

Disclaimer

This Project Manual was last updated on December 21, 2016. On this date, the material enclosed within the Project Manual contains 2017 SPLOST information for Fayette County, Peachtree City, Fayetteville, Tyrone and Brooks.

Fayette County project information is also listed on the County's website. As projects are updated, the Project Manual and website will be updated.

The information within the Project Manual covering Peachtree City, Fayetteville, Tyrone and Brooks was obtained from the governing municipality. The SPLOST information is contained herein for the benefit of public knowledge, and the data is updated to the County's best knowledge. As updates are released, Fayette County will strive to keep the information updated. For more information, please contact the specific municipality.

City of Peachtree City

151 Willowbend Road
Peachtree City, Georgia 30269
Phone: 770-487-7657
Website: <http://www.peachtree-city.org/>

Town of Tyrone

881 Senoia Road
Tyrone, Georgia 30290
Phone: 770-487-4038
Website: <http://tyrone.org/>

City of Fayetteville

240 S. Glynn Street
Fayetteville, Georgia 30214
Phone: 770-461-6029
Website: <http://fayetteville-ga.gov/>

Town of Brooks

961 Highway 85 Connector
Brooks, Georgia 30205
Phone: 770-719-7666
Website: <http://www.brooksga.com/>



Fayette
COUNTY

"WHERE QUALITY
IS A LIFESTYLE"



2017 SPLOST Information

SPLOST 2017

Where Quality is a Lifestyle

Transportation – Stormwater – Public Safety Radio System – Fire & EMS – Woolsey

www.fayettecountyga.gov/SPLOST-2017.htm



Fayette County's Board of Commissioners approved a referendum for a one-cent special purpose local option sales tax (SPLOST) that will fund transportation, stormwater infrastructure, public safety, and facilities. If approved by the voters on March 21, 2017, the tax will be collected from July 1, 2017 to June 30, 2023.

**This is an official publication of
the Fayette County Board of
Commissioners.**

Charles Oddo, Chairman – District 5 (At-Large)

Randy Ognio, Vice Chairman – District 2

David Barlow, Commissioner – District 1

Steve Brown, Commissioner – District 3

Charles Rousseau, Commissioner – District 4

Steven Rapson, County Administrator

Investing in our
Quality of Life

- Stormwater Infrastructure
- Transportation
- Public Safety Radio System
- Fire & EMS
 - Station #4
 - Fire Pumper
 - Training
- Woolsey Community Center

2017

SPLOST Distribution

| | |
|----------------|----------------------|
| Fayette County | \$64,646,530 |
| Peachtree City | \$45,472,835 |
| Fayetteville | \$21,098,538 |
| Tyrone | \$ 9,102,463 |
| Brooks | \$ 693,791 |
| Total | \$141,014,157 |

Where Quality is a Lifestyle

2017 Fayette County SPLOST

INTRODUCTION

Fayette County voters will decide whether or not to approve a 1% (or 1¢) SPLOST (Special Purpose Local Option Sales Tax) during the March 21, 2017, Special Election.

The ballot will ask voters the following question (final language will be determined by the Fayette County Board of Commissioners):

- YES Shall a special 1 percent sales and use tax be imposed in the special district of Fayette county for a period of time not to exceed six years and for the raising of an estimated amount of \$141,014,157 for the purpose of county and municipal capital projects?
- NO

The language that will appear on the ballot is specified by the State, but terms like “roads,” “public safety,” and “stormwater/infrastructure” represent a tremendous investment in many projects that impact those who live in Fayette County. This project manual will detail the specific projects proposed by the Board of Commissioners so that our voters will know what their investment will yield.

SPLOST Defined

The acronym SPLOST stands for “Special Purpose Local Option Sales Tax” and is a specific tax rate for a specific period of time. Counties and cities can use SPLOST funds for specific capital projects.

If the 2017 SPLOST is approved by voters, the sales tax in Fayette County will increase 1¢, from 6¢ on every dollar spent to 7¢. Currently Fayette County is one of only seven counties in Georgia (out of 159) to have a sales tax less than 7¢.

In Georgia, the State receives 4¢ of the sales taxes collected in every county. A 1¢ Local Option Sales Tax (LOST) is shared among a county and any of its municipalities based on an agreed-upon formula. LOST funds can be used by local governments as part of their General Fund operating expenses. Fayette County also has a 1¢, voter-approved E-SPLOST, which is invested solely for use by the Board of Education. This comprises our current 6¢ Local Option Sales Tax.

Of the counties immediately surrounding Fayette County, Clayton collects an 8¢ sales tax while Coweta, Spalding, Fulton, DeKalb, Henry, and Pike Counties all collect 7¢. This is important because the extra penny of sales taxes fund only projects in the counties in which they are collected, no matter where the buyer paying the tax lives. With Fayette County having a lower sales tax than the surrounding areas, we lose tax revenue every time a Fayette County resident shops or eats out in another County, because we cannot recoup that tax when residents of other counties dine or shop here.

If approved by the voters, the 2017 SPLOST will be invested in capital projects throughout the County in the areas of transportation, public safety, infrastructure, and facilities. The projects will be defined in an intergovernmental agreement that included the specific list of projects for each city and the County.

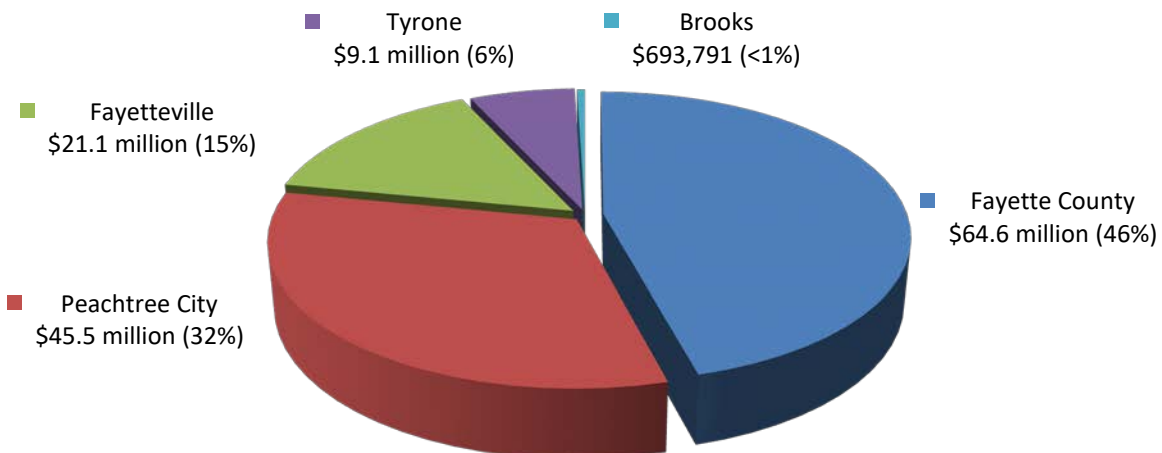
SPLOST Distribution

Fayette County and the municipalities of Brooks, Fayetteville, Peachtree City, and Tyrone will share the SPLOST proceeds based on population. Each jurisdiction has identified its own list of projects to be built with the funds raised. An intergovernmental agreement allocated the estimated revenues from a 6-year SPLOST as follows:

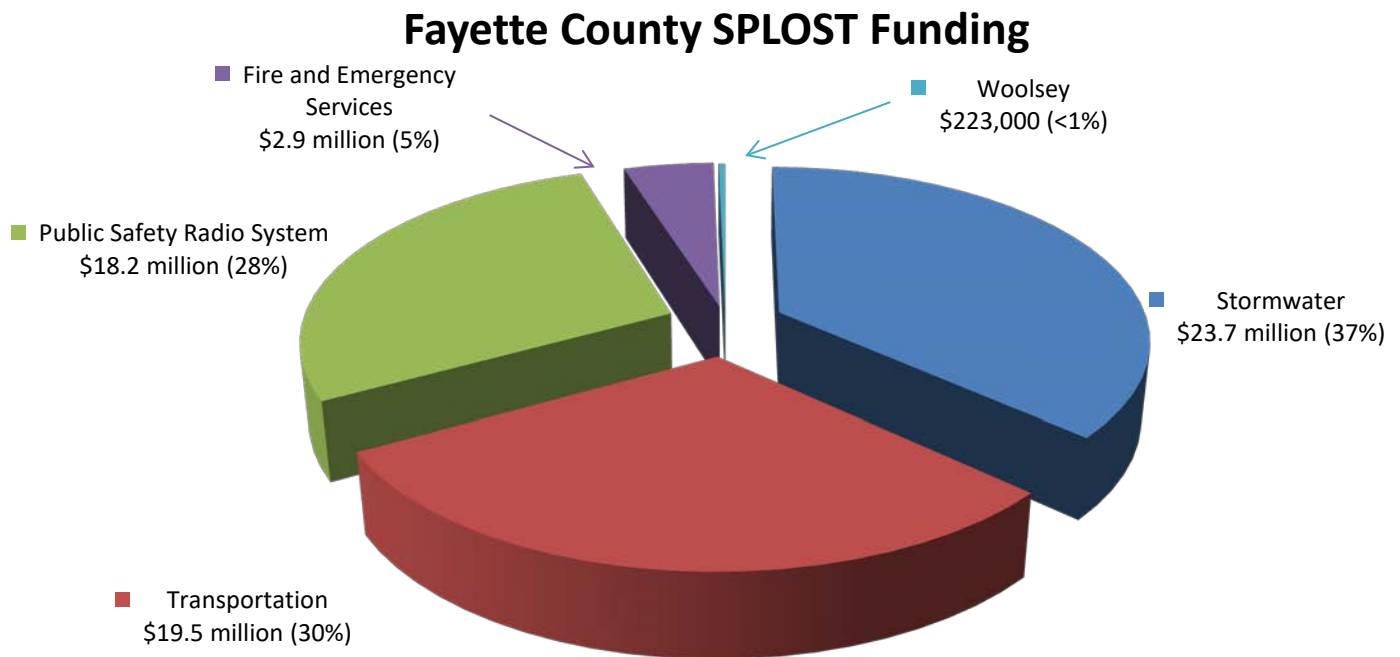
2017 SPLOST Distribution

| | |
|----------------|----------------------|
| Fayette County | \$64,646,530 |
| Peachtree City | \$45,472,835 |
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| Tyrone | \$9,102,463 |
| Brooks | \$693,791 |
| Total | \$141,014,157 |

SPLOST Allocation



Fayette County has compiled a list of projects that represent a significant investment in the facilities and infrastructure that contribute to our quality of life. Many of the projects have been requested by the community (intersection improvements for traffic flow and roadway conditions), while others, such as relocation of fire station #4, enhancement of the public safety radio system, stormwater infrastructure, and community center for Woolsey, have been planned and needed for years without any identified funding source. The Stormwater Utility was created to help fund stormwater infrastructure repairs and replacements; however revenue collected from the Utility isn't enough to match the replacement needs of Fayette County. If approved by the voters, the Stormwater Utility would be discontinued. The recent recession also caused several years of delays for transportation enhancements and maintenance and the recently implemented Transportation Committee will be evaluating transportation projects in order to make recommendations to the Board of Commissioners of Fayette County as to the formulation of current and long-range plans for transportation issues within Fayette County. The SPLOST projects and designated funding fall into the following categories:



Without a SPLOST, funding these capital projects would require a significant property tax increase, significant increase to Stormwater Utility annual charges, significant cuts in other

programs, or multiple simultaneous modifications. The SPLOST allows Fayette County voters to choose whether to make this level of investment in our community, and comes from every shopping and dining in Fayette County, instead of being imposed only on those who own property and pay property taxes here. While property taxes are certainly an option for funding many of these projects, a significant property tax increase would result in Fayette County residents being the sole contributors to the capital projects, when the capital projects in Fayette County are being used daily by residents of other counties.

FAYETTE COUNTY PROJECT SUMMARY

Where Quality is a Lifestyle

This document outlines Fayette County's 2017 Special Purpose Local Option Sales Tax Projects. A brief description of the projects and anticipated funding requirements are outlined to address the needs for Stormwater, Transportation, Public Safety Radio System, Fire Station Relocation, and Woolsey Community Center. If approved, the SPLOST would be in effect for a six (6) year period from July 1, 2017, through June 30, 2023.

BUDGET SUMMARY

| 2017 SPLOST—Fayette County | | |
|---|--------------------|---------------------|
| Category | Number of Projects | Total Cost |
| Stormwater | 238 | \$23,741,641 |
| Category I—Flooding and Safety | 20 | \$6,451,657 |
| Category II—Stormwater Infrastructure Preservation | 65 | \$14,145,522 |
| Category II—Tier 1 | 14 | \$3,705,373 |
| Category II—Tier 2 | 51 | \$10,440,149 |
| Category III—Stormwater Infrastructure Preservation | 153 | \$1,651,211 |
| Category IV—Stormwater Improvement Projects | N/A | \$1,493,251 |
| Transportation | 20 | \$19,520,353 |
| Public Safety Radio System | 1 | \$18,211,536 |
| Fire and Emergency Services | 3 | \$2,950,000 |
| Woolsey | 1 | \$223,000 |
| Total | 263 | \$64,646,530 |

2017 SPLOST SUMMARY

Stormwater - \$23,741,641

Fayette County owns and maintains miles of storm drainage pipe and associated drainage infrastructure for managing stormwater running under Fayette County Roads. Deteriorated, damaged, poorly maintained, and/or undersized pipes and structures, such as box culverts; gutters; swales, catch basins and inlets, can result in potentially serious safety, flooding and environmental problems. The drainage system improvements proposed in this SPLOST provide repair and replacement of drainage systems under and adjacent to roadways that have deteriorated to the point where they no longer function as intended.

Transportation - \$19,520,353

Various transportation projects in the unincorporated County are being identified that address safety, operational efficiency, maintenance, capacity and other issues. A portion of the money may be used as local match for large, federal-aid projects

Public Safety Radio System - \$18,211,536

The Fayette County Public Safety Radio System will be upgraded and/or replaced with a state of the art radio system for 911 and public safety first responders.

Fire and Emergency Services - \$2,950,000

Projects include the relocation and reconstruction of Station #4, replacement of a fire truck pumper, and initiate the beginning phase towards constructing a new fire training center, to provide better response times, service, safety, and training to Fayette County.

Woolsey - \$223,000

The historic mercantile building in the Town of Woolsey will be restored to a full service community center, for Town Hall Meetings, community uses for residents and visitors, and museum.



2017 SPLOST Information

Stormwater



Canterbury Lane



Westbridge Circle



East Lake Drive



Grande Court



Fayette
COUNTY

December 2016

FAYETTE COUNTY STORMWATER INFRASTRUCTURE IMPROVEMENTS

Fayette County owns and maintains miles of storm drainage pipe and associated drainage infrastructure for managing stormwater running under Fayette County Roads. This is comprehensively referred to as the Municipal Separate Storm Sewer System and includes items such as: storm drainage pipes; box culverts; gutters; ditches, swales, catch basins and inlets.

A portion of the county's storm drainage infrastructure needs repairs or replacement due to deterioration of corrugated metal pipe that is approaching or exceeding its expected useful life. Deteriorated, damaged, poorly maintained, and/or undersized pipes and structures can result in potentially serious safety, infrastructure, flooding and environmental problems.

The drainage system improvements identified provides repair and replacement of drainage systems under and adjacent to roadways that have deteriorated to the point where they no longer function as intended.

| | | |
|-------------------|--------------|--------------------|
| Category I | TOTAL | \$6,451,659 |
|-------------------|--------------|--------------------|

Flooding and Safety: Replacement or rehabilitation of Stormwater Drainage Systems where failure or improper operation may result in loss of property or probable loss of human life. This includes drainage systems that were damaged during the 2015 Christmas Floods (FEMA Disaster Declaration 4259-DR) and dams classified by the Georgia Safe Dams program that are within Fayette County right-of-way. All projects listed in this category are in need of immediate replacement or have been replaced.

| | | |
|--------------------|--------------|---------------------|
| Category II | TOTAL | \$14,145,522 |
|--------------------|--------------|---------------------|

Stormwater Infrastructure Preservation Projects Greater than \$25,000: Deformation or damage of system may affect the drainage capacity or overall function of the structure. These projects have been subcategorized into Tier 1 and Tier 2.

| | |
|--|---------------------|
| Tier 1 projects are in need of immediate attention. | \$3,705,373 |
| Tier 2 projects are projects that need replacement soon. | \$10,440,149 |

| | | |
|---------------------|--------------|--------------------|
| Category III | TOTAL | \$1,651,211 |
|---------------------|--------------|--------------------|

Stormwater Infrastructure Preservation Projects Less than \$25,000: Deformation or damage of system may affect the drainage capacity or overall function of the structure.

| | | |
|--------------------|--------------|--------------------|
| Category IV | TOTAL | \$1,493,249 |
|--------------------|--------------|--------------------|

Stormwater Improvement Projects: Stormwater drainage systems functional improvements.

| | | |
|--------------------|--------------|---------------------|
| SPLOST 2017 | TOTAL | \$23,741,641 |
|--------------------|--------------|---------------------|

Tetra Tech General Assumptions

- 1) Preliminary culvert designs are based on modeling scenario outputs from the HY-8 culvert hydraulic analysis program. A culvert was considered to perform adequately if 100% of flow resulting from a 25-year storm event passes through the culvert without overtopping the road surface. 25-year storm event flows were obtained for each site using the USGS StreamStats Program, which estimates event flows based on a given point's drainage area and relative proximity to existing USGS stream and rainfall gages.
- 2) Utility types, locations, and dimensions at each project site are based on street level visual inspections. No research, subsurface utility engineering (SUE) equipment or contact with utility owners was conducted. Utility relocation costs are based on previous Fayette County SPLOST planning level estimates of common sizes for each utility.
- 3) Easement cost estimates are based on the analysis of a collection of 2014 property sales in the Fayetteville, Georgia area using prices and lot sizes available on the Fayette County Tax Assessors' Office website and the Fayette County GIS portal. A conservative cost of \$4/SF has been applied to the land that is presumed to lie outside of the County's right of way (ROW) for each project's limit of disturbance. This value should account for potential market appreciation over the life of a SPLOST program and the planning level nature of the estimates. Full property appraisal at each location will be required once detailed plans are available.
- 4) Road classifications were obtained from the Fayette County GIS portal. No distinction was made regarding street design standards and specifications. For costing purposes, an asphaltic concrete paving profile was used consisting of a 6" stone base, 3" binder course, and 3" of topping.
- 5) Construction line item costs were assembled from two sources: GDOT's 2015 Item Mean Summary, and the RS Means CostWorks software program using 2015 Cost Data for Atlanta area zipcodes beginning with 302. Unit prices from both sources were increased by 20% to account for small project size, mobilization/demobilization of construction equipment, hauling and disposal costs, and the overall planning level nature of the estimates. Any other construction cost assumptions are noted on individual project sheets.
- 6) Traffic control cost percentage estimates are based on street classification, roadway closure possibility, and the need for public awareness/involvement during construction. Detailed analysis of staging schemes regarding the public use of roads during construction will be required for each site.
- 7) The applied design cost for each site consists of a combination of 10% of the estimated construction cost, an assumption usually reserved for larger projects, and a cost for surveying requirements. Surveying cost estimates stem from previous surveying efforts for culvert construction in Fayette County. A baseline surveying cost of \$5,000 was applied to each site. For project sites designed to handle higher flows and/or those inside FEMA Zone AE (floodway) and Zone A special flood hazard areas, a surveying cost of \$12,500 was applied.

- 8) Environmental efforts are anticipated to be minimal due to the nature of the projects (perpendicular crossing/maintenance project classification) and include wetland delineation, compliance with stream buffers, and minimal permitting. Projects are assumed to be exempt from the Georgia EPD stream buffer variances on the basis of a drainage structure exemption. In addition, projects are assumed to fall under a Nationwide Permit 3A (Maintenance Activity). No ecological investigations were completed for this planning level effort and will be required at the time of the projects to assess actual environmental impacts and costs.

It is assumed that floodplain modeling will be required for all crossings in FEMA-designated Zone AE (floodway) and Zone A special flood hazard areas, but that the crossings will be designed to comply with FEMA requirements for no-rise scenarios. No map revision submittals to FEMA are included in the cost estimates. The FEMA studies are included in the cost estimates. The FEMA studies are included in the environmental cost for each project to which this is anticipated to be required.

Cost levels of Environmental Analysis/Permitting:

\$10,000: minimal environmental efforts as described above.

\$15,000: minimal environmental efforts, FEMA Zone A study required, culvert

\$18,000: minimal environmental efforts, FEMA Zone AE study required, culvert

\$20,000: minimal environmental efforts, FEMA Zone A/AE study required, bridge

- 9) Pipe condition assessment categories:

5: Severe structural damage; >10% loss of flow area; function of structure compromised and failure imminent

4: Significant signs of exterior and structural deterioration; some loss of flow area

3: Signs of exterior deterioration but structurally functioning

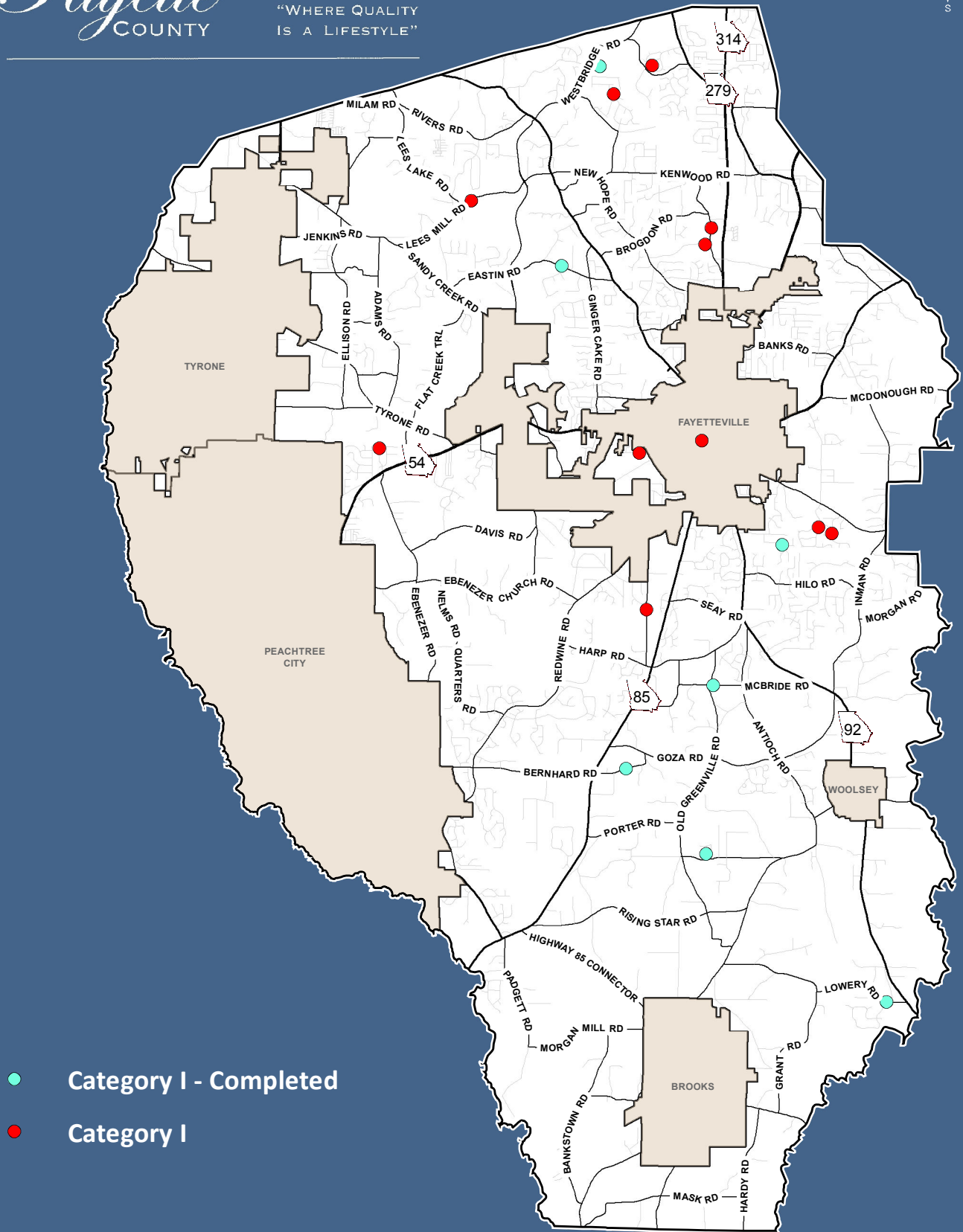
2: Minor signs of deterioration; primary flow area in tact and functioning

1: System performing as designed and in good condition



Fayette
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SPLOST 2017 Stormwater Improvements

CATEGORY I

| PROJECT NAME | PROJECT DESCRIPTION | ESTIMATED COST |
|--------------------|---|----------------|
| 210 Antebellum Way | Antebellum Way is a one-way in and out street. Excessive pipe damage, due to Christmas Flood event severely impaired stream flow and caused upstream flooding. Double 84 in.-diameter corrugated metal pipes are bent, restricting flow and are washing out around the inlets. This project includes design and construction to replace with a larger system, possibly box culverts. | \$481,581 |
| 104 Broom Blvd | This project will replace an existing 36-inch corrugated metal pipe with double 8' x 5' concrete box culverts. The system and road were damaged during the December 2015 floods. Temporary repairs were made to keep the road open but pipe replacement is needed for structural and capacity issues. Broom Blvd. is the sole access for 13 homes. | \$387,880 |
| Emerald Lake Dam | Emerald Lake Dam is a Georgia Safe Dams Program Category II structure located predominantly within Fayette County Right-of-Way. Work is needed to address flow capacity and structural integrity issues. The project includes design, permitting, and construction of a new labyrinth spillway and associated roadwork. As of January 2016, design work is 80% complete. New cost estimate of \$2,064,000 is based on 20% increase of Engineer's Order of Magnitude estimate. Price increase is due to identification of poor subsoils, which require more excavation and a more complicated traffic management plan. | \$2,064,000 |
| 287 Graves Road | Road and shoulder washed out around a 60 in. diameter corrugated metal pipe during the 2015 Christmas floods. The proposed design to address capacity problems is to replace the metal pipe with a 10 ft. X 5 ft. reinforced concrete box culvert. | \$293,538 |
| Heritage Park Way | Heritage Park Way is the only road owned by Fayette County that is located in Fayetteville city limits. This project will replace a failing 60-in diameter corrugated metal pipe that connects to stormwater pipe under State Route 85 and a failing 18-in diameter cross pipe that is also part of the system. The proposed design will address flooding issues that routinely occur on Heritage Park Way. | \$98,397 |
| Kozisek Dam | Kozisek Dam is a Safe Dams Program Category I structure adjacent to and possibly partially within the County Right-of-Way for Neely Road. The project includes evaluation, design, permitting, and construction of necessary improvements and changes to Neely Road to ensure it safely passes design flows and to remove any County liability/ownership that may be associated with Kozisek Dam. | \$250,000 |
| 413 Lees Mill Rd | During the 2015 Christmas flood event Tar Creek came above and covered three, 72-inch diameter pipes causing excessive damage. This project will consist of evaluation, design and construction to upsize the drainage capacity to allow passage of the 100 year storm event. This project is located in FEMA Zone AE and a large water main is located near the pipes as well. | \$511,849 |

CATEGORY I

| PROJECT NAME | PROJECT DESCRIPTION | ESTIMATED COST |
|--------------------|--|----------------|
| Longview Dam | Longview Dam (AKA Margaret Phillips Lake Dam) is a Safe Dams Program Category I structure located within the Fayette County Right-of-Way of Longview Road. The project consists of performing the necessary evaluation, design, permitting, and construction to bring the structure into compliance with the Georgia Safe Dams Act of 1978. There are two options to do so: upgrade the dam or breach the dam. A 2013 Order of Magnitude cost estimate to upgrade the dam is provided. The preferred option of breaching the dam would be less. However, it is unknown at this time which option will be instituted, a estimate of half the cost to upgrade the dam is listed. | \$704,907 |
| 330 Oak St | Located in the County portion of Deep Forest subdivision. This project includes performing design, permitting and construction of upgrades to an Oak Street cross-drain to reduce the risk of flooding. | \$78,506 |
| Old Senoia Rd | Three 96 in. diameter corrugated metal pipes draining Perry Creek. Pipe bottoms have failed and washout underneath the road occurred during the Christmas Flooding event. Temporary corrections made to allow both lanes to function. Project includes evaluation, design, environmental permitting and construction of replacement. Evaluation will include possible bridge design. Estimate based on 2013 possible bridge design adding 15 percent for increased costs and flood repair costs incurred by the county. | \$668,572 |
| 121 Rising Star Rd | During the December 2015 floods, these two, 72-inch diameter corrugated metal pipes located near the intersection with Brooks-Woolsey Road, were damaged, jeopardizing the integrity of the road and utilities. Temporary measures were taken to reopen the road but pipe replacement is required. This project consists of evaluation, design and construction of an upsized system. The design is complicated by backwater conditions caused by the drainage system under Brooks Woolsey Road. | \$449,143 |

CATEGORY I

| PROJECT NAME | COMPLETED PROJECT DESCRIPTION | Cost |
|-------------------------|---|--------------------|
| 228 Bernhard Rd | Washout around an undersized 36 in. diameter corrugated metal pipe inlet caused shoulder and pipe failure. Temporary repairs measures allows for continued road use but pipe replacement is needed. This projects consists of replacing the current pipe with a42 in. reinforced concrete pipe and headwalls. | \$44,947 |
| Brittany Way | Project completed in 2014. Work included installation of a new 6'x4' box culvert. | \$67,432 |
| 105 Canterbury Ln | On Christmas Eve 2015, approximately 60 homes within the Chanticleer Subdivision were without water and had no access to and from their homes when a 72-inch diameter corrugated metal pipe failed, collapsing the road. Emergency pipe replacement was complicated by needing equipment to install a large pipe and the emergency occurring over a holiday weekend. The work is complete. | \$101,636 |
| 110 Lawson Ln | Undersized pipes in Northridge Subdivision resulted in flooding of road, lots and several homes along Lawson Lane. This project, completed early 2015, replaced existing pipe and added additional drainage structures. | \$94,509 |
| 144 Lowery Rd | Washout around the 54 in. diameter corrugated metal pipe caused shoulder and pipe failure. Temporary measures installed allows for road use. This projects consists of replacing the current pipe with a 60 in. reinforced concrete pipe and headwalls. | \$44,523 |
| 456 McBride Rd | Washout around the 54 in. diameter corrugated metal pipe caused complete road failure on McBride Road west of Old Greenville Road. Temporary measures installed allows for road use. This projects consisted of installing a 54 in. reinforced concrete pipe and headwalls. | \$41,820 |
| 155 Westbridge Cir | Westbridge Circle is an internal local road within Westbridge Acres subdivision. A tributary to Morning Creek runs through the subdivision and under Westbridge Circle. During the 2015 Christmas and New Years flooding events two-36 in. diameter corrugated metal pipes failed causing immanent road failure. Emergency pipe replacement was required to maintain access to homes located "upstream" of the pipe crossing with no means of ingress or egress other than Westbridge Circle. | \$68,419 |
| CATEGORY I TOTAL | | \$6,451,659 |

| General Information | |
|--|--------------------|
| Project ID | |
| Street Name | 210 Antebellum Way |
| Site Visit Date | 6/9/16 |
| Road Classification | Internal Local |
| Project Notes | |
| Subdivision Typical Section; | |
| Field Notes | |
| Design (Existing Site Features) | |
| Existing Road Laneage | 2-12' |
| Existing Shld Width (paved and grass) (feet) | 6' Grass |
| Existing Side Slopes | 2:1 |
| Existing Guardrail | None |
| Depth fm Pavement to Top of Culvert (ft): | 3 |
| Pipe Type and Size | 2 - 84" CMP |
| Pipe Condition (1-5) (1 is new) | 4 |
| Condition Notes: | |
| Pavement Type/Condition | Asphalt/Good |
| Environmental Features | |
| Wetlands | No |
| Ditches | No |
| | |
| | |
| Utilities (Visual Inspection) | |
| Electric | Underground |
| Cable | Underground |
| Phone | Underground |
| Gas | Underground |
| Water | Underground |
| Sewer | None |
| Other | |



| Stage Construction Options | |
|--------------------------------------|--|
| Close Location to Traffic | |
| Maintain One Lane - No Temp Pavement | |
| Maintain One Lane - Temp Pavement | |
| Stage Construction Notes: | |
| | |

| Proposed Design | |
|------------------------|------------------------------------|
| Roadway Section | |
| Proposed Design | Double 8' x 12' box culverts |
| Utility Relocations | Electric, phone, water, cable, gas |
| Guardrail Replacement | |
| Miscellaneous Features | Catch Basins |
| | |
| | |

| Planning Cost Estimate | | |
|-------------------------|--|-----------|
| Type | Notes | Total |
| Design | Actual Cost including Environmental Permitting | \$61,805 |
| Right of Way Cost | | \$12,000 |
| Utility Relocation Cost | Utility poles and aerial phone wires | \$26,070 |
| Construction Cost | 1/2 acre clearing and grubbing, Guardrails | \$381,706 |

| | |
|--------------------------------|------------------|
| Total Planning Estimate | \$481,581 |
|--------------------------------|------------------|



Photo 1:



Photo 2:

Antebellum Way

Photo Date:

1/05/2016

Taken By:

Tony Hicks

Page:

1

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|--|-------------------|------------------------|----------|---------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 1,536.00 | \$ 8,609.79 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 40.00 | \$ 2,366.40 |
| Drain Inlet (EA) | | \$ 3,000.00 | 2.00 | \$ 6,000.00 |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 40.00 | \$ 2,018.40 |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 18,994.59 |
| Grading Complete (5% of Rwy Items & Dmrg Total \$) | | | | \$ 11,456.45 |
| County Temporary Emergency Work | | | | \$ 19.00 |
| Roadway Total | | | | \$ 30,470.04 |

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|-------------------|------------------------|-----------|---------------|
| Trench Excavation (CY) | | \$ 10.38 | 586.67 | \$ 6,089.60 |
| 84" CMP (LF) | \$ 63.00 | | 120.00 | \$ 22,680.00 |
| 96" RCP | | \$ 455.00 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 166.90 | \$ 148,904.39 |
| Box Culvert Wingwalls, Parapetes (CY) | | \$ 892.19 | 92.80 | \$ 82,795.05 |
| Steel (lb) | | \$ 1.42 | 16,626.20 | \$ 23,542.70 |
| Pipe Bedding (CY) | | \$ 48.60 | 41.50 | \$ 2,016.90 |
| Trench Backfill (CY) | | \$ 2.99 | 521.17 | \$ 1,557.25 |
| Trench Compaction (CY) | | \$ 6.36 | 416.93 | \$ 2,651.70 |
| Drainage Total | | | | \$ 290,237.58 |

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|---------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 0.00 | \$ - |
| Signing and Marking Total | | | \$ - |

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|--------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.50 | \$ 5,130.00 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 3.00 | \$ 13,284.00 |
| Staging Total | | | \$ 18,414.00 |

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|---------------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 36.00 | \$ 140.54 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 660.00 | \$ 2,795.76 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 660.00 | \$ 4,482.72 |
| Erosion Control Mats (SY) | \$ 1.87 | 220.00 | \$ 411.84 |
| Landscape Mulch (SY) | \$ 3.58 | 220.00 | \$ 786.72 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 85.33 | \$ 5,203.97 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 85.33 | \$ 488.45 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | \$ 14,310.00 |

Construction Cost Total \$ 353,431.62

Traffic Control (8% of Construction Total \$) \$ 28,274.53

Construction Cost Grand Total \$ 381,706.15

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------------|-------------------|------------------------|--------|--------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 60.00 | \$ 5,940.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 60.00 | \$ 4,290.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 60.00 | \$ 4,290.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 60.00 | \$ 4,950.00 |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 60.00 | \$ 6,600.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 26,070.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|----------|---------------------|
| Permanent Easement | \$ 4.00 | 3,000.00 | \$ 12,000.00 |
| ROW Total | | | \$ 12,000.00 |

| General Information | | Map | |
|---|--|--------------------------------------|---|
| Project ID | | | |
| Street Name | Broome Blvd. | | |
| Site Visit Date | 5/21/13 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Rural Typical Section | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2 - 12' | | |
| Existing Shld Width (paved and grass) (feet) | 2 | | |
| Existing Side Slopes | flat | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 4 | | |
| Pipe Type and Size | 3.5x2.5 egg CMP | | |
| Pipe Condition (1-5) (1 is new) | 5 | | |
| Condition Notes: crushed headwall and pipe entrance | | | |
| Pavement Type/Condition | Asphalt/Poor | | |
| Environmental Features | | Stage Construction Options | |
| Wetlands | | Close Location to Traffic | |
| Ditches | | Maintain One Lane - No Temp Pavement | |
| | | Maintain One Lane - Temp Road | X |
| Utilities (Visual Inspection) | | Stage Construction Notes: | |
| Electric | Aerial | | |
| Cable | Aerial | | |
| Phone | Aerial | | |
| Gas | | | |
| Water | Buried | | |
| Sewer | | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | Typical. For costing purposes, temporary road consists of 8" gravel fill | | |
| Culvert Size & Material | dbl 8' x 5' box, concrete, 70' length. Cost of removing 2.5' x 2.5' elliptical CMP assumed equal to 36" round CMP. Cost of removing headwalls assumed equal to removal of entire length of pipe. | | |
| Utility Relocations | Cable, telephone, water | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | Upstream bend in stream adjacent to roadway may need additional bank stabilization | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$38,940 | |
| Right of Way Cost | Assuming project extends 12,000 sf beyond ROW | \$48,000 | |
| Utility Relocation Cost | Buried and aerial utilities | \$25,300 | |
| Construction Cost | 5 acre clearing and grubbing, additional stabilization/diversi | \$264,404 | |
| Environmental Permits and Engineer of Record Admin | Assuming minimal environmental permitting required | \$11,236 | |
| Total Planning Estimate | | \$387,880 | |





Photo 1:



Photo 2:

Broome Blvd

Photo Date:

1/05/2016

Taken By:

Public Works

Page:

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|--------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 432.00 | \$ 2,421.50 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 625.00 | \$ 33,735.00 |
| End Anchorage (EA) | | \$ 1,380.00 | 2.00 | \$ 2,760.00 |
| Subtotal | | | | \$ 38,916.50 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 9,676.63

Roadway Total \$ 49,963.13

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|-----------|---------------|
| Trench Excavation (CY) | | \$ 10.38 | 373.33 | \$ 3,875.20 |
| 36" CMP (LF) | \$ 19.62 | | 140.00 | \$ 8,240.40 |
| 36" RCP | | \$ 134.40 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 132.51 | \$ 118,223.83 |
| Steel (lb) | | \$ 1.42 | 13,383.00 | \$ 18,950.33 |
| Pipe Bedding (CY) | | \$ 48.60 | 48.00 | \$ 2,332.80 |
| Trench Backfill (CY) | | \$ 2.99 | 370.67 | \$ 1,107.55 |
| Trench Compaction (CY) | | \$ 6.36 | 296.53 | \$ 1,885.95 |

Drainage Total \$154,616.06

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 72.00 | \$ 50.98 |

Signing and Marking Total \$ 50.98

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|--------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.20 | \$ 2,052.00 |
| Temporary Gravel Road (SY) | \$ 15.42 | 977.78 | \$ 15,077.33 |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 2.00 | \$ 8,856.00 |

Staging Total \$ 26,087.29

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 92.00 | \$ 404.06 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 560.00 | \$ 2,372.16 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 560.00 | \$ 3,803.52 |
| Erosion Control Mats (SY) | \$ 1.87 | 560.00 | \$ 1,048.32 |
| Landscape Mulch (SY) | \$ 3.58 | 560.00 | \$ 2,002.56 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 48.00 | \$ 2,927.23 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 48.00 | \$ 274.75 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 12,832.61

Construction Cost Total \$243,550.07

Traffic Control (8% of Construction Total \$) \$ 19,484.01

County Emergency Roadway Work \$ 1,370.00

Construction Cost Grand Total \$264,404.07

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------------|-------------------|------------------------|--------|--------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 100.00 | \$ 7,150.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 100.00 | \$ 7,150.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 100.00 | \$ 11,000.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 25,300.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|-----------|---------------------|
| Permanent Easement | \$ 4.00 | 12,000.00 | \$ 48,000.00 |
| ROW Total | | | \$ 48,000.00 |



**EMERALD LAKE DAM
ORDER OF MAGNITUDE
OPINION OF CONSTRUCTION COST
40 FT. LABYRINTH & RAISE DAM**

| Description | Quantity | Units | Unit Price | Cost |
|---|----------|-------|-------------|--------------------|
| 40 FT. LABYRINTH & RAISE DAM | | | | |
| Mobilization | 1 | LS | \$25,000.00 | \$25,000 |
| Erosion Control | 1 | LS | \$20,000.00 | \$20,000 |
| Clearing & Grubbing | 1.5 | AC | \$5,000.00 | \$7,500 |
| Demolition of Roadway, Curbing, Flumes.etc. | 1.0 | LS | \$25,000.00 | \$25,000 |
| Control of Water | 1 | LS | \$30,000.00 | \$30,000 |
| Demolition of Riser, Control Box & Culverts | 1 | LS | \$20,000.00 | \$20,000 |
| Demolish Riprap & Misc, Concrete | 1 | LS | \$10,000.00 | \$10,000 |
| Slipline 30" CMP | 140 | LF | \$100.00 | \$14,000 |
| Pressure Grouting Annulus | 140 | LF | \$190.00 | \$26,600 |
| New Gate Structure | 1 | EA | \$15,000.00 | \$15,000 |
| Under Drain Sand | 40 | TN | \$50.00 | \$2,000 |
| Under Drain # 89 Stone | 40 | TN | \$39.50 | \$1,580 |
| Under Drain # 57 Stone | 90 | TN | \$39.50 | \$3,555 |
| Under Drain Pipe | 400 | LF | \$20.00 | \$8,000 |
| Concrete | 485 | CY | \$1,000.00 | \$485,000 |
| Earthwork | 8,000 | CY | \$10.00 | \$80,000 |
| Grassing | 8,300 | SY | \$2.50 | \$20,750 |
| Rip Rap | 560 | TN | \$80.00 | \$44,800 |
| Blanket / Chimney Drain | 1,750 | TN | \$50.00 | \$87,500 |
| Toe Drain | 620 | LF | \$80.00 | \$49,600 |
| Toe Drain Outlets / Clean Outs | 5 | EA | \$2,500.00 | \$12,500 |
| Roadway Construction (5" A + 8" G) | 2,550 | SY | \$27.00 | \$68,850 |
| Bridge | 1,764 | SF | \$200.00 | \$352,800 |
| SUBTOTAL | | | | \$1,410,035 |
| GENERAL CONDITIONS (7%) | | | | \$98,702 |
| OVERHEAD & PROFIT (15%) | | | | \$211,505 |
| SUBTOTAL | | | | \$310,208 |
| Total Estimated Construction Cost Budget | | | | \$1,720,243 |

The American Association of Cost Engineers recommends dividing engineering construction cost estimates into three basic categories: Order-of-Magnitude, Budget and Definitive Estimates. The Order of Magnitude Estimate is defined as follows:

This is an estimate made without detailed engineering data. Examples are estimate from cost-capacity curves, an estimate using scale-up or scale-down factors and an approximate ratio estimate. This type of estimate would be accurate within +50 percent to -30 percent.

COST ESTIMATE REVISION BY FAYETTE COUNTY

| | |
|--|--------------------|
| Order-of-Magnitude Construction Estimate from Walden, Ashworth and Associates Inc. | \$1,720,243 |
| Further excavation and more complicated traffic management - (+20%) | \$343,757 |
| TOTAL | \$2,064,000 |



Where Quality Is A Lifestyle

TO: Steve Rapson, County Administrator

FROM: Phil Mallon, Public Works

DATE: July 18, 2016

RE: Emerald Lake Dam – Options for Repair Update

Background

Emerald Lake Dam in the Woodlands Subdivision is classified by the Georgia Safe Dams Program as a Category 2 structure. It is approximately 600 feet long and impounds a 20-acre lake. Emerald Lake Drive is located on top of the dam and is the only means of ingress and egress for the 90+ homes within the subdivision. Fayette County owns and operates the dam.

Significant work is needed on the dam in a timely manner. The most pressing issue is active and on-going seepage erosion around the dam's principal spillway. Repair work is needed on these pipes immediately. Other maintenance and repair items include, but are not limited to: removal of vegetation, control of seepage, outlet stabilization, repair of riser pipe, and extension of the dam's back slope.

A long-term consideration is the future classification of the dam by the Georgia Safe Dams Program. County staff, third-party engineers, and the Safe Dams Program all believe a reclassification to Category 1 standards is likely. If this occurs, Fayette County would have to:

- Upgrade the dam;
- Breach the dam;
- Modify the dam to remove the downstream flood risk; or
- Remove or modify the downstream structures at risk.

Fayette County authorized Walden, Ashworth & Associates to serve as the "Engineer of Record" for this project and develop options for County review. Their findings are summarized below.

Findings

Walden collected field data from the dam and surrounding land, including a geotechnical investigation. They also reviewed the project's records and ran hydrology and hydraulic models for the watershed and outlet controls. Their work confirmed that the existing structure is

designed to pass flows associated with the 24-hour, 10-year storm event. Larger storms will result in the dam being overtopped. That is, during any year, there is less than a 10 percent chance that the road will be overtopped and access limited (or prohibited) into and out of the subdivision.

Ultimately, four options were identified and an Order-of-Magnitude estimate was developed for each. Staff reviewed these options and narrowed the list to two alternatives.

Slip-line Existing Pipes & Install a Seepage Drain – This option addresses the immediate repair and maintenance needs of the dam. It includes clearing and grubbing, draining the lake, water control, slip-lining the five 80-ft long corrugated metal pipes (48” diameter each), pressure grouting around the pipes, installation of a new riser pipe, installation of comprehensive drain system, and stabilization. The estimated construction cost for this work is \$694,000.

Advantages of this option include a substantially lower cost, resolution of immediate structural issues, and minimal impacts to traffic during construction. This option, however, does not improve the hydraulic capacity of the dam; so the probability of the road being overtopped remains as it currently is. Furthermore, the work associated with slip-lining the pipes (approximately 25% of the total project cost) plus some of the grading, stabilization and other tasks would have to be modified or replaced if the dam is classified as a Category 1 structure in the future.

40-ft Labyrinth Weir & Raise Dam – This option also addresses the immediate repair and maintenance needs of the dam plus substantially increases the hydraulic capacity of the structure. Work items include: clearing & grubbing; draining the lake; water control; demolition of roadway, pipes, and concrete weir; construction of 40-ft labyrinth weir; placement of bridge over weir; roadway reconstruction; installation of a new riser pipe; installation of comprehensive drain system; and stabilization.

This option address immediate structural issues and substantially increases flow capacity of the dam. The new outlet control would be designed to meet Category 1 standards so no re-work of the outlet control and spillway is anticipated. This option also reduces the chance of road overtopping to less than 1 percent per year.

The original estimated construction cost for this work was \$1,720,000. The weir, bridge and road reconstruction account for over \$900,000. Further engineering design work has identified poor subsoils which will result in more excavation and a more complicated traffic management plan. Because of these issues a new estimate based on a 20 percent increase of the Engineer’s Order of Magnitude estimate is advised. This increases the estimated cost from \$1,720,243 to an estimated \$2,064,000.

Recommendation

Staff recommends the 40-ft labyrinth weir option. Although nearly 2.5 times the cost this options provides the triple benefit of 1) repairing immediate needs; 2) reducing the probability of stranding homeowners during flood events; and 3) meeting Category 1 standards should they become applicable.

| General Information | | Map | |
|--|--|---|---|
| Project ID | | | |
| Street Name | 287 Graves Road | | |
| Site Visit Date | 1/05/16 | | |
| Road Classification | Minor arterial | | |
| Project Notes | | | |
| Rural Typical Section | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-12' | | |
| Existing Shld Width (paved and grass) (feet) | 2' | | |
| Existing Side Slopes | 2:1 - 4:1 | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 6 | | |
| Pipe Type and Size | 60" CMP | | |
| Pipe Condition (1-5) (1 is new) | 5 | | |
| Condition Notes: No headwall; debris US, signs of rusting, DS bottom of pipe damaged, no significant structural loss | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | None | | |
| Ditches | Noted | | |
| Utilities (Visual Inspection) | | | |
| Electric | Aerial | | |
| Cable | Aerial | | |
| Phone | Aerial | | |
| Gas | | | |
| Water | Buried | | |
| Sewer | | | |
| Other | | | |
| Proposed Design | | Stage Construction Options | |
| Roadway Section | Typical | Close Location to Traffic | X |
| Culvert Size & Material | 10' x 5' box, concrete, 70' length | Maintain One Lane - No Temp Pavement | |
| Utility Relocations | Electric, cable, phone, water | Maintain One Lane - Temp Pavement | |
| Guardrail Replacement | | Stage Construction Notes: If cannot close then have one lane open; two driveways near culvert | |
| Miscellaneous Features | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$28,319 | |
| Right of Way Cost | Assuming project extends 2,000 sf beyond ROW | \$8,000 | |
| Utility Relocation Cost | Aerial and buried utilities | \$14,025 | |
| Construction Cost | Assuming 1/10 acre clearing and grubbing | \$233,193 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$293,538 | |



Photo 1:



Photo 2:

287 Graves Road

Photo Date:

12/29/2015

Taken By:

V.T. Birrell

Page:

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|-------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 288.00 | \$ 1,614.34 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | - |
| Subtotal | | | | \$ 1,614.34 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 9,731.59

Roadway Total \$ 11,345.93

| Drainage | \$ 5.00 | Installation Unit Cost | Amount | Total Cost |
|------------------------|----------|------------------------|-----------|---------------|
| Trench Excavation (CY) | | \$ 10.38 | 373.33 | \$ 3,875.20 |
| 60" CMP (LF) | \$ 24.60 | | 70.00 | \$ 5,166.00 |
| 60" RCP (LF) | | \$ 259.20 | 0.00 | - |
| Class A Conc (CY) | | \$ 892.19 | 172.26 | \$ 153,688.30 |
| Steel (lb) | | \$ 1.42 | 17,995.00 | \$ 25,480.92 |
| Pipe Bedding (CY) | | \$ 48.60 | 32.00 | \$ 1,555.20 |
| Trench Backfill (CY) | | \$ 2.99 | 402.67 | \$ 1,203.17 |
| Trench Compaction (CY) | | \$ 6.36 | 322.13 | \$ 2,048.77 |

Drainage Total \$ 193,017.56

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|---------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 48.00 | \$ 33.98 |
| Signing and Marking Total | | | \$ 33.98 |

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 1.00 | \$ 4,428.00 |
| Staging Total | | | \$ 5,521.97 |

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 61.33 | \$ 269.38 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | - |
| Type C Silt Fence (LF) | \$ 4.24 | 280.00 | \$ 1,186.08 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 280.00 | \$ 1,901.76 |
| Erosion Control Mats (SY) | \$ 1.87 | 93.33 | \$ 174.72 |
| Landscape Mulch (SY) | \$ 3.58 | 93.33 | \$ 333.76 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 32.00 | \$ 1,951.49 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 32.00 | \$ 183.17 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | - |

Erosion Control Total \$ 6,000.35

Construction Cost Total \$ 215,919.80

Traffic Control (8% of Construction Total \$) \$ 17,273.58

Construction Cost Grand Total \$ 233,193.38

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------------|-------------------|------------------------|--------|--------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 50.00 | \$ 3,300.00 |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 2.00 | \$ 1,375.00 |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 50.00 | \$ 1,925.00 |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 50.00 | \$ 1,925.00 |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 50.00 | \$ 5,500.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | - |
| Sewer | | | 0.00 | - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | - |
| Utility Relocation Total | | | | \$ 14,025.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|----------|--------------------|
| Permanent Easement | \$ 4.00 | 2,000.00 | \$ 8,000.00 |
| ROW Total | | | \$ 8,000.00 |

| General Information | | |
|--|--|-----------------|
| Project ID | | |
| Street Name | Heritage Park Way | |
| Site Visit Date | 6/9/2016 | |
| Road Classification | Street | |
| Project Notes | | |
| Heritage Park Way is the only county-owned road in the City of Fayetteville and therefore, maintained by the County. | | |
| Field Notes | | |
| Design (Existing Site Features) | | |
| Existing Road Laneage | 2-8' | |
| Existing Shld Width (paved and grass) (feet) | 16' | |
| Existing Side Slopes | | |
| Existing Guardrail | None | |
| Depth fm Pavement to Top of Culvert (ft): | 4' | |
| Pipe Type and Size | 60" CMP | |
| Pipe Condition (1-5) (1 is new) | 5 | |
| Pipe failure from junction box at S Glynn Street and Heritage Park Way. System ties into 18- in. diameter corrugated metal cross pipe on Heritage, where flooding routinely occurs due insufficient pipe | | |
| Pavement Type/Condition | Asphalt/Concrete | |
| Environmental Features | | |
| Wetlands | no | |
| Ditches | no | |
| State Waters | no | |
| | | |
| | | |
| Utilities (Visual Inspection) | | |
| Electric | Unknown | |
| Cable | Unknown | |
| Phone | Unknown | |
| Gas | Unknown | |
| Water | Unknown | |
| Sewer | | |
| Other | Curb and gutter | |
| Proposed Design | | |
| Roadway Section | Street | |
| Culvert Size & Material | 60" RCP with junction box; 24" RCP with double-wing catch basins | |
| Utility Relocations | Removal/replacement drain inlets, buried cable. | |
| Guardrail Replacement | | |
| Miscellaneous Features | tree removal | |
| | | |
| | | |
| Planning Cost Estimate | | |
| Type | Notes | Total |
| Design | 10% of Construction Cost and any surveying needed | \$0 |
| Right of Way Cost | | \$0 |
| Utility Relocation Cost | It is assumed all utilites will be relocated | \$41,899 |
| Construction Cost | | \$56,498 |
| Environmental Permits | | \$0 |
| Total Planning Estimate | | \$98,397 |

| Map | |
|--------------------------------------|---|
| | |
| Stage Construction Options | |
| Close Location to Traffic | |
| Maintain One Lane - No Temp Pavement | X |
| Maintain One Lane - Temp Pavement | |
| Stage Construction Notes: | |
| | |

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---|-------------------|------------------------|-------------|---------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 154.00 | \$ 863.22 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 65.00 | \$ 3,845.40 |
| DWCB | | \$ 1,520.00 | 2.00 | \$ 3,040.00 |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | 0 |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | 0 |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | 0 |
| Subtotal | | | | \$ 7,748.62 |
| Grading Complete (5% of Rwy Items & Dmg Total \$) | | | | \$ 2,491.09 |
| Roadway Total | | | | \$ 10,239.71 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 391.11 | \$ 4,059.73 |
| 60" CMP (LF) | \$ 24.60 | | 88.00 | \$ 2,164.80 |
| 60" RCP (LF) | | \$ 223.12 | 88.00 | \$ 19,634.56 |
| 24" RCP (LF) | | \$ 36.45 | 12.00 | \$ 437.44 |
| Class A Conc (CY) | | \$ 892.19 | 0.00 | - |
| Steel (lb) | | \$ 1.42 | 0.00 | - |
| Pipe Bedding (CY) | | \$ 48.60 | 0.00 | - |
| Trench Backfill (CY) | | \$ 2.99 | 5280.00 | \$ 15,776.64 |
| Trench Compaction (CY) | | \$ 6.36 | 0.00 | - |
| Drainage Total | | | | \$ 42,073.17 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | 0 | \$ - |
| Signing and Marking Total | | | | \$ - |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | | \$ - |
| Temporary Pavement | | | | 0 |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | | \$ - |
| Staging Total | | | | \$ - |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 0.00 | \$ - |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 0.00 | \$ - |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 0.00 | \$ - |
| Erosion Control Mats (SY) | | \$ 1.87 | 0.00 | \$ - |
| Landscape Mulch (SY) | | \$ 3.58 | 0.00 | \$ - |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 0.00 | \$ - |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 0.00 | \$ - |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ - |
| Construction Cost Total | | | | \$ 52,312.88 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 4,185.03 |
| Construction Cost Grand Total | | | | \$ 56,497.92 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 88.00 | \$ 8,712.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 88.00 | \$ 6,292.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50.00 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 80.00 | \$ 6,600.00 |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 80.00 | \$ 8,800.00 |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 80.00 | \$ 7,920.00 |
| Utility Relocation Total | | | | \$ 41,899.00 |
| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost | |
| Permanent Easement | \$ 4.00 | \$ - | \$ - | |
| ROW Total | | | \$ - | |

Neely Road / Lake Kozisek Dam - Order of Magnitude Opinion of Cost

Kozisek Dam is a Safe Dams Program Category I structure adjacent to and possibly partially within Fayette County Right-of-Way for Neely Road. The project includes evaluation, design, permitting, and construction of necessary improvements and changes to Neely Road to ensure it safely passes design flows and to remove any County liability/ownership that may be associated with Kozisek Dam.

This is an Order of Magnitude Opinion of Cost and based solely on a visual inspection of the dam. No survey measurements, geotechnical evaluations, hydrologic or hydraulic analyses, material testing or other calculations were made in support of the Opinion of Cost other than the assumptions identified below.

A third-party Engineer was hired to develop the Opinion of Cost for the other two Dam projects included in the SPLOST list. The estimate for the Neely Road / Lake Kozisek Dam work was developed by County staff because of the greater uncertainty associated with the scope of this project. Several options are available for bringing this structure into compliance and the County's degree of involvement may change depending upon the final option selected.

The Kozisek Lake Dam is approximately 1,004 feet long, 26 feet in height and has a crest width of 12 feet. The drainage area to the dam is 430 acres (+/-).

Neely Road / Lake Kozisek Dam - Order of Magnitude Opinion of Cost

| Description | Quantity | Units | Unit Price | Cost |
|--|----------|-------|------------|------------------|
| Professional Services | | | | |
| Surveying for Design | | | | \$8,000 |
| Geotechnical Exploration | | | | \$5,000 |
| Design and Preparation of Construction Documents | | | | \$30,000 |
| Preconstruction Notification (PCN) to USACOE | | | | \$3,000 |
| State Waters Buffer Encroachment Variance Application | | | | \$1,000 |
| Construction Administration Services ¹ | | | | \$7,000 |
| Geotechnical Construction Monitoring ¹ | | | | \$10,000 |
| 1. Assumes two month construction monitoring | | | | |
| Subtotal | | | | \$64,000 |
| Construction Activities | | | | |
| Mobilization | 1 | LS | \$10,000 | \$10,000 |
| Traffic Control | 1 | LS | \$7,500 | \$7,500 |
| Erosion Control / Pollution Prevention | 1 | LS | \$8,000 | \$8,000 |
| Clearing & Grubbing | 0.8 | AC | \$5,000 | \$4,000 |
| Control of Water | 1 | LS | \$2,000 | \$2,000 |
| Concrete cross-drains under Neely Road | 80 | LF | \$315 | \$25,200 |
| Concrete Headwalls | 2 | EA | \$2,500 | \$5,000 |
| Earthwork | 588 | CY | \$15 | \$8,820 |
| Grassing | 3872 | SY | \$3 | \$9,680 |
| Rip Rap | 250 | TN | \$80 | \$20,000 |
| Paving | 830 | SY | \$60 | \$49,800 |
| Subtotal | | | | \$150,000 |
| General Conditions (7%) | | | | \$10,500 |
| Overhead & Profit (7%) | | | | \$10,500 |
| (Overhead & Profit reduced from 15% since County expected to perform substantial amount of work in right-of-way) | | | | |
| Contingency (10%) | | | | \$15,000 |
| Subtotal | | | | \$36,000 |
| Total Project Cost | | | | \$250,000 |

Assumptions:

1. Clearing limits based on 60-ft road right-of-way, less existing asphalt.
2. Cross-drain costs based on twin 6' x 6' box culverts. Actual size to be determined.
3. Earthwork assumes average depth of 2 feet, with 4:1 side slopes.
4. "Paving" include demolition, base preparation, GAB, hauling and asphalt placement, etc.

| General Information | | Map | |
|---|---|---|---|
| Project ID | | | |
| Street Name | Lees Mill Rd | | |
| Site Visit Date | 1/20/2016 | | |
| Road Classification | Rural | | |
| Project Notes | | | |
| Culvert replacement alternatives to provide flow capacity for the 100 year storm peak runoff. | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-12' | | |
| Existing Shld Width (paved and grass) (feet) | | | |
| Existing Side Slopes | | | |
| Existing Guardrail | No | | |
| Depth fm Pavement to Top of Culvert (ft): | (+/-) 5.2' | | |
| Pipe Type and Size | 3 - 72" CMP | | |
| Pipe Condition (1-5) (1 is new) | 5 | | |
| Condition Notes: Existing culverts do not provide service for the 100 yr storm event. | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | TBD | | |
| Ditches | YES | | |
| State Waters | YES | | |
| Utilities (Visual Inspection) | | | |
| Electric | Aerial | | |
| Cable | Unknown | | |
| Phone | Unknown | | |
| Gas | Underground | | |
| Water | Underground | | |
| Sewer | Underground | | |
| Other | | | |
| Proposed Design | | Stage Construction Options | |
| Roadway Section | Typical | Close Location to Traffic | X |
| Culvert Size & Material | 2-8'X7' Concrete Box Culvert with associated wing walls and rip-rap. | Maintain One Lane - No Temp Pavement | |
| Utility Relocations | 16" Waterline | Maintain One Lane - Temp Pavement | |
| Guardrail Replacement | | Stage Construction Notes: Assumed road closure | |
| Miscellaneous Features | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Actual Cost including Environmental Permitting and Eng of Record Administrative Fee | \$51,470 | |
| Right of Way Cost | Assuming UPS/DWS ends extends past ROW 1/20 acre | \$17,424 | |
| Utility Relocation Cost | | \$132,521 | |
| Construction Cost | Includes 1/8 acre clearing and grubbing, guardrail installation | \$310,434 | |
| Total Planning Estimate | | \$511,849 | |



Photo 1:



Photo 2:

Lees Mill Road

Photo Date:

1/05/2016

Taken By:

Tony Hicks

Page:

1



Photo 3:



Photo 4:

Lees Mill Road

Photo Date:

12/24/2015

Taken By:

Homeowner

Page:

2

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---|-------------------|------------------------|---------|--------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 1200.00 | \$ 6,726.40 |
| Curb and Gutter (LF) | - | \$ 18.42 | 0.00 | \$ - |
| 4" Sidewalk (SY) | - | \$ 36.90 | 0.00 | 0 |
| Guardrail (LF) | - | \$ 49.09 | 110.00 | 5400.12 |
| End Anchorage (EA) | - | \$ 1,380.00 | 4.00 | 5520 |
| Subtotal | | | | \$ 17,646.52 |
| Grading Complete (5% of Rwy Items & Dmg Total \$) | | | | \$ 10,792.91 |
| Roadway Total | | | | \$ 28,439.43 |

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|-------------------|------------------------|----------|---------------|
| Trench Excavation (CY) | | \$ 10.38 | 554.65 | \$ 5,757.30 |
| 72" CMP (LF) | \$ 54.00 | | 180.00 | \$ 9,720.00 |
| 2-8'X7' Box Culvert (CY) | | \$ 892.19 | 154.98 | \$ 138,271.61 |
| Box Culvert Wingwalls, Parapetes (CY) | | \$ 892.19 | 20.82 | \$ 18,575.40 |
| Steel (lb) | | \$ 1.42 | 15023.40 | \$ 21,333.23 |
| Culvert Bedding (CY) | | \$ 48.60 | 32.60 | \$ 1,584.36 |
| Trench Backfill (CY) | | \$ 2.99 | 367.73 | \$ 1,098.77 |
| Trench Compaction (CY) | | \$ 6.36 | 294.18 | \$ 1,870.99 |
| Drainage Total | | | | \$ 198,211.64 |

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 50 | \$ 35.40 |

| | | | |
|----------------------------------|--|--|-----------------|
| Signing and Marking Total | | | \$ 35.40 |
|----------------------------------|--|--|-----------------|

| Staging | Installation Unit Cost | Amount | Total Cost |
|---|------------------------|--------|--------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.13 | \$ 1,282.50 |
| Temporary Pavement | | 0.00 | 0 |
| Temporary Drainage (Stream Pump Around) | \$ 30,000.00 | 1.00 | \$ 30,000.00 |
| Staging Total | | | \$ 31,317.90 |

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|---------------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 100.00 | \$ 439.20 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 168.00 | \$ 711.65 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 0.00 | \$ - |
| Erosion Control Mats (SY) | \$ 1.87 | 0.00 | \$ - |
| Landscape Mulch (SY) | \$ 3.58 | 0.00 | \$ - |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 340.00 | \$ 20,734.56 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 340.00 | \$ 1,946.16 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |
| Ditch Adjustment/Grading (LS) | \$ 5,000.00 | 1.00 | \$ 5,000.00 |
| Erosion Control Total | | | \$ 28,831.57 |

| | | | |
|--------------------------------|--|--|----------------------|
| Construction Cost Total | | | \$ 286,835.94 |
|--------------------------------|--|--|----------------------|

| | | | |
|---|--|--|----------------------|
| Traffic Control (8% of Construction Total \$) | | | \$ 22,946.88 |
| Public Works Costs | | | 651 |
| Construction Cost Grand Total | | | \$ 310,433.81 |

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|----------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 0.00 | \$ - |
| Water | | | | |
| Cap and Remove (EA) | | \$ 3,045.00 | 1.00 | \$ 3,045.00 |
| 16" Watermain (LF) | | \$ 203.73 | 200.00 | \$ 40,746.00 |
| 16" Gate Valve (EA) | | \$ 7,885.00 | 2.00 | \$ 15,770.00 |
| 20" Steel Casing (LF) | | \$ 162.00 | 120.00 | \$ 19,440.00 |
| 16" Jack and Bore (EA) | | \$ 396.00 | 120.00 | \$ 47,520.00 |
| 16" 45 degree MJ Bend (EA) | | \$ 1,500.00 | 4.00 | \$ 6,000.00 |
| Utility Relocation Total | | | | \$ 132,521.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|---------|---------------------|
| Permanent Easement | \$ 4.00 | 4356.00 | \$ 17,424.00 |
| ROW Total | | | \$ 17,424.00 |

TO: Steve Rapson, County Administrator

FROM: Phil Mallon, Public Works

DATE: July 28, 2016

RE: Longview Dam (a.k.a. Margaret Phillips Lake Dam) Update

Background

Longview Dam (a.k.a. Margaret Phillips Lake Dam) is classified by the Georgia Safe Dams Program as a Category 1 structure. Under the authority of the Safe Dam Act, the Georgia Safe Dams Program maintains an inventory and classification system of all the dams in the state. They also establish minimum design and maintenance standards for Category I (high hazard) structures through inspection and permitting.

This dam is approximately 16-feet high, 670 feet long, has a top width of 20 feet, and impounds a 16-acre lake. Longview Road runs across the top of the dam. Fayette County owns and operates the dam. In order to meet Georgia Safe Dams Program requirements, Fayette County shall either:

- Upgrade the dam;
- Breach the dam;
- Modify the dam to remove the downstream flood risk; or
- Remove or modify the downstream structures at risk.

Of these four options, upgrading the dam and breaching the dam are the most practical options.

Fayette County authorized Walden, Ashworth & Associates to serve as the “Engineer of Record” for this project to develop upgrade and dam breach options for County review (attached). A summary follows.

Option I - Dam Upgrade

Walden reviewed all the Safe Dams Programs files on Longview Dam and performed a field inspection. They did not perform a detailed hydrological and hydraulic evaluation because of cost constraints. The inspection confirmed that significant work is needed to bring this dam up to Category I standards. Noted concerns include: slope stability since the toe of the dam is chronically wet, the presence of longitudinal cracks along the road, and severe erosion around the main drain pipe. Maintenance and repair work includes: removing vegetation, flattening slopes to a 3:1 (or flatter); and installing a seepage collection and removal system.

Based on previous experience and taking into consideration both the drainage basin and lake size, Walden assumed that a 20-foot wide labyrinth weir would be required for outlet control of the improved dam. An outlet structure of this size requires a bridge for the road and underground utilities would have to be relocated.

