

*Power Point / MAPS**378 Roads*November 30th, 2009

MT Royal / 25th March
Lower Mount Royal Subdivision Association- Road Committee
7920 Whitlow Court
Commerce Township, MI 48390

Document Transmitted
from GWE Office:
 Rochester Hills
 Detroit
 Washington Twp

Attn: Charlie Lodge- President

GWE #17860.00

**Re: Lower Mount Royal Subdivision
Estimates and Recommendations concerning Paving and Drainage Options**

Dear Mr. Lodge,

This letter is intended to replace the previous letter dated November 9th, 2009.

Giffels-Webster Engineers has completed the preliminary engineering and cost estimates concerning the possibility of creating a Special Assessment District (SAD) for paving and drainage work within the Lower Mount Royal (LMR) subdivision. The intent of this letter is to present the different options along with the preliminary estimates for each.

Current Conditions

The existing roads in LMR consist of approximately 26,000 lineal feet of 18'-20' wide, 3" thick asphalt roadways. To our knowledge, the existing pavement was placed approximately 20 years ago for most of the roads, with some (Creedmore, Rondelay and Foxbury) more recently having been paved in 1998.

A significant amount of storm water is conveyed to North Commerce Lake by the LMR storm water system. This storm water originates not only from the subdivision itself, but also upstream from the Upper Mount Royal Subdivision and the adjacent properties north of Commerce Road. The storm water system in many areas of LMR is undersized to handle this amount of storm water, and in the past has experienced flooding issues. Some moderate to sever erosion issues are present along Sundew (unpaved) and Polvadera Streets, causing sedimentation and drainage concerns down stream.

From our site visits, it appears that the LMR Subdivision Association has performed some storm water improvements, mainly roadside ditching, and significant pavement preventative maintenance, crack scaling and patching, over the years which has most likely lengthened the life span of the asphalt.

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The roadways are considered in fair condition for the most part, and are considered drivable. However, even with the preventative maintenance being performed, the roadways are beginning to experience deterioration, which will begin to worsen at a higher rate.

OPTIONS:

Drainage Improvements

Complete Storm Water Improvements

Back in 2003, a comprehensive storm water study was performed in LMR after a flooding occurrence. This study provided recommendations to completely eliminate storm water problems within LMR with extensive ditching, storm sewer installation and retention basin areas. This solution would eliminate all storm water issues, but at a very high cost of approximately **\$1,739,000**.

Limited Storm Water Improvements

After examining the current conditions within LMR, a smaller number of storm water improvements were detailed, which, in our opinion, could help extend the life expectancy of the pavements in the area. These limited numbers of improvements are:

- Install catch basins
- Ditching
- Storm sewer piping
- Spillways
- Edge drains
- Cleaning out existing storm structures

With these improvements implemented, the surface storm water will be better able to exit from around the road surface, helping to extend the life of the pavement. The estimated cost for these improvements to be implemented is approximately **\$235,000**.

Paving Options

Complete removal of existing pavement and replacement with 4" of new asphalt

These improvements would remove all the existing pavement, undercut and replace any poor subsoil beneath the pavement, and replace the roadways with a new 4" thick cross section of asphalt. Completely repaving all of the roadways does have both positives and negatives. They are:

Positives:

- Creating a thicker roadway to help withstand loadings.
- Creates uniformity in the appearance of all the roadways.
- Provides new asphalt in front of all residences.

Negatives:

- Significant disruption during construction.
- Higher costs.

The estimated cost to remove and replace the entire asphalt roadway is approximately **\$1,436,000.**

Mill and Overlay of Existing Pavement

This option calls out for approximately the top 1.5" of existing asphalt to be milled off and replaced with a new 1.5" of asphalt. Due to the need to meet the existing driveway grades, no additional thickness of asphalt could be added. This option also has positives and negatives, which are:

Positives:

- Limited disruption.
- Lower current costs.

Negatives:

- Cannot increase the existing thickness of the pavement.

The estimate to mill and overlay is approximately **\$862,000.**

Removal and replacement of worst areas of pavement

This option calls out for only the worst existing pavement areas to be removed and replaced (see the attached map of areas). These areas would be replaced with 4" of new asphalt. This option also has positives and negatives, which are:

Positives:

- Limited disruption.
- Lower current costs.

