxDOT makes the commitment that once ROW is acquired, additional RCW habitat surveys will be conducted on the parcels not previously inspected.

The No Build Alternative would not impact any wildlife.

5.11.6 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) states that it is unlawful to kill, capture, collect, possess, buy, sell, trade, or transport any migratory bird, nest, young, feather, or egg in part or in whole, without a federal permit issued in accordance within the Act's policies and regulations.

TxDOT would take all appropriate actions to prevent the take of migratory birds, their active nests, eggs, or young by the use of proper phasing of the project or other appropriate actions. A MBTA appropriate Environmental Permits, Issues, & Commitments will be included in the Plan Specification and Estimates.

5.11.7 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA) of 1958 requires that federal agencies obtain comments from USFWS and TPWD. This coordination is required whenever a project involves impounding, diverting, or deepening a stream channel or other body of water.

The proposed project would not impound, divert, or deepen a stream channel or other body of water; therefore, no coordination under FWCA would be required. However, the proposed project would be authorized under a Section 404 of the Clean Water Act Nationwide Permit; therefore, no project specific coordination is required under FWCA because it would be included in the USACE permitting.

5.11.8 Bald and Golden Eagle Protection Act of 2007

The proposed project does not have the potential to impact Bald or Golden Eagles.

5.11.9 Magnuson-Stevens Fishery Conservation Management Act

Essential fish habitat is defined by the Magnuson-Stevens Fishery Conservation and Management Act as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.

Tidally influenced waters do not occur within the project area. Coordination with National Marine Fisheries Service (NMFS) is not required.

5.11.10 Marine Mammal Protection Act

Marine mammals are protected under the Marine Mammal Protection Act. The Texas coast provides suitable habitat and is within range of several marine mammals including the West Indian Manatee (*Trichechus manatus*), and bottlenose dolphin (*Tursiops truncatus*).

The project area does not contain suitable habitat for marine mammals. Coordination with NMFS is not required.

5.11.11 Threatened, Endangered, and Candidate Species

Field reconnaissance (August 2016), review of the USFWS Endangered Species List (September 2016), the TPWD Annotated County List of Rare Species for Montgomery County (September 2016), the Information for Planning and Conservation (December 2017), and a search of the NDD, in conjunction with Geographic Information System, was conducted to determine the potential occurrence of State or Federally listed threatened or endangered species and their habitat (See the Biological Evaluation Form (BEF) for the complete list of species and habitat descriptions).

Based on the information provided in the BEF, the proposed project may affect populations or individuals of Red Cockaded Woodpecker species. Multiple attempts at ROE have been made, but access to some parcels has not been granted. Surveys were performed on parcels where access was granted, and it was determined that the proposed project would not affect the species in the areas surveyed. Additional surveys to confirm potential presence of RCW will be completed for the remaining parcels once ROE is acquired. TxDOT has initiated informal ESA section 7 consultation with USFWS for the Red Cockaded Woodpecker. That consultation resulted in a commitment by TxDOT to survey the remaining parcels (See Appendix G) after property acquisition or ROE and to conclude the consultation based on the survey results.

The No Build Alternative would not affect or impact any threatened and endangered species. No USFWS coordination would be required.

5.12 Air Quality

This project is in Montgomery County which is part of the (Houston-Galveston-Brazoria area that has been designated by EPA as a moderate nonattainment area for the 2008 ozone NAAQS; therefore, the transportation conformity rule applies. The proposed action is consistent with the HGAC's financially constrained 2040 Regional Transportation Plan (RTP) as amended, which was initially found to conform to the TCEQ SIP by the FHWA on September 11, 2015. Copies of the RTP pages are included in **Appendix E**. All projects in the 2040 RTP that are proposed for federal or state funds were initiated in a manner consistent with federal guidelines in Section 450, of Title 23 CFR and Section 613.200, Subpart B, of Title 49 CFR. Because the proposed project would add capacity in a nonattainment area, the project has been coordinated under the TxDOT-TCEQ MOU (**Appendix G)**. Effective August 3, 2018, the EPA designated Montgomery County as marginal nonattainment for the 2015 ozone NAAQS. In accordance with 40 CFR 93.109(c), transportation conformity to this new standard is required by August 3, 2019 (one year after the effective date).

Traffic data for the proposed 2040 design year is estimated to be 9,900 VPD. A prior TxDOT modeling study and previous analyses of similar projects demonstrated that it is unlikely that a carbon monoxide (CO) standard would ever be exceeded as a result of any project with an AADT below 140,000. The AADT projections for the project do not exceed 140,000 vehicles per day; therefore, a Traffic Air Quality Analysis was not required.

The project is not located within a CO or particulate matter nonattainment or maintenance area; therefore, a project level hot spot analysis is not required.

A Mobile Source Air Toxics (MSAT) Qualitative Analysis was included in the Air Quality Technical Report that has been completed for the proposed project and is on file at TxDOT's Houston District Office. This assessment has acknowledged that Preferred Alternative (Build Alternative) may result in increased exposure to MSAT emissions in certain locations, although the concentrations and duration of exposures are uncertain, and because of this uncertainty, the health effects from these emissions cannot be estimated. However, EPA's vehicle and fuel regulations are expected to bring about significantly lower MSAT levels for the area in the future than today.

The Congestion Management Process is a systematic process for managing congestion that provides information on transportation systems performance and on alternative strategies for alleviating congestion and enhancing the mobility of persons and goods to levels that meet state and local needs. The committed congestion reduction strategies within the study boundary would consist of construction of this proposed FM 1488 Magnolia Relief Route project on new location. A more detailed discussion of the Congestion Management Process is included in the Air Quality Technical Report.

Current air quality trends would be expected to continue under the No Build Alternative.

5.13 Hazardous Materials

A Hazardous Materials ISA for the proposed project has been completed and filed with TxDOT's Houston District Office.

The ISA was conducted for the proposed project to identify sites within the project area that may have experienced soil and/or groundwater contamination by hazardous materials. The assessment consisted of a regulatory/governmental agency database records review and an onsite investigation.

The proposed project would require 155 acres of new ROW and there is proposed demolition and/or relocation of 11 residential or associated outbuildings, two commercial displacements, one storm water detention pond, and one utility facility. Of these facilities, none were listed as potentially containing hazardous materials in the hazardous materials database search. Two petroleum storage tanks were removed from the ground in October 1991 from an inactive, unmapped site. Buildings or structures acquired through the acquisition process are assessed and mitigated for asbestos, as needed, within the ROW process according to the TxDOT ROW Manual ROW Vol. 6 Miscellaneous Chapter 1 Section 5. Bridge structures being demolished or renovated are assessed and mitigated for asbestos and lead-containing-paint, as needed, within the construction process according to Standard Specification Item 6.10 (and applicable Provisions), and the TxDOT guidance document: Guidance for Handling Asbestos in Construction Projects, dated January 26, 2007.

Excavations would be required for the FM 1488 Relief Route overpass over FM 1774/UPRR and for roadside drainage ditches. Dewatering may be required to culvert creek crossings.

Two petroleum pipelines and one gas pipeline cross the project area. One plugged water well located approximately 500 feet east of the project area and one dry oil or gas hole located approximately 970 feet east of the project area are present near the western terminus of the project corridor.

During any construction project, there exists the potential to encounter contaminated soil or water. Included in the contract would be the TxDOT standard specifications for construction that require the contractor to be familiar with and comply with all federal, state, and local laws, ordinances, and regulations related to the treatment and disposal of hazardous materials. Should hazardous materials/substances be encountered, the TxDOT Houston District Office would be notified and steps would be taken to protect personnel and the environment.

The contractor would respond appropriately to prevent, minimize, and control the spill of hazardous materials in the construction staging area. The use of construction equipment, particularly the storage of fuels and chemicals, within sensitive areas, including water resources such as floodplains and streams, would be minimized or eliminated. Any unanticipated hazardous materials and/or petroleum contamination encountered during construction would be handled according to applicable federal, state, and local regulations per TxDOT Standard Specifications. All construction materials used for this project would be removed as soon as work schedules permit.

The No Build Alternative would not have any hazardous material impacts.

5.14 Traffic Noise

A traffic noise analysis was accomplished in accordance with TxDOT's (FHWA approved) Guidelines for Analysis and Abatement of Roadway Traffic Noise (2011). The analysis is documented in the Noise Technical Report which is on file at TxDOT's Houston District Office.

Sound from highway traffic is generated primarily from a vehicle's tires, engine and exhaust. It is commonly measured in decibels and is expressed as "dB".

Sound occurs over a wide range of frequencies. However, not all frequencies are detectable by the human ear; therefore, an adjustment is made to the high and low frequencies to approximate the way an average person hears traffic sounds. This adjustment is called A-weighting and is expressed as "dB(A)."

Also, because traffic sound levels are never constant due to the changing number, type and speed of vehicles, a single value is used to represent the average or equivalent sound level and is expressed as "L_{eq}."

The traffic noise analysis typically includes the following elements:

- Identification of land use activity areas that might be impacted by traffic noise.
- Determination of existing noise levels.
- Prediction of future noise levels.
- Identification of possible noise impacts.
- Consideration and evaluation of measures to reduce noise impacts.

The FHWA has established the following Noise Abatement Criteria (NAC) (**Table 2**) for various land use activity areas that are used as one of two means to determine when a traffic noise impact would occur.

Table 2: Noise Abatement Criteria

Activity Category	FHWA dB(A)L_{eq}	Description of Land Use Activity Areas
A	57 (exterior)	Lands on which serenity and quiet are of extra-ordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (exterior)	Residential
C	67 (exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 (interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72 (exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A-D or F.
F	--	Agricultural, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	--	Undeveloped lands that are not permitted.

A noise impact would occur when either the absolute or relative criterion is met:

Absolute criterion – the predicted noise level at a receiver approaches, equals or exceeds the NAC. “Approach” is defined as one dB(A) below the NAC. For example: a noise impact would occur at a Category B residence if the noise level is predicted to be 66 dB(A) or above.

Relative criterion – the predicted noise level substantially exceeds the existing noise level at a receiver even though the predicted noise level does not approach, equal or exceed the NAC. “Substantially exceeds” is defined as more than 10 dB(A). For example: a noise impact would occur at a Category B residence if the existing level is 54 dB(A) and the predicted level is 65 dB(A).

When a traffic noise impact occurs, noise abatement measures must be considered. A noise abatement measure is any positive action taken to reduce the impact of traffic noise on an activity area.

Since this is a new location project, existing noise levels were determined by conducting onsite noise measurements in the field at seven different locations using a precision Type I sound level meter. Permission to conduct onsite noise measurements was either granted or was not required.

The existing noise levels in **Table 3** represent the noise level measured at the nearest noise measurement location. The noise measurement locations are shown in **Appendix F Exhibit E**.

The FHWA traffic noise modeling software was used to calculate predicted traffic noise levels. The model primarily considers the number, type and speed of vehicles; highway alignment and grade; cuts, fills and natural berms; surrounding terrain features; and the locations of activity areas likely to be impacted by the associated traffic noise.

Predicted traffic noise levels were modelled at receiver locations (**Table 3** and **Exhibit E**) that represent the land use activity areas adjacent to the proposed project that might be impacted by traffic noise and potentially benefit from feasible and reasonable noise abatement.

Table 3: Traffic Noise Levels dB(A) L_{eq}

Receiver	NAC Category	NAC Level	2016 Noise Levels		Predicted 2040	Change (+/-)	Noise Impact
			dB(A)	Measurement Location			
R1 – Residence	B	67	43	#1	54	11	Yes
R2 – Residence	B	67	43	#1	51	8	No
R3 – Residence	B	67	43	#1	49	6	No
R4 – Residence	B	67	43	#1	48	5	No
R5 – Residence	B	67	43	#1	47	4	No
R6 – Residence	B	67	43	#1	46	2	No
R7 – Residence	B	67	43	#1	47	4	No
R8 – Residence	B	67	43	#1	50	7	No
R9 – Special Events Venue	C	67	40	#2	53	13	Yes
R10 – Residence	B	67	40	#2	49	9	No
R11 – Residence	B	67	40	#2	52	12	Yes
R12 – Residence	B	67	40	#3	60	20	Yes
R13 – Residence	B	67	40	#3	52	12	Yes
R14 – Residence	B	67	40	#3	54	14	Yes
R15 – Residence	B	67	40	#3	52	12	Yes
R16 – Residence	B	67	40	#3	55	15	Yes
R17 – Residence	B	67	40	#3	53	13	Yes
R18 – Residence	B	67	46	#6	53	7	No
R19 – School	C	67	57	#5	55	-2	No
R20 – Residence	B	67	46	#6	56	10	No
R21 – Residence	B	67	46	#6	58	12	Yes
R22 – Residence	B	67	46	#6	62	16	Yes
R23 – Residence	B	67	46	#6	62	16	Yes

Receiver	NAC Category	NAC Level	2016 Noise Levels		Predicted 2040	Change (+/-)	Noise Impact
			dB(A)	Measurement Location			
R24 – Residence	B	67	46	#6	62	16	Yes
R25 – Residence	B	67	46	#6	60	14	Yes
R26 – Residence	B	67	46	#6	53	7	No
R27 – Residence	B	67	46	#6	53	7	No
R28 – Residence	B	67	48	#4	64	16	Yes
R29 – Residence	B	67	48	#4	58	10	No
R30 – Residence	B	67	48	#4	57	9	No
R31 – Residence	B	67	48	#4	57	9	No
R32 – Residence	B	67	48	#4	61	13	Yes
R33 – Residence	B	67	48	#4	52	4	No
R34 – Residence	B	67	48	#4	52	4	No
R35 – Residence	B	67	43	#7	53	10	No
R36 – Residence	B	67	43	#7	51	8	No
R37 – Residence	B	67	43	#7	49	6	No
R38 – Residence	B	67	43	#7	53	10	No
R39 – Residence	B	67	43	#7	56	13	Yes

As shown in **Table 3**, Receiver R19 has a decrease in dB(A) between the existing noise measurement at this location (#5) and the proposed 2040 noise levels. The existing noise measurement location #5 was taken on the Magnolia West High School property near the proposed project between the high school detention pond and the high school. Southeast of the existing noise measurement location #5 there is large commercial outside air conditioning equipment. The air conditioning equipment was running continuously while the existing noise measurement #5 was being recorded. This is the reason the existing noise measurement #5 is higher when compared to the other six existing noise measurements that were recorded for the proposed project. The FHWA traffic noise modeling software is not capable of accounting for noise from the air conditioning equipment.

All noise impacts shown in Table 3 are relative impacts because this project is a new location project. The proposed FM 1488 Relief Route would traverse areas with dominant noise sources that do not include a highway. That is the reason why the predicted noise levels substantially exceed the existing noise levels by more than 10 dB(A) at the impacted receivers.

As indicated in **Table 3**, the proposed project would result in traffic noise impacts and the following noise abatement measures were considered: traffic management, alteration of horizontal and/or vertical alignments, acquisition of undeveloped property to act as a buffer zone and the construction of noise barriers.

Before any abatement measure can be proposed for incorporation into the project, it must be both feasible and reasonable. In order to be "feasible," the abatement measure must be able to reduce

the noise level at greater than 50% of impacted, first row receivers by at least five dB(A); and to be "reasonable," it must not exceed the cost-effectiveness criterion of $25,000 for each receiver that would benefit by a reduction of at least five dB(A) and the abatement measure must be able to reduce the noise level at least one impacted, first row receiver by at least seven dB(A).

Traffic management – Control devices could be used to reduce the speed of the traffic; however, the minor benefit of one dB(A) per five mph reduction in speed does not outweigh the associated increase in congestion and air pollution. Other measures such as time or use restrictions for certain vehicles are prohibited on state highways.

Alteration of horizontal and/or vertical alignments – Any alteration of the proposed alignment would displace existing businesses, other residences and structures and not be cost effective/reasonable.

Buffer zone – The acquisition of undeveloped property to act as a buffer zone is designed to avoid rather than abate traffic noise impacts and, therefore, is not feasible.

Noise barriers – This is the most commonly used noise abatement measure. Noise barriers were evaluated for each of the impacted receiver locations with the following results:

R1, R11, R12, R13, R14, R15, R16, R17 and R39: These receivers are separate, individual residences. Noise barriers that would achieve the minimum feasible reduction of 5 dB(A) while achieving a 7 dB(A) noise reduction design goal at each of these receivers would exceed the reasonable, cost-effectiveness criterion of $25,000.

R9: This receiver represents a special events venue (i.e. parties and weddings). Noise barriers that would achieve the minimum feasible reduction of 5 dB(A) while achieving a 7 dB(A) noise reduction design goal at this receiver would exceed the reasonable, cost-effectiveness criterion of $25,000.

R21, R22, R23, R24, R25, R28 and R32: These receivers are separate individual residences. These receivers represent a total of 13 residences. Noise barriers were modeled along the ROW at this location. Noise barriers that would achieve the minimum feasible reduction of 5 dB(A) for at least 50 percent of these receivers while achieving a 7 dB(A) noise reduction design goal for at least one of these receivers would exceed the reasonable, cost-effectiveness criterion of $25,000.

None of the above noise abatement measures would be both feasible and reasonable; therefore, no abatement measures are proposed for this project.

To avoid noise impacts that may result from future development of properties adjacent to the project, local officials responsible for land use control programs must ensure, to the maximum extent possible, no new activities are planned or constructed along or within the following predicted (2040) noise impact contours.

Table 4: 2040 Noise Impact Contours

Land Use	Impact Contour	Distance from ROW
FM 1488 (Magnolia Relief Route) between the beginning of the project and beginning of the Proposed SH 249 Extension Direct Connectors (station 205+00.00)		
NAC Category B & C	66 dB(A)	Inside ROW
NAC Category E	71 dB(A)	Inside ROW
East of FM 1488 (Magnolia Relief Route) between beginning of the Proposed SH 249 Extension Direct Connectors (station 205+00.00) and the end of the project		
NAC Category B & C	66 dB(A)	175 feet
NAC Category E	71 dB(A)	Inside ROW
West of FM 1488 (Magnolia Relief Route) between approximately 2800 feet south of the Proposed SH 249 Extension and the end of the project		
NAC Category B & C	66 dB(A)	125 feet
NAC Category E	71 dB(A)	Inside ROW

Noise associated with the construction of the project is difficult to predict. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns. However, construction normally occurs during daylight hours when occasional loud noises are more tolerable. None of the receivers is expected to be exposed to construction noise for a long duration; therefore, any extended disruption of normal activities is not expected. Provisions will be included in the plans and specifications that require the contractor to make every reasonable effort to minimize construction noise through abatement measures such as work-hour controls and proper maintenance of muffler systems.

A copy of the traffic noise analysis will be available to local officials. On the date of approval of this document (Date of Public Knowledge), FHWA and TxDOT are no longer responsible for providing noise abatement for new development adjacent to the project.

There would be no change to the existing noise levels under the No Build Alternative.

5.15 Induced Growth

Indirect impacts are defined as those caused by an action and are later in time or farther removed in distance, but still reasonably foreseeable. Indirect impacts are not directly associated with the construction and operation of the roadway and are often caused by related development and growth. This, in turn, can result in a variety of related impacts such as changes in land use, population density or growth rate, economic vitality, and impacts on air and water and other natural resources. Under the federal CEQ regulations, an indirect impacts analysis must identify and eliminate issues which are not significant or which have been covered by prior environmental review, while determining which issues should be analyzed in-depth. The analysis generally includes the following efforts:

1. Define the methodology.
2. Define the area of influence (AOI) and study timeframe.
3. Identify areas subject to induced growth in the AOI.
4. Determine if growth is likely to occur in the induced growth areas.
5. Identify resources subject to induced growth impacts.
6. Identify mitigation if applicable.

Step 1: Define the Methodology
A planning judgment approach, supported by the planning assumptions and land use predictions made by City of Magnolia staff, was utilized to identify anticipated development trends and the probability of the proposed project to influence local land use decisions within the AOI. An essential aspect of scoping the proposed project for potential indirect induced growth is coordination with local government staff who know the characteristics of the community and are familiar with the current plans for addressing socioeconomic issues.

Accordingly, the City of Magnolia's City Administrator was consulted in February 2017 to obtain input relevant to defining the AOI. The City Administrator also provided information about current planning documents, proposed development projects, and other data relevant to the analysis of the proposed project's indirect and cumulative impacts.

The discussion of indirect induced growth impacts includes information from an interview with city staff, planning documents, and various maps made publicly available by the City of Magnolia. Information from the City Administrator also guided the exercise of planning judgment, which extends throughout the analysis of indirect impacts.

This analysis provides quantified acreages of land uses within the AOI when appropriate; however, given the uncertainty inherent in predicting induced growth, some qualitative assumptions and assessments are necessary.

Step 2: Define the AOI and study timeframe
The analysis assesses the potential indirect induced growth impacts and the possible geographic range of those impacts. This is done by considering the attributes and context of the proposed project, which leads to a general assessment of the level of impacts anticipated. In addition, the assessment considers the distance from the project construction footprint where those impacts attenuate to a negligible level.

This approach helps determine the level of effort and approach needed to complete the analysis and is also vital in achieving the second objective of determining the geographic extent of the indirect impacts study area or AOI.

The proposed project footprint falls outside of the City of Magnolia's city limits but is located within the city's extra-territorial jurisdiction (ETJ). Information from the interview held with the City Administrator guided the exercise of planning judgment, which necessarily extends throughout the analysis of indirect impacts.

The community northwest of Magnolia, Texas, through which the project would traverse, consists mostly of scattered rural residences with some ranching and light industry. According to the city's *Thoroughfare Plan and Comprehensive Plan*, the proposed Magnolia Relief Route is considered a proposed minor arterial (City of Magnolia 2013). The existing FM 1488 is a primary east-west arterial that crosses north Magnolia. The City's adopted *Thoroughfare Plan* calls for completing the corridor by constructing an outer loop. In the study area, the existing land uses along the proposed Magnolia Relief Route are a mix of single-family residential, scattered commercial, mixed use (residential/agricultural), and undeveloped/agricultural parcels.

The AOI encompasses an area of approximately 5,950 acres. Based on feedback obtained during the interview with city staff, the AOI was generally defined as the existing FM 1488 to the south, the Montgomery-Waller county boundary to the west, Mill Creek to the north, and the proposed

SH 249 to the east. Parcels within the proposed SH 249 study area, including approximately a quarter mile of the proposed Magnolia Relief Route west of proposed SH 249, were not considered for this analysis as indirect and induced growth was analyzed in the SH 249 Final Environmental Impact Statement (FEIS). Step 4 contains additional information regarding the proposed SH 249 extension. The interview with city staff confirmed the provision of altered or new access to the parcels bound by the AOI has strong potential to encourage future land development. The AOI boundary is illustrated on **Exhibit F** in **Appendix F**.

Proposed SH 249 was chosen as the eastern boundary as it would be a major traffic generator for the FM 1488 Relief Route and would be the nearest major roadway. The proposed SH 249 major thoroughfare would have a greater impact on induced growth than the minor artery of the proposed FM 1488 Relief Route. Existing FM 1488 was chosen as the southern boundary of the FM 1488 Relief Route because the direction of potential induced growth would be north of existing FM 1488. Additionally, the City's adopted *Thoroughfare Plan* indicates heavy residential development south of existing FM 1488 in recent years that would preclude the area south of FM 1488 from induced growth impacts. The plan also includes plans to complete an outer loop which would include a separate roadway south of existing FM 1488 that would have a greater impact on induced growth.

The study timeframe considers indirect induced growth impacts that may occur between the time of project construction (2020) and 2040. This time frame captures the *Comprehensive Plan's* 2033 planning horizon (City of Magnolia 2013) and the 2040 planning horizon for the Houston-Galveston Area Council's (H-GAC) 2040 Regional Transportation Plan (RTP) (H-GAC 2015).

Step 3: Identify areas subject to induced growth in the AOI

Table 5 shows the acres in each land use category represented in the approximate 5,950 acre AOI based on Montgomery County Appraisal District (MCAD) land use classifications. Based on this information, the predominant land use within the AOI is agricultural/undeveloped with residential, mixed use (residential/agricultural), and commercial distributed throughout the AOI. **Appendix F: Exhibit F** illustrates general themes of existing land uses within the AOI based on Montgomery County land use classifications (MCAD 2017).

Table 5: Existing Land Uses within the Area of Influence

Land Use Category per MCAD	Acres	Percent AOI
Agricultural/Undeveloped	2,428.3	40.8%
Cemetery	0.1	<0.0%
Church	22.8	0.4%
Commercial	220.4	3.7%
Floodplain	462	7.8%
Industrial	38.9	0.7%
Mixed – Residential/Agricultural	513.9	8.6%
Residential	1,903.9	32.0%
Right-of-Way	273.6	4.6%
School	86	1.4%
Total	**5,949.9**	**100%**

Source: Montgomery County Appraisal District (MCAD 2017).

Developable land and potential sites for redevelopment are present within the AOI. The land use categories presented in **Table 5** are not intended to reflect whether the parcels are developed or undeveloped, but rather provide an idea of existing land uses within the AOI based on data maintained by Montgomery Central Appraisal District. Based on the interview with the City Administrator, several tracts of undeveloped property within the AOI should be considered "areas of potential development" for the purposes of this analysis. There are also a few parcels that are likely to redevelop within the AOI.

Step 4: Determine if growth is likely to occur in the induced growth areas

Regional and Local Trend Data

This step presents information on development trends and community goals within the AOI. Following this discussion, areas of potential future development are identified and quantitatively evaluated. As noted in NCHRP Report 466: *Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects*, "indirect effects can be linked to direct effects in a causal chain" (NCHRP 2002). Reasonably foreseeable effects are "sufficiently likely to occur that a person of ordinary prudence would take them into account in making a decision" (NCHRP 2002). Reasonably foreseeable events must be probable, not just possible. Probability also helps distinguish indirect effects from direct effects: direct effects are often inevitable, while indirect effects are simply probable. The NCHRP Report 466 states "effects that can be classified as possible but not probable may be excluded from consideration." Therefore, this section seeks to determine whether development in the AOI induced by the project is probable.

According to the decennial Census, the population of Magnolia in 2010 was 1,393 up 20.2 percent from 1,111 in 2000. The H-GAC develops a Regional Growth Forecast, including population, employment, and land use, for an eight-county area (Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties). According to the H-GAC projections for households and jobs, Montgomery County and the City of Magnolia are anticipated to see moderate to strong growth in households and slow to moderate growth in jobs between 2015 and 2040 (see **Table 6**). The census tracts (CT) which encompass the AOI are projected to see strong growth for households and comparatively slower growth for jobs; this indicates residential growth is expected over commercial or industrial growth at the regional planning level, along with household populations commuting to their places of employment outside of the AOI.

Table 6: 2015-2040 Projected Household and Job Growth

Place	2015 Households	2040 Households	Percent Growth Households 2015-2040	2015 Jobs	2040 Jobs	Percent Growth Jobs 2015-2040
Montgomery County	215,998	451,125	**108.9%**	163,326	239,950	**42.6%**
City of Magnolia	1,615	2,667	**65.1%**	2,449	2,775	**13.3%**
CT 6902.01	4,504	8,928	**98.2%**	1,428	1,852	**29.7%**
CT 6903	3,008	7,378	**145.3%**	1,972	2,415	**22.5%**

Source: H-GAC 2016 Release of Regional Growth Forecast (H-GAC 2016a).

Based on discussions with the City Administrator, the future construction of major transportation projects such as SH 249 and planned communities (e.g. the 5,000+ acre Magnolia Woods master-planned community which is located northwest of the AOI) in the general vicinity of Montgomery

County have been identified as the primary root cause for expected population growth. Given the largely undeveloped nature of the area and the expected continuation of the county's and city's high growth rates, city staff believes that larger, undeveloped parcels in this general area will likely be developed through 2040 as a result of increasing urbanization brought forth by forecasted population growth. The City of Magnolia's *Thoroughfare Plan*, a component of their *Comprehensive Plan*, includes the proposed project; the future SH 249 Extension (Segment 1); as well as, a proposed new location extension of FM 149 from FM 149 to FM 1774 (see below); new location extensions of Woodway Manor and Marion/Little Twig; and an unnamed future collector roadway intersecting with FM 1488 east of Little Bough. Another component of the *Comprehensive Plan*, the Areas of Influence map, also indicates a major growth area along the proposed Magnolia Relief Route alignment generally north of FM 1774.

Based on these demographic and land use trends, it can be concluded that there is a strong potential for future residential growth throughout the AOI, and connectivity to growing markets for jobs and employers outside of the AOI (commuting community).