The Consultant’s order-of-magnitude cost estimate for the Dam Upgrade option is \$1,409,815. This includes design and construction but excludes acquisition costs for approximately 40,000 square feet of new right-of-way and easements.

Option 2 - Dam Breach

The dam breach option returns the watershed to free-flow (i.e., natural) conditions by draining the lake and cutting out a portion of the dam. The Option also calls for Longview Road to be permanently cut/broken, thereby avoiding the cost of a new culvert or bridge. Instead, cul-de-sacs will be provided on either side of the breach location to provide turn-around points for Longview Road. Work to breach Longview Dam includes:

- Environmental permitting;
- Acquiring proposed right-of-way and easements for the project.
- Draining the lake;
- Breaching the dam with a 20-ft cut and 4:1 side slopes;
- Breaking of Longview Road and installation of two cul-de-sacs;
- Installation of guard rail; and
- Installation of a drain pipe and concrete weir wall for control of peak flows.

Breaching the dam removes the dam from any further operations and maintenance requirements by the Georgia Safe Dams Act. For a conceptual cost estimate, County staff assumed the Dam Breach option would be \$704,907, one-half the estimated amount to upgrade the dam. Similar to Option 1, this excludes right-of-way and easement costs.

Recommendation

Staff recommends Option 2, Dam Breach. This option provides the double benefit of 1) meeting the required Ga Safe Dams Act Category I standards and 2) removing the structure from future State operation and maintenance requirements. Although Longview Road is a Collector, it lends itself to be changed from a thru road to a dead-end road since there are alternate roads (i.e., SR 314) providing the same connectivity.

Direction is needed from the Board of Commissioners regarding which option to pursue. Further design and permitting is on hold until guidance is provided.

COST ESTIMATES FOR LONGVIEW DAM TO MEET GEORGIA SAFE DAMS CATEGORY 1 REQUIREMENTS

Option 1 – Dam Upgrade: \$1,409,815

Option 2 – Dam Breach (*preferred*): \$704,907

**ORDER OF MAGNITUDE OPINION OF COST
FOR THE REHABILITATION
OF MARGARET PHILLIPS LAKE DAM
FOR**



FAYETTE COUNTY BOARD OF COMMISSIONERS
STEVE BROWN, CHAIRMAN
CHARLES ODDO, VICE CHAIRMAN
DAVID BARLOW
RANDY OGNIO
ALLEN McCARTY



August 5, 2013



WALDEN, ASHWORTH & ASSOCIATES, INC.

Consulting Engineer +

**MARGARET PHILLIPS LAKE DAM
FAYETTE COUNTY, GEORGIA
ORDER OF MAGNITUDE
OPINION OF COST**

**WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS**

August 5, 2013
WA&A J.O. 3301700





WALDEN, ASHWORTH & ASSOCIATES, INC.

CONSULTING ENGINEERS

P.O. BOX 6462 • MARIETTA, GEORGIA 30065 • 770/956-7879

August 5, 2013

Mr. Phil Mallon, P.E.
Fayette County Engineer
115 McDonough Rd
Fayetteville, Georgia 30215

**RE: MARGARET PHILLIPS LAKE DAM
FAYETTE COUNTY, GEORGIA
ORDER OF MAGNITUDE - OPINION OF COST
WA&A J.O. 3301700**

Dear Mr. Mallon:

We have completed our Order of Magnitude Opinion of Cost for the Margaret Phillips Lake Dam and are pleased to present the results in the attached report. We appreciate the opportunity to assist Fayette County on this project.

If you have any questions, please do not hesitate to call.

Very truly yours,

WALDEN, ASHWORTH & ASSOCIATES, INC.

Martin L. Walden, P.E.
President

MLW/jcw

Attachment



**MARGARET PHILLIPS LAKE DAM
FAYETTE COUNTY, GEORGIA
ORDER OF MAGNITUDE COST ESTIMATE**

INTRODUCTION

This report, which was authorized through an agreement with the Fayette County Board of Commissioners, provides an Order of Magnitude Opinion of Cost for the rehabilitation of the Margaret Phillips Lake Dam and includes a summary of the assumptions and procedures used to develop that Opinion of Cost.

SCOPE

Our Order of Magnitude Opinion of Cost to rehabilitate the Margaret Phillips Lake Dam and bring it into compliance with current requirements for Category I, high hazard dams is based on a brief visual inspection of the dam, a review of available data and our experience with similar dams. The visual inspection was made without the benefit of surveying equipment and no measurements were taken. The scope of the site visit was limited to visible elements only and excluded covered, buried, or hidden conditions. The scope of work did not include any calculations, special investigations, equipment testing, field or laboratory testing, geotechnical investigations or material testing.

DATA SEARCH - GEORGIA SAFE DAMS PROGRAM FILES

The purpose of the Georgia Safe Dams Act, 1977, is to protect the health, safety and welfare of all citizens of the state by reducing the risk of dam failure, thus reducing the risk of death and injury. Under the authority of the Safe Dam Act, the Georgia Safe Dams Program maintains an inventory and classification system of all the dams in the state, an inspection and permitting system, and sets certain minimum design standards for those dams that are considered to be Category I (high hazard) structures.

The Safe Dams Program maintains a file of all known data, inspection reports, correspondence and permitted improvements to all Category I dams. Because the Margaret Phillips Dam is classified as a Category I structure, the Safe Dams Program maintains such a file for it. As part of the scope of work, we reviewed the file for the dam at the office of the Safe Dams Program.



DESCRIPTION OF DAM

The Margaret Phillips Lake Dam is an estimated 670 feet long and has a top width of 20 feet. The dam is approximately 16 feet high and impounds a lake having a surface of approximately 16 acres at normal pool with a drainage basin of approximately 860 acres (1.3 sq. mi.). The normal pool elevation of the lake is controlled by a Corrugated Metal Pipe (CMP) riser located near the center of the dam. The secondary spillway consists of two 24 inch diameter reinforced concrete culverts under the road on top of the dam.

ASSUMPTIONS USED IN OPINION OF COST

Our Opinion of Cost assumes that all of the deficiencies noted by the Georgia Safe Dams Program and our brief inspection will be addressed in the renovation of the dam and will include such items as removal of inappropriate vegetation on both the upstream and downstream slopes; flattening of both slopes to a 3:1 slope; installation of a seepage collection and removal system including a full height chimney/blanket drain and toe drain and additional spillway capacity.

It is not possible to determine the adequacy of the capacity of the spillways without a detailed hydrological and hydraulic evaluation. Such an evaluation is beyond the scope of this Order of Magnitude estimate. Therefore, based on the size of the lake and its drainage basin, we have assumed that a 20 foot wide labyrinth weir type structure will be required. It is important to understand that a more detailed engineering evaluation will be required before a more refined opinion of cost can be developed.

The construction of the labyrinth weir spillway will require the excavation of a section completely through the dam. The rectangular concrete spillway structure will be constructed along with the appropriate seepage control drains in this excavated notch in the dam and select fill will be backfilled against the structure. In order to maintain the roadway, a bridge spanning across the spillway structure will be required. The water line will be suspended under the bridge.

Using criteria established by the Georgia Safe Dams Program, the structure will have a design storm of 25% of the Probable Maxim Precipitation (PMP) based on Antecedent Moisture Condition III (AMC III) which reflects a saturated watershed from antecedent rains. This condition results in the highest runoff potential.



EASEMENTS

The work required to rehabilitate the Margaret Phillips Lake Dam will include construction of a seepage control system and flattening of the downstream slope. To accomplish this work will require construction that will be outside of the right of way and, therefore, on property owned by others. Before this work can be done, property and/or easements must be obtained from the individual property owners affected. It is important to note that the final amount of property owned by others that will be impacted cannot be determined until the final design has been completed. The cost for obtaining this property and/or easements has not been included in the Order of Magnitude Opinion of Cost.

Based on our very preliminary evaluation, the following parcels will be impacted by the areas indicated.

PARCELS IMPACTED

| PARCEL NO. | AREA IMPACTED (SQ FT) |
|-------------------|----------------------------------|
| 0544-037 | 16,000 |
| 0544-121 | 17,000 |
| 0544-0008a | 8,700 |

APPENDIX

A copy of the letter from the Georgia Safe Dams Program outlining the items they have identified that must be addressed to bring the dam into compliance with Category I standards can be found in the appendix of this report.



**MARGARET PHILLIPS LAKE DAM
FAYETTE COUNTY, GEORGIA
ORDER OF MAGNITUDE
OPINION OF COST**

Our Opinion of Cost is based on limited data and does not have the benefit of detailed design and/or drawings. We have made assumptions based on our observations, available data and our experience with similar dams. A more definitive cost estimate cannot be prepared without detailed design.

The American Association of Cost Engineers recommends dividing engineering construction cost estimates into three basic categories as follows:

Order of Magnitude Estimate

This is an estimate made without detailed engineering data. Some examples would be an estimate from cost-capacity curves, an estimate using scale-up or scale-down factors and an approximate ratio estimate.

Budget Estimate

Budget in this case applies to the owner's budget and not to the budget as a project control document. A budget estimate is prepared using flow-sheets, layouts and equipment details.

Definitive Estimate

As the name implies, this is an estimate prepared from very defined engineering data. As a minimum, the data must include fairly complete plans and elevations, piping and instrumentation diagrams, one-line electrical diagrams, equipment data sheets and quotations, structural sketches, soil data and sketches of major foundations, building sketches and a complete set of specifications. The "maximum" definitive estimate would be made from "Approved for Construction" drawings and specifications.

The construction cost estimate for the rehabilitation of this dam is an Order of Magnitude estimate.



The following is a breakdown of the expected cost for the rehabilitation of the Margaret Phillips Lake Dam. The Opinion of Cost presented here is an Order of Magnitude estimate based on a Category I classification of the dam by the Georgia Department of Natural Resources, Safe Dams Program. On the following page is a breakdown of the Order of Magnitude Opinion of Construction Cost.

PROFESSIONAL SERVICES

| | |
|---|------------|
| Surveying for Design | \$ 9,000 |
| Geotechnical Exploration | \$ 20,000 |
| Design and Preparation of Construction Documents | \$ 45,000 |
| Preconstruction Notification (PCN) to USACOE | \$ 3,000 |
| State Waters Buffer Encroachment Variance Application | \$ 1,000 |
| *Construction Administration Services | \$ 15,000 |
| *Geotechnical Construction Monitoring | \$ 100,000 |

* Assumes 3 month construction monitoring

CONSTRUCTION

| | |
|------------------------------|---------------------|
| Opinion of Construction Cost | <u>\$ 1,216,815</u> |
|------------------------------|---------------------|

TOTAL REHABILITATION COST **\$ 1,409,815**

Total Rehabilitation Cost does not include any cost for land or easement acquisition that may be required.

WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS



**MARGARET PHILLIPS LAKE DAM
ORDER OF MAGNITUDE
OPINION OF CONSTRUCTION COST**

| Description | Quantity | Units | Unit Price | Cost |
|---|----------|-------|-------------|--------------------|
| Mobilization | 1 | LS | \$25,000.00 | \$25,000 |
| Erosion Control | 1 | LS | \$20,000.00 | \$20,000 |
| Clearing & Grubbing | 1.5 | AC | \$5,000.00 | \$7,500 |
| Control of Water | 1 | LS | \$30,000.00 | \$30,000 |
| Under Drain Sand | 25 | TN | \$50.00 | \$1,250 |
| Under Drain # 89 Stone | 20 | TN | \$39.50 | \$790 |
| Under Drain # 57 Stone | 50 | TN | \$39.50 | \$1,975 |
| Under Drain Pipe | 385 | LF | \$20.00 | \$7,700 |
| Concrete | 400 | CY | \$1,000.00 | \$400,000 |
| Earthwork | 5,000 | CY | \$15.00 | \$75,000 |
| Grassing | 5,725 | SY | \$2.50 | \$14,313 |
| Rip Rap | 1,220 | TN | \$80.00 | \$97,600 |
| Blanket / Chimney Drain | 770 | TN | \$50.00 | \$38,500 |
| Toe Drain | 500 | LF | \$80.00 | \$40,000 |
| Toe Drain Outlets / Clean Outs | 2 | EA | \$2,500.00 | \$5,000 |
| Water Line | 100 | LF | \$30.00 | \$3,000 |
| Paving | 320 | SY | \$60.00 | \$19,200 |
| Bridge | 675 | SF | \$200.00 | \$135,000 |
| SUBTOTAL | | | | \$921,828 |
| GENERAL CONDITIONS (7%) | | | | \$64,531 |
| OVERHEAD & PROFIT (15%) | | | | \$138,274 |
| CONTINGENCY (10%) | | | | \$92,183 |
| SUBTOTAL | | | | \$294,988 |
| Total Estimated Construction Cost Budget | | | | \$1,216,815 |

The American Association of Cost Engineers recommends dividing engineering construction cost estimates into three basic categories: Order-of-Magnitude, Budget and Definitive Estimates. The Order of Magnitude Estimate is defined as follows:

This is an Estimate is made without detailed engineering data. Some examples would be an estimate from cost-capacity curves, an estimate using scale-up or scale-down factors and an approximate ratio estimate.



APPENDIX

Georgia Department of Natural Resources

Environmental Protection Division

Safe Dams Program

4244 International Parkway, Suite 110

Atlanta, Georgia 30354

Linda MacGregor, P.E., Branch Chief

(404) 362-2678

November 5, 2012

FILE COPY

The Honorable Herb Frady, Chairman
Fayette County Board of Commissioners
140 Stonewall Avenue West
Suite 100
Fayetteville, Georgia 30214

SUBJECT: Margaret Phillips Lake Dam
Fayette County

Dear Chairman Frady:

As we previously informed Fayette County by letter dated May 13, 2009, the subject dam has been determined to be within the jurisdiction of the 1978 Georgia Safe Dams Act (Act) by virtue of its hazard classification. A detailed visual inspection of the dam, as is also provided for by the Act, has now been performed by the Environmental Protection Division (Division). Copies of the Visual Inspection Report are enclosed. The inspection revealed that the dam does not comply with certain paragraphs of the Rules for Dam Safety (Rules), specifically the following items from Section 391-3-8-.09:

1. Paragraph (3)(a) Stability – “The design and/or evaluation of new and existing dams shall conform to accepted practices of engineering profession and dam safety industry.” Based on standard engineering practice, the downstream slope of the dam is steep and the toe of the dam is wet, which may affect the stability of the dam. There are longitudinal cracks along the road on the crest of the dam with slight displacement towards the downstream edge of the pavement. This may be a stability concern and needs investigation.
2. Paragraph (3) (d) – The dam shall have a means of draining the reservoir to a safe level. It is unknown whether there is a low-level outlet and if it is functional.
3. Paragraph (3) (e) – “All earthen embankments shall be protected from surface erosion by appropriate vegetation, or some other type of protective surface such as riprap, and shall be maintained in a safe condition.” The slopes of the dam have trees/brush that need to be removed and replaced with a low growing grass. There is severe erosion in the plunge pool where the principal spillway pipe outlets. There needs to be erosion protection around the plunge pool area and along the waterline.
4. Paragraph (3) (f) – “Each dam shall be capable of safely passing the fraction of flood developed from the PMP hydrograph depending on the sub classification of the dam.” The spillway system has to be evaluated for adequacy of the system to be able to pass the required storm event.
5. Paragraph (3) (g) – There is seepage/wet area at the toe of the dam that needs further investigation.
6. Paragraph (3) (j) – “appropriate freeboard for wave action shall be considered...” The spillway system needs to be evaluated for compliance with this standard.
7. Paragraph (4) – “Other design standards may be imposed as deemed appropriate...” The condition of the CMP through the dam is unknown and should be taken out of service.

The Rules require that you, an owner/operator of the dam, retain an experienced professional engineer recognized as an "Engineer of Record" to assist you with bringing the dam into compliance with the Act. Approved Engineer of Record lists are enclosed for your information. The dam may be brought into compliance by either addressing the noted deficiencies or by addressing the downstream hazard potential. The options are as follows:

- **Upgrade the dam:** Your Engineer of Record must perform a detailed investigation of the noted deficiencies and design remedial measures as necessary. After review and approval of the detailed investigation report, construction plans and specifications, and the schedule for any necessary improvements, we will recommend that the Director of the Division (Director) issue a Construction and Operation Permit for the dam. Once the remedial measures have been implemented, the dam will remain a permitted Category I structure and will be inspected on a regular basis to ensure that it is being maintained properly and remains in compliance. You will be required to perform your own routine inspections, maintain the dam and address any future deficiencies if they arise.
- **Breach the dam:** You will be required to fill out a breach application, and your Engineer of Record will be required to submit design plans for safely breaching the dam, such that it can no longer retain water. Once the breach plans have been approved and the dam has been breached, you will have no further responsibilities related to the Act and Rules.
- **Modify the dam to remove the downstream flood risk:** Your Engineer of Record must perform an extended dam failure flood study to identify all potential structures at risk downstream, such as homes, businesses, churches, etc., and submit design plans for the necessary modifications to the dam that would prevent flooding at these structures in the event of a dam failure. It should be noted that for classification purposes the Division typically only identifies one structure at risk. There may be additional structures in the dam failure flood zone. Once the flood study and design plans have been approved and the modifications implemented, the dam may be reclassified either Category II (low hazard) or exempt at the Director's discretion. A permit from the Division will no longer be required for operation of the dam. The classification may change if future development occurs in the dam failure flood zone.
- **Remove or modify the downstream structure(s) at risk:** Your Engineer of Record must perform an extended dam failure flood study to identify all potential structures at risk. All identified structures will have to be permanently removed from the dam failure flood zone or in some cases may be flood-proofed (design plans for flood-proofing will have to be reviewed and approved). Once the structures have been removed or adequately flood-proofed, the dam may be reclassified Category II at the Director's discretion, and a permit from the Division will no longer be required for operation of the dam. You should be aware that the classification may change if future development occurs in the dam failure flood zone.

Your engineer should be able to provide you with the feasibility of each option. All options require that your engineer inspect any necessary work as it is being performed. After the work is completed, your engineer must certify in writing that the work was performed in accordance with any approved plans and specifications. It is important that you do not attempt to modify the dam yourself. Often an improper repair attempt can do more harm than good, and the law requires that modifications to Category I dams be developed by an engineer and receive prior approval from the Division.

Please inform the Division's Safe Dams Program in writing at 4244 International Parkway, Suite 110, Atlanta, Georgia, 30354 before **January 15, 2013** with the name of the engineer you have retained to assist you with bringing the dam into compliance. It would be our recommendation that partial owners of the same dam work together to retain a common engineer. An engineering report must be submitted no later than **April 15, 2013**.

The files of all dams, which are regulated by the Division, are public information. Representatives of engineering firms interested in remedial dam design work may see a copy of this letter in our files and contact you offering a proposal for the design work. The Division does not recommend any engineering firm to a dam owner. We suggest that you solicit proposals from several firms (a minimum of three) and then compare the experience and prices in making your selection.

If you have any questions about the contents of the enclosed report or your responsibilities with regard to the Act and Rules, please contact the Safe Dams Program at 404/362-2678, or write us and we will be glad to address your questions.

Sincerely,



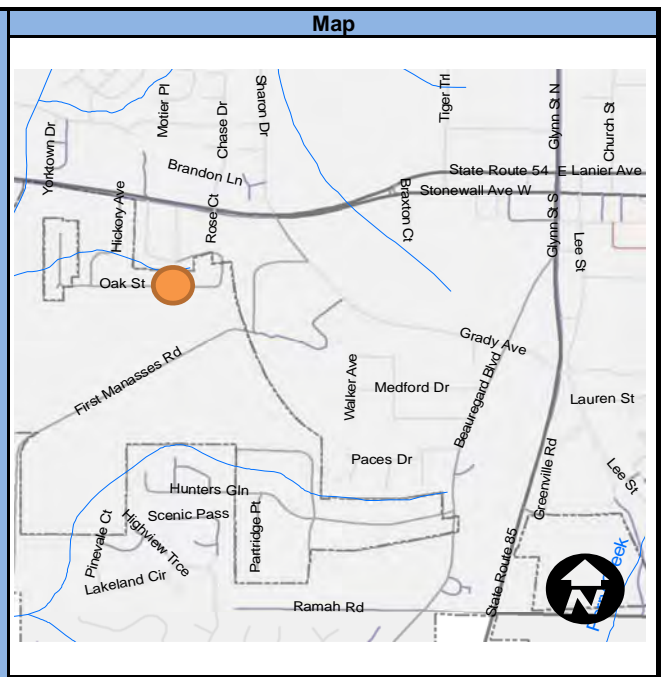
Dallon Thomas Woosley, P.E.
Program Manager
Safe Dams Program

DTW:ks

Enclosures

cc: Thomas Concrete of Georgia, Inc.

| General Information | |
|--|------------------|
| Project ID | |
| Street Name | 330 Oak Street |
| Site Visit Date | 5/21/13 |
| Road Classification | Internal Local |
| Project Notes | |
| Rural Typical Section | |
| Field Notes | |
| Design (Existing Site Features) | |
| Existing Road Laneage | 2 |
| Existing Shld Width (paved and grass) (feet) | 1 - 2' Grass |
| Existing Side Slopes | 2:1 |
| Existing Guardrail | None |
| Depth fm Pavement to Top of Culvert (ft): | 5' |
| Pipe Type and Size | 15" RCP |
| Pipe Condition (1-5) (1 is new) | 5 (Installation) |
| Condition Notes: | |
| Pavement Type/Condition | Asphalt/Good |
| Environmental Features | |
| Wetlands | None |
| Ditches | Along South Side |
| | |
| | |
| Utilities (Visual Inspection) | |
| Electric | Aerial |
| Cable | Aerial |
| Phone | Aerial |
| Gas | |
| Water | Buried |
| Sewer | |
| Other | |



| Stage Construction Options | |
|--------------------------------------|---|
| Close Location to Traffic | X |
| Maintain One Lane - No Temp Pavement | |
| Maintain One Lane - Temp Pavement | |
| Stage Construction Notes: | |
| | |

| Proposed Design | |
|-------------------------|--|
| Roadway Section | |
| Culvert Size & Material | 3' x 2' box, concrete, 80' length |
| Utility Relocations | Water |
| Guardrail Replacement | |
| Miscellaneous Features | ~ 200' drainage ditch or additional piping needs to be installed for downstream property. Receiving stream could use ~500' of stream restoration |
| | |
| | |

| Planning Cost Estimate | | |
|-------------------------|-------|----------|
| Type | Notes | Total |
| Design | | \$15,000 |
| Right of Way Cost | | \$4,000 |
| Utility Relocation Cost | | \$5,500 |
| Construction Cost | | \$44,006 |
| Environmental Permits | | \$10,000 |

| | |
|--------------------------------|-----------------|
| Total Planning Estimate | \$78,506 |
|--------------------------------|-----------------|





Photo 1:



Photo 2:

Oak Street

Photo Date:

5/21/2013

Taken By:

David King

Page:

1



Photo 3:



Photo 4:

Oak Street

Photo Date:

5/21/2013

Taken By:

David King

Page:

2

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Installation Unit Cost | Amount | Total Cost |
|--|------------------------|--------|--------------------|
| Pavement | | | \$ 3,618.39 |
| Curb and Gutter (LF) | \$ 27.50 | | |
| 4" Sidewalk (SY) | \$ 49.50 | | |
| Guardrail (LF) | \$ 57.20 | | |
| End Anchorage (EA) | \$ 2,530.00 | | |
| Subtotal | | | \$ 3,618.39 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | \$ 1,317.52 |
| Roadway Total | | | \$ 4,935.91 |

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|-----------------------|-------------------|------------------------|--------|---------------------|
| Class A Conc (cy) | | \$ 698.50 | 26 | \$ 18,293.72 |
| Steel (lb) | | \$ 1.38 | 2559 | \$ 3,518.63 |
| Type 2 Back Fill (cy) | | \$ 60.50 | 15.2 | \$ 919.60 |
| Drainage Total | | | | \$ 22,731.94 |

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Permanent Striping (mile) | | | \$ - |
| Signing and Marking Total | | | \$ - |

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|---------------------|
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 10,000.00 | 1 | \$ 10,000.00 |
| Staging Total | | | \$ 10,000.00 |

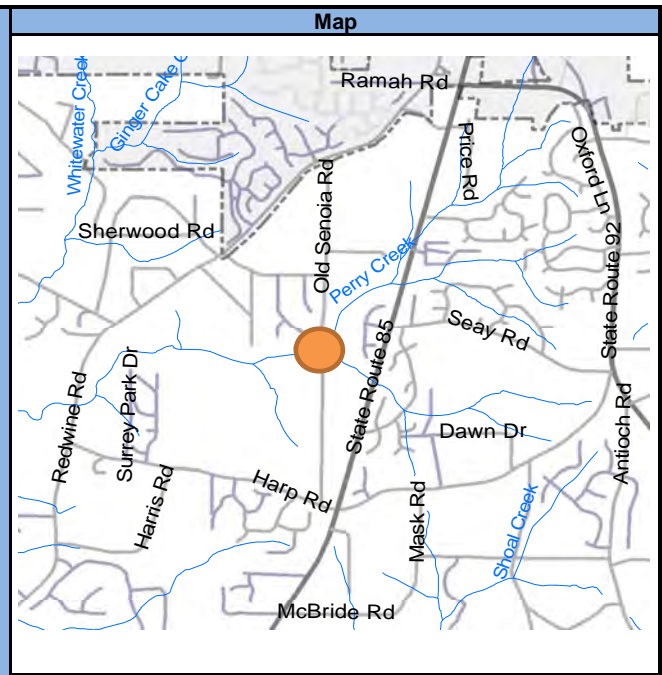
| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|--------------------|
| Temporary Grassing (AC) | \$ 418.00 | 0.1 | \$ 41.80 |
| Silt Fence (LF) | \$ 5.50 | 200 | \$ 1,100.00 |
| Check Dam Type C Silt Fence (LF) | \$ 4.40 | 100 | \$ 440.00 |
| Erosion Control Mats (SY) | \$ 2.75 | 150 | \$ 412.50 |
| Mulch (TN) | \$ 286.00 | 1.4 | \$ 400.40 |
| Perm Grassing (ac) | \$ 9.90 | 0.1 | \$ 0.99 |
| Rip Rap (SY) | \$ 66.00 | 20 | \$ 1,320.00 |
| Plastic Filter Fabric (SY) | \$ 6.60 | 20 | \$ 132.00 |
| 4" Ditch Paving (SY) | \$ 33.00 | 0 | \$ - |
| Erosion Control Total | | | \$ 3,847.69 |

| | | | |
|--|--|--|---------------------|
| Construction Cost Total | | | \$ 41,515.54 |
| Traffic Control (6% of Construction Total \$) | | | \$ 2,490.93 |
| Construction Cost Grand Total | | | \$ 44,006.47 |

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|--------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 0 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 50 | \$ 5,500.00 |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0 | \$ - |
| Utility Relocation Total | | | | \$ 5,500.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|-------|--------------------|
| Permanent Easement | \$ 2.00 | 2000 | \$ 4,000.00 |
| ROW Total | | | \$ 4,000.00 |

| General Information | |
|--|------------------------|
| Project ID | |
| Street Name | Old Senoia Road |
| Site Visit Date | 5/21/13 |
| Road Classification | Collector |
| Project Notes | |
| Rural Typical Section | |
| Field Notes | |
| Design (Existing Site Features) | |
| Existing Road Laneage | 2 - 12' |
| Existing Shld Width (paved and grass) (feet) | 8' (G) |
| Existing Side Slopes | 2:1 to 10:1 |
| Existing Guardrail | None |
| Depth fm Pavement to Top of Culvert (ft): | 3' |
| Pipe Type and Size | 3 - 96" CMP |
| Pipe Condition (1-5) (1 is new) | 3 |
| Condition Notes: Lining deteriorated, but pipes fully functioning; DS drop | |
| Pavement Type/Condition | Asphalt/New |
| Environmental Features | |
| Wetlands | None identified |
| Ditches | None |
| | |
| | |
| Utilities (Visual Inspection) | |
| Electric | Aerial |
| Cable | |
| Phone | Aerial and Buried |
| Gas | |
| Water | Buried |
| Sewer | |
| Other | |



| Stage Construction Options | |
|---|---|
| Close Location to Traffic | X |
| Maintain One Lane - No Temp Pavement | |
| Maintain One Lane - Temp Pavement | |
| Stage Construction Notes: Close Road - access from the South & North | |

| Proposed Design | |
|-------------------------------|--|
| Roadway Section | |
| Proposed Design | 100' prestressed concrete beam bridge, three spans, 43' wide |
| Utility Relocations | Buried Phone, Watermain |
| Guardrail Replacement | Proposed Guardrail Installation due to proposed culvert(s) and side slopes |
| Miscellaneous Features | Zone AE with Floodway, Floodplain Analysis Required |
| | |
| | |

| Planning Cost Estimate | | |
|--------------------------------|--|--------------|
| Type | Description | Total |
| Design | bridge design and geotech (BFI) included | \$140,949.73 |
| Right of Way Cost | | \$12,000.00 |
| Utility Relocation Cost | | \$26,125.00 |
| Construction Cost | | \$459,497.27 |
| Environmental Permits | environmental(bridge), floodplain analysis | \$30,000.00 |

| | |
|--------------------------------|---------------------|
| Total Planning Estimate | \$668,572.00 |
|--------------------------------|---------------------|





Photo 1:



Photo 2:

Old Senoia Road

Photo Date:

5/21/2013

Taken By:

David King

Page:

1 of 2



Photo 1



Photo 2

Old Senoia Road

Photo Date:

12/28/2015

Taken By:

Public Works

Page

2 of 2

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Installation Unit Cost | Amount | Total Cost |
|----------------------|------------------------|--------|--------------|
| Pavement | | | \$ 6,522.69 |
| Curb and Gutter (LF) | \$ 27.50 | | \$ - |
| 4" Sidewalk (SY) | \$ 49.50 | | \$ - |
| Guardrail (LF) | \$ 57.20 | 650 | \$ 37,180.00 |
| End Anchorage (EA) | \$ 2,530.00 | 2 | \$ 5,060.00 |
| Subtotal | | | \$ 48,762.69 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 22,863.13

Roadway Total \$ 71,625.83

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|-----------------------|-------------------|------------------------|--------|------------|
| Class A Conc (cy) | | \$ 698.50 | 0 | \$ - |
| Steel (lb) | | \$ 1.38 | 0 | \$ - |
| Type 2 Back Fill (cy) | | \$ 60.50 | 0 | \$ - |

Bridge Cost (total) \$ 408,500.00

Drainage Total \$ 408,500.00

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|---------------------|------------------------|--------|------------|
| Permanent Striping | | | \$ 500.00 |

Signing and Marking Total \$ 500.00

| Staging | Aerial | Installation Unit Cost | Amount | Total Cost |
|--|--------|------------------------|--------|--------------|
| Temporary Pavement | | | | \$0 |
| Temporary Drainage (Stream Diversi Aerial and Buried | | \$ 10,000.00 | 1 | \$ 10,000.00 |

Staging Total Buried \$10,000

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|--------------------------------------|------------------------|--------|-------------|
| Temporary Grassing (AC) | \$ 418.00 | 0.15 | \$ 62.70 |
| Silt Fence (LF) 100' prestressed cor | \$ 5.50 | 250 | \$ 1,375.00 |
| Check Dam Type C Silt Fence (LF) | \$ 4.40 | 200 | \$ 880.00 |
| Erosion Control Mats (SY) | \$ 2.75 | 225 | \$ 618.75 |
| Mulch (TN) | \$ 286.00 | 1.5 | \$ 429.00 |
| Perm Grassing (ac) | \$ 9.90 | 0.1 | \$ 0.99 |
| Rip Rap (SY) | \$ 66.00 | 50 | \$ 3,300.00 |
| Plastic Filter Fabric (SY) | \$ 6.60 | 50 | \$ 330.00 |
| 4" Ditch Paving (SY) | \$ 33.00 | | \$ - |

Erosion Control Total \$ 6,996.44

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|--------------------|-------------------|------------------------|--------|--------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 100 | \$ 6,600.00 |
| Buried | \$ 16.50 | \$ 82.50 | 0 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 2 | \$ 1,375.00 |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 100 | \$ 7,150.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 100 | \$ 11,000.00 |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0 | \$ - |

Utility Relocation Total \$ 26,125.00

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|-------|--------------|
| Permanent Easement | \$ 2.00 | 6000 | \$ 12,000.00 |

Construction Cost Total \$ 497,622.27

Traffic Control (6% of Construction Total \$) \$ 29,857.34

Construction Cost Grand Total \$ 527,479.61

| General Information | | Map | |
|---|--|---|---|
| Project ID | | | |
| Street Name | Rising Star Rd | | |
| Site Visit Date | | | |
| Road Classification | Rural | | |
| Project Notes | | | |
| Culvert replacement alternatives to provide flow capacity for the 100 year storm peak runoff. | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-12' | | |
| Existing Shld Width (paved and grass) (feet) | | | |
| Existing Side Slopes | | | |
| Existing Guardrail | No | | |
| Depth fm Pavement to Top of Culvert (ft): | (+/-) 3.5' | | |
| Pipe Type and Size | 2- 72" CMP | | |
| Pipe Condition (1-5) (1 is new) | 3-4 | | |
| Condition Notes: Two 72" culverts – left one collapsed, right one has approx. 6" dip in last joint. | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | Stage Construction Options | |
| Wetlands | TBD | Close Location to Traffic | X |
| Ditches | YES | Maintain One Lane - No Temp Pavement | |
| State Waters | YES (ASSUMED) | Maintain One Lane - Temp Pavement | |
| | | Stage Construction Notes: | |
| | | Assumed road closure | |
| Utilities (Visual Inspection) | | | |
| Electric | Aerial | | |
| Cable | Unknown | | |
| Phone | Unknown | | |
| Gas | Unknown | | |
| Water | Underground | | |
| Sewer | Underground | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | Typical | | |
| Culvert Size & Material | 2 - 84" round RCP with end treatment | | |
| Utility Relocations | To be verify, (20" DIP or PVC mains) | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Actual Cost including Environmental Permitting and Engineer of Record Administrative Fee | \$54,005 | |
| Right of Way Cost | Assuming UPS/DWS ends extends past ROW 1/20 acre | \$17,424 | |
| Utility Relocation Cost | Assuming no relocation | \$212,535 | |
| Construction Cost | Includes 1/8 acre clearing and grubbing | \$165,180 | |
| Total Planning Estimate | | \$449,143 | |



Photo 1:



Photo 2:

Rising Star Road

Photo Date:

4/14/2016

Taken By:

Tony Hicks

Page:

1

2-84" Culvert Construction and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|--|-------------------|------------------------|------------|------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 1200.00 \$ | 6,726.40 |
| Curb and Gutter (LF) | \$ - | \$ 18.42 | 0.00 \$ | - |
| 4" Sidewalk (SY) | \$ - | \$ 36.90 | 0.00 | 0 |
| Guardrail (LF) | \$ - | \$ 49.09 | 0.00 | 0 |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | 0 |
| Subtotal | | | \$ | 6,726.40 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | \$ | 5,352.94 |
| Roadway Total | | | \$ | 12,079.34 |

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|-----------|------------|
| Trench Excavation (CY) | | \$ 10.38 | 523.72 \$ | 5,436.20 |
| 72" CMP (LF) | \$ 54.00 | | 116.00 \$ | 6,264.00 |
| 84" RCP (LF) | | \$ 350.00 | 116.00 \$ | 40,600.00 |
| Class A Conc (CY) | | \$ 892.19 | 48.37 \$ | 43,155.13 |
| Steel (lb) | | \$ 1.42 | 0.00 \$ | - |
| Pipe Bedding (CY) | | \$ 48.60 | 49.41 \$ | 2,401.20 |
| Trench Backfill (CY) | | \$ 2.99 | 306.57 \$ | 916.02 |
| Trench Compaction (CY) | | \$ 6.36 | 245.25 \$ | 1,559.81 |
| Drainage Total | | | \$ | 100,332.36 |

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|---------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 50 \$ | 35.40 |
| Signing and Marking Total | | \$ | 35.40 |

| Staging | Installation Unit Cost | Amount | Total Cost |
|---|------------------------|---------|------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.13 \$ | 1,282.50 |
| Temporary Pavement | | 0.00 | 0 |
| Temporary Drainage (Stream Pump Around) | \$ 30,000.00 | 1.00 \$ | 30,000.00 |
| Staging Total | | \$ | 31,317.90 |

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|-----------|------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 188.89 \$ | 829.60 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 \$ | - |
| Type C Silt Fence (LF) | \$ 4.24 | 232.00 \$ | 982.75 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 0.00 \$ | - |
| Erosion Control Mats (SY) | \$ 1.87 | 0.00 \$ | - |
| Landscape Mulch (SY) | \$ 3.58 | 0.00 \$ | - |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 \$ | - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 66.67 \$ | 4,065.60 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 66.67 \$ | 381.60 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 \$ | - |

Erosion Control Total \$ 6,259.55

Construction Cost Total \$ 150,024.55

Traffic Control (8% of Construction Total \$) \$ 12,001.96

Construction Cost Grand Total \$ 162,026.52

Public Works 3,153

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|-----------|-------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 0.00 \$ | - |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 \$ | - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 \$ | - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 \$ | - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 \$ | - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 \$ | - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 \$ | - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 \$ | - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 \$ | - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 0.00 \$ | - |
| Water | | | | |
| Cap and Remove (EA) | | \$ 3,780.00 | 1.00 \$ | 3,780.00 |
| 24" Watermain (LF) | | \$ 296.00 | 150.00 \$ | 44,400.00 |
| 24" Gate Valve (EA) | | \$ 15,120.00 | 2.00 \$ | 30,240.00 |
| 36" Steel Casing (LF) | | \$ 185.00 | 100.00 \$ | 18,500.00 |
| 36" Jack and Bore (LF) | | \$ 396.00 | 100.00 \$ | 39,600.00 |
| 24" 45 degree MJ Bend (EA) | | \$ 2,779.00 | 4.00 \$ | 11,116.00 |
| 10" Watermain (EA) | | \$ 53.00 | 150.00 \$ | 7,950.00 |
| 10" Gate Valve (EA) | | \$ 2,430.79 | 2.00 \$ | 4,861.58 |
| 10" Steel Casing (LF) | | \$ 97.83 | 100.00 \$ | 9,783.00 |
| 10" Jack and Bore (LF) | | \$ 396.00 | 100.00 \$ | 39,600.00 |
| 10" 45 degree MJ Bend (EA) | | \$ 676.00 | 4.00 \$ | 2,704.00 |
| Utility Relocation Total | | | \$ | 212,534.58 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|----------|---------------------|
| Permanent Easement | \$ 4.00 | 4,356.00 | \$ 17,424.00 |
| ROW Total | | | \$ 17,424.00 |

228 Bernhard Rd



Pre-construction Photo



Construction Photo



Post Construction Photo



| | |
|----------------------|--|
| Date Updated: | 7/12/2016 |
| Cost Estimate: | \$5,520.98 |
| Est. Project Length: | 1 Week |
| Construction: | Complete |
| Property Access: | |
| Utilities: | |
| Preliminary Eng: | |
| Right Of Way: | |
| Construction: | Complete |
| Contractor: | McCoy Grading |
| Const Start Date: | 3/7/2016 |
| Completion Date: | 3/14/2016 |
| Problem: | Washout around an undersized 36 in. diameter corrugated metal pipe inlet caused shoulder and pipe failure. |
| Proposed Solution: | Replace the current pipe with a 42 in. reinforced concrete pipe and headwalls. |
| Percent Complete: | 100 |
| Current Status: | Complete |
| Total Cost: | \$46,257 |

Brittany Way



Pre-construction Photo



Construction Photo



Post Construction Photo



| | |
|----------------------|---|
| Date Updated: | 7/13/2016 |
| Cost Estimate: | \$75,000.00 |
| Est. Project Length: | 3 Weeks |
| Construction: | In-House |
| Property Access: | Complete |
| Utilities: | Complete |
| Preliminary Eng: | Complete |
| Right Of Way: | |
| Construction: | In-House |
| Contractor: | Fayette County |
| Const Start Date: | 5/27/2014 |
| Completion Date: | 9/14/2014 |
| Problem: | Road floods during the 2-year storm event. |
| Proposed Solution: | Install a 3'x6' concrete box culvert 60' long under Brittany Way. |
| Percent Complete: | 100 |
| Current Status: | Complete |
| Total Cost: | \$67,432 |

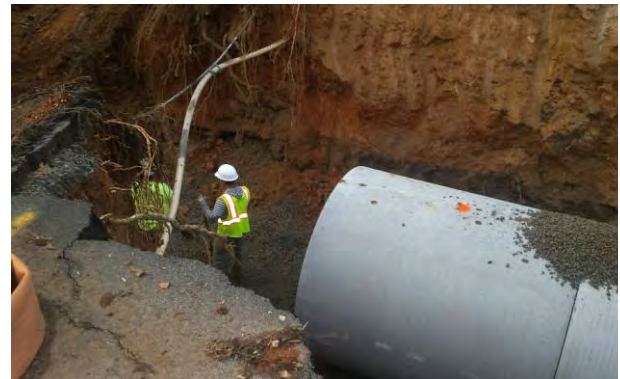
105 Canterbury Ln



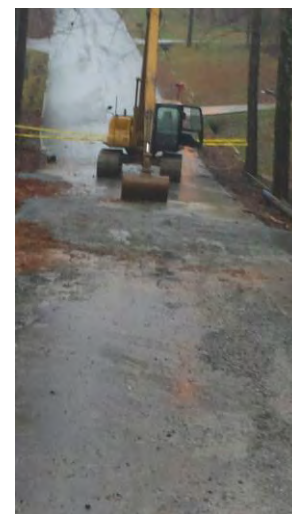
Pre-construction Photo

| | |
|-----------------------------|--|
| Date Updated: | 7/11/2016 |
| Cost Estimate: | \$24,671.06 |
| Est. Project Length: | 1 Week |
| Construction: | Complete |
| Property Access: | |
| Utilities: | |
| Preliminary Eng: | |
| Right Of Way: | |
| Construction: | Complete |
| Contractor: | Brent Scarbrough and Company |
| Const Start Date: | 12/24/2015 |
| Completion Date: | 12/31/2015 |
| Problem: | On 12/24/15, approximately 60 homes within the Chanticleer Subdivision were without water and had no access to and from their homes when a 72-inch diameter corrugated metal pipe failed, collapsing the road. |
| Proposed Solution: | 1 - 72-inch RCP pipe with headwall |
| Percent Complete: | 100 |
| Current Status: | Completed |
| Total Cost: | \$101, 636 |

Construction Photo



Post Construction Photo



110 Lawson Ln



Pre-construction Photo



Construction Photo



Post Construction Photo



| | |
|----------------------|---|
| Date Updated: | 7/12/2016 |
| Cost Estimate: | \$65,000.00 |
| Est. Project Length: | 3 Weeks |
| Construction: | Complete |
| Property Access: | Complete |
| Utilities: | Complete |
| Preliminary Eng: | Complete |
| Right Of Way: | |
| Construction: | Complete |
| Contractor: | Fayette County |
| Const Start Date: | 7/1/2015 |
| Completion Date: | 8/15/2015 |
| Problem: | Undersized pipes in Northridge Subdivision results in flooding of road, lots and several homes along Lawson Lane. Project would replace existing pipe and add additional drainage structures. |
| Proposed Solution: | Replace existing pipe and add additional drainage structures. |
| Percent Complete: | 100 |
| Current Status: | Completed |
| Total Cost: | \$94,509 |

144 Lowery Rd

Pre-construction Photo



Construction Photo



Post Construction Photo



| | |
|----------------------|--|
| Date Updated: | 7/11/2016 |
| Cost Estimate: | \$23,543.16 |
| Est. Project Length: | 1 Week |
| Construction: | Complete |
| Property Access: | Complete |
| Utilities: | Complete |
| Preliminary Eng: | Complete |
| Right Of Way: | |
| Construction: | Complete |
| Contractor: | McCoy Grading |
| Const Start Date: | 3/12/2016 |
| Completion Date: | 3/18/2016 |
| Problem: | Washout around the 54 in. diameter corrugated metal pipe caused shoulder and pipe failure. |
| Proposed Solution: | Replaced the current pipe with a 60 in. reinforced concrete pipe and headwalls. |
| Percent Complete: | 100 |
| Current Status: | Complete |
| Total Cost: | \$44,523 |

456 McBride Rd



Pre-construction Photo



Construction Photo



Post Construction Photo



| | |
|-----------------------------|--|
| Date Updated: | 7/12/2016 |
| Cost Estimate: | \$6,127.50 |
| Est. Project Length: | 1 week |
| Construction: | Complete |
| Property Access: | |
| Utilities: | |
| Preliminary Eng: | |
| Right Of Way: | |
| Construction: | Complete |
| Contractor: | McCoy Grading |
| Const Start Date: | 3/1/2016 |
| Completion Date: | 3/4/2016 |
| Problem: | Washout around the 54 in. diameter corrugated metal pipe caused complete road failure. |
| Proposed Solution: | Install a 54 in. reinforced concrete pipe and headwalls. |
| Percent Complete: | 100 |
| Current Status: | Completed |
| Total Cost: | \$41,820 |

155 Westbridge Cir



Pre-construction Photo



Construction Photo



Post Construction Photo

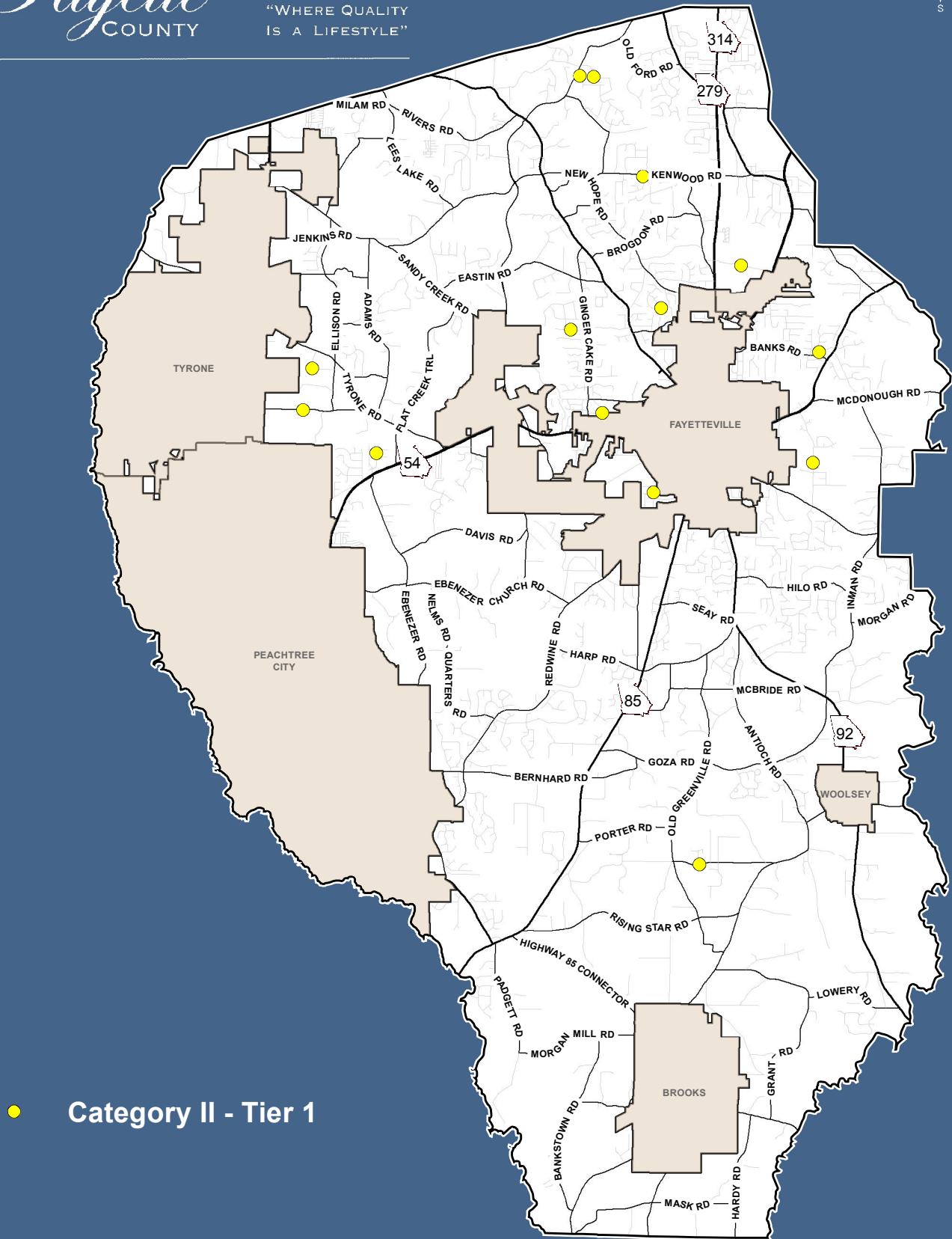


| | |
|----------------------|--|
| Date Updated: | 7/13/2016 |
| Cost Estimate: | \$3,846.48 |
| Est. Project Length: | 1 week |
| Construction: | Complete |
| Property Access: | |
| Utilities: | |
| Preliminary Eng: | |
| Right Of Way: | |
| Construction: | Complete |
| Contractor: | Brent Scarbrough and Company |
| Const Start Date: | 1/12/2016 |
| Completion Date: | 1/14/2016 |
| Problem: | During the 2015 Christmas and New Years flooding events two-36 in. diameter corrugated metal pipes failed causing imminent road failure. |
| Proposed Solution: | Replace with two-36 in. diameter reinforced concrete pipes and headwalls. |
| Percent Complete: | 100 |
| Current Status: | Completed |
| Total Cost: | \$68,419 |



Fayette
COUNTY

"WHERE QUALITY
IS A LIFESTYLE"



CATEGORY II - TIER 1

| PROJECT NAME | PROJECT DESCRIPTION | ESTIMATED COST |
|------------------------------|------------------------------------|--------------------|
| 514 Avalon Dr | 48" RCP, 300' | \$169,118 |
| 215 Brandon Mill Cir - South | 8'x4' RBC, 200'; system evaluation | \$437,648 |
| 266 Callaway Rd | trp 10'x4' RBC, 80' | \$533,218 |
| 364 Chappel Rd | dbl 8'x5' RBC, 70' | \$336,399 |
| 120 Deer Forest Trl | 4'x3' RBC, 100' | \$145,508 |
| 315 Dogwood Trl | trp 7' x 7' RBC, 80' | \$595,879 |
| 120 Mercedes Trl | dbl 8'x4' RBC, 60' | \$224,070 |
| 130 Morning Dove Dr | dbl 10'x4' RBC, 70' | \$244,389 |
| 151 Patricia Ln | 8'x4' RBC, 150' | \$295,527 |
| 199 Roberts Rd | 7'x4' RBC, 85' | \$193,861 |
| 160 Scott Blvd | 4'x2' RBC, 50' | \$99,114 |
| 175 Silver Leaf Dr | dbl 4'x3' RBC, 140' | \$247,827 |
| 503 Westbridge Dr | 5'x3' RBC, 45' | \$89,733 |
| 517 Westbridge Dr | 5'x3' RBC, 45' | \$93,082 |
| Tier 1 Subtotal | | \$3,705,373 |

| General Information | | Map | |
|--|--|------------------|--|
| Project ID | | | |
| Street Name | Avalon Dr | | |
| Site Visit Date | 6/11/2013 | | |
| Road Classification | Internal Local | | |
| Project Notes | | | |
| Rural typical section | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2 - 12' | | |
| Existing Shld Width (paved and grass) (feet) | 4' (Grass) | | |
| Existing Side Slopes | flat | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | \$ 4.00 | | |
| Pipe Type and Size | 30", 300' CMP | | |
| Pipe Condition (1-5) (1 is new) | \$ 3.00 | | |
| Pavement Type/Condition | | Asphalt/Good | |
| Environmental Features | | | |
| Wetlands | None | | |
| Ditches | X | | |
| Utilities (Visual Inspection) | | | |
| Electric | Aerial | | |
| Cable | Aerial | | |
| Phone | Aerial | | |
| Gas | None | | |
| Water | X | | |
| Sewer | None | | |
| Other | | | |
| Stage Construction Options | | | |
| Close Location to Traffic | | X | |
| Maintain One Lane - No Temp Pavement | | | |
| Maintain One Lane - Temp Pavement | | | |
| Stage Construction Notes: | | | |
| Proposed Design | | | |
| Roadway Section | Typical | | |
| Culvert Size & Material | 48" round RCP, 300' length | | |
| Utility Relocations | Water main | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$17,783 | |
| Right of Way Cost | Assuming 2,000 sf outside of ROW | \$8,000 | |
| Utility Relocation Cost | 50 ft of water main | \$5,500 | |
| Construction Cost | Applying 1/10 acre clearing and grubbing cost | \$127,834 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$169,118 | |



Photo 1:



Photo 2:

Avalon Dr

Photo Date:

7/2/2013

Taken By:

David King

Page:

1

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---|-------------------|------------------------|-------------|----------------------|
| Pavement (SF) | \$ 0.73 | 4.87 | \$ 600.00 | \$ 3,363.20 |
| Curb and Gutter (LF) | \$ 28.56 | 30.60 | \$ - | \$ - |
| Drain Inlet (EA) | | 3,000.00 | \$ - | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | 36.90 | \$ - | \$ - |
| Guardrail (LF) | \$ 4.88 | 49.09 | \$ - | \$ - |
| End Anchorage (EA) | | 1,380.00 | \$ - | \$ - |
| Subtotal | | | | \$ 3,363.20 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 4,637.64 |
| Roadway Total | | | | \$ 8,000.84 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | 10.38 | \$ 600.00 | \$ 6,228.00 |
| 30" CMP (LF) | \$ 19.62 | | \$ 300.00 | \$ 5,886.00 |
| 48" RCP (LF) | | 193.20 | \$ 300.00 | \$ 57,960.00 |
| Class A Conc (CY) | | 892.19 | \$ 13.70 | \$ 12,222.98 |
| Steel (lb) | | 1.42 | \$ - | \$ - |
| Pipe Bedding (CY) | | 48.60 | \$ 66.67 | \$ 3,240.00 |
| Trench Backfill (CY) | | 2.99 | \$ 477.04 | \$ 1,425.40 |
| Trench Compaction (CY) | | 6.36 | \$ 381.63 | \$ 2,427.18 |
| Drainage Total | | | | \$ 89,389.55 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | 0.71 | \$ - | \$ - |
| Signing and Marking Total | | | | \$ - |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | 10,260.00 | \$ 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | | \$ - |
| Temporary Drainage (Stream Diversion) | | 4,428.00 | \$ 1.00 | \$ 4,428.00 |
| Staging Total | | | | \$ 5,454.00 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | 4.39 | \$ 766.67 | \$ 3,367.20 |
| Temporary Grassing (AC) | | 855.60 | \$ - | \$ - |
| Type C Silt Fence (LF) | | 4.24 | \$ 600.00 | \$ 2,541.60 |
| Check Dam Type C Silt Fence (LF) | | 6.79 | \$ 600.00 | \$ 4,075.20 |
| Erosion Control Mats (SY) | | 1.87 | \$ 200.00 | \$ 374.40 |
| Landscape Mulch (SY) | | 3.58 | \$ 200.00 | \$ 715.20 |
| Perm Grassing (AC) | | 1,402.20 | \$ - | \$ - |
| Rip Rap Type 3 12" (SY) | | 60.98 | \$ 66.67 | \$ 4,065.60 |
| Plastic Filter Fabric (SY) | | 5.72 | \$ 66.67 | \$ 381.60 |
| 4" Ditch Paving (SY) | | 54.65 | \$ - | \$ - |
| Erosion Control Total | | | | \$ 15,520.80 |
| Construction Cost Total | | | | \$ 118,365.19 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 9,469.22 |
| Construction Cost Grand Total | | | | \$ 127,834.41 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | 55.00 | \$ - | \$ - |
| Buried | \$ 16.50 | 82.50 | \$ - | \$ - |
| Wooden Pole | \$ 82.50 | 605.00 | \$ - | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | 27.50 | \$ - | \$ - |
| Buried | \$ 16.50 | 55.00 | \$ - | \$ - |
| Wooden Pole | \$ 82.50 | 605.00 | \$ - | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | 27.50 | \$ - | \$ - |
| Buried | \$ 16.50 | 55.00 | \$ - | \$ - |
| Wooden Pole | \$ 82.50 | 605.00 | \$ - | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | 66.00 | \$ - | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | 93.50 | \$ 50.00 | \$ 5,500.00 |
| Relocate Fire Hydrant (EA) | | 2,609.22 | \$ - | \$ - |
| Sewer | | | | |
| 12" main | \$ 16.50 | 82.50 | \$ - | \$ - |
| Utility Relocation Total | | | | \$ 5,500.00 |
| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost | |
| Permanent Easement | | 4.00 | \$ 2,000.00 | |
| ROW Total | | | \$ 8,000.00 | |

| General Information | | Map | |
|---|---|------------------|--|
| Project ID | | | |
| Street Name | Brandon Mill Cir - South | | |
| Site Visit Date | 5/22/13 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Neighborhood drainage system evaluation and replacement. Urban typical section with valley gutter, | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-10' | | |
| Existing Shld Width (paved and grass) (feet) | 4' | | |
| Existing Side Slopes | flat | | |
| Existing Guardrail | none | | |
| Depth fm Pavement to Top of Culvert (ft): | 4 | | |
| Pipe Type and Size | 72" CMP | | |
| Pipe Condition (1-5) (1 is new) | 5 (Installation) | | |
| Condition Notes: no headwall upstream or down; bends restrict capacity; signs of flooding; pipe condition due to installation | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | None | | |
| Ditches | None | | |
| | | | |
| | | | |
| Utilities (Visual Inspection) | | | |
| Electric | Buried | | |
| Cable | Buried | | |
| Phone | Buried | | |
| Gas | | | |
| Water | Buried | | |
| Sewer | | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | Typical. Private driveway removal/replacement costed as 9' x 20' section of 4" sidewalk | | |
| Culvert Size & Material | 8' x 4' box, concrete, 200' length | | |
| Utility Relocations | Electric, cable, phone, water | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | Assumed hydraulic analysis of existing system | | |
| | | | |
| | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| System Evaluation | | \$25,000 | |
| Design | Includes 10% Construction Cost and surveying needs | \$42,841 | |
| Right of Way Cost | Assuming project extends 7,500 sf beyond ROW | \$30,000 | |
| Utility Relocation Cost | Buried utilities | \$26,400 | |
| Construction Cost | Assuming 1/10 acre clearing and grubbing | \$303,407 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$437,648 | |

| Stage Construction Options | |
|---|---|
| Close Location to Traffic | X |
| Maintain One Lane - No Temp Pavement | |
| Maintain One Lane - Temp Pavement | |
| Stage Construction Notes: Close roadway; | |
| driveway over pipe; replacement impacts property to the right | |





Photo 1:



Photo 2:

Brandon Mill Cir - South

Photo Date:

6/13/2016

Taken By:

Tony Hicks

Page:

1

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|-------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 200.00 | \$ 1,121.07 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 20.00 | \$ 1,183.20 |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | 13.56 | \$ 36.90 | 20.00 | \$ 1,009.20 |
| Guardrail (LF) | 4.884 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 3,313.47 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 12,502.20

Roadway Total \$ 15,815.67

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|----------|---------------|
| Trench Excavation (CY) | | \$ 10.38 | 814.81 | \$ 8,457.78 |
| 72" CMP (LF) | \$ 54.00 | | 200.00 | \$ 32,400.00 |
| 72" RCP | | \$ 390.00 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 183.68 | \$ 163,877.09 |
| Steel (lb) | | \$ 1.42 | 21835.00 | \$ 30,918.36 |
| Pipe Bedding (CY) | | \$ 48.60 | 74.80 | \$ 3,635.28 |
| Trench Backfill (CY) | | \$ 2.99 | 921.50 | \$ 2,753.43 |
| Trench Compaction (CY) | | \$ 6.36 | 737.20 | \$ 4,688.57 |

Drainage Total \$ 246,730.51

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 0 | \$ - |

Signing and Marking Total \$ -

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | 0 |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 1.00 | \$ 4,428.00 |

Staging Total \$ 5,454.00

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 200.00 | \$ 878.40 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 800.00 | \$ 3,388.80 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 800.00 | \$ 5,433.60 |
| Erosion Control Mats (SY) | \$ 1.87 | 266.67 | \$ 499.20 |
| Landscape Mulch (SY) | \$ 3.58 | 266.67 | \$ 953.60 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 26.67 | \$ 1,626.24 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 26.67 | \$ 152.64 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 12,932.48

Construction Cost Total \$ 280,932.66

Traffic Control (8% of Construction Total \$) \$ 22,474.61

Construction Cost Grand Total \$ 303,407.27

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------------|-------------------|------------------------|--------|-------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | \$ | - |
| Buried | \$ 16.50 | \$ 82.50 | 75 | \$ 7,425.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | \$ | - |
| Buried | \$ 16.50 | \$ 55.00 | 75 | \$ 5,362.50 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | \$ | - |
| Buried | \$ 16.50 | \$ 55.00 | 75 | \$ 5,362.50 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 75 | \$ 8,250.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |

Utility Relocation Total \$ 26,400.00

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|-------|--------------|
| Permanent Easement | \$ 4.00 | 7500 | \$ 30,000.00 |

ROW Total \$ 30,000.00

| General Information | | Map | |
|---|--|--|---|
| Project ID | | | |
| Street Name | 266 Callaway Rd. | | |
| Site Visit Date | 5/21/13 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Rural Typical Section | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2 - 12' | | |
| Existing Shld Width (paved and grass) (feet) | 2' (Grass) | | |
| Existing Side Slopes | 2:1 | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | Assumed 3' | | |
| Pipe Type and Size | 60" CMP (egg) | | |
| Pipe Condition (1-5) (1 is new) | 4 | | |
| Condition Notes: | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | Stage Construction Options | |
| Wetlands | None | Close Location to Traffic | X |
| Ditches | Noted | Maintain One Lane - No Temp Pavement | |
| | | Maintain One Lane - Temp Pavement | |
| | | Stage Construction Notes: 45 mph posted speed | |
| Utilities (Visual Inspection) | | | |
| Electric | Aerial | | |
| Cable | None | | |
| Phone | Aerial | | |
| Gas | None | | |
| Water | Buried | | |
| Sewer | None | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | | | |
| Culvert Size & Material | triple 10' x 4' box, concrete, 80' length. Cost of removing elliptical CMP assumed to be equal to circular CMP | | |
| Utility Relocations | Water | | |
| Guardrail Replacement | Need to install guardrail due to side slopes and culvert installation | | |
| Miscellaneous Features | Zone A, Floodplain Analysis Required | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% design cost and surveying needs | \$53,724 | |
| Right of Way Cost | Assuming project extends 11,000 sf beyond ROW | \$44,000 | |
| Utility Relocation Cost | Buried water main | \$8,250 | |
| Construction Cost | Assuming 1/10 acre clearing and grubbing needed | \$412,243 | |
| Environmental Permits | Includes Zone A Floodplain analysis | \$15,000 | |
| Total Planning Estimate | | \$533,218 | |



Photo 1:



Photo 2:

Callaway Road

Photo Date:

5/21/2013

Taken By:

David King

Page:

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Photo 3:

Callaway Road



Photo 4:

Photo Date:

9/26/2012

Taken By:

Tony Hicks

Page:

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|---------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 864.00 | \$ 4,843.01 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 600.00 | \$ 32,385.60 |
| End Anchorage (EA) | | \$ 1,380.00 | 2.00 | \$ 2,760.00 |
| Subtotal | | | | \$ 39,988.61 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 17,173.56

Roadway Total \$ 57,162.17

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|-----------|---------------|
| Trench Excavation (CY) | | \$ 10.38 | 853.33 | \$ 8,857.60 |
| 60" CMP (LF) | \$ 24.60 | | 80.00 | \$ 5,904.00 |
| 84" RCP | | \$ 142.52 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 262.44 | \$ 234,145.82 |
| Steel (lb) | | \$ 1.42 | 30,224.00 | \$ 42,797.18 |
| Pipe Bedding (CY) | | \$ 48.60 | 97.20 | \$ 4,723.92 |
| Trench Backfill (CY) | | \$ 2.99 | 873.47 | \$ 2,609.92 |
| Trench Compaction (CY) | | \$ 6.36 | 698.77 | \$ 4,444.20 |

Drainage Total \$ 303,482.64

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 0.00 | \$ - |

Signing and Marking Total \$ -

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 1.00 | \$ 4,428.00 |

Staging Total \$ 5,454.00

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 224.00 | \$ 983.81 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 640.00 | \$ 2,711.04 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 640.00 | \$ 4,346.88 |
| Erosion Control Mats (SY) | \$ 1.87 | 213.33 | \$ 399.36 |
| Landscape Mulch (SY) | \$ 3.58 | 213.33 | \$ 762.88 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 96.00 | \$ 5,854.46 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 96.00 | \$ 549.50 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 15,607.94

Construction Cost Total \$ 381,706.75

Traffic Control (8% of Construction Total \$) \$ 30,536.54

Construction Cost Grand Total \$ 412,243.29

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|--------------------|
| Electric | | | | |
| Phone | | | | |
| Cable | | | | |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 75.00 | \$ 8,250.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Utility Relocation Total | | | | \$ 8,250.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|-----------|---------------------|
| Permanent Easement | \$ 4.00 | 11,000.00 | \$ 44,000.00 |
| ROW Total | | | \$ 44,000.00 |

| General Information | | Map | |
|---|--|------------------|--|
| Project ID | | | |
| Street Name | Chappell Rd. | | |
| Site Visit Date | 5/21/13 | | |
| Road Classification | Minor arterial | | |
| Project Notes | | | |
| Rural Typical Section | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2 - 12' | | |
| Existing Shld Width (paved and grass) (feet) | 1' - 2' | | |
| Existing Side Slopes | 1.5:1 | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 6' | | |
| Pipe Type and Size | 1-72" CMP | | |
| Pipe Condition (1-5) (1 is new) | 3 | | |
| Condition Notes: | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | Upstream (?) | | |
| Ditches | Along road | | |
| | | | |
| | | | |
| Utilities (Visual Inspection) | | | |
| Electric | Aerial | | |
| Cable | Buried | | |
| Phone | Buried | | |
| Gas | | | |
| Water | Buried | | |
| Sewer | | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | Typical. For costing purposes, temporary road consists of 8" gravel fill | | |
| Culvert Size & Material | dbl 8' x 5' box, concrete, 70' length | | |
| Utility Relocations | Cable, telephone, water | | |
| Guardrail Replacement | Proposed Guardrail Installation due to proposed culvert(s) and side slopes | | |
| Miscellaneous Features | | | |
| | | | |
| | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$28,964 | |
| Right of Way Cost | Assuming project extends 16,250 sf beyond ROW | \$32,500 | |
| Utility Relocation Cost | Buried utilities | \$25,300 | |
| Construction Cost | Assuming 1/10 acre clearing and grubbing | \$239,635 | |
| Environmental Permits | Permits, Zone A Floodplain Analysis | \$10,000 | |
| Total Planning Estimate | | \$336,399 | |



Photo 1:

364 Chappell Road



Photo 2:

Photo Date:

5/21/2013

Taken By:

David King

Page:

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Photo 3:



Photo 4:

364 Chappell Road

Photo Date:

5/21/2013

Taken By:

David King

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|--|-------------------|------------------------|--------------|---------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 432.00 | \$ 2,421.50 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 625.00 | \$ 33,735.00 |
| End Anchorage (EA) | | \$ 1,380.00 | 2.00 | \$ 2,760.00 |
| Subtotal | | | | \$ 38,916.50 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 10,164.98 |
| Roadway Total | | | | \$ 49,081.49 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 606.67 | \$ 6,297.20 |
| 72" CMP (LF) | \$ 63.00 | | 70.00 | \$ 13,230.00 |
| 72" RCP (LF) | | \$ 390.00 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 132.51 | \$ 118,223.83 |
| Steel (lb) | | \$ 1.42 | 13,383.00 | \$ 18,950.33 |
| Pipe Bedding (CY) | | \$ 48.60 | 48.00 | \$ 2,332.80 |
| Trench Backfill (CY) | | \$ 2.99 | 662.33 | \$ 1,979.05 |
| Trench Compaction (CY) | | \$ 6.36 | 529.87 | \$ 3,369.95 |
| Drainage Total | | | | \$ 164,383.16 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | 72.00 | \$ 50.98 |
| Signing and Marking Total | | | | \$ 50.98 |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Gravel Road (SY) | | \$ 15.42 | 977.78 | \$ 15,077.33 |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 1.00 | \$ 4,428.00 |
| Staging Total | | | | \$ 20,633.29 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 92.00 | \$ 404.06 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 280.00 | \$ 1,186.08 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 280.00 | \$ 1,901.76 |
| Erosion Control Mats (SY) | | \$ 1.87 | 93.33 | \$ 174.72 |
| Landscape Mulch (SY) | | \$ 3.58 | 93.33 | \$ 333.76 |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 48.00 | \$ 2,927.23 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 48.00 | \$ 274.75 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 7,202.37 |
| Construction Cost Total | | | | \$ 241,351.28 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 19,308.10 |
| Construction Cost Grand Total | | | | \$ 260,659.38 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 100.00 | \$ 7,150.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 100.00 | \$ 7,150.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 100.00 | \$ 11,000.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 25,300.00 |
| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost | |
| Permanent Easement | \$ 4.00 | 16,250.00 | \$ 65,000.00 | |
| ROW Total | | | \$ 65,000.00 | |

| General Information | | Map | |
|--|---|--------------------------------------|---|
| Project ID | | | |
| Street Name | 120 Deer Forest Trail | | |
| Site Visit Date | 5/21/13 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Urban Typical Section with Valley Gutter | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2 - 12' | | |
| Existing Shld Width (paved and grass) (feet) | None | | |
| Existing Side Slopes | Flat | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 2 | | |
| Pipe Type and Size | 36" CMP, 100' | | |
| Pipe Condition (1-5) (1 is new) | 5 | | |
| Condition Notes: Headwall failed on downstream side, active erosion, effectively 0% capacity | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | Stage Construction Options | |
| Wetlands | None | Close Location to Traffic | X |
| Ditches | None | Maintain One Lane - No Temp Pavement | |
| | | Maintain One Lane - Temp Pavement | |
| | | Stage Construction Notes: | |
| | | | |
| Utilities (Visual Inspection) | | | |
| Electric | Buried | | |
| Cable | Buried | | |
| Phone | Buried | | |
| Gas | | | |
| Water | Buried | | |
| Sewer | | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | | | |
| Culvert Size & Material | 4' x 3' box, concrete, 100' length. Cost of removing headwalls assumed equal to removal of entire length of pipe. | | |
| Utility Relocations | Electric, cable, phone, water | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$13,446 | |
| Right of Way Cost | Assuming project extends 3,000 sf beyond ROW | \$20,000 | |
| Utility Relocation Cost | Buried utilities | \$17,600 | |
| Construction Cost | Assuming 1/10 acre clearing and grubbing | \$84,461 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$145,508 | |



Photo 1:



Photo 2:

Deer Forest Trail

Photo Date:

5/21/2013

Taken By:

David King

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Photo 3:



Photo 4:

Deer Forest Trail

Photo Date:

5/21/2013

Taken By:

David King

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|--------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 144.00 | \$ 807.17 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 20.00 | \$ 1,183.20 |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 1,990.37 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 3,158.26

Roadway Total \$ 5,148.63

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|----------|--------------|
| Trench Excavation (CY) | | \$ 10.38 | 133.33 | \$ 1,384.00 |
| 36" CMP (LF) | \$ 19.62 | | 200.00 | \$ 11,772.00 |
| 36" RCP | | \$ 142.52 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 44.61 | \$ 39,800.51 |
| Steel (lb) | | \$ 1.42 | 4,295.00 | \$ 6,081.72 |
| Pipe Bedding (CY) | | \$ 48.60 | 22.70 | \$ 1,103.22 |
| Trench Backfill (CY) | | \$ 2.99 | 127.97 | \$ 382.36 |
| Trench Compaction (CY) | | \$ 6.36 | 102.37 | \$ 651.09 |

Drainage Total \$61,174.91

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 0.00 | \$ - |

Signing and Marking Total \$ -

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 1.00 | \$ 4,428.00 |

Staging Total \$ 5,454.00

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 50.67 | \$ 222.53 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 400.00 | \$ 1,694.40 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 400.00 | \$ 2,716.80 |
| Erosion Control Mats (SY) | \$ 1.87 | 133.33 | \$ 249.60 |
| Landscape Mulch (SY) | \$ 3.58 | 133.33 | \$ 476.80 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 16.00 | \$ 975.74 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 16.00 | \$ 91.58 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 6,427.46

Construction Cost Total \$78,204.99

Traffic Control (8% of Construction Total \$) \$ 6,256.40

Construction Cost Grand Total \$84,461.39

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|--------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 50.00 | \$ 4,950.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50.00 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50.00 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 50.00 | \$ 5,500.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$17,600.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|----------|---------------------|
| Permanent Easement | \$ 4.00 | 5,000.00 | \$ 20,000.00 |
| ROW Total | | | \$ 20,000.00 |

| General Information | | Map | |
|---|--|------------------|--|
| Project ID | | | |
| Street Name | Dogwood Trail | | |
| Site Visit Date | 5/22/13 | | |
| Road Classification | Minor arterial | | |
| Project Notes | | | |
| Rural Typical Section | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-12' | | |
| Existing Shld Width (paved and grass) (feet) | 1' - 2' | | |
| Existing Side Slopes | 1.5:1 | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 12 | | |
| Pipe Type and Size | 2-120" CMP | | |
| Pipe Condition (1-5) (1 is new) | 4 | | |
| Condition Notes: Large down stream drop; home in down stream flood plain; bottom of pipe rusted through | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | None | | |
| Ditches | Noted | | |
| | | | |
| | | | |
| Utilities (Visual Inspection) | | | |
| Electric | Aerial | | |
| Cable | Aerial | | |
| Phone | Aerial | | |
| Gas | | | |
| Water | Buried | | |
| Sewer | Buried | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | | | |
| Culvert Size & Material | triple 7' x 7' box, concrete, 80' length | | |
| Utility Relocations | Electric, cable, phone, water, sewer | | |
| Guardrail Replacement | Need Guardrail due to side slopes and culvert installation | | |
| Miscellaneous Features | Zone AE Floodplain and Floodway Analysis required | | |
| | | | |
| | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$55,456 | |
| Right of Way Cost | Assuming project extends 13,900 sf beyond ROW | \$55,600 | |
| Utility Relocation Cost | Aerial and buried utilities | \$37,263 | |
| Construction Cost | Assuming 1/5 acre clearing and grubbing | \$429,561 | |
| Environmental Permits | Permits, Zone AE flood study | \$18,000 | |
| Total Planning Estimate | | \$595,879 | |



Photo 1:



Photo 2:

Dogwood Trail

Photo Date:

5/21/2013

Taken By:

David King

Page:

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Photo 3:



Photo 4:

Dogwood Trail

Photo Date:

5/21/2013

Taken By:

David King

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|----------|---------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 1,104.00 | \$ 6,188.29 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 600.00 | \$ 32,385.60 |
| End Anchorage (EA) | | \$ 1,380.00 | 4.00 | \$ 5,520.00 |
| Subtotal | | | | \$ 44,093.89 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 17,795.14

Roadway Total \$ 61,889.03

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|-----------|---------------|
| Trench Excavation (CY) | | \$ 10.38 | 2,112.59 | \$ 21,928.71 |
| 120" CMP (LF) | \$ 90.00 | | 160.00 | \$ 43,200.00 |
| 120" RCP | | \$ 142.52 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 212.60 | \$ 189,679.17 |
| Steel (lb) | | \$ 1.42 | 23,893.00 | \$ 33,832.49 |
| Pipe Bedding (CY) | | \$ 48.60 | 69.90 | \$ 3,397.14 |
| Trench Backfill (CY) | | \$ 2.99 | 2,448.17 | \$ 7,315.14 |
| Trench Compaction (CY) | | \$ 6.36 | 1,958.54 | \$ 12,456.31 |

Drainage Total \$311,808.96

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 92.00 | \$ 65.14 |

Signing and Marking Total \$ 65.14

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.20 | \$ 2,052.00 |
| Temporary Gravel Road (SY) | \$ 15.42 | 0.00 | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 2.00 | \$ 8,856.00 |

Staging Total \$ 11,038.27

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 143.11 | \$ 628.54 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 640.00 | \$ 2,711.04 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 640.00 | \$ 4,346.88 |
| Erosion Control Mats (SY) | \$ 1.87 | 213.33 | \$ 399.36 |
| Landscape Mulch (SY) | \$ 3.58 | 213.33 | \$ 762.88 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 61.33 | \$ 3,740.35 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 61.33 | \$ 351.07 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 12,940.13

Construction Cost Total \$397,741.53

Traffic Control (8% of Construction Total \$) \$ 31,819.32

Construction Cost Grand Total \$429,560.85

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|---------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 100.00 | \$ 6,600.00 |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 3.00 | \$ 2,062.50 |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 100.00 | \$ 3,850.00 |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 100.00 | \$ 3,850.00 |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 100.00 | \$ 11,000.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 100.00 | \$ 9,900.00 |
| Utility Relocation Total | | | | \$ 37,262.50 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|-----------|---------------------|
| Permanent Easement | \$ 4.00 | 13,900.00 | \$ 55,600.00 |
| ROW Total | | | \$ 55,600.00 |

| General Information | | Map | |
|---|--|------------------|--|
| Project ID | | | |
| Street Name | 120 Mercedes Trail | | |
| Site Visit Date | 5/22/13 | | |
| Road Classification | Internal Local | | |
| Project Notes | | | |
| Urban typical with valley gutter; subdivision street | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-12' | | |
| Existing Shld Width (paved and grass) (feet) | 4' | | |
| Existing Side Slopes | flat | | |
| Existing Guardrail | none | | |
| Depth fm Pavement to Top of Culvert (ft): | 5 | | |
| Pipe Type and Size (ellip. CMP) | 2-48"x72",55' | | |
| Pipe Condition (1-5) (1 is new) | 5 | | |
| Condition Notes: Both up to 25% blocked, structurally unsound, sag in top of pipe, debris/rip rap in pipe | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | None | | |
| Ditches | None | | |
| Utilities (Visual Inspection) | | | |
| Electric | Buried | | |
| Cable | Buried | | |
| Phone | Buried | | |
| Gas | | | |
| Water | Buried | | |
| Sewer | | | |
| Other | | | |
| Stage Construction Options | | | |
| Close Location to Traffic | | | |
| Maintain One Lane - No Temp Pavement | | X | |
| Maintain One Lane - Temp Pavement | | | |
| Stage Construction Notes: | | | |
| | | | |
| Proposed Design | | | |
| Roadway Section | | | |
| Culvert Size & Material | dbl 8' x 4' box, concrete, 60' length. Cost of elliptical pipe removal assumed to equal to removal of round 60" CMP. | | |
| Utility Relocations | Electric, cable, phone, water | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$21,679 | |
| Right of Way Cost | Assuming project extends 2,000 sf beyond ROW | \$8,000 | |
| Utility Relocation Cost | Buried utilities | \$17,600 | |
| Construction Cost | Assuming 1/5 acre clearing and grubbing | \$166,790 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$224,070 | |



Photo 1:



Photo 2:

Mercedes Trail

Photo Date:

5/21/2013

Taken By:

David King

Page:

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Photo 3:



Photo 4:

Mercedes Trail

Photo Date:

5/21/2013

Taken By:

David King

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---|-------------------|------------------------|--------------------|----------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 432.00 | \$ 2,421.50 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 36.00 | \$ 2,129.76 |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 4,551.26 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 6,723.90 |
| Roadway Total | | | | \$ 11,275.17 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 400.00 | \$ 4,152.00 |
| 60" CMP (LF) | \$ 24.60 | | 110.00 | \$ 8,118.00 |
| 60" RCP | | \$ 259.20 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 108.16 | \$ 96,499.05 |
| Steel (lb) | | \$ 1.42 | 11,182.00 | \$ 15,833.71 |
| Pipe Bedding (CY) | | \$ 48.60 | 41.30 | \$ 2,007.18 |
| Trench Backfill (CY) | | \$ 2.99 | 410.70 | \$ 1,227.17 |
| Trench Compaction (CY) | | \$ 6.36 | 328.56 | \$ 2,089.64 |
| Drainage Total | | | | \$ 129,926.76 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | 72.00 | \$ 50.98 |
| Signing and Marking Total | | | | \$ 50.98 |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.20 | \$ 2,052.00 |
| Temporary Pavement | | | | \$ - |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 1.00 | \$ 4,428.00 |
| Staging Total | | | | \$ 6,581.95 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 72.00 | \$ 316.22 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 240.00 | \$ 1,016.64 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 240.00 | \$ 1,630.08 |
| Erosion Control Mats (SY) | | \$ 1.87 | 80.00 | \$ 149.76 |
| Landscape Mulch (SY) | | \$ 3.58 | 80.00 | \$ 286.08 |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 48.00 | \$ 2,927.23 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 48.00 | \$ 274.75 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 6,600.77 |
| Construction Cost Total | | | | \$ 154,435.62 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 12,354.85 |
| Construction Cost Grand Total | | | | \$ 166,790.47 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 50.00 | \$ 4,950.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50.00 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50.00 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 50.00 | \$ 5,500.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 17,600.00 |
| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost | |
| Permanent Easement | \$ 4.00 | 2,000.00 | \$ 8,000.00 | |
| ROW Total | | | \$ 8,000.00 | |

| General Information | | Map | |
|---|--|------------------|--|
| Project ID | | | |
| Street Name | Morning Dove Dr. | | |
| Site Visit Date | 5/21/13 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Urban typical section valley gutter | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-12' | | |
| Existing Shld Width (paved and grass) (feet) | 4' | | |
| Existing Side Slopes | flat | | |
| Existing Guardrail | none | | |
| Depth fm Pavement to Top of Culvert (ft): | 2' | | |
| Pipe Type and Size | 1-72", 1-84" | | |
| Pipe Condition (1-5) (1 is new) | 4 | | |
| Condition Notes: | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | None identified | | |
| Ditches | None | | |
| | | | |
| | | | |
| Utilities (Visual Inspection) | | | |
| Electric | Buried | | |
| Cable | Buried | | |
| Phone | Buried | | |
| Gas | Not Sighted | | |
| Water | Buried | | |
| Sewer | Buried | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | Replace in kind. For costing purposes, temporary road consists of 8" gravel fill | | |
| Culvert Size & Material | double 10' x 4' box, concrete, 70' length | | |
| Utility Relocations | Electric, Cable, Phone, Water, Sewer | | |
| Guardrail Replacement | No | | |
| Miscellaneous Features | | | |
| | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$22,779 | |
| Right of Way Cost | Assuming project does not extend beyond ROW | \$0 | |
| Utility Relocation Cost | Buried utilities | \$33,825 | |
| Construction Cost | Assuming 1/10 acre clearing and grubbing | \$177,785 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$244,389 | |



Photo 1:



Photo 2:

130 Morning Dove Drive

Photo Date:

5/17/1013

Taken By:

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Page:

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|--------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 528.00 | \$ 2,959.62 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 44.00 | \$ 2,603.04 |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 5,562.66 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 6,949.20

Roadway Total \$ 12,511.86

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|-----------|--------------|
| Trench Excavation (CY) | | \$ 10.38 | 570.37 | \$ 5,920.44 |
| 72" CMP (LF) | \$ 54.00 | | 70.00 | \$ 3,780.00 |
| 84" CMP | \$ 63.00 | | 70.00 | \$ 4,410.00 |
| Class A Conc (CY) | | \$ 892.19 | 106.88 | \$ 95,357.05 |
| Steel (lb) | | \$ 1.42 | 11,505.00 | \$ 16,291.08 |
| Pipe Bedding (CY) | | \$ 48.60 | 58.70 | \$ 2,852.82 |
| Trench Backfill (CY) | | \$ 2.99 | 595.60 | \$ 1,779.64 |
| Trench Compaction (CY) | | \$ 6.36 | 476.48 | \$ 3,030.39 |

Drainage Total \$ 133,421.43

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 0.00 | \$ - |

Signing and Marking Total \$ -

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Gravel Road (SY) | \$ 15.42 | 222.22 | \$ 3,426.67 |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 1.00 | \$ 4,428.00 |

Staging Total \$ 8,880.67

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 112.44 | \$ 493.86 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 420.00 | \$ 1,779.12 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 420.00 | \$ 2,852.64 |
| Erosion Control Mats (SY) | \$ 1.87 | 140.00 | \$ 262.08 |
| Landscape Mulch (SY) | \$ 3.58 | 140.00 | \$ 500.64 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 58.67 | \$ 3,577.73 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 58.67 | \$ 335.81 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 9,801.87

Construction Cost Total \$ 164,615.83

Traffic Control (8% of Construction Total \$) \$ 13,169.27

Construction Cost Grand Total \$ 177,785.10

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|---------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 75.00 | \$ 7,425.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 75.00 | \$ 5,362.50 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 75.00 | \$ 5,362.50 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 75.00 | \$ 8,250.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 75.00 | \$ 7,425.00 |
| Utility Relocation Total | | | | \$ 33,825.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|-------|-------------|
| Permanent Easement | \$ 4.00 | 0.00 | \$ - |
| ROW Total | | | \$ - |

| General Information | | Map | |
|---|--|------------------|--|
| Project ID | | | |
| Street Name | Patricia Lane | | |
| Site Visit Date | 5/22/13 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Urban typical section with curb and gutter | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2 - 10' | | |
| Existing Shld Width (paved and grass) (feet) | 4' | | |
| Existing Side Slopes | Flat | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 2.5 | | |
| Pipe Type and Size | 54" CMP | | |
| Pipe Condition (1-5) (1 is new) | 4 | | |
| Condition Notes: Joint failure, signs of rust, downstream plunge pool needed, eroded drop, holes from scour on top, rip rap/debris inside of pipe | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | None | | |
| Ditches | None | | |
| Utilities (Visual Inspection) | | | |
| Electric | Aerial | | |
| Cable | Aerial | | |
| Phone | Buried | | |
| Gas | | | |
| Water | | | |
| Sewer | | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | | | |
| Culvert Size & Material | 8' x 4' box, concrete, 150' length | | |
| Utility Relocations | Pole next to pipe, phone, cable, electric | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$26,254 | |
| Right of Way Cost | Assuming project extends 10,000 sf beyond ROW | \$40,000 | |
| Utility Relocation Cost | Buried utilities, pole | \$6,738 | |
| Construction Cost | Assuming 1/10 acre clearing and grubbing | \$212,536 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$295,527 | |



Photo 1:



Photo 2:

151 Patricia Lane

Photo Date:

5/21/2013

Taken By:

David King

Page:

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Photo 3:



Photo 4:

151 Patricia Lane

Photo Date:

5/21/2013

Taken By:

David King

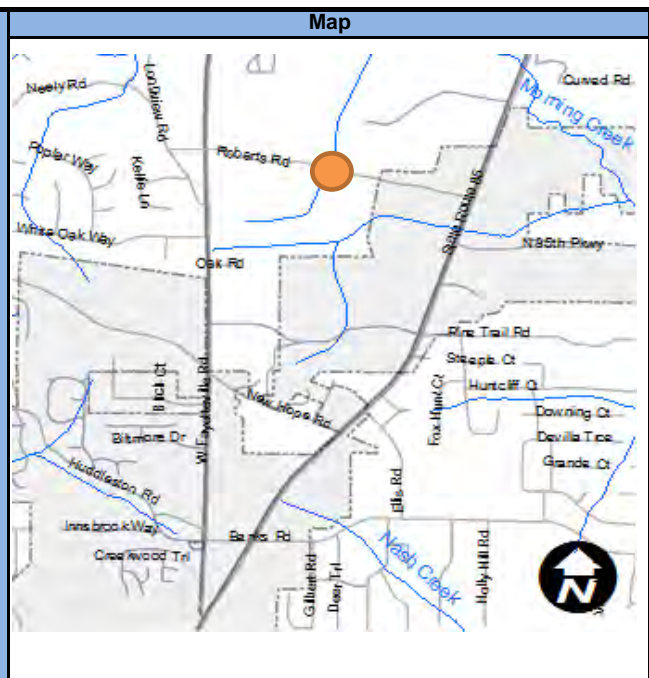
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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---|-------------------|------------------------|---------------------|----------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 200.00 | \$ 1,121.07 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 1,121.07 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 8,629.47 |
| Roadway Total | | | | \$ 9,750.54 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 444.44 | \$ 4,613.33 |
| 54" CMP (LF) | \$ 24.60 | | 150.00 | \$ 11,070.00 |
| 54" RCP | | \$ 233.28 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 141.03 | \$ 125,825.27 |
| Steel (lb) | | \$ 1.42 | 16,505.00 | \$ 23,371.08 |
| Pipe Bedding (CY) | | \$ 48.60 | 56.30 | \$ 2,736.18 |
| Trench Backfill (CY) | | \$ 2.99 | 477.03 | \$ 1,425.38 |
| Trench Compaction (CY) | | \$ 6.36 | 381.63 | \$ 2,427.15 |
| Drainage Total | | | | \$ 171,468.39 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | 0.00 | \$ - |
| Signing and Marking Total | | | | \$ - |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | | \$ - |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 1.00 | \$ 4,428.00 |
| Staging Total | | | | \$ 5,454.00 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 144.44 | \$ 634.40 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 600.00 | \$ 2,541.60 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 600.00 | \$ 4,075.20 |
| Erosion Control Mats (SY) | | \$ 1.87 | 200.00 | \$ 374.40 |
| Landscape Mulch (SY) | | \$ 3.58 | 200.00 | \$ 715.20 |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 26.67 | \$ 1,626.24 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 26.67 | \$ 152.64 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 10,119.68 |
| Construction Cost Total | | | | \$ 196,792.61 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 15,743.41 |
| Construction Cost Grand Total | | | | \$ 212,536.02 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 25.00 | \$ 2,475.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 1.00 | \$ 687.50 |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 25.00 | \$ 1,787.50 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 25.00 | \$ 1,787.50 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 0.00 | \$ - |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 6,737.50 |
| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost | |
| Permanent Easement | \$ 4.00 | 10,000.00 | \$ 40,000.00 | |
| ROW Total | | | \$ 40,000.00 | |

| General Information | |
|---|---------------------|
| Project ID | |
| Street Name | 199 Roberts Road |
| Site Visit Date | 5/21/13 |
| Road Classification | County Local |
| Project Notes | |
| Local road with sub standard horizontal and vertical alignments | |
| Field Notes | |
| Design (Existing Site Features) | |
| Existing Road Laneage | 2-10' (dirt/gravel) |
| Existing Shld Width (paved and grass) (feet) | None |
| Existing Side Slopes | flat |
| Existing Guardrail | None |
| Depth fm Pavement to Top of Culvert (ft): | None |
| Pipe Type and Size | None |
| Pipe Condition (1-5) (1 is new) | n/a |
| Condition Notes: | |
| Pavement Type/Condition | gravel dirt/ poor |
| Environmental Features | |
| Wetlands | Noted |
| Ditches | None |
| | |
| | |
| Utilities (Visual Inspection) | |
| Electric | Aerial |
| Cable | Aerial |
| Phone | Aerial |
| Gas | |
| Water | Buried |
| Sewer | |
| Other | |



| Stage Construction Options | |
|--------------------------------------|---|
| Close Location to Traffic | |
| Maintain One Lane - No Temp Pavement | X |
| Maintain One Lane - Temp Pavement | |
| Stage Construction Notes: | |
| | |

| Proposed Design | |
|-------------------------|---|
| Roadway Section | |
| Culvert Size & Material | 7'x4' box, concrete, 85' length |
| Utility Relocations | Two utility poles. Aerial electric, cable, phone. Buried water main |
| Guardrail Replacement | |
| Miscellaneous Features | |
| | |
| | |

| Planning Cost Estimate | | |
|-------------------------|--|-----------|
| Type | Notes | Total |
| Design | Includes 10% Construction Cost and surveying needs | \$17,381 |
| Right of Way Cost | Assuming project extends 4,000 sf beyond ROW | \$16,000 |
| Utility Relocation Cost | Aerial utilities, poles, and buried water main | \$26,675 |
| Construction Cost | Assuming 1/10 acre clearing and grubbing | \$123,805 |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 |

| | |
|--------------------------------|------------------|
| Total Planning Estimate | \$193,861 |
|--------------------------------|------------------|





Photo 1:



Photo 2:

199 Roberts Road

Photo Date:

5/21/2013

Taken By:

David King

Page:

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---|-------------------|------------------------|----------|----------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 0.00 | \$ - |
| Gravel Road (SY) | | \$ 15.42 | 83.11 | \$ 1,281.57 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 1,281.57 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 4,773.36 |
| Roadway Total | | | | \$ 6,054.94 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 279.08 | \$ 2,896.89 |
| 60" CMP (LF) | \$ 24.60 | | 85.00 | \$ 6,273.00 |
| 60" RCP | | \$ 259.20 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 77.53 | \$ 69,171.34 |
| Steel (lb) | | \$ 1.42 | 8,370.00 | \$ 11,851.92 |
| Pipe Bedding (CY) | | \$ 48.60 | 29.00 | \$ 1,409.40 |
| Trench Backfill (CY) | | \$ 2.99 | 319.85 | \$ 955.72 |
| Trench Compaction (CY) | | \$ 6.36 | 255.88 | \$ 1,627.42 |
| Drainage Total | | | | \$ 94,185.68 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | 0.00 | \$ - |
| Signing and Marking Total | | | | \$ - |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.20 | \$ 2,052.00 |
| Temporary Pavement | | | | \$ - |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 1.00 | \$ 4,428.00 |
| Staging Total | | | | \$ 6,480.00 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 119.00 | \$ 522.65 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 340.00 | \$ 1,440.24 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 340.00 | \$ 2,309.28 |
| Erosion Control Mats (SY) | | \$ 1.87 | 113.33 | \$ 212.16 |
| Landscape Mulch (SY) | | \$ 3.58 | 113.33 | \$ 405.28 |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 45.33 | \$ 2,764.61 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 45.33 | \$ 259.49 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 7,913.70 |
| Construction Cost Total | | | | \$ 114,634.32 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 9,170.75 |
| Construction Cost Grand Total | | | | \$ 123,805.07 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 100.00 | \$ 6,600.00 |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 2.00 | \$ 1,375.00 |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 100.00 | \$ 3,850.00 |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 100.00 | \$ 3,850.00 |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 100.00 | \$ 11,000.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 26,675.00 |
| Right of Way (Sq Ft) | | Cost/ Sq Ft | Sq Ft | Total Cost |
| Permanent Easement | | \$ 4.00 | 4,000.00 | \$ 16,000.00 |
| ROW Total | | | | \$ 16,000.00 |

| General Information | | Map | |
|--|---|-----------------|--|
| Project ID | | | |
| Street Name | Scott Blvd. | | |
| Site Visit Date | 5/22/13 | | |
| Road Classification | Internal Local | | |
| Project Notes | | | |
| Rural typical section. Point is close to FEMA Zone A flood boundary. Including cost of Zone A flood study based on limited location information. | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-10.5' | | |
| Existing Shld Width (paved and grass) (feet) | 4' Grass | | |
| Existing Side Slopes | 6:1 to flat | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 10 - 11 | | |
| Pipe Type and Size | 18" CMP | | |
| Pipe Condition (1-5) (1 is new) | 5 | | |
| Condition Notes: | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | Upstream | | |
| Ditches | Noted | | |
| Utilities (Visual Inspection) | | | |
| Electric | Aerial | | |
| Cable | Aerial | | |
| Phone | Aerial | | |
| Gas | None | | |
| Water | Buried | | |
| Sewer | | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | Typical rural. Driveway removal/replacement costed as 20' x 9' concrete sidewalk | | |
| Culvert Size & Material | 4' x 2' box, concrete, 50' | | |
| Utility Relocations | Utility poles, aerial lectric, cable,phone, buried water | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | Series of three, 18" pipes. Upper two are within reasonable sizes, second one in series could be upsized to 24". Downstream-most culvert is primary replacement need. | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$17,008 | |
| Right of Way Cost | Assuming project extends 2,000 sf beyond ROW | \$8,000 | |
| Utility Relocation Cost | Aerial utilities, poles, and buried water main | \$14,025 | |
| Construction Cost | Assuming 1/10 acre clearing and grubbing | \$45,081 | |
| Environmental Permits | Permitting, Zone A flood study | \$15,000 | |
| Total Planning Estimate | | \$99,114 | |



Photo 1:



Photo 2:

160 Scott Blvd.

Photo Date:

5/21/2013

Taken By:

David King

Page:

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Photo 3:



Photo 4:

160 Scott Blvd.

Photo Date:

5/21/2013

Taken By:

David King

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2

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|--------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 126.00 | \$ 706.27 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 20.00 | \$ 1,009.20 |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 1,715.47 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 1,550.79

Roadway Total \$ 3,266.27

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|----------|--------------|
| Trench Excavation (CY) | | \$ 10.38 | 150.00 | \$ 1,557.00 |
| 18" CMP (LF) | \$ 5.74 | | 50.00 | \$ 860.40 |
| 18" RCP | | \$ 36.00 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 24.56 | \$ 21,912.14 |
| Steel (lb) | | \$ 1.42 | 2,189.00 | \$ 3,099.62 |
| Pipe Bedding (CY) | | \$ 48.60 | 11.60 | \$ 563.76 |
| Trench Backfill (CY) | | \$ 2.99 | 161.90 | \$ 483.76 |
| Trench Compaction (CY) | | \$ 6.36 | 129.52 | \$ 823.75 |

Drainage Total \$ 29,300.43

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 0.00 | \$ - |

Signing and Marking Total \$ -

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 1.00 | \$ 4,428.00 |

Staging Total \$ 5,454.00

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 19.33 | \$ 84.91 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 200.00 | \$ 847.20 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 200.00 | \$ 1,358.40 |
| Erosion Control Mats (SY) | \$ 1.87 | 66.67 | \$ 124.80 |
| Landscape Mulch (SY) | \$ 3.58 | 66.67 | \$ 238.40 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 16.00 | \$ 975.74 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 16.00 | \$ 91.58 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 3,721.04

Construction Cost Total \$ 41,741.73

Traffic Control (8% of Construction Total \$) \$ 3,339.34

Construction Cost Grand Total \$ 45,081.07

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|---------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 50.00 | \$ 3,300.00 |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 2.00 | \$ 1,375.00 |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 50.00 | \$ 1,925.00 |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 50.00 | \$ 1,925.00 |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 0.00 | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 50.00 | \$ 5,500.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 14,025.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|----------|--------------------|
| Permanent Easement | \$ 4.00 | 2,000.00 | \$ 8,000.00 |
| ROW Total | | | \$ 8,000.00 |

| General Information | | Map | |
|--|--|---|---|
| Project ID | | | |
| Street Name | Silver Leaf Drive | | |
| Site Visit Date | 5/21/13 | | |
| Road Classification | Internal Local | | |
| Project Notes | | | |
| Urban typical w/ valley gutter. Point is close to FEMA Zone A flood boundary. Adding cost of Zone A flood study given limited location information | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-12' | | |
| Existing Shld Width (paved and grass) (feet) | 10' Grass | | |
| Existing Side Slopes | 4:1 | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 5 | | |
| Pipe Type and Size | 1-54" CMP | | |
| Pipe Condition (1-5) (1 is new) | 4 | | |
| Condition Notes: | | | |
| Pavement Type/Condition | Good | | |
| Environmental Features | | | |
| Wetlands | X (downstream) | | |
| Ditches | None | | |
| Utilities (Visual Inspection) | | | |
| Electric | Aerial | | |
| Cable | Buried | | |
| Phone | Buried | | |
| Gas | Buried | | |
| Water | Buried | | |
| Sewer | | | |
| Other | | | |
| Proposed Design | | Stage Construction Options | |
| Roadway Section | | Close Location to Traffic | X |
| Culvert Size & Material | dbl 4' x 3' box, concrete, 140' | Maintain One Lane - No Temp Pavement | |
| Utility Relocations | Phone, cable, gas, water | Maintain One Lane - Temp Pavement | |
| Guardrail Replacement | | Stage Construction Notes: Replace inlet on each side | |
| Miscellaneous Features | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$29,259 | |
| Right of Way Cost | Assuming project extends 4,800 sf beyond ROW | \$19,200 | |
| Utility Relocation Cost | Buried utilities | \$16,775 | |
| Construction Cost | Assuming 1/10 acre clearing and grubbing | \$167,593 | |
| Environmental Permits | Permitting, Zone A flood study | \$15,000 | |
| Total Planning Estimate | | \$247,827 | |



Photo 1:



Photo 2:

175 Silver Leaf Drive

Photo Date:

5/21/2013

Taken By:

David King

Page:

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---|-------------------|------------------------|---------------------|----------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 240.00 | \$ 1,345.28 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 20.00 | \$ 1,183.20 |
| Drain Inlet (EA) | | \$ 3,000.00 | 2.00 | \$ 6,000.00 |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 8,528.48 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 6,675.57 |
| Roadway Total | | | | \$ 15,204.05 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 544.44 | \$ 5,651.33 |
| 54" CMP (LF) | \$ 24.60 | | 140.00 | \$ 10,332.00 |
| 54" RCP | | \$ 217.35 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 92.81 | \$ 82,803.97 |
| Steel (lb) | | \$ 1.42 | 13,265.00 | \$ 18,783.24 |
| Pipe Bedding (CY) | | \$ 48.60 | 52.60 | \$ 2,556.36 |
| Trench Backfill (CY) | | \$ 2.99 | 601.29 | \$ 1,796.65 |
| Trench Compaction (CY) | | \$ 6.36 | 481.03 | \$ 3,059.36 |
| Drainage Total | | | | \$ 124,982.91 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | 0.00 | \$ - |
| Signing and Marking Total | | | | \$ - |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | | \$ - |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 1.00 | \$ 4,428.00 |
| Staging Total | | | | \$ 5,454.00 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 128.89 | \$ 566.08 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 560.00 | \$ 2,372.16 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 560.00 | \$ 3,803.52 |
| Erosion Control Mats (SY) | | \$ 1.87 | 186.67 | \$ 349.44 |
| Landscape Mulch (SY) | | \$ 3.58 | 186.67 | \$ 667.52 |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 26.67 | \$ 1,626.24 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 26.67 | \$ 152.64 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 9,537.60 |
| Construction Cost Total | | | | \$ 155,178.56 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 12,414.28 |
| Construction Cost Grand Total | | | | \$ 167,592.85 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50.00 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50.00 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 50.00 | \$ 4,125.00 |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 50.00 | \$ 5,500.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 16,775.00 |
| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost | |
| Permanent Easement | \$ 4.00 | 4,800.00 | \$ 19,200.00 | |
| ROW Total | | | \$ 19,200.00 | |

| General Information | | Map | |
|--|--|-----------------|--|
| Project ID | | | |
| Street Name | 503 Westbridge Drive | | |
| Site Visit Date | 5/22/13 | | |
| Road Classification | Internal Local | | |
| Project Notes | | | |
| Urban typical section with Curb and gutter | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-12' | | |
| Existing Shld Width (paved and grass) (feet) | None | | |
| Existing Side Slopes | Flat | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 3 | | |
| Pipe Type and Size (with headwall, 45°) | 48" CMP; 45' | | |
| Pipe Condition (1-5) (1 is new) | 4 | | |
| Condition Notes: Debris in channel; approx. 1.5' drop in last section of pipe; US filled/damaged to 3.5' | | | |
| Pavement Type/Condition | Good/Asphalt | | |
| Environmental Features | | | |
| Wetlands | None | | |
| Ditches | None | | |
| | | | |
| | | | |
| Utilities (Visual Inspection) | | | |
| Electric | Buried | | |
| Cable | Buried | | |
| Phone | Buried | | |
| Gas | | | |
| Water | Buried | | |
| Sewer | | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | | | |
| Culvert Size & Material | 5' x 3' box, concrete, 45' Length | | |
| Utility Relocations | Electric, cable, phone, water | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | | | |
| | | | |
| | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$10,078 | |
| Right of Way Cost | Assuming project extends 1,200 sf beyond ROW | \$4,800 | |
| Utility Relocation Cost | Buried utilities | \$14,080 | |
| Construction Cost | Assuming 1/10 acre clearing and grubbing | \$50,776 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$89,733 | |



Photo 1:



Photo 2:

503 Westbridge Drive

Photo Date:

5/21/2013

Taken By:

David King

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|-------------------|
| Pavement (SF) | \$0.73 | \$4.87 | 168.00 | \$941.70 |
| Curb and Gutter (LF) | \$28.56 | \$30.60 | 20.00 | \$1,183.20 |
| Drain Inlet (EA) | | \$3,000.00 | 0.00 | \$0.00 |
| 4" Sidewalk (SY) | \$13.56 | \$36.90 | 0.00 | \$0.00 |
| Guardrail (LF) | \$4.88 | \$49.09 | 0.00 | \$0.00 |
| End Anchorage (EA) | | \$1,380.00 | 0.00 | \$0.00 |
| Subtotal | | | | \$2,124.90 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$1,806.26

Roadway Total \$3,931.16

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|----------|-------------|
| Trench Excavation (CY) | | \$10.38 | 93.33 | \$968.80 |
| 48" CMP (LF) | \$24.60 | | 45.00 | \$3,321.00 |
| 48" RCP | | \$193.20 | 0.00 | \$0.00 |
| Class A Conc (CY) | | \$892.19 | 27.85 | \$24,842.97 |
| Steel (lb) | | \$1.42 | 2,529.50 | \$3,581.77 |
| Pipe Bedding (CY) | | \$48.60 | 12.20 | \$592.92 |
| Trench Backfill (CY) | | \$2.99 | 85.80 | \$256.37 |
| Trench Compaction (CY) | | \$6.36 | 68.64 | \$436.55 |

Drainage Total \$34,000.39

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$0.71 | 0.00 | \$0.00 |

Signing and Marking Total \$0.00

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|------------|
| Clearing and Grubbing (Acre) | \$10,260.00 | 0.10 | \$1,026.00 |
| Temporary Pavement | | | \$0.00 |
| Temporary Drainage (Stream Diversion) | \$4,428.00 | 1.00 | \$4,428.00 |

Staging Total \$5,454.00

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|------------|
| Fine Grading and Seeding (SY) | \$4.39 | 16.33 | \$71.74 |
| Temporary Grassing (AC) | \$855.60 | 0.00 | \$0.00 |
| Type C Silt Fence (LF) | \$4.24 | 180.00 | \$762.48 |
| Check Dam Type C Silt Fence (LF) | \$6.79 | 180.00 | \$1,222.56 |
| Erosion Control Mats (SY) | \$1.87 | 60.00 | \$112.32 |
| Landscape Mulch (SY) | \$3.58 | 60.00 | \$214.56 |
| Perm Grassing (AC) | \$1,402.20 | 0.00 | \$0.00 |
| Rip Rap Type 3 12" (SY) | \$60.98 | 18.67 | \$1,138.37 |
| Plastic Filter Fabric (SY) | \$5.72 | 18.67 | \$106.85 |
| 4" Ditch Paving (SY) | \$54.65 | 0.00 | \$0.00 |

Erosion Control Total \$3,628.87

Construction Cost Total \$47,014.42

Traffic Control (8% of Construction Total \$) \$3,761.15

Construction Cost Grand Total \$50,775.57

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|--------------------|
| Electric | | | | |
| Aerial | \$11.00 | \$55.00 | | \$0.00 |
| Buried | \$16.50 | \$82.50 | 40.00 | \$3,960.00 |
| Wooden Pole | \$82.50 | \$605.00 | | \$0.00 |
| Phone | | | | |
| Aerial | \$11.00 | \$27.50 | | \$0.00 |
| Buried | \$16.50 | \$55.00 | 40.00 | \$2,860.00 |
| Wooden Pole | \$82.50 | \$605.00 | | \$0.00 |
| Cable | | | | |
| Aerial | \$11.00 | \$27.50 | | \$0.00 |
| Buried | \$16.50 | \$55.00 | 40.00 | \$2,860.00 |
| Wooden Pole | \$82.50 | \$605.00 | | \$0.00 |
| Gas | | | | |
| 4" main | \$16.50 | \$66.00 | | \$0.00 |
| Water | | | | |
| 8" main | \$16.50 | \$93.50 | 40.00 | \$4,400.00 |
| Relocate Fire Hydrant (EA) | | \$2,609.22 | | \$0.00 |
| Sewer | | | 0.00 | \$0.00 |
| 12" main | \$16.50 | \$82.50 | 0.00 | \$0.00 |
| Utility Relocation Total | | | | \$14,080.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|----------|-------------------|
| Permanent Easement | \$4.00 | 1,200.00 | \$4,800.00 |
| ROW Total | | | \$4,800.00 |

| General Information | | Map | |
|--|--|-----------------|--|
| Project ID | | | |
| Street Name | 517 Westbridge Drive | | |
| Site Visit Date | 5/22/13 | | |
| Road Classification | Internal Local | | |
| Project Notes | | | |
| Urban typical section with Curb and gutter | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-12' | | |
| Existing Shld Width (paved and grass) (feet) | None | | |
| Existing Side Slopes | Flat | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 3 | | |
| Pipe Type and Size | 54" CMP | | |
| Pipe Condition (1-5) (1 is new) | 4 | | |
| Condition Notes: 0.5' drop; 1' of sand in pipe (45' pipe length); Capacity Issue | | | |
| Pavement Type/Condition | | | |
| Environmental Features | | | |
| Wetlands | None | | |
| Ditches | None | | |
| Utilities (Visual Inspection) | | | |
| Electric | Buried | | |
| Cable | Buried | | |
| Phone | Buried | | |
| Gas | | | |
| Water | Buried | | |
| Sewer | | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | | | |
| Culvert Size & Material | 5' x 3' box, concrete, 45' length | | |
| Utility Relocations | Electric, cable, phone, water | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$10,091 | |
| Right of Way Cost | Assuming project extends 2,000 sf beyond ROW | \$8,000 | |
| Utility Relocation Cost | Buried utilities | \$14,080 | |
| Construction Cost | Assuming 1/10 acre clearing and grubbing | \$50,911 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$93,082 | |

517 Westbridge Drive

Photo Date:

5/21/2013

Taken By:

David King

Page:

1



Photo 1:



Photo 2:

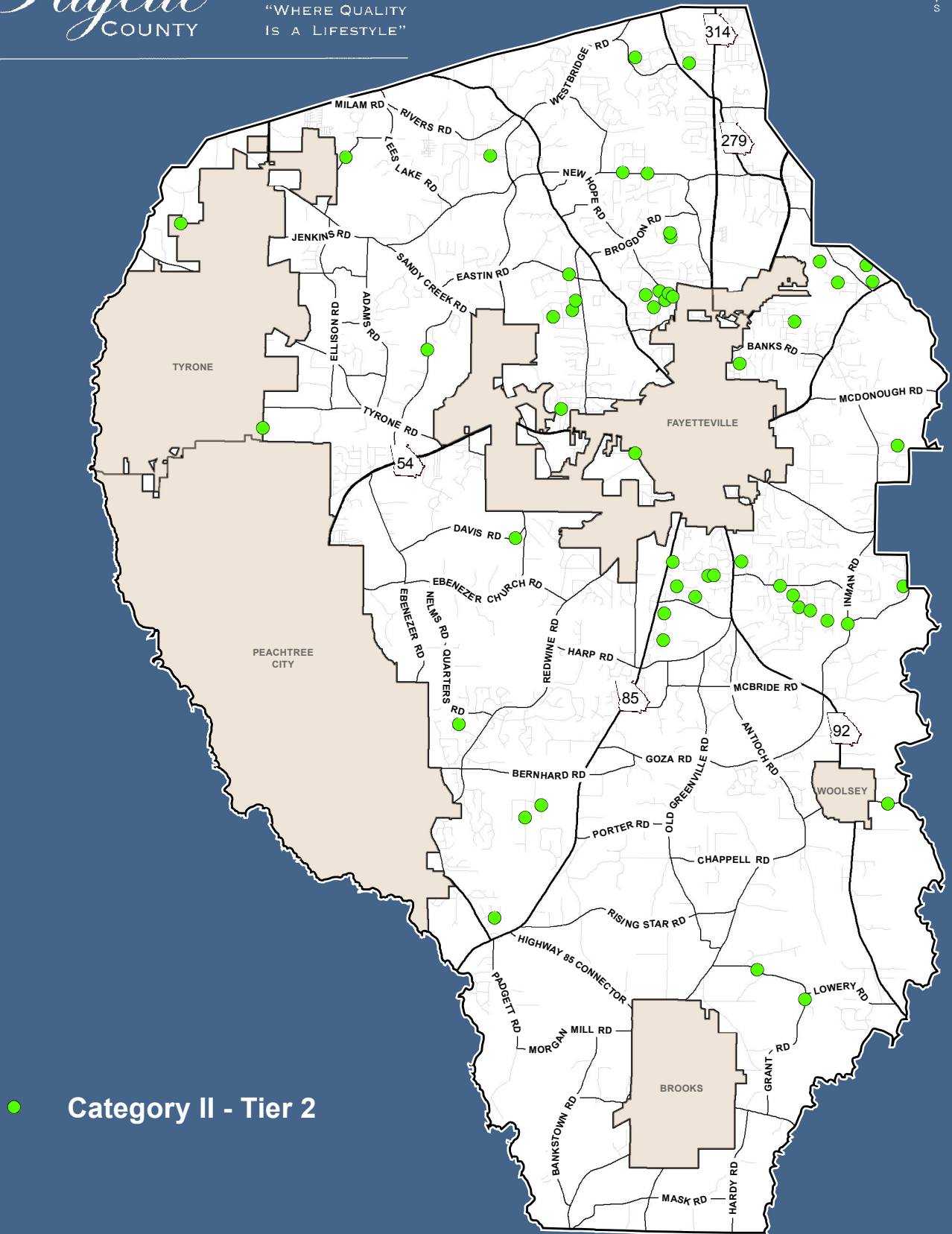
Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|--|-------------------|------------------------|-------------|--------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 168.00 | \$ 941.70 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 20.00 | \$ 1,183.20 |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 2,124.90 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 1,812.24 |
| Roadway Total | | | | \$ 3,937.13 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 99.17 | \$ 1,029.35 |
| 54" CMP (LF) | \$ 24.60 | | 45.00 | \$ 3,321.00 |
| 54" RCP | | \$ 233.28 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 27.85 | \$ 24,842.97 |
| Steel (lb) | | \$ 1.42 | 2,529.50 | \$ 3,581.77 |
| Pipe Bedding (CY) | | \$ 48.60 | 12.20 | \$ 592.92 |
| Trench Backfill (CY) | | \$ 2.99 | 93.09 | \$ 278.16 |
| Trench Compaction (CY) | | \$ 6.36 | 74.47 | \$ 473.65 |
| Drainage Total | | | | \$ 34,119.83 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | 0.00 | \$ - |
| Signing and Marking Total | | | | \$ - |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | | \$ - |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 1.00 | \$ 4,428.00 |
| Staging Total | | | | \$ 5,454.00 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 16.33 | \$ 71.74 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 180.00 | \$ 762.48 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 180.00 | \$ 1,222.56 |
| Erosion Control Mats (SY) | | \$ 1.87 | 60.00 | \$ 112.32 |
| Landscape Mulch (SY) | | \$ 3.58 | 60.00 | \$ 214.56 |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 18.67 | \$ 1,138.37 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 18.67 | \$ 106.85 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 3,628.87 |
| Construction Cost Total | | | | \$ 47,139.83 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 3,771.19 |
| Construction Cost Grand Total | | | | \$ 50,911.02 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 40.00 | \$ 3,960.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 40.00 | \$ 2,860.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 40.00 | \$ 2,860.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 40.00 | \$ 4,400.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 14,080.00 |
| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost | |
| Permanent Easement | \$ 4.00 | 2,000.00 | \$ 8,000.00 | |
| ROW Total | | | \$ 8,000.00 | |



Fayette
COUNTY

"WHERE QUALITY
IS A LIFESTYLE"



● Category II - Tier 2

CATEGORY II - TIER 2

| PROJECT NAME | PROJECT DESCRIPTION | ESTIMATED COST |
|------------------------------|-------------------------------------|----------------|
| 170 Angela Dr | 2 X 30" RCP, 84' | \$59,084 |
| 165 North Bend Ct | 2 x 42 " RCP, 272' | \$187,610 |
| 110 Branchwood Ct | 48' RCP, 52' | \$58,323 |
| 140 Brandon Mill Cir - East | 48", RCP, 500' | \$269,895 |
| 115 Brandon Mill Cir - North | 48", RCP, 250' | \$187,332 |
| 225 Brandon Mill Cir - SW | 8'x4' RBC, 175' | \$369,852 |
| 295 Brandon Mill Cir - West | 48", RCP, 350' | \$230,615 |
| 115 Brockton Ct | 60" RCP, 64' | \$105,739 |
| 223 Cedar Trl | 48" RCP, 50' | \$58,206 |
| Coastline Rd | trp 10'x8', 232' | \$539,571 |
| 171 County Line Ct | 4'x3' RBC, 84' | \$116,051 |
| 178 Crabapple Ln | trp 8'x5' RBC, 70' | \$383,326 |
| 168 Cross Creek Trl | 8'x5' RBC, 80' | \$562,174 |
| 130 Darren Dr | 80' prestressed concrete beam bridg | \$383,630 |
| 118 Davis Rd | 5 10'x4' RBC, 85' | \$871,871 |
| 308 Deauville Way | 2 x 30 " RCP, 610 ' | \$217,516 |
| 175 Deer Trl | 36" RCP | \$88,923 |
| 161 Deerfield Ln | 36" RCP, 64' | \$100,012 |
| 130 Deerfield Ln | 36" RCP, 56' | \$98,924 |
| 325 Derby Dr | 54" RCP, 75' | \$129,740 |
| 116 Downing Ct | 4'x3' RBC, 45' | \$84,127 |
| 584 Flat Creek Trl | trp 10'x4' RBC, 70' | \$535,551 |
| 130 Greenfield Cir | 5'x3' RBC, 45' | \$98,969 |
| 250 Greenfield Cir | 2 x 42" RCP, 108' | \$100,073 |
| 165 Grandchester Way | 60" RCP, 80' | \$159,475 |
| 250 Grant Rd | 60" RCP, 48' | \$76,779 |
| 426 Grant Rd | 60" RCP, 48' | \$76,779 |
| 226 Graves Rd | dbl 30" RCP, 70' | \$71,856 |
| 110 Gristmill Dr | 6'x3' RBC, 80' | \$159,309 |
| 120 Heritage Way - North | 48" RCP, 400" | \$240,898 |
| 160 Heritage Way - South | 48" RCP, 200' | \$177,039 |
| 287 Hilo Rd | trp 24" RCP, 186' | \$69,108 |
| 448 Inman Rd | dbl 7' x 6' RBC, 77' | \$192,130 |
| 510 Janice Dr | dbl 6'x4' RBC, 70' | \$196,472 |
| 671 Kenwood Rd | 60" RCP, 57' | \$96,178 |

CATEGORY II - TIER 2

| PROJECT NAME | PROJECT DESCRIPTION | ESTIMATED COST |
|-------------------------------|-------------------------------|---------------------|
| 547 Kenwood Rd | dbl 8'x5' RBC, 80' | \$229,611 |
| 200 Kingswood Dr | 48" RCP, 92' | \$115,742 |
| 330 Merrydale Dr | 60" RCP, 88' | \$110,280 |
| 110 Mark Ln | dbl 6'x4' RBC, 90' | \$249,037 |
| 130 Matthew Way | dbl 9'x4' RBC, 80' | \$322,809 |
| 145 Millers Oak Way | 36" RCP, 322' | \$202,401 |
| 420 North Dr | 5'x4' RBC, 80' | \$132,292 |
| 290 Oak St | 42" RCP, 64' | \$66,563 |
| 220 Old Ivy | 42" RCP, 142' | \$117,610 |
| 190 Ponderosa Dr | 48" RCP, 40' | \$104,203 |
| 125 Ridge Brook Ct | 48" RCP, 173' | \$159,342 |
| 545 Ridgemont Dr | 36" RCP, 32 36" of HDPE, 260' | \$107,033 |
| 170 Ridge Way | 48" RCP, 136' | \$228,742 |
| Royal Ridge Way | dbl 8x5 RBC, 62' | \$214,176 |
| 120 Shoal Creek Rd | Trp 8' x 8'RBC, 184' | \$380,630 |
| 261 Trickum Creek Rd | trp 8' x 5' RBC, 70' | \$346,541 |
| Tier 2 Subtotal | | \$10,440,149 |
| 2016 CATEGORY II TOTAL | | \$14,145,522 |

| General Information | | Map | |
|---|--|-----------------|--|
| Project ID | | | |
| Street Name | 170 Angela Drive | | |
| Site Visit Date | 1/20/2016 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-11' | | |
| Existing Shld Width (paved and grass) (feet) | 4' | | |
| Existing Side Slopes | 4:1 | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 3' | | |
| Pipe Type and Size | CMPs 2x30" | | |
| Pipe Condition (1-5) (1 is new) | 4-5 | | |
| Condition Notes: Two corrugated metal pipes 1.8' apart. Both have rusted out bottoms. No headwall | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | | | |
| Ditches | Roadside drainage ditches | | |
| State Waters | | | |
| Utilities (Visual Inspection) | | | |
| Electric | Aerial | | |
| Cable | Buried | | |
| Phone | Aerial | | |
| Gas | Unknown | | |
| Water | Unknown | | |
| Sewer | Unknown | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | Typical | | |
| Culvert Size & Material | 2x30" Round RCP with straight headwall | | |
| Utility Relocations | Utility pole with electric and phone wires. Buried cable | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% of Construction Cost and surveying needs | \$8,145 | |
| Right of Way Cost | Project entirely in ROW | \$0 | |
| Utility Relocation Cost | | \$9,488 | |
| Construction Cost | | \$31,451 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$59,084 | |





Photo 1: Upstream end of culverts looking southwest towards Angela Dr.



Photo 2: Downstream end of culverts

Angela Drive

Photo Date:

1/20/2016

Taken By:

David Gibbs

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|-------------------|
| Pavement (SF) | \$0.73 | \$4.87 | 209.00 | \$1,171.51 |
| Curb and Gutter (LF) | \$28.56 | \$30.60 | 0.00 | \$0.00 |
| Drain Inlet (EA) | | \$3,000.00 | 0.00 | \$0.00 |
| 4" Sidewalk (SY) | \$13.56 | \$36.90 | 0.00 | \$0.00 |
| Guardrail (LF) | \$4.88 | \$49.09 | 0.00 | \$0.00 |
| End Anchorage (EA) | | \$1,380.00 | 0.00 | \$0.00 |
| Subtotal | | | | \$1,171.51 |

Grading Complete (5% of Rwy Items & Drng Total \$) **\$1,051.07**

Roadway Total \$2,222.58

| Drainage | Removal Unit Cost | \$2.00 | Amount | Total Cost |
|------------------------|-------------------|----------|--------|------------|
| Trench Excavation (CY) | | \$10.38 | 100.63 | \$1,044.54 |
| 30" CMP | \$19.62 | | 88.00 | \$1,726.56 |
| 30" RCP | | \$105.60 | 88.00 | \$9,292.80 |
| Class A Conc (CY) | | \$892.19 | 7.24 | \$6,459.44 |
| Steel (lb) | | \$1.42 | 0.00 | \$0.00 |
| Pipe Bedding (CY) | | \$48.60 | 15.48 | \$752.40 |
| Trench Backfill (CY) | | \$2.99 | 71.08 | \$212.40 |
| Trench Compaction (CY) | | \$6.36 | 56.87 | \$361.68 |

Drainage Total \$19,849.81

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$0.71 | | \$0.00 |

Signing and Marking Total \$0.00

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|------------|
| Clearing and Grubbing (Acre) | \$10,260.00 | 0.01 | \$141.32 |
| Temporary Pavement | | | \$0.00 |
| Temporary Drainage (Stream Diversion) | \$4,428.00 | 1.00 | \$4,428.00 |

Staging Total \$4,569.32

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|------------|
| Fine Grading and Seeding (SY) | \$4.39 | 23.22 | \$101.99 |
| Temporary Grassing (AC) | \$855.60 | 0.00 | \$0.00 |
| Type C Silt Fence (LF) | \$4.24 | 176.00 | \$745.54 |
| Check Dam Type C Silt Fence (LF) | \$6.79 | 176.00 | \$1,195.39 |
| Erosion Control Mats (SY) | \$1.87 | 19.56 | \$36.61 |
| Landscape Mulch (SY) | \$3.58 | 0.00 | \$0.00 |
| Perm Grassing (AC) | \$1,402.20 | 0.00 | \$0.00 |
| Rip Rap Type 3 12" (SY) | \$60.98 | 6.00 | \$365.90 |
| Plastic Filter Fabric (SY) | \$5.72 | 6.00 | \$34.34 |
| 4" Ditch Paving (SY) | \$54.65 | 0.00 | \$0.00 |

Erosion Control Total \$2,479.78

Construction Cost Total \$29,121.49

Traffic Control (8% of Construction Total \$) \$2,329.72

Construction Cost Grand Total \$31,451.21

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|-------------------|
| Electric | | | | |
| Aerial | \$11.00 | \$55.00 | 50.00 | \$3,300.00 |
| Buried | \$16.50 | \$82.50 | 0.00 | \$0.00 |
| Wooden Pole | \$82.50 | \$605.00 | 1.00 | \$687.50 |
| Phone | | | | |
| Aerial | \$11.00 | \$27.50 | 50.00 | \$1,925.00 |
| Buried | \$16.50 | \$55.00 | 0.00 | \$0.00 |
| Wooden Pole | \$82.50 | \$605.00 | 0.00 | \$0.00 |
| Cable | | | | |
| Aerial | \$11.00 | \$27.50 | 0.00 | \$0.00 |
| Buried | \$16.50 | \$55.00 | 50.00 | \$3,575.00 |
| Wooden Pole | \$82.50 | \$605.00 | 0.00 | \$0.00 |
| Gas | | | | |
| 4" main | \$16.50 | \$66.00 | 0.00 | \$0.00 |
| Water | | | | |
| 8" main | \$16.50 | \$93.50 | 0.00 | \$0.00 |
| Sewer | | | | |
| 12" main | \$16.50 | \$82.50 | 0.00 | \$0.00 |
| Utility Relocation Total | | | | \$9,487.50 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|-------|---------------|
| Permanent Easement | \$4.00 | 0.00 | \$0.00 |
| ROW Total | | | \$0.00 |

| General Information | | Map | |
|--|---|------------------|--|
| Project ID | | | |
| Street Name | 165 North Bend Court | | |
| Site Visit Date | 2/4/2016 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-11.5' | | |
| Existing Shld Width (paved and grass) (feet) | 14' | | |
| Existing Side Slopes | 3:1 | | |
| Existing Guardrail | N/A | | |
| Depth fm Pavement to Top of Culvert (ft): | 5' | | |
| Pipe Type and Size | 42" CMP | | |
| Pipe Condition (1-5) (1 is new) | 3-4 | | |
| Condsirable rusting. | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | | | |
| Ditches | | | |
| State Waters | | | |
| Utilities (Visual Inspection) | | | |
| Electric | Aerial | | |
| Cable | Unknown | | |
| Phone | Aerial | | |
| Gas | Unknown | | |
| Water | Unknown | | |
| Sewer | Unknown | | |
| Other | Unknown | | |
| Proposed Design | | | |
| Roadway Section | Typical | | |
| Culvert Size & Material | 2 x 42" round RCPs with straight headwalls. | | |
| Utility Relocations | Utility pole and hung wires, possible water main | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction cost and surveying needs | \$16,011 | |
| Right of Way Cost | Assuming project extends beyond ROW, 1/5 acre | \$34,848 | |
| Utility Relocation Cost | Aerial phone and electric, utility pole, water main | \$16,638 | |
| Construction Cost | | \$110,113 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$187,610 | |





Photo 1: Upstream end of culvert looking South towards North Bend Court



Photo 2: Downstream looking South towards North Bend Court.

North Bend Court

Photo Date:

2/4/2016

Taken By:

Christian Helfrich

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|--------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 276.00 | \$ 1,547.07 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 40.00 | \$ 2,366.40 |
| Drain Inlet (EA) | | \$ 3,000.00 | 2.00 | \$ 6,000.00 |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 9,913.47 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 4,296.91

Roadway Total \$ 14,210.38

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|--------|--------------|
| Trench Excavation (CY) | | \$ 10.38 | 472.22 | \$ 4,901.67 |
| 42" CMP (LF) | \$ 24.60 | | 176.00 | \$ 12,988.80 |
| 42" RCP (LF) | | \$ 142.52 | 272.00 | \$ 38,766.53 |
| Class A Conc (CY) | | \$ 892.19 | 14.66 | \$ 13,079.48 |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 62.96 | \$ 3,060.00 |
| Trench Backfill (CY) | | \$ 2.99 | 399.72 | \$ 1,194.38 |
| Trench Compaction (CY) | | \$ 6.36 | 319.78 | \$ 2,033.80 |

Drainage Total \$ 76,024.64

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 0.00 | \$ - |

Signing and Marking Total \$ -

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.25 | \$ 2,565.00 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 1.00 | \$ 4,428.00 |

Staging Total \$ 6,993.00

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 150.67 | \$ 661.73 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 272.00 | \$ 1,152.19 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 272.00 | \$ 1,847.42 |
| Erosion Control Mats (SY) | \$ 1.87 | 0.00 | \$ - |
| Landscape Mulch (SY) | \$ 3.58 | 0.00 | \$ - |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 16.00 | \$ 975.74 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 16.00 | \$ 91.58 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 4,728.67

Construction Cost Total \$ 101,956.69

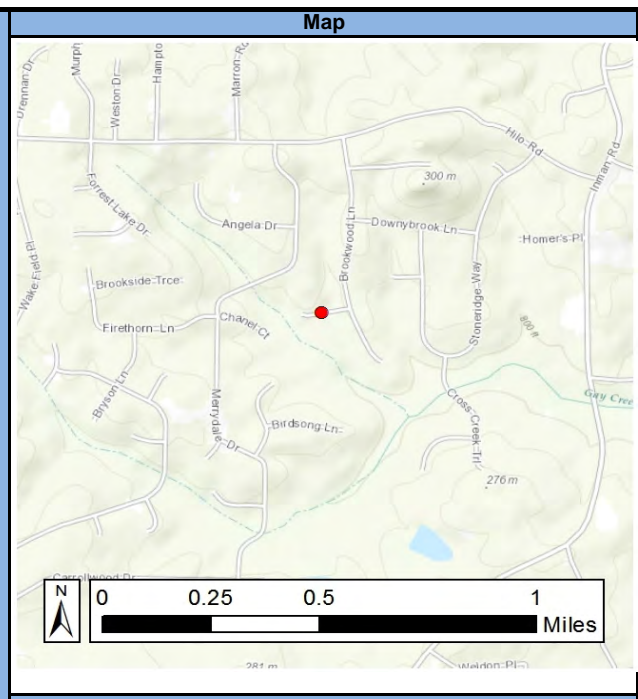
Traffic Control (8% of Construction Total \$) \$ 8,156.54

Construction Cost Grand Total \$ 110,113.23

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|---------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 100.00 | \$ 6,600.00 |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 1.00 | \$ 687.50 |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 100.00 | \$ 3,850.00 |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 0.00 | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 50.00 | \$ 5,500.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | 0.00 | \$ - |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 16,637.50 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|---------|---------------------|
| Permanent Easement | \$ 4.00 | 8712.00 | \$ 34,848.00 |
| ROW Total | | | \$ 34,848.00 |

| General Information | |
|--|--------------------------------|
| Project ID | |
| Street Name | 110 Branchwood Ct |
| Site Visit Date | 1/20/2016 |
| Road Classification | Minor road |
| Project Notes | |
| | |
| Field Notes | |
| Design (Existing Site Features) | |
| Existing Road Laneage | 2-12' |
| Existing Shld Width (paved and grass) (feet) | 6.5' |
| Existing Side Slopes | 1:1 |
| Existing Guardrail | None |
| Depth fm Pavement to Top of Culvert (ft): | 5.25'-6' |
| Pipe Type and Size | 48" CMP |
| Pipe Condition (1-5) (1 is new) | 4-5 |
| Condition Notes: Rusted out bottom. No headwall. | |
| Pavement Type/Condition | Asphalt/Good |
| Environmental Features | |
| Wetlands | |
| Ditches | Drainage ditches upstream side |
| State Waters | |
| | |
| Utilities (Visual Inspection) | |
| Electric | Aerial |
| Cable | Unknown |
| Phone | Aerial |
| Gas | Unknown |
| Water | Unknown |
| Sewer | |
| Other | |



| Stage Construction Options | |
|--------------------------------------|---|
| Close Location to Traffic | |
| Maintain One Lane - No Temp Pavement | X |
| Maintain One Lane - Temp Pavement | |
| Stage Construction Notes: | |
| | |

| Proposed Design | |
|-------------------------|--------------------------------------|
| Roadway Section | Typical |
| Culvert Size & Material | 48" round RCP with straight headwall |
| Utility Relocations | |
| Guardrail Replacement | |
| Miscellaneous Features | |
| | |
| | |

| Planning Cost Estimate | | |
|-------------------------|---|----------|
| Type | Notes | Total |
| Design | Includes 10% of Construction Cost and surveying needs | \$8,938 |
| Right of Way Cost | Project entirely in ROW | \$0 |
| Utility Relocation Cost | None identified | \$0 |
| Construction Cost | | \$39,384 |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 |

| | |
|--------------------------------|-----------------|
| Total Planning Estimate | \$58,323 |
|--------------------------------|-----------------|





Photo 1:
Upstream end of culvert.



Photo 2: Downstream end of culvert looking northeast towards Branchwood Ct.

