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**TOWNSHIP BOARD REGULAR MEETING  
AGENDA  
Monday, October 19, 2020 - 6:00 PM**

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**How to Connect:**

**Meeting URL:** <https://us02web.zoom.us/j/83595393327?pwd=SVNtZXpuRUJvN2ZYRFYydE1rMUZZUT09>

**Meeting ID:** 835 9539 3327

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**Public comment will be available to all participants.**

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**I. CALL TO ORDER**

**II. OPENING CEREMONIES**

**III. ROLL CALL** – Members: Supervisor Kenneth R. Fletcher, Clerk Mary R. Clark, Treasurer Howard A. Pizzo, Trustee Fonda J. Brewer, Trustee Andrea M. Cascarilla, Trustee Dennis R. Fedewa, and Trustee Karen J. Mojica

**IV. PRESENTATIONS AND PROCLAMATIONS**

**1. LBWL IRP Presentation**

**V. SET/ADJUST AGENDA**

**VI. PUBLIC HEARINGS**

**2. FY2020 Budget**

**a. Public Hearing**

**b. [Adoption of Fiscal Year 2021 Recommended Budget](#)**

The Delta Township Manager recommend the Delta Township Board adopt the budget for 2021 by appropriating funds as provided.

**VII. COMMUNICATIONS**

- 3. Wastewater Treatment Plant Progress Update**
- 4. Boards of Appeals Appointments**

**VIII. PUBLIC COMMENTS FOR ITEMS NOT ON AGENDA (maximum two minutes)**

**IX. INTRODUCTION OF ORDINANCES**

**X. PASSAGE OF ORDINANCES**

**XI. CONSENT AGENDA** – Anyone may request item(s) to be pulled from the consent agenda for discussion. If left on the consent agenda, the items will be voted on by a roll call vote of the Board en masse. Then, the individual item(s) will be discussed and voted upon.

**5. Bills and Financial Transactions**

- a. \$31,073,631.30**

**6. Minutes**

- a. October 5, 2020**

**7. Introduction of Rezoning Request for 7725, 7805, 7819, 7831 W Willow Hwy (Case No. 10-20-8)**

The Planning Department recommends that the Delta Township Board refer Redwood Living's request to rezone the 4 parcels described in Case No. 10-20-8 from AG2, Agricultural/Residential, to RM, Multiple Family Residential, to the Planning Commission for the purposes of holding a public hearing on the matter and submitting a recommendation to the Township Board.

**8. 2021 Delta Township Calendar of Meetings**

The Clerk's Office recommends the Delta Township Board approve the 2021 Calendar of Meetings.

**9. Proposed 2021 Holiday Schedule**

The Manager's Office recommends that the Delta Township Board Approve the proposed 2021 holiday schedule.

**10. Blue Cross Blue Shield Insurance Renewal**

The Manager's Office recommends that the Delta Township Board adopt the Blue Cross Blue Shield Simply Blue PPO HSA \$2,000/\$4,000 deductible health insurance plan for all non-Medicare eligible full-time employees and non-Medicare eligible qualifying retirees for the 2021 plan year beginning 1/1/2021; and I further move that the Delta Township Board approve a one-time deposit into an active H.S.A. Bank account for full-time employees and non-Medicare eligible retirees who enroll in the plan effective 1/1/2021 in the amount of \$900 for a one-person contract and \$1,800 for a two person or family contract effective the first full pay period in January, 2021.

**XII. ITEMS REMOVED FROM CONSENT AGENDA FOR DISCUSSION**

**XIII. ITEMS ADDED TO AGENDA UNDER SECTION V. SET/ADJUST AGENDA**

**XIV. ITEMS OF BUSINESS**

11. **Carrier Creek Interceptor Sewer Repair Professional Engineering Services Contract Award**  
The Engineering and Utility Departments recommend that the Delta Township Board accept the proposal from Tetra Tech, Inc. for the Carrier Creek Interceptor Sewer Repair project in the amount of \$169,900.
12. **Willow Sanitary Sewer Lift Station Replacement Preliminary Design Engineering Services Contract Award**  
The Engineering and Utility Departments recommend that the Delta Township Board contract with OHM Advisors for the purpose of providing preliminary design engineering services for the Willow Sanitary Sewer Lift Station Replacement at a cost not to exceed \$114,900.

**XV. MANAGER'S REPORT**

**XVI. COMMITTEE OF THE WHOLE**

13. **Bellaire Hills Drain Discussion**
14. **Building Evaluation**
15. **Delta/Charlotte Assessing Agreement**

**XVIII. CLOSED SESSION**

**XIX. PUBLIC COMMENTS (maximum five minutes)**

**XX. ADJOURNMENT**

**CHARTER TOWNSHIP OF DELTA**

**MARY R. CLARK, TOWNSHIP CLERK**  
**Phone (517) 323-8500**

*Individuals with disabilities attending Township meetings or hearings and requiring auxiliary aids or services should contact Township Manager and ADA Coordinator Brian T. Reed by email at [manager@deltami.gov](mailto:manager@deltami.gov) or calling (517) 323-8590 to inform him of the date of the meeting or hearing that will be attended. Copies of minutes may be purchased or viewed in the Clerk's Office from 8 a.m. to 5 p.m., Monday through Friday.*

Supervisor Kenneth R. Fletcher  
Treasurer Howard A. Pizzo  
Clerk Mary R. Clark  
Manager Brian T. Reed



Trustee Fonda J. Brewer  
Trustee Andrea M. Cascarilla  
Trustee Dennis R. Fedewa  
Trustee Karen J. Mojica

Manager's Office

(517) 323-8590

TO: Supervisor Kenneth R. Fletcher and the Delta Township Board  
FROM: Brian Reed, Township Manager  
DATE: October 16, 2020  
SUBJECT: Adoption of Fiscal Year 2021 Recommended Budget

On October 19, 2020 the Township Board will hold a "Public Hearing" on the Fiscal Year 2021. Recommended Budget in accordance with the Charter Township Act of the State of Michigan. Attached to this memo please find 2021 budget summaries for each major fund. These summaries reflect the outcome of multiple budget meetings over the last two months.

The following resolution is offered for your consideration:

"I move the Delta Township Board adopt the budget for 2021 by appropriating funds as follows:

\$18,135,110 for the General Fund;  
\$3,585,560 for the Paramedic Fund;  
\$27,900 for the Economic Development Corporation Fund;  
\$379,800 for the Debt Service Fund;  
\$100,000 for the Capital Projects Fund;  
\$4,619,140 for the Sewer Enterprise Fund;  
\$6,148,037 for the Water Enterprise Fund.

Estimated Revenues to support the appropriations above are:

\$17,208,840 for the General Fund;  
\$3,286,470 for the Paramedic Fund;  
\$1,200 for the Economic Development Corporation Fund;  
\$381,000 for the Debt Service Fund;  
\$171,500 for the Capital Projects Fund;  
\$5,615,170 for the Sewer Fund, and;  
\$5,988,000 for the Water Fund."

Appropriations will be deemed maximum authorizations to incur expenditures. The Township Manager shall exercise supervision and control to ensure the expenditures are within appropriations.

Thank you.



DELTA TOWNSHIP WAGE INFORMATION

Wages/Non-Union

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	2017	2018	2019	2020	2021*
<b>Delta Twp.</b>	2.0%	2.0%	3.0%	2.5%	1.5%
<b>Meridian Twp.</b>	2.0%	2.0%	2.0%	2.0%	2.0%
<b>Delhi Twp.</b>	2.0%	5.0%	1.3%	2.5%	2.0%
<b>Lansing</b>	2.0%	2.0%	2.5%	2.0%	0.0%
<b>East Lansing</b>	1.0%	1.0%	1.0%	3.0%	3.0%
<b>State of Michigan</b>			2.0%	2.0%	1.0%
<b>Holland Twp.</b>	3.0%	3.0%	3.0%		
<b>Pittsfield Twp.</b>	2.0%	2.0%	3.0%	3.0%	3.0%
<b>Waterford Twp.</b>	2.0%	2.0%	2.0%	0.5%	
<b>CPI 2020</b>	1.7%	1.7%	2.9%	1.8%	1.3%
<b>Social Security**</b>	0.3%	2.0%	2.8%	1.7%	0.5%

\*2021 proposed wage increase.

\*\* Estimate based on media reports

**DELTA TOWNSHIP**

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**GENERAL FUND REVENUES**

**Detail of Fund Revenues**

Fiscal Year Ending December 31:

<u>Acct #</u>		<b>Actual 2019</b>	<b>Amended 2020</b>	<b>Recommend 2021</b>
<b>404</b>	Current Taxes - Real	6,295,060	6,466,100	6,724,000
<b>410</b>	Current Taxes - Personal	922,470	908,850	940,000
<b>426</b>	Other Tax Related Revenue	1,052,150	945,000	940,000
<b>427</b>	Mobile Home Space Tax	1,137	1,100	1,200
<b>437</b>	Industrial Facilities Tax	56,220	53,960	62,100
<b>445</b>	Penalties	15,024	20,000	20,000
<b>447</b>	Administration Fees	692,061	692,000	721,000
<b>454</b>	Drain Layers Licenses	225	500	500
<b>456</b>	Sign Permits	3,870	4,500	3,600
<b>465</b>	Cable TV Fees	515,835	520,000	502,000
<b>468</b>	Telecommunication Act Fees	15,969	15,000	16,000
<b>475</b>	Other Business/License Permits	1,780	1,000	1,000
<b>477</b>	Building Permits	757,496	425,000	400,000
<b>478</b>	Burial Permits	46,200	44,000	40,000
<b>479</b>	Heating/Air Conditioning Permits	129,997	120,000	120,000
<b>480</b>	Plumbing Permits	54,605	55,000	40,000
<b>481</b>	Sewer Permits	5,765	5,000	5,000
<b>482</b>	Storm Drain Permits	650	1,000	1,000
<b>483</b>	Electrical Permits	163,886	130,000	110,000
<b>486</b>	LBWL Franchise Fees	2,336,155	2,300,000	-
<b>490</b>	Tent Permits	700	750	-
<b>529</b>	Federal Grants - Other	333,260	86,700	-
<b>569</b>	State Grants	482,460	16,000	582,500
<b>574</b>	State Revenue Sharing	2,956,567	2,961,900	2,919,000
<b>580</b>	Contributions - Other Local Units	358,742	475,430	656,400
<b>607</b>	Rental Registration	93,982	98,000	80,000
<b>608</b>	Rezoning Application Fees	17,825	12,000	12,000
<b>609</b>	Z.B.A. Fees	350	1,000	500
<b>613</b>	Platting Fees	230	-	-
<b>614</b>	Passport Fees	71,964	55,000	35,000
<b>625</b>	Ambulance - LGRFA	145,369	175,000	160,000
<b>627</b>	Photo Copying	558	600	600
<b>628</b>	Weed Cutting	4,490	5,000	5,000
<b>629</b>	Inspection Fees	88,980	20,000	20,000
<b>641</b>	Other Charges for Services Rendered	604,179	583,000	573,000
<b>643</b>	Cemetery Lots	21,528	20,000	21,000
<b>650</b>	Sales - Other	167	-	-

**DELTA TOWNSHIP**

**GENERAL FUND REVENUES**

**Detail of Fund Revenues**

Fiscal Year Ending December 31:

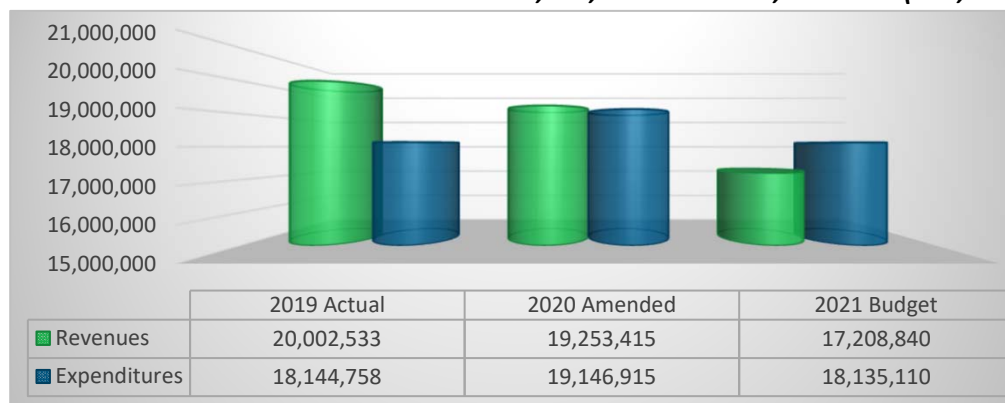
<u>Acct #</u>	<b>Actual 2019</b>	<b>Amended 2020</b>	<b>Recommend 2021</b>
651 Use & Admission Fees	44,502	26,000	26,000
651.001 Youth Sports Fees	52,083	50,100	53,700
651.002 Adult Sports Fees	53,482	49,700	55,100
651.003 Aquatic Fees	69,976	75,110	61,700
651.004 Special Events	17,447	14,000	14,000
652 Enrichment Center Fees	33,644	31,000	30,100
653 Recycling Fees	24,977	20,000	20,000
656 Ordinance Fines	108,299	111,000	110,000
665 Investment Income	539,393	300,000	250,000
666 Interest S/A	168	200	200
667 Rents	87,253	72,700	72,700
672 Special Assessments	579,240	611,215	645,440
673 Sale of Fixed Assets	3,277	2,000	4,000
675 Contributions - Private	23,803	21,500	21,500
675.009 Contributions - Fire	5,000	-	-
675.015 Contributions - Delta Rocks!	7,491	7,000	7,000
676 Reimbursements	1,390	-	-
677 Scholarships - P&R	572	-	-
694 Other Miscellaneous	7,030	2,000	2,000
694.001 Other Fire Revenue	37,734	35,000	20,000
694.002 Other Fire Revenue - Live Fire Training	1,560	2,000	-
699 Appropriations Transfers - In	56,306	604,500	103,000
<b>Total General Fund Revenues</b>	<b>\$20,002,533</b>	<b>\$19,253,415</b>	<b>\$17,208,840</b>

<b>Summary</b>			
Taxes	8,327,037	8,375,010	8,667,300
Licenses/Permits	1,165,174	786,750	721,100
State Revenue Sharing	2,956,567	2,961,900	2,919,000
Fees & Charges	5,091,223	4,994,425	2,681,840
Interest	539,561	300,200	250,200
Other Charges for Service	963,088	1,058,430	1,229,400
Miscellaneous	903,577	172,200	637,000
Transfers - In	56,306	604,500	103,000
<b>Total General Fund Revenues</b>	<b>\$20,002,533</b>	<b>\$19,253,415</b>	<b>\$17,208,840</b>

**DELTA TOWNSHIP**

**GENERAL FUND  
2021 BUDGET SUMMARY**

	<b>Actual 2019</b>	<b>Amended 2020</b>	<b>Recommend 2021</b>
<b>Revenue Summary</b>			
<b><i>Total General Fund Revenues</i></b>	<b>\$20,002,533</b>	<b>\$ 19,253,415</b>	<b>\$ 17,208,840</b>
<b>Expenditure Summary</b>			
Township Board	100,570	105,226	106,731
Manager's Office	453,065	679,180	733,968
Clerk	477,867	592,707	421,575
Information Technology	280,166	339,716	325,920
Accounting/Treasurer	883,979	609,650	613,406
Assessing	497,634	564,700	570,747
Township Hall & Grounds	555,665	694,285	590,743
General Activity	875,912	840,960	626,050
Cemetery Activity	256,241	308,265	305,136
Police Activity	3,276,591	3,452,950	3,456,500
Fire	2,531,347	3,270,100	2,887,586
Fire - LGRFA	545,891	600,496	645,326
Emergency Operations Center (EOC)	20,593	33,820	24,680
Building	709,872	749,665	687,637
Recycling	94,376	95,829	100,275
Drains Activity	191,387	202,000	211,050
Roads Activity	1,190,911	733,000	990,000
Engineering Activity	435,259	472,737	447,439
Street Lighting Activity	694,454	701,070	730,440
Planning	310,770	421,682	421,595
Parks & Recreation	3,474,320	1,938,473	2,959,950
EDC	107,888	115,404	131,856
Capital Improvement Transfer	180,000	1,625,000	146,500
<b><i>Total General Fund Expenditures</i></b>	<b>\$18,144,758</b>	<b>\$ 19,146,915</b>	<b>\$ 18,135,110</b>
	<b>1,857,775</b>	<b>106,500</b>	<b>(926,270)</b>





**DELTA TOWNSHIP**

**AMBULANCE FUND  
DETAIL OF REVENUES & EXPENDITURES**

Fiscal Year Ending December 31:

<b><u>Ambulance Fund #210</u></b>		<b>Actual</b>	<b>Amended</b>	<b>Recommend</b>
		<b>2019</b>	<b>2020</b>	<b>2021</b>
<b>FUND BALANCE 1/1</b>		2,058,215	2,559,616	2,002,386
	PLUS: Revenues	3,340,143	3,236,500	3,286,470
<b>TOTAL AVAILABLE</b>		<b>5,398,358</b>	<b>5,796,116</b>	<b>5,288,856</b>
	LESS: Expenditures	(2,838,742)	(3,793,730)	(3,585,560)
<b>FUND BALANCE 12/31</b>		<b>2,559,616</b>	<b>2,002,386</b>	<b>1,703,296</b>
<b><u>Acct #</u></b>	<b><u>Revenues</u></b>			
<b>404</b>	Current Tax - Real & Personal	1,452,367	1,494,000	1,539,000
<b>437</b>	Industrial Facilities Tax	11,288	10,800	12,470
<b>529</b>	Federal Grants - Other	125,140	86,700	-
<b>625</b>	Ambulance Fees	1,433,351	1,360,000	1,450,000
<b>625.010</b>	Ambulance Fees - Residential	248,137	250,000	250,000
<b>665</b>	Interest	69,860	35,000	35,000
	<b>Total Ambulance Fund Revenues</b>	<b>\$ 3,340,143</b>	<b>\$ 3,236,500</b>	<b>\$ 3,286,470</b>
	<b><u>Expenditures</u></b>			
<b>702</b>	Salaries & Wages - Regular	1,367,997	1,670,400	1,833,603
<b>703</b>	Salaries & Wages - Temporary	19,834	28,000	25,000
<b>704</b>	Salaries & Wages - Overtime	149,271	90,000	100,000
<b>706</b>	Salaries & Wages - Longevity	16,418	21,550	19,364
<b>715</b>	F.I.C.A.	118,251	134,100	139,500
<b>717</b>	Workers' Comp. Insurance	69,734	80,237	80,200
<b>719</b>	OPEB Contribution	85,000	85,000	85,000
<b>719</b>	Health Insurance	306,149	410,200	387,435
<b>720</b>	Life, Dental & LTD Insurance	43,872	52,334	54,700
<b>721</b>	Pension	162,221	207,700	244,643
<b>723</b>	Food Allowance	13,881	14,819	16,005
<b>724</b>	Uniform Allowance/Laundry	8,565	15,150	16,000
<b>728</b>	Office Supplies	1,011	2,000	2,000
<b>729</b>	Photo Copies	-	-	400
<b>730</b>	Postage	62	250	250
<b>731</b>	Publications	-	300	400
<b>740</b>	Operating Supplies	46,895	31,100	54,200
<b>760</b>	Medical Supplies	89,736	70,000	80,000
<b>776</b>	Building Maintenance Supplies	3,276	5,000	4,000
<b>778</b>	Equipment Maintenance Supplies	871	2,500	6,500
<b>780</b>	Grounds Maintenance Supplies	-	500	1,500
<b>806</b>	Contractual Services	50,603	34,500	40,700