Local Plans

A variety of plans exist to promote, guide, and monitor various development activities in the City of Magnolia and Montgomery County. The proposed project area is also within the jurisdiction of the H-GAC's 2040 RTP. A brief description of the most influential aspects of local plans in relation to the proposed project and surrounding AOI is presented below.

City of Magnolia

The City of Magnolia's Magnolia *On the Move: 20-Year Comprehensive Plan*, adopted on April 9, 2013, is an official policy document intended to provide a policy guide to influence growth and development for the next 20 years (City of Magnolia 2013). *The Plan* describes the community's needs and goals related to land use and community character, growth management, transportation and utility infrastructure, parks and amenities, housing and neighborhoods, and revitalization of the Magnolia Town Center. *The Plan* intends to provide a balance between preserving the community's identity and small-town charm with growth needs, protecting the city's identity, and anticipating new demands on the city's infrastructure and natural resources. *The Plan* includes a *Future Land Use and Character Plan* map that provides an outlook for the future use of land in the city. The Future Land Use and Character Plan describes several forecasted land uses within the AOI, including (generally from west to east): rural; site for a future Lone Star College – Montgomery Center site west of FM 1486; neighborhood conservation north of Magnolia West High School (i.e. semi-urban residential areas that have been identified to protect their current character); public and institutional (Magnolia West High School); suburban residential; rural estate; another neighborhood conservation area north of the Windmill Estate subdivision; rural; and the Magnolia Ltd 1138 property (Legacy Trust) at the intersection of SH 249.

The City of Magnolia's Unified Development Code, a collection of land development regulations, was adopted by the City Council on October 13, 2015 (City of Magnolia 2015). It contains detailed guidance pertaining to zoning districts and land uses; lot standards and densities; design standards; site development and design regulations; and establishing standards for the removal, maintenance and planting of trees. Zoning regulations, along with future land use plans, form a key component to city management of urban land use.

The City of Magnolia enacted city ordinances that created several zoning districts, including residential, nonresidential, and Corridor Overlay District with designated use authorizations and restrictions within the AOI.

Montgomery County

Montgomery County's *Connections: Montgomery County Thoroughfare Plan – 2016*, adopted January 26, 2016, was prepared by the H-GAC, in partnership with Montgomery County and the City of Conroe, to provide the County with a planning tool that can be used to manage, guide, and design a transportation network (H-GAC 2016b). The Plan would allow the orderly and efficient expansion and improvement of the roadway system to serve existing and future transportation needs. The Plan identifies the following roadway improvements:

- proposed Magnolia Loop (the proposed project);
- a future extension of the Magnolia Loop project south of FM 1488 accommodating six new lanes;
- widening FM 1488 from two to four lanes;
- widening FM 1774 from two to six lanes;
- widening FM 1486 from two to six lanes north of FM 1774;
- proposed new location of FM 1486 south of FM 1774 to FM 1488 accommodating six new lanes;
- proposed new location extension of FM 149 from FM 149 to FM 1774 (New Road [NR] 107 on map) accommodating six new lanes;
- proposed new location for future SH 249 (Segment 1);
- proposed new location extension of Magnolia Ridge Boulevard from FM 1488 to the future SH 249 (Segment 1) accommodating four new lanes;
- proposed new location roadway (NR 116) from Magnolia Ridge Boulevard to NR 103 accommodating four new lanes; and,
- proposed new location of NR 103 from FM 1488 to FM 149 accommodating four new lanes.

Houston-Galveston Area Council (H-GAC)

The H-GAC's *2040 RTP* guides transportation planning projects in the eight-county region. Two of the goals in the RTP relevant to the proposed project are "Improve Safety" and "Manage and Mitigate Congestion" (H-GAC 2015). The proposed project would help achieve both of these goals, as the proposed divided roadway reduces the potential for head-on collisions and improves safety; the additional capacity is expected to increase connectivity to local roads and the regional highway system. The proposed project is consistent with the plan.

<u>Potential for Induced Development</u>

The preceding sections have demonstrated the strong potential for growth in the AOI during the analysis period of 2020–2040. This section will evaluate the nature of this growth and attempt to determine whether it can be causally linked to the proposed project. The evaluation of whether the proposed project is likely to result in project-induced land use change is patterned after the procedures in the NCHRP Project 25-25, Task 22. Project induced land use change can include project-induced development, the redevelopment of previously developed land, or a change in the rate of development/redevelopment. Of the six land use forecasting tools introduced in the report, the "planning judgment" forecasting tool was used as the framework for the analysis. The planning judgment method uses information from a literature review, an assessment of existing

and forecasted local conditions, and the opinions and experiences of professionals to make reasonable judgments about potential project-induced impacts. To this end, input from the City of Magnolia's City Administrator was obtained in an effort to assess the potential for project induced land use impacts.

The proposed improvements would provide a new southwest-northeast travel alternative by constructing the Magnolia Relief Route around the northwest side of Magnolia, decreasing traffic congestion in the downtown area. The Relief Route would also include a bridge over the UPRR and FM 1774, decreasing the travel time and traffic backups in downtown Magnolia when a train is passing through. Because the project is a new-location roadway, it has the potential to open up new areas for development and substantially change access for adjacent parcels.

The City of Magnolia's City Administrator was asked where development is expected to occur and whether the proposed improvements would induce growth. Specifically, he was asked the following questions:

- Are there planned or platted new developments within this area? Areas that are platted but not yet developed?
- Which areas do you think would likely be developed between the present and 2040 as a result of the proposed Magnolia Relief Route?
- In your opinion, will transportation improvements induce land use development in your jurisdiction, alone or in conjunction with other factors?
- How would the proposed mobility improvements affect existing development and future growth in the project study area?
- Would the proposed construction of these improvements affect the rate of land use development in your jurisdiction?
- If development does occur, would it be consistent with your city's plans?

Paul Mendes, City Administrator, commented on growth trends in the area and provided information regarding the potential for development and redevelopment within the AOI (Mendes 2017). Mr. Mendes confirmed a couple of planned developments are platted and planned within the AOI at the time of the interview. **Appendix F: Exhibit G** illustrates parcels where approximately 94 acres of development are in progress. These areas include a future commercial development near where the project would begin along FM 1488, and Mustang Ridge, a residential development where 244 homes are being platted. The Mustang Ridge subdivision is currently under review by city staff; the developers of this subdivision are fully aware of the proposed Magnolia Relief Route.

The interview with Mr. Mendes indicated that approximately 144 acres of undeveloped tracts of land within the AOI that are immediately adjacent to the proposed Relief Route are likely to develop as single-family residential or commercial land uses. A few parcels of land encompassing approximately 161 acres are also expected to redevelop near the interchange with FM 1774. For example, the 152-acre Escondido Ranch tract, which was developed in the past with single-family homes that were damaged by wildfires in 2011, is planned to be redeveloped for mixed-uses in the future.

Digitized boundaries of these specific areas of potential development and redevelopment are illustrated in **Appendix F: Exhibit G**. The combined areas of potential development and redevelopment total approximately 304 acres, which is approximately 5 percent of the 5,950-acre AOI. From this point forward, the approximate 304 acres of potential development and

redevelopment will be considered commensurate to areas subject to induced growth potential within the AOI. The exact type, location, timing, and density of future developments within the "potential development" areas are unknown at this stage of project development. However, it is assumed that all future development would comply with the city's Unified Development Code (land development regulations).

According to the interview results, Mr. Mendes stated the AOI would likely experience development pressure if the proposed Relief Route is constructed and noted that the proposed Relief Route would definitely increase the rate of land development.

Step 5: Identify resources subject to induced growth impacts
Based on an interview with city staff and a cartographic assessment, approximately 304 acres of land have indirect induced growth potential within the AOI. The Ecological Mapping Systems of Texas (EMST) was used to determine which resources are present in the multiple areas identified for potential development; **Table 7** summarizes the vegetation types present. It is assumed that the provision of increased access and connectivity to local roads and the regional highway system would enhance development potential for the undeveloped areas adjacent to the proposed project as illustrated in **Appendix F: Exhibit G**

Table 7: Vegetation Type in Areas of Potential Development and Redevelopment

EMST Vegetation Type	Acres
Areas of Potential Development	
Gulf Coast: Coastal Prairie	0.1
Open Water	0.5
Pine Plantation > 3 meters tall	2.2
Pineywoods: Disturbance or Tame Grassland	28.2
Pineywoods: Pine – Hardwood Forest or Plantation	1.1
Pineywoods: Pine Forest or Plantation	26.1
Pineywoods: Upland Hardwood Forest	85.4
Post Oak Savanna: Post Oak Motte and Woodland	<0.1
Subtotal	**143.6**
Areas of Potential Redevelopment	
Gulf Coast: Coastal Prairie	6.3
Native Invasive: Deciduous Woodland	3.3
Open Water	4.4
Pineywoods: Disturbance or Tame Grassland	53.1
Pineywoods: Pine Forest or Plantation	13.1
Pineywoods: Upland Hardwood Forest	69.2
Post Oak Savanna: Redcedar Motte and Woodland	8.7
Urban High Intensity	<0.1
Urban Low Intensity	2.6
Subtotal	**160.7**
Total	**304.3**

Source: Project team, 2017.

Table 8 includes a description of resources present in the areas of potential development and redevelopment within the AOI. No formal surveys have been conducted throughout all of the areas of potential development and redevelopment at the time of this EA preparation for historic-age properties and archeological resources. Preliminary consultation with TxDOT developed potential archeological liability maps (PALM) indicates low to medium potential for archeological impacts within the areas of potential development.

Table 8: Resources Analyzed for Induced Growth Impacts

Resource	Could the Resources be indirectly impacted by potential induced growth?	Is the resource at risk?
Waters of the U.S., including Wetlands	Formal wetland delineations have not been conducted within all of the areas of potential development and redevelopment; however, if it was verified that the wetlands and waters were Waters of the U.S., then they would be protected by Section 404 of the Clean Water Act (CWA). Approximate acreages of National Wetland Inventory (NWI) wetlands within the areas of potential development and redevelopment areas – 2.9 and 7 acres, respectively. Approximate National Hydrography Dataset (NHD) stream lengths within the areas of potential development and redevelopment areas – 0.6 and 0.2 mile, respectively.	No. The U.S. Army Corps of Engineers (USACE) regulates the discharge of dredged and fill material into waters of the U.S., including wetlands, under Section 404 of the CWA.
Floodplains	Yes; approximately 0.2 acre of the 100-year floodplain is located within areas of potential development. No floodplains are located within areas of potential redevelopment.	Future development within floodplains would be conducted in accordance with the NFIP and local regulations. Storm water detention facilities and hydraulic features would be used to offset potential increases in storm water flows due to the addition of impermeable cover, and to maintain the storage capacity of floodplains. Individual developments would be responsible for calculating and detaining additional runoff generated by the construction of impermeable surfaces and maintaining conveyance capacities to accommodate expected flood flows. Future developments would be expected to follow the guidelines of Section 305(b), Section 303(d), Section 401, and Section 404 of the CWA, which includes avoidance,

Resource	Could the Resources be indirectly impacted by potential induced growth?	Is the resource at risk?
		minimization, and compensation; therefore, indirect impacts of future developments would not be substantial. Future developments within floodplains would be expected to follow the guidelines of the NFIP; therefore, indirect impacts of existing and future development would not substantially impact the extent of the 100 year floodplain and therefore are not carried forward.
Vegetation and Wildlife Habitat	Yes; the areas of potential development and redevelopment are vegetated to varying degrees and provide wildlife habitat.	No. Public and private development would be regulated by the City of Magnolia's Unified Development Code which includes several ordinances related to site development, land clearing and tree preservation, and tree protection and maintenance.
Threatened and Endangered Species	Yes; suitable habitat for the federally endangered Red-cockaded Woodpecker was observed within the project area. Although neither this species nor any other federally listed species were observed during field observations, visual inspection of suitable habitat was limited to where right-of-entry was granted or visible from public right-of-way. A review of Texas Parks and Wildlife Department's (TPWD) Natural Diversity Database did not indicate any federally-listed species present within the project area and a review of the U.S. Fish and Wildlife Service (USFWS) Critical Habitat Portal did not indicate any federally-protected land within the AOI. Potential impacts to State-listed species would be possible, but the potential for encountering these species during construction is low.	Yes; however, the Endangered Species Act affords protection for federally-listed threatened and endangered species and their habitats. The USFWS and TPWD maintain lists of potential occurrences for listed species in each Texas county. State regulations prohibit harm to individuals of state-listed species. All development, whether public or privately funded, is subject to State and Federal regulations.
Topography and Soils	Yes; approximately 15.3 acres of prime farmland soils are documented within the	Yes; however, conversion or development of prime farmland

Resource	Could the Resources be indirectly impacted by potential induced growth?	Is the resource at risk?
	areas of potential redevelopment. No prime farmland soils are present within the potential development areas. Agricultural land and pasture could be disturbed by potential development and redevelopment.	would be in compliance with appropriate City of Magnolia permitting and general land use policies. Projects completed by a federal agency would be subject to Farmland Protection Policy Act (FPPA) requirements.
Community Resources (includes businesses and residences)	Yes; property values could be influenced by future development. Additional tax revenue would be generated by potential induced development and redevelopment.	No.

Source: Project team, 2017.
Note – Separate technical reports documenting the direct impacts of the proposed project have been prepared for the resources listed in this table. Best available information was used at the time of this report preparation to assess the impacts associated with potential induced growth.

Undeveloped areas that are located nearer to the City of Magnolia and other existing development would likely be the initial areas consumed to accommodate anticipated population and employment growth. Human disturbance and activity levels in these areas may not be conducive to supporting large numbers or diverse species of wildlife. Undeveloped areas that are further from existing development would not be expected to undergo major land use changes in the near term. Such areas, which may be only minimally disturbed by human activities, would continue to provide habitat for indigenous and migratory wildlife. However, regional population and economic growth may exert development pressure on many of these undeveloped tracts.

Any impacts to threatened and endangered species due to construction by others within the AOI would be addressed through compliance with the Endangered Species Act. Given the above-referenced information, fragmentation of habitat and impacts to threatened and endangered species are not considered substantial as a result of the proposed project and are not carried forward.

Additionally, impacts to water resources due to construction would be addressed through compliance with local, state, and federal actions and policies. The following identifies the various actions and policies protecting water resources.

The USACE administers Section 404 of the CWA and operates under a “no net loss” policy for protected wetlands, requiring avoidance and minimization of impacts, and compensatory mitigation for unavoidable impacts. Executive Order 11990, Protection of Wetlands, directs federal agencies to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. Public and private developers must identify impacts to jurisdictional wetlands and other jurisdictional waters of the U.S., in coordination with the USACE, prior to construction. Mitigation measures would be required to compensate for impacts to jurisdictional wetlands. Compensatory mitigation for non-jurisdictional waters of the U.S., including wetlands, would not be required as part of USACE permitting; therefore, functions provided by these waters may not be replaced. Because of the federal mandate with regard to wetlands, "no net loss" of wetlands is anticipated from any future land use.

In the State of Texas, the TPDES program implements the federal National Pollutant Discharge Elimination System program. The TCEQ administers storm water permits for construction projects disturbing at least five acres of land within the State of Texas. Therefore; any project that disturbs at least five acres of land would require a TPDES Construction General Permit (CGP) and a NOI would be required. Potential impacts to water quality would be mitigated through development and implementation of a SW3P, which would address measures to prevent or correct erosion that may develop during construction. BMPs for temporary and permanent soil erosion and sedimentation controls would be implemented, along with measures to prevent/control hazardous material spills during construction. Storm water detention areas and vegetated open drainage ways with culverts would be designed to collect storm water discharges and to promote settling of suspended solids and reduce potential pollutant concentrations.

Step 6: Identify Mitigation

In summary, the overall consensus is that the proposed project would influence future land use within the AOI; however, such project-induced land use change is not only accounted for by the City of Magnolia's future planning documents and corresponding objectives but is also considered positive for the future of Magnolia.

This step of the indirect impacts analysis assesses the consequences of the expected induced growth impacts and considers/develops strategies or mitigation measures available as part of the existing regulation regimes that would apply to potential development projects. Virtually all of the readily identifiable indirect induced growth impacts would result from improvements to access and local roadway connectivity as a result of the proposed Magnolia Relief Route and project-induced land use change within the AOI. The potential areas of indirect induced growth (approximately 304 acres) account for approximately 5 percent of the AOI (5,950 acres).

Future land development activities would generally be private ventures regulated by the City of Magnolia's Unified Development Code. The regulations in the Code address environmental and social impacts by requiring mitigation as part of site design and construction such that development is in accordance with overall city objectives. In addition, the agencies and programs that would guide any development of a potential project would be similar to the typical mitigation and permitting measures required of TxDOT. For example, all development (public or private developers) must comply with flood control regulations under Federal Emergency Management Agency (FEMA) and the local floodplain administration, the Endangered Species Act, the CWA, CWA Section 401 Water Quality Certification requirements, CWA Section 404 permits for projects impacting waters of the U.S., and other regulations requiring mitigation if there are effects on species habitat.

Ultimately, because the proposed project is not anticipated to conflict with City of Magnolia or Montgomery County development goals or cause substantial negative indirect induced growth impacts, the requirement for mitigation of environmental impacts would be limited to mitigating only the direct impacts associated with this proposed project. Any mitigation for project-induced land development impacts that may arise after construction of the proposed project would be overseen by the City of Magnolia and would be the responsibility of the land developer. Mitigation for indirect induced growth impacts would not be required of the

There would be no induced growth impacts under the No-Build Alternative.

Encroachment Alteration Impacts Analysis

Encroachment-alteration impacts are defined as the alteration of the behavior and functioning of the affected environment caused by the project but separated from it by time and/or space.

Potential indirect impacts were identified and examined for the potential to be substantial. As the project is on new location, the encroachment-alteration effects considered to be potentially substantial are effects to wildlife, water resources, and socioeconomic resources. Encroachment-alteration impacts are not anticipated for the remaining resources analyzed in Section 5.0. The Preferred Alternative would require approximately 155 acres of additional ROW and convert ranchland and undeveloped forested area to a transportation facility, approximately 2.4% of the AOI. Other than the acquisition of land for the proposed facility, land use in the project area is not anticipated to be substantially impacted. Project biologists and ecologists have determined that there would be no substantial ecological encroachment-alteration impacts as a result of the construction of the FM 1488 Relief Route. The following details the findings of the ecological encroachment alteration impacts.

Wildlife

The loss of wildlife habitat from the proposed project would occur within the proposed ROW. This construction could increase animals being struck by vehicles, as the proposed project would construct a roadway where one currently does not exist. No wildlife corridors were observed in the project area, but bridge structures and large culverts would provide safer crossing points for wildlife. The proposed project would be designed per current TxDOT standards and specifications requiring appropriate site distances and clear zones so that drivers could see deer and other large wildlife that may enter the ROW. While wildlife mortality is possible, for the above reasons it is not expected to be substantial. Based on the site visits conducted for parcels where ROE was granted, the proposed project is not anticipated to result in the take of federally-listed threatened or endangered species.

Water Resources

Encroachment-alteration impacts to water resources would include the potential alteration to stream flow characteristics. The proposed project would be culverted at stream crossings. This could alter the stream flow characteristic by straightening that section of stream. However, the streams that were observed during field site visits were predominately straight with few sharp meanders and steep banks. Therefore, it is not anticipated to substantially change the stream flow characteristic.

Increased impervious cover in the AOI can alter stream flow characteristics as well by allowing storm water to enter the streams at a higher rate which can increase the peak stream elevation during storms. This could lead to increased erosion and sedimentation. Additionally, clearing vegetation for the proposed project could increase the potential for erosion and sedimentation into creeks and tributaries within the AOI, six of which drain into Segment 1008A_01 of Mill Creek which is listed as threatened/impaired for depressed dissolved oxygen on the 2014 EPA approved 303(d) list. The proposed design includes drainage ditches parallel to the proposed FM 1488 relief route which would mitigate the potential impacts.

A total of 70 water supply wells are located within a one-half mile radius of the proposed project. The increase in impervious cover is not anticipated to impact groundwater or aquifers. The Preferred Alternative would require approximately 155 acres of additional ROW and convert ranchland and undeveloped forested area to a transportation facility, approximately 6% of the agricultural/undeveloped land within the AOI. Approximately 94% of the agricultural/undeveloped

land within the AOI would not be impacted by encroachment-alteration impacts therefore the proposed project should not have a substantial impact on groundwater.

Socioeconomic

Encroachment-alteration impacts to socioeconomic resources associated with the proposed project include impacts to land use, travel patterns, and access. While access to properties would be maintained, aerial imagery analysis indicates that individual property owners often use private dirt trails to access the different areas of their property or for travel between properties that may be impacted.

The proposed project would remove to some degree the pass-through traffic from existing FM 1488 within the City of Magnolia whose destinations are not located near FM 1488 within the City of Magnolia. This could potentially impact the businesses within the City who depend on through traffic. The businesses located along the existing FM 1488 corridor through downtown Magnolia that could be dependent on passing traffic include thirteen sit-down restaurants, ten fast food restaurants, three gas stations, and two hotels. Notices were sent out to adjacent property owners along existing FM 1488 in August 2015 for the September 22, 2015 public meeting. Additionally, notices were published twice in both the Houston Chronicle and La Voz (Spanish). No comments have been received by these businesses to date. Notices would also be sent out to adjacent property owners along existing FM 1488 for the public hearing as well as hand distributed to businesses along existing FM 1488. The redistribution of traffic created by the relief route may negatively affect these businesses, but the degree to which the impacts would be felt by these businesses are not known at this time. The proposed project is intended to alleviate congestion throughout downtown Magnolia which could result in both positive and negative effects to the local business climate.

Alternatively, a decrease in traffic congestion at the existing FM 1488/UPRR/FM 1774 intersection in conjunction with increased mobility, may lead to economic growth for businesses within the City of Magnolia by making the area a more attractive shopping location. The potential encroachment-alteration impacts to socioeconomic resources are not expected to disproportionally affect minority or low-income populations. This potential indirect impact is not anticipated to be substantial; however, it was determined that noting such an impact is merited.

Seventeen properties, including four pastures, would be bisected by the proposed project. TxDOT would provide for access to all of the bisected parcels.

The AOI would not be subject to encroachment-alteration impacts resulting from the proposed project under the No-Build Alternative.

5.16 Cumulative Impacts

Cumulative impacts are those that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

The proposed project would not have substantial direct or indirect impacts on any resource. The proposed project area has no resources in poor or declining health. According to the TxDOT Cumulative Impacts Decision Tree, if the proposed project meets these two criteria then a cumulative impact analysis is not required.

There would be no cumulative impacts under the No-Build Alternative.

5.17 Construction Phase Impacts

The proposed project construction would not require detours. Ingress and egress to any affected private, governmental, commercial, or retail establishments would be maintained throughout the construction period. Every effort would be made to preserve as much vegetation as possible within the ROW.

During the construction phase of the project, due to operations normally associated with road construction, there is a possibility that noise levels would be greater than normal in the areas adjacent to the ROW. Construction is normally limited to daylight hours when occasional loud noises are better tolerated. Due to the relatively short-term exposure periods imposed on any one receiver, extended disruption of normal activities is not considered likely. Reasonable efforts would be made to minimize construction noise.

During the construction phase of this project, temporary increases in PM and MSAT emissions may occur from construction activities. The primary construction-related emissions of PM are fugitive dust from site preparation, and the primary construction-related emissions of MSAT are diesel particulate matter from diesel powered construction equipment and vehicles.

The potential impacts of particulate matter emissions will be minimized by using fugitive dust control measures contained in standard specifications, as appropriate. The Texas Emissions Reduction Plan (TERP) provides financial incentives to reduce emissions from vehicles and equipment. TxDOT encourages construction contractors to use this and other local and federal incentive programs to the fullest extent possible to minimize diesel emissions. Information about the TERP program can be found at: https://www.tceq.texas.gov/airquality/terp.

However, considering the temporary and transient nature of construction-related emissions, the use of fugitive dust control measures, the encouragement of the use of TERP, and compliance with applicable regulatory requirements; it is not anticipated that emissions from construction of this project will have any significant impact on air quality in the area.

Reasonable measures would be taken to minimize the inconvenience to vehicles using intersecting roadways during the construction phase. Residential and business properties would be accessible during and after construction. The proposed project would improve the safety, efficiency, and operations of the roadway.

During project development, TxDOT would design, use, and promote construction practices that minimize adverse effects on both regulated and unregulated wildlife habitat. Existing vegetation, especially native trees, would be avoided and preserved wherever practicable.

The No Build Alternative does not include constructing the FM 1488 Magnolia Relief Route. Maintenance activities would continue on existing roadways in the area.

6.0 AGENCY COORDINATION

6.1 Texas Commission on Environmental Quality (TCEQ)

Section 303(d) of the Clean Water Act requires coordination with TCEQ if the project is located within five miles of and within the watershed of an impaired assessment unit. The proposed project is within five miles of an impaired creek.

This project is in Montgomery County which is part of the (Houston-Galveston-Brazoria area that has been designated by EPA as a moderate nonattainment area for ozone; therefore, the

transportation conformity rule applies. Because the proposed project would add capacity in a nonattainment area, coordination with TCEQ is required.

Coordination with TCEQ under TxDOT's MOU is required and has been completed (**Appendix G**).

6.2 U.S. Fish and Wildlife Service (USFWS)

The Fish and Wildlife Coordination Act (FWCA) of 1958 requires that federal agencies obtain comments from USFWS and TPWD. This coordination is required whenever a project involves impounding, diverting, or deepening a stream channel or other body of water.

The proposed project would not impound, divert, or deepen a stream channel or other body of water; therefore, no coordination under FWCA would be required.

The proposed project *may affect* populations or individuals of federally listed threatened or endangered species. Surveys to confirm potential for effect will be completed once ROW is acquired for those parcels where ROE was not obtained. Based on field reconnaissance, the proposed project would have *no impact* on any population or individuals of state listed threatened or endangered species with the proposed ROW where ROE was obtained. Consultation requirements with the USFWS would be determined after completion of the additional threatened or endangered species surveys for those parcels where ROE was not obtained. Coordination initiation letter can be found in **Appendix G**.

6.3 Texas Parks and Wildlife Department Coordination

In accordance with the TxDOT/TPWD MOU (effective September 1, 2013), a Tier I Site Assessment was conducted in order to define the amount and type of potential habitat within the project area and to determine the potential need for coordination with TPWD. The proposed project would disturb habitat that exceeds the amount indicated in the Threshold PA, therefore, early coordination with TPWD is required and has been completed. Coordination can be found in **Appendix G**.

6.4 Texas Historical Commission and Tribal Coordination

Coordination with the Texas Historical Commission and Tribal coordination is required and has been completed and can be found in **Appendix G**.

7.0 PUBLIC INVOLVEMENT

TxDOT has conducted four public meetings concerning the proposed construction of the FM 1488 Relief Route around the north side of Magnolia. The first public meeting, which was held on January 22, 2004 at Willie E. Williams Elementary School, introduced the project and the generalized study area. The second public meeting, which was held on May 20, 2004 at Willie E. Williams Elementary School, introduced the alternative alignments. The third public meeting, which was held on March 3, 2005 at Magnolia Elementary, focused on the recommended alternative. After the third public meeting, the project was placed on hold due to funding. In May 2015, project development resumed. The fourth public meeting, which was held on September 22, 2015 at Magnolia West High School located at 42202 FM 1774 in Magnolia, Texas, presented the alternatives considered and the Preferred Alternative to determine if the selected Preferred Alternative was still viable. All four public meetings were conducted in an open house format. At each public meeting, the public was invited to submit comments on the proposed project. This information was then used in development of the project. Comments received from the first three public meetings indicated that residents of Magnolia and those in attendance at the meetings would favor construction of the relief route as proposed.

Comment forms and e-mails were received during the comment period following the fourth public meeting. Although several comments stated support for the proposed project, many of the comments received did not support the project. Common reasons for opposition included impacts to private property.

A public meeting summary for the fourth public meeting containing all the public comments and TxDOT responses has been completed and filed with TxDOT's Houston District Office.

TxDOT conducted a public hearing on September 7, 2017 at Magnolia West High School located at 42202 FM 1774 in Magnolia, Texas. The purpose of the hearing was to present the Preferred Alternative and to receive public comments on the proposed project.

The Notice of Public Hearing was published on August 23 and 31, 2017 in the Houston Chronicle (English) and August 20 and September 3, 2017 in the La Voz (Spanish). The notice was published on the Houston Chronicle website on August 23, 2017. Additionally, flyers in English and Spanish were hand delivered to Magnolia area businesses. English and Spanish copies of the notice and flyer were mailed to property owners adjacent to existing FM 1488 and the proposed FM 1488 Magnolia Relief Route and other individuals who had expressed interest about the proposed project.