Branchwood Court

Photo Date:

1/20/2016

Taken By:

David Gibbs

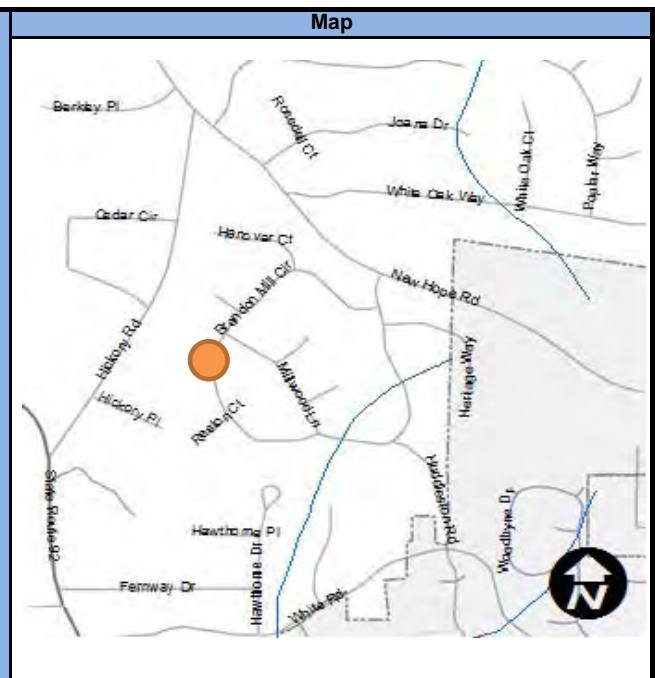
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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---|-------------------|------------------------|--------|---------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 144.00 | \$ 807.17 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 807.17 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 1,366.93 |
| Roadway Total | | | | \$ 2,174.10 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 138.67 | \$ 1,439.36 |
| 48" CMP (LF) | \$ 24.60 | | 52.00 | \$ 1,279.20 |
| 48" RCP (LF) | | \$ 193.20 | 52.00 | \$ 10,046.40 |
| Class A Conc (CY) | | \$ 892.19 | 13.70 | \$ 12,222.98 |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 11.56 | \$ 561.60 |
| Trench Backfill (CY) | | \$ 2.99 | 121.58 | \$ 363.27 |
| Trench Compaction (CY) | | \$ 6.36 | 97.26 | \$ 618.58 |
| Drainage Total | | | | \$ 26,531.38 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | | \$ - |
| Signing and Marking Total | | | | \$ - |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.04 | \$ 423.97 |
| Temporary Pavement | | | | \$ - |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 1.00 | \$ 4,428.00 |
| Staging Total | | | | \$ 4,851.97 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 18.67 | \$ 81.98 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 208.00 | \$ 881.09 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 208.00 | \$ 1,412.74 |
| Erosion Control Mats (SY) | | \$ 1.87 | 0.00 | \$ - |
| Landscape Mulch (SY) | | \$ 3.58 | 0.00 | \$ - |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 8.00 | \$ 487.87 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 8.00 | \$ 45.79 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 2,909.47 |
| Construction Cost Total | | | | \$ 36,466.92 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 2,917.35 |
| Construction Cost Grand Total | | | | \$ 39,384.27 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 0.00 | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 0.00 | \$ - |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ - |
| Right of Way (Sq Ft) | | Cost/ Sq Ft | Sq Ft | Total Cost |
| Permanent Easement | | \$ 4.00 | 0.00 | \$ - |
| ROW Total | | | | \$ - |

| General Information | |
|--|-------------------------|
| Project ID | |
| Street Name | Brandon Mill Cir - West |
| Site Visit Date | 5/22/13 |
| Road Classification | Minor road |
| Project Notes | |
| Urban typical section with valley gutter. | |
| Field Notes | |
| Design (Existing Site Features) | |
| Existing Road Laneage | 2-10' |
| Existing Shld Width (paved and grass) (feet) | 4 |
| Existing Side Slopes | flat |
| Existing Guardrail | none |
| Depth fm Pavement to Top of Culvert (ft): | 4 |
| Pipe Type and Size | 48" CMP |
| Pipe Condition (1-5) (1 is new) | 4 |
| Condition Notes: | |
| Pavement Type/Condition | Asphalt/Good |
| Environmental Features | |
| Wetlands | None |
| Ditches | None |
| | |
| | |
| Utilities (Visual Inspection) | |
| Electric | Buried |
| Cable | Buried |
| Phone | Buried |
| Gas | |
| Water | Buried |
| Sewer | |
| Other | |



| Stage Construction Options | |
|--|---|
| Close Location to Traffic | X |
| Maintain One Lane - No Temp Pavement | |
| Maintain One Lane - Temp Pavement | |
| Stage Construction Notes: Close roadway; | |

| Proposed Design | |
|-------------------------|-------------------------------|
| Roadway Section | Typical |
| Culvert Size & Material | 48", RCP, 350' length |
| Utility Relocations | Electric, cable, phone, water |
| Guardrail Replacement | |
| Miscellaneous Features | |

| Planning Cost Estimate | | |
|-------------------------|--|-----------|
| Type | Notes | Total |
| Design | Includes 10% Construction Cost and surveying needs | \$19,474 |
| Right of Way Cost | Assuming project extends 7,500 sf beyond ROW | \$30,000 |
| Utility Relocation Cost | Buried utilities | \$26,400 |
| Construction Cost | Assuming 1/10 acre clearing and grubbing | \$144,741 |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 |

| | |
|--------------------------------|------------------|
| Total Planning Estimate | \$230,615 |
|--------------------------------|------------------|





Photo 1:



Photo 2:

Brandon Mill Cir - West

Photo Date:

7/2/2013

Taken By:

David King

Page:

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---|-------------------|------------------------|---------------------|----------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 120 | \$ 672.64 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 20 | \$ 1,183.20 |
| Drain Inlet (EA) | | \$ 3,000.00 | | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | | \$ - |
| Subtotal | | | | \$ 1,855.84 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 5,597.18 |
| Roadway Total | | | | \$ 7,453.02 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 972 | \$ 10,091.67 |
| 48" CMP (LF) | \$ 24.60 | | 350 | \$ 8,610.00 |
| 48" RCP (LF) | | \$ 193.20 | 350 | \$ 67,620.00 |
| Class A Conc (CY) | | \$ 892.19 | 14 | \$ 12,222.98 |
| Steel (lb) | | \$ 1.42 | 0 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 78 | \$ 3,780.00 |
| Trench Backfill (CY) | | \$ 2.99 | 961 | \$ 2,872.27 |
| Trench Compaction (CY) | | \$ 6.36 | 769 | \$ 4,890.94 |
| Drainage Total | | | | \$ 110,087.85 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | 0 | \$ - |
| Signing and Marking Total | | | | \$ - |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0 | \$ 1,026.00 |
| Temporary Pavement | | | | \$ - |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 1 | \$ 4,428.00 |
| Staging Total | | | | \$ 5,454.00 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 220 | \$ 966.24 |
| Temporary Grassing (AC) | | \$ 855.60 | 0 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 700 | \$ 2,965.20 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 700 | \$ 4,754.40 |
| Erosion Control Mats (SY) | | \$ 1.87 | 233 | \$ 436.80 |
| Landscape Mulch (SY) | | \$ 3.58 | 233 | \$ 834.40 |
| Perm Grassing (AC) | | \$ 1,402.20 | 0 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 16 | \$ 975.74 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 16 | \$ 91.58 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0 | \$ - |
| Erosion Control Total | | | | \$ 11,024.37 |
| Construction Cost Total | | | | \$ 134,019.25 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 10,721.54 |
| Construction Cost Grand Total | | | | \$ 144,740.79 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 75 | \$ 7,425.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 75 | \$ 5,362.50 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 75 | \$ 5,362.50 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 75 | \$ 8,250.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0 | \$ - |
| Utility Relocation Total | | | | \$ 26,400.00 |
| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost | |
| Permanent Easement | \$ 4.00 | 7,500 | \$ 30,000.00 | |
| ROW Total | | | \$ 30,000.00 | |

| General Information | | Map | |
|---|--|------------------|--|
| Project ID | | | |
| Street Name | Brandon Mill Cir - North | | |
| Site Visit Date | 5/22/13 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Urban typical section with valley gutter, | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-10' | | |
| Existing Shld Width (paved and grass) (feet) | 4 | | |
| Existing Side Slopes | flat | | |
| Existing Guardrail | none | | |
| Depth fm Pavement to Top of Culvert (ft): | 4 | | |
| Pipe Type and Size | 48" CMP | | |
| Pipe Condition (1-5) (1 is new) | 3 | | |
| Condition Notes: | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | None | | |
| Ditches | None | | |
| | | | |
| | | | |
| Utilities (Visual Inspection) | | | |
| Electric | Buried | | |
| Cable | Buried | | |
| Phone | Buried | | |
| Gas | | | |
| Water | Buried | | |
| Sewer | | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | | | |
| Culvert Size & Material | 48", RCP, 250' length | | |
| Utility Relocations | Electric, cable, phone, water | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | | | |
| | | | |
| | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$15,539 | |
| Right of Way Cost | Assuming 7,500 sf outside of ROW | \$30,000 | |
| Utility Relocation Cost | Buried utilities | \$26,400 | |
| Construction Cost | Applying 1/10 acre clearing and grubbing cost | \$105,392 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$187,332 | |



Photo 1:



Photo 2:

Brandon Mill Cir - North

Photo Date:

7/2/2013

Taken By:

David King

Page:

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|--------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 120.00 | \$ 672.64 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 20.00 | \$ 1,183.20 |
| Drain Inlet (EA) | | \$ 3,000.00 | | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | | \$ - |
| Subtotal | | | | \$ 1,855.84 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 3,998.51

Roadway Total \$ 5,854.35

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|--------|--------------|
| Trench Excavation (CY) | | \$ 10.38 | 500.00 | \$ 5,190.00 |
| 48" CMP (LF) | \$ 24.60 | | 250.00 | \$ 6,150.00 |
| 48" RCP (LF) | | \$ 193.20 | 250.00 | \$ 48,300.00 |
| Class A Conc (CY) | | \$ 892.19 | 13.70 | \$ 12,222.98 |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 55.56 | \$ 2,700.00 |
| Trench Backfill (CY) | | \$ 2.99 | 439.76 | \$ 1,313.99 |
| Trench Compaction (CY) | | \$ 6.36 | 351.80 | \$ 2,237.48 |

Drainage Total \$ 78,114.44

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 0.00 | \$ - |

Signing and Marking Total \$ -

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 1.00 | \$ 4,428.00 |

Staging Total \$ 5,454.00

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 153.33 | \$ 673.44 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 500.00 | \$ 2,118.00 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 500.00 | \$ 3,396.00 |
| Erosion Control Mats (SY) | \$ 1.87 | 166.67 | \$ 312.00 |
| Landscape Mulch (SY) | \$ 3.58 | 166.67 | \$ 596.00 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 16.00 | \$ 975.74 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 16.00 | \$ 91.58 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 8,162.77

Construction Cost Total \$ 97,585.57

Traffic Control (8% of Construction Total \$) \$ 7,806.85

Construction Cost Grand Total \$ 105,392.41

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|---------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 75.00 | \$ 7,425.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 75.00 | \$ 5,362.50 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 75.00 | \$ 5,362.50 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 75.00 | \$ 8,250.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 26,400.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|----------|---------------------|
| Permanent Easement | \$ 4.00 | 7,500.00 | \$ 30,000.00 |
| ROW Total | | | \$ 30,000.00 |

| General Information | | Map | |
|---|--|------------------|--|
| Project ID | | | |
| Street Name | Brandon Mill Cir - East | | |
| Site Visit Date | 5/22/13 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Urban typical section with valley gutter, | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-10' | | |
| Existing Shld Width (paved and grass) (feet) | 4 | | |
| Existing Side Slopes | flat | | |
| Existing Guardrail | none | | |
| Depth fm Pavement to Top of Culvert (ft): | 4 | | |
| Pipe Type and Size | 48" CMP | | |
| Pipe Condition (1-5) (1 is new) | 3 | | |
| Condition Notes: | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | None | | |
| Ditches | None | | |
| Utilities (Visual Inspection) | | | |
| Electric | Buried | | |
| Cable | Buried | | |
| Phone | Buried | | |
| Gas | | | |
| Water | Buried | | |
| Sewer | | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | | | |
| Culvert Size & Material | 48", RCP, 500' length | | |
| Utility Relocations | Electric, cable, phone, water | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$23,045 | |
| Right of Way Cost | Assuming 7,500 sf outside of ROW | \$30,000 | |
| Utility Relocation Cost | Buried utilities | \$26,400 | |
| Construction Cost | Applying 1/10 acre clearing and grubbing cost | \$180,450 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$269,895 | |



Photo 1:



Photo 2:

Brandon Mill Cir - East

Photo Date:

7/2/2013

Taken By:

David King

Page:

1

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|--|-------------------|------------------------|--------------|---------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 120.00 | \$ 672.64 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 20.00 | \$ 1,183.20 |
| Drain Inlet (EA) | | \$ 3,000.00 | | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | | \$ - |
| Subtotal | | | | \$ 1,855.84 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 7,298.47 |
| Roadway Total | | | | \$ 9,154.31 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 1,000.00 | \$ 10,380.00 |
| 48" CMP (LF) | \$ 24.60 | | 500.00 | \$ 12,300.00 |
| 48" RCP (LF) | | \$ 193.20 | 500.00 | \$ 96,600.00 |
| Class A Conc (CY) | | \$ 892.19 | 13.70 | \$ 12,222.98 |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 111.11 | \$ 5,400.00 |
| Trench Backfill (CY) | | \$ 2.99 | 892.84 | \$ 2,667.82 |
| Trench Compaction (CY) | | \$ 6.36 | 714.28 | \$ 4,542.80 |
| Drainage Total | | | | \$ 144,113.59 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | 0.00 | \$ - |
| Signing and Marking Total | | | | \$ - |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | | \$ - |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 1.00 | \$ 4,428.00 |
| Staging Total | | | | \$ 5,454.00 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 320.00 | \$ 1,405.44 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 500.00 | \$ 2,118.00 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 500.00 | \$ 3,396.00 |
| Erosion Control Mats (SY) | | \$ 1.87 | 166.67 | \$ 312.00 |
| Landscape Mulch (SY) | | \$ 3.58 | 166.67 | \$ 596.00 |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 8.00 | \$ 487.87 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 8.00 | \$ 45.79 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 8,361.10 |
| Construction Cost Total | | | | \$ 167,083.01 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 13,366.64 |
| Construction Cost Grand Total | | | | \$ 180,449.65 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 75.00 | \$ 7,425.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 75.00 | \$ 5,362.50 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 75.00 | \$ 5,362.50 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 75.00 | \$ 8,250.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 26,400.00 |
| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost | |
| Permanent Easement | \$ 4.00 | 7,500.00 | \$ 30,000.00 | |
| ROW Total | | | \$ 30,000.00 | |

| General Information | | Map | |
|---|--|--|---|
| Project ID | | | |
| Street Name | Brandon Mill Cir - SW | | |
| Site Visit Date | 5/22/13 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Urban typical section with valley gutter, | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-10' | | |
| Existing Shld Width (paved and grass) (feet) | 4 | | |
| Existing Side Slopes | flat | | |
| Existing Guardrail | none | | |
| Depth fm Pavement to Top of Culvert (ft): | 4 | | |
| Pipe Type and Size | 60" CMP | | |
| Pipe Condition (1-5) (1 is new) | 3 | | |
| Condition Notes: no headwall upstream or down | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | Stage Construction Options | |
| Wetlands | None | Close Location to Traffic | X |
| Ditches | None | Maintain One Lane - No Temp Pavement | |
| | | Maintain One Lane - Temp Pavement | |
| | | Stage Construction Notes: Close roadway; | |
| Utilities (Visual Inspection) | | | |
| Electric | Buried | | |
| Cable | Buried | | |
| Phone | Buried | | |
| Gas | | | |
| Water | Buried | | |
| Sewer | | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | | | |
| Culvert Size & Material | 8' x 4' box, concrete, 175' length | | |
| Utility Relocations | Electric, cable, phone, water | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| System Evaluation | | \$25,000 | |
| Design | Includes 10% Construction Cost and surveying needs | \$29,859 | |
| Right of Way Cost | Assuming project extends 7,500 sf beyond ROW | \$30,000 | |
| Utility Relocation Cost | Buried utilities | \$26,400 | |
| Construction Cost | Assuming 1/10 acre clearing and grubbing | \$248,592 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$369,852 | |



Photo 1:



Photo 2:

Brandon Mill Cir - Southwest

Photo Date:

7/2/2013

Taken By:

David King

Page:

1

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|--------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 200.00 | \$ 1,121.07 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 20.00 | \$ 1,183.20 |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 2,304.27 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 10,148.25

Roadway Total \$ 12,452.51

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|-----------|---------------|
| Trench Excavation (CY) | | \$ 10.38 | 648.15 | \$ 6,727.78 |
| 60" CMP (LF) | \$ 24.60 | | 175.00 | \$ 12,915.00 |
| 60" RCP (LF) | | \$ 259.20 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 162.36 | \$ 144,851.18 |
| Steel (lb) | | \$ 1.42 | 19,170.00 | \$ 27,144.72 |
| Pipe Bedding (CY) | | \$ 48.60 | 65.60 | \$ 3,188.16 |
| Trench Backfill (CY) | | \$ 2.99 | 722.36 | \$ 2,158.42 |
| Trench Compaction (CY) | | \$ 6.36 | 577.89 | \$ 3,675.38 |

Drainage Total \$ 200,660.64

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 40.00 | \$ 28.32 |

Signing and Marking Total \$ 28.32

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 1.00 | \$ 4,428.00 |

Staging Total \$ 5,510.64

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 172.22 | \$ 756.40 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 700.00 | \$ 2,965.20 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 700.00 | \$ 4,754.40 |
| Erosion Control Mats (SY) | \$ 1.87 | 233.33 | \$ 436.80 |
| Landscape Mulch (SY) | \$ 3.58 | 233.33 | \$ 834.40 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 26.67 | \$ 1,626.24 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 26.67 | \$ 152.64 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 11,526.08

Construction Cost Total \$ 230,178.20

Traffic Control (8% of Construction Total \$) \$ 18,414.26

Construction Cost Grand Total \$ 248,592.45

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|---------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 75.00 | \$ 7,425.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 75.00 | \$ 5,362.50 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 75.00 | \$ 5,362.50 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 75.00 | \$ 8,250.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 26,400.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|----------|---------------------|
| Permanent Easement | \$ 4.00 | 7,500.00 | \$ 30,000.00 |
| ROW Total | | | \$ 30,000.00 |

| General Information | | Map | |
|--|--|------------------|--|
| Project ID | | | |
| Street Name | 115 Brockton Ct | | |
| Site Visit Date | 1/20/2016 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-10.5' | | |
| Existing Shld Width (paved and grass) (feet) | 15' | | |
| Existing Side Slopes | 1.5:1 | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 4' | | |
| Pipe Type and Size | 60" CMP | | |
| Pipe Condition (1-5) (1 is new) | 3-4 | | |
| Condition Notes: Rusted out bottom. Concrete headwall. Undercutting at upstream end. Existing blowout at storm drain inlet 1' x 1' | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | | | |
| Ditches | | | |
| State Waters | | | |
| Utilities (Visual Inspection) | | | |
| Electric | Aerial | | |
| Cable | Buried | | |
| Phone | Aerial | | |
| Gas | Unknown | | |
| Water | Unknown | | |
| Sewer | | | |
| Other | Curb and gutter | | |
| Proposed Design | | | |
| Roadway Section | Typical | | |
| Culvert Size & Material | 60" round RCP with straight headwall | | |
| Utility Relocations | Removal/replacement drain inlets, buried cable | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | 10% of Construction Cost and any surveying needed | \$11,876 | |
| Right of Way Cost | Assuming downstream end extends past ROW 1/20 acre | \$8,712 | |
| Utility Relocation Cost | | \$6,388 | |
| Construction Cost | | \$68,763 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$105,739 | |





Photo 1: Upstream end of culvert.



Photo 2: Downstream end of culvert looking northeast towards Brockton Court.

Brockton Court

Photo Date:

1/20/2016

Taken By:

David Gibbs

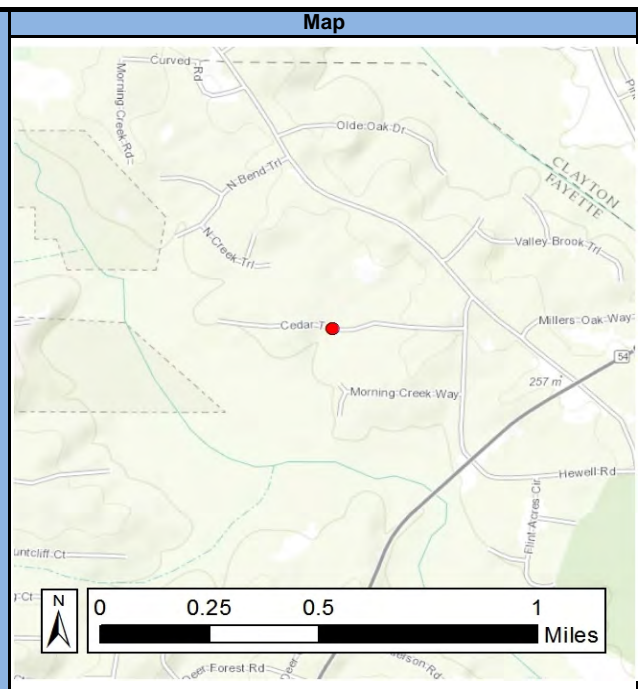
Page

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---|-------------------|------------------------|---------|---------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 154.00 | \$ 863.22 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 40.00 | \$ 2,366.40 |
| Drain Inlet (EA) | | \$ 3,000.00 | 2.00 | \$ 6,000.00 |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 9,229.62 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 2,601.85 |
| Roadway Total | | | | \$ 11,831.47 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 154.00 | \$ 1,598.52 |
| 60" CMP (LF) | \$ 24.60 | | 66.00 | \$ 1,623.60 |
| 60" RCP (LF) | | \$ 281.96 | 66.00 | \$ 18,609.62 |
| Class A Conc (CY) | | \$ 892.19 | 21.58 | \$ 19,253.42 |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 17.11 | \$ 831.60 |
| Trench Backfill (CY) | | \$ 2.99 | 110.28 | \$ 329.52 |
| Trench Compaction (CY) | | \$ 6.36 | 88.22 | \$ 561.11 |
| Drainage Total | | | | \$ 42,807.39 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | | \$ - |
| Signing and Marking Total | | | | \$ - |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.09 | \$ 918.60 |
| Temporary Pavement | | | | \$ - |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 1.00 | \$ 4,428.00 |
| Staging Total | | | | \$ 5,346.60 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 34.22 | \$ 150.30 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 264.00 | \$ 1,118.30 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 264.00 | \$ 1,793.09 |
| Erosion Control Mats (SY) | | \$ 1.87 | 0.00 | \$ - |
| Landscape Mulch (SY) | | \$ 3.58 | 0.00 | \$ - |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 9.33 | \$ 569.18 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 9.33 | \$ 53.42 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 3,684.30 |
| Construction Cost Total | | | | \$ 63,669.76 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 5,093.58 |
| Construction Cost Grand Total | | | | \$ 68,763.34 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50.00 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 0.00 | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 0.00 | \$ - |
| Drain inlet | | \$ 1,406.40 | 2.00 | \$ 2,812.80 |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 6,387.80 |
| Right of Way (Sq Ft) | | Cost/ Sq Ft | Sq Ft | Total Cost |
| Permanent Easement | | \$ 4.00 | 2178.00 | \$ 8,712.00 |
| ROW Total | | | | \$ 8,712.00 |

| General Information | |
|---|---------------------------|
| Project ID | |
| Street Name | 223 Cedar Trail |
| Site Visit Date | 1/21/2016 |
| Road Classification | Minor road |
| Project Notes | |
| | |
| Field Notes | |
| Design (Existing Site Features) | |
| Existing Road Laneage | 2-13' |
| Existing Shld Width (paved and grass) (feet) | 1' |
| Existing Side Slopes | 2:1 |
| Existing Guardrail | None |
| Depth fm Pavement to Top of Culvert (ft): | 4' |
| Pipe Type and Size | 48" CMP |
| Pipe Condition (1-5) (1 is new) | 4-5 |
| Condition Notes: Rusted out bottoms, no headwalls. Streambed blowout on downstream side | |
| Pavement Type/Condition | Asphalt/Good |
| Environmental Features | |
| Wetlands | |
| Ditches | Roadside drainage ditches |
| State Waters | |
| | |
| Utilities (Visual Inspection) | |
| Electric | Unknown |
| Cable | Unknown |
| Phone | Unknown |
| Gas | Unknown |
| Water | Unknown |
| Sewer | |
| Other | |



| Stage Construction Options | |
|--------------------------------------|---|
| Close Location to Traffic | |
| Maintain One Lane - No Temp Pavement | X |
| Maintain One Lane - Temp Pavement | |
| Stage Construction Notes: | |
| | |

| Proposed Design | |
|-------------------------|--------------------------------------|
| Roadway Section | Typical |
| Culvert Size & Material | 48" round RCP with straight headwall |
| Utility Relocations | |
| Guardrail Replacement | |
| Miscellaneous Features | |
| | |
| | |

| Planning Cost Estimate | | |
|-------------------------|---|----------|
| Type | Notes | Total |
| Design | Includes 10% of Construction Cost and surveying needs | \$8,928 |
| Right of Way Cost | Project entirely in ROW | \$0 |
| Utility Relocation Cost | None identified | \$0 |
| Construction Cost | | \$39,279 |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 |

| | |
|--------------------------------|-----------------|
| Total Planning Estimate | \$58,206 |
|--------------------------------|-----------------|





Photo 1: Upstream end of culvert.



Photo 2: Downstream end of culvert looking North towards Cedar Trail.

Cedar Trail

Photo Date:

1/21/2016

Taken By:

David Gibbs

Page

1

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 156.00 | \$ 874.43 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 874.43 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 1,346.09

Roadway Total \$ 2,220.52

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|--------|--------------|
| Trench Excavation (CY) | | \$ 10.38 | 115.56 | \$ 1,199.47 |
| 48" CMP (LF) | \$ 24.60 | | 52.00 | \$ 1,279.20 |
| 48" RCP (LF) | | \$ 193.20 | 52.00 | \$ 10,046.40 |
| Class A Conc (CY) | | \$ 892.19 | 13.70 | \$ 12,222.98 |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 11.56 | \$ 561.60 |
| Trench Backfill (CY) | | \$ 2.99 | 91.35 | \$ 272.96 |
| Trench Compaction (CY) | | \$ 6.36 | 73.08 | \$ 464.81 |

Drainage Total \$ 26,047.41

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | | \$ - |

Signing and Marking Total \$ -

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.08 | \$ 769.50 |
| Temporary Pavement | | | 0 |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 1.00 | \$ 4,428.00 |

Staging Total \$ 5,197.50

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 17.33 | \$ 76.13 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 208.00 | \$ 881.09 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 208.00 | \$ 1,412.74 |
| Erosion Control Mats (SY) | \$ 1.87 | 0.00 | \$ - |
| Landscape Mulch (SY) | \$ 3.58 | 0.00 | \$ - |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 8.00 | \$ 487.87 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 8.00 | \$ 45.79 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 2,903.62

Construction Cost Total \$ 36,369.05

Traffic Control (8% of Construction Total \$) \$ 2,909.52

Construction Cost Grand Total \$ 39,278.58

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|-------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 0.00 | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 0.00 | \$ - |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ - |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|-------|-------------|
| Permanent Easement | \$ 4.00 | \$ - | \$ - |
| ROW Total | | | \$ - |

| General Information | | Map | |
|---|--|------------------|--|
| Project ID | | | |
| Street Name | Coastline Road | | |
| Site Visit Date | 5/8/13 | | |
| Road Classification | Minor arterial | | |
| Project Notes | | | |
| Rural Typical Section; Fish noted in stream/wetland | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-12' | | |
| Existing Shld Width (paved and grass) (feet) | 6' Grass | | |
| Existing Side Slopes | 2:1 | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 3 | | |
| Pipe Type and Size | 5-96" CMP | | |
| Pipe Condition (1-5) (1 is new) | 4 | | |
| Condition Notes: | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | Yes | | |
| Ditches | Yes | | |
| | | | |
| | | | |
| Utilities (Visual Inspection) | | | |
| Electric | Aerial | | |
| Cable | None | | |
| Phone | Aerial | | |
| Gas | None | | |
| Water | None | | |
| Sewer | None | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | | | |
| Proposed Design | Triple 10' x 8' box culvert | | |
| Utility Relocations | Electric, phone | | |
| Guardrail Replacement | Need to add guardrail due to sideslopes and culvert installation | | |
| Miscellaneous Features | Zone AE with Floodway, Floodplain Analysis Required | | |
| | | | |
| | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$67,431 | |
| Right of Way Cost | Assuming project extends 4,500 sf beyond ROW | \$18,000 | |
| Utility Relocation Cost | Utility poles and aerial phone wires | \$11,825 | |
| Construction Cost | 1/2 acre clearing and grubbing, Guardrails | \$424,314 | |
| Environmental Permits | Permits, Zone AE Floodway Analysis | \$18,000 | |
| Total Planning Estimate | | \$539,571 | |
| Stage Construction Options | | | |
| Close Location to Traffic | X | | |
| Maintain One Lane - No Temp Pavement | | | |
| Maintain One Lane - Temp Pavement | | | |
| Stage Construction Notes: | | | |
| Relocate if road cannot be closed | | | |



Photo 1:



Photo 2:

Coastline Road

Photo Date:

5/21/2013

Taken By:

David King

Page:

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Photo 3:



Photo 4:

Coastline Road

Photo Date:

5/21/2013

Taken By:

David King

Page:

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|----------|---------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 1,536.00 | \$ 8,609.79 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 140.00 | \$ 7,556.64 |
| End Anchorage (EA) | | \$ 1,380.00 | 4.00 | \$ 5,520.00 |
| Subtotal | | | | \$ 21,686.43 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 16,929.86

Roadway Total \$ 38,616.29

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|-----------|---------------|
| Trench Excavation (CY) | | \$ 10.38 | 888.89 | \$ 9,226.67 |
| 96" CMP (LF) | \$ 63.00 | | 300.00 | \$ 56,700.00 |
| 96" RCP | | \$ 455.00 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 232.11 | \$ 207,085.76 |
| Steel (lb) | | \$ 1.42 | 23,875.00 | \$ 33,807.00 |
| Pipe Bedding (CY) | | \$ 48.60 | 61.60 | \$ 2,993.76 |
| Trench Backfill (CY) | | \$ 2.99 | 878.84 | \$ 2,625.99 |
| Trench Compaction (CY) | | \$ 6.36 | 703.08 | \$ 4,471.56 |

Drainage Total \$ 316,910.73

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 0.00 | \$ - |

Signing and Marking Total \$ -

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|--------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.50 | \$ 5,130.00 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 3.00 | \$ 13,284.00 |

Staging Total \$ 18,414.00

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|----------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 92.44 | \$ 406.02 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 1,000.00 | \$ 4,236.00 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 1,000.00 | \$ 6,792.00 |
| Erosion Control Mats (SY) | \$ 1.87 | 333.33 | \$ 624.00 |
| Landscape Mulch (SY) | \$ 3.58 | 333.33 | \$ 1,192.00 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 85.33 | \$ 5,203.97 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 85.33 | \$ 488.45 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 18,942.43

Construction Cost Total \$ 392,883.45

Traffic Control (8% of Construction Total \$) \$ 31,430.68

Construction Cost Grand Total \$ 424,314.13

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|---------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 100.00 | \$ 6,600.00 |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 2.00 | \$ 1,375.00 |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 100.00 | \$ 3,850.00 |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 0.00 | \$ - |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 11,825.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|----------|---------------------|
| Permanent Easement | \$ 4.00 | 4,500.00 | \$ 18,000.00 |
| ROW Total | | | \$ 18,000.00 |

| General Information | | Map |
|---|--|------------------|
| Project ID | | |
| Street Name | 171 County Line Court | |
| Site Visit Date | 2/4/2016 | |
| Road Classification | Minor road | |
| Project Notes | | |
| Existing culvert starts as 42" CMP parallel to road for 15', takes almost 90 degree turn under road and switches to a 30" CMP where it drains on the other side. Proposed design is one straight pipe | | |
| Field Notes | | |
| Design (Existing Site Features) | | |
| Existing Road Laneage | 2-11 | |
| Existing Shld Width (paved and grass) (feet) | 18' | |
| Existing Side Slopes | 1:9 | |
| Existing Guardrail | N/A | |
| Depth fm Pavement to Top of Culvert (ft): | 2.5' | |
| Pipe Type and Size | 42" to 30" CMP | |
| Pipe Condition (1-5) (1 is new) | 3-4 | |
| Rusted but in tact. | | |
| Pavement Type/Condition | Asphalt/Good | |
| Environmental Features | | |
| Wetlands | | |
| Ditches | | |
| State Waters | | |
| Utilities (Visual Inspection) | | |
| Electric | Buried | |
| Cable | Buried | |
| Phone | Unknown | |
| Gas | Unknown | |
| Water | Unknown | |
| Sewer | Unknown | |
| Other | Unknown | |
| Stage Construction Options | | |
| Close Location to Traffic | | |
| Maintain One Lane - No Temp Pavement | | X |
| Maintain One Lane - Temp Pavement | | |
| Stage Construction Notes: | | |
| Utility pole on top of upstream inlet. Exposed cable wire running across path (Photo 1) | | |
| Proposed Design | | |
| Roadway Section | Typical | |
| Culvert Size & Material | 4' x 3' concrete box culvert with wingwalls. Existing drainageway alongside road before culvert inlet will be extended, near 90 degree pipe turn will be eliminated. Proposed pipe will run perpendicular to the road. | |
| Utility Relocations | Utility pole on top of upstream inlet will need relocating along with aerial wires and an exposed electrical wire on the ground across the pipe face. | |
| Guardrail Replacement | | |
| Miscellaneous Features | | |
| Planning Cost Estimate | | |
| Type | Notes | Total |
| Design | Includes 10% Construction cost and surveying needs | \$11,140 |
| Right of Way Cost | Assuming project extends beyond ROW, 1/10 acre | \$17,424 |
| Utility Relocation Cost | Utility pole, aerial electric and cable wire, buried wire | \$16,088 |
| Construction Cost | | \$61,400 |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 |
| Total Planning Estimate | | \$116,051 |



Photo 1: Upstream end of culvert looking East along County Line Court.



Photo 2: Downstream end looking North towards County Line Court.

County Line Court

Photo Date:

2/4/2016

Taken By:

Christian Helfrich

Page

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|--------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 132.00 | \$ 739.90 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 24.00 | \$ 1,295.42 |
| End Anchorage (EA) | | \$ 1,380.00 | 4.00 | \$ 5,520.00 |
| Subtotal | | | | \$ 7,555.33 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 2,339.25

Roadway Total \$ 9,894.58

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|---------|--------------|
| Trench Excavation (CY) | | \$ 10.38 | 100.00 | \$ 1,038.00 |
| 42" CMP (LF) | \$ 24.60 | | 85.00 | \$ 6,273.00 |
| 84" RCP | | \$ 142.52 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 29.93 | \$ 26,703.19 |
| Steel (lb) | | \$ 1.42 | 2659.00 | \$ 3,765.14 |
| Pipe Bedding (CY) | | \$ 48.60 | 13.80 | \$ 670.68 |
| Trench Backfill (CY) | | \$ 2.99 | 96.53 | \$ 288.44 |
| Trench Compaction (CY) | | \$ 6.36 | 77.23 | \$ 491.16 |

Drainage Total \$ 39,229.61

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 24.00 | \$ 16.99 |

Signing and Marking Total \$ 16.99

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.05 | \$ 513.00 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 1.00 | \$ 4,428.00 |

Staging Total \$ 4,974.98

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 200.00 | \$ 878.40 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 120.00 | \$ 508.32 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 120.00 | \$ 815.04 |
| Erosion Control Mats (SY) | \$ 1.87 | 0.00 | \$ - |
| Landscape Mulch (SY) | \$ 3.58 | 0.00 | \$ - |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 8.00 | \$ 487.87 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 8.00 | \$ 45.79 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 2,735.42

Construction Cost Total \$ 56,851.59

Traffic Control (8% of Construction Total \$) \$ 4,548.13

Construction Cost Grand Total \$ 61,399.72

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|---------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 100.00 | \$ 6,600.00 |
| Buried | \$ 16.50 | \$ 82.50 | 50.00 | \$ 4,950.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 1.00 | \$ 687.50 |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 100.00 | \$ 3,850.00 |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 0.00 | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 0.00 | \$ - |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | 0.00 | \$ - |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 16,087.50 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|---------|---------------------|
| Permanent Easement | \$ 4.00 | 4356.00 | \$ 17,424.00 |
| ROW Total | | | \$ 17,424.00 |

| General Information | | Map | |
|---|--|------------------|--|
| Project ID | | | |
| Street Name | 178 Crabapple Lane | | |
| Site Visit Date | 5/22/13 | | |
| Road Classification | Minor arterial | | |
| Project Notes | | | |
| Rural Typical Section | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2 - 9'-10' | | |
| Existing Shld Width (paved and grass) (feet) | None | | |
| Existing Side Slopes | 1.5:1 to flat | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 1.5' - 2' | | |
| Pipe Type and Size | 2 - 72" CMP | | |
| Pipe Condition (1-5) (1 is new) | 3 | | |
| Condition Notes: No Headwall | | | |
| Pavement Type/Condition | Gravel/Fair | | |
| Environmental Features | | | |
| Wetlands | None | | |
| Ditches | None | | |
| Utilities (Visual Inspection) | | | |
| Electric | Aerial | | |
| Cable | Aerial | | |
| Phone | Aerial | | |
| Gas | | | |
| Water | | | |
| Sewer | | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | | | |
| Culvert Size & Material | tpl 8' x 5' box, concrete, 70' length | | |
| Utility Relocations | Electric, cable, phone | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | Zone A, Floodplain Analysis Required | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$42,332 | |
| Right of Way Cost | Assuming project extends 3,000 sf beyond ROW | \$12,000 | |
| Utility Relocation Cost | Aerial utilities | \$15,675 | |
| Construction Cost | Assuming 1/10 acre clearing and grubbing | \$298,319 | |
| Environmental Permits | Permits, Zone A Floodplain Analysis | \$15,000 | |
| Total Planning Estimate | | \$383,326 | |



Photo 1:



Photo 2:

Crabapple Lane

Photo Date:

5/21/2013

Taken By:

David King

Page:

1



Photo 3:



Photo 4:

Crabapple Lane

Photo Date:

5/21/2013

Taken By:

David King

Page:

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---|-------------------|------------------------|-----------|----------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 624.00 | \$ 3,497.73 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 3,497.73 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 11,931.25 |
| Roadway Total | | | | \$ 15,428.98 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 539.26 | \$ 5,597.51 |
| 72" CMP (LF) | \$ 63.00 | | 140.00 | \$ 26,460.00 |
| 84" RCP | | \$ 142.52 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 185.48 | \$ 165,483.03 |
| Steel (lb) | | \$ 1.42 | 21,112.00 | \$ 29,894.59 |
| Pipe Bedding (CY) | | \$ 48.60 | 69.30 | \$ 3,367.98 |
| Trench Backfill (CY) | | \$ 2.99 | 535.44 | \$ 1,599.90 |
| Trench Compaction (CY) | | \$ 6.36 | 428.35 | \$ 2,724.32 |
| Drainage Total | | | | \$ 235,127.33 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | 0.00 | \$ - |
| Signing and Marking Total | | | | \$ - |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Gravel Road (SY) | | \$ 15.42 | 69.33 | \$ 1,069.12 |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 2.00 | \$ 8,856.00 |
| Staging Total | | | | \$ 10,951.12 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 132.89 | \$ 583.65 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 560.00 | \$ 2,372.16 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 560.00 | \$ 3,803.52 |
| Erosion Control Mats (SY) | | \$ 1.87 | 186.67 | \$ 349.44 |
| Landscape Mulch (SY) | | \$ 3.58 | 186.67 | \$ 667.52 |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 104.00 | \$ 6,342.34 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 104.00 | \$ 595.30 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 14,713.92 |
| Construction Cost Total | | | | \$ 276,221.35 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 22,097.71 |
| Construction Cost Grand Total | | | | \$ 298,319.06 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 100.00 | \$ 6,600.00 |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 2.00 | \$ 1,375.00 |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 100.00 | \$ 3,850.00 |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 100.00 | \$ 3,850.00 |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 0.00 | \$ - |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | 0.00 | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 15,675.00 |
| Right of Way (Sq Ft) | | Cost/ Sq Ft | Sq Ft | Total Cost |
| Permanent Easement | | \$ 4.00 | 3,000.00 | \$ 12,000.00 |
| ROW Total | | | | \$ 12,000.00 |

| General Information | | Map | |
|---|--|------------------|--|
| Project ID | | | |
| Street Name | Cross Creek Trail | | |
| Site Visit Date | 5/21/13 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Rural Typical Section | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2 - 12' | | |
| Existing Shld Width (paved and grass) (feet) | 4' (Grass) | | |
| Existing Side Slopes | 6:1 | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 3 | | |
| Pipe Type and Size | 4 - 72" CMP | | |
| Pipe Condition (1-5) (1 is new) | 4 | | |
| Condition Notes: | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | None | | |
| Ditches | None | | |
| Utilities (Visual Inspection) | | | |
| Electric | Aerial | | |
| Cable | Aerial | | |
| Phone | Aerial | | |
| Gas | | | |
| Water | Buried | | |
| Sewer | | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | In kind replace. For costing purposes, temporary road consists of 8" gravel fill | | |
| Culvert Size & Material | quad 8' x 5' box, concrete, 80' length | | |
| Utility Relocations | Electric, cable, phone, water | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$58,870 | |
| Right of Way Cost | Assuming project extends 3,000 sf beyond ROW | \$12,000 | |
| Utility Relocation Cost | Aerial utilities | \$17,600 | |
| Construction Cost | Assuming 1/10 acre clearing and grubbing | \$463,704 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$562,174 | |

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|--|-------------------|------------------------|--------------|---------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 912.00 | \$ 5,112.06 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 5,112.06 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 19,033.58 |
| Roadway Total | | | | \$ 24,145.65 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 1,013.33 | \$ 10,518.40 |
| 72" CMP (LF) | \$ 63.00 | | 320.00 | \$ 60,480.00 |
| 84" RCP | | \$ 142.52 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 278.58 | \$ 248,545.73 |
| Steel (lb) | | \$ 1.42 | 29,610.00 | \$ 41,927.76 |
| Pipe Bedding (CY) | | \$ 48.60 | 115.40 | \$ 5,608.44 |
| Trench Backfill (CY) | | \$ 2.99 | 1,049.93 | \$ 3,137.20 |
| Trench Compaction (CY) | | \$ 6.36 | 839.95 | \$ 5,342.06 |
| Drainage Total | | | | \$ 375,559.59 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | 152.00 | \$ 107.62 |
| Signing and Marking Total | | | | \$ 107.62 |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Gravel Road (SY) | | \$ 15.42 | 222.22 | \$ 3,426.67 |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 2.00 | \$ 8,856.00 |
| Staging Total | | | | \$ 13,523.90 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 236.44 | \$ 1,038.46 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 640.00 | \$ 2,711.04 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 640.00 | \$ 4,346.88 |
| Erosion Control Mats (SY) | | \$ 1.87 | 213.33 | \$ 399.36 |
| Landscape Mulch (SY) | | \$ 3.58 | 213.33 | \$ 762.88 |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 101.33 | \$ 6,179.71 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 101.33 | \$ 580.03 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 16,018.37 |
| Construction Cost Total | | | | \$ 429,355.12 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 34,348.41 |
| Construction Cost Grand Total | | | | \$ 463,703.53 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 75.00 | \$ 4,950.00 |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 2.00 | \$ 1,375.00 |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 75.00 | \$ 2,887.50 |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 75.00 | \$ 2,887.50 |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 50.00 | \$ 5,500.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 17,600.00 |
| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost | |
| Permanent Easement | \$ 4.00 | 3,000.00 | \$ 12,000.00 | |
| ROW Total | | | \$ 12,000.00 | |



Photo . :



Photo 2:

Cross Creek Trail

Photo Date:

5/21/2013

Taken By:

David King

Page:

1



Photo 3:



Photo 4:

Cross Creek Trail

Photo Date:

5/21/2013

Taken By:

David King

Page:

2

| General Information | | Map | |
|--|--|------------------|--|
| Project ID | | | |
| Street Name | Darren Drive | | |
| Site Visit Date | 5/8/13 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Rural Typical Section | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-10' | | |
| Existing Shld Width (paved and grass) (feet) | 2' | | |
| Existing Side Slopes | 2:1 | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 3 | | |
| Pipe Type and Size | 3-96" CMP | | |
| Pipe Condition (1-5) (1 is new) | 3 | | |
| Condition Notes: | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | None | | |
| Ditches | None | | |
| | | | |
| | | | |
| Utilities (Visual Inspection) | | | |
| Electric | Yes | | |
| Cable | Yes | | |
| Phone | Yes | | |
| Gas | Unknown | | |
| Water | Yes | | |
| Sewer | No | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | Replace in kind | | |
| Proposed Design | Triple 8' x 8' box culvert | | |
| Utility Relocations | Phone, cable | | |
| Guardrail Replacement | Need to add guardrail due to sideslopes and culvert installation | | |
| Miscellaneous Features | Zone AE Floodplain Analysis Required | | |
| | | | |
| | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$42,264 | |
| Right of Way Cost | Assuming project extends 3,750 sf beyond ROW | \$15,000 | |
| Utility Relocation Cost | Buried phone and cable | \$10,725 | |
| Construction Cost | 1/3 acre clearing and grubbing, Guardrails | \$297,641 | |
| Environmental Permits | Permits, Zone AE Floodway Analysis | \$18,000 | |
| Total Planning Estimate | | \$383,630 | |



Photo 1:



Photo 2:

130 Darren Drive

Photo Date:

6/03/2013

Taken By:

Tony Hicks

Page:

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|----------|---------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 1,040.00 | \$ 5,829.55 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 104.00 | \$ 5,613.50 |
| End Anchorage (EA) | | \$ 1,380.00 | 4.00 | \$ 5,520.00 |
| Subtotal | | | | \$ 16,963.05 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 11,996.39

Roadway Total \$ 28,959.44

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|-----------|---------------|
| Trench Excavation (CY) | | \$ 10.38 | 755.56 | \$ 7,842.67 |
| 96" CMP (LF) | \$ 63.00 | | 70.00 | \$ 13,230.00 |
| 96" RCP | | \$ 455.00 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 184.86 | \$ 164,929.87 |
| Steel (lb) | | \$ 1.42 | 19,942.00 | \$ 28,237.87 |
| Pipe Bedding (CY) | | \$ 48.60 | 50.10 | \$ 2,434.86 |
| Trench Backfill (CY) | | \$ 2.99 | 778.79 | \$ 2,327.02 |
| Trench Compaction (CY) | | \$ 6.36 | 623.03 | \$ 3,962.48 |

Drainage Total \$ 222,964.77

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 0.00 | \$ - |

Signing and Marking Total \$ -

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.33 | \$ 3,385.80 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 2.00 | \$ 8,856.00 |

Staging Total \$ 12,241.80

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 86.67 | \$ 380.64 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 500.00 | \$ 2,118.00 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 500.00 | \$ 3,396.00 |
| Erosion Control Mats (SY) | \$ 1.87 | 166.67 | \$ 312.00 |
| Landscape Mulch (SY) | \$ 3.58 | 166.67 | \$ 596.00 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 69.33 | \$ 4,228.22 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 69.33 | \$ 396.86 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 11,427.73

Construction Cost Total \$ 275,593.74

Traffic Control (8% of Construction Total \$) \$ 22,047.50

Construction Cost Grand Total \$ 297,641.24

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|---------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 75.00 | \$ 5,362.50 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 75.00 | \$ 5,362.50 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 0.00 | \$ - |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 10,725.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|----------|---------------------|
| Permanent Easement | \$ 4.00 | 3,750.00 | \$ 15,000.00 |
| ROW Total | | | \$ 15,000.00 |

| General Information | | Map | |
|--|---|------------------|--|
| Project ID | | | |
| Street Name | 118 Davis Road | | |
| Site Visit Date | 5/21/13 | | |
| Road Classification | Minor arterial | | |
| Project Notes | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 1-12' | | |
| Existing Shld Width (paved and grass) (feet) | None | | |
| Existing Side Slopes | 1:1 | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 1 | | |
| Pipe Type and Size | 2-48", 1-24" | | |
| Pipe Condition (1-5) (1 is new) | 4 | | |
| Condition Notes: | | | |
| Pavement Type/Condition | Gravel/fair | | |
| Environmental Features | | | |
| Wetlands | Noted | | |
| Ditches | None | | |
| | | | |
| | | | |
| Utilities (Visual Inspection) | | | |
| Electric | | | |
| Cable | | | |
| Phone | Aerial Crossing | | |
| Gas | | | |
| Water | | | |
| Sewer | | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | Local gravel road specifications. For costing purposes the cost of a temporary gravel road has been doubled. | | |
| Culvert Size & Material | five-barrel 10' x 4', concrete, 85' length. For costing purposes, concrete and steel unit values for a double and triple culvert for have been combined | | |
| Utility Relocations | Aerial Phone | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | Zone A, Floodplain Analysis Required | | |
| | | | |
| | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% of Construction Cost and surveying needs | \$78,052 | |
| Right of Way Cost | Assuming project extends into ROW 30,000 sf | \$120,000 | |
| Utility Relocation Cost | Aerial utilities | \$3,300 | |
| Construction Cost | Assuming 1/5 acre clearing and grubbing | \$655,519 | |
| Environmental Permits | Permits, Zone A Floodplain Analysis | \$15,000 | |
| Total Planning Estimate | | \$871,871 | |



Photo 1:



Photo 2:

Davis Road

Photo Date:

5/21/2013

Taken By:

David King

Page:

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Photo 3:



Photo 4:

Davis Road

Photo Date:

5/21/2013

Taken By:

David King

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|----------|--------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 1,248.00 | \$ 6,995.46 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 6,995.46 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 27,417.89

Roadway Total \$ 34,413.34

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|-----------|---------------|
| Trench Excavation (CY) | | \$ 10.38 | 1,133.33 | \$ 11,764.00 |
| 24" CMP (LF) | \$ 16.38 | | 85.00 | \$ 4,176.90 |
| 48" CMP (LF) | \$ 24.78 | | 170.00 | \$ 12,637.80 |
| 42" RCP | | \$ 142.52 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 471.27 | \$ 420,456.98 |
| Steel (lb) | | \$ 1.42 | 53,117.00 | \$ 75,213.67 |
| Pipe Bedding (CY) | | \$ 48.60 | 167.60 | \$ 8,145.36 |
| Trench Backfill (CY) | | \$ 2.99 | 1,110.40 | \$ 3,317.88 |
| Trench Compaction (CY) | | \$ 6.36 | 888.32 | \$ 5,649.72 |

Drainage Total \$ 541,362.30

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 208.00 | \$ 147.26 |

Signing and Marking Total \$ 147.26

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.20 | \$ 2,052.00 |
| Temporary Gravel Road (SY) | \$ 15.42 | 0.00 | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 2.00 | \$ 8,856.00 |

Staging Total \$ 11,202.53

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 421.78 | \$ 1,852.45 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 680.00 | \$ 2,880.48 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 680.00 | \$ 4,618.56 |
| Erosion Control Mats (SY) | \$ 1.87 | 226.67 | \$ 424.32 |
| Landscape Mulch (SY) | \$ 3.58 | 226.67 | \$ 810.56 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 138.67 | \$ 8,456.45 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 138.67 | \$ 793.73 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 19,836.54

Construction Cost Total \$ 606,961.98

Traffic Control (8% of Construction Total \$) \$ 48,556.96

Construction Cost Grand Total \$ 655,518.94

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|--------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 50.00 | \$ 1,925.00 |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 2.00 | \$ 1,375.00 |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 0.00 | \$ - |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 3,300.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|-----------|----------------------|
| Permanent Easement | \$ 4.00 | 30,000.00 | \$ 120,000.00 |
| ROW Total | | | \$ 120,000.00 |

| General Information | | Map |
|--|--|------------------|
| Project ID | | |
| Street Name | 308 Deauville Way | |
| Site Visit Date | 2/4/2016 | |
| Road Classification | Minor road | |
| Project Notes | | |
| Cul de sac ends where multiple drainage areas converge (low point). Culvert services drainage way behind houses on north side of Deauville Way (opposite 308). Pipe passes under a private driveway and turn 45 degree to empty along side concrete spill way. | | |
| Field Notes | | |
| Design (Existing Site Features) | | |
| Existing Road Laneage | 2-13' | |
| Existing Shld Width (paved and grass) (feet) | N/A | |
| Existing Side Slopes | N/A | |
| Existing Guardrail | N/A | |
| Depth fm Pavement to Top of Culvert (ft): | 2' | |
| Pipe Type and Size | 18" CMP | |
| Pipe Condition (1-5) (1 is new) | 3 | |
| Upstream end of pipe almost completely blocked (see Photo 1). | | |
| Pavement Type/Condition | Asphalt/Good | |
| Environmental Features | | |
| Wetlands | | |
| Ditches | | |
| State Waters | | |
| Utilities (Visual Inspection) | | |
| Electric | Unknown | |
| Cable | Buried | |
| Phone | Unknown | |
| Gas | Unknown | |
| Water | Unknown | |
| Sewer | Unknown | |
| Other | Broadband buried | |
| Stage Construction Options | | |
| Close Location to Traffic | | |
| Maintain One Lane - No Temp Pavement | | |
| Maintain One Lane - Temp Pavement | | |
| Stage Construction Notes: Private driveway needs to be considered | | |
| Proposed Design | | |
| Roadway Section | Typical | |
| Culvert Size & Material | 2 x 30" round RCPs along current path with 45 degree bend. Additional excavation required to lower inlet 1' for upsizing purposes. Cost of removing each headwall assumed to be equal to removal of entire length of pipe. | |
| Utility Relocations | Buried cable and broadband wires | |
| Guardrail Replacement | | |
| Miscellaneous Features | | |
| Planning Cost Estimate | | |
| Type | Notes | Total |
| Design | Includes 10% Construction Cost and surveying needs | \$17,481 |
| Right of Way Cost | Assuming entire project is outside of ROW, 1/3 acre | \$58,080 |
| Utility Relocation Cost | Buried cable, broadband | \$7,150 |
| Construction Cost | | \$124,805 |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 |
| Total Planning Estimate | | \$217,516 |



Photo 1: Upstream end of culvert looking South towards Deauville Way.



Photo 2: Downstream end looking West towards Deauville Way.

Deauville Way

Photo Date:

2/5/2016

Taken By:

Christian Helfrich

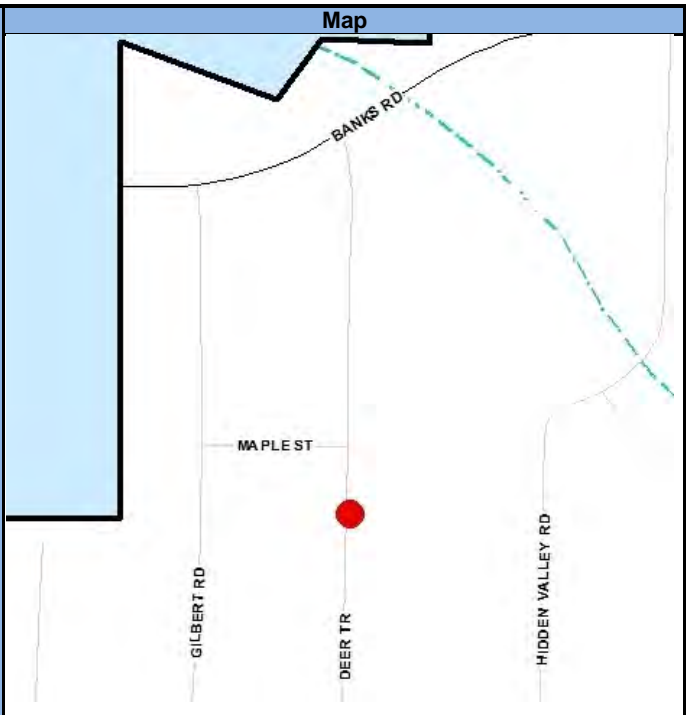
Page

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|--|-------------------|------------------------|---------------------|---------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 0.00 | \$ - |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 9.50 | \$ 479.37 |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 479.37 |
| Grading Complete (5% of Rwy Items & Dmg Total \$) | | | | \$ 4,837.77 |
| Roadway Total | | | | \$ 5,317.14 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 697.55 | \$ 7,240.53 |
| 18" CMP (LF) | \$ 5.74 | | 915.00 | \$ 5,248.44 |
| 30" RCP (LF) | | \$ 105.60 | 610.00 | \$ 64,416.00 |
| Class A Conc (CY) | | \$ 892.19 | 9.92 | \$ 8,850.50 |
| Steel (lb) | | \$ 1.42 | 18.04 | \$ 25.55 |
| Pipe Bedding (CY) | | \$ 48.60 | 107.31 | \$ 5,215.50 |
| Trench Backfill (CY) | | \$ 2.99 | 653.72 | \$ 1,953.31 |
| Trench Compaction (CY) | | \$ 6.36 | 522.97 | \$ 3,326.11 |
| Drainage Total | | | | \$ 96,275.94 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | 0.00 | \$ - |
| Signing and Marking Total | | | | \$ - |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | | \$ - |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 1.00 | \$ 4,428.00 |
| Staging Total | | | | \$ 5,454.00 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 406.67 | \$ 1,786.08 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 610.00 | \$ 2,583.96 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 610.00 | \$ 4,143.12 |
| Erosion Control Mats (SY) | | \$ 1.87 | 0.00 | \$ - |
| Landscape Mulch (SY) | | \$ 3.58 | 0.00 | \$ - |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 0.00 | \$ - |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 0.00 | \$ - |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 8,513.16 |
| Construction Cost Total | | | | \$115,560.24 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 9,244.82 |
| Construction Cost Grand Total | | | | \$124,805.06 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 100.00 | \$ 7,150.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 0.00 | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 0.00 | \$ - |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | 0.00 | \$ - |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 7,150.00 |
| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost | |
| Permanent Easement | \$ 4.00 | 14,520.00 | \$ 58,080.00 | |
| ROW Total | | | \$ 58,080.00 | |

| General Information | |
|--|--------------------|
| Project ID | |
| Street Name | 175 Deer Trail |
| Site Visit Date | |
| Road Classification | Internal Local |
| Project Notes | |
| Storm pipe is metal and over 30 years old and undersized causing road to flood repeatedly. | |
| Field Notes | |
| Design (Existing Site Features) | |
| Existing Road Laneage | 2 |
| Existing Shld Width (paved and grass) (feet) | NA - curb & gutter |
| Existing Side Slopes | NA - curb & gutter |
| Existing Guardrail | None |
| Depth fm Pavement to Top of Culvert (ft): | NA |
| Pipe Type and Size | CMP, 24-inch Dia. |
| Pipe Condition (1-5) (1 is new) | 4 |
| Condition Notes: Pipe and associated structures are in poor condition. | |
| Pavement Type/Condition | average |
| Environmental Features | |
| Wetlands | No |
| Ditches | NA |
| | |
| | |
| Utilities (Visual Inspection) | |
| Electric | Yes |
| Cable | Yes |
| Phone | Yes |
| Gas | Unknown |
| Water | Yes |
| Sewer | No |
| Other | |



| Stage Construction Options | |
|---|--|
| Close Location to Traffic | |
| Maintain One Lane - No Temp Pavement | |
| Maintain One Lane - Temp Pavement | |
| Stage Construction Notes: Minimal impacts to traffic and access can be maintained to all properties. | |

| Proposed Design | |
|-------------------------|---|
| Roadway Section | Typical subdivision with curb & gutter |
| Culvert Size & Material | Replace existing pipe with 36-inch RCP, approximately 312 ft. |
| Utility Relocations | As needed |
| Guardrail Replacement | None |
| Miscellaneous Features | Upgrade inlets, headwalls and junction boxes |
| | |
| | |

| Planning Cost Estimate | | |
|--------------------------------|--|-----------------|
| Type | Notes | Total |
| Design | Includes 10% Construction Cost and surveying needs | \$9,211 |
| Right of Way Cost | Assuming project extends 12,000 sf beyond ROW | \$20,000 |
| Utility Relocation Cost | Buried and aerial utilities | \$17,600 |
| Construction Cost | See estimate sheet | \$42,112 |
| Environmental Permits | None expected | |
| Total Planning Estimate | | \$88,923 |



Photo 1:



Photo 2:

175 Deer Trail

Photo Date:

6/9/2016

Taken By:

Tony Hicks

Page:

1

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|---------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 125.00 | \$ 700.67 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 40.00 | \$ 2,366.40 |
| Drain Inlet (EA) | | \$ 3,000.00 | 2.00 | \$ 6,000.00 |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 25.00 | \$ 1,261.50 |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | | \$ - |
| Subtotal | | | | \$ 10,328.57 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 1,435.33

Roadway Total \$ 11,763.90

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|--------|-------------|
| Trench Excavation (CY) | | \$ 10.38 | 72.59 | \$ 753.51 |
| 36" CMP (LF) | \$ 16.38 | | 168.00 | \$ 2,751.84 |
| 36" RCP (LF) | | \$ 134.40 | 56.00 | \$ 7,526.40 |
| Class A Conc (CY) | | \$ 892.19 | 7.20 | \$ 6,423.75 |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 10.37 | \$ 504.00 |
| Trench Backfill (CY) | | \$ 2.99 | 51.82 | \$ 154.84 |
| Trench Compaction (CY) | | \$ 6.36 | 41.46 | \$ 263.66 |

Drainage Total \$ 18,378.01

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 0.00 | \$ - |

Signing and Marking Total \$ -

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 1.00 | \$ 4,428.00 |

Staging Total \$ 5,454.00

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 17.22 | \$ 75.64 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 224.00 | \$ 948.86 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 224.00 | \$ 1,521.41 |
| Erosion Control Mats (SY) | \$ 1.87 | 74.67 | \$ 139.78 |
| Landscape Mulch (SY) | \$ 3.58 | 74.67 | \$ 267.01 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 6.67 | \$ 406.56 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 6.67 | \$ 38.16 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 3,397.42

Construction Cost Total \$ 38,993.32

Traffic Control (8% of Construction Total \$) \$ 3,119.47

Construction Cost Grand Total \$ 42,112.79

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|---------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 50.00 | \$ 4,950.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50.00 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50.00 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 50.00 | \$ 5,500.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | 0.00 | \$ - |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 17,600.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|----------|---------------------|
| Permanent Easement | \$ 4.00 | 5,000.00 | \$ 20,000.00 |
| ROW Total | | | \$ 20,000.00 |

| General Information | | Map | |
|---|--|-----------------|--|
| Project ID | | | |
| Street Name | 130 Deerfield Lane | | |
| Site Visit Date | 5/21/13 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Replace 30-yr old CMP with RCP. Provide manhole access to pipe for inspection and maintenance. May impact a driveway. One of several pipe replacement projects in subdivision | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-12.5' | | |
| Existing Shld Width (paved and grass) (feet) | NA - curb & gutter | | |
| Existing Side Slopes | NA - curb & gutter | | |
| Existing Guardrail | NA - curb & gutter | | |
| Depth fm Pavement to Top of Culvert (ft): | Assumed 3' | | |
| Pipe Type and Size | CMP, 36" | | |
| Pipe Condition (1-5) (1 is new) | 5 | | |
| Condition Notes: Pipe and associated structures are old and in poor condition | | | |
| Pavement Type/Condition | Average | | |
| Environmental Features | | | |
| Wetlands | None | | |
| Ditches | None | | |
| Utilities (Visual Inspection) | | | |
| Electric | Yes | | |
| Cable | Yes | | |
| Phone | Yes | | |
| Gas | Unknown | | |
| Water | Yes | | |
| Sewer | No | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | Typical with curb and gutter. Road dimensions estimated with Google Earth. Driveway costed as 4" concrete sidewalk. | | |
| Culvert Size & Material | Replace existing pipe with 36" RCP, approximately 56'. Cost of headwall removal assumed equal to removal of entire length of pipe. | | |
| Utility Relocations | Buried utilities | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | Previous inspection notes called for upgrading inlets, headwalls and junction boxes to modern design. Cost of pipe, headwalls, and inlets have been included in this design. | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$9,211 | |
| Right of Way Cost | Assuming project extends 5,000 sf beyond ROW | \$20,000 | |
| Utility Relocation Cost | Buried utilities | \$17,600 | |
| Construction Cost | Assuming 1/10 acre clearing and grubbing | \$42,113 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$98,924 | |

| Stage Construction Options | |
|---|---|
| Close Location to Traffic | |
| Maintain One Lane - No Temp Pavement | X |
| Maintain One Lane - Temp Pavement | |
| Stage Construction Notes: | |
| Minimal impacts to traffic and access can be maintained to all properties. | |
| Work may require repair to driveway | |





Photo 1:



Photo 2:

131 Deerfield Lane

Photo Date:

1/27/2012

Taken By:

Tony Hicks

Page:

1

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|---------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 125.00 | \$ 700.67 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 40.00 | \$ 2,366.40 |
| Drain Inlet (EA) | | \$ 3,000.00 | 2.00 | \$ 6,000.00 |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 25.00 | \$ 1,261.50 |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | | \$ - |
| Subtotal | | | | \$ 10,328.57 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 1,435.33

Roadway Total \$ 11,763.90

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|--------|-------------|
| Trench Excavation (CY) | | \$ 10.38 | 72.59 | \$ 753.51 |
| 36" CMP (LF) | \$ 16.38 | | 168.00 | \$ 2,751.84 |
| 36" RCP (LF) | | \$ 134.40 | 56.00 | \$ 7,526.40 |
| Class A Conc (CY) | | \$ 892.19 | 7.20 | \$ 6,423.75 |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 10.37 | \$ 504.00 |
| Trench Backfill (CY) | | \$ 2.99 | 51.82 | \$ 154.84 |
| Trench Compaction (CY) | | \$ 6.36 | 41.46 | \$ 263.66 |

Drainage Total \$ 18,378.01

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 0.00 | \$ - |

Signing and Marking Total \$ -

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 1.00 | \$ 4,428.00 |

Staging Total \$ 5,454.00

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 17.22 | \$ 75.64 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 224.00 | \$ 948.86 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 224.00 | \$ 1,521.41 |
| Erosion Control Mats (SY) | \$ 1.87 | 74.67 | \$ 139.78 |
| Landscape Mulch (SY) | \$ 3.58 | 74.67 | \$ 267.01 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 6.67 | \$ 406.56 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 6.67 | \$ 38.16 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 3,397.42

Construction Cost Total \$ 38,993.32

Traffic Control (8% of Construction Total \$) \$ 3,119.47

Construction Cost Grand Total \$ 42,112.79

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|---------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 50.00 | \$ 4,950.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50.00 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50.00 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 50.00 | \$ 5,500.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | 0.00 | \$ - |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 17,600.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|----------|---------------------|
| Permanent Easement | \$ 4.00 | 5,000.00 | \$ 20,000.00 |
| ROW Total | | | \$ 20,000.00 |

| General Information | | Map | |
|---|--|------------------|--|
| Project ID | | | |
| Street Name | 161 Deerfield Lane | | |
| Site Visit Date | 5/21/13 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Storm pipe in Beverly Manor subdivision is metal and over 30 years old. Typical catch basin construction does not allow for inspection or maintenance. Many junction boxes are masonry block and in poor condition. | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-12.5' | | |
| Existing Shld Width (paved and grass) (feet) | NA - curb & gutter | | |
| Existing Side Slopes | NA - curb & gutter | | |
| Existing Guardrail | NA - curb & gutter | | |
| Depth fm Pavement to Top of Culvert (ft): | Assumed 3' | | |
| Pipe Type and Size | CMP, 30" | | |
| Pipe Condition (1-5) (1 is new) | 5 | | |
| Condition Notes: Pipe and associated structures are old and in poor condition | | | |
| Pavement Type/Condition | Average | | |
| Environmental Features | | | |
| Wetlands | None | | |
| Ditches | None | | |
| Utilities (Visual Inspection) | | | |
| Electric | Yes | | |
| Cable | Yes | | |
| Phone | Yes | | |
| Gas | Unknown | | |
| Water | Yes | | |
| Sewer | No | | |
| Other | | | |
| Stage Construction Options | | | |
| Close Location to Traffic | | | |
| Maintain One Lane - No Temp Pavement | X | | |
| Maintain One Lane - Temp Pavement | | | |
| Stage Construction Notes: | | | |
| Minimal impacts to traffic and access can be maintained to all | | | |
| Proposed Design | | | |
| Roadway Section | Typical with curb and gutter. Road dimensions estimated with Google Earth. | | |
| Culvert Size & Material | Replace existing pipe with 36" RCP, approximately 64'. Cost of headwall removal assumed equal to removal of entire length of pipe. | | |
| Utility Relocations | Assuming buried water line needs relocating. | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | Previous inspection notes called for upgrading inlets, headwalls and junction boxes to modern design. Cost of pipe, headwalls, and inlets have been included in this design. | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$9,310 | |
| Right of Way Cost | Assuming projects extends 5,000 sf beyond ROW | \$20,000 | |
| Utility Relocation Cost | Water main | \$17,600 | |
| Construction Cost | Assuming 1/10 acre clearing and grubbing | \$43,102 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$100,012 | |



Photo 1:



Photo 2:

161 Deerfield Lane

Photo Date:

6/17/2013

Taken By:

Tony Hicks

Page:

1

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---|-------------------|------------------------|---------------------|---------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 125.00 | \$ 700.67 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 40.00 | \$ 2,366.40 |
| Drain Inlet (EA) | | \$ 3,000.00 | 2.00 | \$ 6,000.00 |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | | \$ - |
| Subtotal | | | | \$ 9,067.07 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 1,458.44 |
| Roadway Total | | | | \$ 10,525.51 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 82.96 | \$ 861.16 |
| 36" CMP (LF) | \$ 16.38 | | 192.00 | \$ 3,144.96 |
| 36" RCP (LF) | | \$ 134.40 | 64.00 | \$ 8,601.60 |
| Class A Conc (CY) | | \$ 892.19 | 7.20 | \$ 6,423.75 |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 11.85 | \$ 576.00 |
| Trench Backfill (CY) | | \$ 2.99 | 61.21 | \$ 182.89 |
| Trench Compaction (CY) | | \$ 6.36 | 48.97 | \$ 311.43 |
| Drainage Total | | | | \$ 20,101.78 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | 0.00 | \$ - |
| Signing and Marking Total | | | | \$ - |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | | \$ - |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 1.00 | \$ 4,428.00 |
| Staging Total | | | | \$ 5,454.00 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 21.67 | \$ 95.16 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 256.00 | \$ 1,084.42 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 256.00 | \$ 1,738.75 |
| Erosion Control Mats (SY) | | \$ 1.87 | 85.33 | \$ 159.74 |
| Landscape Mulch (SY) | | \$ 3.58 | 85.33 | \$ 305.15 |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 6.67 | \$ 406.56 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 6.67 | \$ 38.16 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 3,827.94 |
| Construction Cost Total | | | | \$ 39,909.24 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 3,192.74 |
| Construction Cost Grand Total | | | | \$ 43,101.98 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 50.00 | \$ 4,950.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50.00 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50.00 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 50.00 | \$ 5,500.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 17,600.00 |
| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost | |
| Permanent Easement | \$ 4.00 | 5,000.00 | \$ 20,000.00 | |
| ROW Total | | | \$ 20,000.00 | |

| General Information | | Map | |
|--|--|------------------|--|
| Project ID | | | |
| Street Name | 325 Derby Drive | | |
| Site Visit Date | 1/20/2016 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Streambank erosion intense at this site. Existing roadside CMP drainage pipe is emptying directly above culvert. | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-13' | | |
| Existing Shld Width (paved and grass) (feet) | 10' | | |
| Existing Side Slopes | 3:1 | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 6.25' | | |
| Pipe Type and Size | 54" CMP | | |
| Pipe Condition (1-5) (1 is new) | 3 | | |
| Condition Notes: Concrete headwalls. Streambank blowout upstream and major blowout downstream | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | | | |
| Ditches | Roadside drainage ditches | | |
| State Waters | | | |
| Buried | | | |
| Electric | Buried | | |
| Cable | Buried | | |
| Phone | Unknown | | |
| Gas | Unknown | | |
| Water | Unknown | | |
| Sewer | Unknown | | |
| Other | Broadband - Buried | | |
| Proposed Design | | | |
| Roadway Section | Typical | | |
| Culvert Size & Material | 54" round RCP with straight headwall. Assuming cost of removing existing headwalls is equal to removal of entire existing pipe | | |
| Utility Relocations | Removal/replacement of buried electric, cable, and broadband lines | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% of Construction Cost and surveying needs | \$13,319 | |
| Right of Way Cost | Assuming project extends past ROW, 1/20 acre | \$8,712 | |
| Utility Relocation Cost | | \$14,520 | |
| Construction Cost | | \$83,189 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$129,740 | |
| Stage Construction Options | | | |
| Close Location to Traffic | | | |
| Maintain One Lane - No Temp Pavement | | X | |
| Maintain One Lane - Temp Pavement | | | |
| Stage Construction Notes: Clearing and grubbing, erosion control essential | | | |





Photo 1:Upstream end of culvert looking East towards Derby Drive



Photo 2: Downstream end of culvert looking West towards Derby Drive

Derby Drive

Photo Date:

1/20/2016

Taken By:

David Gibbs

Page

1

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---|-------------------|------------------------|----------|--------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 169.00 | \$ 947.30 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 947.30 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 2,720.07 |
| Roadway Total | | | | \$ 3,667.37 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 217.81 | \$ 2,260.87 |
| 54" CMP (LF) | \$ 24.60 | | 154.00 | \$ 11,365.20 |
| 54" RCP (LF) | | \$ 281.96 | 77.00 | \$ 21,711.23 |
| Class A Conc (CY) | | \$ 892.19 | 17.58 | \$ 15,684.67 |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 18.54 | \$ 900.90 |
| Trench Backfill (CY) | | \$ 2.99 | 189.59 | \$ 566.50 |
| Trench Compaction (CY) | | \$ 6.36 | 151.67 | \$ 964.64 |
| Drainage Total | | | | \$53,454.00 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | | \$ - |
| Signing and Marking Total | | | | \$ - |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.25 | \$ 2,565.00 |
| Temporary Pavement | | | | \$ - |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 2.00 | \$ 8,856.00 |
| Staging Total | | | | \$11,421.00 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 36.83 | \$ 161.77 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 616.00 | \$ 2,609.38 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 616.00 | \$ 4,183.87 |
| Erosion Control Mats (SY) | | \$ 1.87 | 68.44 | \$ 128.13 |
| Landscape Mulch (SY) | | \$ 3.58 | 68.44 | \$ 244.76 |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 17.33 | \$ 1,057.06 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 17.33 | \$ 99.22 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 8,484.18 |
| Construction Cost Total | | | | \$77,026.54 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 6,162.12 |
| Construction Cost Grand Total | | | | \$83,188.67 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 60.00 | \$ 5,940.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 60.00 | \$ 4,290.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 60.00 | \$ 4,290.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 0.00 | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 0.00 | \$ - |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$14,520.00 |
| Right of Way (Sq Ft) | | Cost/ Sq Ft | Sq Ft | Total Cost |
| Permanent Easement | | \$ 4.00 | 2,178.00 | \$ 8,712.00 |
| ROW Total | | | | \$ 8,712.00 |

| General Information | | Map | |
|--|--|-----------------|--|
| Project ID | | | |
| Street Name | Downing Court | | |
| Site Visit Date | 5/21/13 | | |
| Road Classification | Minor road | | |
| Fayette Co Notes | | | |
| Rural typical section | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2 - 12' | | |
| Existing Shld Width (paved and grass) (feet) | 4' (Grass) | | |
| Existing Side Slopes | 6:1 | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 2.00 | | |
| Pipe Type and Size | 36" CMP, 45' | | |
| Pipe Condition (1-5) (1 is new) | 3 | | |
| Condition Notes: | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | None | | |
| Ditches | X | | |
| Utilities (Visual Inspection) | | | |
| Electric | Aerial | | |
| Cable | Aerial | | |
| Phone | Aerial | | |
| Gas | | | |
| Water | Buried | | |
| Sewer | | | |
| Other | | | |
| Stage Construction Options | | | |
| Close Location to Traffic | | | |
| Maintain One Lane - No Temp Pavement | | X | |
| Maintain One Lane - Temp Pavement | | | |
| Stage Construction Notes: | | | |
| Proposed Design | | | |
| Roadway Section | | | |
| Culvert Size & Material | 4' x 3' box, concrete, 45' length | | |
| Utility Relocations | Water main | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | Velocity dissipators and entrance channel need to be included to accommodate hard turn from drainage upstream drainage ditch to culvert. Yard grading for resident on downstream, low side of culvert would mitigate garage/driveway flooding. Has been accounted for in applicable construction activities. | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$9,518 | |
| Right of Way Cost | Assuming project extends 3,500 sf beyond ROW | \$14,000 | |
| Utility Relocation Cost | Buried utilities | \$5,425 | |
| Construction Cost | Assuming 1/10 acre clearing and grubbing | \$45,184 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$84,127 | |





Photo 1:



Photo 2:

Downing Court

Photo Date:

5/21/2013

Taken By:

David King

Page:

1



Photo 3:



Photo 4:

Downing Court

Photo Date:

5/21/2013

Taken By:

David King

Page:

2

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---|-------------------|------------------------|----------|---------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 144.00 | \$ 807.17 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 807.17 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 1,513.95 |
| Roadway Total | | | | \$ 2,321.12 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 90.00 | \$ 934.20 |
| 36" CMP (LF) | \$ 19.62 | | 45.00 | \$ 2,648.70 |
| 84" RCP | | \$ 142.52 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 24.43 | \$ 21,791.69 |
| Steel (lb) | | \$ 1.42 | 2,045.50 | \$ 2,896.43 |
| Pipe Bedding (CY) | | \$ 48.60 | 10.40 | \$ 505.44 |
| Trench Backfill (CY) | | \$ 2.99 | 86.10 | \$ 257.27 |
| Trench Compaction (CY) | | \$ 6.36 | 68.88 | \$ 438.08 |
| Drainage Total | | | | \$ 29,471.80 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | 24.00 | \$ 16.99 |
| Signing and Marking Total | | | | \$ 16.99 |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | | \$ - |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 1.00 | \$ 4,428.00 |
| Staging Total | | | | \$ 5,487.98 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 21.00 | \$ 92.23 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 180.00 | \$ 762.48 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 180.00 | \$ 1,222.56 |
| Erosion Control Mats (SY) | | \$ 1.87 | 60.00 | \$ 112.32 |
| Landscape Mulch (SY) | | \$ 3.58 | 60.00 | \$ 214.56 |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 32.00 | \$ 1,951.49 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 32.00 | \$ 183.17 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 4,538.81 |
| Construction Cost Total | | | | \$ 41,836.70 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 3,346.94 |
| Construction Cost Grand Total | | | | \$ 45,183.64 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 50.00 | \$ 5,500.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 5,500.00 |
| Right of Way (Sq Ft) | | Cost/ Sq Ft | Sq Ft | Total Cost |
| Permanent Easement | | \$ 4.00 | 3,500.00 | \$ 14,000.00 |
| ROW Total | | | | \$ 14,000.00 |

| General Information | | Map | |
|--|---|------------------|--|
| Project ID | | | |
| Street Name | Flat Creek Trail | | |
| Site Visit Date | 5/22/13 | | |
| Road Classification | Minor arterial | | |
| Project Notes | | | |
| Rural typical section | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-12' | | |
| Existing Shld Width (paved and grass) (feet) | None | | |
| Existing Side Slopes | 1:1 | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 6 | | |
| Pipe Type and Size (No headwall) | 2- 60"x84" (ellip.) | | |
| Pipe Condition (1-5) (1 is new) | 3 | | |
| Condition Notes: 2 parallel streams | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | Yes | | |
| Ditches | None | | |
| | | | |
| | | | |
| Utilities (Visual Inspection) | | | |
| Electric | Aerial Crossing | | |
| Cable | Aerial Crossing | | |
| Phone | Aerial Crossing | | |
| Gas | | | |
| Water | Buried | | |
| Sewer | | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | | | |
| Culvert Size & Material | triple 10' x 4' box, concrete, 70' length. Cost of removing existing elliptical CMPs considered equivalent to cost of removing 72" round CMPs | | |
| Utility Relocations | Water | | |
| Guardrail Replacement | Need to provide guardrail due to side slopes and culvert installations | | |
| Miscellaneous Features | Zone A, Floodplain Analysis required, | | |
| | | | |
| | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost, wetland surveying | \$53,868 | |
| Right of Way Cost | Assuming project extends 10,500 sf beyond ROW | \$42,000 | |
| Utility Relocation Cost | Water main | \$11,000 | |
| Construction Cost | Assuming 1/5 acre clearing and grubbing | \$413,683 | |
| Environmental Permits | Permits, Zone A Floodplain Analysis | \$15,000 | |
| Total Planning Estimate | | \$535,551 | |



Photo 1:



Photo 2:

Flat Creek Trail

Photo Date:

5/21/2013

Taken By:

David King

Page:

1

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|----------|---------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 1,536.00 | \$ 8,609.79 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 600.00 | \$ 32,385.60 |
| End Anchorage (EA) | | \$ 1,380.00 | 2.00 | \$ 2,760.00 |
| Subtotal | | | | \$ 43,755.39 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 17,059.82

Roadway Total \$ 60,815.22

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|-----------|---------------|
| Trench Excavation (CY) | | \$ 10.38 | 1,348.15 | \$ 13,993.78 |
| 72" CMP (LF) | \$ 54.00 | | 140.00 | \$ 22,680.00 |
| 72" RCP | | \$ 142.52 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 232.53 | \$ 207,460.48 |
| Steel (lb) | | \$ 1.42 | 26,567.00 | \$ 37,618.87 |
| Pipe Bedding (CY) | | \$ 48.60 | 85.30 | \$ 4,145.58 |
| Trench Backfill (CY) | | \$ 2.99 | 1,429.22 | \$ 4,270.50 |
| Trench Compaction (CY) | | \$ 6.36 | 1,143.37 | \$ 7,271.86 |

Drainage Total \$ 297,441.07

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 128.00 | \$ 90.62 |

Signing and Marking Total \$ 90.62

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.20 | \$ 2,052.00 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 2.00 | \$ 8,856.00 |

Staging Total \$ 11,089.25

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 163.56 | \$ 718.34 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 560.00 | \$ 2,372.16 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 560.00 | \$ 3,803.52 |
| Erosion Control Mats (SY) | \$ 1.87 | 186.67 | \$ 349.44 |
| Landscape Mulch (SY) | \$ 3.58 | 186.67 | \$ 667.52 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 85.33 | \$ 5,203.97 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 85.33 | \$ 488.45 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 13,603.39

Construction Cost Total \$ 383,039.55

Traffic Control (8% of Construction Total \$) \$ 30,643.16

Construction Cost Grand Total \$ 413,682.72

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|---------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 100.00 | \$ 11,000.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 11,000.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|-----------|---------------------|
| Permanent Easement | \$ 4.00 | 10,500.00 | \$ 42,000.00 |
| ROW Total | | | \$ 42,000.00 |

| General Information | | Map | | | | | | | | | | | | | |
|---|--|--|--|----------------------------|--|----------------------------------|---|---|--|--|--|---|--|------------------|--|
| Project ID | | | | | | | | | | | | | | | |
| Street Name | 250 Grant Road | | | | | | | | | | | | | | |
| Site Visit Date | 5/22/13 | | | | | | | | | | | | | | |
| Road Classification | Minor arterial | | | | | | | | | | | | | | |
| Project Notes | | | | | | | | | | | | | | | |
| Rural typical section | | | | | | | | | | | | | | | |
| Field Notes | | <table border="1"> <thead> <tr> <th colspan="2">Stage Construction Options</th> </tr> </thead> <tbody> <tr> <td>Close Location to Traffic</td> <td>X</td> </tr> <tr> <td>Maintain One Lane - No Temp Pavement</td> <td></td> </tr> <tr> <td>Maintain One Lane - Temp Pavement</td> <td></td> </tr> <tr> <td colspan="2">Stage Construction Notes: Close roadway</td> </tr> <tr> <td colspan="2">One lane closure</td> </tr> </tbody> </table> | | Stage Construction Options | | Close Location to Traffic | X | Maintain One Lane - No Temp Pavement | | Maintain One Lane - Temp Pavement | | Stage Construction Notes: Close roadway | | One lane closure | |
| Stage Construction Options | | | | | | | | | | | | | | | |
| Close Location to Traffic | X | | | | | | | | | | | | | | |
| Maintain One Lane - No Temp Pavement | | | | | | | | | | | | | | | |
| Maintain One Lane - Temp Pavement | | | | | | | | | | | | | | | |
| Stage Construction Notes: Close roadway | | | | | | | | | | | | | | | |
| One lane closure | | | | | | | | | | | | | | | |
| Design (Existing Site Features) | | | | | | | | | | | | | | | |
| Existing Road Laneage | 2-12' | | | | | | | | | | | | | | |
| Existing Shld Width (paved and grass) (feet) | 2' | | | | | | | | | | | | | | |
| Existing Side Slopes | 0.13 | | | | | | | | | | | | | | |
| Existing Guardrail | none | | | | | | | | | | | | | | |
| Depth fm Pavement to Top of Culvert (ft): | Assumed 3' | | | | | | | | | | | | | | |
| Pipe Type and Size | 60" CMP | | | | | | | | | | | | | | |
| Pipe Condition (1-5) (1 is new) | 4-5 | | | | | | | | | | | | | | |
| Condition Notes: | | | | | | | | | | | | | | | |
| Pavement Type/Condition | Asphalt/Good | | | | | | | | | | | | | | |
| Environmental Features | | | | | | | | | | | | | | | |
| Wetlands | None | | | | | | | | | | | | | | |
| Ditches | None | | | | | | | | | | | | | | |
| Stream | Yes | | | | | | | | | | | | | | |
| Utilities (Visual Inspection) | | | | | | | | | | | | | | | |
| Electric | Yes | | | | | | | | | | | | | | |
| Cable | Yes | | | | | | | | | | | | | | |
| Phone | Yes | | | | | | | | | | | | | | |
| Gas | Unknown | | | | | | | | | | | | | | |
| Water | Yes | | | | | | | | | | | | | | |
| Sewer | None | | | | | | | | | | | | | | |
| Other | | | | | | | | | | | | | | | |
| Proposed Design | | | | | | | | | | | | | | | |
| Roadway Section | Typical | | | | | | | | | | | | | | |
| Culvert Size & Material | Replace with 48' of 60" RCP, | | | | | | | | | | | | | | |
| Utility Relocations | As needed | | | | | | | | | | | | | | |
| Guardrail Replacement | None | | | | | | | | | | | | | | |
| Miscellaneous Features | | | | | | | | | | | | | | | |
| Planning Cost Estimate | | | | | | | | | | | | | | | |
| Type | Notes | Total | | | | | | | | | | | | | |
| Design | Includes 10% Construction Cost and surveying needs | \$10,116 | | | | | | | | | | | | | |
| Right of Way Cost | Assuming project does not extend beyond ROW | \$0 | | | | | | | | | | | | | |
| Utility Relocation Cost | Buried water main | \$5,500 | | | | | | | | | | | | | |
| Construction Cost | Applying 1/10 acre clearing and grubbing cost | \$51,162 | | | | | | | | | | | | | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | | | | | | | | | | | | | |
| Total Planning Estimate | | \$76,779 | | | | | | | | | | | | | |



Photo 1:



Photo 2:

250 Grant Road

Photo Date:

6/22/2016

Taken By:

Tony Hicks

Page:

1

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 168.00 | \$ 941.70 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | | \$ - |
| Subtotal | | | | \$ 941.70 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 1,815.49

Roadway Total \$ 2,757.18

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|--------|--------------|
| Trench Excavation (CY) | | \$ 10.38 | 118.22 | \$ 1,227.15 |
| 60" CMP (LF) | \$ 24.60 | | 48.00 | \$ 1,180.80 |
| 60" RCP (LF) | | \$ 259.20 | 48.00 | \$ 12,441.60 |
| Class A Conc (CY) | | \$ 892.19 | 21.58 | \$ 19,253.42 |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 12.44 | \$ 604.80 |
| Trench Backfill (CY) | | \$ 2.99 | 81.76 | \$ 244.30 |
| Trench Compaction (CY) | | \$ 6.36 | 65.41 | \$ 416.00 |

Drainage Total \$35,368.06

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 0.00 | \$ - |

Signing and Marking Total \$ -

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 1.00 | \$ 4,428.00 |

Staging Total \$ 5,454.00

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 18.67 | \$ 81.98 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 192.00 | \$ 813.31 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 192.00 | \$ 1,304.06 |
| Erosion Control Mats (SY) | \$ 1.87 | 64.00 | \$ 119.81 |
| Landscape Mulch (SY) | \$ 3.58 | 64.00 | \$ 228.86 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 18.67 | \$ 1,138.37 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 18.67 | \$ 106.85 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 3,793.25

Construction Cost Total \$47,372.49

Traffic Control (8% of Construction Total \$) \$ 3,789.80

Construction Cost Grand Total \$51,162.29

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|--------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 50.00 | \$ 5,500.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 5,500.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|-------|-------------|
| Permanent Easement | \$ 4.00 | 0.00 | \$ - |
| ROW Total | | | \$ - |

| General Information | | Map | |
|--|--|---|---|
| Project ID | | | |
| Street Name | 426 Grant Road | | |
| Site Visit Date | 5/22/13 | | |
| Road Classification | Minor arterial | | |
| Project Notes | | | |
| Urban typical section with valley gutter | | | |
| Field Notes | | Stage Construction Options | |
| Design (Existing Site Features) | | Close Location to Traffic | X |
| Existing Road Laneage | 2-12' | Maintain One Lane - No Temp Pavement | |
| Existing Shld Width (paved and grass) (feet) | 2' | Maintain One Lane - Temp Pavement | |
| Existing Side Slopes | 0.13 | Stage Construction Notes: Close roadway | |
| Existing Guardrail | none | One lane closure | |
| Depth fm Pavement to Top of Culvert (ft): | Assumed 3' | | |
| Pipe Type and Size | 60" CMP | | |
| Pipe Condition (1-5) (1 is new) | 4-5 | | |
| Condition Notes: | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | None | | |
| Ditches | None | | |
| Stream | Yes | | |
| Utilities (Visual Inspection) | | | |
| Electric | Yes | | |
| Cable | Yes | | |
| Phone | Yes | | |
| Gas | Unknown | | |
| Water | Yes | | |
| Sewer | None | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | Typical | | |
| Culvert Size & Material | Replace with 48' of 60" RCP, | | |
| Utility Relocations | As needed | | |
| Guardrail Replacement | None | | |
| Miscellaneous Features | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$10,116 | |
| Right of Way Cost | Assuming project does not extend beyond ROW | \$0 | |
| Utility Relocation Cost | Buried water main | \$5,500 | |
| Construction Cost | Applying 1/10 acre clearing and grubbing cost | \$51,162 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$76,779 | |



Photo 1:

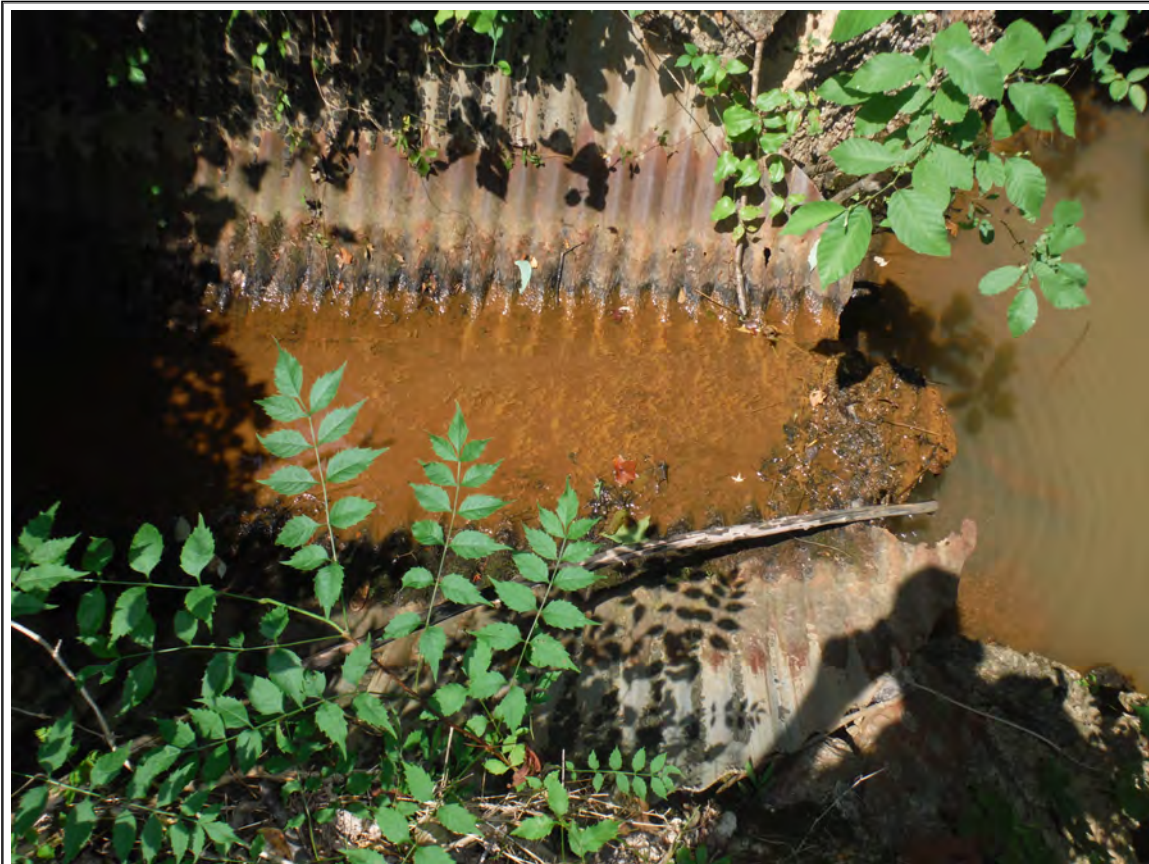


Photo 2:

426 Grant Rpad

Photo Date:

6/03/2016

Taken By:

Tony Hicks

Page:

1

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 168.00 | \$ 941.70 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | | \$ - |
| Subtotal | | | | \$ 941.70 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 1,815.49

Roadway Total \$ 2,757.18

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|--------|--------------|
| Trench Excavation (CY) | | \$ 10.38 | 118.22 | \$ 1,227.15 |
| 60" CMP (LF) | \$ 24.60 | | 48.00 | \$ 1,180.80 |
| 60" RCP (LF) | | \$ 259.20 | 48.00 | \$ 12,441.60 |
| Class A Conc (CY) | | \$ 892.19 | 21.58 | \$ 19,253.42 |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 12.44 | \$ 604.80 |
| Trench Backfill (CY) | | \$ 2.99 | 81.76 | \$ 244.30 |
| Trench Compaction (CY) | | \$ 6.36 | 65.41 | \$ 416.00 |

Drainage Total \$35,368.06

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 0.00 | \$ - |

Signing and Marking Total \$ -

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 1.00 | \$ 4,428.00 |

Staging Total \$ 5,454.00

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 18.67 | \$ 81.98 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 192.00 | \$ 813.31 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 192.00 | \$ 1,304.06 |
| Erosion Control Mats (SY) | \$ 1.87 | 64.00 | \$ 119.81 |
| Landscape Mulch (SY) | \$ 3.58 | 64.00 | \$ 228.86 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 18.67 | \$ 1,138.37 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 18.67 | \$ 106.85 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 3,793.25

Construction Cost Total \$47,372.49

Traffic Control (8% of Construction Total \$) \$ 3,789.80

Construction Cost Grand Total \$51,162.29

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|--------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 50.00 | \$ 5,500.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 5,500.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|-------|-------------|
| Permanent Easement | \$ 4.00 | 0.00 | \$ - |
| ROW Total | | | \$ - |

| General Information | | Map | |
|--|--|--------------------------------------|---|
| Project ID | | | |
| Street Name | 226 Graves Road | | |
| Site Visit Date | 1/21/2016 | | |
| Road Classification | Minor arterial | | |
| Project Notes | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 1-9', 2-12' | | |
| Existing Shld Width (paved and grass) (feet) | 6' | | |
| Existing Side Slopes | 4:1 | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 4.5' | | |
| Pipe Type and Size | 30" CMP | | |
| Pipe Condition (1-5) (1 is new) | 4-5 | | |
| Condition Notes: Deformed/slightly closed. No headwall on upstream side, concrete headwall downstream. | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | Stage Construction Options | |
| Wetlands | | Close Location to Traffic | |
| Ditches | | Maintain One Lane - No Temp Pavement | X |
| State Waters | | Maintain One Lane - Temp Pavement | |
| Buried | | Stage Construction Notes: | |
| Electric | Aerial | | |
| Cable | Unknown | | |
| Phone | Aerial | | |
| Gas | Unknown | | |
| Water | Unknown | | |
| Sewer | Unknown | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | Typical arterial | | |
| Culvert Size & Material | 2 x 30" round RCPs with straight headwall. Cost of removing existing headwall assumed equal to the removal of entire length of pipe. | | |
| Utility Relocations | | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% of Construction Cost and surveying needs | \$10,169 | |
| Right of Way Cost | Assuming entire project within ROW | \$0 | |
| Utility Relocation Cost | None identified | \$0 | |
| Construction Cost | | \$51,687 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$71,856 | |





Photo 1: Upstream end of culvert looking South towards Graves Road.



Photo 2: Downstream end of culvert.

Graves Road

Photo Date:

1/21/2016

Taken By:

David Gibbs

Page

1

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|--------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 313.50 | \$ 1,757.27 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 1,757.27 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 1,601.52

Roadway Total \$ 3,358.80

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|--------|-------------|
| Trench Excavation (CY) | | \$ 10.38 | 202.67 | \$ 2,103.68 |
| 30" CMP (LF) | \$ 19.62 | | 146.00 | \$ 5,729.04 |
| 30" RCP (LF) | | \$ 105.60 | 146.00 | \$15,417.60 |
| Class A Conc (CY) | | \$ 892.19 | 4.98 | \$ 4,443.10 |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 25.33 | \$ 1,231.20 |
| Trench Backfill (CY) | | \$ 2.99 | 166.99 | \$ 498.96 |
| Trench Compaction (CY) | | \$ 6.36 | 133.59 | \$ 849.63 |

Drainage Total \$30,273.20

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 47.50 | \$ 33.63 |

Signing and Marking Total \$ 33.63

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.03 | \$ 256.50 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 2.00 | \$ 8,856.00 |

Staging Total \$ 9,146.13

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 41.17 | \$ 180.80 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 288.00 | \$ 1,219.97 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 288.00 | \$ 1,956.10 |
| Erosion Control Mats (SY) | \$ 1.87 | 0.00 | \$ - |
| Landscape Mulch (SY) | \$ 3.58 | 0.00 | \$ - |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 25.33 | \$ 1,544.93 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 25.33 | \$ 145.01 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 5,046.80

Construction Cost Total \$47,858.56

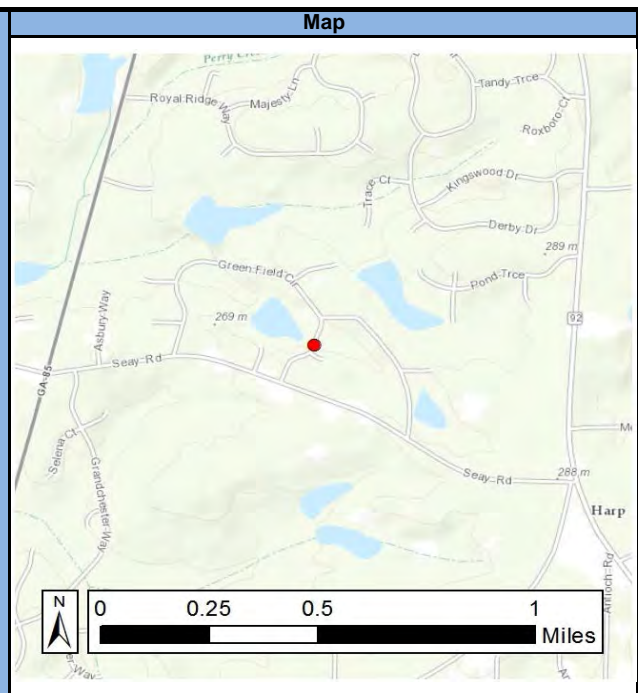
Traffic Control (8% of Construction Total \$) \$ 3,828.68

Construction Cost Grand Total \$51,687.25

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|-------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 0.00 | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 0.00 | \$ - |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ - |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|-------|-------------|
| Permanent Easement | \$ 4.00 | 0.00 | \$ - |
| ROW Total | | | \$ - |

| General Information | |
|---|---------------------------|
| Project ID | |
| Street Name | 130 Greenfield Circle |
| Site Visit Date | 2/4/2016 |
| Road Classification | Minor road |
| Project Notes | |
| Pipe empties into small impoundment. | |
| Field Notes | |
| Design (Existing Site Features) | |
| Existing Road Laneage | 2-12.5' |
| Existing Shld Width (paved and grass) (feet) | 15' |
| Existing Side Slopes | 4-5:1 |
| Existing Guardrail | N/A |
| Depth fm Pavement to Top of Culvert (ft): | 3' |
| Pipe Type and Size | 36" CMP |
| Pipe Condition (1-5) (1 is new) | 4 |
| Substantial rusting. Rip rap embankment blowout on downstream side. | |
| Pavement Type/Condition | Asphalt/Good |
| Environmental Features | |
| Wetlands | |
| Ditches | |
| State Waters | |
| Other | Small private impoundment |
| Utilities (Visual Inspection) | |
| Electric | Unknown |
| Cable | Buried |
| Phone | Unknown |
| Gas | Unknown |
| Water | Unknown |
| Sewer | Unknown |
| Other | Broadband buried |



| Stage Construction Options | |
|--|---|
| Close Location to Traffic | |
| Maintain One Lane - No Temp Pavement | X |
| Maintain One Lane - Temp Pavement | |
| Stage Construction Notes: Impoundment on downstream end will need temporary damming | |

| Proposed Design | |
|-------------------------|---|
| Roadway Section | |
| Culvert Size & Material | 5' x 3' concrete box culvert with wingwalls |
| Utility Relocations | Buried cable and broadband. Possible fire hydrant relocation (90' from culvert on downstream side). |
| Guardrail Replacement | |
| Miscellaneous Features | |

| Planning Cost Estimate | | |
|-------------------------|--|----------|
| Type | Notes | Total |
| Design | Includes 10% Construction cost and surveying needs | \$18,802 |
| Right of Way Cost | Assuming project lies entirely within ROW | \$0 |
| Utility Relocation Cost | Assuming a total of 100' of buried utilities | \$7,150 |
| Construction Cost | | \$63,018 |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 |

| | |
|--------------------------------|-----------------|
| Total Planning Estimate | \$98,969 |
|--------------------------------|-----------------|





Photo 1: Upstream end of culvert looking West towards Greenfield Circle.



Photo 2: Downstream end looking East towards Greenfield Circle.

Greenfield Circle

Photo Date:

2/4/2016

Taken By:

Christian Helfrich

Page

1

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|--------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 175.00 | \$ 980.93 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 40.00 | \$ 2,366.40 |
| Drain Inlet (EA) | | \$ 3,000.00 | 2.00 | \$ 6,000.00 |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 9,347.33 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 2,351.05

Roadway Total \$ 11,698.38

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|---------|--------------|
| Trench Excavation (CY) | | \$ 10.38 | 110.83 | \$ 1,150.45 |
| 18" CMP | \$ 5.74 | | 171.00 | \$ 980.86 |
| 30" RCP | | \$ 105.60 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 33.07 | \$ 29,500.20 |
| Steel (lb) | | \$ 1.42 | 3149.90 | \$ 4,460.26 |
| Pipe Bedding (CY) | | \$ 48.60 | 15.30 | \$ 743.58 |
| Trench Backfill (CY) | | \$ 2.99 | 103.80 | \$ 310.15 |
| Trench Compaction (CY) | | \$ 6.36 | 83.04 | \$ 528.12 |

Drainage Total \$ 37,673.61

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 21.00 | \$ 14.87 |

Signing and Marking Total \$ 14.87

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.05 | \$ 513.00 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 1.00 | \$ 4,428.00 |

Staging Total \$ 4,955.87

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 24.89 | \$ 109.31 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 228.00 | \$ 965.81 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 228.00 | \$ 1,548.58 |
| Erosion Control Mats (SY) | \$ 1.87 | 25.33 | \$ 47.42 |
| Landscape Mulch (SY) | \$ 3.58 | 25.33 | \$ 90.59 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 18.67 | \$ 1,138.37 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 18.67 | \$ 106.85 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 4,006.93

Construction Cost Total \$ 58,349.65

Traffic Control (8% of Construction Total \$) \$ 4,667.97

Construction Cost Grand Total \$ 63,017.62

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|--------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 100.00 | \$ 7,150.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 0.00 | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 0.00 | \$ - |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | 0.00 | \$ - |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 7,150.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|-------|-------------|
| Permanent Easement | \$ 4.00 | 0.00 | \$ - |
| ROW Total | | | \$ - |

| General Information | | Map | |
|--|--|------------------|--|
| Project ID | | | |
| Street Name | 250 Greenfield Circle | | |
| Site Visit Date | 2/4/2016 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-12' | | |
| Existing Shld Width (paved and grass) (feet) | 14' | | |
| Existing Side Slopes | 3:1 | | |
| Existing Guardrail | N/A | | |
| Depth fm Pavement to Top of Culvert (ft): | 5' | | |
| Pipe Type and Size | 2-36" CMPs | | |
| Pipe Condition (1-5) (1 is new) | 4-5 | | |
| Considerable rusting. One pipe blocked by debris. Water running under the other pipe as well as through. | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | | | |
| Ditches | | | |
| State Waters | | | |
| Utilities (Visual Inspection) | | | |
| Electric | Unknown | | |
| Cable | Unknown | | |
| Phone | Unknown | | |
| Gas | Unknown | | |
| Water | Unknown | | |
| Sewer | Unknown | | |
| Other | Unknown | | |
| Proposed Design | | | |
| Roadway Section | Typical | | |
| Culvert Size & Material | 2 x 42" round RCPs with straight headwalls. | | |
| Utility Relocations | May need to relocate fire hydrant (70' from culvert, downstream side). | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction cost and surveying needs | \$19,098 | |
| Right of Way Cost | Assuming project lies entirely within ROW | \$0 | |
| Utility Relocation Cost | None positively identified | \$0 | |
| Construction Cost | | \$65,976 | |
| Environmental Permits | Includes permitting and Zone A Floodway study | \$15,000 | |
| Total Planning Estimate | | \$100,073 | |
| Stage Construction Options | | | |
| Close Location to Traffic | | | |
| Maintain One Lane - No Temp Pavement | | X | |
| Maintain One Lane - Temp Pavement | | | |
| Stage Construction Notes: | | | |





Photo 1: Upstream end of culvert looking West towards Greenfield Circle.



Photo 2: Downstream end looking East towards Greenfield Circle.

Greenfield Circle

Photo Date:

2/4/2016

Taken By:

Christian Helfrich

Page

1

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|--------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 288.00 | \$ 1,614.34 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 40.00 | \$ 2,366.40 |
| Drain Inlet (EA) | | \$ 3,000.00 | 2.00 | \$ 6,000.00 |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 9,980.74 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 2,505.82

Roadway Total \$ 12,486.55

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|--------|--------------|
| Trench Excavation (CY) | | \$ 10.38 | 237.50 | \$ 2,465.25 |
| 36" CMP (LF) | \$ 19.62 | | 108.00 | \$ 6,356.88 |
| 42" RCP (LF) | | \$ 142.52 | 108.00 | \$ 15,392.59 |
| Class A Conc (CY) | | \$ 892.19 | 14.66 | \$ 13,079.48 |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 25.00 | \$ 1,215.00 |
| Trench Backfill (CY) | | \$ 2.99 | 201.39 | \$ 601.75 |
| Trench Compaction (CY) | | \$ 6.36 | 161.11 | \$ 1,024.67 |

Drainage Total \$ 40,135.63

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 0.00 | \$ - |

Signing and Marking Total \$ -

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.15 | \$ 1,539.00 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 1.00 | \$ 4,428.00 |

Staging Total \$ 5,967.00

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 40.00 | \$ 175.68 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 108.00 | \$ 457.49 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 108.00 | \$ 733.54 |
| Erosion Control Mats (SY) | \$ 1.87 | 12.00 | \$ 22.46 |
| Landscape Mulch (SY) | \$ 3.58 | 12.00 | \$ 42.91 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 16.00 | \$ 975.74 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 16.00 | \$ 91.58 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 2,499.41

Construction Cost Total \$ 61,088.59

Traffic Control (8% of Construction Total \$) \$ 4,887.09

Construction Cost Grand Total \$ 65,975.68

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|-------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 0.00 | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 0.00 | \$ - |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | 0.00 | \$ - |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ - |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|-------|-------------|
| Permanent Easement | \$ 4.00 | 0.00 | \$ - |
| ROW Total | | | \$ - |

| General Information | | Map | |
|---|---|------------------|--|
| Project ID | | | |
| Street Name | 110 Gristmill Drive | | |
| Site Visit Date | 5/21/13 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Urban Typical Section with curb and gutter along sidewalks | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-12' | | |
| Existing Shld Width (paved and grass) (feet) | grass 6' | | |
| Existing Side Slopes | N/A | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 6' | | |
| Pipe Type and Size | 48"-CMP | | |
| Pipe Condition (1-5) (1 is new) | 5 (Installation) | | |
| Condition Notes: Concrete Headwall at Ends | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | None | | |
| Ditches | None | | |
| Utilities (Visual Inspection) | | | |
| Electric | Buried | | |
| Cable | Buried | | |
| Phone | Buried | | |
| Gas | Buried | | |
| Water | Buried | | |
| Sewer | Buried | | |
| Other | | | |
| Stage Construction Options | | | |
| Close Location to Traffic | | | |
| Maintain One Lane - No Temp Pavement | | X | |
| Maintain One Lane - Temp Pavement | | | |
| Stage Construction Notes: | | | |
| If replacement with round pipe then phase construction to have at least one lane in each direction at all times | | | |
| Proposed Design | | | |
| Roadway Section | Replace urban section w/ sidewalks | | |
| Culvert Size & Material | 6' x 3' box, concrete, 80' length. Cost of removing headwalls assumed to be equal to removal of entire length of pipe. | | |
| Utility Relocations | Electric, cable, phone, gas, water, sewer | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | Alignment needs to be altered or downstream pipe and grading needs alterations to correct crossing flow paths that has caused downstream pipe cover to be washed away. Has been accounted for in construction cost estimate | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$14,967 | |
| Right of Way Cost | Assuming project extends 2,000 sf beyond ROW | \$8,000 | |
| Utility Relocation Cost | Buried utilities | \$26,675 | |
| Construction Cost | Assuming 1/10 acre clearing and grubbing | \$99,668 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$159,309 | |



Photo 1:



Photo 2:

Gristmill Drive

Photo Date:

5/21/2013

Taken By:

David King

Page:

1



Photo 3:



Photo 4:

Gristmill Drive

Photo Date:

5/21/2013

Taken By:

David King

Page:

2

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|--------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 192.00 | \$ 1,076.22 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 30.00 | \$ 1,774.80 |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 30.00 | \$ 1,513.80 |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 4,364.82 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 3,858.83

Roadway Total \$ 8,223.65

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|----------|--------------|
| Trench Excavation (CY) | | \$ 10.38 | 325.93 | \$ 3,383.11 |
| 48" CMP (LF) | \$ 24.60 | | 160.00 | \$ 11,808.00 |
| 48" RCP | | \$ 193.20 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 51.64 | \$ 46,072.59 |
| Steel (lb) | | \$ 1.42 | 5,258.00 | \$ 7,445.33 |
| Pipe Bedding (CY) | | \$ 48.60 | 24.30 | \$ 1,180.98 |
| Trench Backfill (CY) | | \$ 2.99 | 361.77 | \$ 1,080.98 |
| Trench Compaction (CY) | | \$ 6.36 | 289.42 | \$ 1,840.71 |

Drainage Total \$ 72,811.69

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 0.00 | \$ - |

Signing and Marking Total \$ -

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 1.00 | \$ 4,428.00 |

Staging Total \$ 5,454.00

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 59.73 | \$ 262.35 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 320.00 | \$ 1,355.52 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 320.00 | \$ 2,173.44 |
| Erosion Control Mats (SY) | \$ 1.87 | 106.67 | \$ 199.68 |
| Landscape Mulch (SY) | \$ 3.58 | 106.67 | \$ 381.44 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 21.33 | \$ 1,300.99 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 21.33 | \$ 122.11 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 5,795.53

Construction Cost Total \$ 92,284.88

Traffic Control (8% of Construction Total \$) \$ 7,382.79

Construction Cost Grand Total \$ 99,667.67

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|---------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 50.00 | \$ 4,950.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50.00 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50.00 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 50.00 | \$ 4,125.00 |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 50.00 | \$ 5,500.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 50.00 | \$ 4,950.00 |
| Utility Relocation Total | | | | \$ 26,675.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|----------|--------------------|
| Permanent Easement | \$ 4.00 | 2,000.00 | \$ 8,000.00 |
| ROW Total | | | \$ 8,000.00 |

| General Information | | Map | |
|---|--|------------------|--|
| Project ID | | | |
| Street Name | Heritage Way - North | | |
| Site Visit Date | 5/22/13 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Urban typical section with valley gutter, | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-10' | | |
| Existing Shld Width (paved and grass) (feet) | 4 | | |
| Existing Side Slopes | flat | | |
| Existing Guardrail | none | | |
| Depth fm Pavement to Top of Culvert (ft): | 4 | | |
| Pipe Type and Size | 48" CMP | | |
| Pipe Condition (1-5) (1 is new) | 3 | | |
| Condition Notes: | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | None | | |
| Ditches | None | | |
| Utilities (Visual Inspection) | | | |
| Electric | Buried | | |
| Cable | Buried | | |
| Phone | Buried | | |
| Gas | | | |
| Water | Buried | | |
| Sewer | | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | | | |
| Culvert Size & Material | 48", RCP, 400' length | | |
| Utility Relocations | Electric, cable, phone, water | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$20,409 | |
| Right of Way Cost | Assuming 7,500 sf outside of ROW | \$30,000 | |
| Utility Relocation Cost | Buried utilities | \$26,400 | |
| Construction Cost | Applying 1/10 acre clearing and grubbing cost | \$154,090 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$240,898 | |



Photo 1:



Photo 2:

Heritage Way - North

Photo Date:

7/2/2013

Taken By:

David King

Page:

1

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|--------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 120.00 | \$ 672.64 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 20.00 | \$ 1,183.20 |
| Drain Inlet (EA) | | \$ 3,000.00 | | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | | \$ - |
| Subtotal | | | | \$ 1,855.84 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 6,160.49

Roadway Total \$ 8,016.33

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|--------|--------------|
| Trench Excavation (CY) | | \$ 10.38 | 977.78 | \$ 10,149.33 |
| 48" CMP (LF) | \$ 24.60 | | 400.00 | \$ 9,840.00 |
| 48" RCP (LF) | | \$ 193.20 | 400.00 | \$ 77,280.00 |
| Class A Conc (CY) | | \$ 892.19 | 13.70 | \$ 12,222.98 |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 88.89 | \$ 4,320.00 |
| Trench Backfill (CY) | | \$ 2.99 | 933.83 | \$ 2,790.29 |
| Trench Compaction (CY) | | \$ 6.36 | 747.07 | \$ 4,751.33 |

Drainage Total \$ 121,353.93

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 0.00 | \$ - |

Signing and Marking Total \$ -

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 1.00 | \$ 4,428.00 |

Staging Total \$ 5,454.00

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 253.33 | \$ 1,112.64 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 400.00 | \$ 1,694.40 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 400.00 | \$ 2,716.80 |
| Erosion Control Mats (SY) | \$ 1.87 | 133.33 | \$ 249.60 |
| Landscape Mulch (SY) | \$ 3.58 | 133.33 | \$ 476.80 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 24.00 | \$ 1,463.62 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 24.00 | \$ 137.38 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 7,851.23

Construction Cost Total \$ 142,675.49

Traffic Control (8% of Construction Total \$) \$ 11,414.04

Construction Cost Grand Total \$ 154,089.53

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|---------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 75.00 | \$ 7,425.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 75.00 | \$ 5,362.50 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 75.00 | \$ 5,362.50 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 75.00 | \$ 8,250.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 26,400.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|----------|---------------------|
| Permanent Easement | \$ 4.00 | 7,500.00 | \$ 30,000.00 |
| ROW Total | | | \$ 30,000.00 |

| General Information | | Map | |
|---|--|------------------|--|
| Project ID | | | |
| Street Name | Heritage Way - South | | |
| Site Visit Date | 5/22/13 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Urban typical section with valley gutter | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-10' | | |
| Existing Shld Width (paved and grass) (feet) | 4 | | |
| Existing Side Slopes | flat | | |
| Existing Guardrail | none | | |
| Depth fm Pavement to Top of Culvert (ft): | 4 | | |
| Pipe Type and Size | 48" CMP | | |
| Pipe Condition (1-5) (1 is new) | 3 | | |
| Condition Notes: | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | None | | |
| Ditches | None | | |
| | | | |
| | | | |
| Utilities (Visual Inspection) | | | |
| Electric | Buried | | |
| Cable | Buried | | |
| Phone | Buried | | |
| Gas | | | |
| Water | Buried | | |
| Sewer | | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | | | |
| Culvert Size & Material | 48", RCP, 200' length | | |
| Utility Relocations | Electric, cable, phone, water | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | | | |
| | | | |
| | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$14,604 | |
| Right of Way Cost | Assuming 7,500 sf outside of ROW | \$30,000 | |
| Utility Relocation Cost | Buried utilities | \$26,400 | |
| Construction Cost | Applying 1/10 acre clearing and grubbing cost | \$96,035 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$177,039 | |

| Stage Construction Options | |
|---|---|
| Close Location to Traffic | X |
| Maintain One Lane - No Temp Pavement | |
| Maintain One Lane - Temp Pavement | |

Stage Construction Notes: Close roadway;





Photo 1:



Photo 2:

Heritage Way - South

Photo Date:

7/2/2013

Taken By:

David King

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|--------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 120.00 | \$ 672.64 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 20.00 | \$ 1,183.20 |
| Drain Inlet (EA) | | \$ 3,000.00 | | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | | \$ - |
| Subtotal | | | | \$ 1,855.84 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 3,384.02

Roadway Total \$ 5,239.86

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|--------|--------------|
| Trench Excavation (CY) | | \$ 10.38 | 444.44 | \$ 4,613.33 |
| 48" CMP (LF) | \$ 24.60 | | 200.00 | \$ 4,920.00 |
| 48" RCP (LF) | | \$ 193.20 | 200.00 | \$ 38,640.00 |
| Class A Conc (CY) | | \$ 892.19 | 13.70 | \$ 12,222.98 |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 44.44 | \$ 2,160.00 |
| Trench Backfill (CY) | | \$ 2.99 | 404.69 | \$ 1,209.22 |
| Trench Compaction (CY) | | \$ 6.36 | 323.75 | \$ 2,059.08 |

Drainage Total \$65,824.61

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 0.00 | \$ - |

Signing and Marking Total \$ -

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 1.00 | \$ 4,428.00 |

Staging Total \$ 5,454.00

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 120.00 | \$ 527.04 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 800.00 | \$ 3,388.80 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 800.00 | \$ 5,433.60 |
| Erosion Control Mats (SY) | \$ 1.87 | 266.67 | \$ 499.20 |
| Landscape Mulch (SY) | \$ 3.58 | 266.67 | \$ 953.60 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 24.00 | \$ 1,463.62 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 24.00 | \$ 137.38 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$12,403.23

Construction Cost Total \$88,921.71

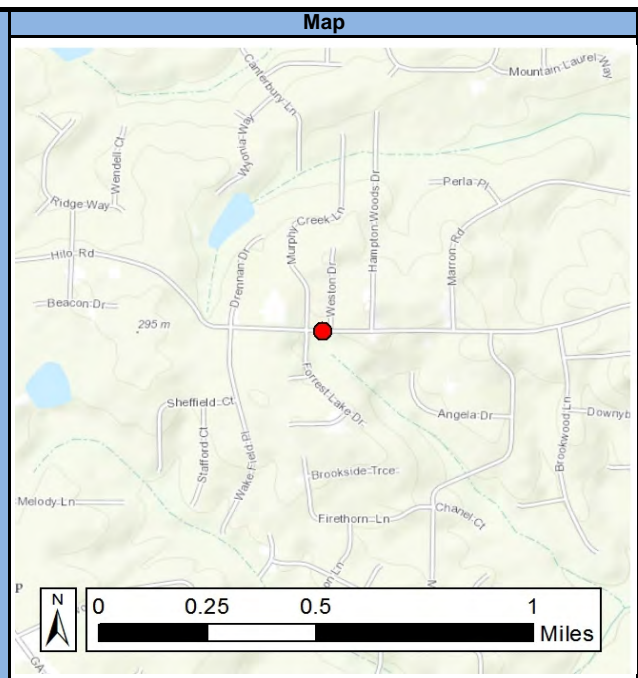
Traffic Control (8% of Construction Total \$) \$ 7,113.74

Construction Cost Grand Total \$96,035.45

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|--------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 75.00 | \$ 7,425.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 75.00 | \$ 5,362.50 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 75.00 | \$ 5,362.50 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 75.00 | \$ 8,250.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$26,400.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|----------|--------------------|
| Permanent Easement | \$ 4.00 | 7,500.00 | \$30,000.00 |
| ROW Total | | | \$30,000.00 |

| General Information | |
|--|---------------------------|
| Project ID | |
| Street Name | 287 Hilo Road |
| Site Visit Date | 1/20/2016 |
| Road Classification | Minor arterial |
| Project Notes | |
| Existing upstream inlet consists of makeshift corrugated metal headwall. | |
| Field Notes | |
| Design (Existing Site Features) | |
| Existing Road Laneage | 3-12.5' |
| Existing Shld Width (paved and grass) (feet) | 10' |
| Existing Side Slopes | 4:1 |
| Existing Guardrail | None |
| Depth fm Pavement to Top of Culvert (ft): | 1.00 |
| Pipe Type and Size | CMP 1-18" 1-24" |
| Pipe Condition (1-5) (1 is new) | 3-4 |
| Condition Notes: Two corrugated metal pipes 2.5' apart | |
| Pavement Type/Condition | Asphalt/Good |
| Environmental Features | |
| Wetlands | |
| Ditches | Roadside drainage ditches |
| State Waters | |
| | |
| Utilities (Visual Inspection) | |
| Electric | Aerial 50' away |
| Cable | Unknown |
| Phone | Aerial 50' away |
| Gas | Unknown |
| Water | Buried |
| Sewer | |
| Other | Fire Hydrant |



| Stage Construction Options | |
|--------------------------------------|---|
| Close Location to Traffic | |
| Maintain One Lane - No Temp Pavement | X |
| Maintain One Lane - Temp Pavement | |
| Stage Construction Notes: | |
| | |

| Proposed Design | |
|-------------------------|---|
| Roadway Section | Typical |
| Culvert Size & Material | 3 24" round RCPs with straight headwall. Cost of removing makeshift headwall include in pipe removal cost |
| Utility Relocations | Relocation of fire hydrant and water main |
| Guardrail Replacement | |
| Miscellaneous Features | |
| | |
| | |

| Planning Cost Estimate | | |
|-------------------------|---|----------|
| Type | Notes | Total |
| Design | Includes 10% of Construction Cost and surveying needs | \$9,322 |
| Right of Way Cost | Project entirely within ROW | \$0 |
| Utility Relocation Cost | Fire hydrant and water main | \$6,569 |
| Construction Cost | | \$43,217 |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 |

| | |
|--------------------------------|-----------------|
| Total Planning Estimate | \$69,108 |
|--------------------------------|-----------------|





Photo 1: Upstream end of culverts looking South towards Hilo Road.



Photo 2: Downstream end of culverts.

Hilo Road

Photo Date:

1/20/2016

Taken By:

David Gibbs

Page

1

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|--------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 450.00 | \$ 2,522.40 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 12.00 | \$ 709.92 |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 3,232.32 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 1,479.90

Roadway Total \$ 4,712.22

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|--------|--------------|
| Trench Excavation (CY) | | \$ 10.38 | 179.11 | \$ 1,859.17 |
| 24" CMP (LF) | \$ 16.38 | | 134.00 | \$ 6,584.76 |
| 24" RCP (LF) | | \$ 54.00 | 186.00 | \$ 10,044.00 |
| Class A Conc (CY) | | \$ 892.19 | 6.20 | \$ 5,531.57 |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 27.56 | \$ 1,339.20 |
| Trench Backfill (CY) | | \$ 2.99 | 124.69 | \$ 372.58 |
| Trench Compaction (CY) | | \$ 6.36 | 99.75 | \$ 634.43 |

Drainage Total \$ 26,365.71

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 36.00 | \$ 25.49 |

Signing and Marking Total \$ 25.49

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.05 | \$ 513.00 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 1.00 | \$ 4,428.00 |

Staging Total \$ 4,966.49

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 32.67 | \$ 143.47 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 248.00 | \$ 1,050.53 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 248.00 | \$ 1,684.42 |
| Erosion Control Mats (SY) | \$ 1.87 | 0.00 | \$ - |
| Landscape Mulch (SY) | \$ 3.58 | 0.00 | \$ - |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 16.00 | \$ 975.74 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 16.00 | \$ 91.58 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 3,945.74

Construction Cost Total \$ 40,015.65

Traffic Control (8% of Construction Total \$) \$ 3,201.25

Construction Cost Grand Total \$ 43,216.90

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|--------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 0.00 | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 36.00 | \$ 3,960.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | 1.00 | \$ 2,609.22 |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 6,569.22 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|-------|-------------|
| Permanent Easement | \$ 4.00 | 0.00 | \$ - |
| ROW Total | | | \$ - |

| General Information | | Map | |
|--|--|------------------|--|
| Project ID | | | |
| Street Name | 448 Inman Road | | |
| Site Visit Date | 2/4/2016 | | |
| Road Classification | Minor arterial | | |
| Project Notes | | | |
| Gay Creek crossing. Substantial flow. Downstream roadside blowout has been refilled. | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-12' | | |
| Existing Shld Width (paved and grass) (feet) | 6' | | |
| Existing Side Slopes | 2:1 | | |
| Existing Guardrail | N/A | | |
| Depth fm Pavement to Top of Culvert (ft): | 3' | | |
| Pipe Type and Size | 2-84" CMPs | | |
| Pipe Condition (1-5) (1 is new) | 3-4 | | |
| Rusted out bottoms. | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | | | |
| Ditches | | | |
| State Waters | | | |
| Utilities (Visual Inspection) | | | |
| Electric | Aerial | | |
| Cable | Unknown | | |
| Phone | Aerial | | |
| Gas | Unknown | | |
| Water | Unknown | | |
| Sewer | Unknown | | |
| Other | Unknown | | |
| Stage Construction Options | | | |
| Close Location to Traffic | | | |
| Maintain One Lane - No Temp Pavement | | X | |
| Maintain One Lane - Temp Pavement | | | |
| Stage Construction Notes: Aerial utility lines above potential staging area hang low, need relocating | | | |
| Proposed Design | | | |
| Roadway Section | Typical | | |
| Culvert Size & Material | Double 7' x 6' barrel concrete box culvert | | |
| Utility Relocations | Aerial electrical and phone wires, utility pole | | |
| Guardrail Replacement | Suggest guardrails over crossing, none currently in place. | | |
| Miscellaneous Features | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction cost and surveying needs | \$26,433 | |
| Right of Way Cost | Assuming project lies entirely within ROW | \$0 | |
| Utility Relocation Cost | Aerial phone and electric, utility pole | \$16,363 | |
| Construction Cost | | \$139,334 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$192,130 | |





Photo 1: Upstream end of culvert looking East towards Inman Road.



Photo 2: Downstream end looking South towards North Bend Court.

Inman Road

Photo Date:

2/4/2016

Taken By:

Christian Helfrich

Page

1

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|---------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 384.00 | \$ 2,152.45 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 64.00 | \$ 3,454.46 |
| End Anchorage (EA) | | \$ 1,380.00 | 4.00 | \$ 5,520.00 |
| Subtotal | | | | \$ 11,126.91 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 5,581.49

Roadway Total \$ 16,708.41

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|----------|--------------|
| Trench Excavation (CY) | | \$ 10.38 | 239.56 | \$ 2,486.59 |
| 84" CMP (LF) | \$ 63.00 | | 77.00 | \$ 14,553.00 |
| 84" RCP | | \$ 142.52 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 78.22 | \$ 69,790.07 |
| Steel (lb) | | \$ 1.42 | 7,504.95 | \$ 10,627.01 |
| Pipe Bedding (CY) | | \$ 48.60 | 24.00 | \$ 1,166.40 |
| Trench Backfill (CY) | | \$ 2.99 | 232.78 | \$ 695.54 |
| Trench Compaction (CY) | | \$ 6.36 | 186.22 | \$ 1,184.37 |

Drainage Total \$ 100,502.98

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 64.00 | \$ 45.31 |

Signing and Marking Total \$ 45.31

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.15 | \$ 1,539.00 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 1.00 | \$ 4,428.00 |

Staging Total \$ 6,057.62

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 199.11 | \$ 874.50 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 154.00 | \$ 652.34 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 154.00 | \$ 1,045.97 |
| Erosion Control Mats (SY) | \$ 1.87 | 51.33 | \$ 96.10 |
| Landscape Mulch (SY) | \$ 3.58 | 51.33 | \$ 183.57 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 42.67 | \$ 2,601.98 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 42.67 | \$ 244.22 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 5,698.68

Construction Cost Total \$ 129,013.00

Traffic Control (8% of Construction Total \$) \$ 10,321.04

Construction Cost Grand Total \$ 139,334.04

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|---------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 150.00 | \$ 9,900.00 |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 1.00 | \$ 687.50 |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 150.00 | \$ 5,775.00 |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 0.00 | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 0.00 | \$ - |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | 0.00 | \$ - |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 16,362.50 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|-------|-------------|
| Permanent Easement | \$ 4.00 | 0.00 | \$ - |
| ROW Total | | | \$ - |

| General Information | | Map | |
|---|--|------------------|--|
| Project ID | | | |
| Street Name | 510 Janice Drive | | |
| Site Visit Date | 5/22/13 | | |
| Road Classification | Internal Local | | |
| Project Notes | | | |
| Rural Typical Section | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2 - 10' | | |
| Existing Shld Width (paved and grass) (feet) | 1' (Grass) | | |
| Existing Side Slopes | 6:1 | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 2 | | |
| Pipe Type and Size | 1 - 60" CMP | | |
| Pipe Condition (1-5) (1 is new) | 3 | | |
| Condition Notes: Signs of rust, but no evidence of structural loss; downstream debris potentially limiting capacity - maintenance to clear debris | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | None | | |
| Ditches | None | | |
| 2 Streams | | | |
| Utilities (Visual Inspection) | | | |
| Electric | Aerial | | |
| Cable | Aerial | | |
| Phone | Aerial | | |
| Gas | | | |
| Water | Buried | | |
| Sewer | | | |
| Other | | | |
| Stage Construction Options | | | |
| Close Location to Traffic | | | |
| Maintain One Lane - No Temp Pavement | | X | |
| Maintain One Lane - Temp Pavement | | | |
| Stage Construction Notes: Stage Construction to have one lane open | | | |
| Proposed Design | | | |
| Roadway Section | | | |
| Culvert Size & Material | double 6' x 4' box, concrete, 70' length | | |
| Utility Relocations | Water main and possible aerial facility relocation | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | Zone A, Floodplain Analysis Required | | |
| Planning Cost Estimate | | | |
| Type | Description | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$25,547 | |
| Right of Way Cost | Assuming project extends 2,500 sf beyond ROW | \$10,000 | |
| Utility Relocation Cost | Aerial and buried utilities | \$15,455 | |
| Construction Cost | Assuming 1/10 acre clearing and grubbing | \$130,470 | |
| Environmental Permits | Permits, Zone A Floodplain Analysis | \$15,000 | |
| Total Planning Estimate | | \$196,472 | |



Photo 1:



Photo 2:

Janice Drive

Photo Date:

5/21/2013

Taken By:

David King

Page:

1



Photo 3:



Photo 4:

Janice Drive

Photo Date:

5/21/2013

Taken By:

David King

Page:

2

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---|-------------------|------------------------|----------|----------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 280.00 | \$ 1,569.49 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 1,569.49 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 5,202.98 |
| Roadway Total | | | | \$ 6,772.47 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 290.37 | \$ 3,014.04 |
| 60" CMP (LF) | \$ 24.60 | | 70.00 | \$ 5,166.00 |
| 60" RCP | | \$ 259.20 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 86.48 | \$ 77,156.42 |
| Steel (lb) | | \$ 1.42 | 9,154.00 | \$ 12,962.06 |
| Pipe Bedding (CY) | | \$ 48.60 | 37.30 | \$ 1,812.78 |
| Trench Backfill (CY) | | \$ 2.99 | 294.55 | \$ 880.12 |
| Trench Compaction (CY) | | \$ 6.36 | 235.64 | \$ 1,498.68 |
| Drainage Total | | | | \$ 102,490.11 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | 0.00 | \$ - |
| Signing and Marking Total | | | | \$ - |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | | \$ - |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 1.00 | \$ 4,428.00 |
| Staging Total | | | | \$ 5,454.00 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 77.78 | \$ 341.60 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 280.00 | \$ 1,186.08 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 280.00 | \$ 1,901.76 |
| Erosion Control Mats (SY) | | \$ 1.87 | 31.11 | \$ 58.24 |
| Landscape Mulch (SY) | | \$ 3.58 | 31.11 | \$ 111.25 |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 37.33 | \$ 2,276.74 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 37.33 | \$ 213.70 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 6,089.37 |
| Construction Cost Total | | | | \$ 120,805.95 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 9,664.48 |
| Construction Cost Grand Total | | | | \$ 130,470.42 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 60.00 | \$ 3,960.00 |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 2.00 | \$ 1,375.00 |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 60.00 | \$ 2,310.00 |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 60.00 | \$ 2,310.00 |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 50.00 | \$ 5,500.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 15,455.00 |
| Right of Way (Sq Ft) | | Cost/ Sq Ft | Sq Ft | Total Cost |
| Permanent Easement | | \$ 4.00 | 2,500.00 | \$ 10,000.00 |
| ROW Total | | | | \$ 10,000.00 |

| General Information | | Map | | | | | | | |
|--|---|---|--|---------------------------|--|--------------------------------------|---|-----------------------------------|--|
| Project ID | | | | | | | | | |
| Street Name | 671 Kenwood Road | | | | | | | | |
| Site Visit Date | 1/21/2016 | | | | | | | | |
| Road Classification | Minor arterial | | | | | | | | |
| Project Notes | | | | | | | | | |
| Field Notes | | Stage Construction Options <table border="1"> <tr> <td>Close Location to Traffic</td> <td></td> </tr> <tr> <td>Maintain One Lane - No Temp Pavement</td> <td>X</td> </tr> <tr> <td>Maintain One Lane - Temp Pavement</td> <td></td> </tr> </table> <p>Stage Construction Notes: Utility pole and electricity meter boxes in possible construction staging area</p> | | Close Location to Traffic | | Maintain One Lane - No Temp Pavement | X | Maintain One Lane - Temp Pavement | |
| Close Location to Traffic | | | | | | | | | |
| Maintain One Lane - No Temp Pavement | X | | | | | | | | |
| Maintain One Lane - Temp Pavement | | | | | | | | | |
| Design (Existing Site Features) | | | | | | | | | |
| Existing Road Laneage | 2-11' | | | | | | | | |
| Existing Shld Width (paved and grass) (feet) | 2' | | | | | | | | |
| Existing Side Slopes | 1.5:1 | | | | | | | | |
| Existing Guardrail | None | | | | | | | | |
| Depth fm Pavement to Top of Culvert (ft): | 10' | | | | | | | | |
| Pipe Type and Size | 60" CMP | | | | | | | | |
| Pipe Condition (1-5) (1 is new) | 4-5 | | | | | | | | |
| Condition Notes: Deformed/compressed (pipe size hard to determine). No headwalls. Washout on downstream side, water surface 2' below culvert | | | | | | | | | |
| Pavement Type/Condition | Asphalt/Good | | | | | | | | |
| Environmental Features | | | | | | | | | |
| Wetlands | | | | | | | | | |
| Ditches | Roadside drainage ditches | | | | | | | | |
| State Waters | | | | | | | | | |
| Buried | | | | | | | | | |
| Electric | Aerial | | | | | | | | |
| Cable | Buried | | | | | | | | |
| Phone | Aerial | | | | | | | | |
| Gas | | | | | | | | | |
| Water | | | | | | | | | |
| Sewer | | | | | | | | | |
| Other | | | | | | | | | |
| Proposed Design | | | | | | | | | |
| Roadway Section | Typical | | | | | | | | |
| Culvert Size & Material | 60" round RCP with straight headwalls | | | | | | | | |
| Utility Relocations | Potential removal/replacement of utility pole and buried cable line | | | | | | | | |
| Guardrail Replacement | | | | | | | | | |
| Miscellaneous Features | | | | | | | | | |
| Planning Cost Estimate | | | | | | | | | |
| Type | Notes | Total | | | | | | | |
| Design | Includes 10% of Construction Cost and surveying needs | \$11,280 | | | | | | | |
| Right of Way Cost | Project assumed to be entirely in ROW | \$0 | | | | | | | |
| Utility Relocation Cost | Potential removal/replacement | \$12,100 | | | | | | | |
| Construction Cost | | \$62,798 | | | | | | | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | | | | | | | |
| Total Planning Estimate | | \$96,178 | | | | | | | |





Photo 1: Upstream end of culvert looking South towards Kenwood Road.



Photo 2: Downstream end of culvert.