**DELTA TOWNSHIP**

**AMBULANCE FUND  
DETAIL OF REVENUES & EXPENDITURES**

Fiscal Year Ending December 31:

<b><u>Ambulance Fund #210</u></b>		<b>Actual</b>	<b>Amended</b>	<b>Recommend</b>
		<b>2019</b>	<b>2020</b>	<b>2021</b>
<b>815.010</b>	Ambulance Fees - Residents	248,137	250,000	250,000
851	Radio Maintenance	2,685	5,000	7,500
852	Telephone	5,551	6,000	6,000
861	Mileage	246	300	300
862	Gasoline & Diesel	20,589	17,000	18,000
863	Vehicle Maintenance	47,488	18,000	20,000
903	Printing	795	500	-
911	Fleet Insurance	7,872	8,200	8,610
912	Liability Insurance	12,246	12,700	13,350
921	Electricity	22,787	22,200	22,200
922	Heat	8,010	10,000	10,000
923	Sewer & Water	2,520	3,000	3,000
931	R & M Services - Building	13,120	5,000	7,500
933	R & M Services - Equipment	4,239	5,000	5,000
934	R & M Services - Other	-	2,500	2,500
957	Education & Training	(1,161)	22,550	14,200
959	Memberships & Dues	515	1,500	1,500
960	Meetings, Conf. & Seminars	1,370	3,000	500
970	Capital Outlay	88,086	445,640	4,000
<b>Total Ambulance Fund Expenditures</b>		<b>\$ 3,038,742</b>	<b>\$ 3,793,730</b>	<b>\$ 3,585,560</b>
<b>Net increase (decrease) to Fund Balance</b>		<b>301,401</b>	<b>(557,230)</b>	<b>(299,090)</b>
<i>Total FTEs</i>		28.5	28.5	28.5

<b>REVENUES</b>			
Taxes	1,463,655	1,504,800	1,551,470
Fees & Charges	1,681,488	1,610,000	1,700,000
Miscellaneous	125,140	86,700	-
Interest	69,860	35,000	35,000
<b>Total Ambulance Fund Revenues</b>	<b>\$ 3,340,143</b>	<b>\$ 3,236,500</b>	<b>\$ 3,286,470</b>
<b>EXPENDITURES</b>			
Personnel Services	2,267,628	2,709,340	2,900,450
Supplies	171,251	144,100	183,550
Services	405,935	361,700	374,400
Insurance	20,118	20,900	21,960
Education & Training	724	27,050	16,200
Capital Outlay	88,086	445,640	4,000
OBEB Contribution	85,000	85,000	85,000
<b>Total Ambulance Fund Expenditures</b>	<b>\$ 3,038,742</b>	<b>\$ 3,793,730</b>	<b>\$ 3,585,560</b>

**DELTA TOWNSHIP**

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**SEWER FUND  
DETAIL OF REVENUES & EXPENDITURES**

Fiscal Year Ending December 31:

<b><u>Sewer Fund #590</u></b>		<b>Actual</b>	<b>Amended</b>	<b>Recommend</b>
		<b>2019</b>	<b>2020</b>	<b>2021</b>
<b><u>Acct # Revenues</u></b>				
<b>617</b>	Main Charges	13,424	10,000	-
<b>618</b>	Capital Charges	175,345	100,000	100,000
<b>641</b>	Other Charges for Services	26,533	25,000	20,000
<b>646</b>	Sewer/Water Sales	4,392,708	4,750,000	5,292,670
<b>662</b>	Late Payment Penalties	47,410	50,000	45,000
<b>665</b>	Investment Income	208,942	140,000	140,000
<b>666</b>	Interest on Special Assessments	1,018	2,200	1,000
<b>673</b>	Sale of Fixed Assets	15,511	6,000	15,000
<b>675</b>	Contributions - Private	97,426	-	-
<b>694</b>	Other Miscellaneous	58,534	1,500	1,500
	<b><i>Total Sewer Revenues</i></b>	<b>\$ 5,036,851</b>	<b>\$ 5,084,700</b>	<b>\$ 5,615,170</b>
<b><u>Expenditures</u></b>				
<b>702</b>	Salaries & Wages - Regular	1,463,212	1,530,000	1,567,553
<b>703</b>	Salaries & Wages - Temporary	5,543	10,400	10,000
<b>704</b>	Salaries & Wages - Overtime	18,106	10,000	12,000
<b>706</b>	Salaries & Wages - Longevity	35,487	35,560	36,933
<b>715</b>	F.I.C.A.	114,444	120,550	122,743
<b>717</b>	Workers' Comp. Insurance	19,015	18,226	18,250
<b>719</b>	Health Insurance	173,669	516,276	508,209
<b>720</b>	Life, Dental & LTD Insurance	43,492	46,307	47,752
<b>721</b>	Pension	171,399	186,504	189,850
<b>724</b>	Uniforms/Laundry	8,063	9,600	9,600
<b>728</b>	Office Supplies	4,974	4,000	4,000
<b>729</b>	Photo Copies	127	200	200
<b>730</b>	Postage	24,348	27,500	27,500
<b>731</b>	Publications	-	100	100
<b>740</b>	Operating Supplies	12,037	12,000	12,000
<b>743</b>	Chemicals	266,044	245,000	247,000
<b>744</b>	Lab Supplies	11,826	12,500	13,000
<b>759</b>	Tools	642	2,500	2,500
<b>776</b>	Building Maintenance Supplies	7,241	12,000	12,000
<b>778</b>	Equipment Maintenance Supplies	123,605	130,000	135,000
<b>780</b>	Grounds Maintenance Supplies	4,674	7,000	5,000
<b>803</b>	Audit Fees	11,650	12,000	11,500
<b>804</b>	Accounting Fees	167,766	160,000	160,000
<b>806</b>	Contractual Services	632,466	263,000	130,000
<b>808</b>	Legal Fees	-	1,000	1,000
<b>812</b>	Collection Fees	744	850	850

**DELTA TOWNSHIP**

**SEWER FUND  
DETAIL OF REVENUES & EXPENDITURES**  
Fiscal Year Ending December 31:

<b><u>Sewer Fund #590</u></b>	<b>Actual</b>	<b>Amended</b>	<b>Recommend</b>
	<b>2019</b>	<b>2020</b>	<b>2021</b>
<b>820</b> Administration Fees	100,000	100,000	100,000
<b>821</b> Engineering Fees	-	15,000	15,000
<b>851</b> Radio Maintenance	274	-	-
<b>852</b> Telephone	21,636	19,000	20,000
<b>853</b> Miss Dig	1,124	1,000	1,200
<b>862</b> Gasoline & Diesel	30,429	29,000	29,000
<b>863</b> Vehicle Maintenance	26,951	25,000	20,000
<b>911</b> Fleet Insurance	13,233	13,700	14,400
<b>912</b> Liability Insurance	94,580	98,000	102,900
<b>921</b> Electricity	435,984	415,000	416,000
<b>922</b> Heat	4,695	10,000	10,000
<b>923</b> Sewer & Water	3,175	3,700	3,600
<b>931</b> R & M Services - Building	13,860	15,000	15,000
<b>933</b> R & M Services - Equipment	127,013	12,000	12,000
<b>934</b> R & M Services - Other	-	25,000	25,000
<b>957</b> Education & Training	920	4,300	4,300
<b>959</b> Memberships & Dues	25,943	16,000	16,000
<b>960</b> Meetings, Conf. & Seminars	469	2,200	2,200
<b>968</b> Depreciation	1,055,629	-	-
<b>970</b> Capital Outlay	-	402,000	528,000
<b>995</b> Bond Interest	5,558	-	-
<b>Total Sewer Expenditures</b>	<b>\$ 5,282,047</b>	<b>\$ 4,578,973</b>	<b>\$ 4,619,140</b>
<i>Total FTEs</i>	25.0	25.0	25.0

<b><u>SUMMARY</u></b>			
<b><u>Revenues</u></b>			
Main, Capital & Other Charges	188,769	110,000	100,000
Sewer & Water Sales	4,392,708	4,750,000	5,292,670
Investment/Interest Income	209,960	142,200	141,000
Other Income	245,414	82,500	81,500
<b>Total Sewer Revenues</b>	<b>\$ 5,036,851</b>	<b>\$ 5,084,700</b>	<b>\$ 5,615,170</b>
<b><u>Expenditures</u></b>			
Personnel Services	2,044,367	2,473,823	2,513,290
Supplies	463,581	462,400	467,900
Services	1,605,099	1,129,050	992,650
Insurance	107,813	111,700	117,300
Depreciation	1,055,629	-	-
Capital Outlay	-	402,000	528,000
Debt/Bond Etc.	5,558	-	-
<b>Total Sewer Expenditures</b>	<b>\$ 5,282,047</b>	<b>\$ 4,578,973</b>	<b>\$ 4,619,140</b>

**DELTA TOWNSHIP**

**WATER FUND  
DETAIL OF REVENUES & EXPENDITURES**

Fiscal Year Ending December 31:

<b><u>Water Fund #591</u></b>		<b>Actual</b>	<b>Amended</b>	<b>Recommend</b>
		<b>2019</b>	<b>2020</b>	<b>2021</b>
<b>Acct #</b>	<b>Revenues</b>			
617	Main Charges	15,938	-	-
618	Capital Charges	79,445	80,000	50,000
641	Other Charges for Services Rendered	90,942	90,000	90,000
646	Sewer/Water Sales	5,636,258	5,850,000	5,500,000
650	Other Operating Revenue	12,537	14,000	13,000
662	Late Payment Penalties	57,026	58,000	58,000
665	Interest Income	224,914	120,000	120,000
666	Interest on Special Assessments	3,073	1,000	-
667	Rents	154,910	155,000	156,000
670	Other Interest Income	2,098	750	1,000
673	Sales of Fixed Assets	12,640	-	-
675	Contributions - Private	764,593	-	-
698	Bond Proceeds	4,568	-	-
	<b>Total Water Revenues</b>	<b>\$ 7,058,942</b>	<b>\$ 6,368,750</b>	<b>\$ 5,988,000</b>
	<b>Expenditures</b>			
702	Salaries & Wages - Regular	547,281	544,675	559,230
703	Salaries & Wages - Temporary	4,882	4,200	4,600
704	Salaries & Wages - Overtime	7,521	10,000	10,000
706	Salaries & Wages - Longevity	15,152	15,530	15,764
715	F.I.C.A.	42,881	43,170	43,987
717	Workers' Comp. Insurance	8,648	8,090	8,100
719	Health Insurance	(1,890)	160,560	170,251
720	Life, Dental & LTD Insurance	14,841	15,800	16,536
721	Pension	63,648	65,650	66,924
724	Uniforms/Laundry	3,282	3,750	3,750
728	Office Supplies	3,542	3,000	3,000
730	Postage	23,580	28,000	28,000
740	Operating Supplies	69,614	85,000	85,000
740.001	Operating Supplies - BW&L	2,436,746	2,820,000	2,875,000
743	Chemicals	324	350	350
759	Tools	1,697	1,500	1,500
776	Building Maintenance Supplies	10,973	12,000	15,000
778	Equipment Maintenance Supplies	5,691	18,000	18,000
780	Grounds Maintenance Supplies	2,194	3,000	3,000
803	Audit Fees	11,650	12,000	12,500
804	Accounting Fees	167,766	160,000	160,000
806	Contractual Services	204,629	156,000	472,000
820	Administrative Fees	100,000	100,000	100,000

**DELTA TOWNSHIP**

**WATER FUND  
DETAIL OF REVENUES & EXPENDITURES**

Fiscal Year Ending December 31:

<b><u>Water Fund #591</u></b>		<b>Actual</b>	<b>Amended</b>	<b>Recommend</b>
		<b>2019</b>	<b>2020</b>	<b>2021</b>
<b>821</b>	Engineering Fees	-	6,000	6,000
<b>852</b>	Telephone	12,428	15,000	15,000
<b>853</b>	Miss Dig	1,282	1,000	1,200
<b>862</b>	Gasoline & Diesel	10,714	12,000	10,000
<b>863</b>	Vehicle Maintenance	11,193	15,000	13,000
<b>911</b>	Fleet Insurance	13,713	14,200	15,000
<b>912</b>	Liability Insurance	23,419	24,300	24,800
<b>921</b>	Electricity	103,319	105,000	106,000
<b>922</b>	Heat	5,603	7,000	7,000
<b>923</b>	Sewer & Water	1,236	1,300	1,300
<b>931</b>	R & M Services - Building	56,836	50,000	50,000
<b>931</b>	R & M Services - Well Abandonment	2,100	10,000	-
<b>933</b>	R & M Services - Equipment	14,654	15,000	15,000
<b>957</b>	Education & Training	505	3,000	3,000
<b>959</b>	Memberships & Dues	21,035	16,700	21,000
<b>960</b>	Meetings, Conf. & Seminars	371	1,000	1,000
<b>968</b>	Depreciation	1,130,691	-	-
<b>970</b>	Capital Outlay	-	1,225,000	252,500
<b>991</b>	Bond Principal	-	1,240,000	860,000
<b>994</b>	Amortization Expense	3,122	-	-
<b>995</b>	Bond Interest	126,685	104,110	73,745
<b>Total Water Expenditures</b>		<b>\$ 5,283,558</b>	<b>\$ 7,135,885</b>	<b>\$ 6,148,037</b>
Total FTEs		8.0	8.0	8.0

<b><u>SUMMARY</u></b>			
<b><u>Revenues</u></b>			
Main, Capital & Other Charges	186,325	170,000	140,000
Water & Sewer Sales	5,636,258	5,850,000	5,500,000
Other Revenues	1,001,706	227,000	227,000
Investment/Interest Income	230,085	121,750	121,000
Bond Proceeds	4,568	-	-
<b>Total Water Revenues</b>	<b>\$ 7,058,942</b>	<b>\$ 6,368,750</b>	<b>\$ 5,988,000</b>
<b><u>Expenditures</u></b>			
Personnel Services	702,964	867,675	895,392
Supplies	2,557,642	2,974,600	3,032,600
Services	725,321	686,000	994,000
Insurance	37,132	38,500	39,800
Depreciation	1,130,691	-	-
Capital Outlay	-	1,225,000	252,500
Bond/Debt Etc.	129,807	1,344,110	933,745
<b>Total Water Expenditures</b>	<b>\$ 5,283,558</b>	<b>\$ 7,135,885</b>	<b>\$ 6,148,037</b>



# PROJECT STATUS COMMUNICATION

DATE: October 13, 2020

PREPARED BY: Gary Markstrom

PROJECT: Delta Township Wastewater Treatment Plant Improvements Project – Design Phase

Tt PROJECT NO: 200-214200-20001 CONTACT: Ernie West, P.E., Delta Township

### Task completed or in-progress since last status communication.

- Conducted meeting with SCADA staff and Tetra Tech staff to review communication and alarms systems for WWTP and off-site water and sewer locations.
- Conducted tour of existing plant with Primodal (treatment modelers) to fine tune existing model. WWTP will be performing 3 days of additional sampling
- Tetra Tech is developing background drawing of existing plant and yard piping
- Began conceptual layout of new treatment works and process schematics.
- Conducted tours of East Lansing WRRF, Charlotte WWTP, Grand Rapids WRRF, Genoa Oceola WWTP and Holland WWTP to review equipment installations and interview operators as to maintenance issues. Tetra Tech and Twp have discussed the finding from those visits to focus design approach.
- Basis of Design being prepared with wastewater characteristics, process design capacities and preliminary equipment preferences.
- Received and reviewed videos of primary tanks to assess condition of existing concrete structure.
- Conducted conference call with Granger for disposal of biosolids standards and proposed agreements.
- Prepared and submitted a renderings of treatment buildings for review by Township staff and development of an architectural theme

### Opportunities for cost avoidance or added value.

- None at this time

### Impediments, roadblocks, assistance needed.

- No concerns at this time.

### Change (or potential change) of scope items or customer concession. (Details on attached Request to Change Authorization)

- Pending the results of the sludge screen demonstration, the equipment may be added to the treatment process which will be a change in the original scope of improvements.

### Schedule:

- 7-20-2020 to 10-31-2020 Basis of Design
- 7-20-2020 to May 15, 2021 Preliminary Design for Phase 1 and Phase 2
- May 2021 to December 31, 2021 Final Design of Phase 1
- January 2022 permitting and bidding
- Construction April 2022

### Next task or action items.

- Continue preparing Basis of Design
- Complete proposed site layout drawings of new treatment works
- Schedule meeting with EGLE for review of draft Basis of Design
- Schedule workshop with Township for October to discuss headworks and grit/electrical layouts and equipment selections
- Contact biosolids handling equipment manufacturer to set up pilot study for their equipment.

Please do not hesitate to contact any member of your Team at any time.

Gary Markstrom  
Project Manager

Phone: 810.499.6646

Email: Gary.markstrom@tetratech.com

Supervisor Kenneth R. Fletcher  
Treasurer Howard A. Pizzo  
Clerk Mary R. Clark  
Manager Brian T. Reed



Trustee Fonda J. Brewer  
Trustee Andrea M. Cascarilla  
Trustee Dennis R. Fedewa  
Trustee Karen J. Mojica

Delta Township Board

(517) 323-8590

**DATE:** October 16, 2020  
**TO:** Mary R. Clark, Township Clerk  
**FROM:** Kenneth Fletcher, Township Supervisor  
**SUBJECT:** Boards of Appeals Reappointments

I have reappointed the following individuals to the Delta Township Boards of Appeals listed below:

**Mechanical/Building/Property Maintenance Board of Appeals**

- **Roger Donaldson** is reappointed to a full two-year term beginning July 1, 2020 and expiring June 30, 2022.
- **Todd Gute** is reappointed to a full two-year term beginning July 1, 2020 and expiring June 30, 2022.