The public hearing was held in an open house format from approximately 5:30 p.m. to 6:30 p.m. and the formal hearing began at 6:30 p.m. Registration desks were located at the entrance to Magnolia West High School where attendees were invited to sign-in. Each person was provided with a pre-addressed comment form to share their thoughts regarding the proposed project; a speaker registration card if they wanted to speak at the hearing; and a project handout which contained a brief project description, purpose and need of the proposed project, schedule and existing and proposed typical sections. One elected official, one representative from the media and 73 members of the public signed in at the public hearing.

Citizens were given an opportunity to view the various exhibits that were on display. Exhibits included a welcome board, project location map, purpose and need, project description, typical sections, next steps, how to make comments, public hearing process, and large-scale schematic layouts of the proposed project overlaid onto aerial photographs. Additionally, project management staff was available to provide information and answer questions from citizens regarding the proposed project.

The public was encouraged to ask questions and make comments. The public was also allowed to speak at the formal hearing in order to have their verbal comments placed on public record. Although the public's comments were not responded to during the formal hearing, all verbal questions and comments were immediately responded to before and after the formal hearing.

The comment forms and e-mails were received during the comment period following the public hearing. Although the majority of the comments stated support for the proposed project, many of the comments received expressed concerns about the proposed intersection with FM 1486 near one of two entrances to Magnolia West High School and the potential for cut through traffic from existing FM 1488 to the proposed Relief Route through neighborhoods. Common reasons for opposition included potential impacts to businesses in downtown Magnolia and the belief that other projects in the project area will satisfy the purpose of this project.

After a review of both the verbal and written comments, no design changes were made to the proposed project.

Public Hearing Documentation for the proposed project containing all of the public comments and responses has been completed and filed with TxDOT's Houston District Office.

8.0 ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

Construction inspectors would monitor the construction phase of this proposed project. **Table 9** provides a list and brief explanation of the mitigation and monitoring activities that are part of the recommended Preferred Alternative.

Table 9: Environmental Permits, Issues, Commitments, Mitigation and Monitoring

Project Issues and Resources	Type of Impact	Mitigation and Monitoring Commitments
Asbestos/Lead Testing	Accidental Disturbance of Hazardous Materials	Buildings or structures acquired through the acquisition process are assessed and mitigated for asbestos, as needed, within the ROW process according to the TxDOT ROW Manual ROW Vol. 6 Miscellaneous Chapter 1 Section 5. Bridge structures being demolished or renovated are assessed and mitigated for asbestos and lead-containing-paint, as needed, within the construction process according to Standard Specification Item 6.10 (and applicable Provisions), and the TxDOT guidance document: Guidance for Handling Asbestos in Construction Projects, dated January 26, 2007.
Archeology	Accidental Discovery	In the event that previously unidentified cultural materials are discovered during construction, work in the immediate area of discovery would cease and TxDOT will be contacted. Archeological surveys would be completed in the eastern half of the APE, starting at S. Buckhorn Lane prior to any construction activities in the area.

Project Issues and Resources	Type of Impact	Mitigation and Monitoring Commitments
Construction	Traffic Detouring, Temporary Noise and Dust, etc.	Plans to ensure safe and efficient traffic flow during construction would be developed as part of the detailed construction plans for the proposed improvements. Potential air quality impacts from particulate matter emissions would be minimized by using fugitive dust control measures such as covering or treating disturbed areas with dust suppression techniques, sprinkling, covering loaded trucks, and other dust abatement controls, as appropriate. Other construction-related impacts (noise effects) would be addressed in compliance with standard TxDOT policies and procedures. During project development, TxDOT would design, use, and promote construction practices that minimize adverse effects on both regulated and unregulated wildlife habitat. Existing vegetation, especially native trees, would be avoided and preserved wherever practicable.
Displacements	Residential and Commercial Displacements	TxDOT would ensure that the needs of all displaced residents, including any disabled, minority, or elderly persons, are considered and accommodated to the extent practicable. Any ROW acquisition would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.
Drinking Water Systems	Plugged Well	One water well, located within the proposed ROW, would be plugged and abandoned in accordance with local, state, and federal laws.
Hazardous Materials	Accidental Disturbance of Hazardous Materials	The contractor would take appropriate measures to prevent, minimize, and control spillage of hazardous materials in the construction staging area(s). All material being removed or disposed of by the contractor would be done in accordance with applicable State and Federal laws as not to degrade ambient water quality. All of these measures would be enforced under appropriate specifications in the plan, specification and estimate stage of project development.

Project Issues and Resources	Type of Impact	Mitigation and Monitoring Commitments
Invasive Species and Beneficial Landscaping	Beneficial	Re-vegetation of disturbed areas would be in compliance with EO 13112 on Invasive Species. Regionally native and non-invasive plants would be used to the extent practicable. No landscaping would be part of the proposed project. Disturbed areas would be re-vegetated according to TxDOT's standard practices for rural areas, which to the extent practicable, is in compliance with Executive Memorandum on Beneficial Landscaping.
Migratory Bird Treaty Act	May affect populations or individuals	TxDOT would take all appropriate actions to prevent the take of migratory birds, their active nests, eggs, or young by the use of proper phasing of the project or other appropriate actions. A MBTA appropriate Environmental Permits, Issues, & Commitments will be included in the Plans, Specifications, and Estimates.
Section 404 of the Clean Water Act	Impacts to potentially jurisdictional waters	Since construction of the proposed project at seven tributary crossings would not cause the loss of more than 0.5 acre of jurisdictional waters of the U.S. at each crossing (single and complete project), the proposed project would qualify for authorization under Nationwide Permit 14 (NWP 14), Linear Transportation Projects. Because construction at crossings #1, #2, #3 and 6 would be more than 0.1 acre and construction crossing #7 would impact 0.005 acre of a jurisdictional wetland, Pre-Construction Notification would be required for all Nationwide Permits for this project. These crossings would be considered single and complete projects and therefore, 7 NWP 14s would be required for the proposed project. The design of the culverts would comply with the conditions required for use of NWP 14. No Individual Permit is anticipated for any crossing. Additional wetland determinations would need to be conducted once ROW has been acquired.
Texas Pollutant Discharge Elimination System	No Long-Term Water Quality Impacts	This project would include five or more acres of earth disturbance. TxDOT would comply with the TCEQ-TPDES-CGP. A SW3P would be implemented, and a construction site notice would be posted on the construction site. A NOI would be required.

Project Issues and Resources	Type of Impact	Mitigation and Monitoring Commitments
Threatened and Endangered Species	May affect populations or individuals	Consultation with USFWS has been initiated and will be concluded after property acquisition. Additional habitat surveys would be conducted on parcels not previously inspected during the site visit once ROW is acquired.
Water Quality	Storm Water Runoff from Construction	At least one BMP from each of the three categories of onsite water quality management (erosion control, post-construction TSS control, and sedimentation control) would be used on the proposed project. Other approved BMPs may be substituted, if necessary, using one of the BMPs from the same category. The construction contractor would take appropriate measures to prevent, minimize and control the spill of fuels, lubricants, and hazardous materials in the construction staging area. BMP's would be implemented in accordance with the SW3P.

9.0 CONCLUSION

TxDOT recommends the Preferred Alternative and a FONSI.

The Preferred Alternative would meet the purpose and need of the proposed project.

The proposed construction of the FM 1488 Relief Route would minimize and avoid, where possible, impacts to the natural and human environment. The proposed project would provide continuity with the continued growth in the area.

The engineering, social, economic, and environmental investigations conducted thus far on the proposed project, as proposed by the Preferred Alternative; indicate that the proposed project would result in no significant impacts of a level that would warrant an Environmental Impact Statement. Alternative selection was finalized after completion of the public review period, which included a public hearing. No significant impacts are identified as a result of public review or at the public hearing and a FONSI has been prepared for this proposed project as a basis for Federal-aid corridor location approval.

10.0 REFERENCES

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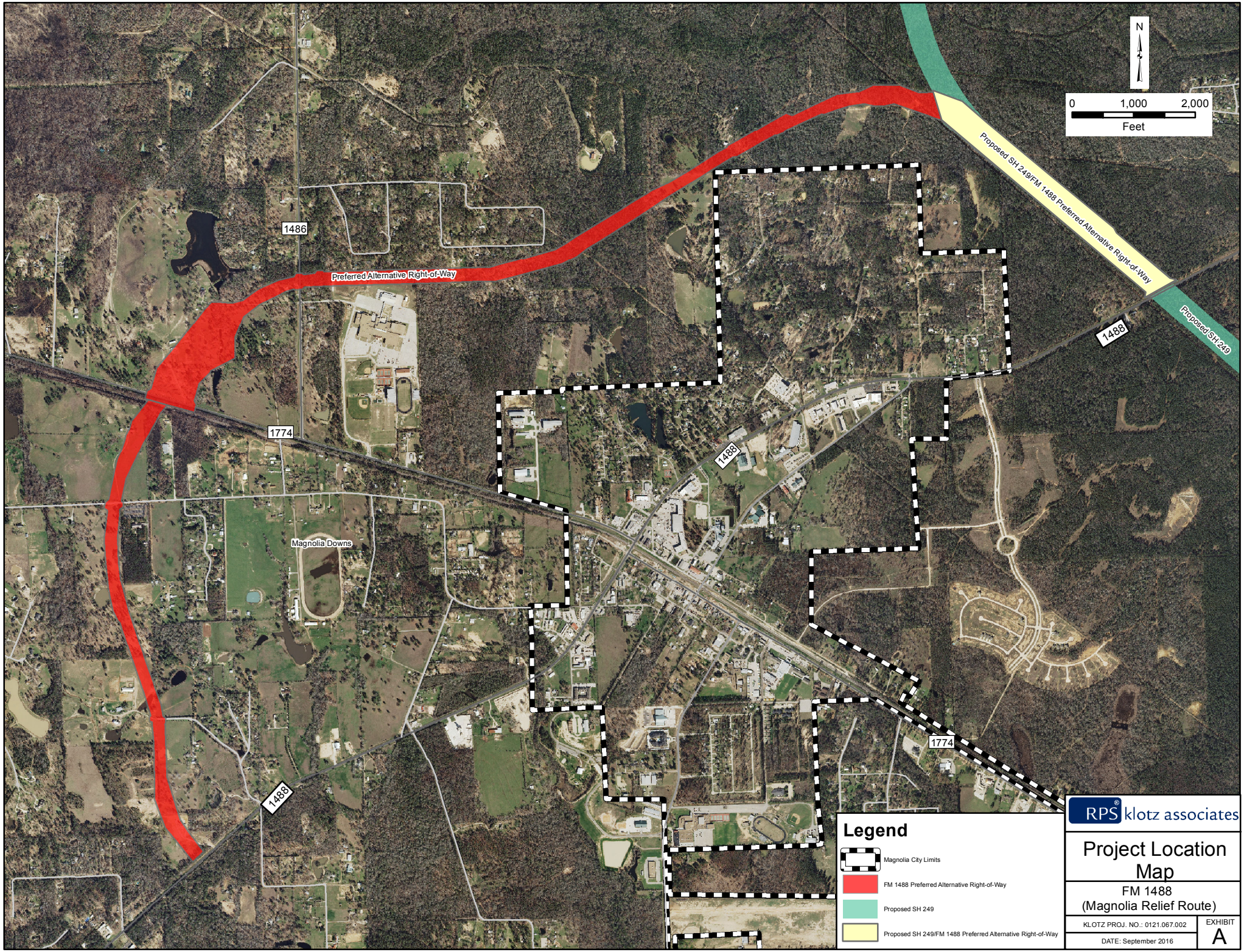
Appendix A

Project Location Map



RPS klotz associates

Project Location Map

FM 1488
(Magnolia Relief Route)

KLOTZ PROJ. NO.: 0121.067.002

DATE: September 2016

EXHIBIT
A

Source: ESRI

Appendix B

Project Photos

Photo is looking east. Pond located on parcel where ROE was not granted near western terminus.

Northeast Corner of Gulf Coast Stabilized Materials property west of the city of Magnolia, looking south.

Pond #2 located south of Old Hempstead Rd looking southeast.

Pond #2 located south of Old Hempstead Rd looking south.

Open grass area north of Old Hempstead Rd looking west.

Upland forested area north of FM 1774 west of FM 1486, looking north.

Property north of FM 1774 south of Kachel Lake looking south toward parcel that ROE had not been granted. Stone damn separating pond from sample point.

Property north of FM 1774 south of Kachel Lake looking north.

Property north of FM 1774 looking north toward Kachel Lake.

Looking southeast at man-made detention pond at Magnolia West High School.

Upland area, east of S Brenda Ln, looking south.

Unnamed tributary crossing of Mill Creek looking north. Southeast of S Brenda Ln and S Buckhorn Ln intersection.

Appendix C

Schematics

FM 1488
MAGNOLIA RELIEF ROUTE

PRELIMINARY DESIGN SCHEMATIC
MONTGOMERY COUNTY

LIMITS: FROM EXISTING FM 1488 WEST OF MAGNOLIA TO PROPOSED SH 249

PROJECT LENGTH: 5.15 MILES

DATE: APRIL 2017

Texas Department of Transportation
HOUSTON DISTRICT

INTERIM REVIEW DOCUMENT
NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

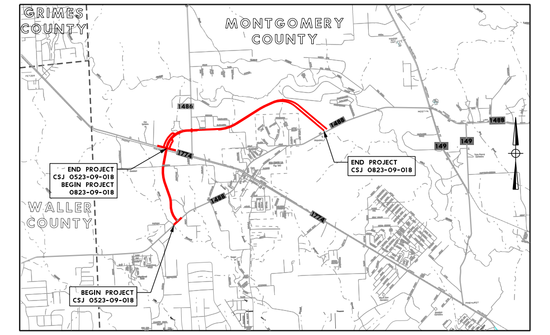
NAME	P.E. #	DATE
MARTIN GONZALEZ, IV, P.E.	80603	APRIL 2017

DESIGN SPEED	
MAINLANES	60 MPH
RAMPS	30 MPH
LOCAL ACCESS ROAD	20 MPH

FUNCTIONAL CLASS
MINOR COLLECTOR (SUBURBAN)

ADT FM 1488
2015 = 5,900
2040 = 9,900

PRELIMINARY
SUBJECT TO CHANGE



LOCATION MAP

SCALE: H: 1"= 200'
V: 1"= 20'

LEGEND

DESCRIPTION	SYMBOLOGY	LINE WT	COLOR
EXIST TRAFFIC DIRECTION	⇦	1	BLACK
PROPOSED TRAFFIC DIRECTION	⬅	1	BLACK
PROPOSED ROW		2	ORANGE
PROPOSED STRIPING		1	BLACK
PROPERTY LINES		1	ORANGE
PROPOSED CULVERTS		1	BLUE
PROPOSED RETAINING WALL		2	PURPLE
PROPOSED DETENTION POND		2	MAGENTA
PROPOSED PAVEMENT		2	BLUE
PROPOSED GRADE MEDIAN		2	GREEN
PROP LOCAL ACCESS ROAD		2	RED
PROPOSED BRIDGES		2	DARK BLUE
CURVE NUMBER	####-#	1	RED

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FM 1488
MAGNOLIA RELIEF ROUTE
PRELIMINARY DESIGN SCHEMATIC
MONTGOMERY COUNTY
LIMITS: FROM EXISTING FM 1488 WEST OF MAGNOLIA TO PROPOSED SH 249
PROJECT LENGTH: 5.15 MILES
DATE: APRIL 2017
HOUSTON DISTRICT
INTERIM REVIEW DOCUMENT
NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
PRELIMINARY
SUBJECT TO CHANGE
LOCATION MAP
LEGEND
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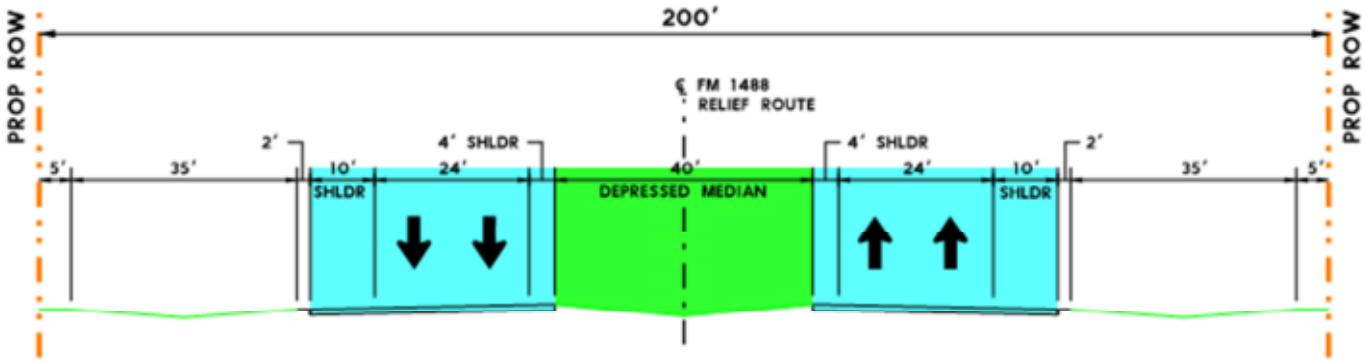
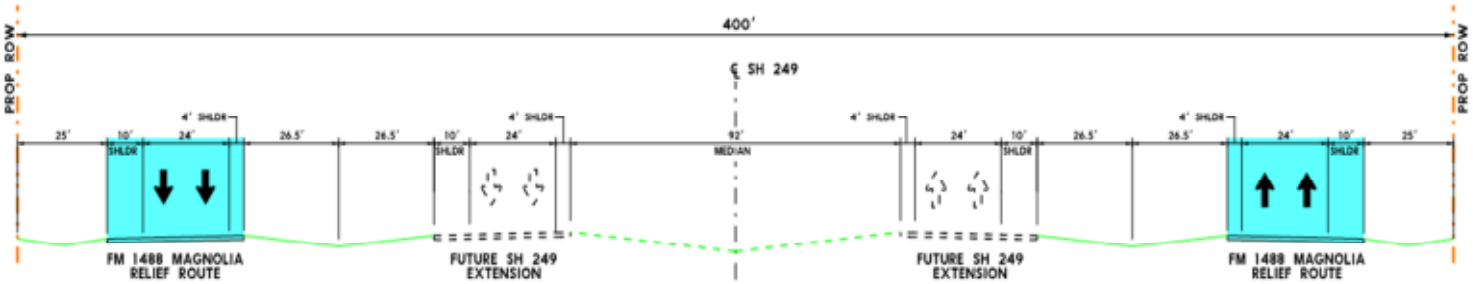
Appendix D

Typical Sections



PROPOSED RURAL AT-GRADE SECTION



PROPOSED TYPICAL AT-GRADE SECTION COINCIDENT WITH SH 249 EXTENSION

Appendix E

HGAC 2040 RTP Excerpts

REGIONAL INVESTMENT PROGRAMS, REGIONALLY SIGNIFICANT PROJECTS SUBJECT TO CONFORMITY

MPOID	CSJ	County	Facility	From	To	Description	Length (mi)	Main Lanes	Frontage Lanes	Fiscal Year	Analysis Year	Total Project Cost (M, YOE)
LOCAL HIGH CAPACITY TRANSIT												
15241		Harris	UNIVERSITY LINE LRT CORRIDOR	HILLCROFT TRANSIT CENTER	EASTWOOD TRANSIT CENTER	METRO SOLUTIONS - UNIVERSITY CORRIDOR	10.0	n/a	n/a	2021	2025	$ 1,000.00
14958		Harris	UPTOWN CORRIDOR	NORTHWEST TRANSIT CENTER	WESTPARK	METRO SOLUTIONS UPTOWN CORRIDOR	4.2	n/a	n/a	2035	2040	$ 625.00
11765		Harris	US 290	AT N. POST OAK		NORTHWEST CORRIDOR HEMPSTEAD INTERMODAL TERMINAL	0.0	n/a	n/a	2023	2025	$ 50.00
OTHER MAJOR ROADWAY IMPROVEMENTS												
60	0028-01-067	Harris	BU 90-U	IH 610 NE	E OF MESA RD (OLD FM 527)	WIDEN TO 6 LANE DIVIDED WITH CONTINUOUS LEFT TURN LANE AND BICYCLE ACCOMODATIONS	1.2	(4,6)	n/a	2020	2025	$ 30.00
11079		Harris	CROSBY LYNCHBURG RD	FM 1942	ARCADIAN RD	WIDEN FROM 2-LANE ASPHALT TO 4-LANE CONCRETE	0.5	(2,4)	n/a	2015	2017	$ 3.08
16315	0523-04-017	Montgomery	FM 1488	W OF JOSEPH RD	MONTGOMERY C/L	WIDEN FROM 2 TO 4-LANES WITH CONTINUOUS CENTER LFET TURN LANE AND BICYCLE ACCOMODATIONS	0.2	(2,4)	n/a	2023	2025	$ 2.71
501	0523-08-007	Montgomery	FM 1488	WALLER C/L	FM 1774	WIDEN FROM 2 TO 4-LANES WITH CONTINUOUS CENTER LEFT TURN LANE AND BICYCLE ACCOMMODATIONS	3.8	(2,4)	n/a	2023	2025	$ 48.07
16313	0523-08-013	Montgomery	FM 1488	EXISTING FM 1488, W OF MAGNOLIA	FM 1774	CONSTRUCT 4 LANE ROADWAY ON NEW LOCATION (MAGNOLIA BYPASS)	1.8	(0,4)	n/a	2024	2035	$ 19.09
499	0523-09-009	Montgomery	FM 1488	FM 1774	W OF FM 149	WIDEN FROM 2 TO 4-LANES WITH CONTINUOUS CENTER LEFT TURN LANE AND BICYCLE ACCOMMODATIONS	4.0	(2,4)	n/a	2023	2025	$ 54.68
16314	0523-09-018	Montgomery	FM 1488	FM 1774	PROPOSED SH 249	CONSTRUCT 4-LANE ROADWAY ON NEW LOCATION (MAGNOLIA BYPASS)	8.0	(0,4)	n/a	2024	2035	$ 22.12
204	1685-03-058	Harris	FM 1960	BF 1960A	E OF TWIGSWORTH LN	WIDEN TO 6-LANE DIVIDED WITH RAISED MEDIAN, CHANNELIZED TURN LANES	5.1	(4,6)	n/a	2020	2035	$ 89.33
16316	1685-03-098	Harris	FM 1960	E OF TWIGSWORTH LN	W OF SAN JACINTO RIVER BRIDGE	WIDEN FROM 4 TO 6 LANES AND 4 LANE OVERPASS AT WEST LAKE HOUSTON PKWY	2.6	(4,6)	n/a	2020	2025	$ 78.73
537	1062-02-009	Harris	FM 2100	HUFFMAN-CLEVELAND RD	FM 1960	WIDEN TO 4-LANE DIVIDED ROADWAY WITH RAISED MEDIAN, INTERSECTION IMPROVEMENTS AND PEDESTRIAN AND BICYCLE ACCOMMODATIONS	4.4	(2,4)	n/a	2022	2025	$ 151.10

Projects shaded in GRAY are exempt from conformity or are not considered regionally significant under H-GAC regional emissions analysis.

APPENDIX D -- 2040 RTP, PROJECTS UNDERGOING ENVIRONMENTAL ASSESSMENT

MPOID	CSJ	County	Sponsor	Facility	From	To	Description	Length	Fiscal Year	Total Project Cost (M, YOE)
OTHER MAJOR ROADWAY IMPROVEMENTS										
16313	0523-08-013	Montgomery	TXDOT HOUSTON DISTRICT	FM 1488	EXISTING FM 1488, W OF MAGNOLIA	FM 1774	CONSTRUCT 4 LANE ROADWAY ON NEW LOCATION (MAGNOLIA BYPASS)	1.8	2024	$ 19.09
499	0523-09-009	Montgomery	TXDOT HOUSTON DISTRICT	FM 1488	FM 1774	W OF FM 149	WIDEN FROM 2 TO 4-LANES WITH CONTINUOUS CENTER LEFT TURN LANE AND BICYCLE ACCOMMODATIONS	4.0	2023	$ 54.68
16314	0523-09-018	Montgomery	TXDOT HOUSTON DISTRICT	FM 1488	FM 1774	PROPOSED SH 249	CONSTRUCT 4-LANE ROADWAY ON NEW LOCATION (MAGNOLIA BYPASS)	8.0	2024	$ 22.12
187	0338-11-028	Montgomery	TXDOT HOUSTON DISTRICT	LP 336	E OF IH 45	FM 3083	WIDEN FROM 4 TO 6 LANES	3.2	2025	$ 28.62
965	0338-02-032	Montgomery	TXDOT HOUSTON DISTRICT	SH 105	GRIMES C/L	FM 149	WIDEN TO 4-LANE DIVIDED RURAL ROADWAY WITH INTERSECTION IMPROVEMENTS	6.8	2023	$ 115.38
504	0338-04-060	Montgomery	TXDOT HOUSTON DISTRICT	SH 105	10TH ST	SL 336	WIDEN TO 4-LANE DIVIDED ROADWAY WITH RAISED MEDIANS AND INTERSECTION IMPROVEMENTS	2.6	2021	$ 28.05
10125	0338-04-065	Montgomery	TXDOT HOUSTON DISTRICT	SH 105	LP 336	FM 1484	WIDEN TO 4-LANE DIVIDED ROADWAY (RAISED MEDIAN AND RURAL IN SECTIONS) WITH INTERSECTION IMPROVEMENTS	4.5	2021	$ 109.30
10124	0338-04-066	Montgomery	TXDOT HOUSTON DISTRICT	SH 105	FM 1484	SAN JACINTO C/L	WIDEN TO 4-LANE DIVIDED RURAL ROADWAY WITH INTERSECTION IMPROVEMENTS	6.1	2021	$ 112.70
7706	0338-07-019	Montgomery	TXDOT HOUSTON DISTRICT	SH 105	SAN JACINTO C/L	LIBERTY C/L	WIDEN TO 4-LANE DIVIDED RURAL ROADWAY WITH INTERSECTION IMPROVEMENTS	3.5	2023	$ 34.07
16343	0338-11-056	Montgomery	TXDOT HOUSTON DISTRICT	SL 336	FM 1314	IH 45	WIDEN FROM 2 TO 4 LANES	2.1	2022	$ 16.33
7060		Montgomery	MONTGOMERY COUNTY	WOODLANDS PKWY	SH 249	FM 2978	CONSTRUCT NEW 2-LANE DIVIDED	5.7	2023	$ 6.00
7705	0338-06-011	San Jacinto	TXDOT HOUSTON DISTRICT	SH 105	MONTGOMERY C/L	MONTGOMERY C/L	INFORMATION ONLY (PROJECT IN SAN JACINTO CO): WIDEN TO 4-LANE DIVIDED RURAL ROADWAY WITH INTERSECTION IMPROVEMENTS	1.0	2022	$ 12.86
PEDESTRIAN/BICYCLE										

(http://www.txdot.gov/)

Project Tracker TxDOT (http://www.TxDOT.gov) | Open Data Portal (http://gis-txdot.opendata.arcgis.com/) | About