Negatives:

- Different appearances between the new and old asphalt.
- Issues with the road in front of some homes being paved, and some not.

The estimate to repave the worst existing areas only is approximately **\$390,000.**

Recommendations

Given the relatively acceptable condition of the majority of the pavement within LMR, complete repaving at this time is not recommended. Performing the limited paving of the worst areas will improve those areas, but continual pavement replacement would be expected of the remainder of the subdivision roads.

The LMR residents need to determine if having **all** of the roads repaved at once is important to them. If it is, then it is recommended that the preventative maintenance be continued to prolong

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an acceptable conditions of the roads for a couple of more years, prior to complete replacement or a mill and overlay.

Although eliminating all storm water problems within LMR is desirable, the extreme high costs make it impracticable. Therefore, making the limited improvements as described above is recommended. These improvements can be done whenever the roads do get repaved, or if completed immediately, may add some life to the existing pavement.

If you have any questions regarding this matter or desire further information to continue forward with an S.A.D., please feel free to contact me at (248) 852-3100.

Respectively,
GIFFELS-WEBSTER ENGINEERS, INC.

Jay James, P.E.
Associate

Attachments: Estimates and maps to: Repave or Mill all roads, Repave limited areas and to perform storm improvements

cc: Thomas K. Zoner, Township Supervisor- Charter Township of Commerce
Kathleen J. Pogarch, Assessing Director- Charter Township of Commerce
Rusty Rosman, LMRSA Road Committee- 1081 Island Drive, Commerce Twp, 48390
~~Jack Holden, LMRSA Road Committee- 4293 Creedmore, Commerce Twp 48390~~

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Lower Mount Royal Street and Drainage Improvements

GWE PROJ. NO.: 17860.00

DATE: November 1, 2009

PRELIMINARY COST ESTIMATE - REPAVE ALL ROADS
BRIEF STATEMENT OF WORK ITEMS / PROJECT

Remove approximately 26,100 LP of existing asphalt pavement and replace with approximately 4" of new asphalt. Driveways will have 5" of approaches.

ITEM WORK ACTIVITY	QUANTITY	UNIT	UNIT PRICE	TOTAL	COMMENTS
TREE REMOVAL					
Remove trees 8"-18" dia.	10	EA	\$350.00	\$3,500.00	
SUBTOTAL - TREE REMOVAL				\$3,500	
DEMOLITION					
Cold mill HMA surf. (4"-6")	58000	SY	\$2.00	\$116,000.00	
SUBTOTAL - DEMOLITION				\$116,000	
EARTHWORK					
Subgrade undercutting Type II	650	CY	\$20.00	\$13,000.00	Assume 10% of existing (12")
Machine grading	260	STA	\$125.00	\$32,500.00	
SUBTOTAL - EARTHWORK				\$45,500	
SOIL EROSION SEDIMENT CONTROL					
Misc. erosion control	1	LS	\$5,000.00	\$5,000.00	
SUBTOTAL - EROSION CONTROL				\$5,000	
CURB AND SIDEWALKS					
Asphalt curb 6" high	5000	LF	\$3.00	\$15,000.00	For some streets north of Polvadera
SUBTOTAL - CURBS AND SIDEWALKS				\$15,000	
AGGREGATES AND SAND					
11" aggr. Base	3000	SY	\$8.00	\$24,000.00	Where undercutting is required
SUBTOTAL - AGGREGATES AND SAND				\$24,000	
HOT MIX ASPHALT PAVEMENT					
HMA, 1100L-20AA	5000	TN	\$55.00	\$275,000.00	
HMA, 1100T-20AA	7500	TN	\$55.00	\$412,500.00	
HMA, 36A (driveways, approaches)	600	TN	\$100.00	\$60,000.00	
SUBTOTAL - HOT MIX ASPHALT				\$747,500	
TRAFFIC CONTROL AND STRIPING					
Traffic Control	1	LS	\$3,000.00	\$3,000.00	
SUBTOTAL TRAFFIC CONTROL AND STRIPING				\$3,000	
LANDSCAPING					
Landscape Restoration	1	LS	\$10,000.00	\$10,000.00	
SUBTOTAL - LANDSCAPING				\$10,000	
SUBTOTAL CONSTRUCTION COST				\$962,500	