**Plumbing Board of Appeals**

- **Craig Collins** is reappointed to a full two-year term beginning July 1, 2020 and expiring June 30, 2022.
- **Michael Tenniswood** is reappointed to a full two-year term beginning July 1, 2020 and expiring June 30, 2022.

**Electrical Board of Appeals**

- **Stephen Russel** is reappointed to a full two-year term beginning July 1, 2020 and expiring June 30, 2022.
- **Jim Spitz** is reappointed to a full two-year term beginning July 1, 2020 and expiring June 30, 2022.





**DELTA CHARTER TOWNSHIP  
FINANCE REPORT  
FOR TOWNSHIP BOARD MEETING  
10/19/2020**

Disbursement requests listed on the following pages, totaling \$31,073,631.30, have been received and reviewed by the Manager, Finance Director, and Clerk. It is recommended that all listed vouchers be approved for payment.

Bond/Debt Payments

Payroll & Related	362,735.50
Refunds	2,106.96
Tax Distributions	29,697,199.34
Vendor Claims	1,011,589.50
	<hr/>
Total	<u><u>\$ 31,073,631.30</u></u>

Investments

-----  
Kenneth R. Fletcher, Township Supervisor

-----  
Mary R. Clark, Township Clerk

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Howard A. Pizzo, Township Treasurer

**PAYABLES FOR DELTA CHARTER TOWNSHIP  
BOARD AGENDA DATE 10/19/2020**

Check Date	Check	Vendor Name	Description	Amount
09/01/2020	CCARD	ADOBE, INC.	MONTHLY SUBSCRIPTION FOR STOCK PHOTOS	29.99
09/01/2020	CCARD	AMAZON MARKETPLACE	FACE MASKS, WATERPROOF UNIFORM BOOTS, SMOKE DETECTORS, BATTERIES, TRAFFIC SAFETY CONES	701.86
09/01/2020	CCARD	AMAZON MARKETPLACE	BATTERIES, LAPTOP CASES, ENVELOPES, PEN HOLDER, STAPLERS, ADDING MACHINE RIBBON, CLEANER	204.02
09/01/2020	CCARD	AMAZON MARKETPLACE	CORN HOLE BAGS, GIANT FOAM DICE SET, CHLORINE TEST STRIPS	96.19
09/01/2020	CCARD	AMAZON MARKETPLACE	SAFETY FACE SHIELDS	160.92
09/01/2020	CCARD	APPLEBEES	ELECTION MEALS	89.76
09/01/2020	CCARD	BADER & SONS CO	TRIMMER HEAD BULK PACKS	119.70
09/01/2020	CCARD	CALL-EM-ALL	MONTHLY SUBSCRIPTION EMERGENCY NOTIFICATIONS	15.00
09/01/2020	CCARD	CHIPOTLE MEXICAN GRILL	LUNCH MEETING - B REED, M WRIGGELSWORTH	18.50
09/01/2020	CCARD	COTTAGE INN PIZZA	ELECTION MEALS	64.58
09/01/2020	CCARD	CROWN AWARDS	YOUTH BASEBALL PARTICIPATION MEDALS	255.92
09/01/2020	CCARD	CULVERS OF LANSING	ELECTION MEALS	74.20
09/01/2020	CCARD	DISCOUNT SHOP TOOLS	RESCUE SAW BLADES	170.00
09/01/2020	CCARD	DOTGOV REGISTRATION	DELTA.MI.GOV DOMAIN NAME	400.00
09/01/2020	CCARD	FUNFLICKS OUTDOOR MOVIES	MOVIE IN THE PARK	263.92
09/01/2020	CCARD	GILROY'S HARDWARE	PLEXI-GLASS	1,259.85
09/01/2020	CCARD	GLASSDOOR	FIRE/EMS JOB POSTING	199.00
09/01/2020	CCARD	GORDON FOOD SERVICE, INC.	POWERADE FOR REHAB	61.96
09/01/2020	CCARD	HALFMOON EDUCATION	"DRONES IN CONSTRUCTION" PROGRAM REGISTRATION - E WEST	299.00
09/01/2020	CCARD	HOME DEPOT	UTILITY KNIVES & BLADES, REPLACEMENT COOLER, SANDPAPER, WALL ANCHORS, MOUNTING CLIPS	87.57
09/01/2020	CCARD	JOANN FABRIC	MARINE VINYL FABRIC	27.98
09/01/2020	CCARD	KLAI-CO IDENTIFICATION PRODUCTS	PASSPORT FOLDERS	55.83
09/01/2020	CCARD	LOWES BUSINESS ACCOUNT	GATORADE FOR REHAB, 5-GALLON BUCKETS, STORAGE BAGS, SELF-SEALING PIPE INSULATION	111.43
09/01/2020	CCARD	MARCO'S PIZZA	SHIFT MEAL (USE CONTRIBUTIONS)	36.67
09/01/2020	CCARD	MEIJER, INC.	COFFEE MAKERS, STORAGE TOTES, WEED CONTROL, SPACKLING PUTTY & KNIFE, DISINFECTING WIPES	152.07
09/01/2020	CCARD	MENARDS	SMOKE DETECTORS, HAND SANITIZER, DISINFECTING WIPES, STONE TEXTURED SPRAY PAINT	129.17
09/01/2020	CCARD	MID AMERICA SPORTS ADVANTAGE	BASE PLUGS	183.76
09/01/2020	CCARD	PANERA BREAD	ELECTION MEALS	83.90
09/01/2020	CCARD	RED ROBIN	ELECTION MEALS	169.82
09/01/2020	CCARD	SOPHIA'S HOUSE OF PANCAKES	ELECTION MEALS	50.15
09/01/2020	CCARD	STAPLES	WHITE CARD STOCK	87.96
09/01/2020	CCARD	THE UPS STORE	SHIPPING CHARGES	14.01
09/01/2020	CCARD	THE WALL STREET JOURNAL	MONTHLY SUBSCRIPTION - DIGITAL & PRINT	38.99
09/01/2020	CCARD	WALMART STORES, INC.	YOUTH BASEBALLS, STORAGE BAGS	91.17
09/01/2020	CCARD	WALMART STORES, INC.	WATER FOR REHAB	19.90
09/01/2020	CCARD	WATER ENVIRONMENT FEDERATION	ANNUAL MEMBERSHIP DUES - E WEST	217.00
10/05/2020	EFT	EATON COUNTY TREASURER	TAX DISTRIBUTIONS 9/14/20	11,036,723.60

10/05/2020	EFT	EATON RESA	TAX DISTRIBUTIONS 9/14/20	1,105,017.99
10/05/2020	EFT	GRAND LEDGE PUBLIC SCHOOLS	TAX DISTRIBUTIONS 9/14/20	5,973,685.76
10/05/2020	EFT	INGHAM INTERMEDIATE SCHOOLS	TAX DISTRIBUTIONS 9/14/20	2,691,915.21
10/05/2020	EFT	LANSING COMMUNITY COLLEGE	TAX DISTRIBUTIONS 9/14/20	3,863,925.01
10/05/2020	EFT	LANSING PUBLIC SCHOOLS	TAX DISTRIBUTIONS 9/14/20	72,337.24
10/05/2020	EFT	WAVERLY COMMUNITY SCHOOLS	TAX DISTRIBUTIONS 9/14/20	3,730,730.85
10/07/2020	317675	ACCIDENT FUND INSURANCE	ADDT'L 19/20 WORKERS COMP AUDITED PREMIUM	7,876.00
10/07/2020	317676	CONSUMERS ENERGY	SERVICE @ MULTIPLE LOCATIONS (8/15/20 - 9/21/20), STREET LIGHTS - SEPTEMBER 2020	3,623.65
10/07/2020	317677	DAVID CHAPMAN AGENCY, INC.	18/19 CYBER SECURITY POLICY	9,135.00
10/07/2020	317678	DBI BUSINESS INTERIORS	OFFICE & OPERATING SUPPLIES - SEPTEMBER 2020	2,063.82
10/07/2020	317679	EATON COUNTY TREASURER	DISTRIBUTION OF SPACE TAX MONIES - JULY 2020	512.50
10/07/2020	317680	WEX BANK	FUEL PURCHASES FOR TWP. VEHICLES - SEPTEMBER 2020	7,916.24
10/07/2020	317681	GUARDIAN ALARM	ALARM BILLING STATIONS #1 & #3 (10/11/20 - 11/10/20)	67.44
10/07/2020	317682	LANSING BOARD OF WATER & LIGHT	WHOLESALE WATER BILLING - SEPTEMBER 2020, SERVICE @ MULTIPLE LOCATIONS (8/14/20 - 9/24/20)	263,301.79
10/07/2020	317683	SANDRIDGE APARTMENTS	REFUND RENTAL COMPLIANCE PERMIT #CR1900141	96.02
10/07/2020	317684	VINCENT VANHORN	REFUND RENTAL FEE COMMUNITY CENTER	400.00
10/07/2020	317685	SUN LIFE FINANCIAL	ACCIDENT & CRITICAL ILLNESS INSURANCE - SEPTEMBER 2020	1,429.41
10/07/2020	317686	TDS METROCOM	TELEPHONE SERVICE (9/28/20 - 10/27/20)	338.50
10/07/2020	317687	TRACTOR SUPPLY CREDIT PLAN	STATEMENT FOR SUPPLIES & MATERIALS - SEPTEMBER 2020	1,012.41
10/07/2020	317688	VERIZON	TOWNSHIP M2M, CELL PHONES, TABLETS & AIR CARDS - SEPTEMBER 2020	2,671.24
10/07/2020	317689	EQUITY TRUST COMPANY	W/S REFUND FOR ACCOUNT: 00035366	12.41
10/07/2020	317690	EASTBROOK HOMES	W/S REFUND FOR ACCOUNTS: 00035899 & 00036298	26.98
10/07/2020	317691	TITLE RE SOURCE AGENCY	W/S REFUND FOR ACCOUNT: 00034210	241.32
10/07/2020	317692	DIVERSIFIED NATIONAL TITLE AGENCY	W/S REFUND FOR ACCOUNT: 00018519	244.13
10/13/2020	EFT	EATON COUNTY TREASURER	TAX DISTRIBUTIONS 9/30/20	377,303.57
10/13/2020	EFT	EATON RESA	TAX DISTRIBUTIONS 9/30/20	39,835.29
10/13/2020	EFT	GRAND LEDGE PUBLIC SCHOOLS	TAX DISTRIBUTIONS 9/30/20	157,636.32
10/13/2020	EFT	INGHAM INTERMEDIATE SCHOOLS	TAX DISTRIBUTIONS 9/30/20	98,552.21
10/13/2020	EFT	LANSING COMMUNITY COLLEGE	TAX DISTRIBUTIONS 9/30/20	150,291.01
10/13/2020	EFT	LANSING PUBLIC SCHOOLS	TAX DISTRIBUTIONS 9/30/20	6,136.54
10/13/2020	EFT	WAVERLY COMMUNITY SCHOOLS	TAX DISTRIBUTIONS 9/30/20	95,969.29
10/14/2020	317698	LEE ACKERSON	SOFTBALL UMPIRE RAIN-OUT GAME	30.00
10/14/2020	317699	AMBS MESSAGE CENTER	ANSWERING SERVICE - CEMETERIES, PARKS & REC - OCTOBER 2020	92.82
10/14/2020	317700	CAPITAL AREA UNITED WAY	PAYROLL WITHHOLDING	39.23
10/14/2020	317701	BRETT CHRISTENSEN	INSTRUCTOR FALL YOUTH SOCCER CAMPS	375.00
10/14/2020	317702	COMCAST	SERVICE @ MULTIPLE LOCATIONS (10/10/20 - 11/17/20)	141.03
10/14/2020	317703	CONSUMERS ENERGY	SERVICE @ MULTIPLE LOCATIONS (8/27/20 - 10/4/20)	742.64
10/14/2020	317704	FIDELITY SECURITY LIFE INS/ EYEMED	VISION INSURANCE - OCTOBER 2020	1,397.71
10/14/2020	317705	GRANGER	TOWNSHIP CONTAINER SERVICE - OCTOBER 2020, RECYCLING - SEPTEMBER 2020	2,195.31
10/14/2020	317706	LANSING BOARD OF WATER & LIGHT	STREET LIGHTS - SEPTEMBER 2020	58,243.42
10/14/2020	317707	MAURER'S	UTILITIES AND PARKS UNIFORMS - SEPTEMBER 2020	843.64
10/14/2020	317708	LAMMERS HEATING & AIR COND., INC.	REFUND OVERPAYMENT PERMIT #PM190267 (RE-ISSUE CK #315195)	* 15.00
10/14/2020	317709	MERRITT ELECTRIC, LLC	REFUND OVERPAYMENT PERMIT #PE190602 (RE-ISSUE CK #314687)	* 15.00

10/14/2020	317710	SEBRING, JIMMIE	REFUND RENTAL COMPLIANCE PERMIT #CR2000046		22.50
10/14/2020	317711	CANON SOLUTIONS AMERICA, INC.	COPIER MAINTENANCE - OCTOBER 2020		42.00
10/14/2020	317712	SANDRA MEADOWS	REFUND ACTIVITY FEE GOLF LEAGUE (RE-ISSUE CK #316241)	*	25.00
10/14/2020	317713	SILVIA GONZALEZ	REFUND RENTAL FEE ENRICHMENT CENTER (RE-ISSUE CK #315960)	*	250.00
10/14/2020	317714	RACHEL ELSINGA	REFUND SECURITY DEPOSIT COMMUNITY CENTER (RE-ISSUE CK #314267)	*	250.00
10/14/2020	317715	DO 1 THING	REFUND DELTA ROCKS BUSINESS EXPO REGISTRATION (RE-ISSUE CK #316158)	*	50.00
10/14/2020	317716	JUANITA SCHOONOVER	REFUND ACTIVITY FEE MOTHER/DAUGHTER DANCE (RE-ISSUE CK #315967)	*	36.00
10/14/2020	317717	STATE OF MICHIGAN	SUMMER 2020 IFT TAX PAYMENT (7/1/20 - 9/30/20)		297,139.45
10/14/2020	317718	BRABANT, STUART	W/S REFUND FOR ACCOUNT: 00018647 (RE-ISSUE CK #315015)	*	7.44
10/14/2020	317719	SHAW, LUCAS	W/S REFUND FOR ACCOUNT: 00033845		177.46
10/14/2020	317720	JOHNS, MARCY J	W/S REFUND FOR ACCOUNT: 00027434 (RE-ISSUE CK #316277)	*	9.79
10/14/2020	317721	SELECT MEDICAL CORPORATION	W/S REFUND FOR ACCOUNT: 00009053 (RE-ISSUE CK #314861)	*	30.00
10/14/2020	317722	FATA, JUSTIN	W/S REFUND FOR ACCOUNT: 00034793 (RE-ISSUE CK #316280)	*	8.68
10/14/2020	317723	ATA NATIONAL TITLE GROUP, LLC	W/S REFUND FOR ACCOUNT: 00021678 (RE-ISSUE CK #316284)	*	90.33
10/14/2020	317724	STOUT, GAGE	W/S REFUND FOR SECURITY DEPOSIT ACCOUNT: 00035417 (RE-ISSUE CK #316258)	*	78.65
10/14/2020	317725	TRI COUNTY GUARDIANSHIP	W/S REFUND FOR ACCOUNT: 00035519 (RE-ISSUE CK #315016)	*	20.25
10/14/2020	317726	KEVIN ZIMMERMAN	REIMBURSE EMS LICENSE RENEWAL & DAMAGED WATCH REPAIR (RE-ISSUE CK #315147)	*	75.00
10/21/2020	317727	THE ACCUMED GROUP	BILLING SERVICE FEE - EMS & FIRE - SEPTEMBER 2020		7,037.66
10/21/2020	317728	ADVANCED TURF SOLUTIONS, INC.	SAND, LINE MARKING MACHINE, LINE MARKING PAINT, PROFESSIONAL TURF FERTILIZER		5,975.29
10/21/2020	317729	AIRGAS USA, LLC	MEDICAL OXYGEN, HELIUM TANK RENTAL, WORK GLOVES		706.90
10/21/2020	317730	AMBS MESSAGE CENTER	ANSWERING SERVICE - UTILITIES - OCTOBER 2020		280.63
10/21/2020	317731	TELEFLEX LLC	EZ-IO 25MM & 45MM NEEDLE SETS W/STABILIZERS		1,345.50
10/21/2020	317732	ASCAP	ANNUAL LICENSE FEE		367.76
10/21/2020	317733	AUTO VALUE PARTS STORE	OIL ABSORBENT, WIPER FLUID, REFLECTIVE TAPE, HITCH PIN & CLIP, OXYGEN SENSOR, GREASE, ETC.		833.65
10/21/2020	317734	BAKER TILLY MUNICIPAL ADVISORS, LLC	PROFESSIONAL SERVICES - WATER & SEWER RATE STUDY		32,000.00
10/21/2020	317735	BERGER CHEVROLET	2020 CHEVY SILVERADO 2500 - PARKS DEPT		30,616.00
10/21/2020	317736	BLACKBURN MANUFACTURING CO.	FLAGS & PAINT FOR MISS DIG		611.64
10/21/2020	317737	BLUESTONE PSYCH	POST-CONDITIONAL OFFER OF EMPLOYMENT EVALUATION		465.00
10/21/2020	317738	BOBCAT OF LANSING	REINSTALL VENT LINE & TUBE, NEW ALTERNATOR BELT FOR TRACK LOADER		818.33
10/21/2020	317739	BOUND TREE MEDICAL, LLC	EXAM GLOVES, TOWELETTES, ELECTRODES, IV CATHETERS, DEFIB PADS, CHLORAPREP IV START KITS, ETC.		4,938.13
10/21/2020	317741	CDW GOVERNMENT, INC.	COLOR & BLACK TONER, TRANSFER UNIT, WASTE TONER BOTTLE, USB TO HDMI ADAPTER, USB DRIVES		866.44
10/21/2020	317742	CINTAS CORPORATION #725	MATS FOR SUBSTATION		140.00
10/21/2020	317743	CITY OF LANSING	GRAND WOODS PARK INSTALLMENT 5 OF 5		120,000.00
10/21/2020	317744	CIVIC PLUS	BALANCE DUE ANNUAL FEE, VIRTUAL TRAINING, RESIDENCY IMPORT, FUTURE RENTALS IMPORT		5,102.49
10/21/2020	317745	CLASSIC COFFEE CO.	COFFEE, CREAM, SUGAR - STATIONS #1 & #3		275.50
10/21/2020	317746	CL TRUCKING & EXCAVATING, LLC	CONTRACTOR PAY APP 3 - MT HOPE PARK TRAIL CONNECTOR/PATHWAY		51,655.29
10/21/2020	317747	COMPRENEW	E-WASTE RECYCLING		2,022.63
10/21/2020	317748	THE COTTAGE GARDENS, INC.	TREE REPLACEMENT WILLOW PARK		1,420.00
10/21/2020	317749	D&G EQUIPMENT INC.	ROTARY SWITCH FOR ZERO-TURN MOWER		66.41
10/21/2020	317750	DOXIM, INC.	POSTAGE, PRINT, MAIL W/S BILLS & PAST DUE NOTICES - SEPTEMBER 2020		3,823.73
10/21/2020	317751	DUBOIS-COOPER	IMPELLER, IMPELLER REPLACEMENT KIT		1,796.00
10/21/2020	317752	EATON COUNTY	TRI-COUNTY REG'L PLANNING COMM - 1Q 20/21, ROAD CREW SERVICES, 56A DISTRICT COURT PMTS		11,339.37
10/21/2020	317753	EATON COUNTY TREASURER	SHERIFF CONTRACTUAL - OCTOBER 2020, JULY BOARD OF REVIEW - 2019 TAX YEAR		266,058.51