SEARCH by KEYWORD (http://www.txdc

052309018-Project ID

Est. Construction Begin Year

2010

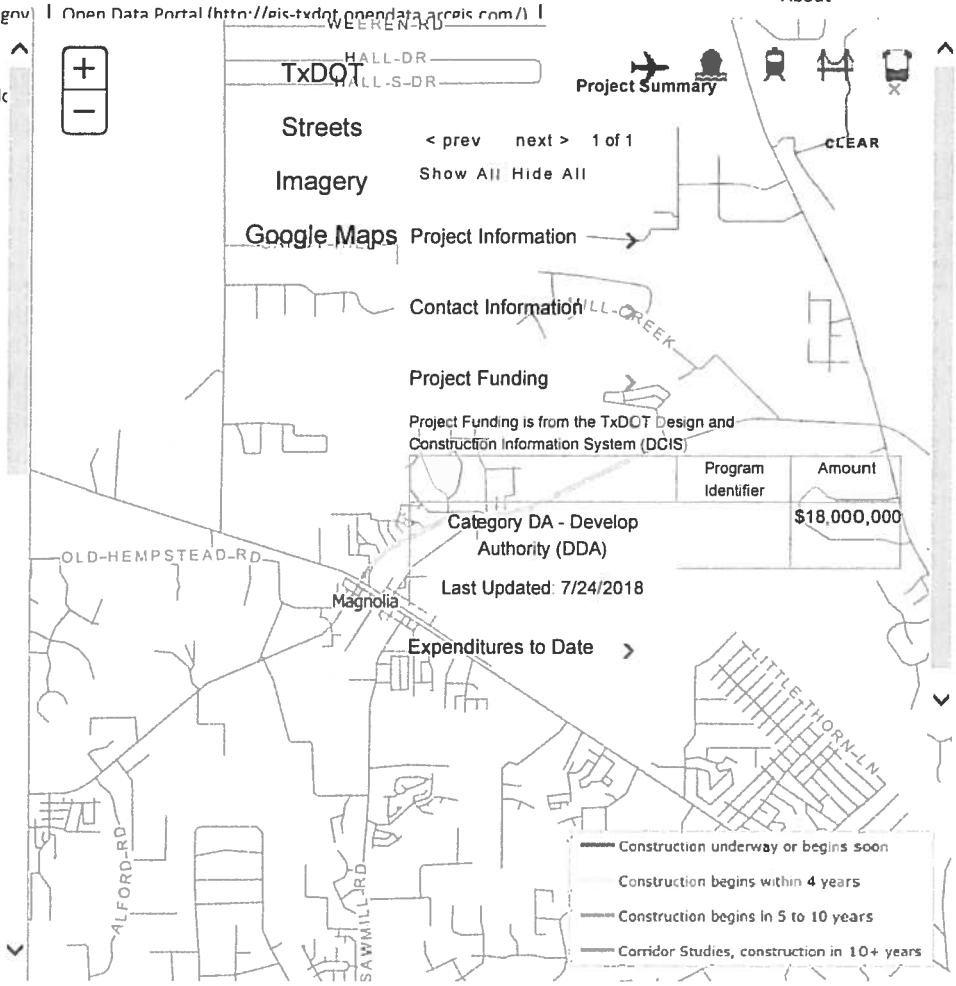
2045

PHASE

- ☑ Construction underway or begins soon
- ☑ Construction begins within 4 years
- ☑ Construction begins in 5 to 10 years
- ☑ Corridor Studies, construction 10+ years

TYPE (OPTIONAL)

- ☐ Bridge
- ☐ Increased Roadway Capacity
- ☐ Maintenance
- ☐ Safety
- ☐ Miscellaneous



(http://www.txdot.gov/)

Project Tracker TxDOT (http://www.TxDOT.gov) | Open Data Portal (http://gis-txdot.opendata.arcgis.com/) | About

SEARCH by KEYWORD (http://www.txdc

052308013-Project ID

Est. Construction Begin Year

2010

2045

PHASE

- ☑ Construction underway or begins soon
- ☑ Construction begins within 4 years
- ☑ Construction begins in 5 to 10 years
- ☑ Corridor Studies, construction 10+ years

TYPE (OPTIONAL)

- ☐ Bridge
- ☐ Increased Roadway Capacity
- ☐ Maintenance
- ☐ Safety
- ☐ Miscellaneous

TxDOT
Streets
Imagery
Google Maps

Project Summary

< prev next > 1 of 1

Show All Hide All

Project Information

Contact Information

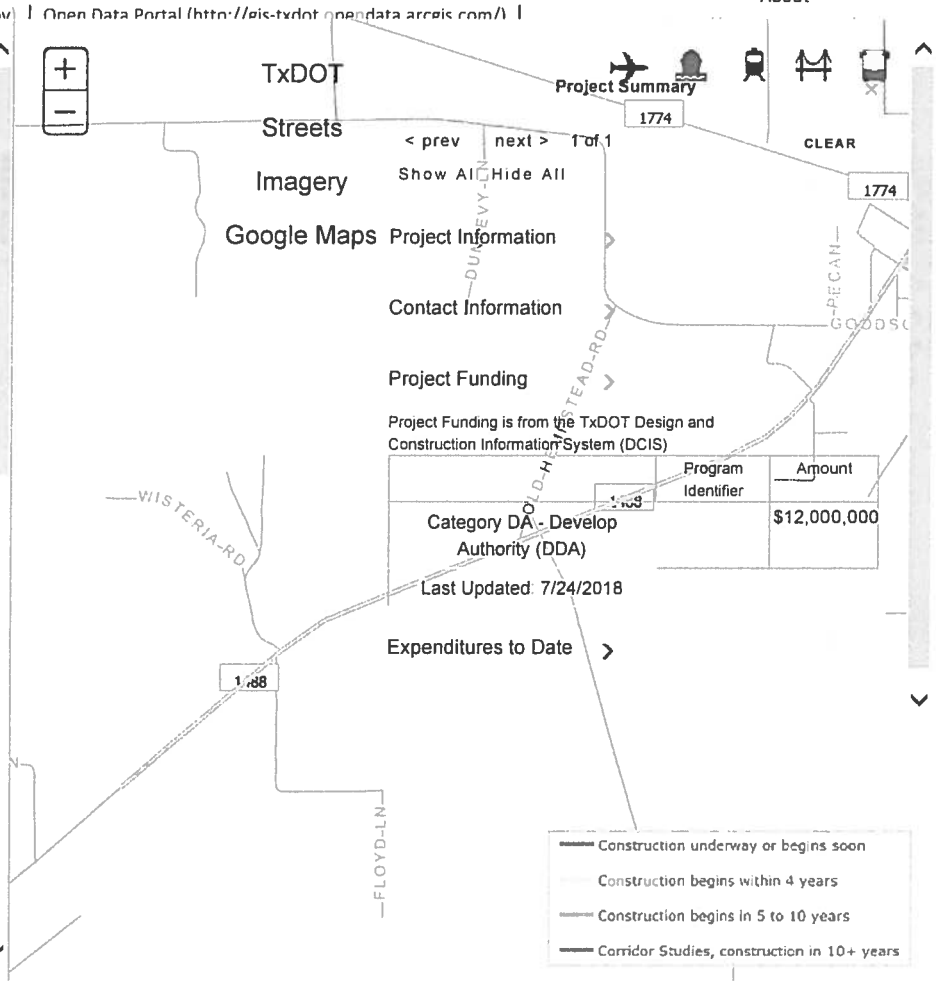
Project Funding

Project Funding is from the TxDOT Design and Construction Information System (DCIS)

	Program Identifier	Amount
Category DA - Develop Authority (DDA)		$12,000,000

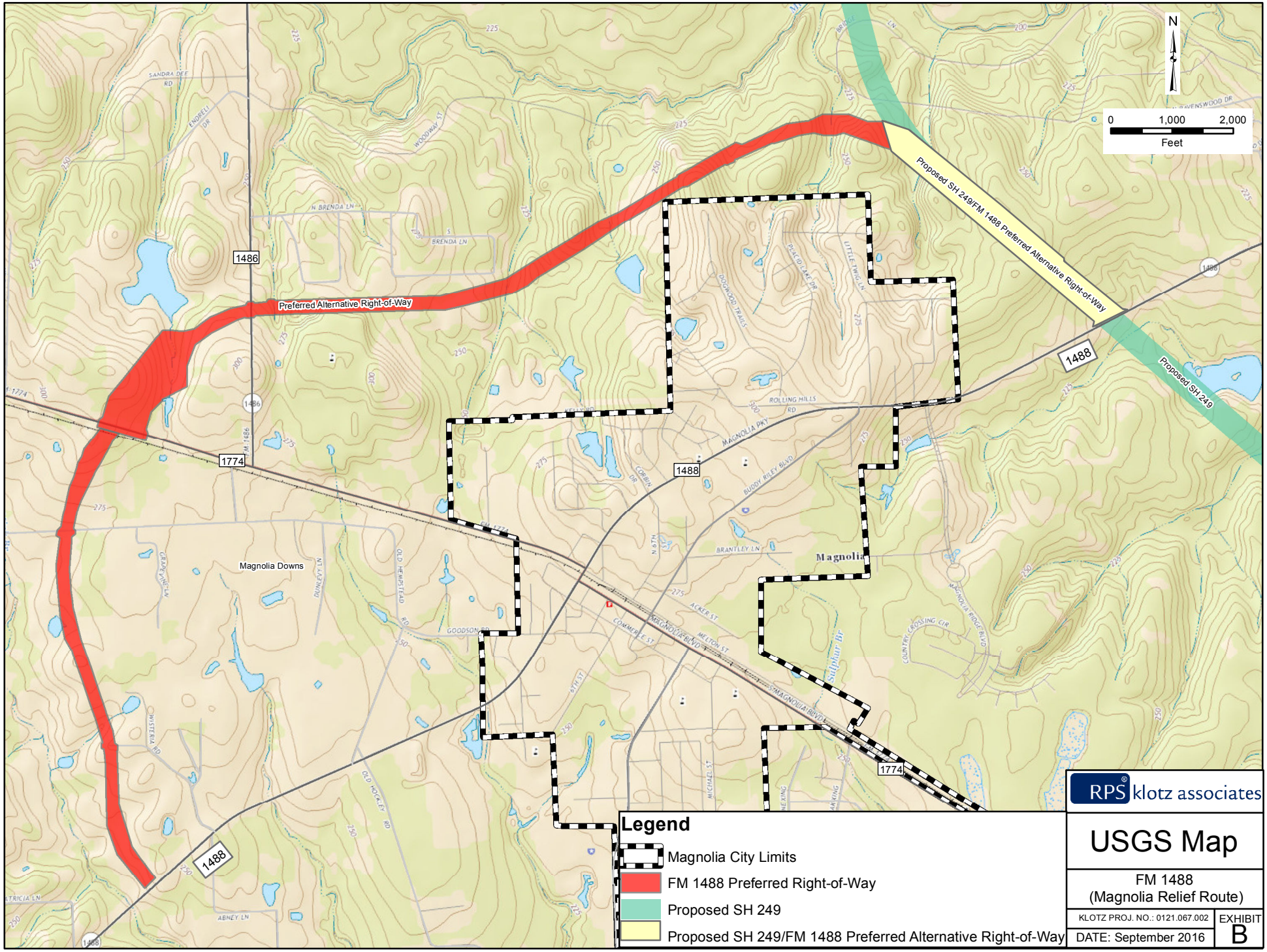
Last Updated: 7/24/2018

Expenditures to Date



Appendix F

Resource-Specific Maps



RPS klotz associates

USGS Map

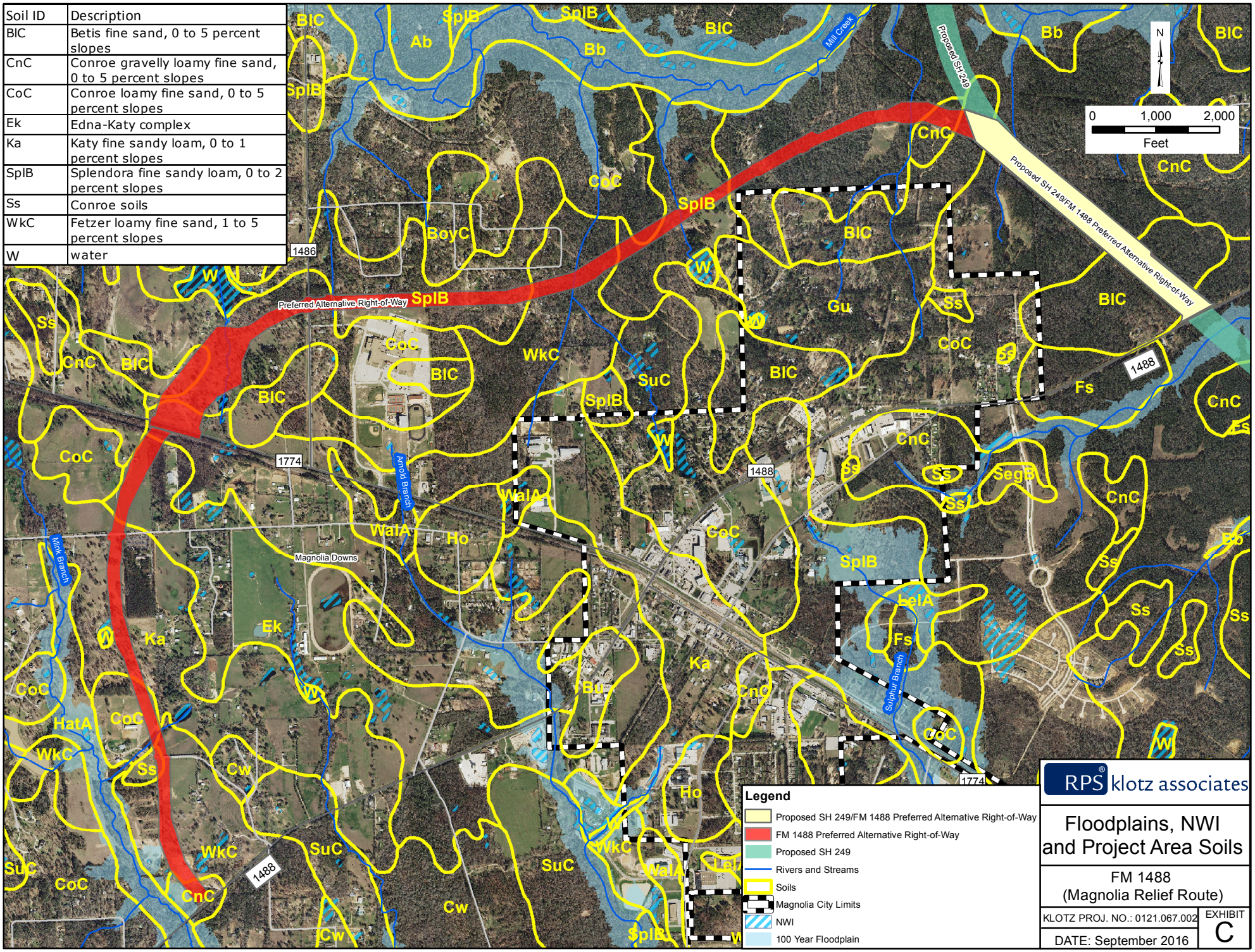
FM 1488
(Magnolia Relief Route)

KLOTZ PROJ. NO.: 0121.067.002

DATE: September 2016

EXHIBIT B

Soil ID	Description
BlC	Betis fine sand, 0 to 5 percent slopes
CnC	Conroe gravelly loamy fine sand, 0 to 5 percent slopes
CoC	Conroe loamy fine sand, 0 to 5 percent slopes
Ek	Edna-Katy complex
Ka	Katy fine sandy loam, 0 to 1 percent slopes
SplB	Splendora fine sandy loam, 0 to 2 percent slopes
Ss	Conroe soils
WkC	Fetzer loamy fine sand, 1 to 5 percent slopes
W	water



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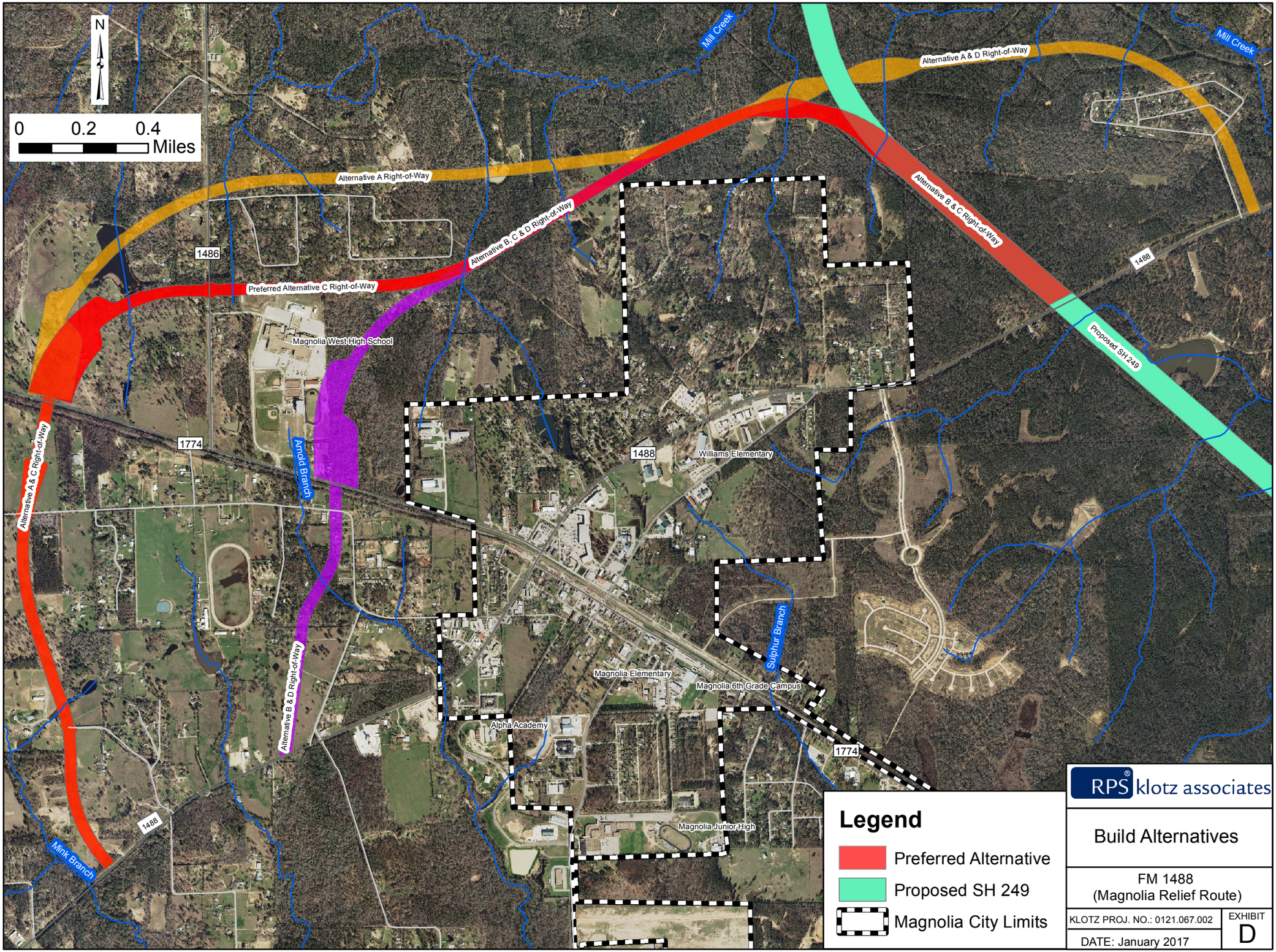
Floodplains, NWI and Project Area Soils

FM 1488
(Magnolia Relief Route)

KLOTZ PROJ. NO.: 0121.067.002

DATE: September 2016

EXHIBIT C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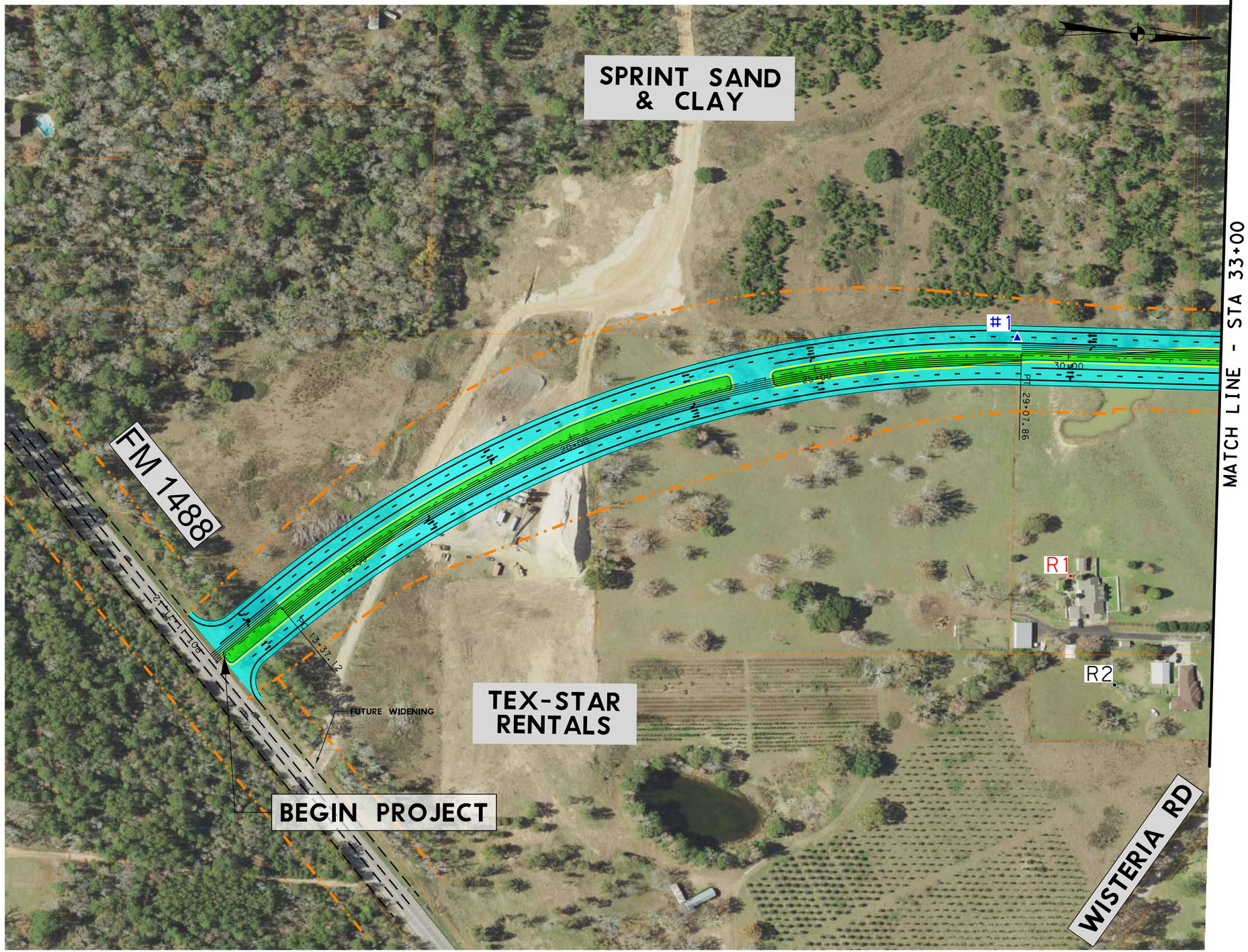
0 0.2 0.4
Miles
Alternative A Right-of-Way
Alternative A & D Right-of-Way
Alternative B, C & D Right-of-Way
Alternative B & C Right-of-Way
Preferred Alternative C Right-of-Way
Alternative A & C Right-of-Way
Alternative B & D Right-of-Way
Proposed SH 249
Mill Creek
Mill Creek
Arnold Branch
Sulphur Branch
Mink Branch
1486
1488
1488
1774
1774
1488
Magnolia West High School
Williams Elementary
Magnolia Elementary
Magnolia 6th Grade Campus
Alpha Academy
Magnolia Junior High
Legend
Preferred Alternative
Proposed SH 249
Magnolia City Limits
RPS klotz associates
Build Alternatives
FM 1488
(Magnolia Relief Route)
KLOTZ PROJ. NO.: 0121.067.002
DATE: January 2017
EXHIBIT
D



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NOISE RECEIVERS

FM 1488
(MAGNOLIA RELIEF ROUTE)
MONTGOMERY COUNTY

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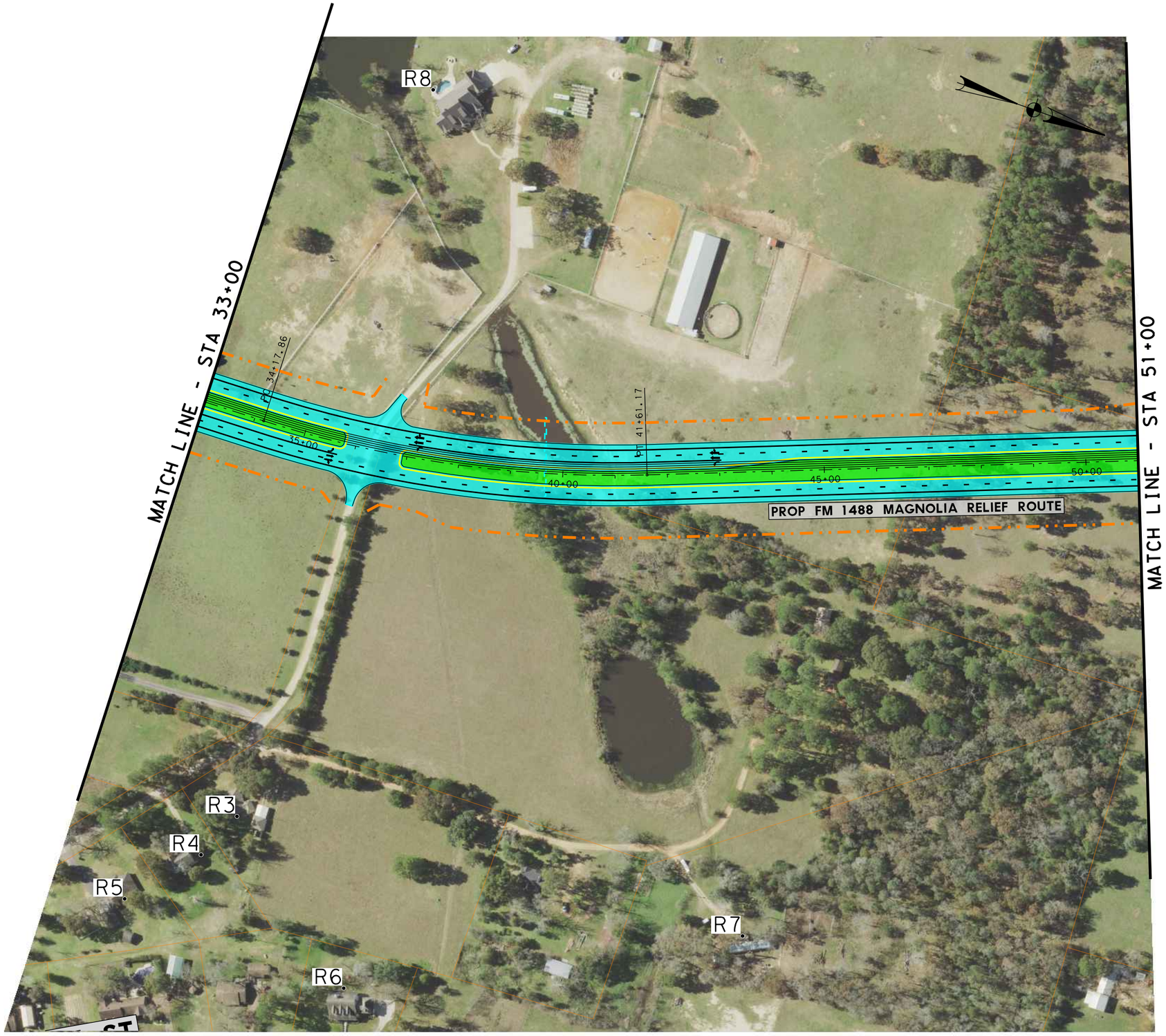