ITEM	AMOUNT	UNIT	QUANTITY	UNIT PRICE	TOTAL
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SUBTOTAL CONSTRUCTION COST					\$969,500
CONSTRUCTION CONTINGENCY	15%				\$145,425
ENGINEERING	15%				\$167,239
LEGAL & BONDING	12%				\$153,860
TOTAL ESTIMATED COST					\$1,436,023

It should be pointed out that since we have no control over the Contractor's method of determining prices, competitive bidding or market conditions, our opinion of the probable construction cost as provided for herein is made on the basis of experience and represents our best judgment as design professionals. We cannot guarantee that the final construction cost will not vary from this estimate.

Respectfully,
GIFFELS-WEBSTER ENGINEERS, INC.

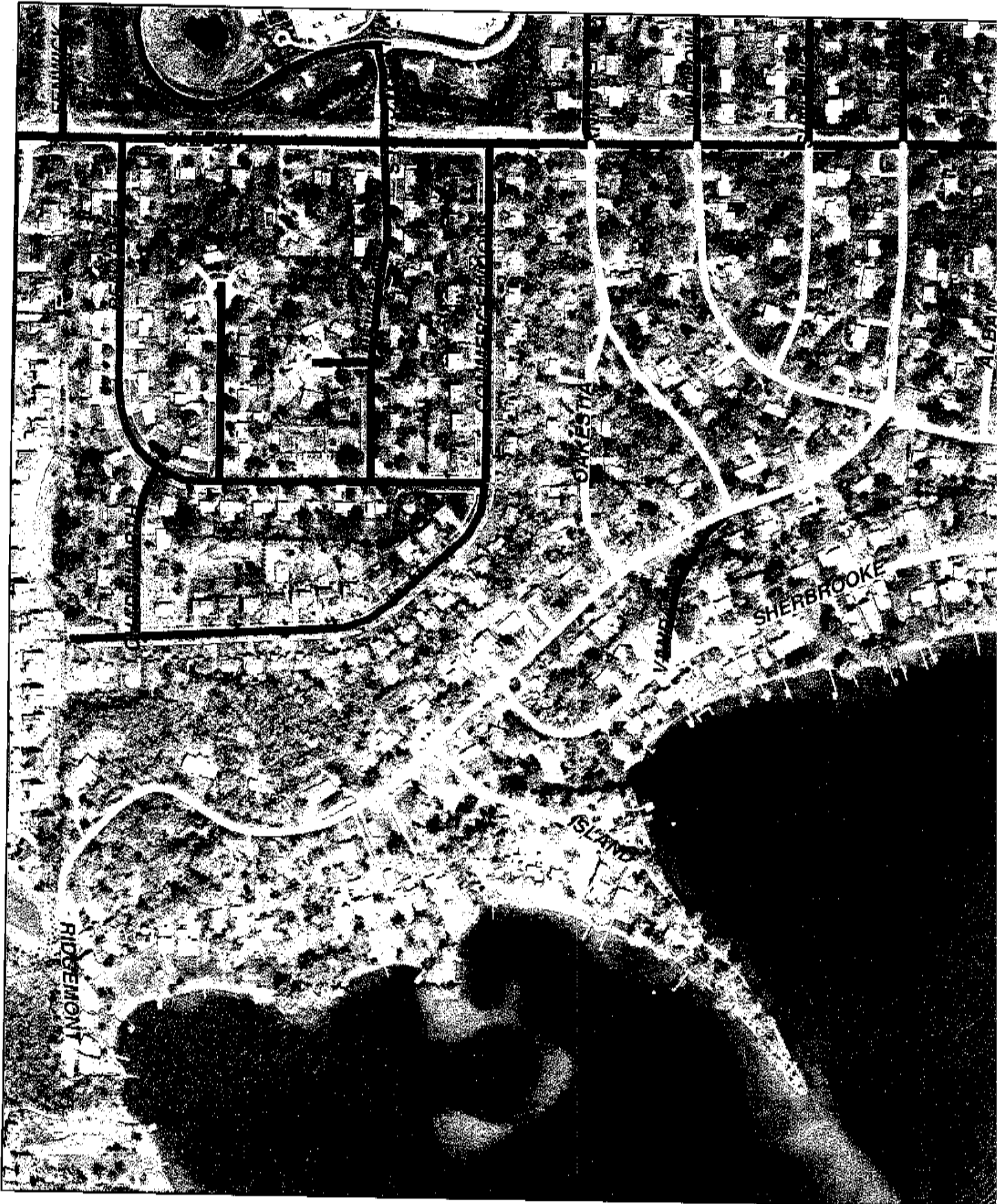
Estimate Prepared By: Jason Mayer, P.E.
Date: October 22, 2009