10/21/2020	317754	EATON COUNTY ROAD COMMISSION	ROAD CUT FOR CREYTS RD WATER MAIN BREAK, EMERGENCY LIGHTS - STATIONS #1 & #3	423.51
10/21/2020	317755	ETNA SUPPLY COMPANY	MXUs, METERS, METER COUPLINGS, FLANGES, NUT & BOLT KITS	3,301.10
10/21/2020	317756	FACILITY SOLUTIONS, INC.	PAPER TOWEL, CAN LINERS, TOILET TISSUE, AIR FRESHENER, TOILET BOWL CLEANER	780.42
10/21/2020	317757	JOHN DEERE FINANCIAL	CUTTING EDGES, SCARIFIER SHANKS	769.46
10/21/2020	317758	FIBERTEC ENVIRONMENTAL SERVICES	TOTAL TOXIC ORGANICS TESTING, DIOXIN SCREEN	885.55
10/21/2020	317759	FIRE SERVICE MANAGEMENT, LLC	TURNOUT GEAR REPAIR	112.80
10/21/2020	317760	O'REILLY AUTO PARTS	WIPER FLUID	3.38
10/21/2020	317761	FCI AUTOMATION	FITTING FOR FLUSH LINE ON DERAGGER	9.40
10/21/2020	317762	FREDRICKSON SUPPLY, LLC	ROLLER FOR JET TRUCK	43.68
10/21/2020	317763	USA TODAY NETWORK	NOTARIZED ADVERTISING - SEPTEMBER 2020	832.00
10/21/2020	317764	GORDON FOOD SERVICE, INC.	COFFEE FOR UTILITY DEPT	125.77
10/21/2020	317765	GRAINGER	PISTON AIR COMPRESSORS, PAPER TOWELS, SAFETY GLASSES	870.02
10/21/2020	317766	GRAND LEDGE FORD	NS CONVERTER, SENSORS, GASKETS, NUTS, VALVE ASSEMBLY	590.20
10/21/2020	317767	GRAYBAR	COMMERCIAL TRANSFER SWITCH FOR STATION PANEL	1,748.79
10/21/2020	317768	GRAYMONT WESTERN LIME, INC.	HIGH CALCIUM QUICKLIME	5,190.00
10/21/2020	317769	GREAT LAKES EXPRESS SERVICE, INC.	MONTHLY MAIL SERVICE - SEPTEMBER 2020	315.00
10/21/2020	317770	HALLAHAN & ASSOCIATES	PROFESSIONAL SERVICES - SEPTEMBER 2020 - WAL-MART REAL ESTATE BUSINESS TRUST	253.50
10/21/2020	317771	HENDERSON GLASS, INC.	WINDSHIELD REPAIR	181.66
10/21/2020	317772	ICU LOGOS	DELTA FIRE/EMS LOGO T-SHIRTS & FACEMASKS	3,160.73
10/21/2020	317773	INTERSTATE BATTERIES OF	VEHICLE BATTERY	113.95
10/21/2020	317774	I/O SOLUTIONS, INC.	NEXT GENERATION FIREFIGHTER/EMT EXAMS	37.00
10/21/2020	317775	JOHNSON SIGN CO.	50% DEPOSIT FOR DELTA TWP LIGHTED EXTERIOR SIGN - ADMIN BLDG	3,917.50
10/21/2020	317776	KANAZEH LAWN SERVICE	MOWING NOXIOUS WEEDS @ MULTIPLE PROPERTIES	670.00
10/21/2020	317777	KENDALL ELECTRIC, INC.	POWER DISTRIBUTION BLOCKS, MISC BUSHINGS, NUTS, BOLTS FOR STATION PANEL	168.94
10/21/2020	317778	KEUSCH TIRE AND TOWING	NEW TIRES, FRONT END ALIGNMENT	463.95
10/21/2020	317779	KIMBALL MIDWEST	DRILL SET, CHUCKING REAMER, CABLE TIES, BRASS FITTINGS, DRILL BITS	848.93
10/21/2020	317780	LACROSSE SEED	LAWN MIX, SINGLE NET STRAW MATTING	392.95
10/21/2020	317781	LAMINATOR.COM	MATTE LAMINATING FILM	134.48
10/21/2020	317782	LANSING SANITARY SUPPLY, INC.	VACUUM CLEANER REPAIR, BRUSH ROLL	82.00
10/21/2020	317783	LOOMIS	ARMORED SERVICE - SEPTEMBER 2020	542.97
10/21/2020	317784	LYDEN OIL COMPANY	MOTOR OIL	1,186.20
10/21/2020	317785	MARK'S LOCK SHOP, INC.	PADLOCKS, LOCKSET, KEYS	221.50
10/21/2020	317786	MCMASTER-CARR SUPPLY CO.	CAM & GROOVE HOSE COUPLING, TIMER-OPERATED COMPRESSED AIR DRAIN VALVE, STEEL PIPE NIPPLE	339.41
10/21/2020	317787	MCMAMARA'S HEATING & COOLING	MINI-SPLIT AIR CONDITIONER - ADD FREON, CLEAN CONDENSER, REPLACE CONTRACTOR	577.00
10/21/2020	317788	MEEKHOF TIRE OF LANSING	NEW TIRES, MOUNT/DISMOUNT, BALANCE, SCRAP OLD TIRES	506.08
10/21/2020	317789	MENARDS	EXTERIOR WOOD FINISH, BUTCHER BLOCK COUNTER TOP, REEL TAPE MEASURES, HOSE NOZZLE, ETC.	481.93
10/21/2020	317790	MICHIGAN DUTCH BARN, INC.	METAL GARAGE W/INSULATED DOOR, ROLL-UP DOOR, ALUMINUM RAMP	4,807.70
10/21/2020	317791	MINT CITY EXCAVATING, INC.	DELTA MILLS CRICKET PITCH SITE WORK	10,548.40
10/21/2020	317792	MICHIGAN MUNICIPAL LEAGUE MBC-LEO	MICHIGAN BLACK CAUCUS MEMBERSHIP DUES - F BREWER	35.00
10/21/2020	317793	RYAN MORRISSEY	REIMBURSE EMS E-LEARNING SUMMIT REGISTRATION	25.00
10/21/2020	317794	MUNICODE	ANNUAL ONLINE CODE HOSTING (10/1/20 - 9/30/21)	900.00
10/21/2020	317795	MYERS PLUMBING & HEATING, INC.	REMOVE/REINSTALL GAS PIPE, CAP OVERFLOW SUMPS - ADMIN ROOF WORK; DRAINS - COMM CENTER	3,663.87
10/21/2020	317796	PITNEY BOWES, INC	BLACK INK FOR POSTAGE MACHINE	322.98

10/21/2020	317797	PURE GREEN LAWN & TREE	MID SEASON PRUNING, TREE REMOVAL	1,500.00
10/21/2020	317798	PVS TECHNOLOGIES, INC.	FERRIC CHLORIDE SOLUTION	6,004.15
10/21/2020	317799	QUALITY TIRE, INC.	FIRESTONE TIRES, VALVES, BALANCE, DISMOUNT/MOUNT	952.96
10/21/2020	317800	MARTEN READER	REIMBURSE EMS LICENSE RENEWAL	25.00
10/21/2020	317801	RESCUE RESPONSE GEAR, INC.	ROPE RESCUE EQUIPMENT	1,707.64
10/21/2020	317802	R.M. ELECTRIC, INC.	LIGHTING RETROFIT - STATION #1	2,142.52
10/21/2020	317803	ROSE PEST SOLUTIONS	MONTHLY PEST CONTROL - STATION #1	42.00
10/21/2020	317804	SAFEWARE, INC.	PRESSURE TEST ADAPTER KIT	245.00
10/21/2020	317805	SCHAFFER'S, INC.	ROAD GRAVEL, SCREENED TOP SOIL	43.00
10/21/2020	317806	SHERWIN-WILLIAMS	PAINT, DROP CLOTHS, TRAY, TRAY LINERS, PAINT BRUSHES	352.79
10/21/2020	317807	SME	PROFESSIONAL SERVICES - THOMAS L PKWY EMERGENCY SEWER REPAIR (8/24/20 - 9/20/20)	5,001.25
10/21/2020	317808	SMITH LAWNSCAPES	BALANCE OWING FOR TIM HORTON'S LANDSCAPING	3,404.63
10/21/2020	317809	THE SHYFT GROUP USA, INC.	FOAM SYSTEM SENSOR, BOTH FRONT SEAT BELTS, OIL & FUEL FILTERS	3,926.85
10/21/2020	317810	SPORTING U	FIRE/EMS LOGO T-SHIRTS	381.37
10/21/2020	317811	STRYKER SALES CORP.	LUCAS BATTERY CHARGERS, POWER SUPPLY W/CORD	3,481.60
10/21/2020	317812	SUNDANCE CHEVROLET	PAD KITS, ROTORS, FUEL TANK CAP	681.42
10/21/2020	317813	TESCO CONTROLS, INC.	ELECTRONIC REPAIR ON DIGITAL LIQUID LEVEL	375.00
10/21/2020	317814	USA BLUE BOOK	SUBMERSIBLE TRANSDUCER FOR STATION PANEL, TRAFFIC SAFETY CONES	1,823.56
10/21/2020	317815	VINCENT CORPORATION	SCREW PRESS RENTAL	2,600.00
10/21/2020	317816	WALLACE OPTICIANS	SAFETY GLASSES W/SIDE SHIELDS - M KLEIN	188.90
10/21/2020	317817	WEST SHORE FIRE, INC.	CYLINDER VALVE SEAL KIT	15.00
10/21/2020	317818	WEST SHORE SERVICES, INC.	2020 ANNUAL INSPECTION & MAINTENANCE OUTDOOR WARNING SIRENS	5,378.97

\* = re-issued checks

PAYABLES	30,710,935.03
PAYROLL P.E. 10/03/2020	362,696.27
	<u>\$ 31,073,631.30</u>

## **CHARTER TOWNSHIP OF DELTA**

In compliance with Governor Whitmer's executive order 2020-154, this meeting was conducted via Zoom Webinar Platform

### **TOWNSHIP BOARD REGULAR MEETING MINUTES FOR MONDAY, OCTOBER 5, 2020**

#### **I. CALL TO ORDER**

Supervisor Fletcher called the meeting to order at 6:00 PM.

#### **II. OPENING CEREMONIES – Pledge of Allegiance**

#### **III. ROLL CALL**

Members Present: Supervisor Kenneth R. Fletcher, Treasurer Howard A. Pizzo, Clerk Mary R. Clark, Trustee Fonda J. Brewer, Andrea Cascarilla, and Trustee Dennis R. Fedewa

Members Absent: Trustee Karen J. Mojica

Others Present: Manager Brian T. Reed, Assistant Township Manager Alannah Doak, Planning Director Gary Bozek, Township Engineer Ernie West, Utilities Director Rick Kane, Chief Gregg Ginebaugh, Parks, Recreation, and Cemeteries Director Marcus Kirkpatrick, Lt. Ross Tyrell, Department Assistant-Managers Office Mary Worland, Assessing and Building Director Ted Droste, and Finance Director Jeff Anderson

TRUSTEE CASCARILLA MOVED TO EXCUSE TRUSTEE MOJICA FROM THE OCTOBER 5, 2020 REGULAR BOARD MEETING.

CLERK CLARK SUPPORTED THE MOTION. THE MOTION PASSED 6-0.

#### **IV. PRESENTATIONS AND PROCLAMATIONS**

- 1. Government Finance Officers Association (GFOA) Distinguished Budget Award**

#### **VI. SET/ADJUST AGENDA**

TRUSTEE BREWER MOVED TO APPROVE THE AGENDA AS PRESENTED.

TREASURER PIZZO SUPPORTED THE MOTION. THE MOTION PASSED 6-0.

#### **VII. PUBLIC HEARINGS**

**VII. COMMUNICATIONS**

**2. Vivian Johnson Thank You to Delta Township**

**VIII. PUBLIC COMMENTS FOR ITEMS NOT ON AGENDA (maximum two minutes)**

Kim Laforet. Addressed the Board of Trustees with her dissatisfaction on how the commission appointments were handled.

Bob McConnell Voiced that he supported Kim Laforet and was also dissatisfied with how the commission appointments were handled.

**IX. INTRODUCTION OF ORDINANCES**

**X. PASSAGE OF ORDINANCES**

**XI. CONSENT AGENDA –**

TREASURER PIZZO MOVED TO APPROVE THE CONSENT AGENDA.

TRUSTEE CASCARILLA SUPPORTED THE MOTION.

ROLL CALL:

AYES: SUPERVISOR FLETCHER, CLERK CLARK, TREASURER PIZZO,  
TRUSTEE FEDEWA, TRUSTEE BREWER, TRUSTEE  
CASCARILLA, AND TRUSTEE MOJICA

NAYS: NONE

ABSENT: TRUSTEE MOJICA

THE MOTION PASSED 6-0.

**3. Bills and Financial Transactions**

Bonds/Debt Payments	\$	357,812.50
Payroll & Related	\$	356,026.91
Refunds	\$	79,979.89
Tax Distributions	\$	
Vendor Claims	\$	1,213,955.08
Total	\$	2,025,774.38



TREASURER PIZZO MOVED TO APPROVE THE CONSENT AGENDA AS PRESENTED.

TRUSTEE CASCARILLA SUPPORTED THE MOTION. THE MOTION PASSED 6-0.

#### **4. Minutes**

- a. September 21, 2020 Regular Digital Board Meeting

TREASURER PIZZO MOVED TO APPROVE THE CONSENT AGENDA AS PRESENTED.

TRUSTEE CASCARILLA SUPPORTED THE MOTION. THE MOTION PASSED 6-0.

#### **5. Set the Public Hearing for FY 2021 Budget**

TREASURER PIZZO MOVED THAT THE DELTA TOWNSHIP BOARD SET A PUBLIC HEARING ON THE FY 2021 BUDGET FOR MONDAY, OCTOBER 19, 2020, IN VIA THE ZOOM DIGITAL MEETING PLATFORM, AT 6:00 P.M.

IT WAS FURTHER MOVED, THAT THE TOWNSHIP CLERK BE DIRECTED TO ADVERTISE SUCH NOTICE OF PUBLIC HEARING.

TRUSTEE CASCARILLA SUPPORTED THE MOTION. THE MOTION PASSED 6-0.

#### **6. Municipal Utility Agreement Meijer DC89 Addition**

TREASURER PIZZO MOVED THAT THE DELTA TOWNSHIP BOARD APPROVE MUNICIPAL UTILITY AGREEMENT SUBMITTED BY MEIJER INC. FOR THE RELOCATION OF PUBLIC WATER MAINS TO FACILITATE THE PROPOSED MEIJER DC89 ADDITION PROJECT. I FURTHER MOVE THAT THE TOWNSHIP SUPERVISOR AND CLERK BE AUTHORIZED AND DIRECTED TO SIGN THE AGREEMENT ON BEHALF OF THE TOWNSHIP.

TRUSTEE CASCARILLA SUPPORTED THE MOTION. THE MOTION PASSED 6-0.

#### **7. MERS Credited Service – Ken Barnes**

AS PROVIDED BY THE MERS PLAN DOCUMENT, THE TWENTY-FIVE (25) MONTHS ADDITIONAL CREDITED SERVICE IS GRANTED THIS MEMBER BY

RESOLUTION ADOPTED BY THE TOWNSHIP BOARD OF THE CHARTER TOWNSHIP OF DELTA AT ITS MEETING ON OCTOBER 5, 2020. IT IS UNDERSTOOD THAT CALCULATION OF THE ACTUARIAL COST IS BASED ON THE ASSUMPTIONS PROVIDED AND APPROVED BY THE MERS RETIREMENT BOARD ON THE DATE THE CALCULATION WAS PREPARED. ACTUAL, FUTURE EVENTS AND EXPERIENCE MAY RESULT IN CHANGES DIFFERENT FROM THOSE ASSUMED, AND LIABILITY DIFFERENT FROM THAT ESTIMATED, AND

FURTHERMORE, THE PURCHASE OF SERVICE CREDIT DOES NOT AFFECT VESTING FOR RETIREE HEALTH INSURANCE, AND

FINALLY, THE EMPLOYEE (KENNETH BARNES) WILL BE RESPONSIBLE AND IS REQUIRED TO PAY THE FULL COST OF THE PURCHASE FOR THE CREDITED SERVICE.

TRUSTEE CASCARILLA SUPPORTED THE MOTION. THE MOTION PASSED 6-0.