Kenwood Road

Photo Date:

1/21/2016

Taken By:

David Gibbs

Page

2

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 154.00 | \$ 863.22 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 863.22 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 2,127.89

Roadway Total \$ 2,991.12

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|--------|--------------|
| Trench Excavation (CY) | | \$ 10.38 | 236.44 | \$ 2,454.29 |
| 60" CMP (LF) | \$ 24.60 | | 57.00 | \$ 1,402.20 |
| 60" RCP (LF) | | \$ 281.96 | 57.00 | \$ 16,071.95 |
| Class A Conc (CY) | | \$ 892.19 | 21.58 | \$ 19,253.42 |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 14.78 | \$ 718.20 |
| Trench Backfill (CY) | | \$ 2.99 | 222.22 | \$ 663.98 |
| Trench Compaction (CY) | | \$ 6.36 | 177.77 | \$ 1,130.63 |

Drainage Total \$ 41,694.67

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | | \$ - |

Signing and Marking Total \$ -

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.20 | \$ 2,052.00 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 1.00 | \$ 4,428.00 |

Staging Total \$ 6,480.00

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 27.22 | \$ 119.56 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 456.00 | \$ 1,931.62 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 456.00 | \$ 3,097.15 |
| Erosion Control Mats (SY) | \$ 1.87 | 50.67 | \$ 94.85 |
| Landscape Mulch (SY) | \$ 3.58 | 50.67 | \$ 181.18 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 23.33 | \$ 1,422.96 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 23.33 | \$ 133.56 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 6,980.88

Construction Cost Total \$ 58,146.66

Traffic Control (8% of Construction Total \$) \$ 4,651.73

Construction Cost Grand Total \$ 62,798.40

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|---------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 75.00 | \$ 4,950.00 |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 1.00 | \$ 687.50 |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 75.00 | \$ 2,887.50 |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50.00 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 0.00 | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 0.00 | \$ - |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 12,100.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|-------|------------|
| Permanent Easement | \$ 4.00 | 0.00 | \$ - |
| ROW Total | | | \$ - |

| General Information | | Map | |
|---|--|---|---|
| Project ID | | | |
| Street Name | 547 Kenwood Road | | |
| Site Visit Date | 5/22/13 | | |
| Road Classification | Minor Arterial | | |
| Project Notes | | | |
| Rural Typical Section | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-12' | | |
| Existing Shld Width (paved and grass) (feet) | None | | |
| Existing Side Slopes | 1:1 | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 2 | | |
| Pipe Type and Size | 96" CMP | | |
| Pipe Condition (1-5) (1 is new) | 3 | | |
| Condition Notes: Rusted severely on upstream and downstream ends; 3' + drop on downstream end, interior structure ok, debris/maintenance needed | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | Stage Construction Options | |
| Wetlands | None | Close Location to Traffic | X |
| Ditches | Noted | Maintain One Lane - No Temp Pavement | |
| | | Maintain One Lane - Temp Pavement | |
| | | Stage Construction Notes: 35 mph posted | |
| Utilities (Visual Inspection) | | | |
| Electric | Aerial | | |
| Cable | Aerial | | |
| Phone | Aerial | | |
| Gas | | | |
| Water | Buried | | |
| Sewer | | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | | | |
| Culvert Size & Material | 8' x 5' box, concrete, 80' length | | |
| Utility Relocations | | | |
| Guardrail Replacement | Guardrail due to culvert and side slopes | | |
| Miscellaneous Features | | | |
| | | | |
| | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$22,646 | |
| Right of Way Cost | Assuming project extends 7,500 sf beyond ROW | \$15,000 | |
| Utility Relocation Cost | Buried utilities | \$5,500 | |
| Construction Cost | Assuming 1/10 acre clearing and grubbing | \$176,464 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$229,611 | |



Photo 1:



Photo 2:

Kenwood Road

Photo Date:

5/21/2013

Taken By:

David King

Page:

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|---------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 432.00 | \$ 2,421.50 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 500.00 | \$ 26,988.00 |
| End Anchorage (EA) | | \$ 1,380.00 | 2.00 | \$ 2,760.00 |
| Subtotal | | | | \$ 32,169.50 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 7,142.00

Roadway Total \$ 39,311.51

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|----------|--------------|
| Trench Excavation (CY) | | \$ 10.38 | 586.67 | \$ 6,089.60 |
| 96" CMP (LF) | \$ 72.00 | | 80.00 | \$ 17,280.00 |
| 96" RCP | | \$ 142.52 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 74.23 | \$ 66,230.68 |
| Steel (lb) | | \$ 1.42 | 9,406.00 | \$ 13,318.90 |
| Pipe Bedding (CY) | | \$ 48.60 | 54.70 | \$ 2,658.42 |
| Trench Backfill (CY) | | \$ 2.99 | 630.63 | \$ 1,884.33 |
| Trench Compaction (CY) | | \$ 6.36 | 504.51 | \$ 3,208.66 |

Drainage Total \$ 110,670.59

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 72.00 | \$ 50.98 |

Signing and Marking Total \$ 50.98

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 1.00 | \$ 4,428.00 |

Staging Total \$ 5,555.95

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 112.00 | \$ 491.90 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 320.00 | \$ 1,355.52 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 320.00 | \$ 2,173.44 |
| Erosion Control Mats (SY) | \$ 1.87 | 106.67 | \$ 199.68 |
| Landscape Mulch (SY) | \$ 3.58 | 106.67 | \$ 381.44 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 48.00 | \$ 2,927.23 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 48.00 | \$ 274.75 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 7,803.97

Construction Cost Total \$ 163,393.00

Traffic Control (8% of Construction Total \$) \$ 13,071.44

Construction Cost Grand Total \$ 176,464.44

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|--------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 50.00 | \$ 5,500.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 5,500.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|----------|---------------------|
| Permanent Easement | \$ 4.00 | 3,750.00 | \$ 15,000.00 |
| ROW Total | | | \$ 15,000.00 |

| General Information | | Map | |
|---|--|------------------|--|
| Project ID | | | |
| Street Name | 200 Kingswood Drive | | |
| Site Visit Date | 1/20/2016 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-12' | | |
| Existing Shld Width (paved and grass) (feet) | 12' | | |
| Existing Side Slopes | 8:1 | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 4.5' | | |
| Pipe Type and Size | 48" CMP | | |
| Pipe Condition (1-5) (1 is new) | 4-5 | | |
| Condition Notes: Rusted out bottoms. Concrete headwall and sluice/exaggerated inlet | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | | | |
| Ditches | Roadside drainage ditches | | |
| State Waters | | | |
| Utilities (Visual Inspection) | | | |
| Electric | Unknown | | |
| Cable | Buried | | |
| Phone | Unknown | | |
| Gas | Unknown | | |
| Water | Buried | | |
| Sewer | Unknown | | |
| Other | | | |
| Stage Construction Options | | | |
| Close Location to Traffic | | | |
| Maintain One Lane - No Temp Pavement | | X | |
| Maintain One Lane - Temp Pavement | | | |
| Stage Construction Notes: | | | |
| Proposed Design | | | |
| Roadway Section | Typical | | |
| Culvert Size & Material | 48" round RCP with straight headwalls. Cost of removing each existing headwall and small spillway equal to removal of entire length of pipe. | | |
| Utility Relocations | Removal/replacement of fire hydrand and buried water, cable lines | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$11,512 | |
| Right of Way Cost | Assume project extends past ROW, 1/10 acre | \$17,424 | |
| Utility Relocation Cost | | \$11,684 | |
| Construction Cost | | \$65,122 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$115,742 | |





Photo 1: Upstream end of culvert.



Photo 2: Downstream end of culvert looking North towards Kingswood Drive.

Kingswood Drive

Photo Date:

1/20/2016

Taken By:

David Gibbs

Page

1

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 144.00 | \$ 807.17 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 807.17 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 2,209.38

Roadway Total \$ 3,016.54

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|--------|--------------|
| Trench Excavation (CY) | | \$ 10.38 | 194.22 | \$ 2,016.03 |
| 48" CMP (LF) | \$ 24.60 | | 368.00 | \$ 9,052.80 |
| 48" RCP (LF) | | \$ 193.20 | 92.00 | \$ 17,774.40 |
| Class A Conc (CY) | | \$ 892.19 | 13.70 | \$ 12,222.98 |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 20.44 | \$ 993.60 |
| Trench Backfill (CY) | | \$ 2.99 | 163.51 | \$ 488.58 |
| Trench Compaction (CY) | | \$ 6.36 | 130.81 | \$ 831.96 |

Drainage Total \$ 43,380.35

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | | \$ - |

Signing and Marking Total \$ -

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.20 | \$ 2,052.00 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 1.00 | \$ 4,428.00 |

Staging Total \$ 6,480.00

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 45.33 | \$ 199.10 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 552.00 | \$ 2,338.27 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 552.00 | \$ 3,749.18 |
| Erosion Control Mats (SY) | \$ 1.87 | 61.33 | \$ 114.82 |
| Landscape Mulch (SY) | \$ 3.58 | 61.33 | \$ 219.33 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 12.00 | \$ 731.81 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 12.00 | \$ 68.69 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 7,421.20

Construction Cost Total \$ 60,298.09

Traffic Control (8% of Construction Total \$) \$ 4,823.85

Construction Cost Grand Total \$ 65,121.94

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|---------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50.00 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 0.00 | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 50.00 | \$ 5,500.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | 1.00 | \$ 2,609.22 |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 11,684.22 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|---------|---------------------|
| Permanent Easement | \$ 4.00 | 4356.00 | \$ 17,424.00 |
| ROW Total | | | \$ 17,424.00 |

| General Information | | Map | |
|--|--|------------------|--|
| Project ID | | | |
| Street Name | 115 Mark Lane | | |
| Site Visit Date | 5/22/13 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Urban typical with Curb and Gutter | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2 - 10' | | |
| Existing Shld Width (paved and grass) (feet) | 4' | | |
| Existing Side Slopes | Flat | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 5 | | |
| Pipe Type and Size | 60" CMP | | |
| Pipe Condition (1-5) (1 is new) | 4 | | |
| Condition Notes: Not straight, joint damage; downstream sediment (1/2' of sediment 90' length) | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | X (Upstream) | | |
| Ditches | None | | |
| Utilities (Visual Inspection) | | | |
| Electric | Buried | | |
| Cable | Buried | | |
| Phone | Buried | | |
| Gas | | | |
| Water | Buried | | |
| Sewer | | | |
| Other | | | |
| Stage Construction Options | | | |
| Close Location to Traffic | | | |
| Maintain One Lane - No Temp Pavement | | X | |
| Maintain One Lane - Temp Pavement | | | |
| Stage Construction Notes: | | | |
| Proposed Design | | | |
| Roadway Section | | | |
| Culvert Size & Material | Double 6x4' box, concrete, 90' | | |
| Utility Relocations | Electric, cable, phone, water | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$30,040 | |
| Right of Way Cost | Assuming project extends 4,000 sf beyond ROW | \$16,000 | |
| Utility Relocation Cost | Buried utilities | \$17,600 | |
| Construction Cost | Assuming 1/10 acre clearing and grubbing | \$175,397 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$249,037 | |



Photo 1:



Photo 2:

Mark Lane

Photo Date:

5/21/2013

Taken By:

David King

Page:

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Photo 3:



Photo 4:

Mark Lane

Photo Date:

5/21/2013

Taken By:

David King

Page:

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|---------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 280.00 | \$ 1,569.49 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 56.00 | \$ 3,312.96 |
| Drain Inlet (EA) | | \$ 3,000.00 | 2.00 | \$ 6,000.00 |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 10,882.45 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 7,106.65

Roadway Total \$ 17,989.10

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|-----------|--------------|
| Trench Excavation (CY) | | \$ 10.38 | 513.33 | \$ 5,328.40 |
| 60" CMP (LF) | \$ 24.60 | | 90.00 | \$ 6,642.00 |
| 60" RCP | | \$ 259.20 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 107.46 | \$ 95,874.52 |
| Steel (lb) | | \$ 1.42 | 11,682.00 | \$ 16,541.71 |
| Pipe Bedding (CY) | | \$ 48.60 | 47.70 | \$ 2,318.22 |
| Trench Backfill (CY) | | \$ 2.99 | 562.86 | \$ 1,681.81 |
| Trench Compaction (CY) | | \$ 6.36 | 450.28 | \$ 2,863.81 |

Drainage Total \$ 131,250.48

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 56.00 | \$ 39.65 |

Signing and Marking Total \$ 39.65

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 1.00 | \$ 4,428.00 |

Staging Total \$ 5,533.30

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 108.89 | \$ 478.24 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 360.00 | \$ 1,524.96 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 360.00 | \$ 2,445.12 |
| Erosion Control Mats (SY) | \$ 1.87 | 120.00 | \$ 224.64 |
| Landscape Mulch (SY) | \$ 3.58 | 120.00 | \$ 429.12 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 37.33 | \$ 2,276.74 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 37.33 | \$ 213.70 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 7,592.51

Construction Cost Total \$ 162,405.03

Traffic Control (8% of Construction Total \$) \$ 12,992.40

Construction Cost Grand Total \$ 175,397.43

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|---------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 50.00 | \$ 4,950.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50.00 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50.00 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 50.00 | \$ 5,500.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 17,600.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|----------|---------------------|
| Permanent Easement | \$ 4.00 | 4,000.00 | \$ 16,000.00 |
| ROW Total | | | \$ 16,000.00 |

| General Information | | Map | |
|--|--|--------------------------------------|---|
| Project ID | | | |
| Street Name | 130 Mathew Way | | |
| Site Visit Date | 5/22/13 | | |
| Road Classification | Internal Local | | |
| Project Notes | | | |
| Urban typical with Curb and Gutter | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-10' | | |
| Existing Shld Width (paved and grass) (feet) | 6' | | |
| Existing Side Slopes | Flat | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 4 | | |
| Pipe Type and Size | 72" CMP | | |
| Pipe Condition (1-5) (1 is new) | 4 | | |
| Condition Notes: Pipe separated from headwall; Stream parallel to road | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | Stage Construction Options | |
| Wetlands | Yes | Close Location to Traffic | |
| Ditches | None | Maintain One Lane - No Temp Pavement | X |
| | | Maintain One Lane - Temp Pavement | |
| | | Stage Construction Notes: | |
| | | | |
| Utilities (Visual Inspection) | | | |
| Electric | Buried | | |
| Cable | Buried | | |
| Phone | Buried | | |
| Gas | | | |
| Water | Buried | | |
| Sewer | | | |
| Other | Street Light above structure | | |
| Proposed Design | | | |
| Roadway Section | | | |
| Culvert Size & Material | dbl 9' x 4' box, concrete, 80' length. Assuming cost of headwall removal is equal to half of removing entire length of pipe | | |
| Utility Relocations | Street Light above structure, electric, cable, phone, water. Applying cost of electric utility wooden pole to remove street light. | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | | | |
| | | | |
| | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$37,375 | |
| Right of Way Cost | Assuming project extends 2,100 sf beyond ROW | \$8,400 | |
| Utility Relocation Cost | Buried utilities | \$18,288 | |
| Construction Cost | Assuming 1/10 acre clearing and grubbing | \$248,747 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$322,809 | |



Photo 1:

Mathew Way



Photo 2:

Photo Date:

5/21/2013

Taken By:

David King

Page:

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Photo 3:



Photo 4:

Mathew Way

Photo Date:

5/21/2013

Taken By:

David King

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---|-------------------|------------------------|--------------------|----------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 400.00 | \$ 2,242.13 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 40.00 | \$ 2,366.40 |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 4,608.53 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 10,314.95 |
| Roadway Total | | | | \$ 14,923.48 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 651.85 | \$ 6,766.22 |
| 72" CMP (LF) | \$ 54.00 | | 120.00 | \$ 19,440.00 |
| 72" RCP | | \$ 390.00 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 159.95 | \$ 142,705.47 |
| Steel (lb) | | \$ 1.42 | 17,018.00 | \$ 24,097.49 |
| Pipe Bedding (CY) | | \$ 48.60 | 60.70 | \$ 2,950.02 |
| Trench Backfill (CY) | | \$ 2.99 | 709.67 | \$ 2,120.50 |
| Trench Compaction (CY) | | \$ 6.36 | 567.74 | \$ 3,610.80 |
| Drainage Total | | | | \$ 201,690.50 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | 0.00 | \$ - |
| Signing and Marking Total | | | | \$ - |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | | \$ - |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 1.00 | \$ 4,428.00 |
| Staging Total | | | | \$ 5,454.00 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 133.33 | \$ 585.60 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 320.00 | \$ 1,355.52 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 320.00 | \$ 2,173.44 |
| Erosion Control Mats (SY) | | \$ 1.87 | 106.67 | \$ 199.68 |
| Landscape Mulch (SY) | | \$ 3.58 | 106.67 | \$ 381.44 |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 53.33 | \$ 3,252.48 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 53.33 | \$ 305.28 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 8,253.44 |
| Construction Cost Total | | | | \$ 230,321.42 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 18,425.71 |
| Construction Cost Grand Total | | | | \$ 248,747.14 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 50.00 | \$ 4,950.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 1.00 | \$ 687.50 |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50.00 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50.00 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 50.00 | \$ 5,500.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 18,287.50 |
| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost | |
| Permanent Easement | \$ 4.00 | 2,100.00 | \$ 8,400.00 | |
| ROW Total | | | \$ 8,400.00 | |

| General Information | | Map | |
|---|---|------------------|--|
| Project ID | | | |
| Street Name | 330 Merrydale Drive | | |
| Site Visit Date | 1/20/2016 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-11.5' | | |
| Existing Shld Width (paved and grass) (feet) | 8.5' | | |
| Existing Side Slopes | 3:1 | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 9.00 | | |
| Pipe Type and Size | 60" CMP | | |
| Pipe Condition (1-5) (1 is new) | 3 | | |
| Condition Notes: Light rusted bottom. No headwall | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | | | |
| Ditches | Roadside drainage ditches | | |
| State Waters | | | |
| Utilities (Visual Inspection) | | | |
| Electric | Aerial | | |
| Cable | Unknown | | |
| Phone | Aerial | | |
| Gas | Unknown | | |
| Water | Unknown | | |
| Sewer | Unknown | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | Typical | | |
| Culvert Size & Material | 60" round RCP with straight headwalls | | |
| Utility Relocations | Utility pole near downstream culvert may need to be relocated | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% of Construction Cost and surveying needs | \$12,324 | |
| Right of Way Cost | Project assumed to be entirely in ROW | \$0 | |
| Utility Relocation Cost | Potential relocation of utility pole, aerial cables | \$14,713 | |
| Construction Cost | | \$73,243 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$110,280 | |





Photo 1: Upstream end of culvert.



Photo 2: Downstream end of culvert looking northwest towards Merrydale Drive.

330 Merrydale Drive

Photo Date:

1/20/2016

Taken By:

David Gibbs

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---|-------------------|------------------------|--------|---------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 161.00 | \$ 902.46 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 902.46 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 2,720.19 |
| Roadway Total | | | | \$ 3,622.65 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 342.22 | \$ 3,552.27 |
| 60" CMP (LF) | \$ 24.60 | | 88.00 | \$ 2,164.80 |
| 60" RCP (LF) | | \$ 281.96 | 88.00 | \$ 24,812.83 |
| Class A Conc (CY) | | \$ 892.19 | 21.58 | \$ 19,253.42 |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 22.81 | \$ 1,108.80 |
| Trench Backfill (CY) | | \$ 2.99 | 323.08 | \$ 965.36 |
| Trench Compaction (CY) | | \$ 6.36 | 258.46 | \$ 1,643.82 |
| Drainage Total | | | | \$ 53,501.30 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | | \$ - |
| Signing and Marking Total | | | | \$ - |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.15 | \$ 1,539.00 |
| Temporary Pavement | | | | \$ - |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 1.00 | \$ 4,428.00 |
| Staging Total | | | | \$ 5,967.00 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 50.56 | \$ 222.04 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 352.00 | \$ 1,491.07 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 352.00 | \$ 2,390.78 |
| Erosion Control Mats (SY) | | \$ 1.87 | 0.00 | \$ - |
| Landscape Mulch (SY) | | \$ 3.58 | 0.00 | \$ - |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 9.33 | \$ 569.18 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 9.33 | \$ 53.42 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 4,726.50 |
| Construction Cost Total | | | | \$ 67,817.45 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 5,425.40 |
| Construction Cost Grand Total | | | | \$ 73,242.85 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 100.00 | \$ 6,600.00 |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 1.00 | \$ 687.50 |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 100.00 | \$ 3,850.00 |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50.00 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 0.00 | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 0.00 | \$ - |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 14,712.50 |
| Right of Way (Sq Ft) | | Cost/ Sq Ft | Sq Ft | Total Cost |
| Permanent Easement | | \$ 4.00 | 0.00 | \$ - |
| ROW Total | | | | \$ - |

| General Information | | Map | |
|--|---|------------------|--|
| Project ID | | | |
| Street Name | 145 Millers Oak Way | | |
| Site Visit Date | 2/4/2016 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Almost entire project lies outside of ROW on private parcels. Culvert path passes under private driveway for approximately 40'; owners will need to be accommodated. | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-10 | | |
| Existing Shld Width (paved and grass) (feet) | 2' | | |
| Existing Side Slopes | 40:1-30:1 | | |
| Existing Guardrail | N/A | | |
| Depth fm Pavement to Top of Culvert (ft): | 1.25' | | |
| Pipe Type and Size | 24" CMP | | |
| Pipe Condition (1-5) (1 is new) | 3-4 | | |
| Rusted, heavy debris buildup. | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | | | |
| Ditches | | | |
| State Waters | | | |
| Utilities (Visual Inspection) | | | |
| Electric | Buried | | |
| Cable | Buried | | |
| Phone | Unknown | | |
| Gas | Unknown | | |
| Water | Unknown | | |
| Sewer | Unknown | | |
| Other | Unknown | | |
| Stage Construction Options | | | |
| Close Location to Traffic | | | |
| Maintain One Lane - No Temp Pavement | | X | |
| Maintain One Lane - Temp Pavement | | | |
| Stage Construction Notes: | | | |
| Lampost and electrical box in potential culvert path, upstream side of street. Cable box on downstream side of street. | | | |
| Proposed Design | | | |
| Roadway Section | Typical | | |
| Culvert Size & Material | 36" round RCP with straight headwalls. Additional excavation and grading required to lower upstream inlet by 1' for upsizing purposes. Length of installed pipe may be 10-15' shorter for proper headwall installation downstream (Photo 2) | | |
| Utility Relocations | Lampost (costed as utility pole), electric utility box (costed as utility pole), and buried electric and cable wires | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction cost and surveying needs | \$16,401 | |
| Right of Way Cost | Assuming project extends beyond ROW, 1/4 acre | \$43,560 | |
| Utility Relocation Cost | Buried electric and cable, utility box, lampost | \$18,425 | |
| Construction Cost | | \$114,014 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$202,401 | |





Photo 1: Upstream end of culvert looking North towards Millers Oak Way.



Photo 2: Downstream end looking North towards Millers Oak Way.

145 Millers Oak Way

Photo Date:

2/4/2016

Taken By:

Christian Helfrich

Page

1

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---|-------------------|------------------------|---------------------|----------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 115.00 | \$ 644.61 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 40.00 | \$ 2,366.40 |
| Drain Inlet (EA) | | \$ 3,000.00 | 2.00 | \$ 6,000.00 |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 22.22 | \$ 1,121.33 |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 10,132.35 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 4,493.50 |
| Roadway Total | | | | \$ 14,625.84 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 566.48 | \$ 5,880.08 |
| 24" CMP (LF) | \$ 16.38 | | 342.00 | \$ 16,805.88 |
| 36" RCP (LF) | | \$ 134.40 | 322.00 | \$ 43,276.80 |
| Class A Conc (CY) | | \$ 892.19 | 7.20 | \$ 6,423.75 |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 59.63 | \$ 2,898.00 |
| Trench Backfill (CY) | | \$ 2.99 | 551.40 | \$ 1,647.57 |
| Trench Compaction (CY) | | \$ 6.36 | 441.12 | \$ 2,805.50 |
| Drainage Total | | | | \$ 79,737.58 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | 0.00 | \$ - |
| Signing and Marking Total | | | | \$ - |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.20 | \$ 2,052.00 |
| Temporary Pavement | | | | \$ - |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 1.00 | \$ 4,428.00 |
| Staging Total | | | | \$ 6,480.00 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 166.11 | \$ 729.56 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 322.00 | \$ 1,363.99 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 322.00 | \$ 2,187.02 |
| Erosion Control Mats (SY) | | \$ 1.87 | 0.00 | \$ - |
| Landscape Mulch (SY) | | \$ 3.58 | 0.00 | \$ - |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 6.67 | \$ 406.56 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 6.67 | \$ 38.16 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 4,725.30 |
| Construction Cost Total | | | | \$ 105,568.72 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 8,445.50 |
| Construction Cost Grand Total | | | | \$ 114,014.21 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 100.00 | \$ 9,900.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 2.00 | \$ 1,375.00 |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 100.00 | \$ 7,150.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 0.00 | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 0.00 | \$ - |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | 0.00 | \$ - |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 18,425.00 |
| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost | |
| Permanent Easement | \$ 4.00 | 10890.00 | \$ 43,560.00 | |
| ROW Total | | | \$ 43,560.00 | |

| General Information | | Map | |
|---|---|--------------------------------------|---|
| Project ID | | | |
| Street Name | 420 North Drive | | |
| Site Visit Date | 5/22/13 | | |
| Road Classification | Internal Local | | |
| Project Notes | | | |
| Urban typical with Valley gutter | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-11' | | |
| Existing Shld Width (paved and grass) (feet) | 6' | | |
| Existing Side Slopes | flat | | |
| Existing Guardrail | none | | |
| Depth fm Pavement to Top of Culvert (ft): | 5 | | |
| Pipe Type and Size | 60" CMP, 80' | | |
| Pipe Condition (1-5) (1 is new) | 3 | | |
| Condition Notes: No headwall; signs of sag towards downstream end, sediment approximately 1" deep | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | Stage Construction Options | |
| Wetlands | None | Close Location to Traffic | X |
| Ditches | None | Maintain One Lane - No Temp Pavement | |
| | | Maintain One Lane - Temp Pavement | |
| | | Stage Construction Notes: | |
| | | | |
| Utilities (Visual Inspection) | | | |
| Electric | Buried | | |
| Cable | Buried | | |
| Phone | Buried | | |
| Gas | | | |
| Water | Buried | | |
| Sewer | | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | | | |
| Culvert Size & Material | 5' x 4' box, concrete, 80' | | |
| Utility Relocations | Street light near structure, electric, cable, phone, water. Applying cost of electric utility wooden pole removal for street light. | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | | | |
| | | | |
| | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$13,230 | |
| Right of Way Cost | Assuming project extends 3,000 sf beyond ROW | \$12,000 | |
| Utility Relocation Cost | Buried utilities | \$14,768 | |
| Construction Cost | Assuming 1/10 acre clearing and grubbing | \$82,295 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$132,292 | |



Photo 1:



Photo 2:

20' North Drive

Photo Date:

5/21/2013

Taken By:

David King

Page:

1



Photo 3:



Photo 4:

20` North Drive

Photo Date:

5/21/2013

Taken By:

David King

Page:

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---|-------------------|------------------------|----------|---------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 154.00 | \$ 863.22 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 20.00 | \$ 1,183.20 |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 2,046.42 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 3,394.65 |
| Roadway Total | | | | \$ 5,441.07 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 228.15 | \$ 2,368.18 |
| 60" CMP (LF) | \$ 24.60 | | 80.00 | \$ 5,904.00 |
| 60" RCP | | \$ 259.20 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 53.51 | \$ 47,740.98 |
| Steel (lb) | | \$ 1.42 | 4,806.00 | \$ 6,805.30 |
| Pipe Bedding (CY) | | \$ 48.60 | 21.30 | \$ 1,035.18 |
| Trench Backfill (CY) | | \$ 2.99 | 246.77 | \$ 737.36 |
| Trench Compaction (CY) | | \$ 6.36 | 197.42 | \$ 1,255.59 |
| Drainage Total | | | | \$ 65,846.58 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | 0.00 | \$ - |
| Signing and Marking Total | | | | \$ - |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | | \$ - |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 1.00 | \$ 4,428.00 |
| Staging Total | | | | \$ 5,454.00 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 45.11 | \$ 198.13 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 320.00 | \$ 1,355.52 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 320.00 | \$ 2,173.44 |
| Erosion Control Mats (SY) | | \$ 1.87 | 106.67 | \$ 199.68 |
| Landscape Mulch (SY) | | \$ 3.58 | 106.67 | \$ 381.44 |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 18.67 | \$ 1,138.37 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 18.67 | \$ 106.85 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 5,553.42 |
| Construction Cost Total | | | | \$ 82,295.08 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 6,583.61 |
| Construction Cost Grand Total | | | | \$ 88,878.68 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 40.00 | \$ 3,960.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 1.00 | \$ 687.50 |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 40.00 | \$ 2,860.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 40.00 | \$ 2,860.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 40.00 | \$ 4,400.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 14,767.50 |
| Right of Way (Sq Ft) | | Cost/ Sq Ft | Sq Ft | Total Cost |
| Permanent Easement | | \$ 4.00 | 3,000.00 | \$ 12,000.00 |
| ROW Total | | | | \$ 12,000.00 |

| General Information | | Map | |
|--|---|-----------------|--|
| Project ID | | | |
| Street Name | 290 Oak Street | | |
| Site Visit Date | 1/21/2016 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Major blowout near private driveway culvert 15' x 5', exposed utility lines | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-11' | | |
| Existing Shld Width (paved and grass) (feet) | 10' | | |
| Existing Side Slopes | 4:1 | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 5.00 | | |
| Pipe Type and Size | 30" CMP | | |
| Pipe Condition (1-5) (1 is new) | 4-5 | | |
| Condition Notes: Rusted out bottom. No headwalls, surrounded by a lot of rip rap upstream side, also a roadside drainage pipe that empties at culvert. Major streambed/bank blowout downstream | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | | | |
| Ditches | Roadside drainage ditches | | |
| State Waters | | | |
| Buried | | | |
| Electric | Aerial | | |
| Cable | Unknown | | |
| Phone | Aerial | | |
| Gas | Unknown | | |
| Water | Unknown | | |
| Sewer | Unknown | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | Typical | | |
| Culvert Size & Material | 42" round RCP with straight headwalls | | |
| Utility Relocations | Relocation of utility pole, aerial wires | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | Major blowout near private driveway culvert that contributes to upstream end of culvert. 15' x 5' hole with exposed utilities | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% of Construction Cost and surveying needs | \$9,150 | |
| Right of Way Cost | Project assumed to be entirely in ROW | \$0 | |
| Utility Relocation Cost | | \$5,913 | |
| Construction Cost | | \$41,500 | |
| Environmental Permits | Minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$66,563 | |





Photo 1: Upstream end of culvert looking North towards Oak Street.



Photo 2: Downstream end of culvert.

290 Oak Street

Photo Date:

1/21/2016

Taken By:

David Gibbs

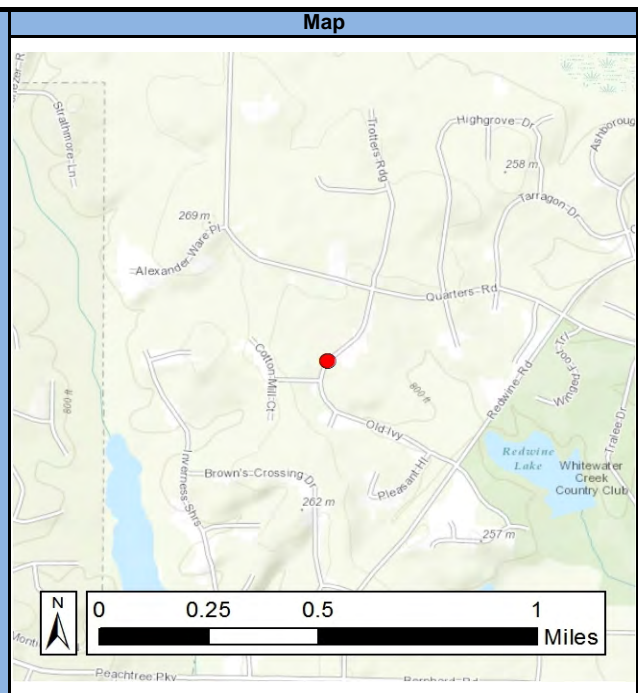
Page

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---|-------------------|------------------------|--------|--------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 121.00 | \$ 678.25 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 678.25 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 1,155.40 |
| Roadway Total | | | | \$ 1,833.64 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 123.85 | \$ 1,285.58 |
| 30" CMP (LF) | \$ 19.66 | | 64.00 | \$ 1,257.98 |
| 42" RCP (LF) | | \$ 142.52 | 64.00 | \$ 9,121.54 |
| Class A Conc (CY) | | \$ 892.19 | 10.40 | \$ 9,278.76 |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 13.04 | \$ 633.60 |
| Trench Backfill (CY) | | \$ 2.99 | 105.53 | \$ 315.32 |
| Trench Compaction (CY) | | \$ 6.36 | 84.42 | \$ 536.92 |
| Drainage Total | | | | \$22,429.70 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | | \$ - |
| Signing and Marking Total | | | | \$ - |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.25 | \$ 2,565.00 |
| Temporary Pavement | | | | \$ - |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 1.00 | \$ 4,428.00 |
| Staging Total | | | | \$ 6,993.00 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 25.67 | \$ 112.73 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 512.00 | \$ 2,168.83 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 512.00 | \$ 3,477.50 |
| Erosion Control Mats (SY) | | \$ 1.87 | 56.89 | \$ 106.50 |
| Landscape Mulch (SY) | | \$ 3.58 | 56.89 | \$ 203.43 |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 16.50 | \$ 1,006.24 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 16.50 | \$ 94.45 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 7,169.68 |
| Construction Cost Total | | | | \$38,426.02 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 3,074.08 |
| Construction Cost Grand Total | | | | \$41,500.10 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 50.00 | \$ 3,300.00 |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 1.00 | \$ 687.50 |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 50.00 | \$ 1,925.00 |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 0.00 | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 0.00 | \$ - |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 5,912.50 |
| Right of Way (Sq Ft) | | Cost/ Sq Ft | Sq Ft | Total Cost |
| Permanent Easement | | \$ 4.00 | 0.00 | \$ - |
| ROW Total | | | | \$ - |

| General Information | |
|--|--------------|
| Project ID | |
| Street Name | 220 Old Ivy |
| Site Visit Date | 1/20/2016 |
| Road Classification | Minor road |
| Project Notes | |
| Culvert path is diagonal under a slight bend in road. Upstream inlet is a vertical concrete inlet that will need to be removed. Pedestrian dirt trail passes over downstream outlet near a children's playground | |
| Field Notes | |
| Design (Existing Site Features) | |
| Existing Road Laneage | 2-12.5' |
| Existing Shld Width (paved and grass) (feet) | 15' |
| Existing Side Slopes | 20:1 |
| Existing Guardrail | None |
| Depth fm Pavement to Top of Culvert (ft): | 3' |
| Pipe Type and Size | 42" CMP |
| Pipe Condition (1-5) (1 is new) | 4 |
| Condition Notes: Rusted out bottom. Concrete headwall downstream. | |
| Pavement Type/Condition | Asphalt/Good |
| Environmental Features | |
| Wetlands | |
| Ditches | |
| State Waters | |
| | |
| Utilities (Visual Inspection) | |
| Electric | Aerial |
| Cable | Aerial |
| Phone | Aerial |
| Gas | Unknown |
| Water | Buried |
| Sewer | Unknown |
| Other | |



| Stage Construction Options | |
|--------------------------------------|---|
| Close Location to Traffic | |
| Maintain One Lane - No Temp Pavement | X |
| Maintain One Lane - Temp Pavement | |
| Stage Construction Notes: | |
| | |

| Proposed Design | |
|-------------------------|---|
| Roadway Section | Typical |
| Culvert Size & Material | 42" round RCP with straight headwalls. Removal of upstream vertical inlet costed as manhole removal. Cost of removing headwall assumed equal to removal of entire length of pipe. |
| Utility Relocations | |
| Guardrail Replacement | Wooden fence posts for trail over downstream outlet removal/replacement costed as guardrails. |
| Miscellaneous Features | |
| | |
| | |

| Planning Cost Estimate | | |
|-------------------------|--|----------|
| Type | Notes | Total |
| Design | Includes 10% of Construction Cost and surveying needs | \$20,192 |
| Right of Way Cost | Project assumed to be entirely in ROW, County owned parcel | \$0 |
| Utility Relocation Cost | Possible water main removal/replacement | \$5,500 |
| Construction Cost | | \$76,918 |
| Environmental Permits | Includes Zone A Floodway study | \$15,000 |

| | |
|--------------------------------|------------------|
| Total Planning Estimate | \$117,610 |
|--------------------------------|------------------|





Photo 1: View from downstream end towards Old Ivy.



Photo 2: Upstream inlet looking West towards Old Ivy.

220 Old Ivy

Photo Date:

1/20/2016

Taken By:

David Gibbs

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---|-------------------|------------------------|--------|---------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 137.50 | \$ 770.73 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 14.00 | \$ 828.24 |
| Drain Inlet (EA) | | \$ 3,000.00 | 2.00 | \$ 6,000.00 |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 6.67 | \$ 336.40 |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 24.00 | \$ 1,295.42 |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 9,230.80 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 2,718.35 |
| Roadway Total | | | | \$ 11,949.14 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 289.26 | \$ 3,002.51 |
| Remove Manhole (EA) | | \$ 2,069.81 | 1.00 | \$ 2,069.81 |
| 42" CMP (LF) | \$ 24.60 | | 284.00 | \$ 6,986.40 |
| 42" RCP (LF) | | \$ 142.52 | 142.00 | \$ 20,238.41 |
| Class A Conc (CY) | | \$ 892.19 | 10.40 | \$ 9,278.76 |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 28.93 | \$ 1,405.80 |
| Trench Backfill (CY) | | \$ 2.99 | 266.77 | \$ 797.11 |
| Trench Compaction (CY) | | \$ 6.36 | 213.42 | \$ 1,357.33 |
| Drainage Total | | | | \$ 45,136.12 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | | \$ - |
| Signing and Marking Total | | | | \$ - |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.20 | \$ 2,052.00 |
| Temporary Pavement | | | | \$ - |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 1.00 | \$ 4,428.00 |
| Staging Total | | | | \$ 6,480.00 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 71.50 | \$ 314.03 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 568.00 | \$ 2,406.05 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 568.00 | \$ 3,857.86 |
| Erosion Control Mats (SY) | | \$ 1.87 | 63.11 | \$ 118.14 |
| Landscape Mulch (SY) | | \$ 3.58 | 63.11 | \$ 225.69 |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 11.00 | \$ 670.82 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 11.00 | \$ 62.96 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 7,655.55 |
| Construction Cost Total | | | | \$ 71,220.81 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 5,697.66 |
| Construction Cost Grand Total | | | | \$ 76,918.48 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 0.00 | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 50.00 | \$ 5,500.00 |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 5,500.00 |
| Right of Way (Sq Ft) | | Cost/ Sq Ft | Sq Ft | Total Cost |
| Permanent Easement | | \$ 4.00 | 0.00 | \$ - |
| ROW Total | | | | \$ - |

| General Information | | Map | |
|--|--|------------------|--|
| Project ID | | | |
| Street Name | 190 Ponderosa Drive | | |
| Site Visit Date | Beverly Manor S/D | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Replace 30-yr old CMP with RCP. Replace flumes with curb inlets and provide manhole access to pipe for inspection and maintenance. One of several pipe replacement projects in subdivision | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-13 | | |
| Existing Shld Width (paved and grass) (feet) | NA - curb & gutter | | |
| Existing Side Slopes | NA - curb & gutter | | |
| Existing Guardrail | NA - curb & gutter | | |
| Depth fm Pavement to Top of Culvert (ft): | Assumed 3' | | |
| Pipe Type and Size | CMP, 48" | | |
| Pipe Condition (1-5) (1 is new) | 5 | | |
| Condition Notes: Pipe and associated structures are old and in poor condition | | | |
| Pavement Type/Condition | Average | | |
| Environmental Features | | | |
| Wetlands | None | | |
| Ditches | None | | |
| | | | |
| | | | |
| Utilities (Visual Inspection) | | | |
| Electric | Yes | | |
| Cable | Yes | | |
| Phone | Yes | | |
| Gas | Unknown | | |
| Water | Yes | | |
| Sewer | No | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | Typical with curb and gutter. Road dimensions estimated with Google Earth. | | |
| Culvert Size & Material | Replace existing pipe with 48" RCP, approximately 40'. Cost of headwall removal assumed equal to removal of entire length of pipe. | | |
| Utility Relocations | Buried utilities | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | Previous inspection notes called for upgrading inlets, headwalls and junction boxes to modern design. Manhole access was not considered in this design | | |
| | | | |
| | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$9,691 | |
| Right of Way Cost | Assuming project extends 5,000 sf beyond ROW | \$20,000 | |
| Utility Relocation Cost | Buried utilities | \$17,600 | |
| Construction Cost | Assuming 1/10 acre clearing and grubbing | \$46,912 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 | |
| Total Planning Estimate | | \$104,203 | |
| Stage Construction Options | | | |
| Close Location to Traffic | | | |
| Maintain One Lane - No Temp Pavement | | X | |
| Maintain One Lane - Temp Pavement | | | |
| Stage Construction Notes: Minimal impacts to traffic and access can be maintained to all properties. | | | |



Photo 1:



Photo 2:

190 Ponderosa Drive

Photo Date:

6/03/2013

Taken By:

Tony Hicks

Page:

1

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---|-------------------|------------------------|----------|---------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 156.00 | \$ 874.43 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 40.00 | \$ 2,366.40 |
| Drain Inlet (EA) | | \$ 3,000.00 | 2.00 | \$ 6,000.00 |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | | \$ - |
| Subtotal | | | | \$ 9,240.83 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 1,683.48 |
| Roadway Total | | | | \$ 10,924.32 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 71.11 | \$ 738.13 |
| 48" CMP (LF) | \$ 24.60 | | 120.00 | \$ 2,952.00 |
| 48" RCP (LF) | | \$ 193.20 | 40.00 | \$ 7,728.00 |
| Class A Conc (CY) | | \$ 892.19 | 13.70 | \$ 12,222.98 |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 8.89 | \$ 432.00 |
| Trench Backfill (CY) | | \$ 2.99 | 44.05 | \$ 131.62 |
| Trench Compaction (CY) | | \$ 6.36 | 35.24 | \$ 224.13 |
| Drainage Total | | | | \$ 24,428.86 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | 0.00 | \$ - |
| Signing and Marking Total | | | | \$ - |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | | \$ - |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 1.00 | \$ 4,428.00 |
| Staging Total | | | | \$ 5,454.00 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 9.33 | \$ 40.99 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 160.00 | \$ 677.76 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 160.00 | \$ 1,086.72 |
| Erosion Control Mats (SY) | | \$ 1.87 | 53.33 | \$ 99.84 |
| Landscape Mulch (SY) | | \$ 3.58 | 53.33 | \$ 190.72 |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 8.00 | \$ 487.87 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 8.00 | \$ 45.79 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 2,629.70 |
| Construction Cost Total | | | | \$ 43,436.87 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 3,474.95 |
| Construction Cost Grand Total | | | | \$ 46,911.82 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 50.00 | \$ 4,950.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50.00 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50.00 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 50.00 | \$ 5,500.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 17,600.00 |
| Right of Way (Sq Ft) | | Cost/ Sq Ft | Sq Ft | Total Cost |
| Permanent Easement | | \$ 4.00 | 5,000.00 | \$ 20,000.00 |
| ROW Total | | | | \$ 20,000.00 |

| General Information | | Map | |
|--|--|---|---|
| Project ID | | | |
| Street Name | 125 Ridge Brook Court | | |
| Site Visit Date | 1/21/2016 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| CULVERT PASSES UNDER PRIVATE DRIVE (almost parallel). Owners need to be accommodated. | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-12' | | |
| Existing Shld Width (paved and grass) (feet) | 10' | | |
| Existing Side Slopes | 6:1 | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 5' | | |
| Pipe Type and Size | 48" CMP | | |
| Pipe Condition (1-5) (1 is new) | 4-5 | | |
| Condition Notes: Rusted out bottoms, concrete headwalls. Separation of pipe from headwall opening. Small amount of rip rap at downstream end | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | Stage Construction Options | |
| Wetlands | | Close Location to Traffic | |
| Ditches | Roadside drainage ditches | Maintain One Lane - No Temp Pavement | X |
| State Waters | | Maintain One Lane - Temp Pavement | |
| | | Stage Construction Notes: | |
| Buried | | | |
| Electric | Aerial | | |
| Cable | Unknown | | |
| Phone | Aerial | | |
| Gas | Unknown | | |
| Water | Unknown | | |
| Sewer | Unknown | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | Typical | | |
| Culvert Size & Material | 48" round RCP with straight headwalls. Cost of removing both existing headwalls assumed equal to the removal of the entire length of pipe. | | |
| Utility Relocations | | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | Private driveway removal and reconstruction costed as 4" concrete sidewalk. | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% of Construction Cost and surveying needs | \$22,629 | |
| Right of Way Cost | Assume project extends past ROW, 1/10 acre | \$17,424 | |
| Utility Relocation Cost | None identified | \$0 | |
| Construction Cost | | \$101,289 | |
| Environmental Permits | Includes Zone AE Floodway study | \$18,000 | |
| Total Planning Estimate | | \$159,342 | |





Photo 1: Upstream end of culvert.



Photo 2: Downstream end looking East towards Ridge Brook Court.

125 Ridge Brook Court

Photo Date:

1/21/2016

Taken By:

David Gibbs

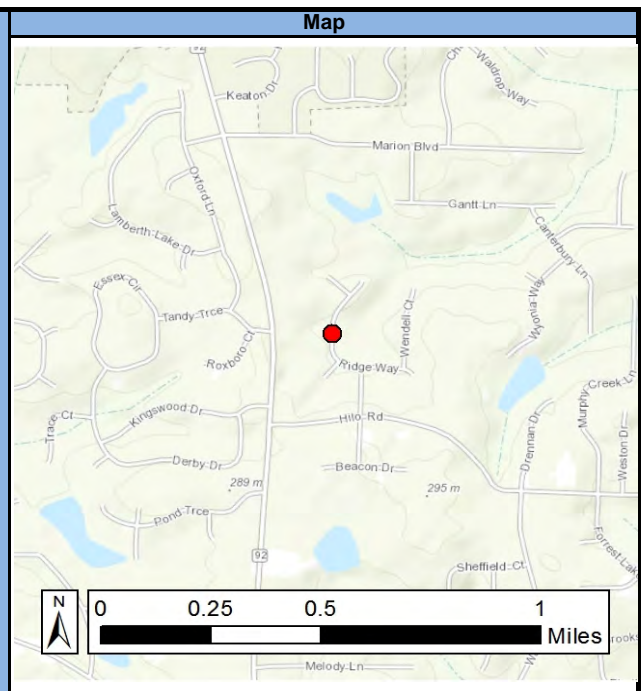
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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---|-------------------|------------------------|---------|----------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 144.00 | \$ 807.17 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 52.00 | \$ 3,076.32 |
| Drain Inlet (EA) | | \$ 3,000.00 | 2.00 | \$ 6,000.00 |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 70.00 | \$ 3,532.20 |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 13,415.69 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 3,801.20 |
| Roadway Total | | | | \$ 17,216.88 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 380.00 | \$ 3,944.40 |
| 48" CMP (LF) | \$ 24.60 | | 342.00 | \$ 8,413.20 |
| 48" RCP (LF) | | \$ 193.20 | 173.00 | \$ 33,423.60 |
| Class A Conc (CY) | | \$ 892.19 | 13.70 | \$ 12,222.98 |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 38.00 | \$ 1,846.80 |
| Trench Backfill (CY) | | \$ 2.99 | 341.41 | \$ 1,020.14 |
| Trench Compaction (CY) | | \$ 6.36 | 273.13 | \$ 1,737.11 |
| Drainage Total | | | | \$ 62,608.23 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | | \$ - |
| Signing and Marking Total | | | | \$ - |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | | \$ - |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 1.00 | \$ 4,428.00 |
| Staging Total | | | | \$ 5,454.00 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 98.00 | \$ 430.42 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 684.00 | \$ 2,897.42 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 684.00 | \$ 4,645.73 |
| Erosion Control Mats (SY) | | \$ 1.87 | 0.00 | \$ - |
| Landscape Mulch (SY) | | \$ 3.58 | 0.00 | \$ - |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 8.00 | \$ 487.87 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 8.00 | \$ 45.79 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 8,507.23 |
| Construction Cost Total | | | | \$ 93,786.34 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 7,502.91 |
| Construction Cost Grand Total | | | | \$ 101,289.25 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 0.00 | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 0.00 | \$ - |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ - |
| Right of Way (Sq Ft) | | Cost/ Sq Ft | Sq Ft | Total Cost |
| Permanent Easement | | \$ 4.00 | 4356.00 | \$ 17,424.00 |
| ROW Total | | | | \$ 17,424.00 |

| General Information | |
|--|---------------|
| Project ID | |
| Street Name | 170 Ridge Way |
| Site Visit Date | 1/20/2016 |
| Road Classification | Minor road |
| Project Notes | |
| Water meter and gazebo near culvert path on downstream side. | |
| Field Notes | |
| Design (Existing Site Features) | |
| Existing Road Laneage | 2-13' |
| Existing Shld Width (paved and grass) (feet) | 100' |
| Existing Side Slopes | 20:1 |
| Existing Guardrail | None |
| Depth fm Pavement to Top of Culvert (ft): | 4.5' |
| Pipe Type and Size | 36" CMP |
| Pipe Condition (1-5) (1 is new) | 4-5 |
| Condition Notes: Rusted out bottom on downstream side. No headwall. MAJOR streambed blowout. | |
| Pavement Type/Condition | Asphalt/Good |
| Environmental Features | |
| Wetlands | |
| Ditches | |
| State Waters | |
| Utilities (Visual Inspection) | |
| Electric | Aerial |
| Cable | Unknown |
| Phone | Aerial |
| Gas | Unknown |
| Water | Buried |
| Sewer | Unknown |
| Other | |



| Stage Construction Options | |
|--------------------------------------|---|
| Close Location to Traffic | |
| Maintain One Lane - No Temp Pavement | X |
| Maintain One Lane - Temp Pavement | |

Stage Construction Notes:

| Proposed Design | |
|-------------------------|--|
| Roadway Section | Typical |
| Culvert Size & Material | 48" round RCP with straight headwalls |
| Utility Relocations | Utility pole and aerial wires need relocating. Possible water main relocation. |
| Guardrail Replacement | |
| Miscellaneous Features | |
| | |
| | |

| Planning Cost Estimate | | |
|-------------------------|---|-----------|
| Type | Notes | Total |
| Design | Includes 10% of Construction Cost and surveying needs | \$18,959 |
| Right of Way Cost | Assume project extends past ROW, 1/4 acre | \$43,560 |
| Utility Relocation Cost | Utility pole and aerial wires, potential water main | \$16,638 |
| Construction Cost | | \$139,586 |
| Environmental Permits | Assuming minimal environmental permitting required | \$10,000 |

| | |
|--------------------------------|------------------|
| Total Planning Estimate | \$228,742 |
|--------------------------------|------------------|





Photo 1: Upstream end of culvert.



Photo 2: Downstream end of culvert looking east towards Ridge Way.

170 Ridge Way

Photo Date:

1/20/2016

Taken By:

David Gibbs

Page

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---|-------------------|------------------------|----------|----------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 156.00 | \$ 874.43 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 52.00 | \$ 3,076.32 |
| Drain Inlet (EA) | | \$ 3,000.00 | 2.00 | \$ 6,000.00 |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 9,950.75 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 5,367.75 |
| Roadway Total | | | | \$ 15,318.50 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 615.78 | \$ 6,391.77 |
| 36" CMP (LF) | \$ 24.60 | | 326.00 | \$ 8,019.60 |
| 48" RCP (LF) | | \$ 193.20 | 326.00 | \$ 62,983.20 |
| Class A Conc (CY) | | \$ 892.19 | 13.70 | \$ 12,222.98 |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 72.44 | \$ 3,520.80 |
| Trench Backfill (CY) | | \$ 2.99 | 528.22 | \$ 1,578.31 |
| Trench Compaction (CY) | | \$ 6.36 | 422.57 | \$ 2,687.57 |
| Drainage Total | | | | \$ 97,404.23 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | | \$ - |
| Signing and Marking Total | | | | \$ - |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.25 | \$ 2,565.00 |
| Temporary Pavement | | | | \$ - |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 1.00 | \$ 4,428.00 |
| Staging Total | | | | \$ 6,993.00 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 200.00 | \$ 878.40 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 652.00 | \$ 2,761.87 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 652.00 | \$ 4,428.38 |
| Erosion Control Mats (SY) | | \$ 1.87 | 72.44 | \$ 135.62 |
| Landscape Mulch (SY) | | \$ 3.58 | 72.44 | \$ 259.06 |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 16.00 | \$ 975.74 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 16.00 | \$ 91.58 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 9,530.66 |
| Construction Cost Total | | | | \$ 129,246.39 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 10,339.71 |
| Construction Cost Grand Total | | | | \$ 139,586.10 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 100.00 | \$ 6,600.00 |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 1.00 | \$ 687.50 |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 100.00 | \$ 3,850.00 |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 0.00 | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 50.00 | \$ 5,500.00 |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 16,637.50 |
| Right of Way (Sq Ft) | | Cost/ Sq Ft | Sq Ft | Total Cost |
| Permanent Easement | | \$ 4.00 | 10890.00 | \$ 43,560.00 |
| ROW Total | | | | \$ 43,560.00 |

| General Information | | Map | |
|--|--|------------------|--|
| Project ID | | | |
| Street Name | 545 Ridgemont Drive | | |
| Site Visit Date | 5/21/13 | | |
| Road Classification | Minor road | | |
| Project Notes | | | |
| Urban Typical Section with Valley Gutter | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2 - 12' | | |
| Existing Shld Width (paved and grass) (feet) | None | | |
| Existing Side Slopes | Flat | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 4 | | |
| Pipe Type and Size | 36" CMP, 290' | | |
| Pipe Condition (1-5) (1 is new) | 5 | | |
| Condition Notes: | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | | |
| Wetlands | None | | |
| Ditches | None | | |
| | | | |
| | | | |
| Utilities (Visual Inspection) | | | |
| Electric | Buried | | |
| Cable | Buried | | |
| Phone | Buried | | |
| Gas | | | |
| Water | Buried | | |
| Sewer | | | |
| Other | | | |
| Stage Construction Options | | | |
| Close Location to Traffic | | | |
| Maintain One Lane - No Temp Pavement | X | | |
| Maintain One Lane - Temp Pavement | | | |
| Stage Construction Notes: | | | |
| | | | |
| Proposed Design | | | |
| Roadway Section | | | |
| Culvert Size & Material | 36" RCP, 32 36" of HDPE, 260'. | | |
| Utility Relocations | Electric, cable, phone, water | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | | | |
| | | | |
| | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$10,785 | |
| Right of Way Cost | Assuming project extends 3,000 sf beyond ROW | \$20,800 | |
| Utility Relocation Cost | Buried utilities | \$17,600 | |
| Construction Cost | Assuming 1/10 acre clearing and grubbing | \$57,848 | |
| Environmental Permits | Assuming minimal environmental permitting required | \$0 | |
| Total Planning Estimate | | \$107,033 | |

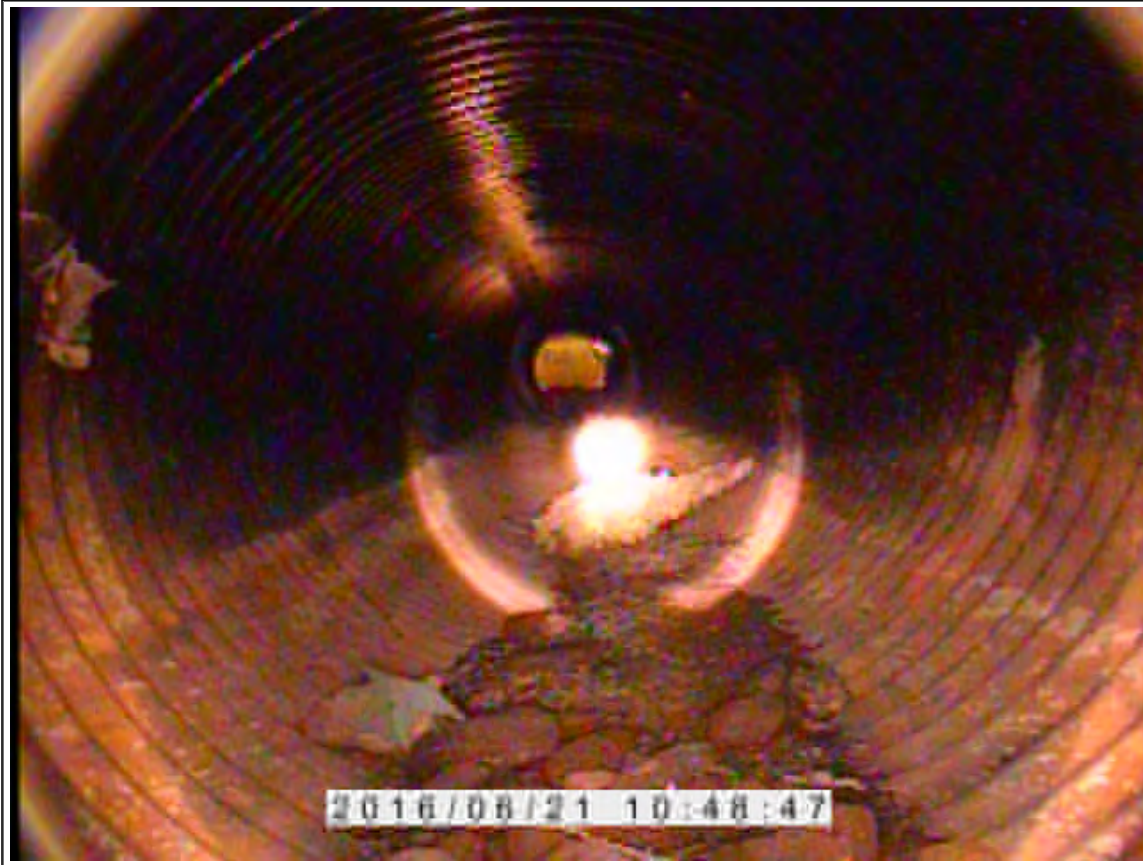


Photo 1:



Photo 2:

545 Ridgemount

Photo Date:

6/21/2016

Taken By:

Tony Hicks

Page:

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|--------|-------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 144.00 | \$ 807.17 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 20.00 | \$ 1,183.20 |
| Drain Inlet (EA) | | \$ 3,000.00 | 2.00 | \$ 6,000.00 |
| 4" Sidewalk (SY) | 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | 4.884 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 7,990.37 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 2,349.34

Roadway Total \$ 10,339.71

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|--------|--------------|
| Trench Excavation (CY) | | \$ 10.38 | 133.33 | \$ 1,384.00 |
| 36" CMP (LF) | \$ 19.62 | | 296.00 | \$ 5,807.52 |
| 36" RCP | | \$ 142.52 | 36.00 | \$ 5,130.86 |
| 36" HPDE | | \$ 114.02 | 200.00 | \$ 22,803.84 |
| Class A Conc (CY) | | \$ 892.19 | 0.00 | \$ - |
| Steel (lb) | | \$ 1.42 | 0.00 | \$ - |
| Pipe Bedding (CY) | | \$ 48.60 | 22.70 | \$ 1,103.22 |
| Trench Backfill (CY) | | \$ 2.99 | 296.00 | \$ 884.45 |
| Trench Compaction (CY) | | \$ 6.36 | 296.00 | \$ 1,882.56 |

Drainage Total \$ 38,996.45

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 0 | \$ - |

Signing and Marking Total \$ -

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | \$ 0 |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 0.00 | \$ - |

Staging Total \$ 1,026.00

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 100.00 | \$ 439.20 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 400.00 | \$ 1,694.40 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 0.00 | \$ - |
| Erosion Control Mats (SY) | \$ 1.87 | 0.00 | \$ - |
| Landscape Mulch (SY) | \$ 3.58 | 0.00 | \$ - |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 16.00 | \$ 975.74 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 16.00 | \$ 91.58 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 3,200.93

Construction Cost Total \$ 53,563.09

Traffic Control (8% of Construction Total \$) \$ 4,285.05

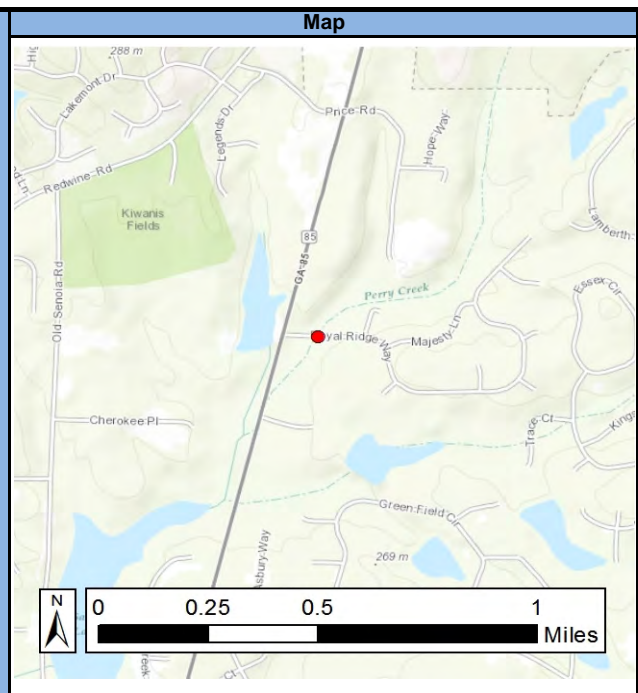
Construction Cost Grand Total \$ 57,848.14

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------------|-------------------|------------------------|--------|-------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 50 | \$ 4,950.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 50 | \$ 3,575.00 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 50 | \$ 5,500.00 |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |

Utility Relocation Total \$ 17,600.00

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|-------|---------------------|
| Permanent Easement | \$ 4.00 | 5200 | \$ 20,800.00 |
| ROW Total | | | \$ 20,800.00 |

| General Information | |
|--|---------------------------|
| Project ID | |
| Street Name | Royal Ridge Way |
| Site Visit Date | 1/20/2016 |
| Road Classification | Minor road |
| Project Notes | |
| | |
| Field Notes | |
| Design (Existing Site Features) | |
| Existing Road Laneage | 2-11.5' |
| Existing Shld Width (paved and grass) (feet) | 5' |
| Existing Side Slopes | 3.5:1 |
| Existing Guardrail | None |
| Depth fm Pavement to Top of Culvert (ft): | 4' |
| Pipe Type and Size | 2-66" CMP |
| Pipe Condition (1-5) (1 is new) | 4 |
| Condition Notes: Two corrugated metal pipes about 1' apart. Filled with sediment. No headwalls | |
| Pavement Type/Condition | Asphalt/Good |
| Environmental Features | |
| Wetlands | |
| Ditches | Roadside drainage ditches |
| State Waters | |
| | |
| Buried | |
| Electric | Aerial |
| Cable | Unknown |
| Phone | Aerial |
| Gas | Unknown |
| Water | Unknown |
| Sewer | Unknown |
| Other | |



| Stage Construction Options | |
|--|---|
| Close Location to Traffic | |
| Maintain One Lane - No Temp Pavement | X |
| Maintain One Lane - Temp Pavement | |
| Stage Construction Notes: Sediment buildup in existing pipes needs removal. | |

| Proposed Design | |
|-------------------------|---|
| Roadway Section | Typical, 18" concrete gutters |
| Culvert Size & Material | Double 8' x 5' barrel box culvert with wingwalls |
| Utility Relocations | Assuming utility pole safe distance from site (about 60') |
| Guardrail Replacement | |
| Miscellaneous Features | |
| | |
| | |

| Planning Cost Estimate | | |
|-------------------------|---|-----------|
| Type | Notes | Total |
| Design | Includes 10% of Construction Cost and surveying needs | \$29,198 |
| Right of Way Cost | Assuming entire project within ROW | \$0 |
| Utility Relocation Cost | Assuming not needed | \$0 |
| Construction Cost | | \$166,976 |
| Environmental Permits | Includes Zone AE Floodway study | \$18,000 |

| | |
|--------------------------------|------------------|
| Total Planning Estimate | \$214,174 |
|--------------------------------|------------------|





Photo 1:



Photo 2:

Royal Ridge Way

Photo Date:

11/02/2015

Taken By:

Tony Hicks

Page:

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Photo 3:



Photo 4:

Royal Ridge Way

Photo Date:

02/02/2016

Taken By:

Page:

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Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---|-------------------|------------------------|----------|----------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 468.00 | \$ 2,623.30 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 36.00 | \$ 2,129.76 |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 4,753.06 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 6,839.26 |
| Roadway Total | | | | \$ 11,592.32 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 413.33 | \$ 4,290.40 |
| 72" CMP | \$ 54.00 | | 124.00 | \$ 6,696.00 |
| 72" RCP | | \$ 105.60 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 111.22 | \$ 99,230.93 |
| Steel (lb) | | \$ 1.42 | 11533.80 | \$ 16,331.86 |
| Pipe Bedding (CY) | | \$ 48.60 | 42.70 | \$ 2,075.22 |
| Trench Backfill (CY) | | \$ 2.99 | 421.97 | \$ 1,260.84 |
| Trench Compaction (CY) | | \$ 6.36 | 337.57 | \$ 2,146.97 |
| Drainage Total | | | | \$ 132,032.22 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | 54.00 | \$ 38.23 |
| Signing and Marking Total | | | | \$ 38.23 |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.10 | \$ 1,026.00 |
| Temporary Pavement | | | | \$ - |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 1.00 | \$ 4,428.00 |
| Staging Total | | | | \$ 5,492.23 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 72.00 | \$ 316.22 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 248.00 | \$ 1,050.53 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 248.00 | \$ 1,684.42 |
| Erosion Control Mats (SY) | | \$ 1.87 | 0.00 | \$ - |
| Landscape Mulch (SY) | | \$ 3.58 | 0.00 | \$ - |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 36.00 | \$ 2,195.42 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 36.00 | \$ 206.06 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 5,452.66 |
| Construction Cost Total | | | | \$ 154,607.66 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 12,368.61 |
| Construction Cost Grand Total | | | | \$ 166,976.27 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 0.00 | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | 0.00 | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 0.00 | \$ - |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | 0.00 | \$ - |
| Sewer | | | | |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ - |
| Right of Way (Sq Ft) | | Cost/ Sq Ft | Sq Ft | Total Cost |
| Permanent Easement | | \$ 4.00 | 0.00 | \$ - |
| ROW Total | | | | \$ - |

| General Information | | Map | |
|--|--|---|--|
| Project ID | | | |
| Street Name | 120 Shoal Creek Rd. | | |
| Site Visit Date | 5/21/13 | | |
| Road Classification | Internal Local | | |
| Project Notes | | | |
| Rural Typical Section | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-10' | | |
| Existing Shld Width (paved and grass) (feet) | 2' Grass | | |
| Existing Side Slopes | 2:1 | | |
| Existing Guardrail | None | | |
| Depth fm Pavement to Top of Culvert (ft): | 3 | | |
| Pipe Type and Size | 3-96" CMP | | |
| Pipe Condition (1-5) (1 is new) | 3 | | |
| Condition Notes: | | | |
| Pavement Type/Condition | Asphalt/Good | | |
| Environmental Features | | Stage Construction Options | |
| Wetlands | Yes | Close Location to Traffic | |
| Ditches | None | Maintain One Lane - No Temp Pavement | |
| Contrib. Stream (2) | | Maintain One Lane - Temp Pavement | |
| | | Stage Construction Notes: | |
| | | | |
| Utilities (Visual Inspection) | | | |
| Electric | Aerial | | |
| Cable | Buried | | |
| Phone | Aerial | | |
| Gas | None | | |
| Water | None | | |
| Sewer | None | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | Replace in kind | | |
| Proposed Design | Triple 8' x 8' box culvert | | |
| Utility Relocations | Telephone and Cable | | |
| Guardrail Replacement | Guardrail may be needed based on culvert length | | |
| Miscellaneous Features | Zone A, Floodplain Analysis Required | | |
| | | | |
| | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$42,264 | |
| Right of Way Cost | Assuming project extends 3,750 sf beyond ROW | \$15,000 | |
| Utility Relocation Cost | Buried phone and cable | \$10,725 | |
| Construction Cost | 1/3 acre clearing and grubbing, Guardrails | \$297,641 | |
| Environmental Permits | Permits, Zone A Floodway Analysis | \$15,000 | |
| Total Planning Estimate | | \$380,630.36 | |