Estimate Checked By: Jay James, P.E.
Date: October 23, 2009

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Assumptions/Notes:

- 1 Park area parking lot not included.
- 2 Assume existing road is 3" asphalt over 6" aggregate base.
- 3 Includes Tamworth and Broadway (off of Commerce Road but part of the subdivision area)
- 4 Does not include sediment removal devices (sediment ponds, etc..)
- 5 Assumes that no easements are required.
- 6 Includes Ridgmont to the end of the road (part of which is not actually in the Lower Mount Royal Sub)





TOWNSHIP
 MOVEMENTS - ESTIMATE TO REPAVE ALL ROADS
 SCALE





Lower Mount Royal Street and Drainage Improvements

GWE PROJ. NO.: 17860.00

DATE: November 1, 2009

PRELIMINARY COST ESTIMATE - REPAVE ROADS NEEDING IMMEDIATE REPAIR ONLY

BRIEF STATEMENT OF WORK ITEMS / PROJECT

Remove approximately 4,800 LF of existing asphalt pavement and replace with approximately 4" of new asphalt. Driveways will have 5' of approaches.

ITEM WORK ACTIVITY	QUANTITY	UNIT	UNIT PRICE	TOTAL	COMMENTS
TREE REMOVAL					
Rem trees 8"-18" dia.	10	EA	\$350.00	\$3,500.00	
SUBTOTAL - TREE REMOVAL				\$3,500	
DEMOLITION					
Cold mill HMA surf. (4"-6")	10600	SY	\$2.00	\$21,200.00	
SUBTOTAL - DEMOLITION				\$21,200	
EARTHWORK					
Subgrade undercutting Type II	350	CY	\$20.00	\$7,000.00	Assume 10% of existing (12")
Machine grading	50	STA	\$125.00	\$6,250.00	
SUBTOTAL - EARTHWORK				\$13,250	
SOIL EROSION SEDIMENT CONTROL					
Misc. erosion control	1	LS	\$5,000.00	\$5,000.00	
SUBTOTAL - EROSION CONTROL				\$5,000	
CURB AND SIDEWALKS					
Asphalt curb 6" high	5000	LF	\$3.00	\$15,000.00	For some streets north of Polvadem
SUBTOTAL - CURBS AND SIDEWALKS				\$15,000	
AGGREGATES AND SAND					
11" aggr. Base	550	SY	\$8.00	\$4,400.00	Where undercutting is required
SUBTOTAL - AGGREGATES AND SAND				\$4,400	
HOT MIX ASPHALT PAVEMENT					
HMA, 1100L-20AA	950	TN	\$55.00	\$52,250.00	
HMA, 1100T-20AA	1550	TN	\$55.00	\$85,250.00	
HMA, 36A (driveways, approaches)	180	TN	\$100.00	\$18,000.00	
Handpatching over 50 tons	400	TN	\$85.00	\$34,000.00	
				\$0.00	
SUBTOTAL - HOT MIX ASPHALT				\$189,500	
TRAFFIC CONTROL AND STRIPING					
Traffic Control	1	LS	\$3,000.00	\$3,000.00	
SUBTOTAL TRAFFIC CONTROL AND STRIPING				\$3,000	
LANDSCAPING					
Landscape Restoration	1	LS	\$8,000.00	\$8,000.00	
SUBTOTAL - LANDSCAPING				\$8,000	
SUBTOTAL CONSTRUCTION COST				\$262,850	

ITEM WORK ACTIVITY	QUANTITY	UNIT	UNIT PRICE	TOTAL	COMMENTS
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SUBTOTAL CONSTRUCTION COST				\$262,850	
CONSTRUCTION CONTINGENCY			15%	\$39,428	
ENGINEERING			15%	\$45,342	
LEGAL & BONDING			12%	\$41,714	
TOTAL ESTIMATED COST				\$389,333	

It should be pointed out that since we have no control over the Contractor's method of determining prices, competitive bidding or market conditions, our opinion of the probable construction cost as provided for herein is made on the basis of experience and represents our best judgment as design professionals. We cannot guarantee that the final construction cost will not vary from this estimate.