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FM 1488
(MAGNOLIA RELIEF ROUTE)
MONTGOMERY COUNTY

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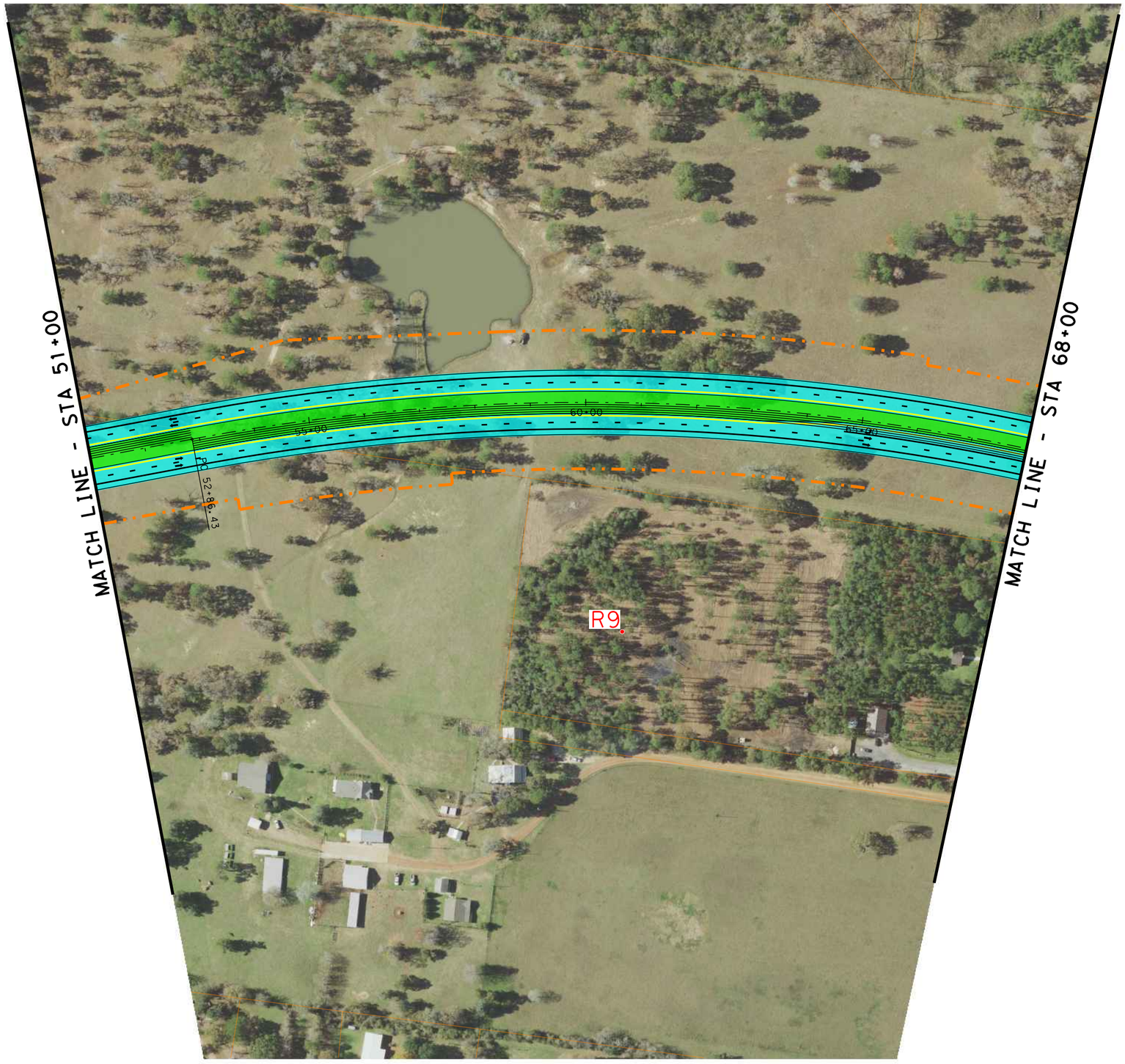

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NOISE RECEIVERS

FM 1488
(MAGNOLIA RELIEF ROUTE)
MONTGOMERY COUNTY

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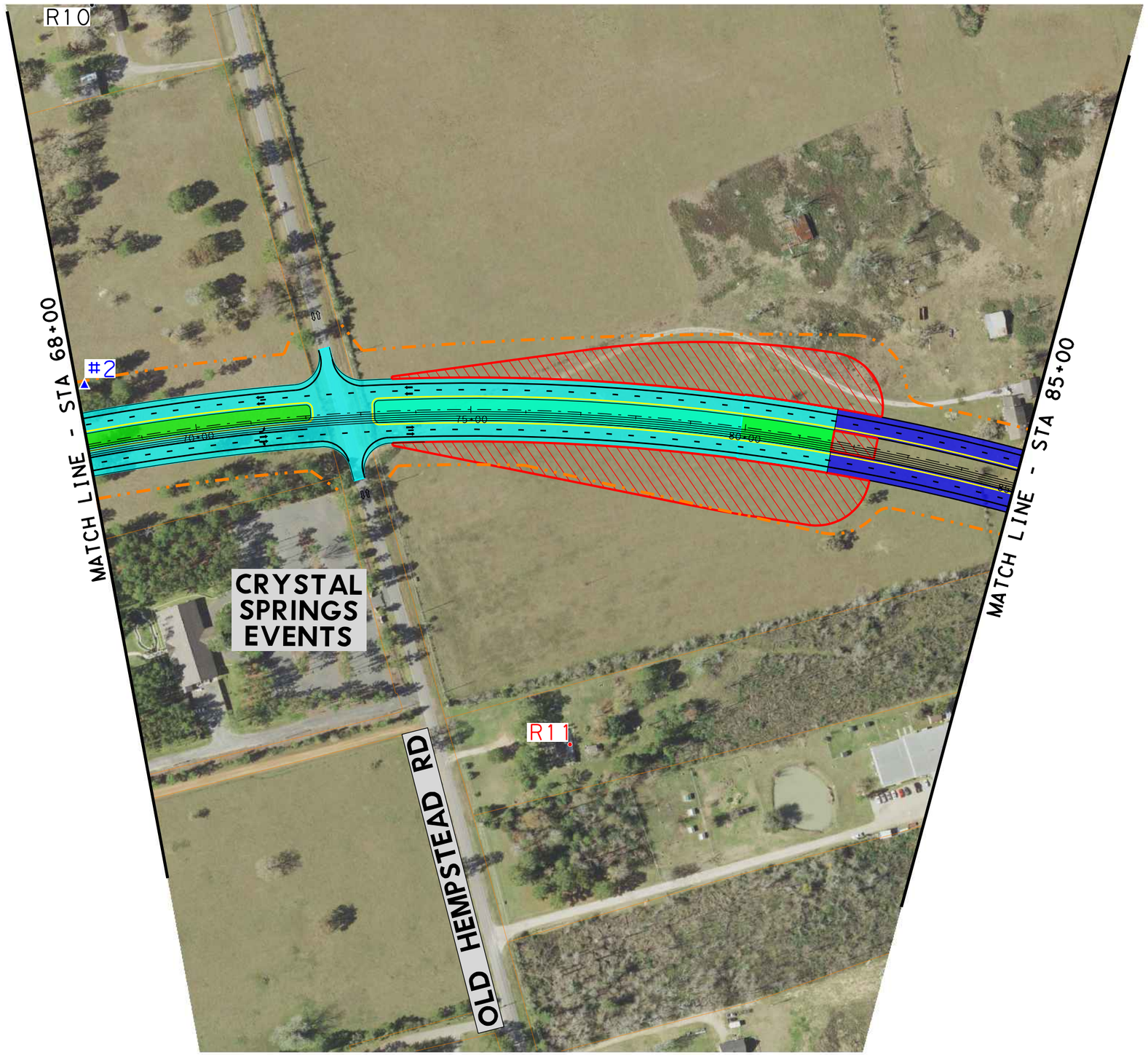

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NOISE RECEIVERS

FM 1488
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MONTGOMERY COUNTY

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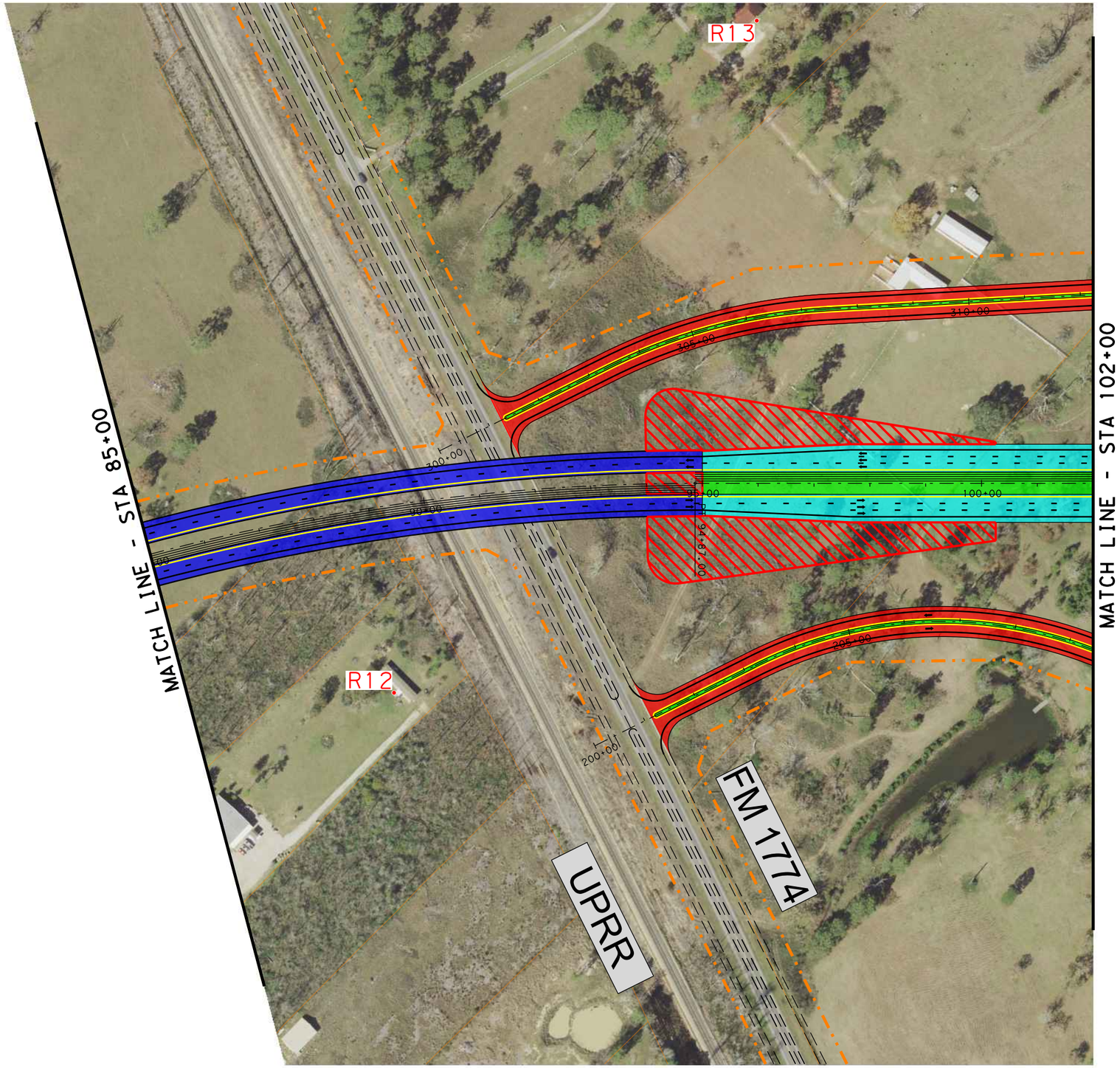

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NOISE RECEIVERS

FM 1488
(MAGNOLIA RELIEF ROUTE)
MONTGOMERY COUNTY

RPS Klotz Proj. No: 0121.067.002	Exhibit
Scale: 1"=200'	E
Date: MAY 2017	

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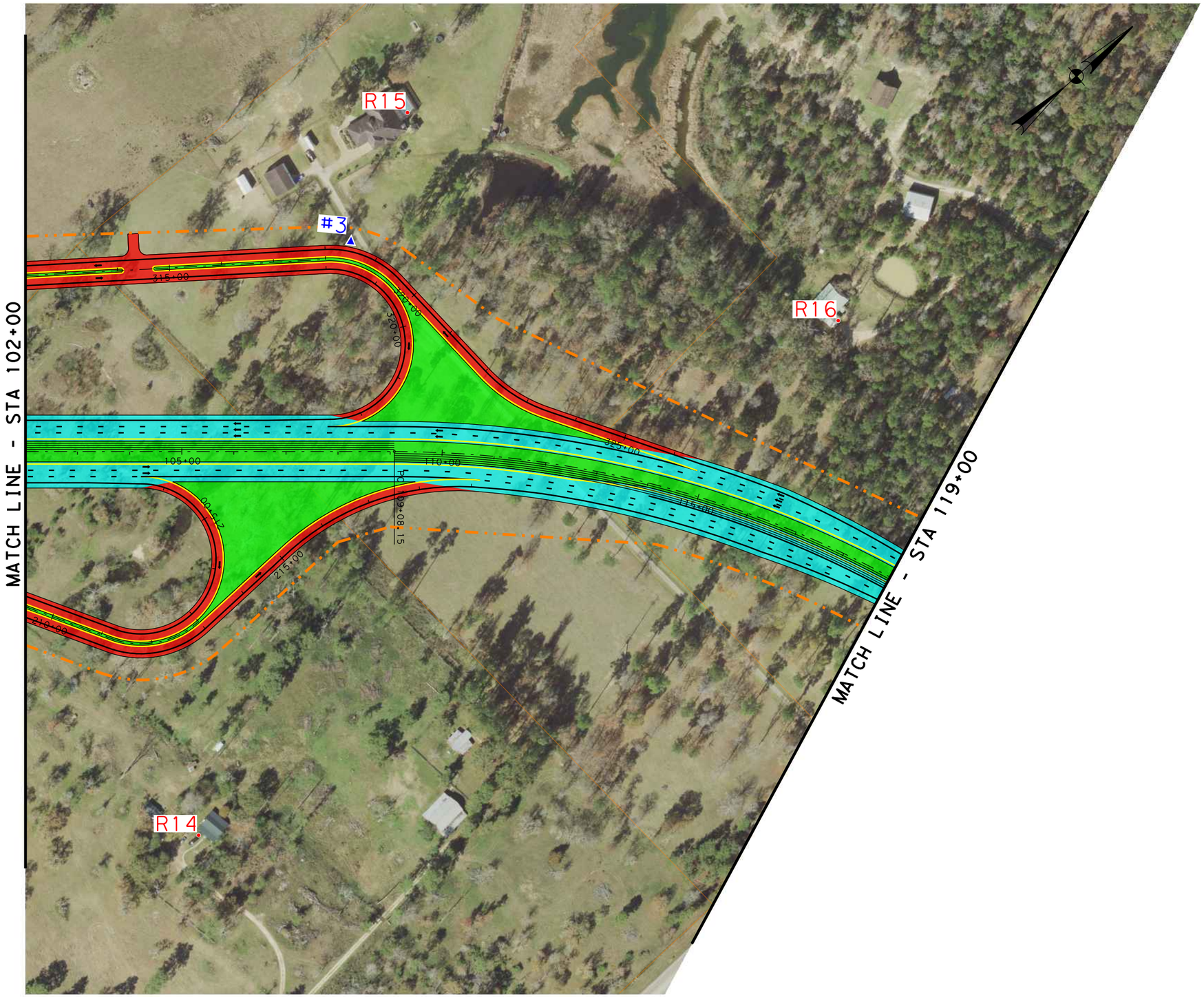

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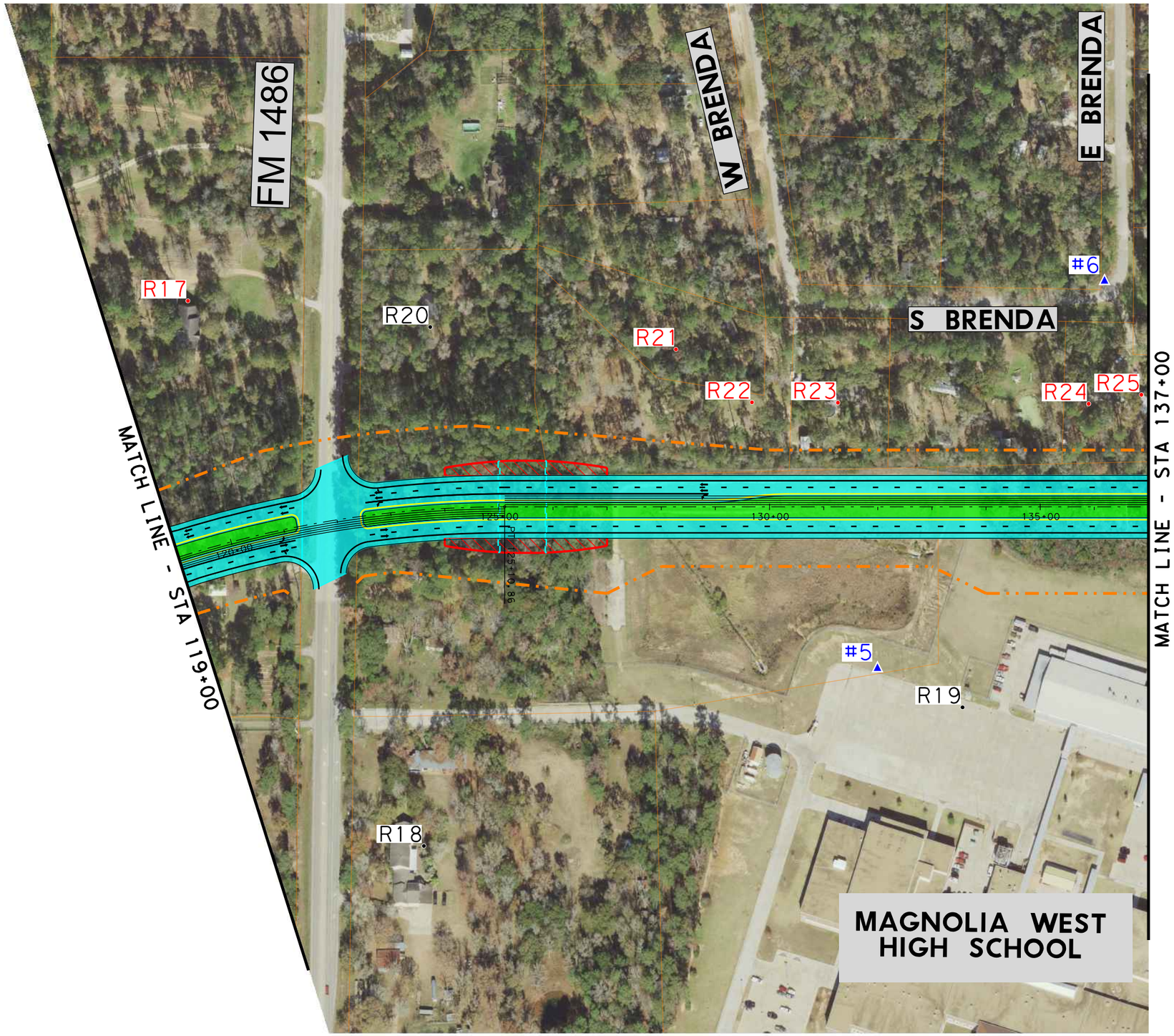

LEGEND

- EXIST TRAFFIC DIRECTION
- PROPOSED TRAFFIC DIRECTION
- PROPOSED ROW
- PROPERTY LINES
- PROPOSED PAVEMENT
- PROPOSED GRADE MEDIAN
- PROP LOCAL ACCESS ROAD
- PROPOSED BRIDGES
- PROPOSED EMBANKMENT
- PROPOSED SH 249 (PROPOSED BY OTHERS)

NOISE RECEIVERS

- R1. NON-IMPACTED
- R2. IMPACTED
- ## ▲ LOCATION OF EXISTING NOISE MEASUREMENT

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NOISE RECEIVERS

FM 1488
(MAGNOLIA RELIEF ROUTE)
MONTGOMERY COUNTY

RPS Klotz Proj. No: 0121.067.002	Exhibit E
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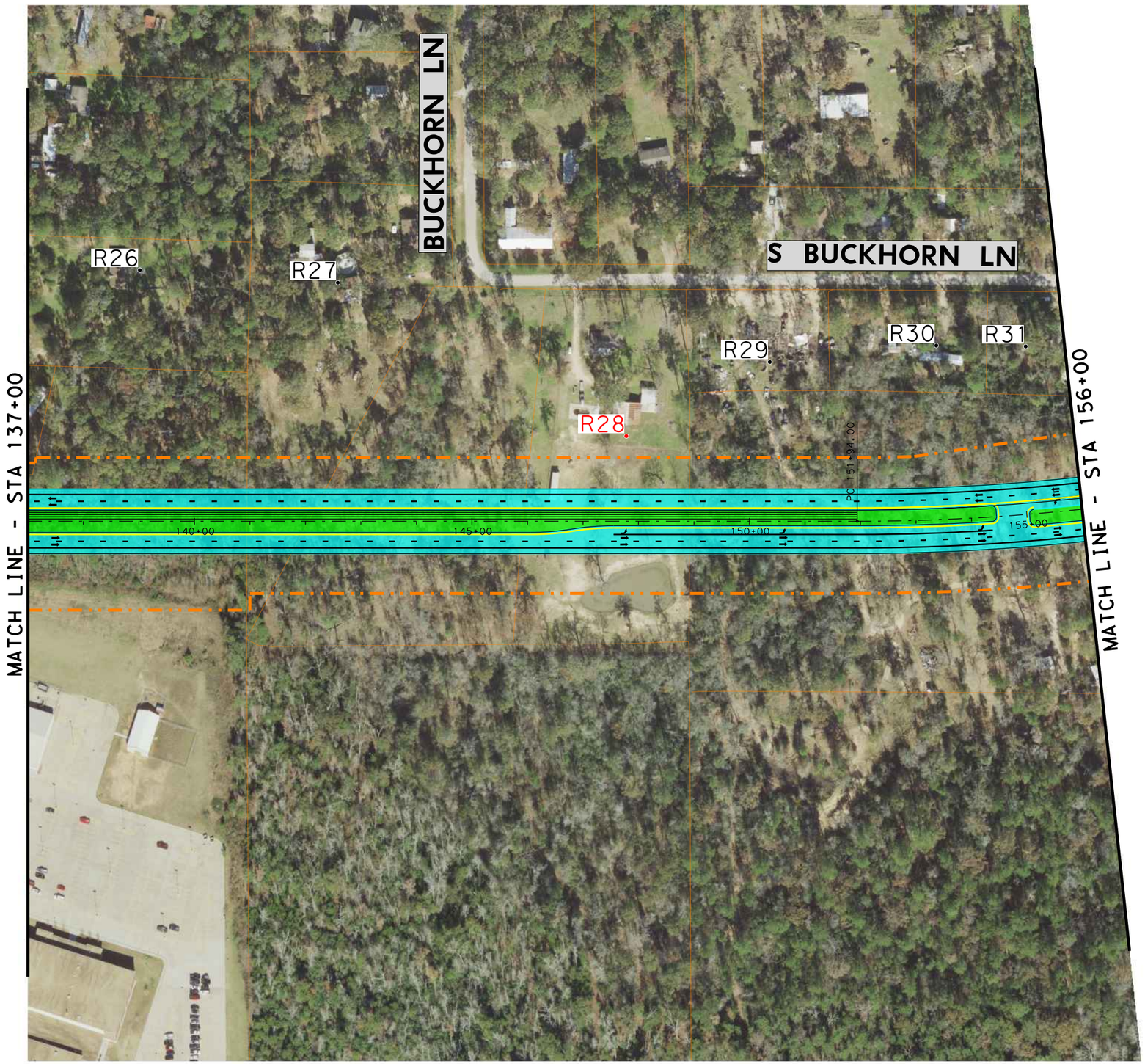

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NOISE RECEIVERS

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MONTGOMERY COUNTY

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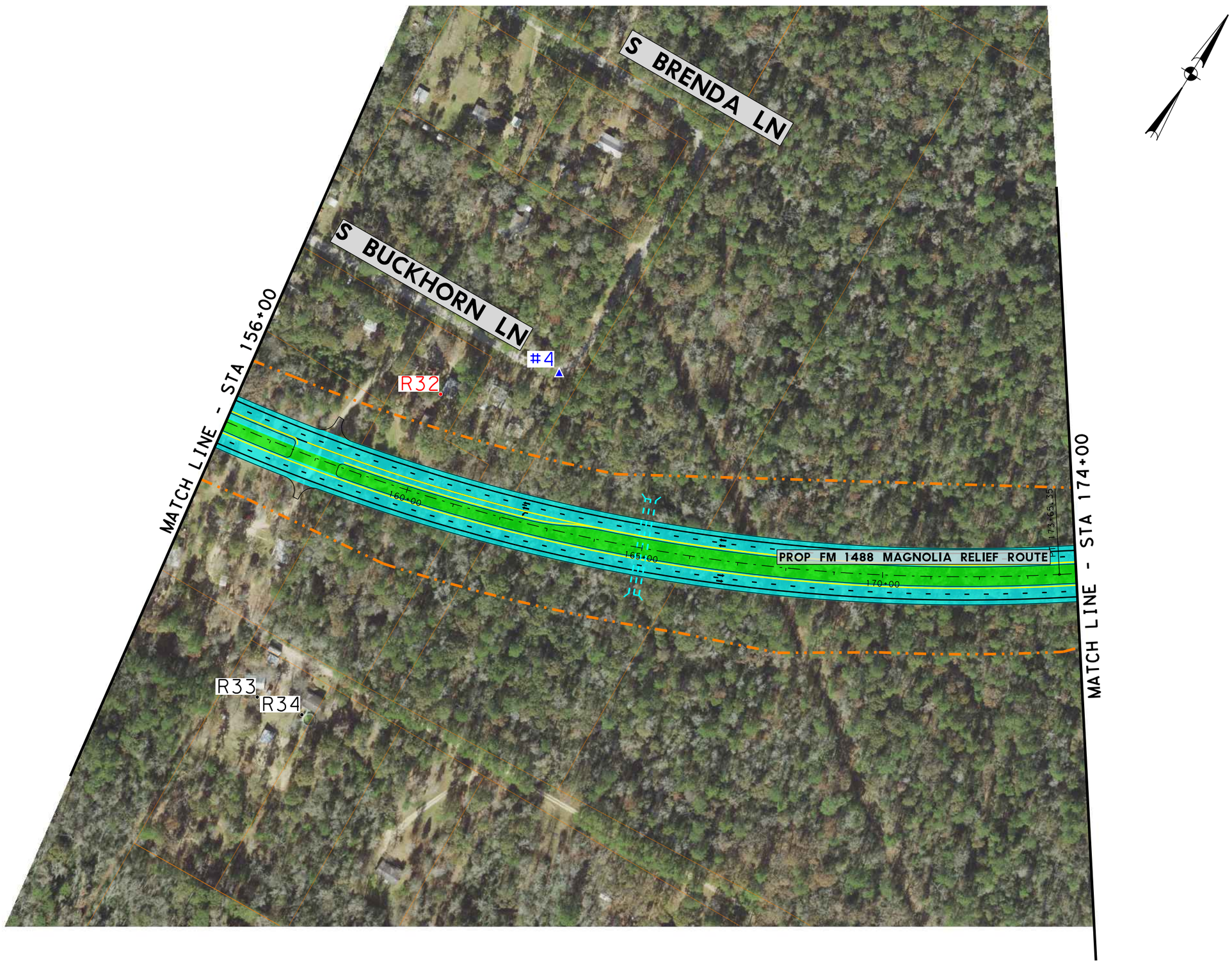

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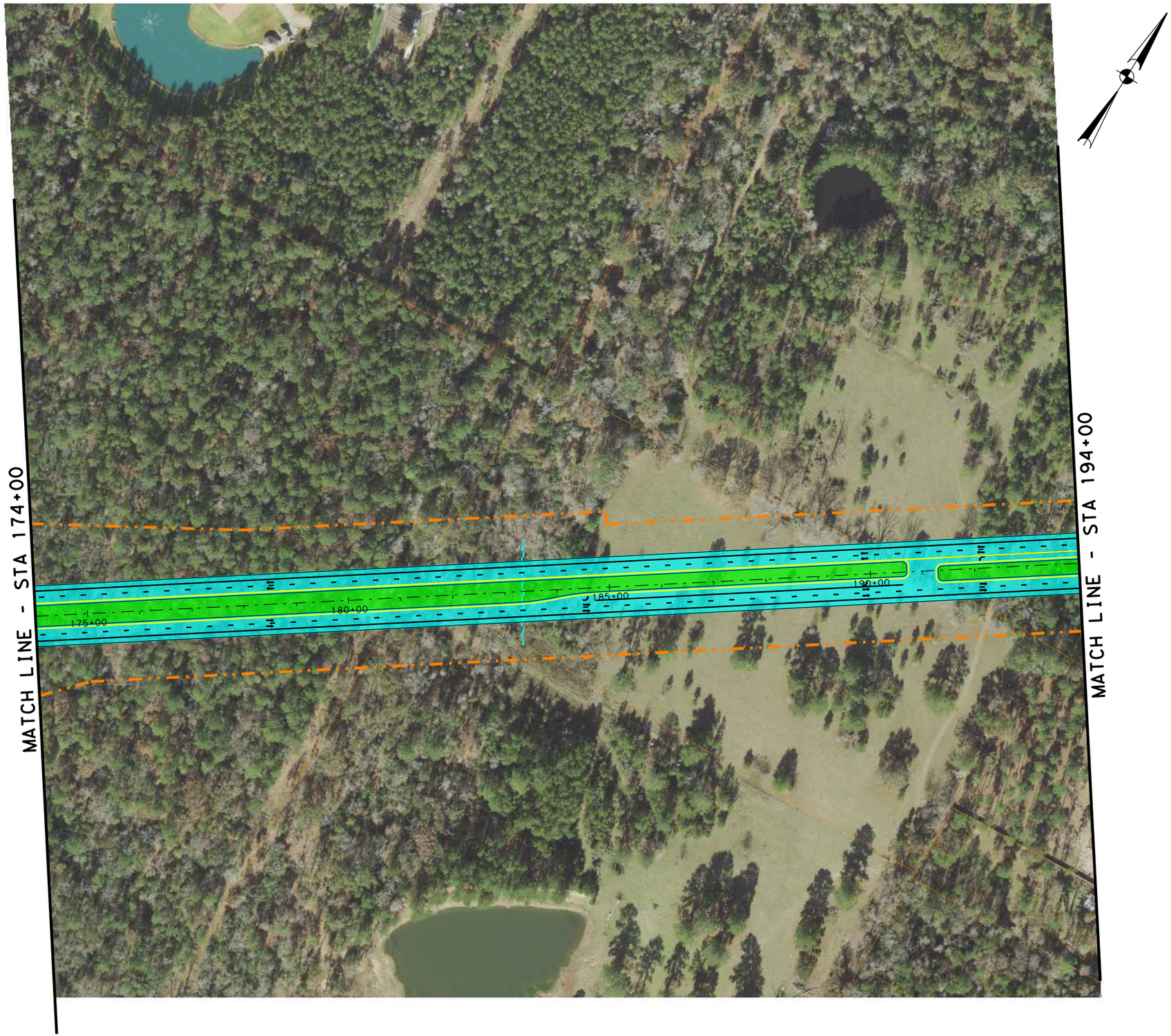