Photo 1:



Photo 2:

120 Shoal Creek Road

Photo Date:

5/21/2013

Taken By:

David King

Page:

1



Photo 3:



Photo 4:

120 Shoal Creek Road

Photo Date:

5/21/2013

Taken By:

David King

Page:

2

Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|----------------------|-------------------|------------------------|----------|---------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 1,040.00 | \$ 5,829.55 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 0.00 | \$ - |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 104.00 | \$ 5,613.50 |
| End Anchorage (EA) | | \$ 1,380.00 | 4.00 | \$ 5,520.00 |
| Subtotal | | | | \$ 16,963.05 |

Grading Complete (5% of Rwy Items & Drng Total \$) \$ 11,996.39

Roadway Total \$ 28,959.44

| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|------------------------|-------------------|------------------------|-----------|---------------|
| Trench Excavation (CY) | | \$ 10.38 | 755.56 | \$ 7,842.67 |
| 96" CMP (LF) | \$ 63.00 | | 70.00 | \$ 13,230.00 |
| 96" RCP | | \$ 455.00 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 184.86 | \$ 164,929.87 |
| Steel (lb) | | \$ 1.42 | 19,942.00 | \$ 28,237.87 |
| Pipe Bedding (CY) | | \$ 48.60 | 50.10 | \$ 2,434.86 |
| Trench Backfill (CY) | | \$ 2.99 | 778.79 | \$ 2,327.02 |
| Trench Compaction (CY) | | \$ 6.36 | 623.03 | \$ 3,962.48 |

Drainage Total \$ 222,964.77

| Signing and Marking | Installation Unit Cost | Amount | Total Cost |
|-------------------------|------------------------|--------|------------|
| Permanent Striping (LF) | \$ 0.71 | 0.00 | \$ - |

Signing and Marking Total \$ -

| Staging | Installation Unit Cost | Amount | Total Cost |
|---------------------------------------|------------------------|--------|-------------|
| Clearing and Grubbing (Acre) | \$ 10,260.00 | 0.33 | \$ 3,385.80 |
| Temporary Pavement | | | \$ - |
| Temporary Drainage (Stream Diversion) | \$ 4,428.00 | 2.00 | \$ 8,856.00 |

Staging Total \$ 12,241.80

| Erosion Control | Installation Unit Cost | Amount | Total Cost |
|----------------------------------|------------------------|--------|-------------|
| Fine Grading and Seeding (SY) | \$ 4.39 | 86.67 | \$ 380.64 |
| Temporary Grassing (AC) | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | \$ 4.24 | 500.00 | \$ 2,118.00 |
| Check Dam Type C Silt Fence (LF) | \$ 6.79 | 500.00 | \$ 3,396.00 |
| Erosion Control Mats (SY) | \$ 1.87 | 166.67 | \$ 312.00 |
| Landscape Mulch (SY) | \$ 3.58 | 166.67 | \$ 596.00 |
| Perm Grassing (AC) | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | \$ 60.98 | 69.33 | \$ 4,228.22 |
| Plastic Filter Fabric (SY) | \$ 5.72 | 69.33 | \$ 396.86 |
| 4" Ditch Paving (SY) | \$ 54.65 | 0.00 | \$ - |

Erosion Control Total \$ 11,427.73

Construction Cost Total \$ 275,593.74

Traffic Control (8% of Construction Total \$) \$ 22,047.50

Construction Cost Grand Total \$ 297,641.24

| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---------------------------------|-------------------|------------------------|--------|---------------------|
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | | \$ - |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 0.00 | \$ - |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 75.00 | \$ 5,362.50 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | | \$ - |
| Buried | \$ 16.50 | \$ 55.00 | 75.00 | \$ 5,362.50 |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 0.00 | \$ - |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 10,725.00 |

| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost |
|----------------------|-------------|----------|---------------------|
| Permanent Easement | \$ 4.00 | 3,750.00 | \$ 15,000.00 |
| ROW Total | | | \$ 15,000.00 |

| General Information | | Map | |
|--|---|------------------|--|
| Project ID | | | |
| Street Name | 261 Trickum Creek Rd | | |
| Site Visit Date | 6/11/13 | | |
| Road Classification | County Local | | |
| Project Notes | | | |
| Rural Typical Section | | | |
| Field Notes | | | |
| Design (Existing Site Features) | | | |
| Existing Road Laneage | 2-10' | | |
| Existing Shld Width (paved and grass) (feet) | | | |
| Existing Side Slopes | | | |
| Existing Guardrail | | | |
| Depth fm Pavement to Top of Culvert (ft): | | | |
| Pipe Type and Size | 3- 7' CMP, 70' | | |
| Pipe Condition (1-5) (1 is new) | 2 | | |
| Condition Notes: No Headwall | | | |
| Pavement Type/Condition | Gravel/Fair | | |
| Environmental Features | | | |
| Wetlands | Yes | | |
| Ditches | None | | |
| | | | |
| | | | |
| Utilities (Visual Inspection) | | | |
| Electric | Aerial | | |
| Cable | Aerial | | |
| Phone | Aerial | | |
| Gas | | | |
| Water | | | |
| Sewer | | | |
| Other | | | |
| Proposed Design | | | |
| Roadway Section | Road dimensions from Google Earth | | |
| Culvert Size & Material | Triple 8' x 5' box culvert, 70' | | |
| Utility Relocations | Utility poles, aerial electric, cable, phone | | |
| Guardrail Replacement | | | |
| Miscellaneous Features | Zone AE with Floodway, Floodplain Analysis Required | | |
| | | | |
| | | | |
| Planning Cost Estimate | | | |
| Type | Notes | Total | |
| Design | Includes 10% Construction Cost and surveying needs | \$38,381 | |
| Right of Way Cost | Assuming project extends 3,000 sf beyond ROW | \$15,675 | |
| Utility Relocation Cost | Utility poles, aerial utilities | \$15,675 | |
| Construction Cost | Assuming 1/5 acre clearing and grubbing | \$258,810 | |
| Environmental Permits | Permits, Floodplain Analysis | \$18,000 | |
| Total Planning Estimate | | \$346,541 | |
| | | | |



Photo 1:



Photo 2:

Trickum Creek Road

Photo Date:

5/21/2013

Taken By:

David King

Page:

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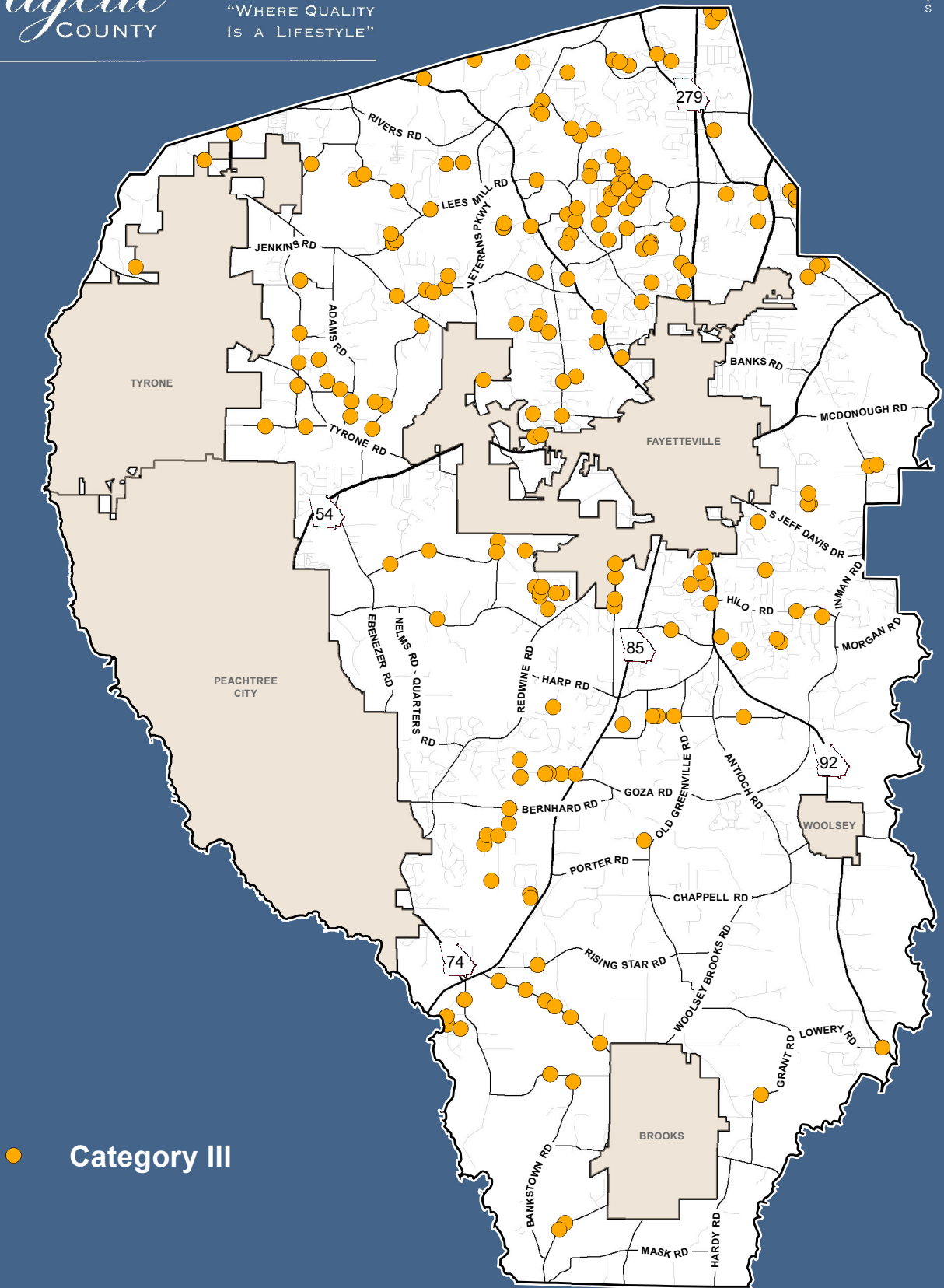
Roadway Construction, Utility Relocation and ROW Quantity Calculations

| Roadway Construction | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
|---|-------------------|------------------------|---------------------|----------------------|
| Pavement (SF) | \$ 0.73 | \$ 4.87 | 1,144.00 | \$ 6,412.50 |
| Temporary Gravel Road (SY) | | \$ 15.42 | 222.22 | \$ 3,426.67 |
| Curb and Gutter (LF) | \$ 28.56 | \$ 30.60 | 20.00 | \$ 1,183.20 |
| Drain Inlet (EA) | | \$ 3,000.00 | 0.00 | \$ - |
| 4" Sidewalk (SY) | \$ 13.56 | \$ 36.90 | 0.00 | \$ - |
| Guardrail (LF) | \$ 4.88 | \$ 49.09 | 0.00 | \$ - |
| End Anchorage (EA) | | \$ 1,380.00 | 0.00 | \$ - |
| Subtotal | | | | \$ 11,022.37 |
| Grading Complete (5% of Rwy Items & Drng Total \$) | | | | \$ 10,385.83 |
| Roadway Total | | | | \$ 21,408.20 |
| Drainage | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Trench Excavation (CY) | | \$ 10.38 | 881.48 | \$ 9,149.78 |
| 84" CMP (LF) | \$ 63.00 | | 210.00 | \$ 39,690.00 |
| 84" RCP | | \$ 455.00 | 0.00 | \$ - |
| Class A Conc (CY) | | \$ 892.19 | 132.51 | \$ 118,223.83 |
| Steel (lb) | | \$ 1.42 | 13,383.00 | \$ 18,950.33 |
| Pipe Bedding (CY) | | \$ 48.60 | 69.30 | \$ 3,367.98 |
| Trench Backfill (CY) | | \$ 2.99 | 905.44 | \$ 2,705.46 |
| Trench Compaction (CY) | | \$ 6.36 | 724.35 | \$ 4,606.88 |
| Drainage Total | | | | \$ 196,694.26 |
| Signing and Marking | | Installation Unit Cost | Amount | Total Cost |
| Permanent Striping (LF) | | \$ 0.71 | 0.00 | \$ - |
| Signing and Marking Total | | | | \$ - |
| Staging | | Installation Unit Cost | Amount | Total Cost |
| Clearing and Grubbing (Acre) | | \$ 10,260.00 | 0.20 | \$ 2,052.00 |
| Temporary Pavement | | | | \$ - |
| Temporary Drainage (Stream Diversion) | | \$ 4,428.00 | 2.00 | \$ 8,856.00 |
| Staging Total | | | | \$ 10,908.00 |
| Erosion Control | | Installation Unit Cost | Amount | Total Cost |
| Fine Grading and Seeding (SY) | | \$ 4.39 | 138.67 | \$ 609.02 |
| Temporary Grassing (AC) | | \$ 855.60 | 0.00 | \$ - |
| Type C Silt Fence (LF) | | \$ 4.24 | 420.00 | \$ 1,779.12 |
| Check Dam Type C Silt Fence (LF) | | \$ 6.79 | 420.00 | \$ 2,852.64 |
| Erosion Control Mats (SY) | | \$ 1.87 | 140.00 | \$ 262.08 |
| Landscape Mulch (SY) | | \$ 3.58 | 140.00 | \$ 500.64 |
| Perm Grassing (AC) | | \$ 1,402.20 | 0.00 | \$ - |
| Rip Rap Type 3 12" (SY) | | \$ 60.98 | 69.33 | \$ 4,228.22 |
| Plastic Filter Fabric (SY) | | \$ 5.72 | 69.33 | \$ 396.86 |
| 4" Ditch Paving (SY) | | \$ 54.65 | 0.00 | \$ - |
| Erosion Control Total | | | | \$ 10,628.59 |
| Construction Cost Total | | | | \$ 239,639.05 |
| Traffic Control (8% of Construction Total \$) | | | | \$ 19,171.12 |
| Construction Cost Grand Total | | | | \$ 258,810.17 |
| Utility Relocation | Removal Unit Cost | Installation Unit Cost | Amount | Total Cost |
| Electric | | | | |
| Aerial | \$ 11.00 | \$ 55.00 | 100.00 | \$ 6,600.00 |
| Buried | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | 2.00 | \$ 1,375.00 |
| Phone | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 100.00 | \$ 3,850.00 |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Cable | | | | |
| Aerial | \$ 11.00 | \$ 27.50 | 100.00 | \$ 3,850.00 |
| Buried | \$ 16.50 | \$ 55.00 | 0.00 | \$ - |
| Wooden Pole | \$ 82.50 | \$ 605.00 | | \$ - |
| Gas | | | | |
| 4" main | \$ 16.50 | \$ 66.00 | | \$ - |
| Water | | | | |
| 8" main | \$ 16.50 | \$ 93.50 | 0.00 | \$ - |
| Relocate Fire Hydrant (EA) | | \$ 2,609.22 | | \$ - |
| Sewer | | | 0.00 | \$ - |
| 12" main | \$ 16.50 | \$ 82.50 | 0.00 | \$ - |
| Utility Relocation Total | | | | \$ 15,675.00 |
| Right of Way (Sq Ft) | Cost/ Sq Ft | Sq Ft | Total Cost | |
| Permanent Easement | \$ 4.00 | 3,000.00 | \$ 12,000.00 | |
| ROW Total | | | \$ 12,000.00 | |



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SPLOST 2017 Stormwater Improvements

CATEGORY III

| PROJECT LOCATION | ESTIMATED COST |
|------------------------------------|----------------|
| 214 ADAMS RD | \$8,510 |
| 125 BANKSTOWN RD | \$7,575 |
| 375 BENJAMIN CIR | \$18,906 |
| 120 BENZ CT | \$22,951 |
| 135 BENZ CT | \$19,399 |
| 460 BERNHARD RD | \$8,808 |
| 105 BERRY RIDGE RD | \$8,712 |
| 120 BON AMI CT | \$10,326 |
| 105 BRANDON MILL CIR | \$18,555 |
| 100 BRASWELL LA | \$5,394 |
| 130 BRIARLAKE CT | \$17,671 |
| 145 BRIERWOOD DR | \$8,111 |
| 205 BROOKSHIRE DR | \$9,147 |
| 185 BROOKSHIRE DR | \$9,147 |
| 147 BUSBIN RD | \$9,147 |
| 197 BUSBIN RD | \$7,575 |
| 211 BUSBIN RD | \$7,575 |
| 317 BUSBIN RD | \$7,853 |
| BUSBIN ROAD 150 FEET WEST OF SR 85 | \$7,575 |
| 109 BUTLER RD | \$8,072 |
| 170 CARROLLS WAY | \$6,278 |
| 235 CARROLLS WAY | \$8,072 |
| 275 CARROLLS WAY | \$8,072 |
| 110 CATHERINE LN | \$21,590 |
| 105 CHEROKEE PL | \$8,072 |
| 260 COUNTRY LANE RD | \$9,147 |
| 100 CREEKWOOD CT | \$17,448 |
| 100 DARREN DR | \$6,376 |
| 107 DAVIS RD | \$7,518 |
| 265 DAVIS RD (2,000 ft. west of) | \$7,296 |
| 504 DAVIS RD | \$10,508 |
| 225 DERBY DR | \$9,755 |
| 154 DIXON CIR | \$7,853 |
| 186 DOGWOOD TR | \$7,739 |
| 388 EASTIN RD | \$7,739 |
| 506 EBENEZER CHURCH RD | \$8,066 |

CATEGORY III

| PROJECT LOCATION | ESTIMATED COST |
|------------------------|----------------|
| 228 ELLISON RD | \$7,853 |
| 332 ELLISON RD | \$8,291 |
| 378 ELLISON RD | \$7,428 |
| 125 EMERALD LN | \$19,553 |
| 135 ESSEX CIR | \$7,603 |
| 155 FAIRFIELD CIR | \$17,740 |
| 115 FIRETHORN LN | \$9,516 |
| 100 FLAT CREEK CT | \$7,853 |
| 155 FLAT CREEK CT | \$9,000 |
| 301 FLAT CREEK TR | \$9,000 |
| 626 FLAT CREEK TR | \$7,739 |
| 305 FRANKLIN FARMS CIR | \$18,906 |
| 105 GENTLE DOE DR | \$17,241 |
| 216 GINGER CAKE RD | \$7,575 |
| 347 GINGER CAKE RD | \$7,739 |
| 161 GINGER CAKE TR | \$19,650 |
| 271 GINGER CAKE TR | \$19,650 |
| 285 GREEN VALLEY | \$7,853 |
| 105 GREENFIELD CIR | \$8,746 |
| 350 HARRIS RD | \$7,594 |
| 115 HERITAGE WAY | \$20,626 |
| 159 HIGHLAND HILLS RD | \$8,753 |
| 210 HIGHLAND HILLS RD | \$8,483 |
| 1373 HIGHWAY 85 CONN | \$7,575 |
| 1415 HIGHWAY 85 CONN | \$7,739 |
| 166 HIGHWAY 85 CONN | \$8,589 |
| 246 HIGHWAY 85 CONN | \$8,589 |
| 336 HIGHWAY 85 CONN | \$7,575 |
| 348 HIGHWAY 85 CONN | \$9,147 |
| 423 HIGHWAY 85 CONN | \$8,631 |
| 588 HIGHWAY 85 CONN | \$7,853 |
| 382 HILO RD | \$8,291 |
| 1116 HOOD RD | \$7,633 |
| 879 HOOD RD | \$8,092 |
| 115 HORSE SHOE CIR | \$9,059 |
| 130 IDLEWOOD LN | \$9,567 |

CATEGORY III

| PROJECT LOCATION | ESTIMATED COST |
|-----------------------------------|----------------|
| 120 KARI GLEN DR | \$8,699 |
| 105 KEN CIR | \$7,363 |
| 115 KEYLAND DR | \$19,051 |
| 105 KINGSWOOD WAY | \$15,808 |
| 215 KIRKLY RD | \$7,575 |
| 114 KITE LAKE RD | \$8,332 |
| 257 KITE LAKE RD | \$8,808 |
| 285 KITE LAKE RD | \$8,730 |
| 130 LADY HELEN CT | \$11,394 |
| 150 LAKEVIEW LN | \$9,631 |
| 125 LAMBERTH LAKE DR | \$18,989 |
| 210 LANG DR | \$9,942 |
| 133 LAURA LN | \$6,490 |
| 584 LEES MILL RD | \$7,739 |
| 431 LESTER RD | \$7,575 |
| 150 LITTLE CREEK DR | \$19,413 |
| 150 LOCKWOOD RD | \$7,853 |
| 160 LOFTY EAGLE LN | \$17,725 |
| 185 LONGVIEW RD | \$8,589 |
| 114 LOWERY RD | \$11,083 |
| 100 MACKENZIE LN on Eastin | \$19,430 |
| 243 MCBRIDE RD | \$11,382 |
| 555 MCBRIDE RD | \$8,195 |
| 518 MCBRIDE ROAD at PROVIDENCE DR | \$7,147 |
| 110 MELODY LN | \$10,646 |
| 285 MERRYDALE DR | \$9,631 |
| 133 MITCHELL RD | \$7,575 |
| 395 MORGAN MILL RD | \$8,354 |
| 140 MUSE RD | \$7,575 |
| 110 MUSE RD and LEES LAKE RD | \$6,376 |
| 762 NEW HOPE RD | \$8,279 |
| 988 NEW HOPE RD | \$5,917 |
| 175 NORTH BEND CT | \$22,818 |
| 245 NORTH DR | \$21,341 |
| 100 NORTHWIND TRL | \$18,992 |
| 140 OLD SENOIA RD | \$7,739 |

CATEGORY III

| PROJECT LOCATION | ESTIMATED COST |
|--------------------------------------|----------------|
| 105 OLDE OAK DR | \$8,419 |
| 175 OLDE OAK DR | \$8,176 |
| 245 OMIN RD | \$8,092 |
| 125 PINWOOD DR | \$8,072 |
| 285 PLANTATION RD | \$7,575 |
| 100 POSTWOOD DR | \$10,130 |
| 100 REDBUD CT | \$6,928 |
| 980 REDWINE RD | \$7,734 |
| 210 RENNES CT | \$19,136 |
| 135 RILEY CT | \$7,603 |
| 130 RUSTIC MILL LN | \$11,254 |
| 150 RUSTIC MILL LN | \$13,971 |
| 145 S WOOD CT | \$21,024 |
| 302 SAMS DR and Lees Mill Rd | \$8,746 |
| 150 SENECA PL | \$8,072 |
| 180 SHAMROCK DR | \$9,826 |
| 138 SHELBY LN | \$8,255 |
| 145 SHELBY LN | \$7,739 |
| 310 SHERWOOD RD | \$7,908 |
| 325 SHERWOOD RD | \$7,696 |
| 380 SHERWOOD RD | \$7,853 |
| 350 SHERWOOD RD at BROOKSHIRE DR | \$18,906 |
| 128 STANLEY RD | \$12,538 |
| 190 STARRS MILL DR | \$8,072 |
| 385 STONERIDGE WAY | \$9,163 |
| 105 SUMMERVILLE DR | \$8,767 |
| 233 SWANSON RD | \$6,048 |
| 171 TALL PINE DR | \$19,549 |
| 125 TANDY TRCE | \$17,734 |
| 112 THOMPSON RD | \$7,633 |
| 130 THORNTON CT | \$20,209 |
| 240 THORNTON DR | \$18,002 |
| 165 THORNTON LN | \$7,575 |
| 166 TRAMMELL RD (East of) | \$7,633 |
| 128 TRICKUM CREEK RD | \$7,923 |
| WAGON WHEEL TRL 200 WEST OF SALMA DR | \$13,687 |

CATEGORY III

| PROJECT LOCATION | ESTIMATED COST |
|--------------------------------|--------------------|
| 330 WEEPING WILLOW WAY | \$20,714 |
| 140 WESLEY PL | \$8,092 |
| 155 WESTBRIDGE CIR | \$7,575 |
| 320 WHITE OAK WAY | \$6,490 |
| 240 WHITNEY WAY | \$7,642 |
| 136 WILKINS RD | \$7,575 |
| 160 WILLS WAY | \$19,553 |
| 120 WISTERIA CT | \$18,834 |
| 140 YATES DR | \$19,632 |
| 2016 CATEGORY III TOTAL | \$1,651,211 |

CATEGORY IV

| Project Name | DESCRIPTION | Cost |
|--|--|--------------------|
| Stormwater Infrastructure Improvements | Functionality improvements identified through inventory and inspections. Work includes paving inverts, replacing headwalls, catch basin lids and drainage pipes that are currently inaccessible. | \$500,000 |
| Professional Services/ Easement Acquisition | During the design phase many details must be addressed including the easement locations. Work includes surveying and preparation of legal documents. | \$200,000 |
| FY 2014/2015 Stormwater Utility Reimbursement | Repayment of loan from the General Fund to the Stormwater Utility Enterprise Fund. | \$500,000 |
| Utility Coordination/ Relocation | Project includes costs associated with easement requirements and special construction provisions for project and utility owners in accordance with federal, state, and local utility accommodation policies. | \$293,249 |
| 2017 CATEGORY IV TOTAL | | \$1,493,249 |

Catch Basin Lid



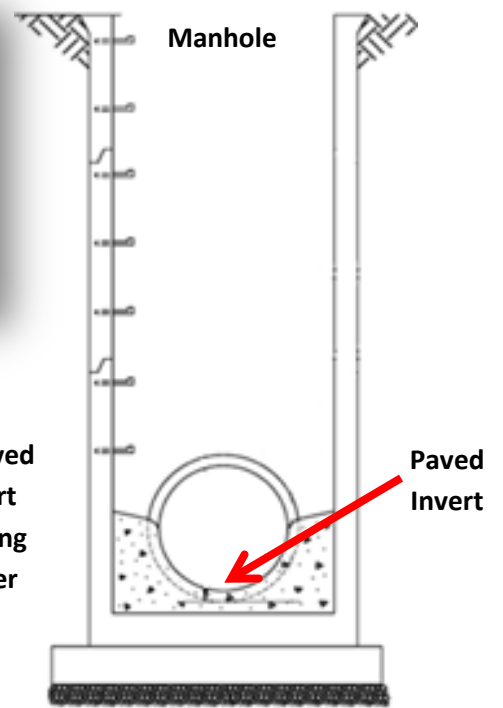
Inaccessible Catch Basin Lid



Headwall



Unpaved
Invert
Holding
Water



County Transportation List for SPLOST 2017 Referendum

| Infrastructure Preservation and Improvements | | Federal/State | SPLOST | Total |
|---|---|--------------------|--------------------|--------------------|
| A.1 | Ebenezer Church Road Bridge Replacement | \$3,062,983 | \$659,500 | \$3,722,483 |
| A.2 | Kenwood Road School Zone | \$0 | \$600,000 | \$600,000 |
| A.3 | Paved Roads, Gravel Roads & Bridges | \$0 | \$2,209,273 | \$2,209,273 |
| Subtotal A | | \$3,062,983 | \$3,468,773 | \$6,531,756 |

| Possible Federal Aid Corridor Improvements | | Federal/State | SPLOST | Total |
|---|--|---------------------|--------------------|---------------------|
| B.1 | Realignment of SR 279 and Corinth Road* | | | |
| | ◦ Detailed Planning Study | \$0 | \$64,500 | \$64,500 |
| | ◦ Design & Construction | \$18,000,000 | \$4,500,000 | \$22,500,000 |
| B.2 | Sandy Creek Road Operational Improvements* | | | |
| | ◦ Detailed Planning Study | \$0 | \$71,800 | \$71,800 |
| | ◦ Design & Construction | \$12,144,000 | \$3,036,000 | \$15,180,000 |
| B.3 | SR 74 Corridor Study Recommendations* | \$2,880,000 | \$720,000 | \$3,600,000 |
| Subtotal B | | \$33,024,000 | \$8,392,300 | \$41,416,300 |

| Intersection Improvements | | Federal/State | SPLOST | Total |
|----------------------------------|---|---------------|--------------------|--------------------|
| C.1 | Redwine, Bernhard & Peachtree Parkway | \$0 | \$1,200,000 | \$1,200,000 |
| C.2 | Brogdon & New Hope Roads | \$0 | \$1,200,000 | \$1,200,000 |
| C.3 | Ebenezer Church, Ebenezer & Spear Roads | \$0 | \$1,500,000 | \$1,500,000 |
| C.4 | Antioch & Goza Roads | \$0 | \$1,070,000 | \$1,070,000 |
| C.5 | Intersection Safety Improvements | \$0 | \$500,000 | \$500,000 |
| Subtotal C | | \$0 | \$5,470,000 | \$5,470,000 |

| Pedestrian, Bicycle and Multi-Use Path Projects | | Federal/State | SPLOST | Total |
|--|--------------------------------|--------------------|--------------------|--------------------|
| D.1 | Redwine Road Multi-Use Path | \$1,073,000 | \$556,680 | \$1,629,680 |
| D.2 | Starr's Mill School Tunnel | \$0 | \$900,000 | \$900,000 |
| D.3 | Bike Lanes and Multi-Use Paths | \$0 | \$250,000 | \$250,000 |
| Subtotal D | | \$1,073,000 | \$1,706,680 | \$2,779,680 |

| Detailed Planning Studies | | Federal/State | SPLOST | Total |
|----------------------------------|---|---------------|------------------|------------------|
| E.1 | Banks Road Detailed Planning Study | \$0 | \$47,000 | \$47,000 |
| E.2 | Tyrone & Palmetto Roads Detailed Planning Study | \$0 | \$84,600 | \$84,600 |
| E.3 | Lees Mill, New Hope & Kenwood Detailed Planning Study | \$0 | \$76,600 | \$76,600 |
| E.4 | Inman Road Detailed Planning Study | \$0 | \$59,000 | \$59,000 |
| E.5 | SR 279 Detailed Planning Study | \$0 | \$65,400 | \$65,400 |
| E.6 | Transportation Studies | \$0 | \$150,000 | \$150,000 |
| Subtotal E | | \$0 | \$482,600 | \$482,600 |

| | | | | |
|---|--|---------------------|---------------------|---------------------|
| Proposed SPLOST Total of Categories A, B, C, D & E | | \$37,159,983 | \$19,520,353 | \$56,680,336 |
|---|--|---------------------|---------------------|---------------------|

| Eligible but unfunded Federal-Aid Corridor Improvement Projects | | Federal/State | SPLOST | Total |
|--|---|---------------------|---------------------|---------------------|
| F.1 | Banks Road Operational Improvements* | \$12,000,000 | \$3,000,000 | \$15,000,000 |
| F.2 | Tyrone & Palmetto Roads Operational Improvements* | \$24,800,000 | \$6,200,000 | \$31,000,000 |
| F.3 | Lees Mill, New Hope & Kenwood Operational Improvements* | \$25,600,000 | \$6,400,000 | \$32,000,000 |
| F.4 | Inman Road Operational Improvements* | \$14,400,000 | \$3,600,000 | \$18,000,000 |
| Subtotal F (Unfunded) | | \$76,800,000 | \$19,200,000 | \$96,000,000 |

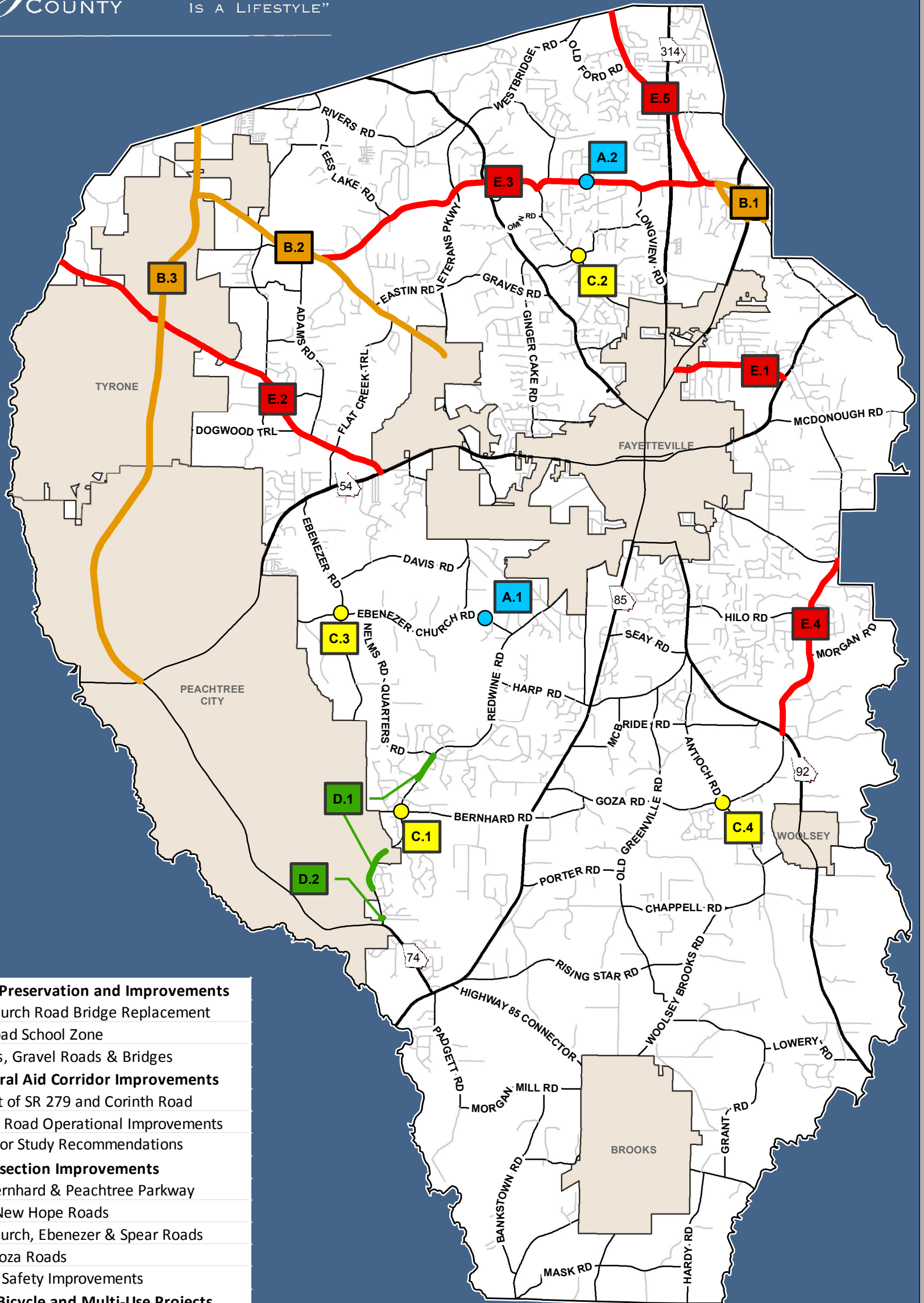
* There are seven eligible Federal-Aid Corridor Improvement Projects on the list. Since the anticipated cost for all seven projects exceeds available SPLOST funding, only the top-rated projects will be advanced through construction (i.e., built). For the referendum, Fayette County's Transportation Committee developed this priority list using available information. The final prioritization and funding levels, however, will be established by the Transportation Committee and the Board of Commissioners upon completion of a Detailed Planning Study for each project. Any one of the seven projects may or may not be advanced beyond the Detailed Planning Study.

SPLOST 2017 Transportation Improvements



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| |
|---|
| Infrastructure Preservation and Improvements |
| A.1 Ebenezer Church Road Bridge Replacement |
| A.2 Kenwood Road School Zone |
| A.3 Paved Roads, Gravel Roads & Bridges |
| Possible Federal Aid Corridor Improvements |
| B.1 Realignment of SR 279 and Corinth Road |
| B.2 Sandy Creek Road Operational Improvements |
| B.3 SR 74 Corridor Study Recommendations |
| Intersection Improvements |
| C.1 Redwine, Bernhard & Peachtree Parkway |
| C.2 Brogdon & New Hope Roads |
| C.3 Ebenezer Church, Ebenezer & Spear Roads |
| C.4 Antioch & Goza Roads |
| C.5 Intersection Safety Improvements |
| Pedestrian, Bicycle and Multi-Use Projects |
| D.1 Redwine Road Multi-Use Path |
| D.2 Starrs Mill School Tunnel |
| D.3 Bike Lanes and Multi-Use Paths |
| Detailed Planning Studies |
| E.1 Banks Road Scoping Study |
| E.2 Tyrone & Palmetto Roads Scoping Study |
| E.3 Lees Mill, New Hope & Kenwood Scoping Study |
| E.4 Inman Road Scoping Study |
| E.5 SR 279 Scoping Study |
| E.6 Transportation Studies |

- Infrastructure Preservation and Improvements
- Federal Aid Corridor Improvements
- Intersection Improvements
- Pedestrian, Bicycle and Multi-use Projects
- Scoping Studies

TRANSPORTATION

Benefits

- Expands County’s existing preservation and maintain program for roads and bridges
- Provides funding for safety, capacity, and operational improvements that have no other funding source
- Provides money for use as local match on large, federal-aid transportation projects (typically at a 4:1 ratio)
- Allows for pro-active transportation planning to address current and future growth concerns
- Expands network of paths for pedestrians, bicyclists and golf carts

Needs Assessment

The March 2017 SPLOST referendum allocates \$19,520,353 dollars for unincorporated County Transportation Projects. One of the primary goals is to use approximately 40 percent of the money as local match for one or more, large, Federal-aid project. Although it adds complexity and time, participating in the Federal-aid project can leverage local dollars at a 4:1 ratio (i.e., for every one local dollar spent on a project there can be up to four federal dollars spent). This allows Fayette County to design and build projects that it could not afford otherwise. The Federal-Aid Corridor project(s) ultimately delivered will depend on the recommendations of the Detailed Planning Studies.

In addition to the Federal-aid projects, the transportation SPLOST has four other categories of projects.

| Category | SPLOST Budget | Percent of SPLOST |
|---|---------------------|-------------------|
| Infrastructure Preservation and Improvements | \$3,468,773 | 17.8% |
| Federal-Aid Corridor Improvements | \$8,256,000 | 42.3% |
| Intersection Improvements | \$5,470,000 | 28.0% |
| Pedestrian, Bicycle and Multi-Use Path Projects | \$1,706,680 | 8.7% |
| Detailed Planning Studies | \$618,900 | 3.2% |
| Total SPLOST Allocation | \$19,520,353 | 100% |

There are seven eligible Federal-Aid Corridor Improvement Projects on Fayette County’s SPLOST list. Since the anticipated cost for all seven projects exceeds available SPLOST funding, only the top-rated projects will be advanced through construction (i.e., built). For the referendum,

Fayette County's Transportation Committee developed a draft priority list (projects B.1 – B.3 and projects F.1 – F.4)) using available information. The final prioritization and funding levels, however, will be established by the Transportation Committee and the Board of Commissioners upon completion of a Detailed Planning Study for each project. Any one of the seven projects may or may not be advanced beyond the Detailed Planning Study.

Infrastructure Preservation and Improvements

The purpose of this category is to maintain or improve existing County roads and bridges. The SPLOST money will supplement, not replace, existing annual budgets used for this work.

Ebenezer Church Road Bridge Replacement

This is a Georgia Department of Transportation (GDOT) sponsored bridge replacement project that is in early stages of design.

The existing bridge was built in 1965 and consists of four spans of reinforced concrete deck girders on steel piles, concrete columns and concrete caps. The overall condition of the bridge is good but the design vehicle used for the bridge is below current standards, so the bridge is posted with weight restrictions. The new structure will be wider and meet all current design standards. Fayette County is working with GDOT to coordinate the new bridge design with possible future bike lanes or multi-use paths along Ebenezer Church Road.

Costs for the project are based on a GDOT August 24, 2016 estimate. Fayette County's costs are for land acquisition and utility relocations. The balance of the project will be paid with state and/or federal dollars.

GDOT's schedule for construction is fiscal year 2019.

Kenwood Road School Zone

This is a Fayette County safety project on Kenwood Road.

The purpose of the project is to design and construct auxiliary lanes (e.g., center left turn lanes) on Kenwood Road for the North Fayette Elementary School. Kenwood Road's annual average daily traffic is in excess of 2,650 vehicles per day. Providing turn lanes will reduce the risk of rear-end collisions and reduce delays to thru traffic. The design process would include soliciting input from the School System, Sheriff's Office, and other stakeholders in the area.

The project would be funded entirely with SPLOST dollars.

Paved Road, Gravel Roads and Bridges

This project will help maintain existing roads and bridges in the unincorporated County.

Each year the Fayette County Road Department repairs and resurfaces 4 to 5 percent of the paved roads in the unincorporated County. The Department also maintains the County's bridges and approximately 50 miles of gravel roads. This project will provide additional resources for asphalt resurfacing, other pavement preservation treatments, bridge work, shoulder grading, drainage improvements, dust control treatments, etc. Treatment technologies and work priorities will be established using the results of a comprehensive, 2016 Pavement Evaluation.

The resurfacing and other maintenance work would likely be funded entirely with SPLOST dollars, but opportunities may exist to use the money as local match for state or Federal-aid.

Detailed Planning Studies

Approximately 3.2% of the SPLOST transportation dollars are allocated for Detailed Planning Studies. The studies have three primary purposes:

1. Define the project;
2. Assist with project prioritization; and
3. Satisfy federal requirements.

On large corridor projects, considerable data collection and engineering analysis is required to make accurate project recommendations. A Detailed Planning Study will collect the minimum data to allow for these analyses and provide results and recommendations for the Board of Commissioners to prioritize and advance the highest-rated projects. Having this information is prudent for local officials making decisions on projects with cost estimates in the tens-of-millions range and is required by state and regional planning agencies if the project is to be competitive in seeking Federal-aid.

Each of the Detailed Planning Studies will complete common tasks in order to address the three goals noted above, including:

- Identify need and purpose;
- Define the project scope;
- Consider alternatives;
- Perform cursory environmental screening;
- Assess impacts to utilities and railroads;
- Assess impacts to private properties;
- Gauge public support and opposition;
- Identify applicable design criteria;

- Develop a schedule; and
- Determine preliminary budget and funding options.

Studies will be completed for the seven projects listed below and possibly other locations as needs change over the six-year SPLOST. It is expected that Federal-aid will be required, at least for the construction phase, to fully fund any one or more of the projects. The advantage of having a project in the Federal-aid program is the potential amount of money paid by state or federal agencies. Typically the ratio is 80/20 (federal/local), so a project costing \$15,000,000 could receive up to \$12,000,000 in federal and state aid, and only cost the County's SPLOST program \$3,000,000.

The process for being awarded Federal-aid is competitive due to the large number of project applications, uncertainties associated with federal funds and availability, and the pre-defined criteria/performance measures a project must meet to be ranked high. Hence the need for a Detailed Planning Study to properly "vet" Fayette County projects prior to submission for consideration against the other projects in the Atlanta Metropolitan region.

As described above, the information provided in a Detailed Planning Study is essential for the funding process. The information is also integral to the design process so much of the work completed in the planning stage is used in full design. Also, having a planning study allows Consultants and Engineers to provide more focused and cost-effective proposals for design services.

SPLOST-Funded Detailed Planning Studies

- Realignment of SR 279 and Corinth Road
- Sandy Creek Road Operational Improvements
- Banks Road Operational Improvements
- Tyrone & Palmetto Roads Operational Improvements
- Lees Mill, New Hope and Kenwood Road Operational Improvements
- Inman Road Operational Improvements
- SR 279 Capacity and Operational Improvements
- Other Transportation Studies, as needed

For budgeting purposes, it is assumed that the Detailed Planning Studies will be 100 percent SPLOST funded, although there is a possibility of receiving Federal-aid to offset the cost for some of the studies. If this is achieved, savings can be used for additional studies or reallocated to another project category, such as resurfacing or intersection improvements.

The SR 279 Capacity and Operational Improvement Study is different from the other studies in that the recommendations of the study are not eligible for implementation with SPLOST money. Since this project is entirely along a State Route, the study will be used to encourage the Georgia Department of Transportation to advance the project using state and federal dollars.

Intersection Improvements

The SPLOST project list includes improvements at four specific locations plus a small allocation for other intersections that may be identified in the future. Each of the locations was selected based on citizen input over the years, known congestion issues, geometry concerns, and/or crash data.

Intersection of Redwine Road, Bernhard Road & Peachtree Parkway

This is an existing 4-way stop intersection that experiences heavy delays in the morning and afternoon. It also has multi-use paths along Redwine Road that are frequently used by local residents for access to the Stars Mill School complex, shopping/dining, golf, recreation, exercise, etc. Morning queues of 25 cars are common on Redwine Road. The average annual daily traffic is 7,600 vehicles per day on Redwine Road and 4,160 vehicles per day on Bernhard.

The intent of this project is to improve operating conditions during AM and PM peak hours and maintain (or improve) the ability of pedestrians, bicyclists, and golf carts to safely cross the roads.

A roundabout is envisioned for the location, but the design process will consider various alternatives and make a recommendation for Board of Commissioner approval prior to full design. A concern with roundabouts is how they are integrated with the multi-use paths. This will be evaluated during the design process. One option is to provide marked cross-walks a short distance away from the roundabout, thereby providing separation between the turn-movements of the roundabout and the crossing. Signs, striping, landscaping, lighting, reflective pavement markers, etc. will all be provided, as applicable, for the project.

Intersection of Brogdon Road and New Hope Road

This is an existing 2-way stop intersection that generates complaints about traffic speed on New Hope Road, limited sight distance, and vehicles pulling out in front of traffic. There are no sidewalks or multi-use paths in the area. The annual average daily traffic on New Hope Road is 5,630 vehicles per day.

The goal of this project is to improve safety and reduce thru speeds on New Hope Road.

The project's budget is based on conversion to a roundabout, although the design process will consider various alternatives and make a recommendation for Board of Commissioner approval prior to full design. Other options may include roadway realignment for improved sight

distance and intersection conversion to a 4-way stop. Signs, striping, landscaping, lighting, reflective pavement markers, etc. will all be provided, as applicable, for the project.

Intersection of Ebenezer Road with Ebenezer Church Road and Spear Road

This location has two intersections offset from each other by approximately 150 feet. The intersections generate above-average complaints about vehicle speed on Ebenezer Road and sight distance limitations. Ebenezer Church and Spear Road are each stop-controlled. There are no sidewalks or multi-use paths in the area but there is high bike use, especially on the weekends. Both Ebenezer and Ebenezer Church are designated in the 2010 Comprehensive Transportation Plan (CTP) as future bike/path roadways. The annual average daily traffic on Ebenezer, Ebenezer Church and Spear Roads is 3,450, 2,210 and 1,770 vehicles per day, respectively.

The goal of this project is to improve safety, reduce vehicles speeds on Ebenezer Road, and optimize the intersections with bike use and future multi-use path expansion.

The project's budget is based on conversion to an oval roundabout, although the design process will consider various alternatives and make a recommendation for Board of Commissioner approval prior to full design. Other options may include intersection realignment; installation of two, smaller roundabouts; vertical curve modifications to improve sight distance; or other geometry changes. Signs, striping, landscaping, lighting, reflective pavement markers, etc. will all be provided, as applicable, for the project.

Intersection of Antioch Road and Goza Road

This is an existing 2-way stop intersection with stop control on Goza Road. The intersection was realigned in 2011 to eliminate an offset between Goza Road and add turn lanes to each of the four approaches. Rarely does the queue length exceed two or three cars in any direction but safety remains an issue at this location. Since 2011, the crash rate remains higher than average and Fayette County has received several requests for changes at this intersection. Antioch Road has an annual average daily traffic county of 2,430 vehicles per day. Goza Road has an annual average daily traffic county of 4,090 vehicles per day.

The goal of the project is to further study the intersection and make safety improvements to reduce the crash rate.

The project's budget is based on conversion to a roundabout, although the design process will consider various alternatives and make a recommendation for Board of Commissioner approval prior to full design. Other options may include grading changes on Antioch Road for improved sight distance or conversion to a 4-way stop. Signs, striping, landscaping, lighting, reflective pavement markers, etc. will all be provided, as applicable, for the project.

Pedestrian, Bicycle and Multi-Use Projects

This category of projects is for improvements or expansion of infrastructure serving pedestrians, bicyclists and golf cart operators.

Redwine Road Multi-Use Path

This is an existing, Federal-aid, design-build project that will install 1.5 miles of new multi-use path along Redwine Road. When complete, there will be a continuous path along Redwine Road from Birkdale Drive to Panther Path. The project will also include an at-grade crossing of Redwine Road near the Birkdale Drive/Quarters Road intersection.

The purpose of the project is to expand the existing path system and thereby provide convenient and safe alternatives to traditional automobile-based transportation. Common uses of the path include trips to schools, churches, neighbors, shops, restaurants, golf courses, for exercise, etc.

The project is currently in the land acquisition phase. It will be advertised and awarded for design-build/construction by the Georgia Department of Transportation upon County completion of all right-way and easement needs.

SPLOST money would be used to help pay the local match portion of the project.

Starrs Mill School Tunnel

This is a path project that will provide a tunnel under Redwine Road at Panther Path, the entrance to the Starrs Mill School complex. The tunnel would allow pedestrians, bicyclists and golf carts safe passage across Redwine Road with no impacts to vehicular traffic. The project would also include construction of new path (approximately 0.5 miles) on the west side of Redwine Road from Summer Place to Panther Path.

The intent of the project is to provide a permanent and safe crossing option for path users who are on the west side of Redwine Road and need access to the Elementary, Middle or High School. A field survey in 2015 measured approximately 600 golf cart trips per day along Panther Path and half of those originated from the west side of Redwine Road at Foreston Place subdivision (i.e., at the Summer Place intersection). For comparison, that section of Redwine Road carries over 8,400 vehicles per day.

This project would be 100 percent SPLOST funded.

Bike Lanes and Multi-Use Paths

Within unincorporated Fayette County there is a disconnected system of bike lanes, designated bike routes, sidewalks and multi-use paths. This project will provide some funding for implementation of recommendations from the Comprehensive Path Plan currently underway. The Comprehensive Path Plan will make recommendations for short and long-term projects to connect these systems and establish uniform and appropriate standards for signs, pavement striping, etc.

Some of the money may be used as local match for a larger Federal-aid project, depending on the specific recommendations and available Federal-aid opportunities. Example project includes: installation and/or improvements of crossings; construction of new paths or bike lanes; and installation of new bike route signs along designated routes. The emphasis of all projects will be on improved safety and connectivity.

Federal-Aid Corridor Projects

Projects within this category are all large in terms of scope and cost and are more complex from a design, permitting and construction perspective. Because of their high costs, each of these projects will be dependent upon receiving Federal-aid to advance through construction.

A Detailed Planning Study will be completed for each project in this category and the results used to prioritize and refine budgets. The anticipated cost for all seven projects exceeds the projected Transportation SPLOST dollars, so only the top-rated project will be advanced. The others will be delayed until alternative funding sources are available or possibly dropped from consideration if the Planning Studies find either better alternatives or that the benefits do not justify the costs.

For planning purposes, the County's Transportation Committee and the Board of Commissioners identified the Realignment of SR 279 and Corinth Road, Sandy Creek Road and SR 74 as the highest priorities. These may be reprioritized once the Detailed Planning Studies are complete.

Realignment of SR 279 and Corinth Road

SR 279 and SR 85 intersect approximately one-half mile north of the Corinth Road intersection. Both intersections are controlled with traffic signals. There is often a large queue of traffic making left turns from SR 85 onto SR 279 (especially in the AM) and Corinth Road (in the PM). Completion of the East Fayetteville Bypass is expected to increase traffic on Corinth Road and these intersections. Typical traffic volumes are:

- SR 279: 5,080 vehicles per day (vpd);

- SR 85: 28,000 vpd, and
- Corinth Road: 6,040 vpd.

This project aligns Corinth Road and SR 279, thereby eliminating a traffic signal and the associated turning movements. Doing so improves safety and operational efficiency (i.e., less delay). The project requires Federal-aid and support from the Georgia Department of Transportation (GDOT) since it involves two state routes.

This project's Detailed Planning Study will consider all options for bringing these intersections together, as well as other safety and operational improvements. It will quantify the costs and benefits of each option allowing a go/no-go decision to be made along with selection of a preferred alignment.

Sandy Creek Road Operational Improvements

Sandy Creek Road is a 4.6-mile arterial road extending from Veterans Parkway in Fayetteville to SR 74 in Tyrone. Recent and expected growth within Fayetteville and around the Pinewood Studios is expected to increase traffic on Sandy Creek Road, which currently ranges around 5,000 vehicles per day. Fayette County received feedback from citizens with concerns about intersection safety, increasing truck use, and vehicle speeds.

This project develops a plan to ensure Sandy Creek Road is improved in a way that adequately meets current and future transportation needs. Examples of possible operational improvements include: reconfiguration of intersections, addition of passing lanes, shoulder build-out, correction of sub-standard horizontal and vertical curves, an improved railroad crossing, and measures to balance growth demands with existing property owner needs and desires along the corridor.

SR 74 Corridor Study Recommendations

There is an existing, multi-jurisdictional corridor study for SR 74 that extends approximately 12 miles, from SR 54 in Peachtree City to U.S. 29 in Fairburn. The study is broad in scope and is expected to generate several specific recommendations with respect to access management, intersection controls, sidewalks and paths, frontage roads, landscaping, right-of-way maintenance, etc. Approximately one mile of the corridor is within the unincorporated County.

The intent of this project is to have funds available for the implementation of some recommendations from the study within the unincorporated areas. Depending on the specific recommendation(s), they may be strong candidates for Federal-aid because of SR 74's regional significance.

As of December 2016, procurement for the SR 74 study is underway. The study should take approximately 18 months so final recommendations will be available in late 2018. Depending on the recommendation, implementation may also be dependent upon coordination with Peachtree City, Tyrone and Fairburn.

Eligible but Unfunded Federal-Aid Corridor Improvement Projects

Banks Road Operational Improvements

Banks Road is a 1.7-mile road extending from SR 54 to SR 314. The western end of Banks Road (approximately 0.38 miles) is within the limits of Fayetteville. The road is used as a cut-thru between SR 314, SR 85, SR 54 and McDonough Road but is not properly designed for current (and future) traffic volumes and pedestrian demands. For example, a 1.25 mile stretch of Banks has 10 intersections, 25 residential driveways, and approximately 250 acres of undeveloped land with existing road frontage on Banks. There are no sidewalks, bike lanes or multi-use paths.

This project will ensure Banks Road is improved to meet current and future transportation demands. Possible improvements could include: capacity increases (e.g., addition of a third lane), shoulder build-out, turn lanes, different intersection controls, correction of sub-standard horizontal and vertical curves, and addition of sidewalks, bike lanes and/or multi-use paths. Similar to the other Corridor Projects, the specific scope will be determined from the Detailed Planning Study.

Tyrone Road and Palmetto Road Operational Improvements

Tyrone Road is a 4.5-mile arterial road extending from SR 54 to Senoia Road in Tyrone. Palmetto Road is also an arterial road running 1.7 miles from Senoia Road to the Coweta County border. Palmetto Road is often used for access to Interstate I-85 at the Collinsworth Road interchange (Exit 56). Approximately 1.5 miles of the corridor are within the limits of Tyrone. With the exception of the Tyrone portion the majority of this corridor has no pedestrian or bicycle accommodations. Many side street intersections have poor skew angles and restricted sight distance. The annual average traffic count varies from 5,690 to 8,400 vehicles per day.

This project will ensure Tyrone Road is improved to adequately meet current and future transportation needs. Possible improvements may include: capacity increases (e.g., addition of a third lane in select areas), shoulder build-out, turn lanes, different intersection controls, correction of sub-standard horizontal and vertical curves, and addition of sidewalks, bike lanes and/or multi-use paths. Similar to the other Corridor Projects, the specific scope will be determined from the Detailed Planning Study.

Some specific intersections that may be realigned or changed to a different type of intersection control (e.g., a roundabout) include: Arrowood Road and Spencer Lane with Palmetto Road; Ellison Road and Tyrone Road; Dogwood Trail with Tyrone Road; and Flat Creek Trail with Tyrone Road.

This is a joint effort with the Town of Tyrone and they are supportive of the project.

Lees Mill Road, New Hope Road and Kenwood Road Operational Improvements

When considered as one corridor, these three roads provide east-west connectivity in the north part of Fayette County, with intersections at Sandy Creek Road, Veterans Parkway, SR 92, SR 314, SR 279 and SR 85 (only a small portion of new Hope Road is included in the project). The roads are all two-lane, County Arterials. There are no sidewalks, bike lanes or multi-use paths along these two-lane roads. The annual average traffic count varies from 2,190 to 2,650 vehicles per day.

This project will provide safety and operational improvements along the corridor, including intersection improvements and possible addition of bike lanes, sidewalks and/or multi-use paths. Public input will be sought to determine latent demand for these features. Possible improvements include: shoulder build-out, turn lanes, different intersection controls, correction of sub-standard horizontal and vertical curves, installation of guardrails, and addition of sidewalks, bike lanes and/or multi-use paths. Similar to the other Corridor Projects, the specific scope will be better defined with the Detailed Planning Study.

Inman Road Operational Improvements

Inman Road extends from County Line Road at South Jeff Davis Road to SR 92 across from Goza Road. It is a two lane road, posted at 35 mph, and has no stop signs or traffic signals between the termini intersections noted above. Traffic is expected to increase on Inman as growth continues in surrounding counties, and with construction of the East Fayetteville Bypass. Traffic on Inman is approximately 2,410 vehicles per day. A common complaint received from citizens about Inman Road is significant speeding.

This project will ensure Inman Road is maintained as a free-flow road meeting current and future transportation needs for safety and efficient traffic movement. Possible operational improvements include: addition of turn lanes at intersections and passing lanes, shoulder build-out and establishment of proper clear zones, correction of sub-standard horizontal and vertical curves, and guardrail installations.

Ebenezer Church Road Bridge Replacement

Category: Infrastructure Preservation and Improvements

Location: Ebenezer Church Road at Whitewater Creek Bridge

Estimated Cost:

SPLOST Match \$659,500

Federal/State Match \$3,062,983

Total Cost **\$3,722,483**

Project Description

This is a Georgia Department of Transportation (GDOT) sponsored bridge replacement project that is currently in the early stages of design.

The existing bridge, built in 1965, and consists of four spans of reinforced concrete deck girders on steel piles, concrete columns and concrete caps. The overall condition of the bridge is good, the design vehicle used for the bridge is below current standards, so the bridge is posted with weight restrictions.

The new structure will be wider and meet all current design standards. Fayette County is working with GDOT to coordinate the new design with possible future bike lanes or multi-use paths along Ebenezer Church Road.

Costs for the project are based on an August 24, 2016 estimate. The balance of the project (\$3,620,983) will be paid with state and federal dollars. GDOT's schedule for construction is fiscal year 2019.

Map Location



Ebenezer Church Road is located southwest of downtown and can be accessed by Redwine, Lester, and Ebenezer Roads.

Existing Conditions



Ebenezer Church Road has two bridges. One crosses at Whitewater Creek and second at Pelham Creek. This project is for bridge replacement over Whitewater Creek, which is located between Hideaway Drive and Lester Road.

Kenwood Road School Zone

Category: Infrastructure Preservation and Improvements

Location: Kenwood Road at North Fayette Elementary

Estimated Cost: \$600,000

Project Description

This is a Fayette County safety project on Kenwood Road.

This project provides design and construction of auxiliary lanes (e.g., center left turn lane) on Kenwood Road for the North Fayette Elementary School.

Providing turn lanes will reduce the risk of rear-end collisions and reduce delays to thru traffic. The design process would include soliciting input from the School System, Sheriff's Office, and other stakeholders in the area.

The project would be funded entirely with SPLOST dollars.

Existing Conditions



Proposed Project



Paved Roads, Gravel Roads, and Bridges

Category: Infrastructure Preservation and Improvements

Location: Multiple Locations

Estimated Cost: \$2,209,273

Project Description

This project will help maintain existing roads and bridges in the unincorporated County.

Each year the Fayette County Road Department repairs and resurfaces four to five percent of the paved roads in the unincorporated County. The Department also maintains the County's bridges and approximately 50 miles of gravel roads.

This project will provide additional resources for asphalt resurfacing, other pavement preservation treatments, bridge work, shoulder grading, drainage improvements, dust control treatments, etc. Treatment technologies and work priorities will be established using the results of a comprehensive 2016 Pavement Evaluation.

Resurfacing and other maintenance work will be funded entirely with SPLOST dollars, but opportunities may exist to use the money as local match against state or federal aid.

Paved Roads



Gravel Roads



Bridges



Sandy Creek Road

Category: Possible Federal Aid Corridor Improvement Project

Location: Tyrone and Palmetto Roads

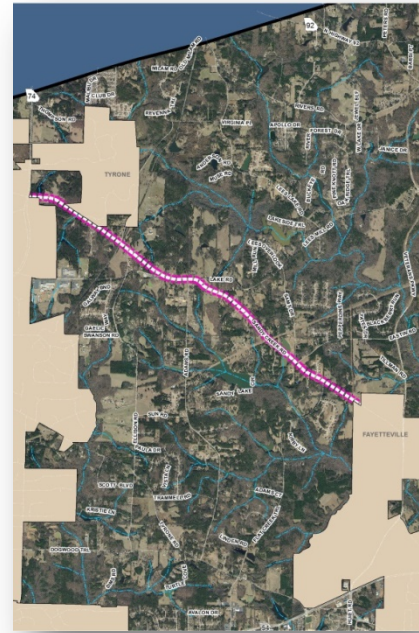
SPLOST Detailed Planning Study: \$71,800

Project Description

Sandy Creek Road is a 4.6-mile major road extending from Veterans Parkway in Fayetteville to SR 74 in Tyrone. Recent and expected growth within Fayetteville and around the Pinewood Studios is expected to increase traffic on Sandy Creek Road. Fayette County received feedback from citizens with concerns about intersection safety, increasing truck use, and vehicle speeds.

This project develops a plan to ensure Sandy Creek Road is improved in a way that adequately meets current and future transportation needs. Examples of possible operational improvements include: reconfiguration of intersections, addition of passing lanes, shoulder improvements, correction of sub-standard horizontal and vertical sight distances, an improved railroad crossing, and measures to balance growth demands with existing property owner needs and desires along the corridor.

Location



Existing Conditions



Possible Intersection Reconfiguration : Sandy Creek Road, Eastin Road, Sams Drive and Trustin Lake Drive

This project may or may not be advanced beyond the Detailed Planning Study. The final prioritization and funding levels for this project and the other eligible Federal-Aid Corridor Improvement Projects will be set by the Transportation Committee and the Board of Commissioners upon completion of the Detailed Planning Studies.

Operational Improvements Cost if funded:

Federal/State: \$12,144,000

Local Match: \$3,036,000

SR 74 Corridor Study Recommendations

Category: Possible Federal Aid Corridor Improvement Project

Location: State Route 74

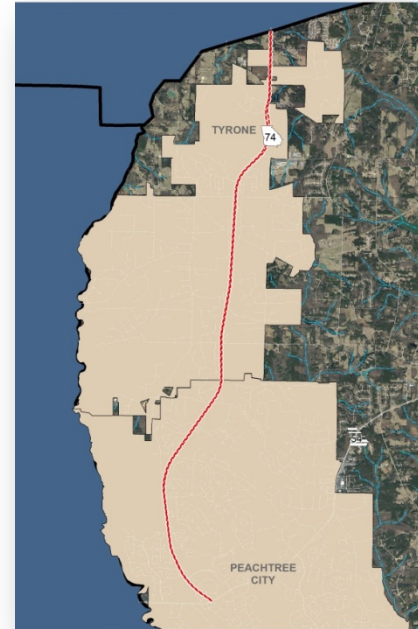
Project Description

There is an existing, multi-jurisdictional corridor study for SR 74 that extends approximately 12 miles, from SR 54 in Peachtree City to U.S. 29 in Fairburn. The study is broad in scope and is expected to generate several specific recommendations with respect to access management, intersection controls, sidewalks and paths, frontage roads, landscaping, right-of-way maintenance, etc. Approximately one mile of the corridor is within the unincorporated County.

The intent of this project is to have some funds available for the implementation of some recommendations from the study along the unincorporated areas. Depending on the specific recommendation(s), they may be strong candidates for Federal-aid.

As of December 2016, procurement for the SR 74 study is underway. The study should take approximately 18 months so final recommendations will be available in late 2018. Depending on the recommendation, implementation may also be dependent upon coordination with Peachtree City, Tyrone and Fairburn.

Location



This project may or may not be advanced beyond the Detailed Planning Study. The final prioritization and funding levels for this project and the other eligible Federal-Aid Corridor Improvement Projects will be set by the Transportation Committee and the Board of Commissioners upon completion of the Detailed Planning Studies.

Operational Improvements Cost if funded:

Federal/State: \$2,880,000

Local Match: \$720,000

Redwine, Bernhard, and Peachtree Parkway

Category: Intersection Improvements

Location: Redwine Road, Bernhard Road and Peachtree Parkway

Estimated Cost: \$1,200,000

Project Description

This is an existing 4-way stop intersection that experiences heavy delays in the morning and afternoon. It also has multi-use paths along Redwine Road that are frequently used by local residents for access to the Stars Mill School complex, shopping/dining, golf, recreation, exercise, etc. Morning queues of 25 cars or more is common on Redwine Road.

The intent is to improve operating conditions during AM and PM peak hours and improve the ability of pedestrians, bicyclists, and golf carts to safely cross the roads.

A roundabout is envisioned for the location, but the design process will consider various alternatives and make a recommendation for the Board of Commissioner's approval prior to the full design phase. A concern with roundabouts is how they are integrated with the multi-use paths. This will be evaluated during the design process. One option is to provide marked cross-walks a short distance away from the roundabout, thereby providing separation between the turn-movements of the roundabout and the crossing. Signs, striping, landscaping, lighting, reflective pavement markers, etc. will all be provided, as applicable, for the project.

Existing Conditions



The current design consists of a four way stop controlled intersection with stop signs and multiuse paths.

Proposed Project



The work may include realignments, changing the intersection control, addition of turn lanes, new signs, striping and/or reflective pavement markers, addition of night time lighting, etc.

Brogdon and New Hope Roads

Category: Intersection Improvements

Location: Brogdon and New Hope Roads

Estimated Cost: \$1,200,000

Project Description

This existing two-way stop intersection generates frequent complaints about traffic speed on New Hope Road, limited sight distance, and vehicles pulling out in front of traffic. There are no sidewalks or multi-use paths in the area.

The project will improve safety and reduce speeds on New Hope Road. The design process will consider all options and make a recommendation for Board of Commissioner approval prior to full design.

Options may include roadway realignment for improved sight distance and intersection conversion to a four-way stop. The project's budget is based on conversion to a roundabout. Signs, striping, landscaping, lighting, reflective pavement markers, etc. will be provided.

Existing Conditions



The current design consists of a controlled intersection with stop signs on Brogdon Road.

Proposed Project



The work may include realignments, changing the intersection control, addition of turn lanes, new signs, striping and/or reflective pavement markers, addition of night time lighting, etc.

Ebenezer Church, Ebenezer and Spear Roads

Category: Intersection Improvements

Location: Ebenezer Church, Ebenezer and Spear Roads

Estimated Cost: \$1,500,000

Project Description

This location has two intersections offset from each other by approximately 150 feet. The intersections generate above-average complaints about vehicle speed on Ebenezer Road and sight distance limitations. Ebenezer Church and Spear Roads are each stop-controlled.

There are no sidewalks or multi-use paths in the area but there is high bike use, especially on weekends. Both Ebenezer and Ebenezer Church Roads are designated in the 2010 Comprehensive Transportation Plan as future bike-path roadways.

This project's goal is to improve safety, reduce vehicles speeds on Ebenezer Road, and optimize the intersections with bike use and future multi-use path expansion.

The design process will consider all options and make a recommendation for Board of Commissioner approval prior to full design. Options may include roadway realignment for improved sight distance and intersection conversion to a four-way stop. The project's budget is based on conversion to a roundabout. Signs, striping, landscaping, lighting, reflective pavement markers, etc. will be provided as applicable.

Existing Conditions



The current design consists of a controlled intersection with stop signs on Spear and Ebenezer Church Roads.

Proposed Project



The work may include realignments, changing the intersection control, addition of turn lanes, new signs, striping and/or reflective pavement markers, addition of night time lighting, etc.