Respectfully,
GIPPELS-WEBSTER ENGINEERS, INC.

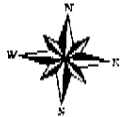
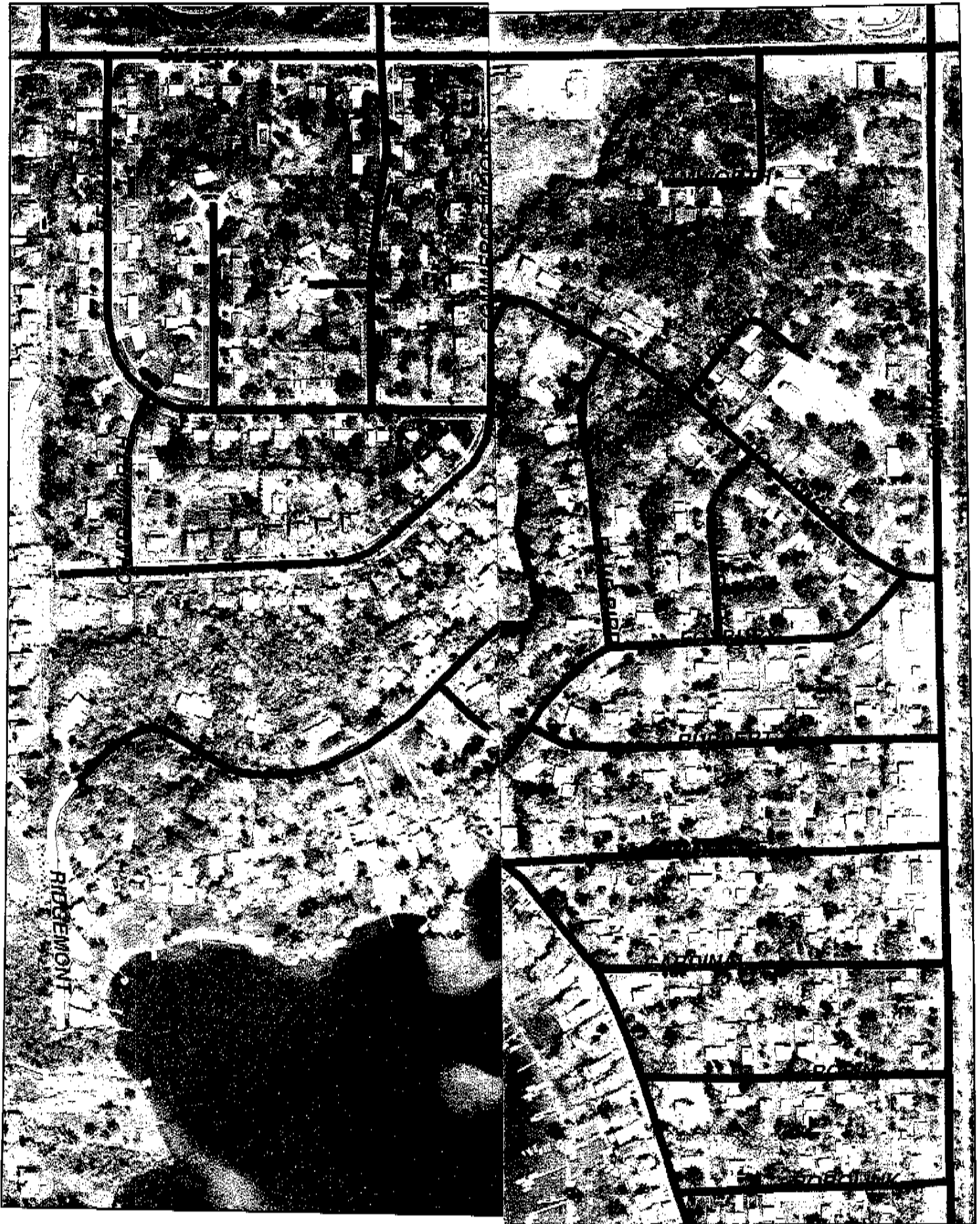
Estimate Prepared By: Jason Mayer, P.E.
Date: November 2, 2009

Estimate Checked By: Jay James, P.E.
Date: November 2, 2009

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Assumptions/Notes:

- 1 Assume existing road is 3" asphalt over 6" aggregate base.
- 2 Assumes that no easements are required.