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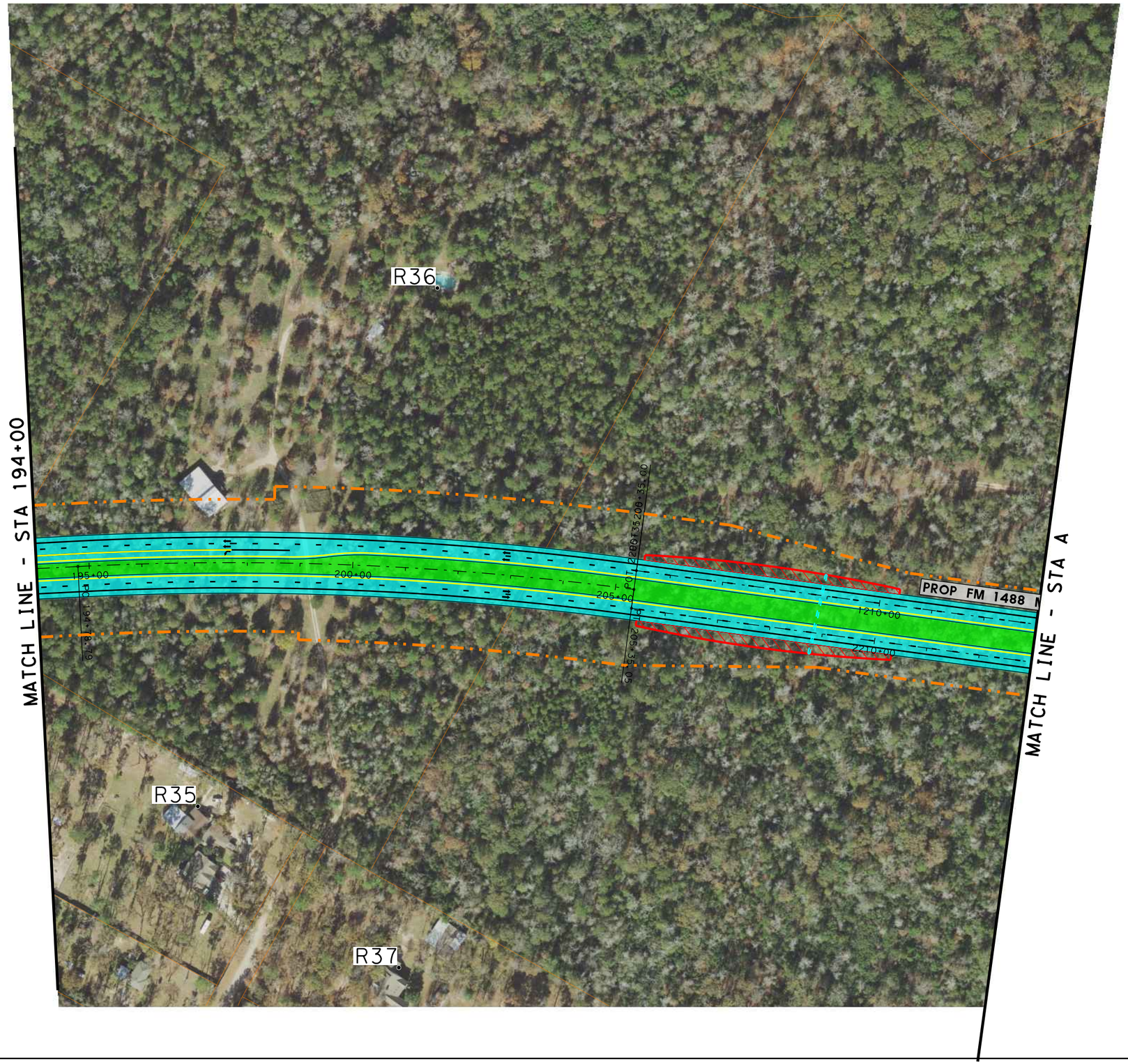

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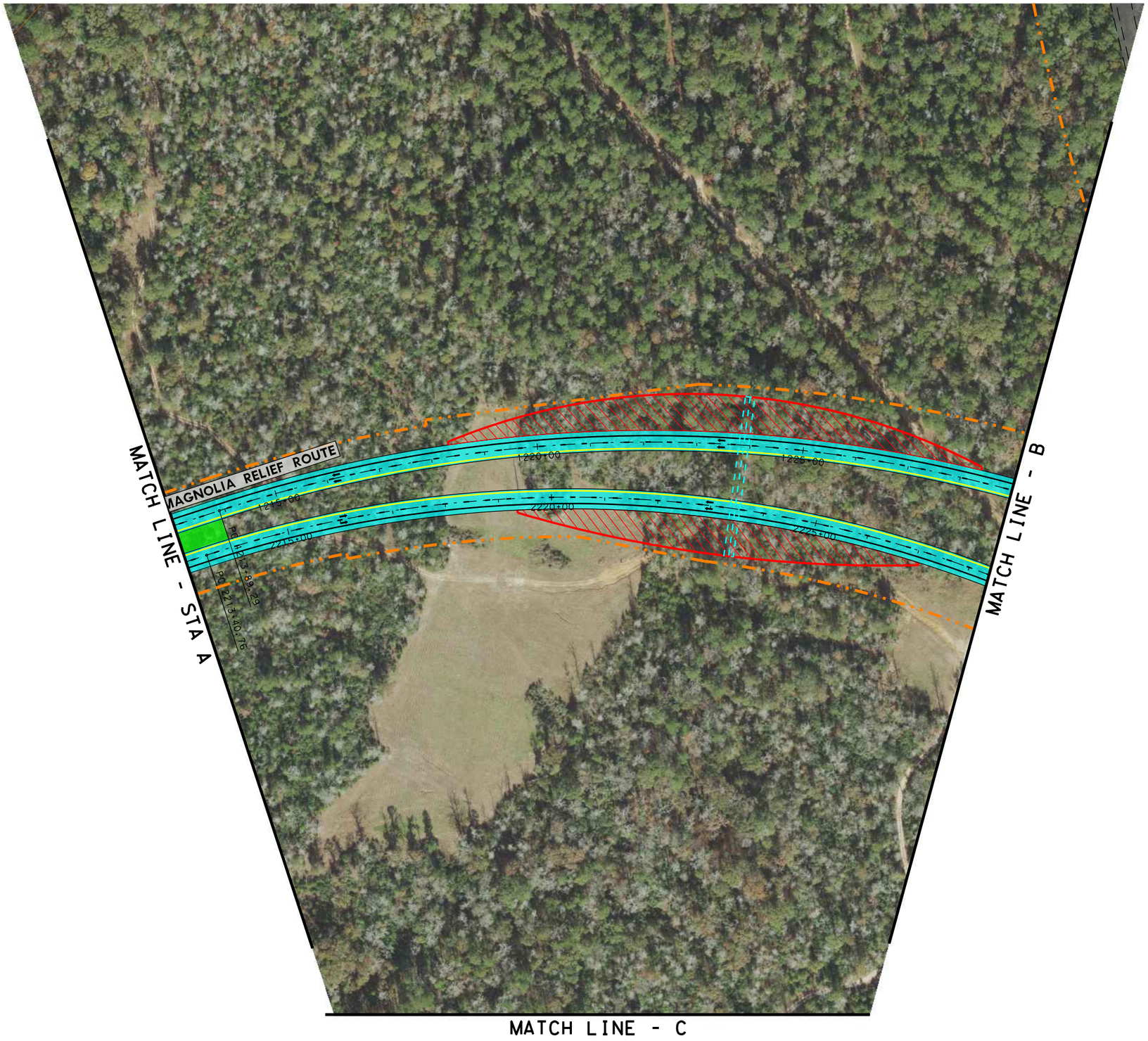

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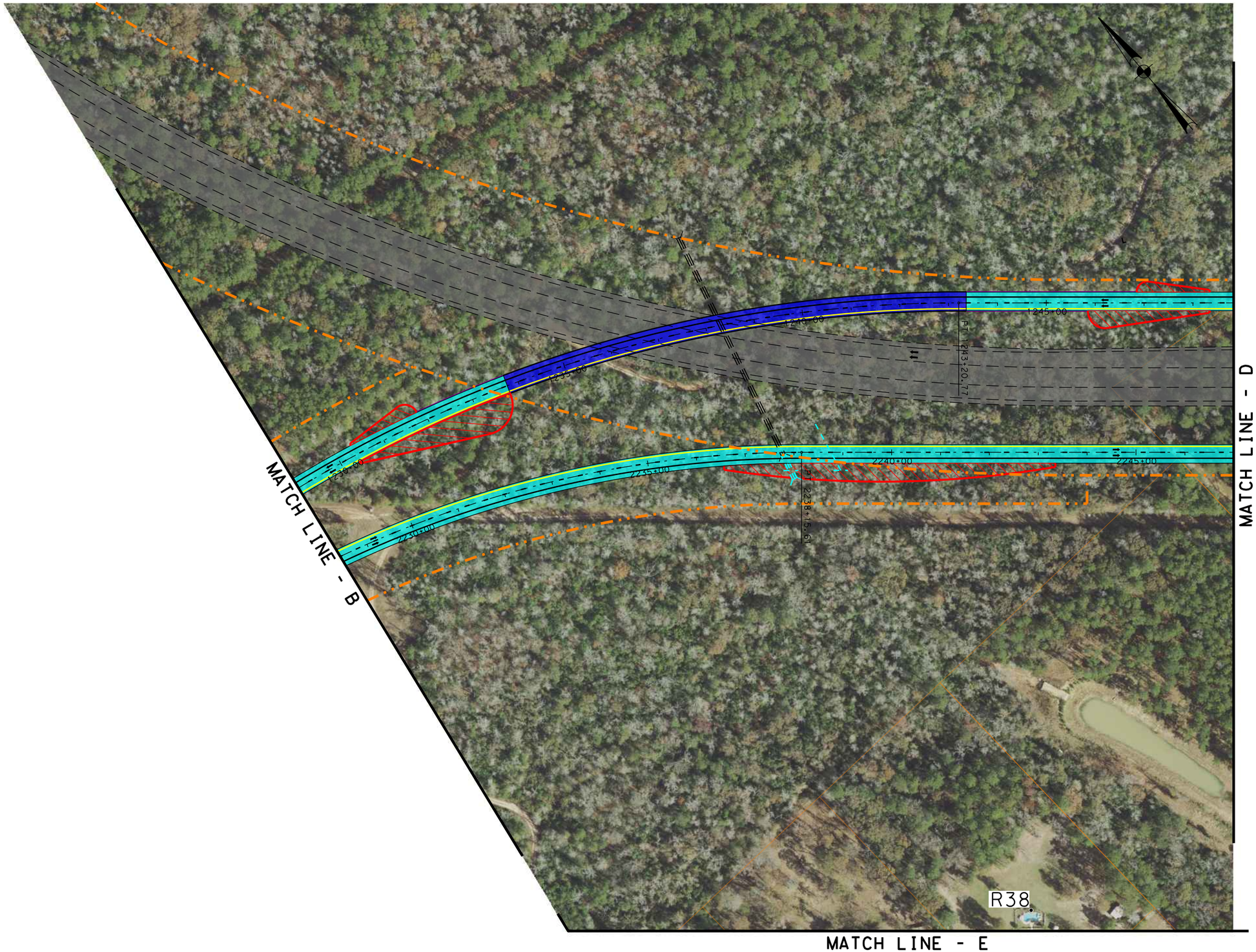

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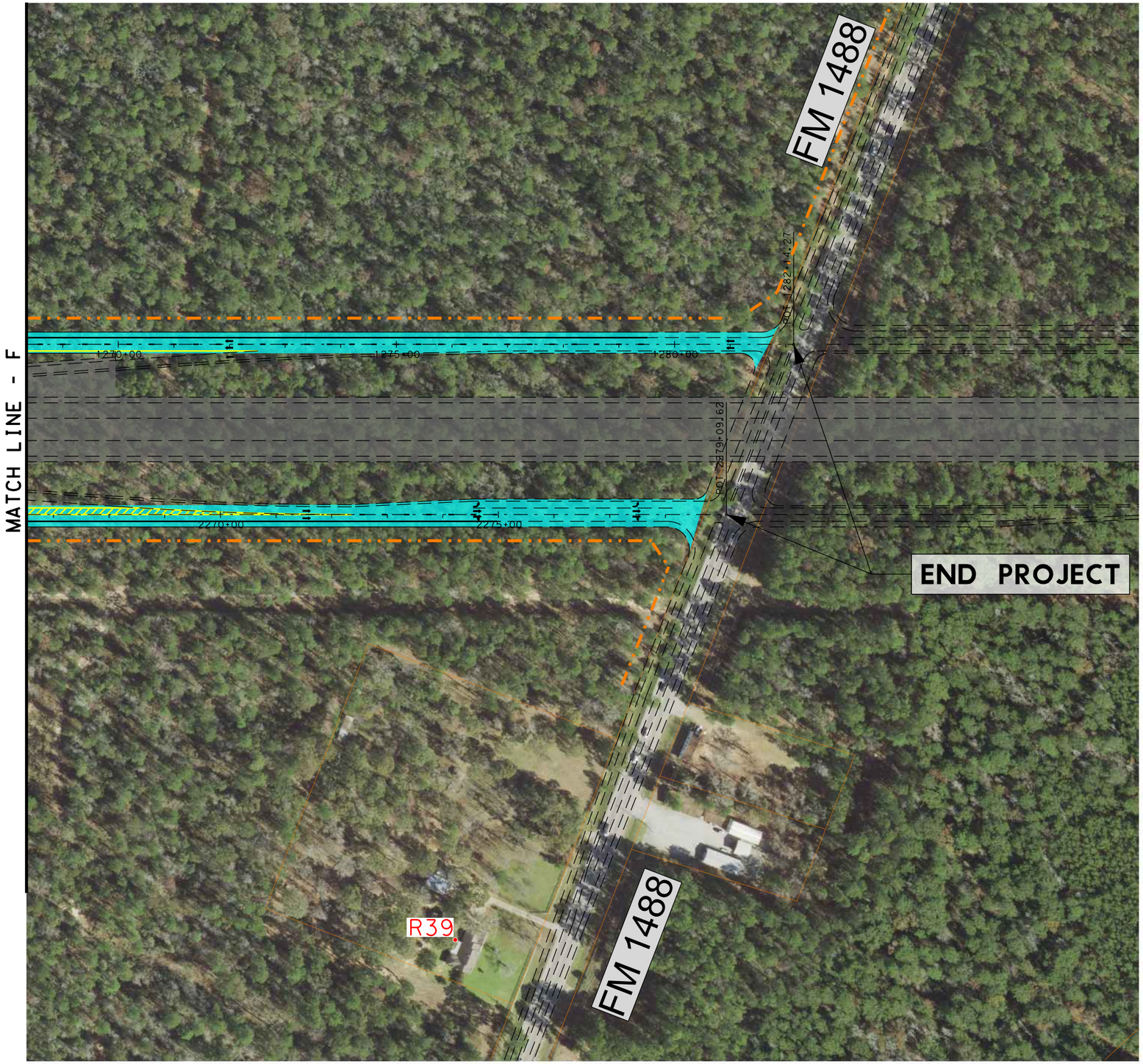

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NOISE RECEIVERS

FM 1488
(MAGNOLIA RELIEF ROUTE)
MONTGOMERY COUNTY

RPS Klotz Proj. No: 0121.067.002	Exhibit
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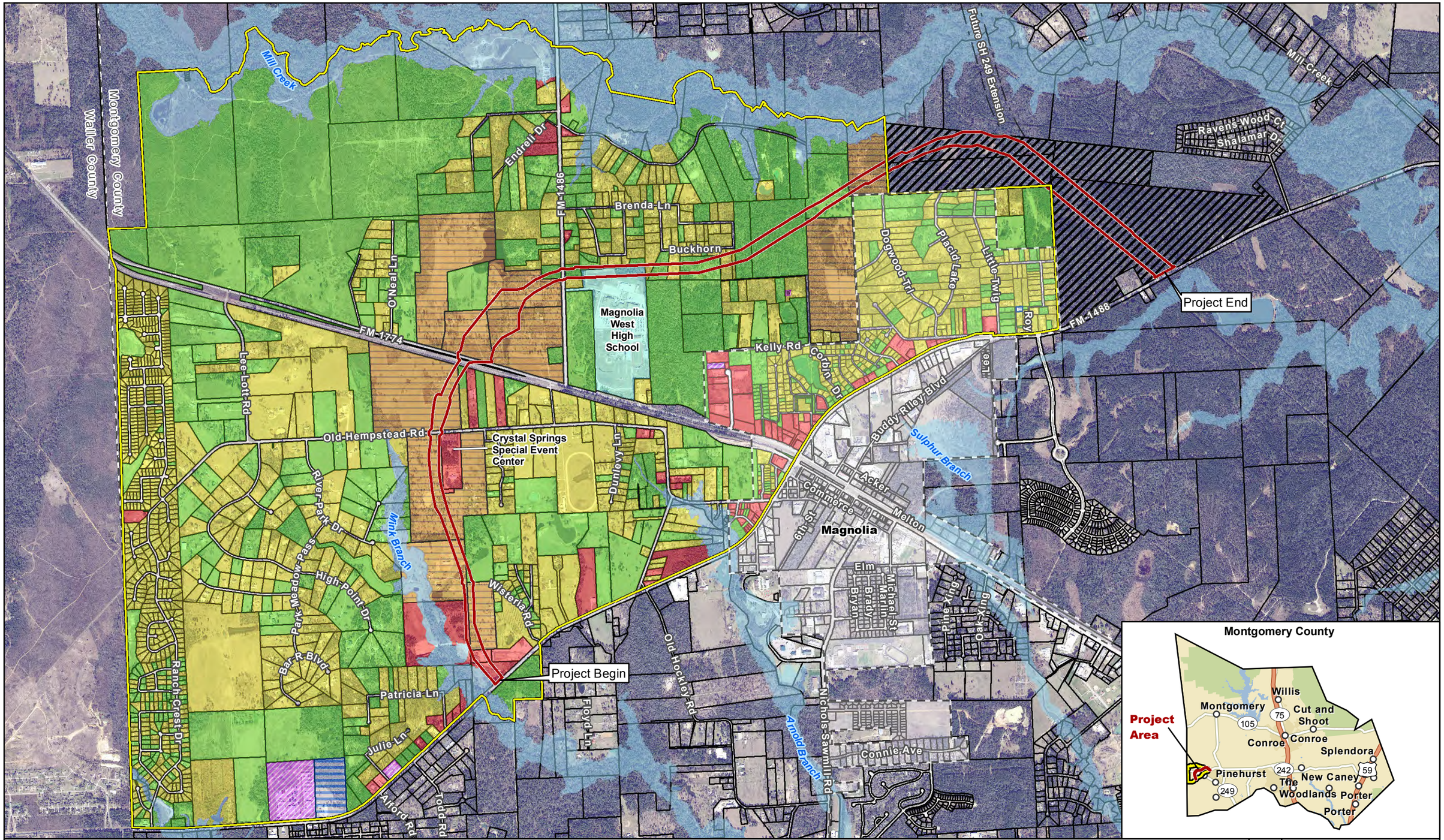

Exhibit F

Land Use within the Indirect Impacts Area of Influence

FM 1488 from Existing FM 1488 west of Magnolia to Proposed SH 249

Project Location
Area of Influence (AOI)
City Boundary
100-Year Flood Zone
Parcel
Parcels Included in SH 249 ICI

Land Use
Cemetery
Church
Commercial
Agricultural/Undeveloped
Industrial
Mixed - Residential/Agricultural
Residential
School

Data Sources:
CMEC (2017), FEMA NFHL (2017),
TxDOT (2016), MCAD (2017)
Aerial Source: TNRIS (2015)

0 0.4 Miles
0 600 Meters

Prepared for: TxDOT	1 in = 0.4 miles
	Scale: 1:25,344
CSJ: 0523-09-018, 0523-08-013	Date: 4/12/2017

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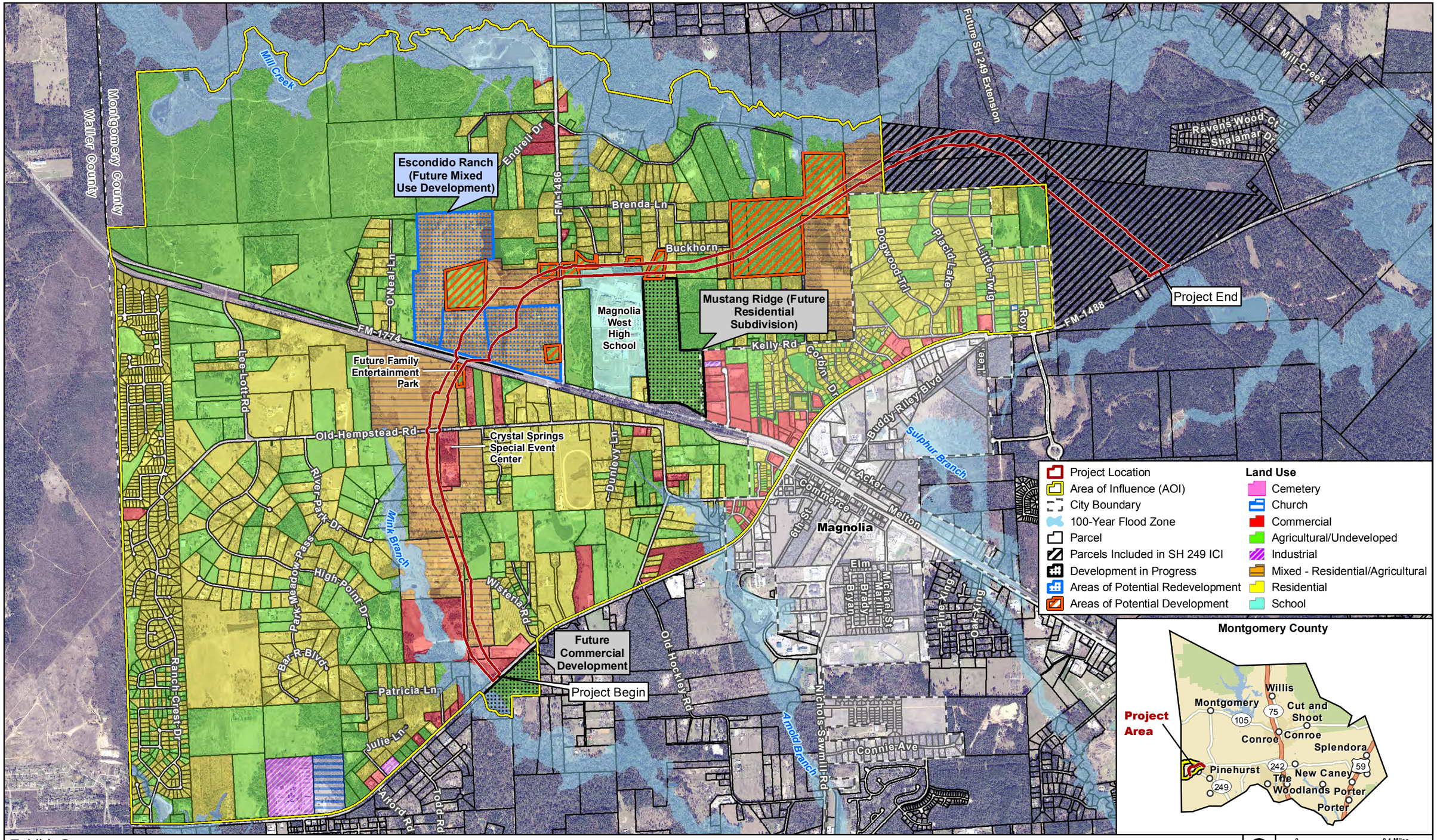


Exhibit G

Areas of Potential Development and Redevelopment within the Area of Influence

FM 1488 from Existing FM 1488 west of Magnolia to Proposed SH 249

Data Sources:
CMEC (2017), FEMA NFHL (2017),
TxDOT (2016), MCAD (2017)
Aerial Source: TNRIS (2015)

Prepared for: TxDOT	1 in = 0.4 miles
	Scale: 1:25,344
CSJ: 0523-09-018, 0523-08-013	Date: 4/12/2017

G:\Projects\TXDOT\FM1488\Indirect_Figure 4_Potential Development in AOI_20170407.mxd

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request	4. Sheet 1 of 1
1. Name of Project **FM 1488 Magnolia Relief Route**	5. Federal Agency Involved	
2. Type of Project **Roadway project on new location**	6. County and State **Montgomery County, Texas**	

PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS	2. Person Completing Form
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES ☐ NO ☐		4. Acres Irrigated / Average Farm Size
5. Major Crop(s)	6. Farmable Land in Government Jurisdiction Acres: %	7. Amount of Farmland As Defined in FPPA Acres: %
8. Name Of Land Evaluation System Used	9. Name of Local Site Assessment System	10. Date Land Evaluation Returned by NRCS

PART III *(To be completed by Federal Agency)*	Alternative Corridor For Segment			
	Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly	145			
B. Total Acres To Be Converted Indirectly, Or To Receive Services	0			
C. Total Acres In Corridor	145			
PART IV *(To be completed by NRCS) Land Evaluation Information*				
A. Total Acres Prime And Unique Farmland				
B. Total Acres Statewide And Local Important Farmland				
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value				
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*				

PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))*	Maximum Points				
1. Area in Nonurban Use	15	14			
2. Perimeter in Nonurban Use	10	9			
3. Percent Of Corridor Being Farmed	20	0			
4. Protection Provided By State And Local Government	20	0			
5. Size of Present Farm Unit Compared To Average	10	10			
6. Creation Of Nonfarmable Farmland	25	1			
7. Availablility Of Farm Support Services	5	4			
8. On-Farm Investments	20	0			
9. Effects Of Conversion On Farm Support Services	25	0			
10. Compatibility With Existing Agricultural Use	10	4			
TOTAL CORRIDOR ASSESSMENT POINTS	160	42			
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland (From Part V)	100				
Total Corridor Assessment (From Part VI above or a local site assessment)	160				
TOTAL POINTS *(Total of above 2 lines)*	260				

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used?
A: FM 1488 Magnolia Relief Route	**0**	**8/9/16**	YES ☐ NO ☑

5. Reason For Selection:

In accordance with NRCS regulation (7 CFR 658.4(c)(2)), " Sites receiving a total score of less than 160 points be given a minimal level of consideration for protection and no additional sites be evaluated." The maximum score that can be assigned to the land evaluation (Part V) is 100 points. Therefore, where the corridor assessment (Part VI) is less than 60 points, the total score (parts V and VI) would always be less than 160 points. Therefore, the site need not be given further consideration for protection and no additional sites need to be evaluated.