**XII. ITEMS REMOVED FROM CONSENT AGENDA FOR DISCUSSION**

**XIII. ITEMS ADDED TO AGENDA UNDER SECTION V. SET/ADJUST AGENDA**

**XIV. ITEMS OF BUSINESS**

**8. Board and Commissions Appointments**

SUPERVISOR FLETCHER OFFERED A MOTION TO AMEND THE APPOINTMENTS BY DEFFERING THE APPOINTMENT OF MERRITTA HUNT-PROCTOR AND DAN STOCKWELL AND CONTINUE THE APPOINTMENTS OF RACHEL ELSINGA TO THE PLANNING COMMISSION FOR A PARTIAL THREE-YEAR TERM EXPIRING ON MARCH 31, 2023, DAVID CORRIE AS AN ALTERNATE MEMBER OF THE ZONING AND SIGN BOARD OF APPEALS FOR A TERM ENDING ON MARCH 31, 2021, TOM HASELSCHWERDT TO THE ECONOMIC DEVELOPMENT COMMISSION FOR A TERM ENDING ON JANUARY 31, 2025, AND JERRY SLADE TO THE NON-DISCRIMINATION COMPLAINT REVIEW COMMITTEE FOR A PARTIAL THREE-YEAR TERM EXPIRING ON JANUARY 31, 2023.

TRUSTEE CASCARILLA SUPPORTED THE AMENDMENT. THE MOTION PASSED 4-2 (FEDEWA AND BREWER NAY).

THE BOARD OF TRUSTEES DISCUSSED THE TOPIC PRESENTED.

Supervisor Fletcher opened the floor to public comment.

Kim Laforet. Stated she did receive a letter and that she responded showing interest in serving another term.

Barbara Poma. Stated that when she served on the Board, all members reviewed the applications. Supports fresh faces on the committee. As a resident likes to see nice, fresh, new ideas in the Township.

Dan Stockwell. Did not want to displace good, hardworking people on the planning commission. Was only applying for the vacant seat and wanted to get involved in Township activities. Hoped that this experience will improve the transparency of the process and was still interested in serving the Township.

Bob McConnell. Stated he does not recall receiving a letter but does recall asking Mr. Bozek if there was any movement regarding their terms. Said he eventually stopped asking because of COVID. Has no issue with the appointees but does have an issue with the process and how it was handled.

## **9. Rate Study**

TRUSTEE BREWER MOVED THAT THE DELTA TOWNSHIP BOARD ACCEPT THE WATER FUND AND WASTEWATER FUND RATE STUDIES PROVIDED BY BAKER TILLY MUNICIPAL ADVISORS, LLC DATED SEPTEMBER 18, 2020 AND PLACE ON FILE.

TRUSTEE FEDEWA SUPPORTED THE MOTION. THE MOTION PASSED 6-0.

## **10. Delta Pine Donation to State of Michigan**

TRUSTEE CASCARILLA OFFERED A MOTION TO INCLUDE AN AMENDMENT THAT THE DELTA TOWNSHIP BOARD APPROVE THE DONATION OF THE TREE LOCATED AT 6325 W. WILLOW HWY REQUESTED BY THE STATE OF MICHIGAN TREE CREW FOR THE 2021 SILVER BELLS CELEBRATION.

TREASURER PIZZO SUPPORTED THE MOTION. THE MOTION PASSED 6-0.

## **11. Contract Award for Creyts Road Ground Storage Electrical and Controls Upgrades**

TRUSTEE CASCARILLA MOVED THAT THE DELTA TOWNSHIP BOARD ACCEPT THE BID FROM DVT ELECTRIC, INC. FOR THE CREYTS ROAD BOOSTER STATION ELECTRICAL AND CONTROLS UPGRADES PROJECT

IN THE AMOUNT OF \$482,130, WHICH INCLUDES BID ALTERNATE NO. 1 FOR NEW LED LIGHTING, AND THAT THE TOWNSHIP MANAGER BE AUTHORIZED AND DIRECTED TO EXECUTE THE NECESSARY DOCUMENTS RELATED TO THE AFOREMENTIONED PROJECT.

TRUSTEE BREWER SUPPORTED THE MOTION. THE MOTION PASSED 5-1 (FLETCHER NAY).

### **12. Planning Commission Transmittal of the 2021-2026 Capital Improvements Program**

TREASURER PIZZO MOVED THAT THE DELTA TOWNSHIP BOARD ACKNOWLEDGE RECEIPT OF THE 2021-2026 CAPITAL IMPROVEMENTS PLAN AS PREPARED AND ADOPTED BY THE DELTA TOWNSHIP PLANNING COMMISSION.

TRUSTEE BREWER SUPPORTED THE MOTION. THE MOTION PASSED 5-1 (FEDEWA NAY).

### **13. St. Joe Property Legal Defense Fund**

CLERK CLARK MOVED THAT THE DELTA TOWNSHIP BOARD APPROVE THE ATTACHED RESOLUTION FOR AN APPLICATION FOR ASSISTANCE FROM THE MTA/MML LEGAL DEFENSE FUND.

TRUSTEE CASCARILLA SUPPORTED THE MOTION. THE MOTION PASSED 6-0.

## **XV. MANAGER'S REPORT – Brian Reed, Township Manager**

- Michigan Supreme Court decision late last week affects all the Governors executive orders. MDHHS has issued some guidance and is seeking clarifications from the MI Supreme Court. Some legislation is being worked on with the Open Meetings Act. The Township continues to monitor situation and adjust as needed.
- Article on Regal Cinemas closing or postponing their openings nationwide. Spoke with Lansing Mall and they view it as a delay in opening.
- Flu shot clinic for the employees and the community on October 26 at the Drolett Community Center.
- Thanked Finance Director Jeff Anderson for his support and appreciates his help and noted he will be missed.

## **XVI. COMMITTEE OF THE WHOLE**

**14. Eaton County Interlocal Agreement for County Designated Assessor Discussion**

Assistant Township Manager Alannah Doak provided an overview of the letter from Eaton County Controller/Administrator John Fuentes requesting the Board to consider supporting the sample – Eaton county interlocal agreement for county designated assessor and the recommendation to appoint Tim Vandermark as the Designated Assessor for Eaton County. A discussion ensued among Board members and Township staff. The consensus of the Board was to provide a letter of support to Mr. Fuentes.

**15. Delta Township FY 2021 Budget Discussion**

Finance Director Jeff Anderson presented an additional change to the 2021 Delta Township proposed budget to the Board.

Consensus was to move forward with the FY 2021 budget for adoption.

**XVII. PUBLIC COMMENTS**

Beth Bowen. Asked what the timeframe was for the launch of the new website.

**XVIII. CLOSED SESSION**

**16. Closed Session**

TRUSTEE BREWER MOVED THAT THE DELTA TOWNSHIP BOARD ADJOURN TO CLOSED SESSION AT THE REQUEST OF THE TOWNSHIP MANAGER UNDER THE OPEN MEETINGS ACT (ACT 267 OF 1976), SECTION 15.268 (C) FOR STRATEGY AND NEGOTIATION SESSIONS CONNECTED WITH THE NEGOTIATION OF A COLLECTIVE BARGAINING AGREEMENT WITH THE DELTA TOWNSHIP PROFESSIONAL FIREFIGHTER'S UNION.

TRUSTEE FEDEWA SUPPORTED THE MOTION AT 8:53 PM. THE MOTION PASSED 6-0.

TRUSTEE CASCARILLA MOVED TO END THE BOARD EXECUTIVE CLOSED SESSION AT 9:08 PM.

TREASURER PIZZO SUPPORTED THE MOTION. MOTION PASSED 6-0.

**XIX. ADJOURNMENT –**

Supervisor Fletcher adjourned the meeting at 9:12 PM.

CHARTER TOWNSHIP OF DELTA

KENNETH R. FLETCHER, SUPERVISOR

MARY R. CLARK, TOWNSHIP CLERK

DRAFT

**MEMO**

**TO:** Supervisor Kenneth R. Fletcher and the Delta Township Board

**FROM:** Matt McKernan, Planner

**DATE:** October 12, 2020

**SUBJECT:** Introduction of Rezoning Request for 7725, 7805, 7819, 7831 W Willow Hwy (Case No. 10-20-8)

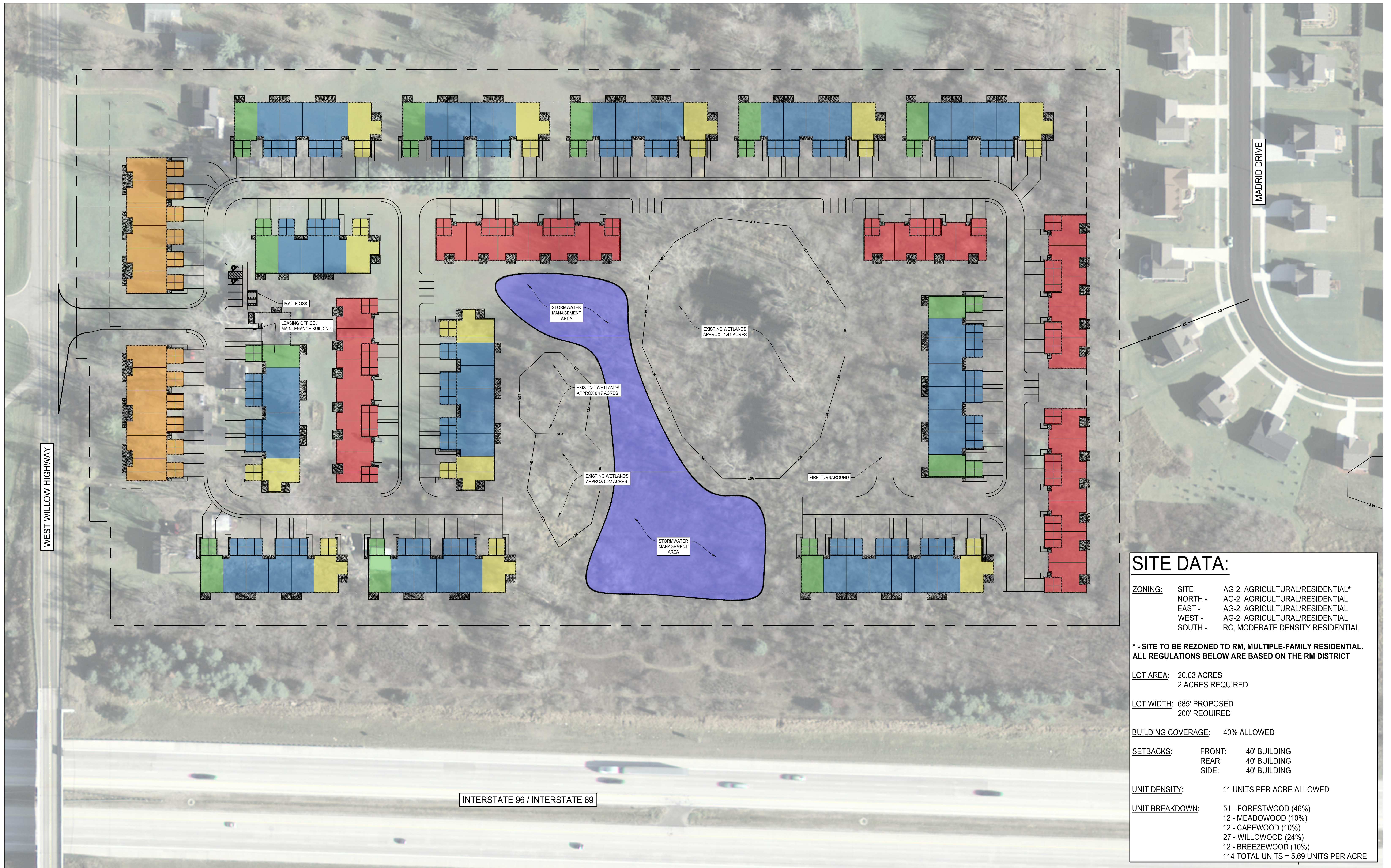
The Township is in receipt of an application submitted by Redwood Living to rezone 4 parcels located at 7725, 7805, 7819, 7831 W Willow Hwy from AG2, Agricultural/Residential, to RM, Multiple Family Residential. The 19.46-acre site is located approximately 180 feet east of I-96 and 620 feet west of Canal Rd on Willow Highway, in Section 9 of Delta Township. The applicant wishes to create a multi-family residential development on the site similar to the existing Redwood development on the west side of I-96. A conceptual plan for the multifamily residential development is attached to this memo.



The rezoning request is being placed on the Township Board's Agenda for the Monday, October 19, 2020 Regular Meeting for referral to the Planning Commission for the purpose of holding a public hearing and making a recommendation to the Township Board. The hearing before the Planning Commission will be scheduled once the State of Michigan has reached a resolution on proposed amendments to the Open Meetings act related to the coronavirus epidemic.

**The following motion is offered for the Board's consideration:**

***"I move that the Delta Township Board refer Redwood Living's request to rezone the 4 parcels described in Case No. 10-20-8 from AG2, Agricultural/Residential, to RM, Multiple Family Residential, to the Planning Commission for the purposes of holding a public hearing on the matter and submitting a recommendation to the Township Board."***



### SITE DATA:

<b>ZONING:</b>	<b>SITE-</b>	AG-2, AGRICULTURAL/RESIDENTIAL*
	<b>NORTH -</b>	AG-2, AGRICULTURAL/RESIDENTIAL
	<b>EAST -</b>	AG-2, AGRICULTURAL/RESIDENTIAL
	<b>WEST -</b>	AG-2, AGRICULTURAL/RESIDENTIAL
	<b>SOUTH -</b>	RC, MODERATE DENSITY RESIDENTIAL

\* - SITE TO BE REZONED TO RM, MULTIPLE-FAMILY RESIDENTIAL.  
ALL REGULATIONS BELOW ARE BASED ON THE RM DISTRICT

**LOT AREA:** 20.03 ACRES  
2 ACRES REQUIRED

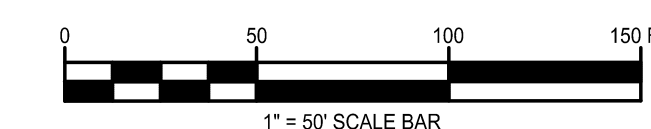
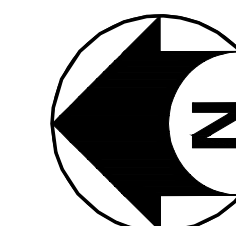
**LOT WIDTH:** 685' PROPOSED  
200' REQUIRED

**BUILDING COVERAGE:** 40% ALLOWED

**SETBACKS:** FRONT: 40' BUILDING  
REAR: 40' BUILDING  
SIDE: 40' BUILDING

**UNIT DENSITY:** 11 UNITS PER ACRE ALLOWED

**UNIT BREAKDOWN:** 51 - FORESTWOOD (46%)  
12 - MEADOWOOD (10%)  
12 - CAPEWOOD (10%)  
27 - WILLOWOOD (24%)  
12 - BREEZEWOOD (10%)  
114 TOTAL UNITS = 5.69 UNITS PER ACRE





October 15, 2020

Please publish as follows:

Delta Waverly Community News – December 6, 2020  
Grand Ledge Independent – December 6, 2020

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**CHARTER TOWNSHIP OF DELTA**  
**7710 W. Saginaw Highway**  
**Lansing, Michigan 48917**  
**(517) 323-8500**

**2021 CALENDAR OF MEETINGS**

**Delta Township Board** regular meetings will be held at 6 p.m. in Public Meeting Room A (unless otherwise indicated) as follows:

January 4 & 19 (Tu.)	July 6 (Tues.) and 19
February 1 and 15	August 2 and 16
March 1 and 15	September 7 (Tues.) and 20
*April 12 & 19	October 4 and 18
May 3 and 17	November 1 & 15
June 7 and 21	December 6 and 20

\*Board meeting will be held in Room C.

**Delta Township Board Committee of the Whole** meetings will be held at 6 p.m. in Public Meeting Room C as follows:

January 11	July 12
February 8	August 9
March 8	September 13
May 10	October 11
June 14	November 8
	December 13

There will be no Committee of the Whole meeting in April.

**Planning Commission** will meet on the second and fourth Mondays of each month at 6 p.m. in Public Meeting Room A:

January 11 and 25	July 12 and 26
February 8 and 22	August 9 and 23
March 8 and 22	September 13 and 27
April 12 and 26	October 11 and 25
May 10 and 24	November 8 and 22
June 14 and 28	*December 13

**[BACK TO AGENDA](#)**

\*No Planning Commission meeting will be scheduled on the fourth Monday in December (December 27)

**Zoning Board of Appeals and Sign Board of Appeals** will meet on the second Tuesday of each month at 6:00 p.m. in Public Meeting Room A as follows:

January 12	July 13
February 9	August 10
March 9	September 14
April 13	October 12
May 11	November 9
June 8	December 14

**Parks, Recreation & Cemeteries Commission** will meet at 6:00 p.m. in Conference Room C on the first Thursday of each month on following dates: .

January 7	July 8
February 4	August 5
March 4	September 2
April 1	October 7
May 6	November 4
June 3	December 2

No meeting scheduled in April. July meeting on 2<sup>nd</sup> Thursday due to fireworks.

**Township Board of Review Organizational Meeting** will meet Tuesday, (March 2<sup>nd</sup>) following the first Monday in March in Meeting Room A.