**Lower Mount Royal Street and Drainage Improvements**

GWE PROJ. NO.: 17860.00

DATE: November 1, 2009

PRELIMINARY COST ESTIMATE - STORM WATER IMPROVEMENTS**BRIEF STATEMENT OF WORK ITEMS / PROJECT**

Culverts, storm sewers, ditches and catch basins will be installed to get proper drainage in problem areas.
Clean out existing storm sewer system - including culverts, storm sewer, and all basins.

FOR YOUR INFORMATION: THE ABOVE QUANTITIES AND PRICES ARE BASED ON THE FOLLOWING CONDITIONS:

TREE REMOVAL

Rem trees 8" - 18" dia.	10	EA	\$350.00	\$3,500.00
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SUBTOTAL - TREE REMOVAL				\$3,500
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EARTHWORK

Ditching, excavate and haul	4000	LF	\$5.00	\$20,000.00
Ditching, clean	3000	LF	\$3.00	\$9,000.00

SUBTOTAL - EARTHWORK				\$29,000
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SOIL EROSION SEDIMENT CONTROL

Misc. erosion control	1	LS	\$3,000.00	\$3,000.00
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SUBTOTAL - EROSION CONTROL				\$3,000
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STORM SEWER

12" culv (16 GA. CMP)	1000	LF	\$20.00	\$20,000.00
24" culv (16 GA. CMP)	1000	LF	\$36.00	\$36,000.00
2' dia. inlet (0-8')	5	EA	\$1,200.00	\$6,000.00
4' dia. CB (0-8')	10	EA	\$1,800.00	\$18,000.00
12" CMP (16 GA.) end section	20	EA	\$150.00	\$3,000.00
24" CMP (16 GA.) end section	10	EA	\$250.00	\$2,500.00
Clean Stm sewer	3000	LF	\$1.50	\$4,500.00
Clean Stm sewer MH/CB	75	EA	\$75.00	\$5,625.00
Conc. spillway	100	LF	\$50.00	\$5,000.00

SUBTOTAL - STORM SEWER				\$100,625
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UNDERDRAIN

Underdrain, 6"	1500	LF	\$8.00	\$12,000.00	Along Creedmore and Island
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SUBTOTAL - UNDERDRAIN				\$12,000
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TRAFFIC CONTROL AND STRIPING

Traffic Control	1	LS	\$3,000.00	\$3,000.00
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SUBTOTAL TRAFFIC CONTROL AND STRIPING				\$3,000
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LANDSCAPING

Landscape Restoration	1	LS	\$7,500.00	\$7,500.00
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SUBTOTAL - LANDSCAPING				\$7,500
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SUBTOTAL CONSTRUCTION COST				\$158,625
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ITEM	WORK ACTIVITY	QUANTITY	UNIT	UNIT PRICE	TOTAL	COMMENTS
	SUBTOTAL CONSTRUCTION COST				\$158,625	
	CONSTRUCTION CONTINGENCY			15%	\$23,794	
	ENGINEERING			15%	\$27,363	
	LEGAL/BONDING			12%	\$25,174	
	TOTAL ESTIMATED COST				\$234,955	

It should be pointed out that since we have no control over the Contractor's method of determining prices, competitive bidding or market conditions, our opinion of the probable construction cost as provided for herein is made on the basis of experience and represents our best judgment as design professionals. We cannot guarantee that the final construction cost will not vary from this estimate.