Signature of Person Completing this Part: | DATE

NOTE: Complete a form for each segment with more than one Alternate Corridor

Clear Form

Appendix G

Resource Agency Coordination

Re: Response to Request for TCEQ Environmental Review

The Texas Commission on Environmental Quality (TCEQ) received a request from the Texas Department of Transportation (TxDOT) regarding the following project: EA Review - Magnolia Reliever Route; CSJ: 0523-09-018

In accordance with the Memorandum of Understanding between TxDOT and TCEQ addressing environmental reviews, which is codified in Chapter 43, Subchapter I of the Texas Administrative Code (TAC) and 30 TAC § 7.119, TCEQ is responding to your request for review by providing the below comments.

This project is in an area of Texas classified by the United States Environmental Protection Agency as moderate nonattainment for the 2008 ozone National Ambient Air Quality Standard. Air Quality staff has reviewed the document in accordance with transportation and general conformity regulations codified in 40 Code of Federal Regulations Part 93 Subparts A and B. We concur with TxDOT's assessment.

The Office of Water does not anticipate significant long term environmental impacts from this project as long as construction and waste disposal activities associated with it are completed in accordance with applicable local, state, and federal environmental permits, statutes, and regulations. We recommend that the applicant take necessary steps to ensure that best management practices are used to control runoff from construction sites to prevent detrimental impact to surface and ground water.

TxDOT will still need to follow all other applicable laws related to this project, including applying for applicable permits.

If you have any questions, please feel free to contact the NEPA Coordinator at (512) 239-3500 or NEPA@tceq.texas.gov.

Chikaodi Agumadu
NEPA Coordinator
TCEQ, MC-119
NEPA@tceq.texas.gov
512-239-3500

Texas Department of Transportation

125 EAST 11TH STREET, AUSTIN, TEXAS 78701-2483 | 512.463.8588 | WWW.TXDOT.GOV

August 3, 2017

Mr. Adam Zerrenner
Field Supervisor
U.S. Fish and Wildlife Service
Ecological Services
10711 Burnet Road, Suite, 200
Austin, Texas 78758

RE: Request for Informal Consultation
FM 1488 (Magnolia Relief Route)
Montgomery County
CSJ: 0523-09-018 and 0523-08-013

Dear Mr. Zerrenner:

The Texas Department of Transportation (TxDOT) proposes to construct Farm-to-Market (FM) 1488 (Magnolia Relief Route) around the north side of the City of Magnolia in Montgomery County, Texas. The proposed project would construct a four lane (two in each direction) divided highway on new location. This construction would include grade separated overpasses at FM 1774 and Union Pacific Railroad (UPPR) and at the proposed State Highway (SH) 249. The construction of the facility would be from existing FM 1488 west of Magnolia to proposed SH 249 east of Magnolia (Figure 1A and Figure 1B). The proposed construction area would be approximately 5.4 miles in length. TxDOT has reviewed the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPAC) May 22, 2017 list of federally threatened and endangered species and has determined that federally endangered species could potentially occur in the project area. TxDOT has determined that the project **may affect, but is not likely to adversely affect** the Red-cockaded Woodpecker, (*Picoides borealis)* from construction activities. TxDOT requests USFWS to concur with the effect determinations for this species. By this letter, TxDOT wishes to initiate informal Section 7 consultation under Section 7(a)(4) of the Endangered Species Act (ESA) pursuant to the 2014 FHWA-TxDOT MOU[1].

Description of the Existing Facility
Existing FM 1488 is a two-lane undivided east-west facility through the City of Magnolia. The existing area where the proposed new location roadway would travel consists primarily of undeveloped lands, much of which is ranchland or forested areas, with some residential and commercial use.

Description of the Proposed Project
The proposed FM 1488 Relief Route would be an east-west facility on new location that would serve as a major arterial for the distribution of traffic around the City of Magnolia. Within the proposed construction limits, FM 1488 Relief Route would consist of a four-lane divided facility (two 12-foot

[1] The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.

lanes in each direction) with 4-foot inside shoulders and 10-foot outside shoulders divided by a 40-foot depressed grass median (Figure 2). This construction would include grade separated overpasses at FM 1774 and UPPR and at the proposed SH 249.

The SH 1488 project would include a portion of the proposed SH 249 extension where the two projects would overlap. The SH 1488 proposed typical ROW varies from 200 to 900 feet in width. Approximately 155 acres of additional ROW would be required. The design speed would be 60 miles-per-hour. The proposed project would not require detours or road closures during construction. Access to homes and businesses would be maintained throughout construction.

An EIS was prepared for the proposed SH 249 extension and has received a Record of Decision (ROD). There is a short segment of the proposed FM 1488 Magnolia Relief Route that overlaps the proposed SH 249 extension. This overlapping segment begins at existing FM 1488 east of Magnolia and extends approximately 0.7 mile north of existing FM 1488 at which point the proposed FM 1488 project veers off to the west and the proposed SH 249 project continues to the north. In this 0.7 mile segment, the combination of the FM 1488 and SH 249 projects would appear as a typical freeway with the main lanes being SH 249 and the frontage roads being FM 1488.

The proposed project would have independent utility (e.g., the facility would function on its own without further construction of an adjoining segment).

Construction and Timing of Activities

The proposed project includes the commonly associated actions and equipment necessary to perform roadway construction on new location including base laying operations, overlays/level-up, and culvert extensions. The typical equipment expected for this project includes: bulldozers, skidders, log feller-buncher, motor grader, laydown machines, transfer vehicles, rollers, front end loaders, belly dump trucks, common pickup trucks, and a distributor (truck equipped with an asphalt tank and spray boom). As a new location project excavation and embankment of the roadway subgrade and base laying operation are needed. The proposed project will take approximately 36 months to complete. To avoid conflict with all nesting birds, including endangered species within the area, TxDOT will phase removal of vegetation so that it takes place during non-breeding months.

Site Specific Information

Vegetation within the proposed ROW, as well as areas outside of the ROW, consists of heavily forested pine and hardwood regions in the eastern/northern portions of the project and pasture land in the western/southern portions of the project.

The forested areas in the project area are privately owned. Fire suppression has created very dense midstory and understory vegetation in these areas. The dominant canopy species include loblolly pine (*Pinus taeda*) and shortleaf pine (*Pinus echinata*). Canopy hardwoods are sparse in the survey area but most commonly include southern red oak (*Quercus falcata*), blackjack oak (*Quercus marilandica*), water oak (*Quercus nigra*), post oak (*Quercus stellata*), winged elm (*Ulmus alata*), and sweetgum (*Liquidambar styraciflua*). Common species in the midstory include hardwood and pine saplings, yaupon (*Ilex vomitoria*), wax myrtle (*Morella cerifera*), American beautyberry (*Callicarpa americana*), and greenbrier (*Smilax spp.*). Common herbaceous species include canopy and midstory hardwood and pine seedlings, slenderleaf woodoats (*Chasmanthium laxum var. sessiliflorum*), blueeyed grass (*Sisyrinchium sp.*), Texas wintergrass (*Nassella leucotricha*), goldenrod (*Solidago canadensis*), passionflower (*Passiflora sp.*), Japanese honeysuckle (*Lonicera japonica*), southern dewberry (*Rubus trivialis*), little bluestem (*Schizachyrium scoparium*), elephant's foot

(*Elephantopus carolinianum*), muscadine grape (*Vitis rotundifolia*), poison ivy (*Toxicodendron radicans*), Virginia creeper (*Parthenocissus quinquefolia*), and rose vervain (*Verbena canadensis*).

The pasture areas in the project area are used for grazing by livestock. Herbaceous species consist primarily of bermuda grass (*Cynodon dactylon*), dallis grass (*Paspalum dilatum*), Johnson grass (*Sorghum halepense*), and bahia grass (*Paspalum notatum*). Large solitary trees that were left intact by landowners to provide shade for livestock consist mainly of loblolly pine, post oak, and southern red oak.

Species Information
Table 1 contains the species listed by USFWS potentially occurring in the project area.

Table 1: FWS Listed Species with Potential to Occur Within the Project Action Area

Common Name	Scientific Name	Status	Effect/Affect
Least Tern	*Sterna antillarum*	Endangered	No Effect
Piping Plover	*Charadrius melodus*	Threatened	No Effect
Red Knot	*Calidris canutus rufa*	Threatened	No Effect
Red-cockaded Woodpecker	*Picoides borealis*	Endangered	May Affect

Of these species only the Red-cockaded Woodpecker (RCW), is likely to occur in the project vicinity. According to the IPAC, the three remaining bird species are only to be considered if the project is wind related. Therefore, those three species will not be analyzed further.

Red-cockaded Woodpecker
The RCW is a medium-sized bird (approximately 7 inches long) with black and white barring on the back, a black cap and nape, and white cheek patches. The males have a red streak on either side of the head called a cockade, but it is rarely seen outside of the breeding season. The RCW is a cooperative breeder that lives in family groups generally consisting of a breeding pair and one or more helpers, usually males. The diet of the RCW consists generally of insects and other small invertebrates, although they do occasionally forage on seeds and fruits, especially in the winter when prey is not abundant (USFWS 2016).

The RCW is endemic to fire-adapted southern pine and pine-hardwood forests and savannas. They are currently limited to several southeastern and eastern states from east Texas to southern Maryland. The RCW is the only woodpecker species to utilize living pine trees for nest cavities. Cavities take several years to excavate and are generally found in clusters. The RCW is known as a keystone species because numerous other species of amphibians, reptiles, mammals, insects, and avifauna utilize their cavities after abandonment by the RCW. Home range of a colony of RCWs is generally between 125 and 200 acres, although home ranges have been documented as low as 60 and as high as 600 acres (USFWS 2003). The primary limiting factors for the RCW include suitable nesting and foraging habitat. Suitable nesting habitat is described as pine or pine-hardwood forest or savanna with an open midstory and where the pines are dominant and generally 60 years or older. Suitable foraging habitat is defined as mature pine or pine-hardwood forest or savanna with the pine trees generally 30 years or older and that occupy at least 50 percent of the canopy (USFWS 2003). The foraging area of an RCW colony can extend up to 0.5 mile from cavity trees (USFWS

2003). High quality foraging habitat is burned regularly, which promotes open savanna and forests with herbaceous ground cover and large trees (USFWS 2003). The availability of large patches of high quality foraging habitat is an important factor in maintaining RCW populations.

Effect Determination

Right-of-Entry (ROE) has not been granted for all parcels in the project area. See Figure 3 for parcels with current ROE. Since the entire project cannot be surveyed for RCW this Informal Consultation is being initiated.

According to the USFWS's RCW Recovery Plan, suitable foraging habitat criteria has 1) no hardwood midstory, or if hardwood midstory is present it is sparse and less than 7ft. in height and 2) canopy hardwoods are absent or less than 30% of the number of trees in loblolly or shortleaf pine forest. The forested areas surveyed during the site visit did not possess these two criteria. Also the pasture land did not contain enough suitable pine trees for nesting and foraging habitat for the RCW.

As part of the TxDOT biological investigations of the proposed project, a Texas Natural Diversity Database (TXNDD) search was performed. According to the TXNDD search, no RCWs have been observed near the FM 1488 project area.

In addition the Threatened and Endangered Species section of the Final Environmental Impact Statement (FEIS) of the SH 249 extension was reviewed for this project. As stated previously, the proposed project would include a portion of the proposed SH 249 extension where the two projects overlap. The overlap would occur in the north eastern portion of the project where the vegetation is primarily forest. According to the FEIS, no suitable habitat exists within the project area where the two projects overlap. In addition, the FEIS stated that the closest sighting of an RCW was 4 miles from the project. According to the USFWS's RCW Recovery Plan, some criteria of the suitable foraging habitat are that 1) all foraging habitat is within 0.5 mile of the nesting cluster and 2) the foraging habitat is not separated by more than 200 feet of non-foraging habitat. This would place the proposed project out of range of the RCW that was observed.

<u>Critical Habitat</u>

Designated RCW critical habitat has not been established and is not present within the project area, therefore, the proposed project will have no effect on, and is not likely to destroy or adversely modify RCW critical habitat.

Voluntary Conservation Measures (VCM)

Until ROE is obtained for all parcels, TxDOT cannot make a final effect determination for RCW. Therefore the Voluntary Conservation Measure for this project will be to complete surveys of all forested parcels to determine if they provide suitable habitat for RCW. If TxDOT determines there is a potential effect on RCW as a result of these surveys, consultation with the service will be reinitiated.

Conclusion

Because a portion of the project area cannot be accessed TxDOT has determined that the proposed project may affect, but would not be likely to adversely affect the RCW. TxDOT requests the US Fish and Wildlife Service's concurrence with this determination.

Thank you for your consideration of this project. We look forward to your response in this matter. If you have any questions or require additional information, please contact Mark Fisher at (512) 416-2630 mark.fisher@txdot.gov. or contact Andrew Leske at (713) 802-5885 andrew.leske@txdot.gov

Sincerely,

Jodi Bechtel
Natural Resources Management Section Director
Environmental Affairs Division

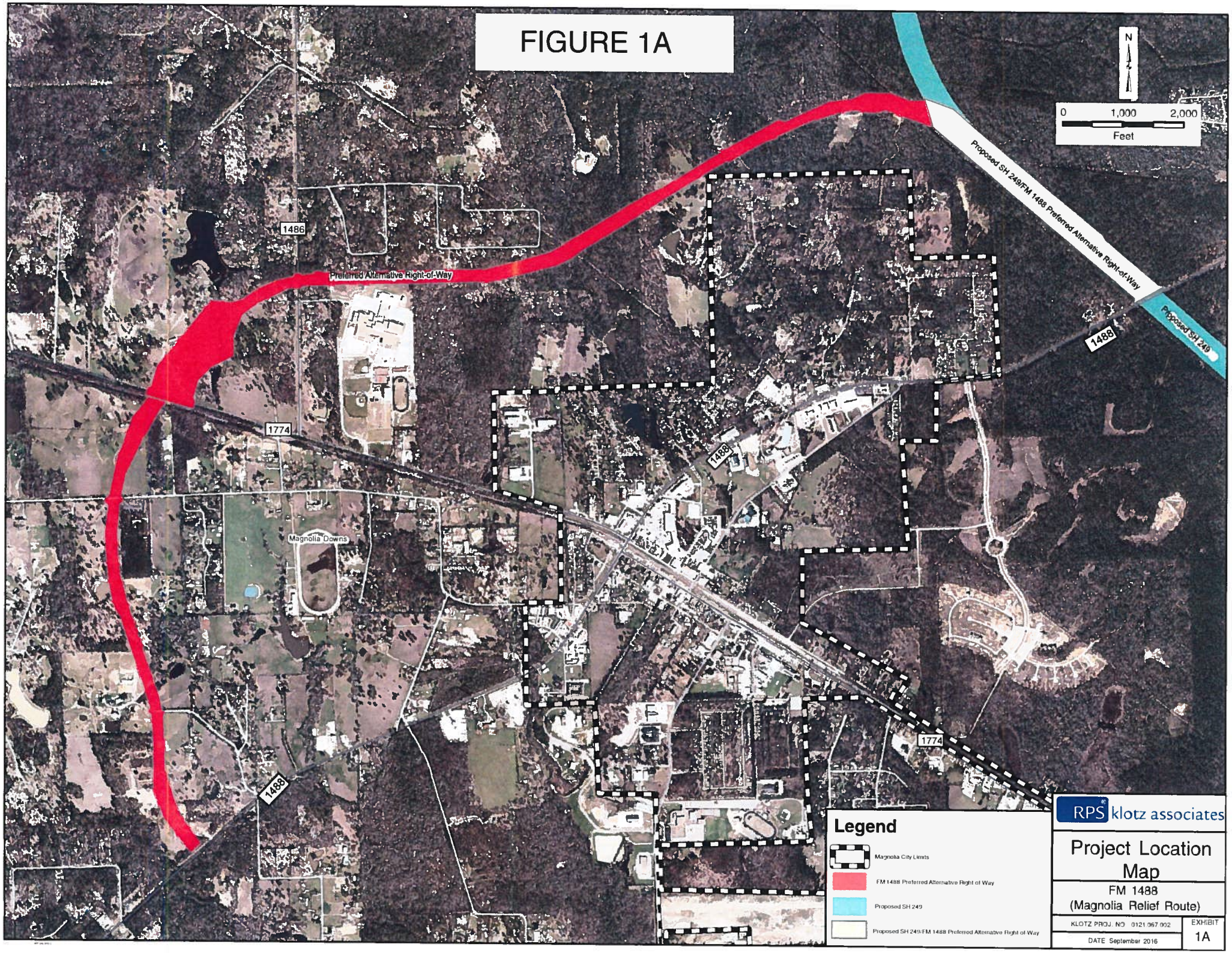
Attachments

References:

U.S. Fish and Wildlife Services. 2016. Red-cockaded Woodpecker Recovery Site Page (https://www.fws.gov/rcwrecovery/recovery_plan.html).

U.S. Fish and Wildlife Services. 2003. Recovery Plan for the Red-cockaded Woodpecker (Picoides borealis) Second Revision, U.S. Fish and Wildlife Service, Atlanta, GA.

FIGURE 1A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Feet
Proposed SH 249/FM 1488 Preferred Alternative Right-of-Way
Proposed SH 249
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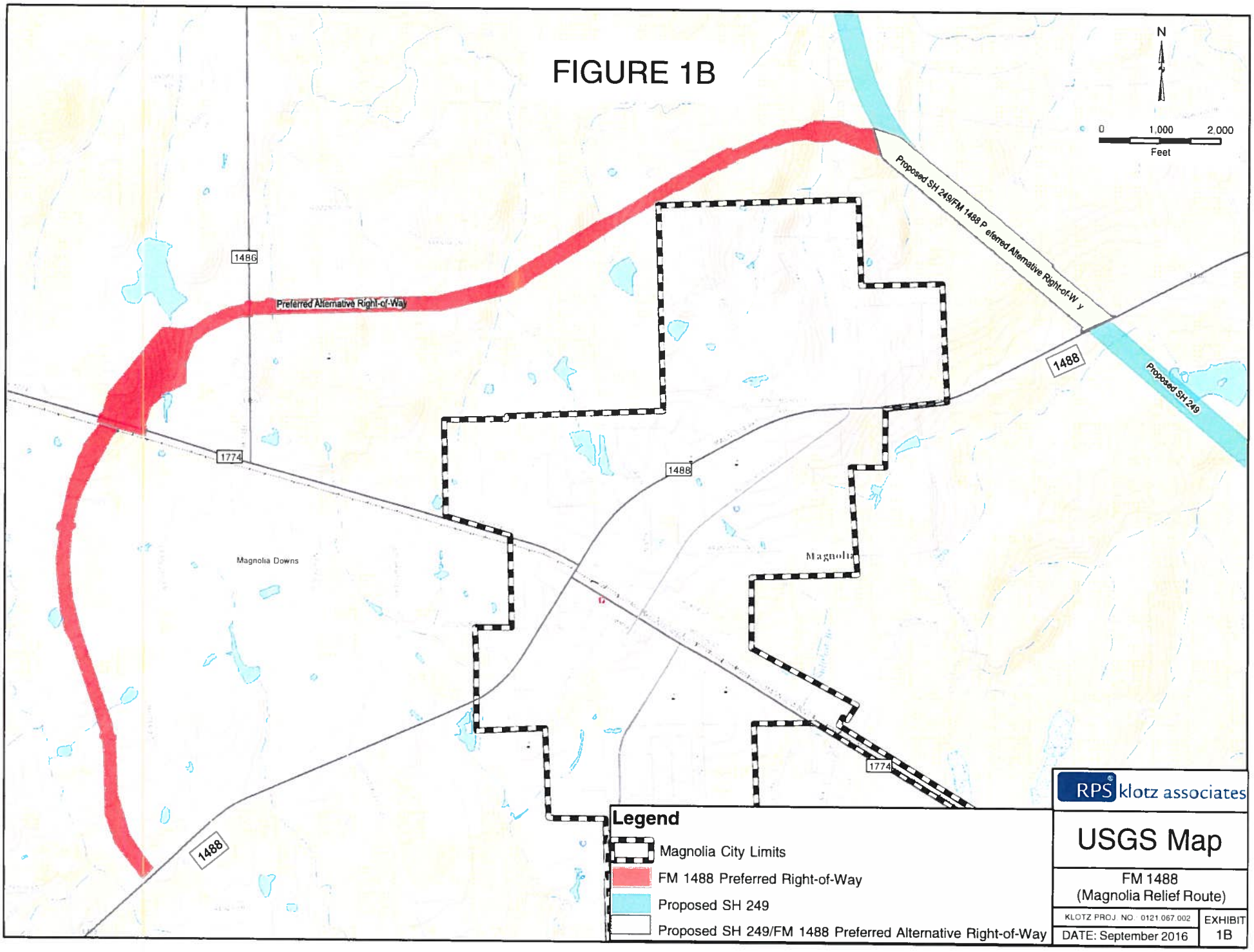
Preferred Alternative Right-of-Way
1488
1774
1488
Magnolia Downs
1774
1488
Legend
Magnolia City Limits
FM 1488 Preferred Alternative Right of Way
Proposed SH 249
Proposed SH 249/FM 1488 Preferred Alternative Right of Way
RPS klotz associates
Project Location Map
FM 1488
(Magnolia Relief Route)
KLOTZ PROJ. NO. 0121.067.002
DATE September 2016
EXHIBIT
1A

FIGURE 1B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Preferred Alternative Right-of-Way
Proposed SH 249/FM 1488 Preferred Alternative Right-of-Way
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Proposed SH 249
1774
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Magnolia Downs
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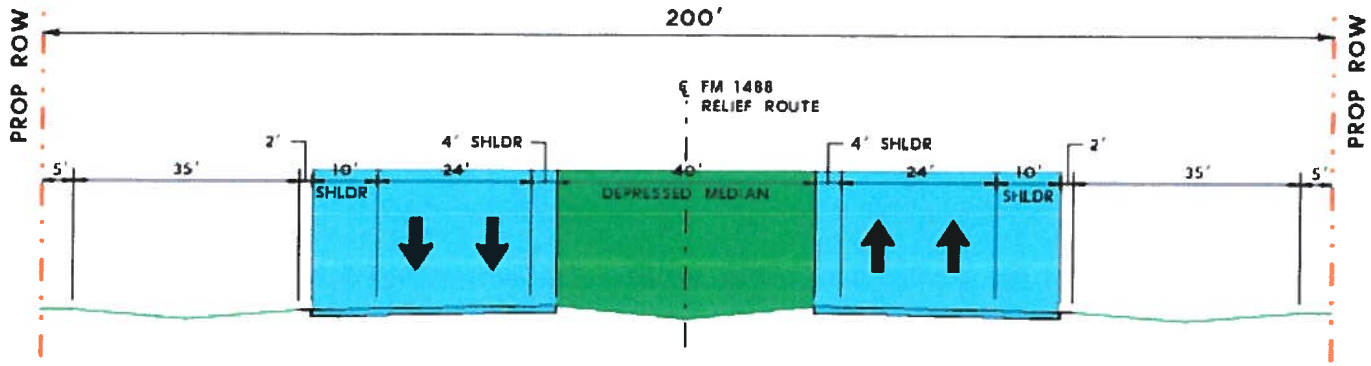
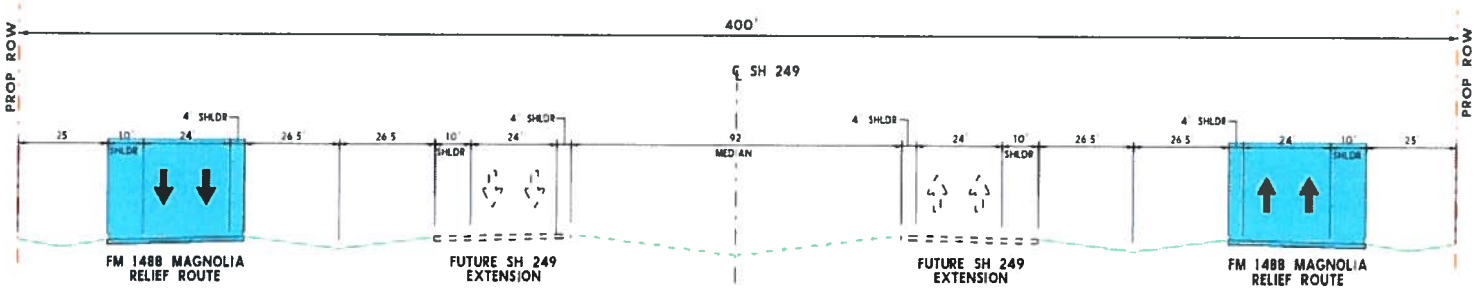
Legend
Magnolia City Limits
FM 1488 Preferred Right-of-Way
Proposed SH 249
Proposed SH 249/FM 1488 Preferred Alternative Right-of-Way
RPS klotz associates
USGS Map
FM 1488
(Magnolia Relief Route)
KLOTZ PROJ. NO. 0121.067.002
EXHIBIT
DATE: September 2016
1B

FIGURE 2



PROPOSED RURAL AT-GRADE SECTION



PROPOSED TYPICAL AT-GRADE SECTION COINCIDENT WITH SH 249 EXTENSION

FM 1488 Magnolia Relief Route

Proposed Typical Sections

FIGURE 3

FM 1488 Magnolia Relief Route Right-of-Way. Labeled Parcels are where photos were taken and are referenced below.
Green parcel indicates that right of entry was granted for that parcel.

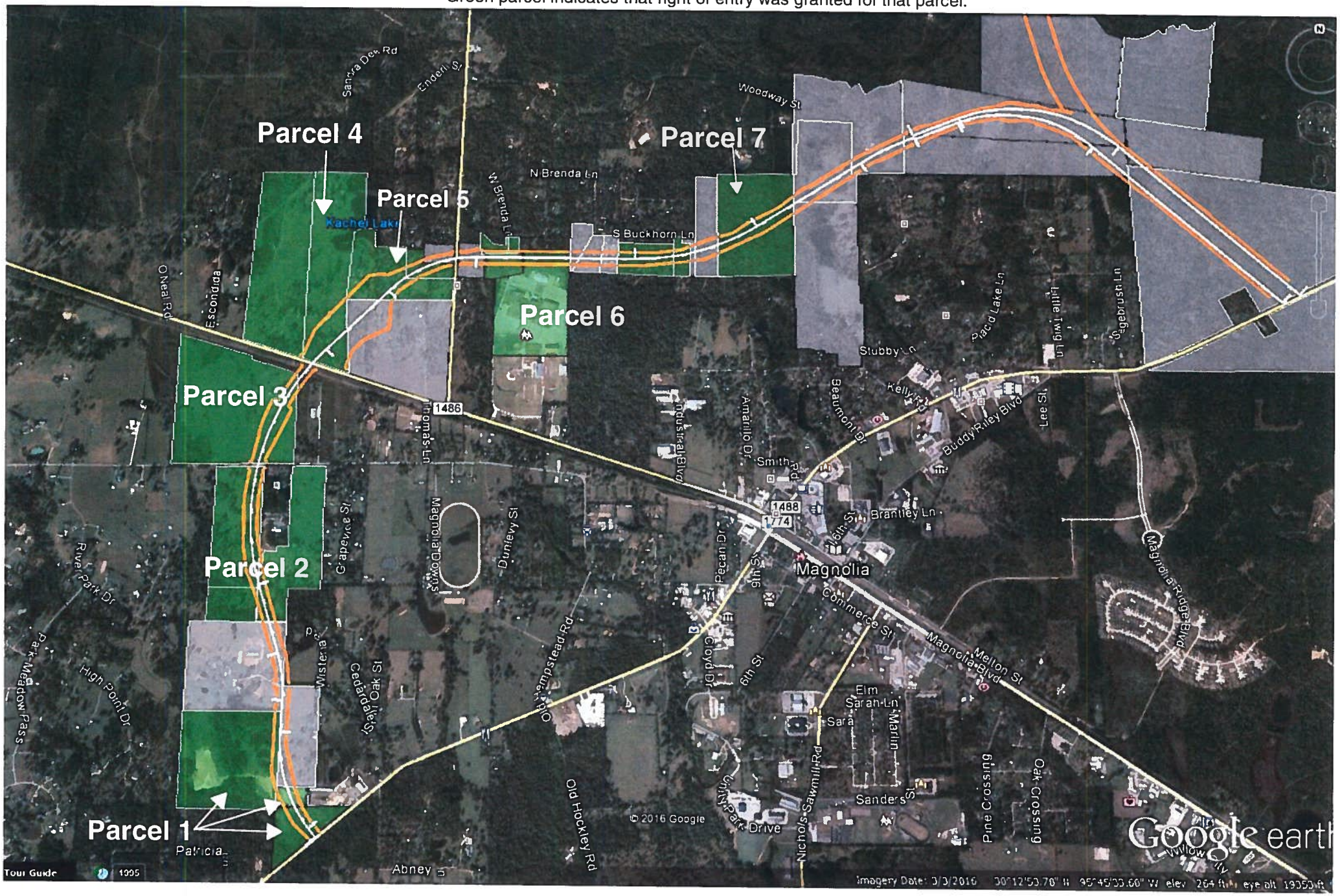


EXHIBIT 1

Site Visit Photos 8/9/2016 and 8/10/2016- See Figure 3 for Parcel Location
The following were taken on Parcel 1:

Photo is facing east and shows a body of water and the surrounding vegetation that is within the proposed ROW.