**Township Board of Review** will meet on following dates in Meeting Room A:

Monday in March 8<sup>th</sup> & Tuesday, March 9, 2021  
Tuesday (July 20<sup>th</sup>) following the 3<sup>rd</sup> Monday in July  
Tuesday (December 14<sup>th</sup>) following the 2<sup>nd</sup> Monday in December

*The above meetings are open to the public. All meetings are held in the Delta Administration Building at 7710 West Saginaw Highway, Lansing, Michigan, unless otherwise posted. Special meetings will be posted, as required by law, at the Delta Administration Building.*

*Barrier-free access to the Delta Administration Building is available at the southwest entrance. Individuals with disabilities attending Township meetings or hearings and requiring auxiliary aids or services should contact Township Manager and ADA Coordinator Brian T. Reed by email at manager@deltami.gov or calling (517)323-8590 to inform him of the date of the meeting or hearing that will be attended.*

*Copies of minutes may be purchased or viewed in the Clerk's Office from 8 a.m. to 5 p.m., Monday through Friday, either in person or by phoning 323-8500 or on the Delta Township website at [www.deltami.gov](http://www.deltami.gov).*

**CHARTER TOWNSHIP OF DELTA  
MARY R. CLARK, TOWNSHIP CLERK**

Supervisor Kenneth R. Fletcher  
Treasurer Howard A. Pizzo  
Clerk Mary R. Clark  
Manager Brian T. Reed



Trustee Fonda J. Brewer  
Trustee Andrea M. Cascarilla  
Trustee Dennis R. Fedewa  
Trustee Karen J. Mojica

Manager's Office

(517) 323-8590

## MEMO

DATE: October 15, 2020  
TO: Township Board  
FROM: Brian T. Reed  
SUBJECT: Proposed 2021 Holiday Schedule

The Employee Manual states: "All full-time regular employees shall receive the following days as paid holidays:"

New Year's Day	Martin Luther King Day	Good Friday
Memorial Day	Independence Day	Independence Day Extended
Labor Day	Thanksgiving	Thanksgiving Extended
Christmas Eve	Christmas Day	

The following schedule reflects the proposed 2021 holiday schedule:

New Year's Day	01/01/21 – Friday
Martin Luther King Day	01/18/21 – Monday
Good Friday	04/02/21 – Friday
Memorial Day	05/31/21 – Monday
Independence Day Extension	07/02/21 – Friday
Independence Day	07/05/21 – Monday
Labor Day	09/06/21 – Monday
Thanksgiving Day	11/25/21 – Thursday
Thanksgiving Day Extended	11/26/21 – Friday
Christmas Eve	12/24/21 – Friday
Christmas Day	12/27/21 – Monday

Therefore, I offer the following for your consideration and approval:

***"I move the Township Board of the Charter Township of Delta approve the 2021 Holiday Schedule."***

Supervisor Kenneth R. Fletcher  
Treasurer Howard A. Pizzo  
Clerk Mary R. Clark  
Manager Brian T. Reed



Trustee Fonda J. Brewer  
Trustee Andrea M. Cascarilla  
Trustee Dennis R. Fedewa  
Trustee Karen J. Mojica

Manager's Office

(517) 323-8590

**Date:** October 16, 2020  
**To:** Supervisor Kenneth R. Fletcher and the Delta Township Board  
**From:** Brian Reed, Township Manager  
**Subject:** 2021 Employee Health Insurance Plan Recommendation

On October 5, 2020 we presented the 2021 budget recommendations to the Township Board, including the estimated 2.64% decrease in our renewal rate for the employees BCBSM health insurance plans for 2021.

Based on these favorable renewal rates, I recommend we renew the current Blue Cross Blue Shield Simply Blue PPO HSA plan for 2021 along with making a deposit into enrolled employees' health savings account in the amount of \$900/\$1,800 as was done for the 2020 plan year.

Based on the information above, the following motion is offered for your consideration:

***“ I move that the Delta Township Board adopt the Blue Cross Blue Shield Simply Blue PPO HSA \$2,000/\$4,000 deductible health insurance plan for all non-Medicare eligible full-time employees and non-Medicare eligible qualifying retirees for the 2021 plan year beginning 1/1/2021; and I further move that the Delta Township Board approve a one-time deposit into an active H.S.A. Bank account for full-time employees and non-Medicare eligible retirees who enroll in the plan effective 1/1/2021 in the amount of \$900 for a one-person contract and \$1,800 for a two person or family contract effective the first full pay period in January, 2021.”***



Engineering Department

(517) 323-8540

**TO: Supervisor Kenneth R. Fletcher and the Delta Township Board**

**FROM: Ernest A. West, P.E., Township Engineer  
Rick Kane, Utilities Director**

**DATE: October 13, 2020**

**SUBJECT: Carrier Creek Interceptor Sewer Repair  
Professional Engineering Services  
Contract Award**

**Background**

As you are aware, since 2017, the Township has invested significant effort and resources into assessing our water and sanitary sewer system infrastructure, in order to proactively plan for the on-going maintenance, repair and replacement of the assets.

In 2018, the Township completed an internal multi-sensor inspection (MSI) of nearly 27,000 feet (5.1 miles) the Carrier Creek Interceptor Sewer. The inspection identified a portion of the sewer lying just north and south of St. Joe Highway with a significant amount of solids deposits. The Engineering and Utility Department then recommended the cleaning and reinspection of 6,400 (1.2 miles) feet of the sewer in this area, which was completed in the summer of 2019. This cleaning and reinspection effort revealed a defect in the sewer in this area that is the cause of the heavy solids deposits.

Staff analysis of the reinspection reports identified a roughly 1,300 foot (0.25 miles) stretch between St. Joe Highway and Gettysburg Drive where several portions of the 30-inch diameter, reinforced concrete pipe and several manholes have settled and are causing flow to back up. In one spot, located almost directly under the Carrier Creek streambed, the pipe appears to have settled at least 30 inches. While Staff do not have reason to believe that a complete failure is imminent, necessitating an emergency repair, this condition does present a significant risk to the wastewater treatment plant (WWTP) and/or the environment. If the pipe were to continue to settle and joints separate, the pipe could either take on water from the stream, effectively diverting water from the stream to the WWTP, or the pipe could become blocked and cause the backup of sanitary sewer upstream of the blockage. Either scenario would have significant impacts to the wastewater system and environment.

In order to identify the root cause of the pipe settlement, Staff authorized eight (8) soil borings in early 2020. The results indicate the presence of organic and/or weak, silty soils lying beneath the pipe that is the cause of the settlement. The attached diagram illustrates, in a side view, the location of the poor soils in relation to the sewer pipe and the areas of settlement.

Staff have since developed a concept to install a new parallel sewer that would be supported by pilings and/or on engineered fill, to replace the deteriorated sewer. This concept is illustrated on the the attached map. This project presents many significant technical challenges including design of pile supports, wetland/floodplain



permitting, open cutting the Carrier Creek and lightweight fill roadway construction. For these reasons, the Engineering Department recommended to the Township Manager obtaining professional engineering services from a consultant to evaluate the concept against any other options, complete the detailed design effort and provide bidding and construction phase services.

### **Request for Proposals**

In September 2020, the Township issued a Request for Proposals (RFP) to five (5) engineering firms to provide engineering services for the project. The invited firms were identified by Staff as being qualified to complete this type of work and were familiar to Staff as being quality firms. A total of four (4) proposals were received on October 5, 2020. The proposals consisted of firm and staff qualifications, example projects, project approach, detailed project schedule and fee information. The fee proposals are tabulated below.

	<b>Moore + Bruggink</b>	<b>Tetra Tech</b>	<b>Spicer</b>	<b>OHM Advisors</b>
Design Phase	\$42,000	\$93,035	\$82,600	\$103,700
Bidding Phase	\$3,000	\$4,779	\$3,600	\$5,000
Construction Phase	\$82,000	\$69,588	\$91,400	\$81,000
Reimbursables	\$8,500	\$2,498	\$0	\$0
<b>Total Cost</b>	<b>\$135,500</b>	<b>\$169,900</b>	<b>\$177,600</b>	<b>\$189,700</b>

### **Evaluation**

The Township's purchasing policy allows for the competitive negotiation for legal and professional services under the control of the Township Manager with involvement of Department Heads. Given the purchasing policy language and the importance of selecting a well-qualified firm for these types of services, the cost of the services typically factors in proposal evaluation only after the proposals are evaluated based on their technical merits.

Staff's evaluation of the technical merits of the proposals identified Tetra Tech and Spicer as the two firms that demonstrated the best understanding of the project and most thoroughly described their technical approach to completing this complex project. Staff found Moore & Bruggink and OHM Advisors proposals to be less technically detailed. Specifically, with Moore & Bruggink, the lowest cost proposal, Staff were not able to determine if the consultant visited the site as part of developing their proposal. Additionally, the proposal did not address scope or costs related to the structural engineering requirement of the RFP and did not discuss how design options for sewer support would be evaluated. For these reasons, Staff are not comfortable with the low fee proposal submitted by Moore & Bruggink.

Staff were impressed by the proposals from both Tetra Tech and Spicer and believe that both consultants have a good handle on the project's technical challenges and good approach to completing the project. Tetra Tech has completed several important water and wastewater infrastructure projects for the Township in recent years and Staff are familiar with and confident in their ability to complete this project. While Spicer does not have any direct experience working for the Township, Staff are aware of their work for the Eaton County Drain Office and their experience working on the Carrier Creek project would be a benefit for this project. Staff believe that both firms would provide good value for the proposed fee.

**Staff Recommendation**

On the basis of their technical proposal, our past project experience with their firm and their second low fee proposal, Staff recommend that a contract for this project be awarded to Tetra Tech.

The following motion is offered for your consideration:

***"I move that the Delta Township Board accept the proposal from Tetra Tech, Inc. for the Carrier Creek Interceptor Sewer Repair project in the amount of \$169,900, and that the Township Manager be authorized and directed to execute the necessary documents related to the aforementioned project."***

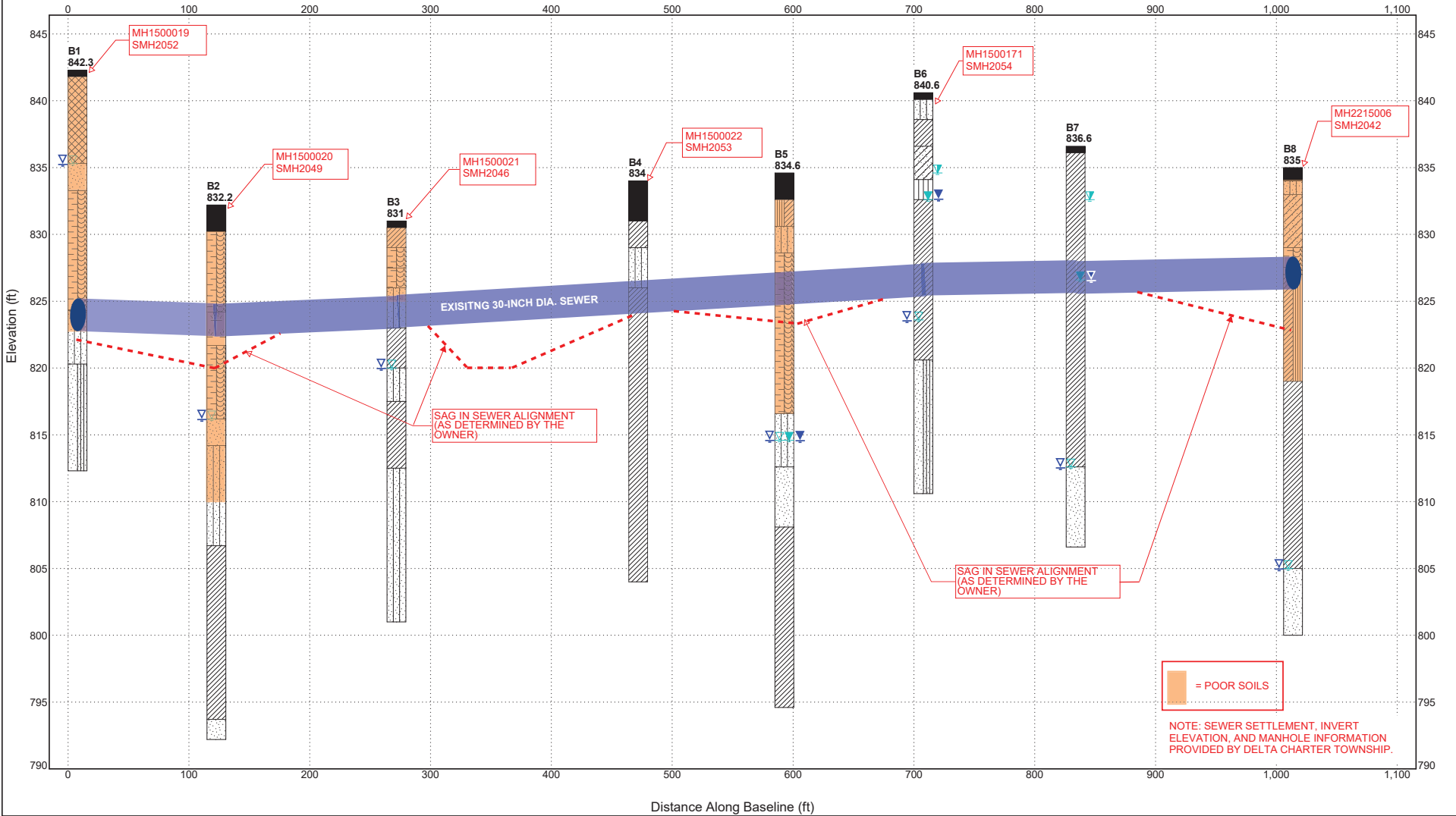
Staff will attend the October 19, 2020 Township Board meeting to answer any questions or address any concerns from the Board. If there are any questions in the interim, please let us know. Thank you.

**SUBSURFACE PROFILE  
Carrier Creek**

CLIENT Delta Charter Township  
PROJECT NUMBER 083418.00

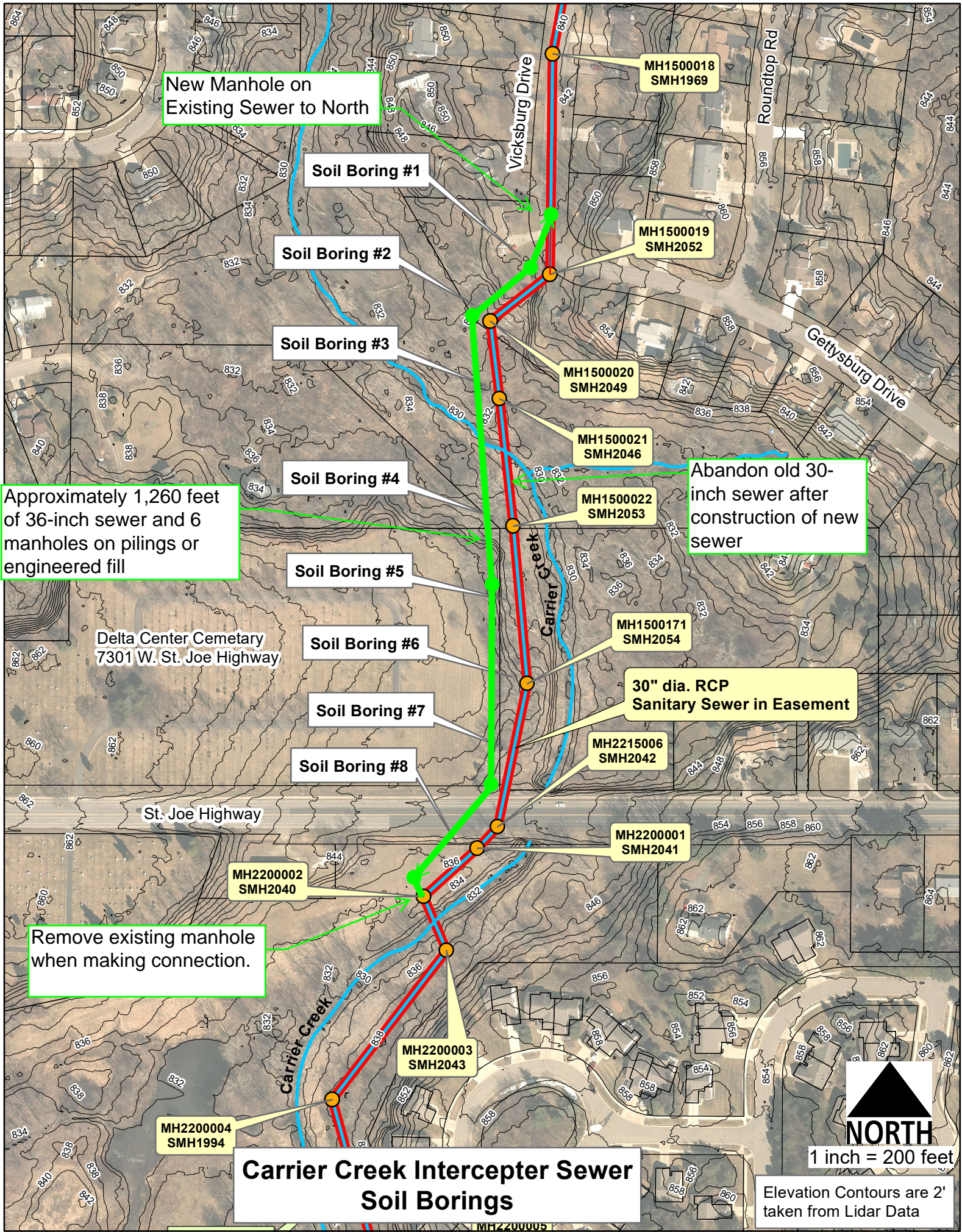
PROJECT NAME Carrier Creek Sanitary Sewer Settlement  
PROJECT LOCATION Delta Charter Township, Michigan

	TOPSOIL		FILL		Poorly-graded SAND
	Low to High Plasticity ORGANIC SILT or ORGANIC CLAY		SILTY SAND		Poorly-graded SAND with Silt
	PEAT or Highly ORGANIC SOILS		LEAN CLAY		CLAYEY SILT
	CLAYEY SAND		SILT		Sandy SILTY CLAY to SILTY CLAY with Sand



083418.00 CARRIER CREEK.GPJ 2/26/20





New Manhole on Existing Sewer to North

Soil Boring #1

Soil Boring #2

Soil Boring #3

Soil Boring #4

Soil Boring #5

Soil Boring #6

Soil Boring #7

Soil Boring #8

MH1500018  
SMH1969

MH1500019  
SMH2052

MH1500020  
SMH2049

MH1500021  
SMH2046

MH1500022  
SMH2053

MH1500171  
SMH2054

30" dia. RCP  
Sanitary Sewer in Easement

MH2215006  
SMH2042

MH2200001  
SMH2041

MH2200002  
SMH2040

MH2200003  
SMH2043

MH2200004  
SMH1994

Approximately 1,260 feet of 36-inch sewer and 6 manholes on pilings or engineered fill

Abandon old 30-inch sewer after construction of new sewer

Remove existing manhole when making connection.