Antioch and Goza Roads

Category: Intersection Improvements

Location: Antioch and Goza Roads

Estimated Cost: \$1,070,000

Project Description

This is an existing two-way stop intersection with stop control on Goza Road. The intersection was realigned in 2011 to eliminate an offset between Goza Road and add turn lanes to each of the four approaches. Rarely does the number of vehicles exceed two or three cars in any direction but safety remains an issue at this location. Since 2011, the crash rate remains higher than average and Fayette County has received several requests for changes at this intersection.

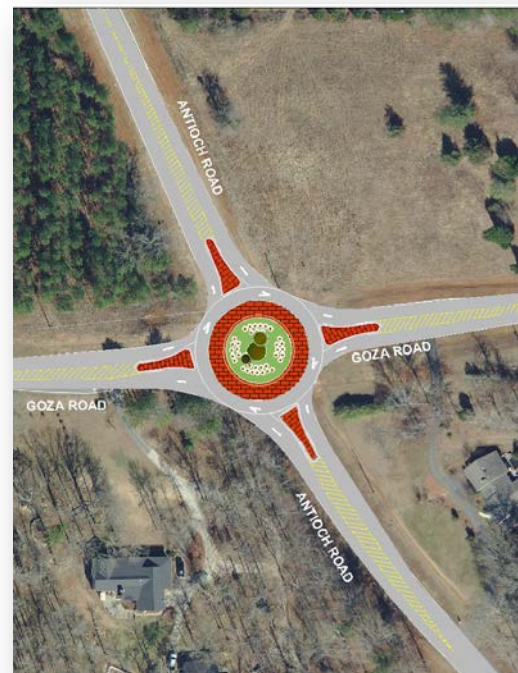
The goal of the project is to further study the intersection and make safety improvements to reduce the crash rate. The design process will consider all options and make a recommendation for Board of Commissioner approval prior to full design. Options may include roadway realignment for improved sight distance and intersection conversion to a four-way stop. The project's budget is based on conversion to a roundabout, signs, striping, landscaping, lighting, reflective pavement markers, etc. will be provided as applicable.

Existing Conditions



The current design consist of a controlled intersection with stop signs, turn lanes and rumble strips long Goza Road and turn lanes along Antioch Road.

Proposed Project



The work may include realignments, changing the intersection control, addition of turn lanes, new signs, striping and/or reflective pavement markers, addition of night time lighting, etc.

Redwine Road Multi-Use Path

Category: Pedestrian, Bicycle and Multi-Use Path Projects

Location: Redwine Road

Estimated Cost:

| | |
|-------------------|--------------------|
| SPLOST | \$556,680 |
| Federal/State | \$1,073,000 |
| Total Cost | \$1,629,680 |

Project Description

This is an existing, federal-aid, design-build project installing 1.5 miles of new multi-use path along Redwine Road. When complete, there will be a continuous path along Redwine Road from Birkdale Drive to Panther Path. The project will also include an at-grade crossing of Redwine Road near the Birkdale Drive and Quarters Road intersection.

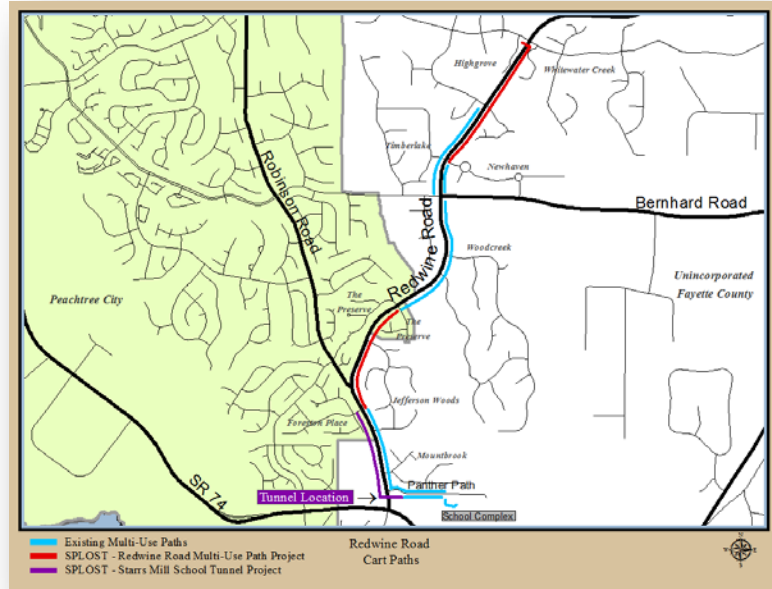
The project expands the existing path system, providing convenient and safe transportation alternatives. Common path uses include trips to school, church, neighbors, shopping, dining, golf, exercise, etc.

The project is currently in the land acquisition phase by the County. It will be advertised and awarded for design-build/construction by GDOT.

Existing Conditions



Proposed Project



Starr's Mill School Tunnel

Category: Pedestrian, Bicycle and Multi-Use Path Projects

Location: Redwine Road at Panther Path

Estimated Cost: \$900,000

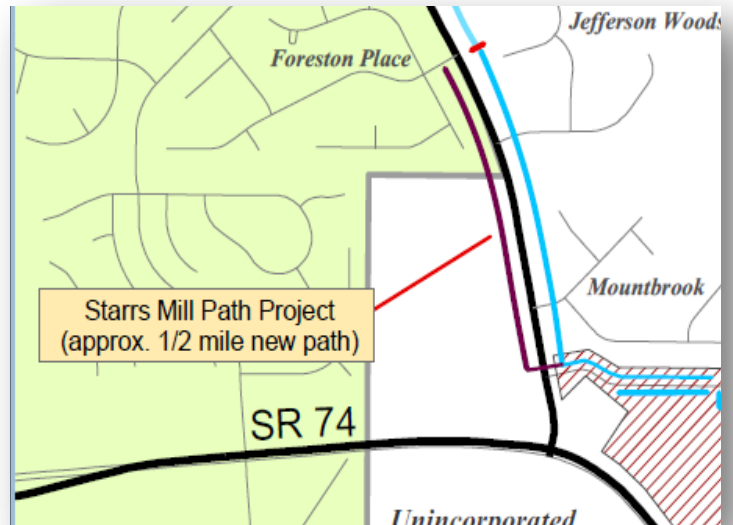
Project Description

This path project provides a tunnel under Redwine Road at Panther Path, the entrance to the Starr's Mill School complex. A tunnel provides pedestrians, bicyclists and golf carts safe passage across Redwine Road without impacting vehicular traffic. It includes construction of a new path (approximately 0.5 miles) on the west side of Redwine Road from Summer Place to Panther Path.

The intent is to provide a permanent and safe crossing option for path users who are on the west side of Redwine Road to the school complex.

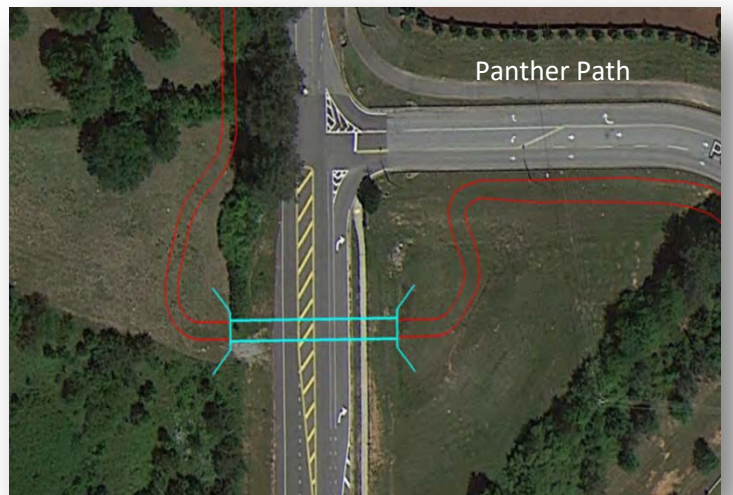
A 2015 survey counted approximately 600 golf cart trips per day along Panther Path with half originating from the west side of Redwine Road at the Summer Place.

Map Location



The blue portion in the above map identifies existing multi-use paths that are located east of Redwine Road. The purple portion identifies the new multi-use path that will be installed with this project.

Proposed Project



It is anticipated that a multi-use path along the west side of Redwine Road would significantly reduce the number of carts and pedestrians crossing Redwine Road and the hazardous intersection of Foreston Place. The concrete tunnel will be installed south of Panther Path allowing safe passage for carts and pedestrians.

Bike Lane and Multi-Use Paths

Category: Pedestrian, Bicycle and Multi-Use Path Projects

Location: Multiple Locations

Estimated Cost: \$250,000

Project Description

Within unincorporated Fayette County, there is a disconnected system of bike lanes, designated bike routes, sidewalks and multi-use paths. Independent of the 2017 SPLSOT referendum, Fayette County is completing a Comprehensive Path Plan which will make recommendations for short and long-term projects to connect these systems and establish uniform and appropriate standards for signs and pavement striping.

This project will provide some funding for the implementation of some the Path Plan recommendations. Some of the money may be used as local match for a larger Federal-aid Project, depending on the specific recommendations and available federal-aid opportunities.

Examples of anticipated projects include: installation and improvements of crossings; construction of new paths or bike lanes; and installation of new bike route signs along designated routes. The emphasis of all projects will be on improved safety and connectivity.



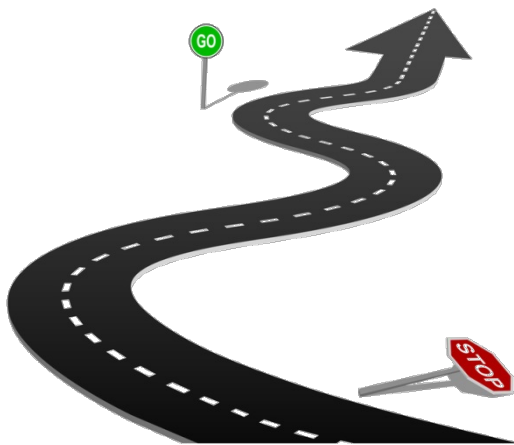
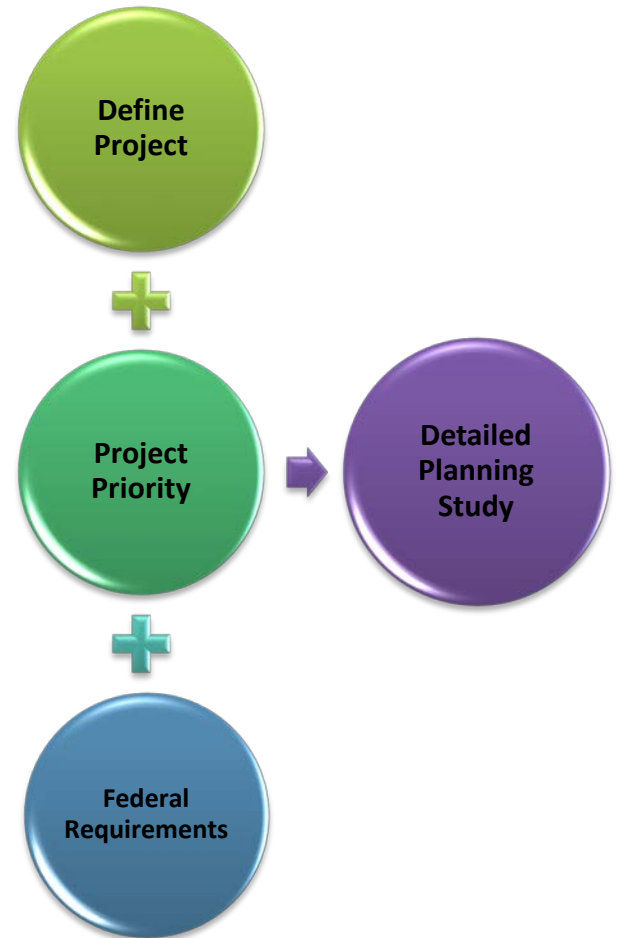
Detailed Planning Studies

Approximately 3.2% of the SPLOST transportation dollars are allocated for Detailed Planning Studies. The studies have three primary purposes:

1. Define the project;
2. Assist with project prioritization; and
3. Satisfy federal requirements.

On large corridor projects, considerable data collection and engineering analysis is required to make accurate project recommendations. A Detailed Planning Study will collect the minimum data to allow for these analyses and provide results and recommendations for the Board of Commissioners to prioritize and advance the highest-rated projects. Having this information is prudent for local officials making decisions on projects with cost estimates in the tens-of-millions range and is required by state and regional planning agencies if the project is to be competitive in seeking Federal-aid.

Each of the Detailed Planning Studies will complete common tasks in order to address the three goals noted above, including:



- Identify need and purpose;
- Define the project scope;
- Consider alternatives;
- Perform cursory environmental screening;
- Assess impacts to utilities and railroads;
- Assess impacts to private properties;
- Gauge public support and opposition;
- Identify applicable design criteria;
- Develop a schedule; and
- Determine preliminary budget and funding options.

The SR 279 Capacity and Operational Improvement Study is different from the other studies in that the recommendations of the study are not eligible for implementation with SPLOST money. Since this project is entirely along a State Route, the study will be used to encourage the Georgia Department of Transportation to advance the project using state and federal dollars.

Banks Road

Category: Detailed Planning Study/
Possible Federal Aid Corridor
Improvement Project

Location: Banks Road

SPLOST Detailed Planning Study \$47,000

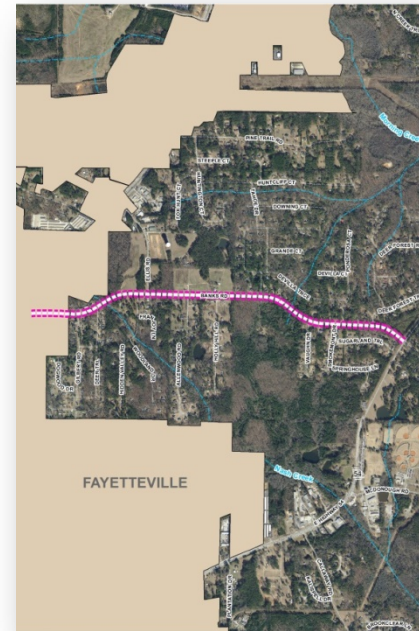
Project Description

Banks Road is a 1.7-mile road extending from SR 54 to SR 314. The western end of Banks Road (approximately 0.38 miles) is within the limits of Fayetteville.

The road is used a cut-thru between SR 314, SR 85, SR 54 and McDonough Road but is not properly designed for current (and future) traffic volumes and pedestrian demands. For example, a 1.25-mile stretch of Banks has 10 intersections, 25 residential driveways, and approximately 250 acres of undeveloped land with existing road frontage on Banks. There are no sidewalks, bike lanes or multi-use paths.

This project will ensure Banks Road is improved to meet current and future transportation demands. Possible improvements could include: capacity increases (e.g., addition of a third lane), shoulder improvements, turn lanes, different intersection controls, correction of sub-standard horizontal and vertical sight distances, and addition of sidewalks, bike lanes and/or multi-use paths. Similar to the other Corridor Projects, the specific scope will be determined from the Detailed Planning Study.

Location



This project may or may not be advanced beyond the Detailed Planning Study. The final prioritization and funding levels for this project and the other eligible Federal-Aid Corridor Improvement Projects will be set by the Transportation Committee and the Board of Commissioners upon completion of the Detailed Planning Studies.

Operational Improvements Cost if funded:

Federal/State: \$12,000,000

Local Match: \$3,000,000

Tyrone & Palmetto Roads

Category: Detailed Planning Study/
Possible Federal Aid Corridor
Improvement Project

Location: Tyrone and Palmetto Roads

SPLOST Detailed Planning Study: \$84,600

Project Description

Tyrone Road is a 4.5-mile road extending from SR 54 to Senoia Road in Tyrone. Palmetto Road runs 1.7 miles from Senoia Road to the Coweta County border. Palmetto Road is often used for access to Interstate I-85 at the Collinsworth Road interchange.

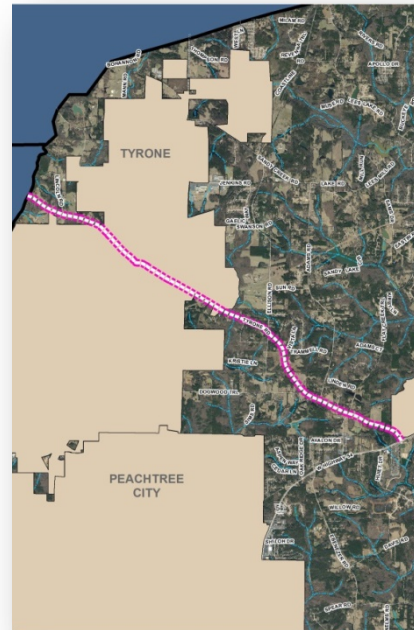
With the exception of the Tyrone portion, the majority of this corridor has no pedestrian or bicycle accommodations.

This project will ensure Tyrone Road is improved to adequately meet current and future transportation needs. Possible improvements may include: capacity increases, shoulder improvements, turn lanes, different intersection controls, correction of sub-standard horizontal and vertical sight distance, and addition of sidewalks, bike lanes or multi-use paths.

Some specific intersections to be realigned or changed to a different type of intersection control (e.g., a roundabout) include: Arrowwood Road and Spencer Lane with Palmetto Road; Ellison Road and Tyrone Road; Dogwood Trail with Tyrone Road; and Flat Creek Trail with Tyrone Road. Details of this project will be coordinated with Town of Tyrone SPLOST projects.

This is a joint effort with the Town of Tyrone and they are supportive of the project.

Location



This project may or may not be advanced beyond the Detailed Planning Study. The final prioritization and funding levels for this project and the other eligible Federal-Aid Corridor Improvement Projects will be set by the Transportation Committee and the Board of Commissioners upon completion of the Detailed Planning Studies.

Operational Improvements Cost if funded:

Federal/State: \$24,800,000

Local Match: \$6,200,000

Lee's Mill Road, New Hope Road, and Kenwood Road

Category: Detailed Planning Study/
Possible Federal Aid Corridor
Improvement Project

Location: Lee's Mill Road, New Hope Road, and Kenwood Road intersecting at Sandy Creek Road, Veterans Parkway, SR 92, SR 314, SR 279 and SR 85

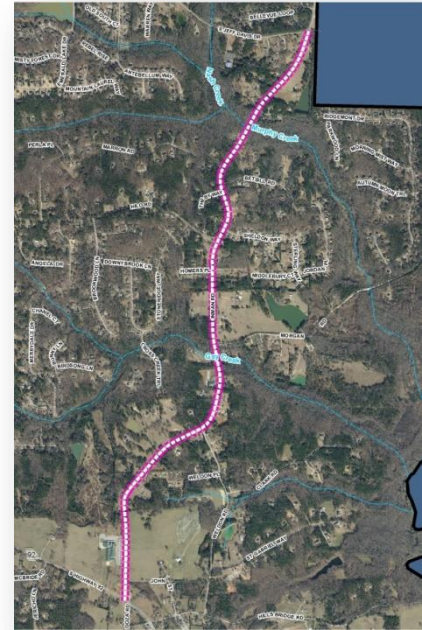
SPLOST Detailed Planning Study: \$76,600

Project Description

When considered as one corridor, these three roads provide east-west connectivity in the north part of Fayette County, with intersections at Sandy Creek Road, Veterans Parkway, SR 92, SR 314, SR 279 and SR 85 (only a small portion of new Hope Road is included in the project), which are all two-lane roads. There are no sidewalks, bike lanes or multi-use paths along the corridor.

This project will provide safety and operational improvements along the corridor, including intersection improvements and possible addition of bike lanes, sidewalks and/or multi-use paths. Public input will be sought to determine latent demand for these features. Examples of possible improvements include: shoulder build-out, turn lanes, different intersection controls, correction of sub-standard horizontal and vertical sight distances, installation of guardrails, and addition of sidewalks, bike lanes and/or multi-use paths. Similar to the other Corridor Projects, the specific scope will be better defined with the Detailed Planning Study.

Location



This project may or may not be advanced beyond the Detailed Planning Study. The final prioritization and funding levels for this project and the other eligible Federal-Aid Corridor Improvement Projects will be set by the Transportation Committee and the Board of Commissioners upon completion of the Detailed Planning Studies.

Operational Improvements Cost if funded:

Federal/State: \$25,600,000

Local Match: \$6,400,000

Inman Road

Category: Detailed Planning Study/
Possible Federal Aid Corridor
Improvement Project

Location: Inman Road from County Line
Road at South Jeff Davis Road
to SR 92 across from Goza
Road.

SPLOST Detailed Planning Study: \$59,000

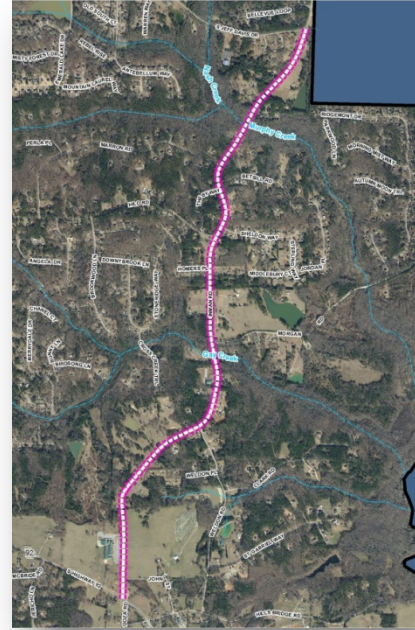
Project Description

Inman Road is a three mile road that extends from County Line Road at South Jeff Davis Road to SR 92 across from Goza Road. It is a two lane road, posted at 35 mph, and has no stop signs or traffic signals between the intersections noted above.

Traffic is expected to increase on Inman as growth continues in Spalding and Clayton Counties and with construction of the East Fayetteville Bypass, which will provide a direct path from Inman Road to SR 85 north of Fayetteville. A common complaint received from citizens about Inman Road is the amount of vehicles speeding on the road.

This project will ensure Inman Road is maintained as a free-flow road meeting current and future transportation needs for safety and efficient traffic movement. Possible operational improvements include: addition of turn lanes at intersections and passing lanes; shoulder build-out and establishment of proper clear zones; correction of sub-standard horizontal and vertical curves, and installation of guardrails.

Location



This project may or may not be advanced beyond the Detailed Planning Study. The final prioritization and funding levels for this project and the other eligible Federal-Aid Corridor Improvement Projects will be set by the Transportation Committee and the Board of Commissioners upon completion of the Detailed Planning Studies.

Operational Improvements Cost if funded:

Federal/State: \$14,400,000

Local Match: \$3,600,000

Public Safety Radio System

Category: Public Safety Radio System

Location: Countywide

Estimated Cost: \$18,211,536

Project Description

Fayette County currently is operating a Motorola 800MHz ASTRO Simulcast system, which was purchased in December 2002. The County Public Safety Radio System consist of a single PSAP with ten (10) workstations; six (6) telecommunicator workstations; and two (2) 911 and CAD workstations able to communicate via radio with the County Sherriff, five (5) local law enforcement agencies, three (3) fire agencies and two (2) emergency medical service providers. The public safety system consists of ten (10) channels and seven (7) cell towers and communicates with approximately 1,800 mobile and portable radios. The primary tower located behind the 911 Center at 110 Volunteer Way. The project was implemented and serviced by Diversified Electronics from Forest Park, Georgia.

The existing public safety radio system contains many components that are nearing their end of life. Fayette County is in the early stages of a comprehensive needs assessment to upgrade and/or replace the existing radio system with state of the art system based on the current market of the industry. Once this is completed, the County will determine which approach is best suited for Fayette County.

Porter Road



Highway 54



Peachtree City Town Hall



Public Safety Radio System

Benefits

To improve the current Motorola 800MHz ASTRO Simulcast radio system with a state of the art system based on the current market of the industry through a phase proposal, to determine which approach is best suited for Fayette County – upgrade and/or replacement.

Needs Assessment

Background: Fayette County currently is operating a Motorola 800MHz ASTRO Simulcast system, which was purchased in December 2002. The County Public Safety Radio System consist of a single PSAP with ten (10) workstations; six (6) telecommunicator workstations; and two (2) 911 and CAD workstations able to communicate via radio with the County Sherriff, five (5) local law enforcement agencies, three (3) fire agencies and two (2) emergency medical service providers. The public safety system consists of ten (10) channels and seven (7) cell towers and communicates with approximately 1,800 mobile and portable radios. The primary tower is located behind the 911 Center at 110 Volunteer Way. The project was implemented and serviced by Diversified Electronics from Forest Park, Georgia.

Objective: The existing public safety radio system contains many components that are nearing their end of life. Fayette County is in the early stages of a comprehensive needs assessment to upgrade and/or replace the existing radio system with a state of the art system based on the current market of the industry. Once this is completed, the County will determine which approach is best suited for Fayette County.

The estimated cost to upgrade and/or replace the existing Public Safety Radio System is \$18,211,536, detailed below:

Public Safety Radio System – Capital Improvement Program (CIP) Plan

| # of Projects | Source Funding | Department | Funding Source | Project Description | Total CIP Plan |
|------------------------------------|----------------|----------------|----------------|---|---------------------|
| 7 | 100 | Bldg & Grounds | 375 | Radio Replacements | 71,316 |
| 12 | 100 | EMA | 375 | Radio Replacements | 29,800 |
| 48 | 100 | Road | 375 | Radio Replacements | 142,091 |
| 55 | 100 | Sheriff | 375 | Radio Replacements (141 Dual Band Mobile) | 944,700 |
| 56 | 100 | Sheriff | 375 | Radio Replacements (245 Portable) | 1,058,829 |
| 66 | 270 | Fire | 375 | Radio Replacements | 562,300 |
| 70 | 272 | EMS | 375 | Radio Replacements | 252,500 |
| New | 505 | Water | 505 | Radio Replacements | 150,000 |
| Radio Replacements | | | | | \$3,211,536 |
| 57 | 215 | 911 | 375 | Trunked Public Safety Radio System | 15,000,000 |
| Public Safety Radio Project | | | | | \$15,000,000 |
| Total Project Cost | | | | | \$18,211,536 |

The timetable for Fayette County to fully implement this public safety radio system is three years. Outlined below are the expected phases:

| Phase | Begin | End | Days | 911 Center | Radio(s) |
|-----------|------------|------------|------|------------|----------|
| Phase I | 01/01/2016 | 12/31/2016 | 365 | 80% | 20% |
| Phase II | 12/31/2016 | 07/01/2017 | 182 | 60% | 40% |
| Phase III | 07/01/2017 | 12/31/2017 | 183 | 40% | 60% |
| Phase IV | 12/31/2017 | 07/01/2018 | 182 | 20% | 80% |

Phase I – Needs Assessment and Request for Proposal (RFP) Development

Fayette County needs assessment will include all aspects of the public safety community, as we evaluate our mission-critical public safety radio system needs for the future. Public safety radio systems are complex and expensive to upgrade and/or replace. First responders are challenged with critical service delivery and must rely upon sophisticated safety features, such as emergency notification, “caller identification,” and multiple channels or talk groups for each incident response. The scope of service will include the following areas:

- Select a consultant to assist the County in replacing and/or upgrading public safety radio system to meet a deadline of July 1, 2018.
- Meet with stakeholders to document their needs and expectations to gain a complete understanding of the desired functionality for the new system.
- Tour and appraise any physical locations such as tower sites and local emergency service providers if needed to understand elements of the current system and inventory equipment.
- Facilitate discussions and guide decision making process among stakeholders to build consensus around required and optional system elements to maximize stakeholder buy-in.
- Review County’s RFP template and contracting process with the County’s Project Management Team to gain a full understanding of how the County intends to carry out this public procurement.
- Prepare a written scope of work detailing system requirements and specifications in a manner that can be integrated into the County’s RFP template.
- Utilize best practices and professional knowledge of 911 industry to determine and ensure the County’s current and future interoperability requirements are addressed in the scope of work.
- Develop a Scope of Services to solicit the type of critical information from potential Radio System vendors necessary to allow the County to comprehensively evaluate and compare proposals received so as to arrive at an informed decision and recommendation.
- Coordinate and lead any mandatory pre-bid site visits.
- Evaluate the current Motorola 4.1, 800 MHz system including tower sites, radio consoles, mobiles, and portables.

- Determine equipment needs for municipalities to ensure compatibility with the new system on a case by case basis.
- Review existing Motorola service agreements.
- Evaluation of voice and data functionality.
- Evaluation of equipment migration.
- Meeting with all Users groups – interoperability; capacity and expectations.
- Assessment of equipment compliance.
- Optimizing existing radio system – staffing, training, and equipment.

Phase II – Proposal Evaluation and Contractor Selection

- Consultant would be excluding from bidding on public safety radio system and prohibited from colluding with any potential radio system contractors.
- Evaluate and score each proposal based on established evaluation criteria, providing an analysis identifying any advantages or concerns found in any of the proposals.
- Coordinate vendor presentations that may be necessary and independently score and evaluate each presentation and vendor.
- Consultant will be available to interpret, clarify, and discuss material in submitted proposals and presentations, with the proposal evaluation team, and provide professional opinions and advice to the evaluation team throughout the vendor selection process.

Phase III – Project Management during System Implementation

- Conduct, organize, coordinate, and invite stakeholders to a project kickoff meeting with the selected provider.
- Coordinate activities and manage communications between Provider and stakeholders.
- Consultant will provide project management services to County throughout the implementation to ensure Contractor’s adherence to the established scope of work, schedule, and budget.
- During implementation, Consultant will prepare and submit a weekly progress report to the County. Updates to provide high level update and schedule of upcoming activities that can easily be copied into regular communications to project stakeholders to be distributed by the County and document action items, responsible parties, and highlight any areas of concern pertaining to the scope of work, schedule, budget, or Contractor performance.
- Address contract obligation issues or concerns that may develop through implementation and work to resolve them.
- Consultant will review all Provider payment request and respond to the County within three (3) business days with an updated financial overview and note to the County affirming invoiced costs are reasonable and cover work which has been performed in accordance with the contract requirements.

- Throughout implementation, Consultant will develop and maintain a punch list of outstanding items that Contractor, County and/or local emergency service providers are held accountable.
- Ensure system testing is conducted and that all training requirements are met.

Phase IV – Post Cut-over Monitoring

- For three (3) months following cut-over, Consultant will serve as the point of contact to the County and local emergency service providers for reporting all radio system performance issues.
- Consultant will document, prioritize, and investigate each issue, then identify the likely root cause, possible solutions, and the party responsible for resolving the issue. List of resolved and unresolved issues with the above information must be sent to the County on a weekly basis.
- Consultant will work with and coordinate activities of responsible parties to attempt a resolution of each issue reported with the new radio system.
- Consultant is expected to build radio system performance guarantees into the Contractor's scope of work and ensure that Contractor has contractual responsibility and capacity to resolve radio system performance issue and provide routine maintenance to the system in a timely manner.
- At the end of three (3) months monitoring period following cut-over, Consultant will provide a final report to the County documenting the status of all issues reported since cut-over. Any outstanding issues must have the root cause, potential solution and responsible party documented.
- Based on this report, with mutual agreement in writing, the County and Consultant may extend this contract to allow Consultant to continue coordinating efforts with responsible parties to resolve any outstanding issues.

Fire Station Relocation – Station #4

Category: Fire & Emergency Services

Location: McElroy Road, near
McDonough Road

Estimated Cost: \$2,405,160

Project Description

Current facilities are not conducive to maintaining the work environment required for a modern Fire & EMS operation. This station currently has roof leaks in multiple areas affecting the bays and bunk room areas. The station was originally equipped with a sump/trap bay drain system. This bay drain system was ineffective in removing water and allows stagnant water to sit thus creating a health hazard and has since been abandoned and sealed for the betterment of all parties.

Station #4 covers 12.31 sq. miles of a fire response territory. Medic 4 covers 27.5 sq. miles of EMS territory. Units responding from #4 make up 19% of the annual responses. Within this territory there are three designated state highways, the largest recreation complex within the county hosting football, soccer, baseball and softball along with the densest population for EMS response. This territory is primarily east of Fayetteville to the Clayton County line. From the current station location (175 Johnson Avenue) the fire engine (Engine 4) must respond 3-4 minutes to reach the edge of the majority of the assigned response area. The current location was never a good location but was the result of a volunteer system with donated land. The new location better serves all the citizens as demonstrated by analytical data using GIS maps and geocoding where incidents occur.

Existing Conditions

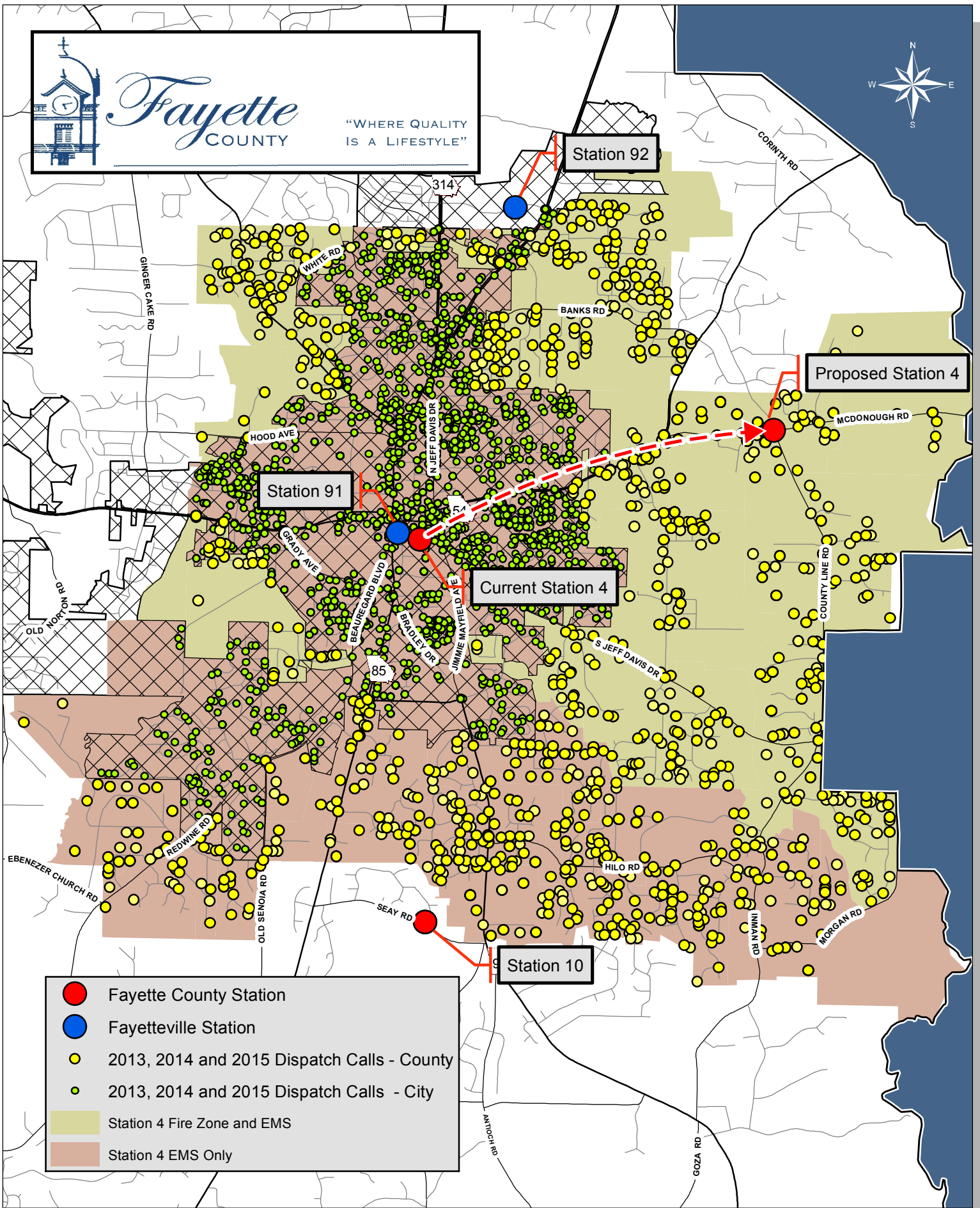


Fire Station #4 on Johnson Avenue was constructed in 1978 as a fire and EMS facility for use by volunteers. Additional space was added in 1982 to house the 911 Center and Fire & EMS Headquarters. This building now houses Fire Station #4 and the Public Defender's office. The station was originally not designed to house the number of apparatus or personnel currently assigned and have been remodeled on numerous occasions.

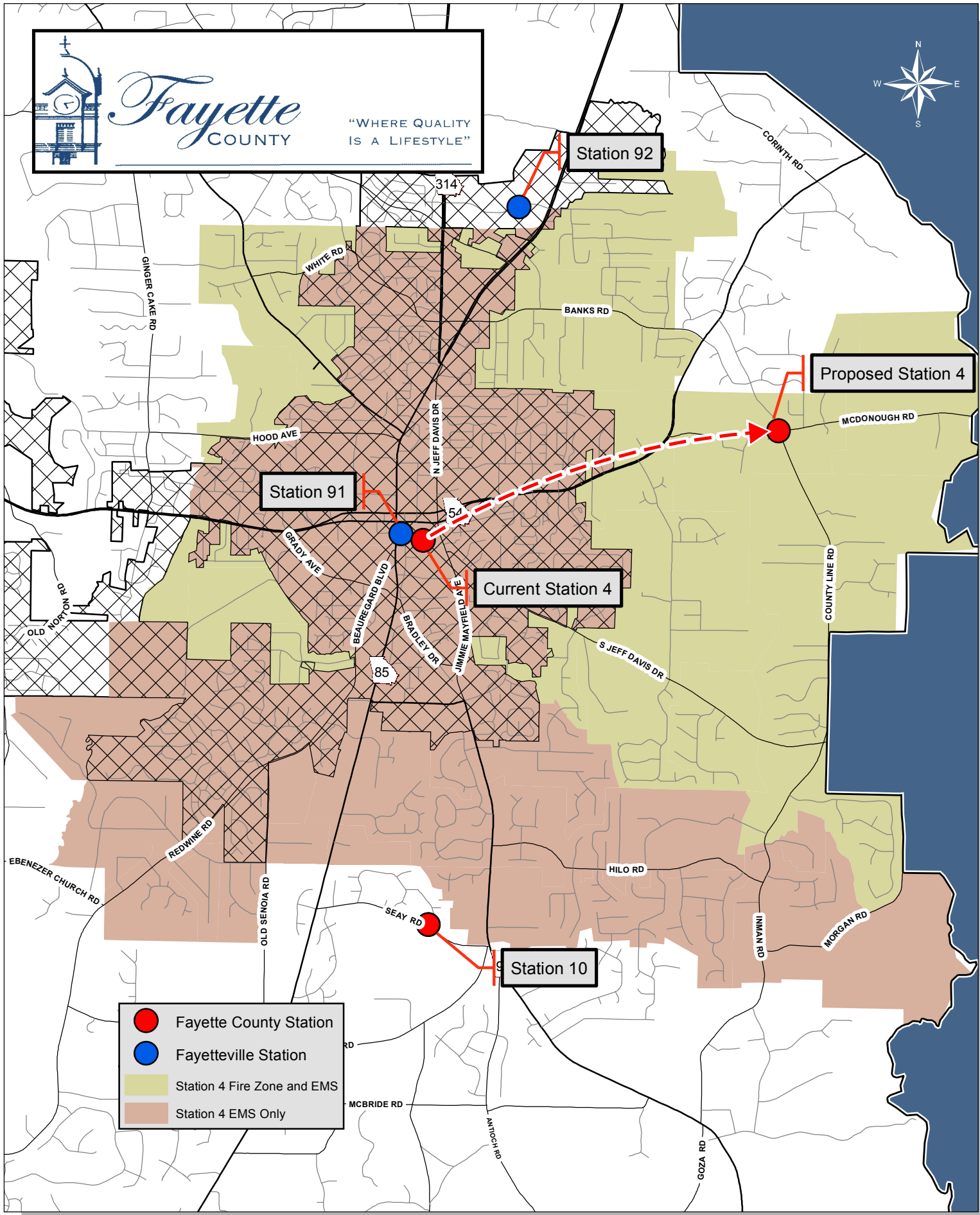
Proposed Project



The proposed location will strategically place the station in the best location to achieve the recommended response times to all locations within the territory. The new station site is on McElroy Rd. near the McDonough Rd. intersection. Access to the recreation areas will be within 2-3 minutes from the new location and this location will allow for timely responses to all portions of the Station 4 fire & EMS territory with good access to the east bypass road for responses to the north/south ends of the county.



SPLOST 2017 Fire & EMS 2013-2015 Dispatch Calls within Station 4 Zone



SPLOST 2017 Fire Station 4

Replacement Fire Pumper

Category: Fire & Emergency Services

Estimated Cost: \$394,070

Project Description

Replacement of a 1991 Emergency One Pumper, fleet vehicle # 93251 with a modern Custom Cab pumper. At 25 years old this unit has served Fayette County very well. This unit is experiencing some long term downtime based on maintenance issues with the fire pump, transmission and motor. Due to the availability of parts the air conditioning on this unit was deemed non-repairable several years ago.

The replacement for this unit would be of similar design and function and meet the current standards as established by the National Fire Protection Association. For firefighter safety it is equipped with a fully enclosed custom cab. To meet the firefighting demands of the County it will be equipped with a 1500 gallon per minute pump, 750 gallon on-board water tank, fire hose capacity of 1100' of 4" hose, 400' of 1.75", and ground ladders of 24', 14', and 10' in length. This pumper would be equipped with medical supplies and equipment to respond to all medical calls in the assigned area.

Existing Conditions



1991 Emergency One Fire Pumper

Proposed Project



Custom Cab Fire Pumper

Fire Training Center & Contingency

Category: Fire & Emergency Services

Location: Links Training Facility

Estimated Cost: \$150,770

Project Description

The first phase of this project is the initial design of the utilities, (water lines/power), road layout, and the site development plan for the future construction.

The current fire training facility begins in 1984 with the construction of the fire training building. The site also houses a training tower and portable classroom building.

Additional design phases in the future would include a modern fire training building with training tower, driver training site, pump training site, LP/natural gas training area, vehicle extrication area, breathing apparatus course, and storage building for required equipment and apparatus.

Existing Conditions



Proposed Project



FIRE & EMERGENCY SERVICES

Benefits

- Improve the service delivery to the Station 4 response area.
- Replacement of an aging unit that has greatly increased maintenance costs and has unrepairable components.
- Provide a modern fire and EMS training facility for emergency responders.

Needs Assessment

Fire & Emergency Services has allocated their SPLOST portion to fund three proposed projects.

| | |
|--------------------------------------|--------------------|
| Fire Station Relocation – Station #4 | \$2,405,160 |
| Replacement Fire Pumper | \$394,070 |
| Fire Training Center & Contingency | \$150,770 |
| SPLOST Allocation Portion | \$2,950,000 |

Fire Station Relocation – Station #4

Purpose: The purpose of this project is to re-locate and reconstruct Fire & Emergency Services Station #4.

Objective: Improve the service delivery to the Station 4 response area. To provide appropriate space to house personnel and apparatus to meet the demands of the community to best serve the citizens and build a facility which will have a life expectancy of at least 50 years.

Background: Fire Station #4 on Johnson Avenue was constructed in 1978 as a fire and EMS facility for use by volunteers. Additional space was added in 1982 to house the 911 Center and Fire & EMS Headquarters. This building now houses Fire Station #4 and the Public Defender's office. The station was originally not designed to house the number of apparatus or personnel currently assigned and have been remodeled on numerous occasions.

Current facilities are not conducive to maintaining the work environment required for a modern Fire & EMS operation. This station currently has roof leaks in multiple areas affecting the bays and bunk room areas. The station was originally equipped with a sump/trap bay drain system. This bay drain system was ineffective in removing water and allows stagnant water to sit thus creating a health hazard and has since been abandoned and sealed for the betterment of all parties.

Replacement Fire Pumper

Purpose: The purpose of this project is to replace the 1991 Emergency One Pumper.

Objective: Replace an aging unit that has greatly increased maintenance costs and has unreparable components.

Background: Replacement of a 1991 Emergency One Pumper, fleet vehicle # 93251 with a modern Custom Cab pumper. At 25 years old, this unit has served Fayette County very well. This unit is experiencing some long term downtime based on maintenance issues with the fire pump, transmission and motor. Due to the availability of parts, the air conditioning on this unit was deemed non-repairable several years ago.

The replacement for this unit would be of similar design and function and meet the current standards as established by the National Fire Protection Association. For firefighter safety, it is equipped with a fully enclosed custom cab. To meet the firefighting demands of the County, it will be equipped with a 1500 gallon per minute pump, 750 gallon on-board water tank, fire hose capacity of 1100' of 4" hose, 400' of 1.75", and ground ladders of 24', 14', and 10' in length. This pumper would be equipped with medical supplies and equipment to respond to all medical calls in the assigned area.

Fire Training Center & Contingency

Purpose: The purpose of this project is to complete the initial phase of constructing a new fire training center.

Objective: Provide a modern fire and EMS training facility for emergency responders.

Background: The first phase of this project is the initial design of the utilities, (water lines/power), road layout, and the site development plan for the future construction.

The current fire training facility begins in 1984 with the construction of the fire training building. The site also houses a training tower and portable classroom building.

Additional design phases in the future would include a modern fire training building with training tower, driver training site, pump training site, LP/natural gas training area, vehicle extrication area, breathing apparatus course, and storage building for required equipment and apparatus.

The Woolsey Project

Category: Town of Woolsey

Location: Highway 92 South,
Downtown Woolsey

Estimated Cost: \$223,000

Project Description

The smallest town in Fayette County, Woolsey was the original boom town. The historic Woolsey Mercantile Building was gifted by Ms. Josephine Ballard to the Town of Woolsey to be used for the good of the community. The building is located on Highway 92 South, in downtown Woolsey, and had over time served as a store and a general gathering place for the residents.

The Town of Woolsey desires to once again be a gathering place for residents and the County at large. This restoration project will create a place for people to meet, observe history, and enjoy a restful environment. This will give the south part of Fayette County a destination for residents and visitors. The historic Woolsey Mercantile Building will serve the community at large and the residents of Woolsey, while focusing on the values and future vision of the Town of Woolsey.

Existing Conditions



Historic Mercantile Building

Proposed Project



Completed Restoration Project

Town of Woolsey

Benefits

The smallest town in Fayette County, Woolsey was the original boom town. The Town of Woolsey desires to once again be a gathering place for residents and for the County at large. This restoration project will give the south part of Fayette County a destination for residents and visitors by:

- Creating a place for people to gather and hold meetings
- Restoring a historic building and establishing a location to observe history
- Establishing a restful environment for people to enjoy

Needs Assessment

The Woolsey Project

Background: The historic Woolsey Mercantile Building was gifted by Ms. Josephine Ballard to the Town of Woolsey to be used for the good of the community. The building is located on Highway 92 South, in downtown Woolsey, and had over time served as a store and a general gathering place for the residents.

The Woolsey Mayor and Town Council received estimates and bids on the restoration of the building. Barnard & Associates Remodeling, Inc., who has restored a good many historical homes in Fayette County, was chosen for the project. The total project cost will be approximately \$223,000, which will include total interior and exterior restoration – landscaping and furnishings. Barnard & Associates Remodeling, Inc. plans to preserve the original look and feel of the building in a cost effective manner.

Objective: The historic Woolsey Mercantile Building will serve the community at large and the residents of Woolsey, while focusing on the values and future vision of the Town of Woolsey.

Need for The Woolsey Project

The mercantile building will serve the community at large through:

- Community Center: There are few places available in the County to use for meeting space. Proceeds will be used for ongoing upkeep and expenses.
 - Meeting place for civic groups, social organizations and clubs
 - Hub for Woolsey events and fundraisers
 - Affiliations may rent the facility

- Fayette County Museum: Displays for groups and individuals to tour. There is only one other museum in Fayette County.
 - Artifacts, archives, artwork
- Visitor's Welcome Center: Visitors can stop by for information on the Town of Woolsey and other historic Fayette County sites of interest. There is not a visitor's center on the south end of the County.

The mercantile building will serve the residents of Wooley through:

- Town Hall: Woolsey Council meetings and Town Hall meetings will be held in the restored building providing plenty of room for the public to attend. At this time, the meetings are in a very small space with very little capacity.
- Growth and Sustainability: With new landscaping, flowers, and shrubbery, the newly restored building will beautify the downtown area, which will draw potential new residents to Woolsey and help maintain property values.
- Pride and Honor: The restored building will give the Woolsey residents a sense of pride in their community; therefore honoring its place in history, original Woolsey residents, and roles they served in making Fayette County what it is today.

Vision and Values

The smallest town in Fayette County, Woolsey was the original boom town. The Town of Woolsey desires to once again be a gathering place for residents and the County at large. This restoration project will create a place for people to meet, observe history, and enjoy a restful environment. This will give the south part of Fayette County a destination for residents and visitors.

Community Impact

Community spaces are needed in all economic development plans. The restoration project will bring a diverse group of people working together towards a goal of preserving history and creating gathering spaces. Boy Scout groups, Rotary and other civic clubs, church groups, school groups working on projects, Rose clubs, Master Gardener clubs, and historical societies will be invited to play a part in completing the project. The media exposure that Woolsey, Fayette County, and residents receive will establish an excellent public relation and rapport for living in Fayette County.

The Woolsey government will have an appropriate place to conduct business, and the residents will have a place where they feel comfortable attending and participating in Town Meetings.

Long term, The Woolsey Project could deepen relationships in the community and pave the way towards other restoration and community projects.

The estimated cost to restore the mercantile building and complete The Woolsey Project is \$223,000, detailed below:

| The Woolsey Project | | |
|--|--------------------|--|
| ACTION ITEMS - TASKS | COST | NOTES |
| Phase 1 - The Woolsey Project | | |
| Permit and Fees | | |
| Architecture and Engineering | \$2,800.00 | |
| Lift Building and Foundation Work | | |
| Remove all interior wall boards | \$850.00 | Demolition |
| Support and raise building | \$18,500.00 | Materials to lift building |
| Install footings and piers | \$4,822.00 | 18 yards of concrete |
| Waterproof and drain foundation | \$1,400.00 | |
| Install walls in pier supports | \$4,485.00 | |
| Lower building to new foundation | \$8,500.00 | |
| Correct floor system to code | \$9,427.30 | |
| Rack building plumb and correct framing to engineer's design | \$3,845.00 | |
| Add supports for ceiling and roof | \$4,890.00 | |
| Clean Up, Trash Removal, Dump Fees | \$1,200.00 | |
| Company Overhead - Supervision Profit | \$7,589.91 | |
| Builders Margin | \$7,589.91 | |
| Total Cost of Phase 1 | \$75,899.12 | |
| Phase 2 - The Woolsey Project | | |
| Entry Doors | \$2,485.40 | New front and back door |
| Windows | \$2,000.00 | Budget for rebuilding or replacement |
| Plumbing | \$2,880.00 | 2 half baths - ADA compliant |
| Heating/Air Condition | \$3,850.00 | |
| Electrical | \$5,291.00 | Service build |
| Recess Can Lighting | \$1,300.00 | 20 recess cans |
| Roofing | \$8,250.00 | Metal roof - similar to current |
| Insulation | \$8,450.00 | Foam floor, ceiling, walls R13 |
| Paint Exterior | \$2,750.00 | |
| Siding Repair and Replacement | \$6,500.00 | |
| Soffit and Fascia | \$2,940.00 | |
| Gutter | \$1,150.00 | |
| Replace Front Porch | \$4,661.25 | Replace front floor, roof, columns, and ADA ramp |
| Clean Up, Trash Removal, Dump Fees | \$2,000.00 | |

| | |
|---------------------------------------|------------|
| Company Overhead - Supervision Profit | \$6,813.46 |
| Builders Margin | \$6,813.46 |

| | |
|------------------------------|--------------------|
| Total Cost of Phase 2 | \$68,134.57 |
|------------------------------|--------------------|

| | |
|--------------------------------------|--|
| Phase 3 - The Woolsey Project | |
|--------------------------------------|--|

| | | |
|---------------------------------------|-------------|---|
| Water Meter and Water Line | \$2,450.00 | |
| Septic System | \$3,500.00 | |
| Plumbing Trim | \$2,200.00 | |
| Heating/Air Condition Trim | \$2,150.00 | |
| Electrical Trim | \$1,764.00 | |
| Recess Can LED Trims | \$590.00 | |
| Finish Carpentry | \$9,466.32 | Interior walls, ceiling, doors, and trim |
| Finish Carpentry Labor | \$7,500.00 | |
| Paint Interior | \$5,200.00 | Stain and seal interior wood or paint |
| Tile/Marble | \$1,536.00 | Bathroom floors |
| Floor Coverings | \$12,237.75 | Pine hardwood floors |
| Cabinets | \$800.00 | Bathroom |
| Hardware and Mirrors | \$2,200.00 | Grab bar, mirrors, locks, soap dispenser, toilet paper holders, and other misc. items |
| Exterior Railing | \$1,650.00 | Wrought iron - ADA ramp |
| Clean Up, Trash Removal, Dump Fees | \$1,200.00 | |
| Final Clean of Entire Building | \$400.00 | |
| Company Overhead - Supervision Profit | \$6,855.51 | |
| Builders Margin | \$6,855.51 | |

| | |
|------------------------------|--------------------|
| Total Cost of Phase 3 | \$68,555.09 |
|------------------------------|--------------------|

| | |
|---------------------------------|---------------------|
| Total Cost of Phases 1-3 | \$212,588.78 |
|---------------------------------|---------------------|

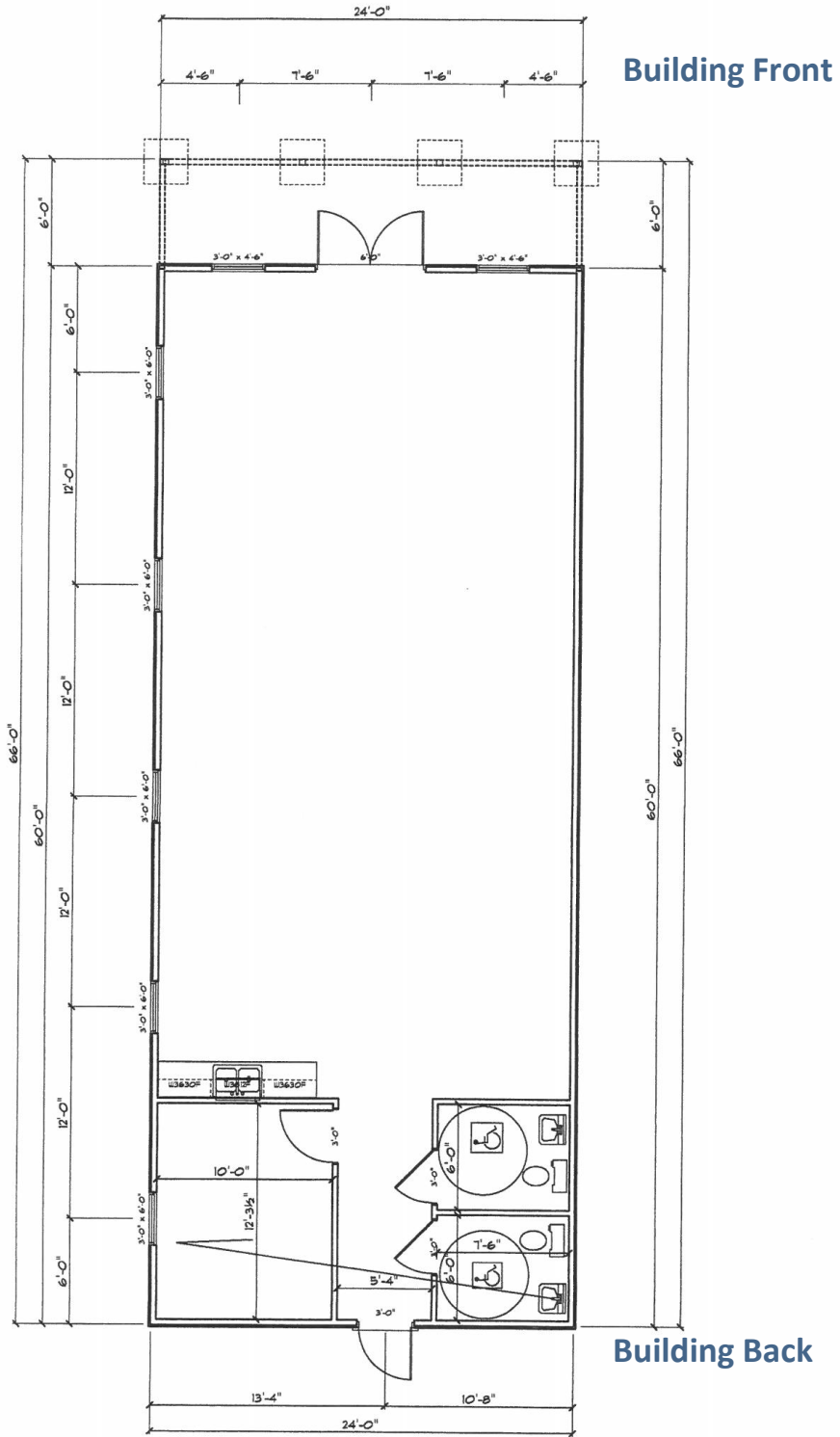
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| Phase 4 - The Woolsey Project | |
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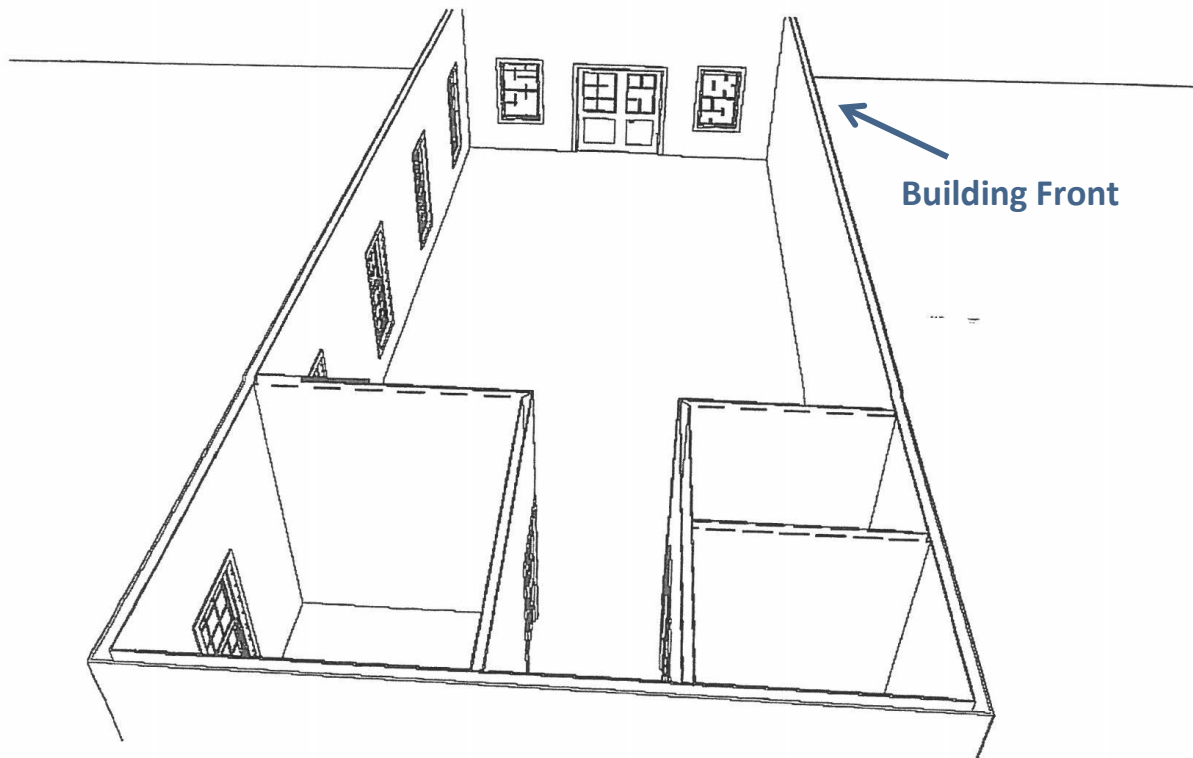
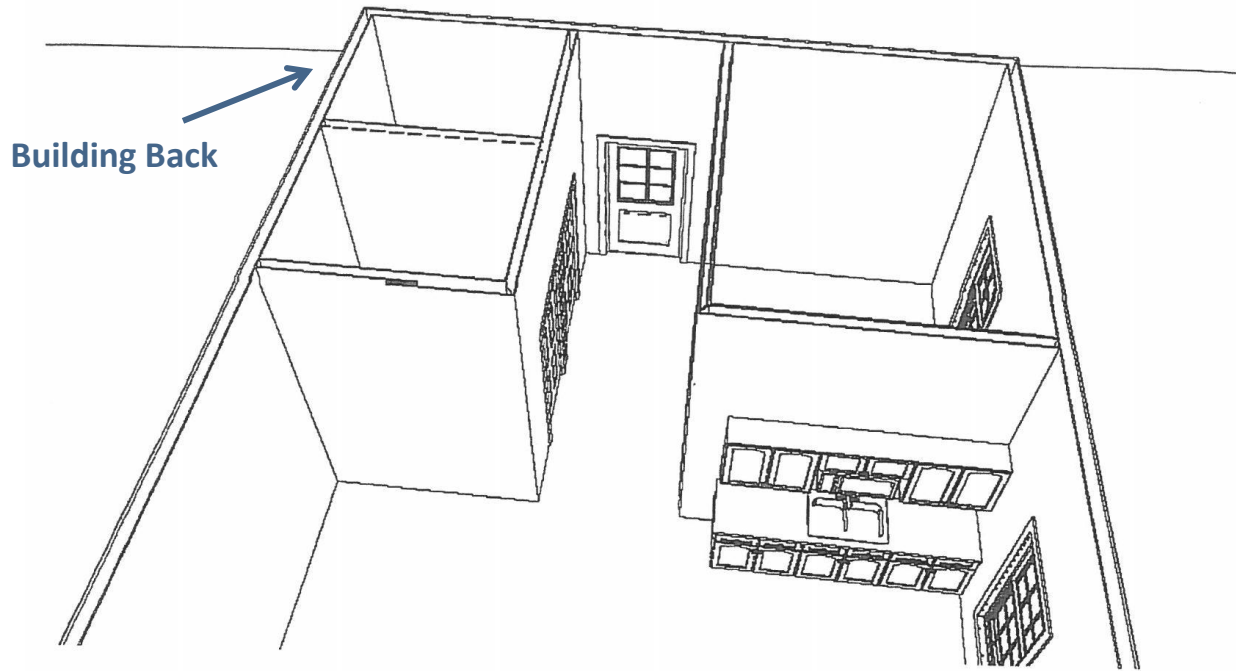
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| Exterior Work | |
| Gravel parking area | \$1,000.00 |
| Landscaping | \$750.00 |
| Signage | \$1,000.00 |
| Interior Furnishings | |
| Folding chairs (75) | \$1,500.00 |
| Folding tables (10 to 6 ft.) | \$500.00 |
| Display cases (2-3x4x5, wood, glass) | \$5,000.00 |
| Refrigerator | \$500.00 |

| | |
|------------------------------|--------------------|
| Total Cost of Phase 4 | \$10,250.00 |
|------------------------------|--------------------|

| | |
|---------------------------|---------------------|
| Total Project Cost | \$222,838.78 |
|---------------------------|---------------------|

Design Plans

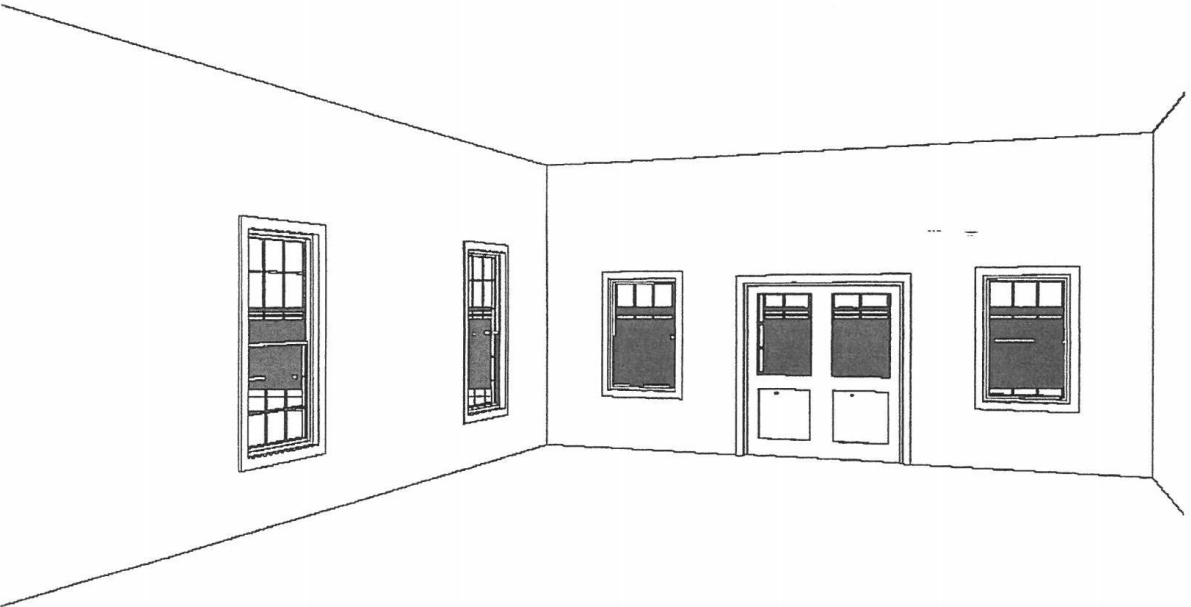


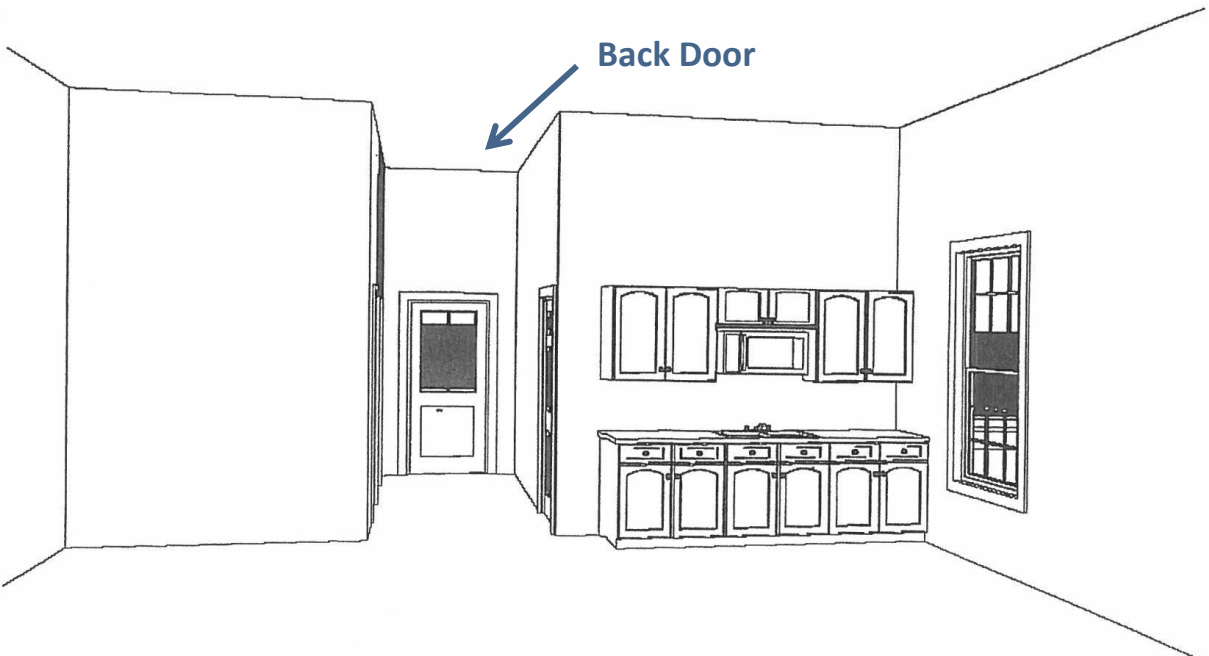


Kitchen & Bathroom Area



Front – Open Area





Back Door