Respectfully,
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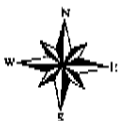
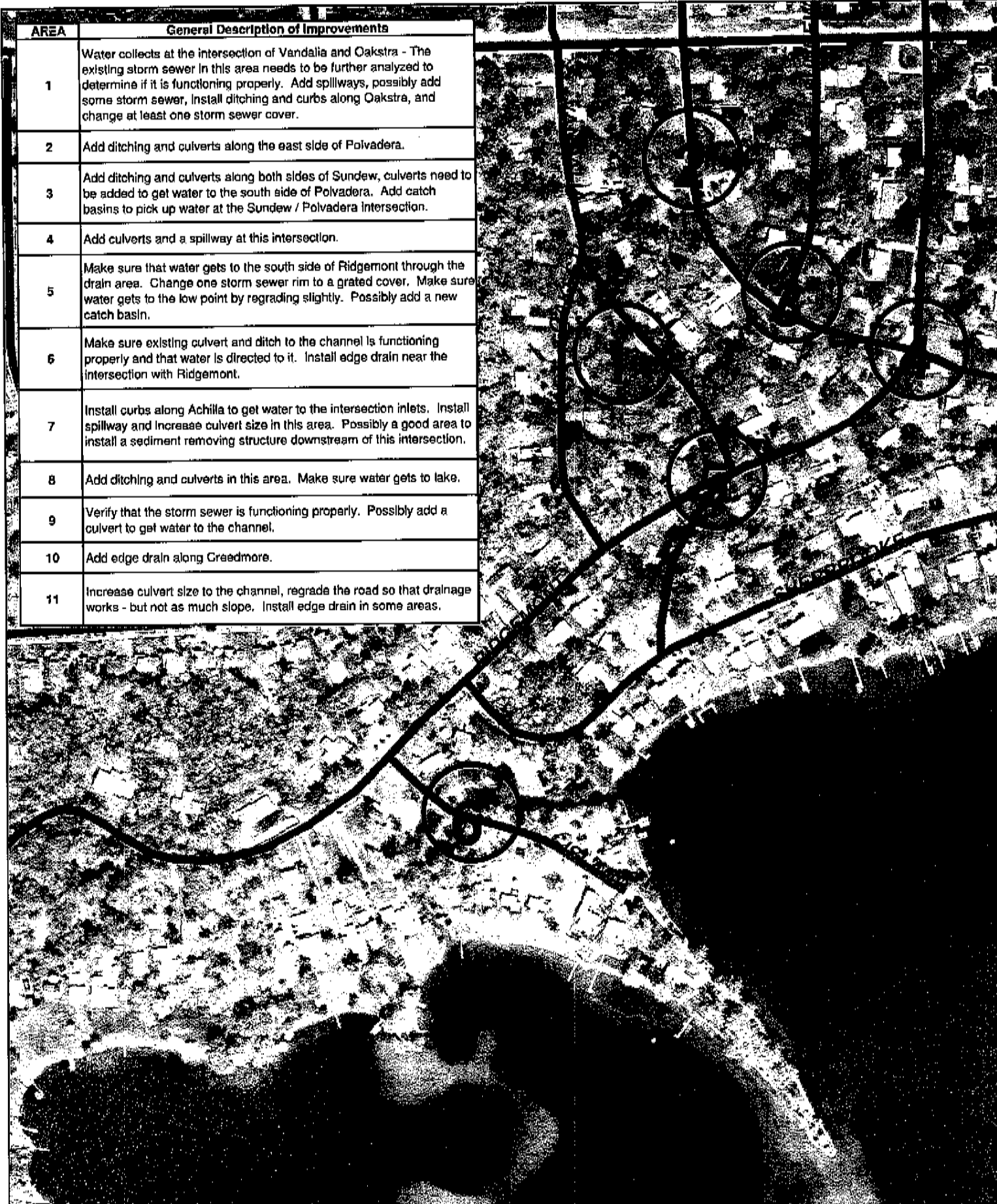
Estimate Prepared By: Jason Mayer, P.E.
Date: November 1, 2009

Estimate Checked By: Jay James, P.E.
Date: November 1, 2009

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Assumptions/Notes:

- 1 Does not include sediment removal devices (sediment ponds, etc..)
- 2 Assumes that no easements are required.
- 3 Assumes that new ditching along Polvadara is functioning well.
- 4 More information is needed for the storm sewer at Vandalla and Oakstra.
- 5 Resident input in into existing drainage concerns will help identify any additional problem areas that may require additional measures.





TOWNSHIP
TS - ESTIMATE FOR STORM WATER IMPROVEMENTS
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