Delta Center Cemetary  
7301 W. St. Joe Highway

St. Joe Highway

**Carrier Creek Interceptor Sewer  
Soil Borings**

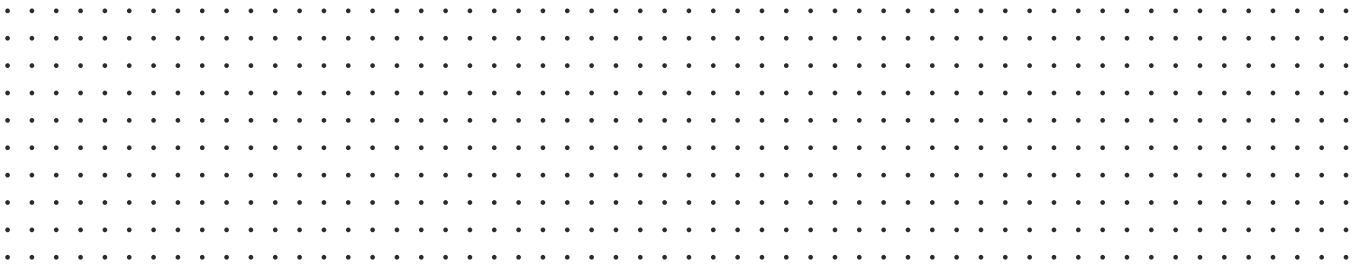


1 inch = 200 feet

Elevation Contours are 2' taken from Lidar Data

PROPOSAL FOR  
**CARRIER CREEK  
INTERCEPTOR  
SEWER REPAIR**

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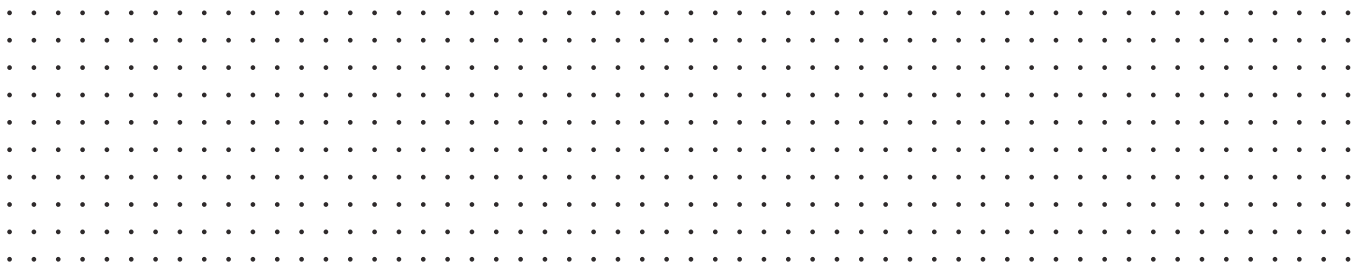


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# Cover Letter





October 5, 2020

Mr. Ernest A. West, PE  
Township Engineer  
Delta Charter Township Engineering Department  
7710 West Saginaw Highway  
Lansing, MI 48917-8974

## **Re: Professional Engineering Services for Carrier Creek Interceptor Sewer Repair**

Dear Mr. West:

Over the last several years, Delta Charter Township (Delta or Township) implemented a monitoring, cleaning, and inspection plan for the Township's sanitary sewer collection system. This proactive operation of your system has identified several issues with the Carrier Creek interceptor which will require repair and or replacement of a portion of the sewer. The Carrier Creek interceptor is a critical asset, conveying a majority of the flow to the wastewater treatment plant, and it must remain in service throughout the work.

The investigation conducted by the Township included soil borings to classify the properties of the underlying soils along the Carrier Creek route. This showed multiple locations of poor soils that most likely contributed to the grade issues plaguing the interceptor. The scope for this proposal includes the review and confirmation of the Township's investigation, the production of a design for the repair or replacement of the interceptor and then the implementation of that design through construction.

The Tetra Tech team is pleased to present our technical proposal and qualifications for this critical utility improvement project. Tetra Tech is convinced the value we will provide Delta will be unmatched by other engineering consultants. Within this proposal you will read about the ways that Tetra Tech is ideally suited to serve the Township on this project. The location, unstable soils and importance for maintaining operation of the Carrier Creek interceptor present a unique challenge that will require a comprehensive solution to a complex problem. This is the type of engineering challenge in which Tetra Tech engineers excel. Our expertise, coupled with our knowledge of your project delivery system, will be the key drivers to help Delta meet this challenge. We have a detailed approach, and a full-service, local, expert team ready to start design engineering work immediately. Our philosophy **emphasizes strong communication with and input from the Township's engineering and O&M staff.**

### **Experience**

Our experience on recent similar large diameter sanitary sewer projects with local municipalities such as the City of East Lansing and City of Lansing provide the experience to successfully complete the project to the Township's expectations. Our trusted, proven sewer infrastructure team is focused on delivering high-quality engineering services, on time, under budget for every project we complete. From our current and previous work with the Township, we have a good understanding of Delta's standards and expectations for a successful project.

**Gary Markstrom, PE**, has more than 30 years of design and project management experience on municipal infrastructure improvements projects. He is the project manager for the WWTP Master Plan project, the WWTP Improvements Design project, and the Creyts Road Booster Station projects. His knowledge of applicable standards and practices will be invaluable in making this a successful project.

### **The Tetra Tech Team**

Project leadership will be the responsibility of our local Lansing area staff through a combination of **Gary Markstrom and Ben Whitehead**, who both have recent project experience with Delta. The project will be performed by our in-house experts in our Lansing, Brighton, and Ann Arbor offices. These professionals include utility designers, wetlands scientists and structural engineers for the complex support system expected to be part of the new sewer. We engaged Geodetic Design to perform the topographic and boundary surveys for the project, and ultimately construction staking. We also retained Commonwealth Heritage Group, Inc. to provide a registered archaeologist to conduct a cultural resources investigation, as an alternate value-added service to reduce risk to the Township.

### **Understanding, Approach, and Benefits to Delta Charter Township**

In preparation for this proposal our staff walked the proposed route to assess the conditions and gain a better understanding of the project challenges. Within, you will find a preliminary sewer alignment drawing that contains our approach to addressing the primary project constraints, such as maintaining sewer service and working within roadways, Carrier Creek, and private property. Our proposed approach is focused on thorough background investigation, with early and frequent stakeholder engagement. Conducting due diligence early and often will limit the Township's exposure to risk.

Our locally-based team has provided excellent service to Delta Charter Township on several recent projects. We are well known in the industry for innovative, effective, and affordable solutions.

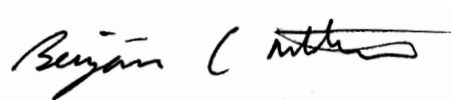
Tetra Tech is committed to providing professional services that exceed Delta Charter Township's expectations. If you have any questions or require additional information for our proposal, please call. We look forward to providing continuing engineering services to Delta Charter Township on this important project.

Sincerely,

TETRA TECH



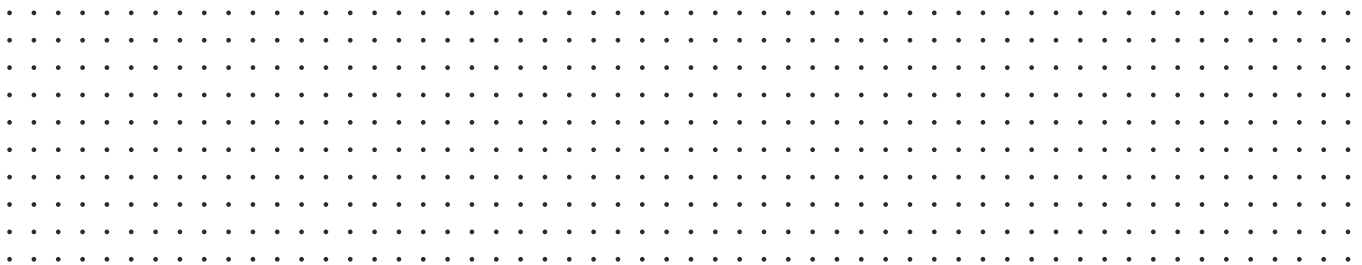
Gary J. Markstrom, PE  
*Vice President*



Ben Whitehead, PE  
*Project Manager*



# Firm Information



# FIRM INFORMATION

Tetra Tech contracts projects in the State of Michigan through Tetra Tech of Michigan, PC, a professional corporation headquartered in Detroit. Tetra Tech’s predecessor company, McNamee, Porter & Seeley, began Michigan operations in Ann Arbor in 1914, and was founded by two professors at the University of Michigan. In 1998, the firm merged its operations with Tetra Tech and became part of a global company to provide both routine and specialized services to our clients. The firm is licensed to operate in the State of Michigan and incorporated in Delaware. Today, Tetra Tech is a leading provider of consulting, engineering, program management, construction management, and technical services.

**Legal Company Name:**

Tetra Tech of Michigan, PC

**Mailing Address:**

401 South Washington Square, Suite 100  
Lansing, MI 48933

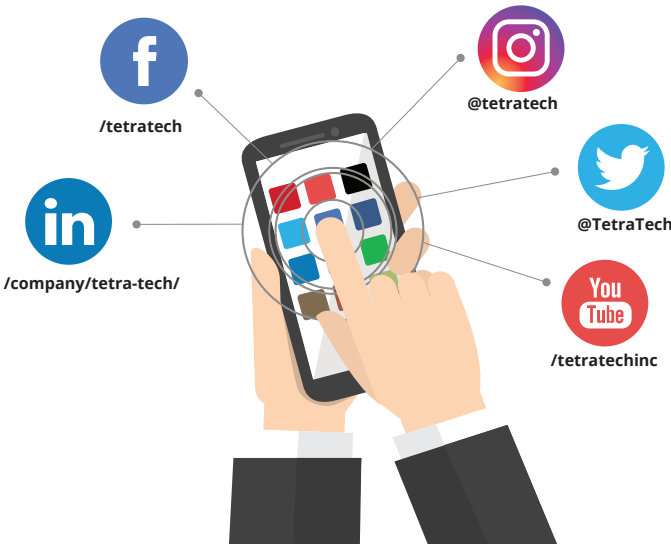
**Phone:**

517.316.3930

**Website:**

tetratetechmichigan.com

Like many companies, we engage with our clients on-line through various social media sites:



Tetra Tech serves clients from 400 offices worldwide, with 20,000 employees strategically located to serve each market. This allows us to provide the best value to local cities by optimizing quality, cost, and efficiency. Our local offices draw upon our national expertise to deliver successful, world-class infrastructure projects.

Tetra Tech consistently ranks among the top engineering firms according to *Engineering News-Record* (ENR). In May 2020, Tetra Tech was rated #1 in Water for the past 17 years running, #1 in Environmental Science, and #1 in Solid Waste.

**TETRA TECH CONSISTENTLY ACHIEVES NATIONALLY HIGH ENR RANKINGS**

 <b>#1 Water</b> <small>(17 years in a row)</small>	 <b>#1 Solid Waste</b>
 <b>#1 Environmental Management</b>	 <b>#1 Environmental Science</b>
 <b>#1 Consulting/ Studies</b>	 <b>#1 Wind Power</b>
 <b>#4 Top 500 Design Firms</b>	 <b>#4 Top 200 Environmental Firms</b>

As a multi-disciplined firm, Tetra Tech can provide all the services required by Delta Charter Township. However, for this contract, we anticipate engaging a local survey firm, Geodetic Designs, to perform surveys/easements. In addition, Commonwealth Heritage Group will be performing archaeological research.





Geodetic Designs Inc.

### Geodetic Designs, Inc.: Survey/Easements

(GDI) is a full-service land surveying consulting firm, providing professional surveying services to public and private sector entities in Michigan, Ohio, Wisconsin, Indiana, and Illinois. Centrally located in lower Michigan, GDI offers several professional services including:

- » MDOT Service Pre-qualified Surveys
- » ALTA/NSPS Surveys
- » HAZWOPER environmental surveys
- » Railroad mapping (ERailsafe and Amtrak contractor certified)
- » Federal Bureau of Indian affairs projects
- » NRCS easements
- » FEMA surveys, commercial and residential surveying projects
- » Topographic Design Surveys
- » Subdivisions/Condominiums
- » Lidar/Point Cloud Processing

#### Legal Company Name:

Geodetic Designs, Inc.

#### Mailing Address:

2300 North Grand River Ave. Lansing, Michigan 48906

**Phone:** 517.908.0008

**Fax:** 517.908.0009

**Website:** [www.geodeticdesigns.com](http://www.geodeticdesigns.com)

#### Contact Persons:

Gilbert M. Barish, PS, CFedS, Principal  
[gil.barish@geodeticdesigns.com](mailto:gil.barish@geodeticdesigns.com)

David J. Vandenberghe, PS, CFedS, Principal  
[djv@geodeticdesigns.com](mailto:djv@geodeticdesigns.com)



### Commonwealth Heritage Group: Archaeological Research

(Commonwealth), founded in 1988, is a full-service heritage management and consulting firm serving clients for projects of all sizes. As an experienced industry leader, Commonwealth specializes in archaeology, architectural history, historic preservation and preservation planning, historic landscape analysis, compliance and litigation support, terrestrial and marine remote sensing, geoarchaeology, geophysics, and historical research.

Our talented and dedicated specialists are experienced in eligibility testing and evaluation for the National Register of Historic Places (NRHP); preparation of determinations of eligibility and NRHP nominations; compliance with Sections 106 and 110 of the National Historic Preservation Act (NHPA); data recovery and project management to mitigate the impact of construction; planning and design for historic landscapes; and many other cultural resources compliance and due diligence projects.

Over the years, Commonwealth has developed an outstanding reputation with clients and regulatory agencies for understanding the intricacies of heritage management planning, regulatory compliance, and project implementation. These relationships and experiences allow us to create innovative and practical solutions for even the most complex of cultural resource projects.

In three decades, Commonwealth has completed over 4,000 projects, providing sound and exemplary service to clients and the industry. It is through examples like these that Commonwealth continues to make an impact and provide clients with the respected and merited work they desire.

#### Legal Company Name:

Commonwealth Heritage Group

#### Mailing Address:

3215 Central Street, Dexter, MI 48130

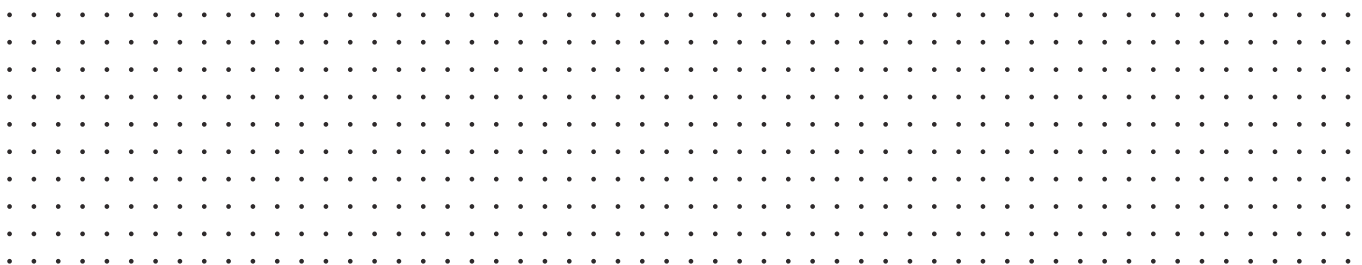
**Phone:** 517.788.3550

**Website:** [www.commonwealthheritagegroup.com](http://www.commonwealthheritagegroup.com)

**Contact Person:** Brandon Gabler, PhD, RPA



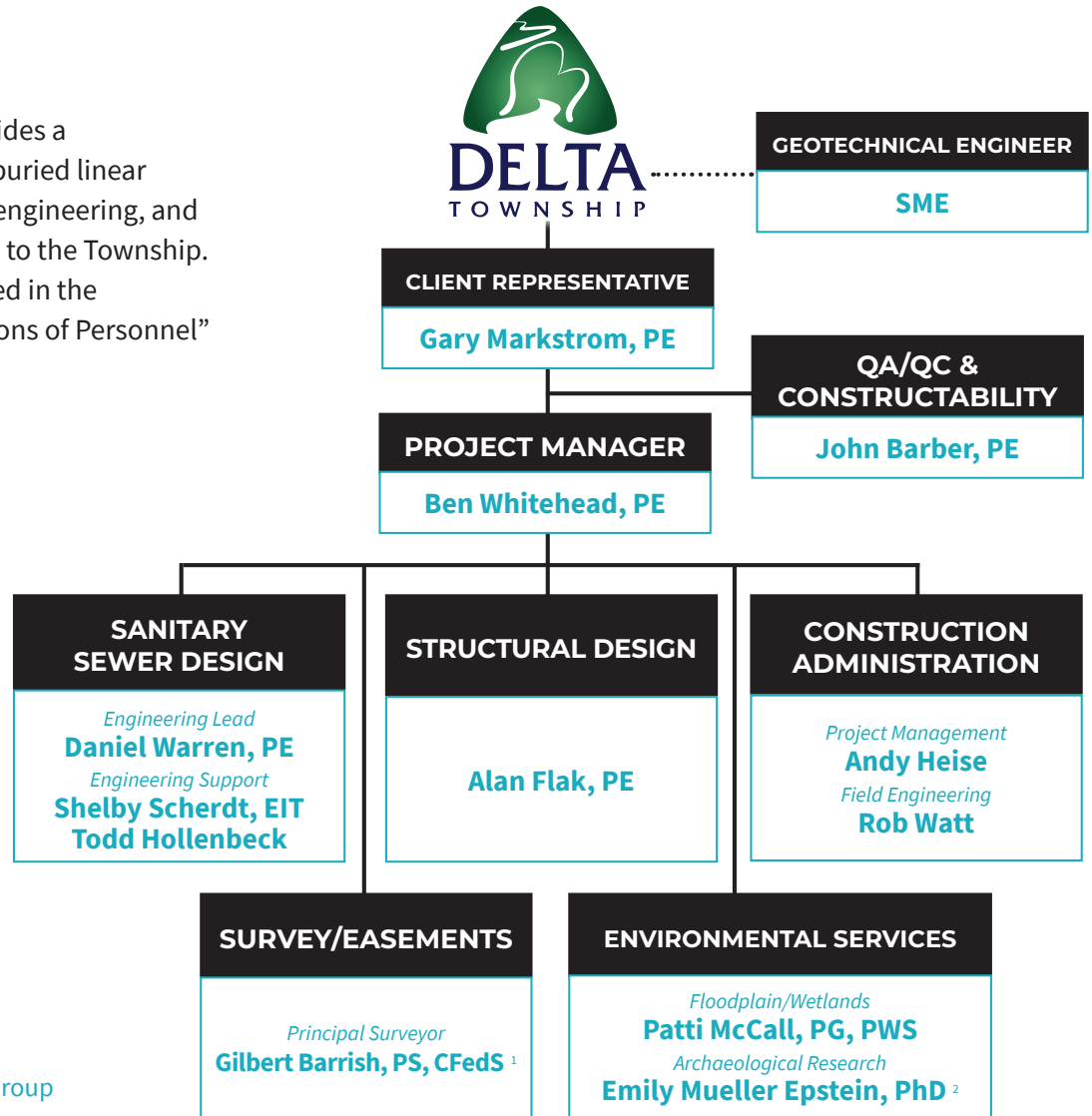
# Organizational Chart of Proposed Team



# ORGANIZATIONAL CHART

## PROJECT TEAM

The Tetra Tech team provides a comprehensive group of buried linear infrastructure, structural engineering, and environmental specialists to the Township. Their resumes are provided in the “Resumes and Qualifications of Personnel” section of our proposal.