Photo is facing east and shows a body of water and the surrounding vegetation that is within the proposed ROW.

Photo shows a sample of the type of trees that were found on Parcel 1.

Photo shows trees that were found and identified on Parcel 1.

Photo shows trees that were found and identified on Parcel 1.

The following were taken on Parcel 2:

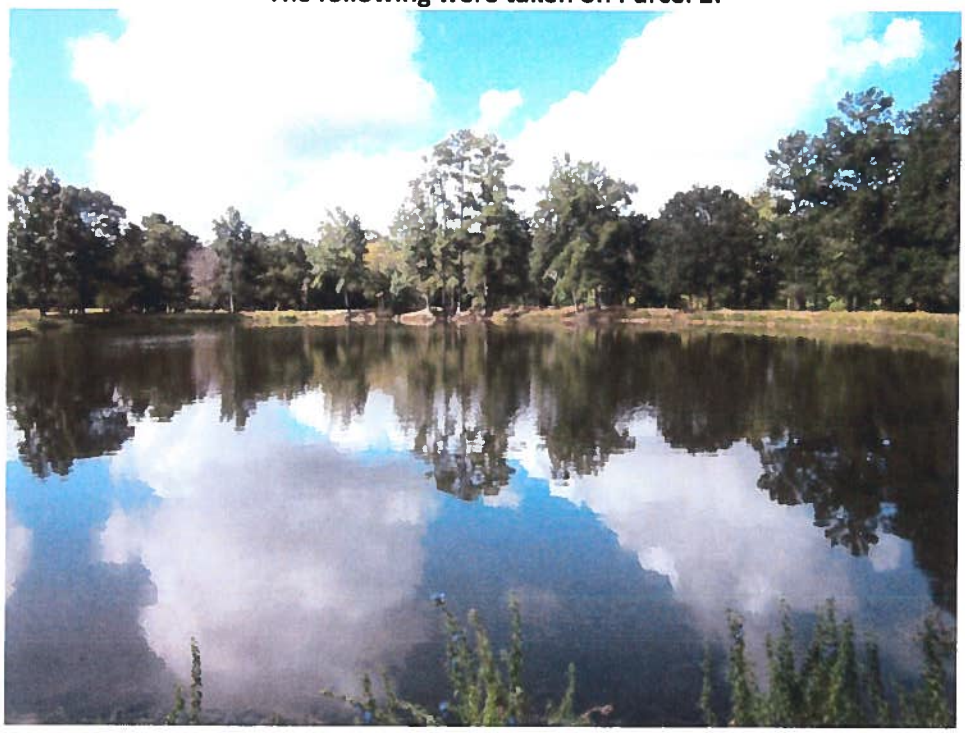


Photo is facing west and shows a body of water that is on Parcel 2. A portion of this body of water lies within the proposed ROW.

Photo shows the shape of the body of water on Parcel 2, as well as the typical vegetation surrounding it.

Photo is facing east and shows a portion of the body of water that lies within the proposed ROW on Parcel 2 and the surrounding vegetation.

Photo is facing east and shows the typical vegetation found on Parcel 2, when not near the body of water, within the proposed ROW.

Photo is facing north and shows a man-made drainage ditch on Parcel 2. This ditch flows into the body of water that is located on the property. This ditch is not located within the proposed ROW.

Photo shows where the drainage ditch meets the body of water, this is outside of the proposed ROW.

Photo shows the typical vegetation that was found on Parcel 2 along the proposed ROW.

The following were taken on Parcel 3

Photo is facing north and shows a house on Parcel 3 and the surrounding vegetation that is within the proposed ROW.

Photo is facing south and shows a majority of the property that is within the proposed ROW.

Photo is facing southwest and shows more of the vegetation that is within the proposed ROW.

Photo is facing west and shows the driveway that is within the proposed ROW on Parcel 3.

The following were taken on Parcel 4:

Photo is facing north and shows trees that were down and blocking the driveway to get onto Parcel 4.

Photo is facing northeast and shows some of the vegetation that is present on Parcel 4 within the proposed ROW.

The following were taken on Parcel 5:

Photo is facing south and shows a manmade dam within the proposed ROW that flows into a creek on Parcel 5. The water that can be seen is on an adjacent property and is within the proposed ROW also.

Photo is facing south and shows a better view of the manmade dam that flows into Parcel 5.

Photo shows the dried creek bed that the dam above flows into on Parcel 5. Vegetation that exists within the creek bed can be seen as well.

Photo shows an example of vegetation in and around the creek bed that is found within the proposed ROW on Parcel 5.

Photo shows more of the vegetation that is adjacent to the creek bed and within the proposed ROW.

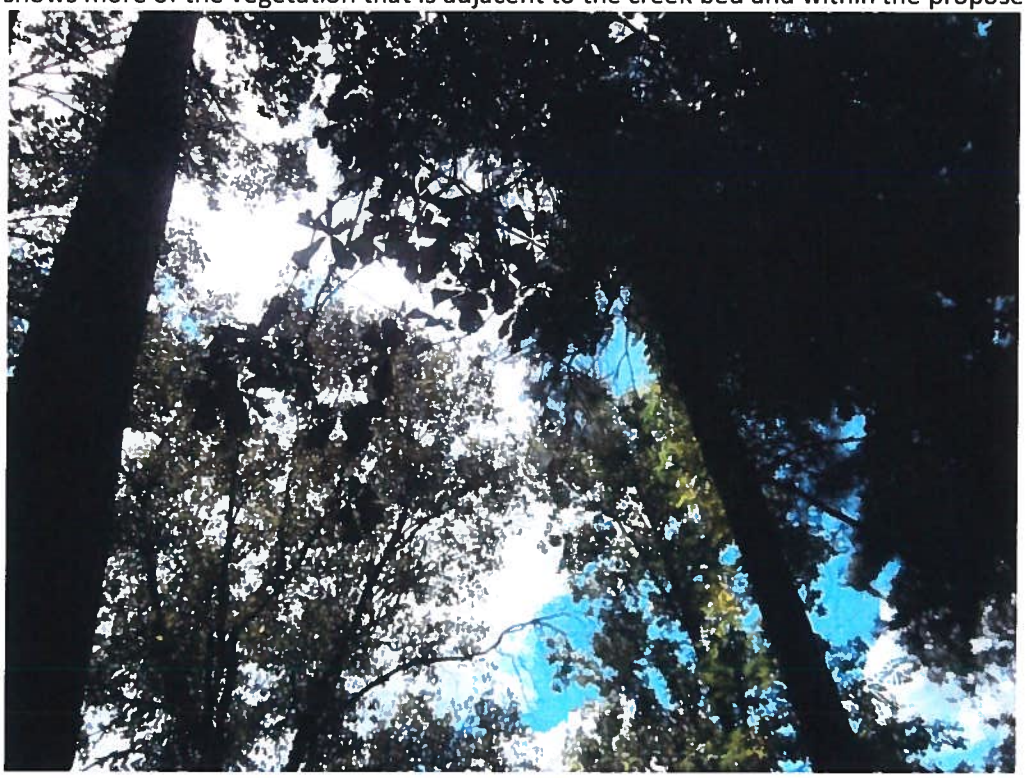


Photo shows a variety of trees that are on Parcel 5 and within the proposed ROW.

Photo is facing north and shows the creek bed and the surrounding vegetation that is within the proposed ROW.

Photo shows a small body of water that is outside of the proposed ROW but is where the creek that was mentioned above flows into.

Photo is facing north and shows Kachel Lake, which is on Parcel 5 but is not within the proposed ROW.

The following were taken on Parcel 6 (Magnolia High School)**:**

Photo shows a drainage ditch that flows into a manmade detention pond that is within the proposed ROW on Parcel 6.

Photo is facing west and shows the detention pond that is in the proposed ROW of the project.

Photo is facing southwest and shows more of the detention pond, however only a portion of the detention pond is within the proposed ROW.

Photo is facing north and shows vegetation along the fence line between Magnolia High School and two adjacent properties. This fence line is within the proposed ROW.

Photo is facing north and shows more of the vegetation along the fence line of Parcel 6 and the adjacent properties that are north of Parcel 6.

Photo is facing southeast and shows the detention pond on Parcel 6, a portion of this detention pond lies within the proposed ROW.

The following were taken on Parcel 7:

Photo is facing southwest and shows the dense vegetation on Parcel 7

Photo is facing south and shows the dense vegetation on Parcel 7.

Photo is facing south and shows the dense vegetation along a creek bed that is within the proposed ROW.

Photo is facing south and shows a dry creek bred that is within the proposed ROW.

Photo shows the dense vegetation that was found throughout Parcel 7.

Photo is facing north and shows more of the dense vegetation that is on Parcel 7.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
2005 NE Green Oaks Blvd., Suite 140
Arlington, Texas 76006

In Reply Refer To:
02ETAR00-2018-I-0121

October 26, 2017

Jodi Bechtel, Natural Resources Management Section Director
Texas Department of Transportation
Environmental Affairs Division
125 East 11th Street
Austin, Texas 78701-2483

Dear Ms. Bechtel:

Thank you for your August 3, 2017, letter requesting consultation on the proposed Farm-to-Market (FM) 1488 Magnolia Relief Route in Montgomery County, Texas, pursuant to section 7 of the Endangered Species Act (Act) as amended (16 U.S.C. 1531-1544) (Act). We are providing the following comments regarding potential effects to the endangered red-cockaded woodpecker (*Picoides borealis* [RCW]).

Section 7 of the Act requires that all Federal agencies consult with the Service to ensure that the actions authorized, funded, or carried out by such agencies do not jeopardize the continued existence of any threatened or endangered species or adversely modify or destroy designated critical habitat of such species. In a Memorandum of Understanding dated December 16, 2014, (23 U.S.C. 327) the Federal Highway Administration assigned responsibility for compliance with the National Environmental Policy Act and all Federal resource agency consultations, including section 7 of the Act, to TxDOT.

The proposed action involves constructing a new four lane divided highway for the purpose of bypassing traffic around the north side of the City of Magnolia. The Magnolia Relief Route (proposed action) would be approximately 5.4 miles long and would be constructed on undeveloped ranch/pasture lands and forested areas. This would include a 0.7 mile long portion of the previously proposed State Highway 249 (SH 249) extension where the two proposed roadways overlap. An Environmental Impact Statement was prepared for the SH 249 project and has received a Record of Decision. The proposed typical right-of-way (ROW) width varies between 200-900 feet. Vegetation within the eastern and northern portions of the proposed ROW consists of heavily forested pine and hardwood habitat, while the western and southern portions are comprised of pasture land.

The proposed project includes the commonly associated actions and equipment necessary to perform roadway construction on a new location including clearing and grubbing of vegetation, excavation and embankment of the roadway, subgrade and base laying operations,

overlays/level-up, and culvert extensions. The typical equipment expected for this project includes: motor grader, laydown machines, transfer vehicles, rollers, front end loaders, belly dump trucks, common pickup trucks, and a distributor (truck equipped with an asphalt tank and spray boom). In general, overlays typically involve excavation and embankment of the roadway subgrade and proposed base laying operation. The proposed project will take approximately 36 months to complete. To avoid conflict with nesting birds, TxDOT will phase removal of vegetation so that it takes place outside of the breeding season of most migratory birds (March through August).

As part of the TxDOT biological investigations of the proposed project, a Texas Natural Diversity Database (TXNDD) search was performed. According to the TXNDD search, no RCWs have been observed in the FM 1488 project area. Based on Service files, the nearest known RCW population is approximately 4.1 miles northeast of the action area. Therefore the action area is beyond the foraging radius of any known RCW cluster. Right-of-Entry (ROE) for the forested portion of the proposed action ROW has yet to be obtained, thus surveys for RCW habitat and RCW presence have not been conducted in these areas.

During an October 12, 2017 telephone conservation between Mark Fisher and Omar Bocanegra, of my staff, options for the consultation process were discussed. The Service reviewed aerial imagery of the proposed project area and could not discount the possibility of the RCW using portions of the forested lands. Thus, surveys of the habitat and for RCW presence (if suitable nesting and/or foraging habitat would be impacted) are recommended. As a result, it was determined that TxDOT and the Service will continue the informal consultation process until ROE could be obtained and surveys completed. For information on how to conduct presence/absence and habitat surveys for the RCW, please refer to Appendix 4. Survey Protocol in the RCW recovery plan available at https://www.fws.gov/rcwrecovery/files/RecoveryPlan/finalrecoveryplan.pdf.

Once the surveys are completed, TxDOT and the Service will review the information and determine if additional evaluation is necessary, and the appropriate process to conclude the consultation. As always, our office is available to provide technical assistance on survey design, evaluation, and other questions that may arise during this process.

Thank you for the opportunity to provide comments and assistance on the proposed project. If you have any additional questions, please contact Omar Bocanegra at 817-277-1100 ext. 2110.

Sincerely,

Debra T. Bills

Debra Bills
Field Supervisor

cc (e-mail): Mark Fisher, TxDOT
Robert Allen, USFWS
Adam Zerrenner, USFWS

Andrew Leske

From: Sue Reilly <Sue.Reilly@tpwd.texas.gov>
Sent: Friday, May 19, 2017 12:01 PM
To: Andrew Leske
Subject: RE: Early Coordination Request; 0523-09-018 FM 1488 Relief Route

Follow Up Flag: Follow up
Flag Status: Flagged

Andrew,

Thank you for the response.
Thank you for submitting the following project for early coordination: FM 1488 Relief Route new location road near Magnolia (CSJ 0523-09-018). TPWD appreciates TxDOT's commitment to implement the practices listed in the Biological Evaluation Form submitted on January 17, 2017. Based on a review of the documentation, the avoidance and mitigation efforts described, and provided that project plans do not change, TPWD considers coordination to be complete. However, please note it is the responsibility of the project proponent to comply with all federal, state, and local laws that protect plants, fish, and wildlife.
According to §2.204(g) of the 2013 TxDOT-TPWD MOU, TxDOT agreed to provide TXNDD reporting forms for observations of tracked SGCN (which includes federal- and state-listed species) occurrences within TxDOT project areas. Please keep this mind when completing project due diligence tasks. For TXNDD submission guidelines, please visit the following link: http://tpwd.texas.gov/huntwild/wild/wildlife_diversity/txndd/submit.phtml

Thanks,

Sue Reilly
Transportation Assessment Liaison
TPWD Wildlife Division
512-389-8021

From: Andrew Leske [mailto:Andrew.Leske@txdot.gov]
Sent: Monday, May 15, 2017 3:11 PM
To: Sue Reilly
Subject: RE: Early Coordination Request; 0523-09-018 FM 1488 Relief Route

Good Afternoon Ms. Reilly,

Spanning waterways is not feasible with this project.

Locations of detention ponds are still being determined, but we will avoid riparian habitat when/where possible. We will reinitiate coordination as necessary once the locations of the detention ponds are finalized.

Many Thanks

Andrew Leske
Environmental Specialist

TxDOT – Houston District
(713) 802-5885
Andrew.Leske@TxDOT.gov

From: Sue Reilly [mailto:Sue.Reilly@tpwd.texas.gov]
Sent: Friday, May 12, 2017 3:56 PM
To: Andrew Leske
Subject: RE: Early Coordination Request; 0523-09-018 FM 1488 Relief Route

Andrew,

Yes, sorry for the delay. My comment on this project is that I would urge TxDOT to span waterways for this project rather than culvert them. Also, will there be detention ponds constructed for this project? If so, I would request that they be located in previously disturbed areas and specifically not in riparian habitat.

Thank you,

Sue Reilly
Transportation Assessment Liaison
TPWD Wildlife Division
512-389-8021

From: Andrew Leske [mailto:Andrew.Leske@txdot.gov]
Sent: Wednesday, May 10, 2017 10:37 AM
To: Sue Reilly
Subject: RE: Early Coordination Request; 0523-09-018 FM 1488 Relief Route

Good Morning Ms. Reilly,

Do you have any updates on coordination for this subject project?

Many Thanks

Andrew Leske
Environmental Specialist
TxDOT – Houston District
(713) 802-5885
Andrew.Leske@TxDOT.gov

From: Andrew Leske
Sent: Monday, March 27, 2017 2:11 PM
To: 'Sue Reilly'
Subject: RE: Early Coordination Request; 0523-09-018 FM 1488 Relief Route

Good Afternoon Ms. Reilly,

There are currently separate individual projects under development, as shown in TxDOT project tracker, that are proposing to widen FM 1488 through Magnolia.

Public Meetings were held in 2004 and 2005 that discussed several alternative alignments for the proposed project, which were eliminated due to higher displacement numbers, higher ROW acquisition acreages, 4(f) impacts, etc.

Regarding the RCWs;
We hand delivered and mailed (certified) a 3rd set of requests for right of entry.
We received right-of entry on 2 additional parcels, which will be surveyed in the coming weeks. We were denied on 1 other parcel.

From: Sue Reilly [mailto:Sue.Reilly@tpwd.texas.gov]
Sent: Thursday, March 16, 2017 4:02 PM
To: Andrew Leske
Subject: RE: Early Coordination Request; 0523-09-018 FM 1488 Relief Route

Andrew,

I was surprised to see that only bypass alternatives were considered, and only on the north side of Magnolia. The EA does not discuss going around the south of Magnolia or expanding 1488 through the town of Magnolia. Can you please comment on the elimination of these alternatives?

Also, has any more work been done to ascertain if there is habitat for red-cockaded woodpeckers in the project area?

Thank you,

Sue Reilly
Transportation Assessment Liaison
TPWD Wildlife Division
512-389-8021

From: WHAB_TxDOT
Sent: Tuesday, January 17, 2017 4:30 PM
To: Andrew Leske
Cc: Sue Reilly
Subject: RE: Early Coordination Request; 0523-09-018 FM 1488 Relief Route

The TPWD Wildlife Habitat Assessment Program has received your request and has assigned it project ID # 37511. The Habitat Assessment Biologist who will complete your project review is copied on this email.

Project entered with the limited information available since forms were not included and I do not have access to ECOS.

Thank you,

John Ney
Administrative Assistant
Texas Parks & Wildlife Department

Wildlife Diversity Program – Habitat Assessment Program
4200 Smith School Road
Austin, TX 78744
Office: (512) 389-4571

From: Andrew Leske [mailto:Andrew.Leske@txdot.gov]
Sent: Tuesday, January 17, 2017 2:20 PM
To: WHAB_TxDOT <WHAB_TxDOT@tpwd.texas.gov>
Subject: Early Coordination Request; 0523-09-018 FM 1488 Relief Route

Good Afternoon,

Submitted for early coordination; The proposed FM 1488 Relief Route in Montgomery County.

The Biological Evaluation Form, Tier I form, and supporting information, as well as other relevant project information can be found in the official file of record, ECOS, under CSJ 0523-09-018.

Proposed Project Description;
The Texas Department of Transportation (TxDOT) proposes to construct Farm-to-Market (FM) 1488 Magnolia Relief Route around the north side of the City of Magnolia in Montgomery County, Texas. This project would include grade separated overpasses at FM 1774 and Union Pacific Railroad (UPRR) and at the proposed State Highway (SH) 249 extension. This project would be on new location. The project limits would be from existing FM 1488 west of Magnolia to proposed SH 249 east of Magnolia. The proposed project would be approximately 5.4 miles in length.

Many Thanks

Andrew Leske
Environmental Specialist
TxDOT – Houston District
(713) 802-5885
Andrew.Leske@TxDOT.gov

#EndTheStreakTX

Texas Department of Transportation

125 EAST 11TH STREET, AUSTIN, TEXAS 78701-2483 | 512.463.8588 | WWW.TXDOT.GOV

January 6, 2017

RE: Early Coordination for Sec. 106 Consultation

To: The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by the Federal Highway Administration (FHWA) and TxDOT.

The purpose of this letter is to include more detailed information about TxDOT's consultation program. The documents include information on the **TxDOT Early Tribal Coordination Tool** and a table of the projects and nearby archeological sites, if any, that the **TxDOT Early Tribal Coordination Tool** map depicts. This letter provides more detail about both the **TxDOT Early Tribal Coordination Tool** and the table.

TxDOT Early Coordination Tool

The first attachment contains the link, log in information and directions for the **TxDOT Early Tribal Coordination Tool**. This web-based map depicts hundreds of both minor and major TxDOT projects within your area of interest and any known archeological sites within a kilometer of each project. Each project's provisional area of effects (APE) is defined in the tool as the area within 500 feet of a roadway segment. As TxDOT develops detailed plans for each project and finalizes the APE, this provisional APE in most cases will likely be refined to a smaller area. Archeological sites do occur in proximity to some of the projects, and new sites may be discovered through further investigations. Archeological sites that qualify for inclusion in the National Register of Historic Properties are, however, rare. TxDOT thus expects that most of these projects will have no effect on archeological historic properties. All of the depicted projects have been or will be reviewed by the Environmental Affairs' Archeology Branch to verify that the projects will have no effect.

****YOU MAY COMMENT AT ANY TIME DURING THIS EARLY COORDINATION PROCESS AND USE OF THE TOOL DOES NOT PRECLUDE THE ABSENTEE SHAWNEE TRIBE OF OKLAHOMA FROM ENTERING INTO CONSULTATION PER SEC. 106 OF THE NATIONAL HISTORIC PRESERVATION ACT (NHPA).**

We will continue to send you consultation letters on any project whose area of potential effects includes Native American sites and on all major projects. Major projects:

- include border crossing facility construction, conversion of non-freeways to freeways, new location non-freeways, new location freeways, widening non-freeways, and widening freeways; and
- Require new right-of-way.

Major projects would cause more than 100 cubic yards of ground disturbance to previously-undisturbed areas, and such projects may affect areas that have not been previously surveyed for cultural resources.

For minor projects, TxDOT will conduct investigations of the final APE. These investigations will comprise review of available background information and, in some cases, field studies. TxDOT will not provide further information about such minor projects unless these investigations reveal the presence of a site.

Table of Projects and Sites

The second attachment contains a table of the projects and any sites within the 500-foot APE of each project. As previously noted, sites may have already been identified within this provisional APE. The table lists, as a separate row, each site found within 500 feet of a project. For projects where multiple sites have been found within the provisional APE, the same project will be listed multiple times in the table. Projects for which no known sites occur within 500 feet will be listed only once. The table can be sorted in various ways, such as by County, project status, and let date.

If you have any questions about these tools or would like to consult on any of the projects listed, please contact Laura Cruzada at 512/416-2638, laura.cruzada@txdot.gov. When replying to this correspondence by US Mail, please ensure that the envelope address includes reference to the Archeological Studies Branch, Environmental Affairs Division.

Thank you for your attention to this matter.

Sincerely,

Scott Pletka, Deputy Section Director
Environmental Affairs Division

Texas Department of Transportation

125 EAST 11TH STREET, AUSTIN, TEXAS 78701-2483 | 512.463.8588 | WWW.TXDOT.GOV

August 29, 2017

Section 106/Antiquities Code of Texas: Coordination, Review and Comments (Permit #7914)
Intensive Survey Draft Report: FM 1488 Magnolia Bypass Project
Houston District; Montgomery County (CSJ: **0523-09-018**)

Ms. Patricia A. Mercado-Allinger
Division Director/State Archeologist
Archeology Division
Texas Historical Commission
PO Box 12276
Austin, TX 78711-2276

Dear Ms. Mercado-Allinger:

The proposed project will be undertaken with Federal funding. In accordance with Section 106 (and the First Amended Programmatic Agreement among the Texas Department of Transportation [TxDOT], the Texas State Historical Preservation Officer [TSHPO], the Federal Highway Administration [FHWA], and the Advisory Council on Historic Preservation) and the Antiquities Code of Texas (and the Memorandum of Understanding between the Texas Historical Commission [THC] and TxDOT), this letter initiates formal Section 106 consultation for the proposed undertaking.

The 5.4 mile long proposed project would construct a bypass around the City of Magnolia consisting of four lanes, two in each direction, separated by a median. This project would include grade separated overpasses at FM 1774 and Union Pacific Railroad (UPRR) and at the proposed State Highway (SH) 249 extension. The project width is a proposed corridor of 200 to 350 feet in width. This project would be built on new location. The project limits would be from existing FM 1488 west of Magnolia to proposed SH 249 east of Magnolia. The area of potential effect (APE) consists of the project length, the project width, and the depth of construction impacts (approximately three to ten feet below the ground surface). The project and archeological APE total 199.88 acres, 155.0 of which are new right-of-way (ROW), 41.5 acres that overlap with the proposed SH 249 project ROW, and 3.38 acres of existing ROW.

Archeologists from Cox/McLain Environmental Consulting, Inc. (Cox/McLain), on behalf of the TxDOT Houston District, conducted an intensive survey of the above proposed project in April of 2017. The archeological investigation consisted of a 100 percent pedestrian survey and the excavation of 39 shovel-test units throughout the APE where access was available. Access was restricted to the western half of the APE. Right-of-entry (ROE) was denied throughout most of the eastern half of the APE. Cox/McLain archeologists observed that a majority of the shovel tests revealed sandy loam or sand deposits to a depth of 25 to 60 centimeters below surface (cmbs) underlain with clay or sandy clay. Nine of the shovel tests extended to 80 to 100 cmbs in sandy loam or sand deposits and did not encounter clay. Shovel tests were only excavated in areas where previous agricultural impacts were not apparent, ground visibility was less than 30 percent, and the HoustonPALM map units suggested the likely presence of intact soils that could contain prehistoric archeological deposits. Based on the results of this survey, no additional archeological investigations within the proposed APE where ROE was granted is warranted. Approximately 111.68

acres of the APE in the eastern half of the project area remain to be survey once access to these parcels has been acquired. TxDOT archeologists agree with this recommendation.

The attached draft survey report from Cox/McLain, *Intensive Archeological Survey of FM 1488 from Existing FM 1488 West of Magnolia to Proposed SH 249 Montgomery County, Texas*, is submitted to your office for your review and comments. TxDOT recommends that the archeological inventory thus far is satisfactory and complete and would have no effect on any archeological historic properties (36 CFR 800.16(l)) or State Antiquities Landmarks (13 TAC 26.8); no further investigations are warranted within the portion of the APE surveyed. TxDOT further requests your permission to defer the remainder of the archeological inventory until access to the parcels denied ROE is acquired. Once access is acquired, TxDOT understands that it is obligated to complete the inventory and all coordination with office before commencing with construction on these parcels. TxDOT is seeking your formal concurrence on the above recommendation for Section 106 coordination. If you have no comments to make or objections to the above recommendations made, please sign below to indicate your concurrence.

Thank you for your consideration in this matter. If you have any questions or further need of assistance, please contact Allen Bettis of the TxDOT Archeological Studies Program at (512) 416-2747.

Sincerely,

Allen C. Bettis Jr.
Archeological Studies Program
Environmental Affairs Division

Attachment
cc w/o attachments: Andrew Leske, Houston District Office
Chris Dayton, Cox/McLain - Austin
ACB ECOS

Concurrence: 9-1-17
for Mark S. Wolfe, State Historic Preservation Officer Date:

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.

Intensive Archeological Survey of FM 1488 from Existing FM 1488 West of Magnolia to Proposed SH 249 Montgomery County, Texas

(CSJs: 0523-09-018 and 0523-08-013)

Prepared by:
Brett Lang (Project Archeologist)
Cox | McLain Environmental Consulting, Inc.
8401 Shoal Creek Blvd, Suite 100
Austin, TX 78757

For
Klotz Associates, Inc.

Reviewed by
Texas Department of Transportation Environmental Affairs Division
118 East Riverside
Austin, TX 78704

Under
Texas Antiquities Permit 7914
Melissa M. Green (Principal Investigator)

Cox | McLain Environmental Consulting Inc. Archeological Report 150
(CMEC-AR-150)

DRAFT REPORT ACCEPTABLE
by
for Mark Wolfe
Executive Director, THC
Date 7-1-17
Track#

COX | McLAIN
Environmental Consulting

July 7, 2017

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by TxDOT pursuant to 23 U.S.C. 327 and a memorandum of understanding dated December 16, 2014, and executed by FHWA and TxDOT.