<sup>1</sup> Geodetic Designs, Inc.

<sup>2</sup> Commonwealth Heritage Group

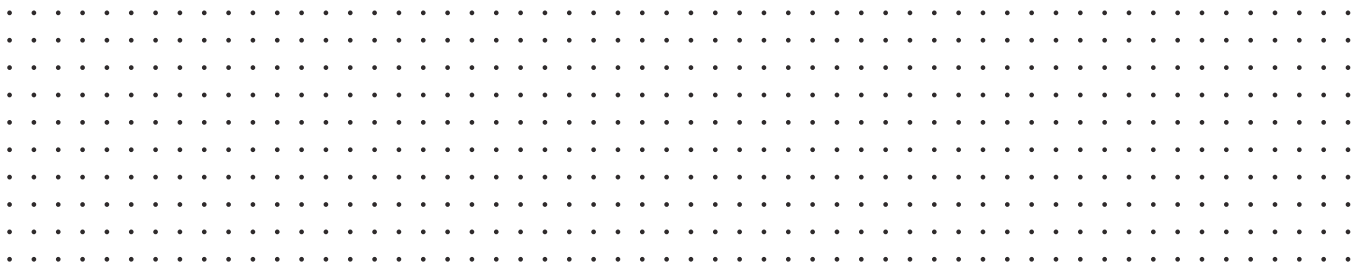
## BRANCH OFFICES

Tetra Tech has five offices in Michigan. For this contract, work will be provided out of our Lansing, Ann Arbor, and Brighton offices.





# Resumes and Qualifications of Personnel





# BEN WHITEHEAD, PE

## PROJECT MANAGER

Mr. Whitehead has over twenty years of experience in management, analysis, planning, design and construction of municipal public works, including water and wastewater treatment plants, pumping stations, transmission, collection and conveyance systems. His experience includes extensive facility analysis, hydraulic analysis, design of site plans, pumping and treatment processes, preparation of construction plans and contract documents, and field resident construction representation. Mr. Whitehead is also responsible for growing the Michigan business through strategic planning, client business development, and proposal development. Mr. Whitehead is active in AWWA at the state level, and previously served as co-chair of the Safe Water in Ecuador committee.

### EDUCATION

BS, Biosystems Engineering,  
Environmental, Michigan State  
University, 1998

### REGISTRATIONS/CERTIFICATIONS

Professional Engineer, Michigan, No.  
6201049536

### AFFILIATIONS

Michigan Water Environment  
Association

American Water Works Association  
Safe Water in Ecuador Committee –  
Past Co-Chair

### OFFICE

Lansing, MI

### YEARS OF EXPERIENCE

22

### RELEVANT EXPERIENCE

#### **Creys Road Booster Station Electrical and Controls / Ground Storage Southern Connection Tank Modifications, Delta Charter Township, Lansing, MI.**

Sr. Civil/Process Mechanical Engineer. The project was delivered in two contracts to facilitate construction of the proposed storage tank control improvements during low water system demand in the fall of 2020. The project consisted of a new fill control valve for the ground storage tank and approximately 200-ft of 16-inch diameter water main to increase flow capacity for filling the tank during operation of a new emergency interconnect with the Lansing Board of Water and Light. Existing booster station stand-by power generator, electrical systems, and control panels were replaced and two existing pump VFDs were relocated to new panels.

#### **South Creys Road Emergency Water Main Connection, Delta Charter Township, Lansing, MI.**

Sr. Civil/Process Mechanical Engineer. The project provides approximately 1,200-ft of new 16-inch diameter water main connecting Township and Lansing Board of Water and Light (BWL) water systems. The project was closely coordinated between the Township and Lansing BWL and included work in and along the Eaton County and MDOT right-of-way. The water main alignment was carefully planned and coordinated with utility service providers to be installed along existing overhead and underground electric, communication, and gas main. Construction and will be completed in October 2021.

#### **Wastewater Treatment Plant SRF Project Plan, Delta Charter Township, Lansing, MI.**

Quality Assurance. Conducted a quality assurance and technical review of the WWTP SRF Project Plan at the 90 percent completion milestone.

#### **Pump Station No. 19 Replacement, Summit County Department of Sanitary Sewer Services, Stow, OH.**

Engineering Manager. Responsible for coordinating multi-discipline engineering services for planning and development of 3,000-ft of 10 to 15-in gravity sewer, 1,000 gpm sewage pump station with interior stand-by power generator, and 2,000-ft of 10-in forcemain. Prepared a flow monitoring plan and analyzed dry and wet weather flow data along with rain gauge data to establish flow capacity of the system.

# WHITEHEAD

## CONTINUED

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**Sourek Pump Station Replacement, City of Akron, Akron OH.** Engineering Manager. Responsible for coordinating multi-discipline engineering services for planning and design for abandonment and replacement of an existing pump station in a residential area. The new 280 gpm pump station is located on the existing site and included wetwell rehabilitation, a new building, and dual-fuel stand-by generator.

**North Water Transmission Main Condition Assessment, City of Grand Rapids, Grand Rapids, MI.** Project Manager. Mr. Whitehead worked with a team of pipeline condition assessment specialists and technology inspection vendors to identify risks, estimate remaining service life, and recommend improvement alternatives for 26-miles of 42-inch reinforced concrete cylinder pipe, built in 1939. Evaluation was supported by visual inspection, soil analysis, transient pressure monitoring, video, and leak detection.

**East Side CSO Program, City of Grand Rapids, Grand Rapids, MI.** Project Manager. Responsible for administrative management of current design and construction phases in the program. Prepares comprehensive monthly activity reports of Black & Veatch and subcontractor services for the client. Responsibilities are with final phases of the NPDES-mandated CSO control program, focused on sewer separation for elimination of remaining overflow points in system.

**Master Specifications and Design Guidance Manual for Water Transmission Pipeline Materials Alternatives, Detroit Water and Sewerage Department, Detroit, MI.** Project Manager. Coordinated the multi-discipline project staff and subconsultant to evaluate, screen, and recommend five feasible water transmission pipeline material systems for use in DWSD's service area. The project includes development of master specifications for selected pipeline material systems, configured to allow competitive bidding of multiple material systems with similar performance criteria. Master specifications include ancillary materials impacting design and cost of the pipeline system, such as trenching, backfilling, and cathodic protection. A design manual was developed to compliment the master specifications by providing guidance to design engineers for selection of design criteria on a project specific basis.

**Collection System Modeling and Project Performance Certification, City of Grand Rapids, Grand Rapids, MI.** Project Manager. Responsible for managing development of a system-wide collection system hydraulic model for 20-year capital planning. The model facilitates project performance certification in accordance with NPDES permit requirements.

**Sewer Condition Assessment, City of Lima, Lima, OH.** Engineering Manager. Compiled inspection results from 40,000-ft of 24-in to 120-in sewer in GIS to define the Business Risk Exposure (BRE) based on consequence of failure and likelihood of failure. Analyzed the BRE results to identify and prioritize seven projects for 10-year capital planning.

**Erie Interceptor Express Sewer, City of Springfield, Springfield, OH.** Engineering Manager. Responsible for coordinating multi-discipline engineering services for planning of a new 10,000 gpm sanitary pump station and 3,500-ft dual forcemain through an urban area, including a railroad crossing and stream crossing. Mr. Whitehead coordinated the Basis of Design Report and was directly responsible for the developing process mechanical, pipeline design criteria, and forcemain alignment to be followed in the final design engineering phase.

**Raw Water Main and Carbon/Transformer Facility, City of Wyoming, Holland, MI.** Engineering Manager. Coordinated multi-discipline design for a 3,200-ft 66-inch diameter PCCP raw water main and a carbon storage and feed facility, which also contains transformers for providing step-down power for existing and future low service pumping stations. The facility is located on city owned property adjacent to an affluent lakeshore community. Design includes aesthetic provisions to facilitate blending with the surrounding community. The facility is comprised of a single building which houses two 23,000 volt transformers, carbon slurry storage tanks, mechanical mixers, peristaltic metering pumps.



# GARY MARKSTROM, PE

## CLIENT REPRESENTATIVE

Mr. Markstrom has extensive engineering experience as a Project Manager, QA/QC Manager, Client Representative, Project Engineer, and Design Engineer. He has performed in these capacities on numerous diverse projects involving wastewater collection systems and wastewater treatment facilities; water supply, storage, and treatment facilities; stormwater management systems; as well as rate studies, commercial building projects, transportation engineering, feasibility plans, and site plan reviews.

### RELEVANT EXPERIENCE

**WWTP Condition Assessment and Master Plan, Delta Charter Township, MI.** Project Manager. Performing a condition assessment of the WWTP and then using those results, prepared a 30-year Master Plan for the facility improvement and expansion. WWTP was originally constructed in the late 1960's early 1970's and has exceeded its expected useful life. Project involved numerous disciplines to accurately assess the structure, process, mechanical and electrical systems. Conducted stake holder meetings with Township staff to obtain input on the condition as well as the development of alternatives for the master plan. Approved plan includes \$70 million in improvements to the plant to meet condition and permit standards.

**WWTP Improvements, Milwaukee Metropolitan Sewerage District, Milwaukee, WI.** Project Manager. Design and construction of improvements at the South Shore and Jones Island plants including: replacement of six acid storage tanks, LCUS electrical feed systems, polymer panels and programming; design and installation of security CCTV system; and roofing and masonry wall repair in several buildings.

**Genoa Oceola SWATH WWTP Expansion, Genoa Township, MI.** Project Manager. Design bidding and construction phase services for the WWTP expansion from 1.6 to 3.4 MGD. Improvements include the addition of a second oxidation ditch, two clarifiers, Return Sludge Pumping facility, flow split structure, and solids dewatering screw press. In addition, a second vector pad disposal station was added along with site improvements for paving and grading. Construction completed in Spring 2020.

**Rehabilitation of the Central/Sycamore Lindbergh Interceptors, City of Lansing, MI.** Project Manager. Investigation and design of rehabilitation methods for CI/SLI system. Interceptor includes 4,000 feet of 48 x 76 concrete pipe, 1,200 feet of 54-inch concrete pipe and 2,000 feet of 60-inch concrete pipe. Investigation included sewer televising using conventional cameras and sonar, individual manhole condition assessments, and condition assessment of siphons and diversion structures. Rehab activities were prioritized and methods for bypass pumping and rehab designed. Rehab methods included CIP liners, manhole replacement, and structural concrete repairs and reconstruction.

### EDUCATION

BS, Civil Engineering, Michigan Technological University, 1985

### REGISTRATIONS/CERTIFICATIONS

Professional Engineer

Michigan, No. 36424, 1990

Wisconsin, No. 39853-006, 2008

California, No. 44066, 1989

Ohio, No. 75795, 2011

Certified Construction Specifier, 1994

### AFFILIATIONS

American Society of Civil Engineers

American Water Works Association

### OFFICE

Lansing, MI

### YEARS OF EXPERIENCE

35

# MARKSTROM

## CONTINUED

### **South Creyts BWL Emergency Water Main Connection and South Creyts Pump Station Electrical and Yard Piping Improvements, Delta Charter Township, MI.**

Project Manager. Design of a water transmission main extension along Creyts Road to provide a secondary emergency connection between the Delta Charter Township distribution system and the BWL supply. A 16-inch diameter main was designed to connect at Lansing Road and Creyts Road and then extend 1,500 feet south to the existing BWL main at the Jolly Road extension. The new supply will allow the Township to decommission its aged backup groundwater wells. The project also included the design of improvements to the Creyts Road Booster Station to control the filling of the tank and then upgrade the electrical and controls systems at the facility. The water main plans were prepared to BWL standards as they will be the ultimate owner of the main. Township design standards were incorporated into the Booster Station upgrades.

### **St Joseph Highway Water Main Design and Non-Motorized Facility Evaluation, Delta Charter Township, MI.**

Project Manager. Project included the preliminary design for replacement of an aged pipe along St Joseph Highway from Waverly Road to Creyts Road (2 miles). In addition, the project included the evaluation of alternatives for a non-motorized pathway from Waverly Road to Market Place Boulevard (3.5 miles). The pathway alternatives included repurposing existing travel lanes to bike path, pathways off the road on each side and then a single dedicated pathway one side of the road. A traffic study was prepared by the Team to determine the feasibility of on road facilities and impacts to the existing traffic patterns. The water main design included routing considerations, cross street tie ins and phasing of the work. The preliminary design of the new water main was coordinated with the proposed pathway routing. Conceptual plans were prepared along with opinions of probable cost for the water main and non-motorized facility. Final design of the water main and pathway is forthcoming.

### **South Latson Water and Sanitary Sewer Improvements, Livingston County, MI.**

Project Manager. Design of municipal water and sanitary sewer service to the South Latson Road area. The South Latson service area in Genoa Township consists of 200 acres of undeveloped land planned for light industrial and commercial use. Project consists of approximately 6,000 LF of 12-inch water main and 1,000 feet of 10-inch sanitary sewer force main extended from the systems to the service area. Utility improvements include three jack-and-bore railroad crossings and three directional drilled crossings of MDOT I-96.

### **Marion Cross Country Transmission Main, Marion Township, MI.**

Project Manager. Conceptual planning and design of a 20-inch water transmission main through directional drill and open cut methods to meet growing needs of the service area. Project includes approximately 8,000 LF of ductile iron and HPDE pipe, two connections to the water main and a river crossing. Easement acquisition, survey, and wetlands delineation and permitting are part of the project scope. Project in final design phase with construction anticipated in the 2020 calendar year.

### **Kochville Reservoirs and Pumping Station Improvements, City of Saginaw, MI.**

Project Manager/Lead Designer. Hydraulic analysis, conceptual design, and preparation of a feasibility study for improvements to the reservoirs and pump station for the City's drinking water system. Pump station stores and conveys raw water to the City's WTP for filtration and distribution to the system. Pump station was constructed in 1980 with two speed pumps capable of pumping 30 to 55 mgd. City objective was to revise the pumping range of the facility to 3 to 55 mgd, facilitating blending stored reservoir water with raw water in the transmission line to increase the quality of the raw water. Piping, pumps, metering, and flow control valves were proposed to facilitate the blending operation and provide remote control of the pumping station. Provided an alternatives study for treating disinfection byproduct TTHM in the raw water at the WTP that included opinions of cost and proposed schedule for the improvements.





# JOHN BARBER, PE

## QA/QC & CONSTRUCTABILITY

Mr. Barber has over 27 years of experience as a Project Engineer and Project Manager. His expertise lies in finding innovative, cost-effective solutions for various types of water and wastewater systems and their components. His responsibilities include execution of engineering projects from conception through design to construction, as well as related studies, reports, bidding documents and development and maintenance of technical specifications. He handles consultant / agency contracts, permit requirements, insurance and liability provisions, quality control and assurance measures, grant and funding applications, and meeting agency expectations.

### EDUCATION

BS, Civil Engineering, University of Michigan Environmental/Water Resources

### REGISTRATIONS/CERTIFICATIONS

Professional Engineer: MI  
Certified Construction Specifier

### AFFILIATIONS

American Society of Civil Engineers  
Water Environment Federation

### OFFICE

Port Huron, MI

### YEARS OF EXPERIENCE

27

### RELEVANT EXPERIENCE

**Elmwood Street Sanitary Pump Station Rehabilitation, City of Port Huron, MI.** Civil Engineer. Rehabilitation of the Elmwood Street Sanitary Pump Station including all pumps, valves, metering and electrical equipment.

**Northern Sanitary Pump Station Rehabilitation, City of Port Huron, MI.** Civil Engineer. Rehabilitation of the Northern Street Sanitary Pump Station including all pumps, valves, metering and electrical equipment.

**Standby Generators for Water Street and Scott/Poplar Pump Stations, City of Port Huron, MI.** Civil Engineer. Prepared plans and specifications for the provision of standby generators at two pump locations.

**Hickory Road Sanitary Pump Station Replacement, Kimball Township, MI.** Civil Engineer. Replacement of the Hickory Road Sanitary Pump Station including all pumps, valves, metering and electrical equipment.

**Richwood Lane Pump Station, City of Richmond, MI.** Civil Engineer. Gravity Sewer Extension from the Marmac Pump Station to the Richwood Lane Pump Station. The project consisted of the abandonment of the Marmac Pump Station and construction of approximately 1700 lineal feet of 12-inch sanitary sewer along the westerly property line of the Richmond High School within a dedicated 25 foot permanent easement granted by the Richmond School District. Work included construction of the sanitary sewer and appurtenances on Richmond High School property, wetland analysis and associated permitting, soil borings, abandonment of the Marmac pump station, easement acquisition documents and site-specific restoration measures.

**Orndorf Drive Sanitary Pump Station Rehabilitation, City of Brighton, MI.** Civil Engineer. Responsible for design documents for the rehabilitation of the Orndorf Drive Sanitary Pump Station including all pumps, valves, and electrical equipment.

**North Mary Street Sanitary Sewer Replacement, Marine City, MI.** Civil Engineer. Prepared plans and specifications for replacement of a 12-inch sanitary sewer including manholes and road repair.

# BARBER

## CONTINUED

**Site Design Documents, Mayberry Homes, Hartland Township, MI.** Project Manager. Site design documents including grading, water main, sanitary sewer, and road and lot layout for a 103-acre site condominium/commercial development.

**Karegnondi Water Main Project, Genesee County, MI.** Project Engineer. Design and construction of 15-miles of 36-inch watermain.

**Karegnondi Water Main, St. Clair County and Lapeer County, MI.** Resident Engineer. Provided construction engineering for 15 miles of 66-inch water main and 30 miles of 60-inch water main including wetland restoration, road improvements and culvert crossings.

**Walker Street Water Main, Village of Capac, MI.** Project Engineer. Designed water main system to be installed in the Village to provide improved hydraulics.

**Water Treatment Plant, New Baltimore, MI.** Resident Project Representative. Responsible for coordinating construction operations for improvements to a two million gallon per day water treatment plant.

**Water Treatment Plant. Mt. Clemens, MI.** Resident Project Representative. Responsible for coordinating construction operations for improvements to the water treatment plant including sludge drying beds and miscellaneous piping modifications.

**Industrial WWTP Storage Tank Valves, Mixer, and Level Instruments Upgrades, Major Automotive Manufacturer, Lake Orion, MI.** Engineering, design, and operational staff support for the repair and upgrade for three storage tanks. Developed drawings and bid document for the contractors to bid the project. Project included design of new Rosemount radar detection for the storage and treatment tanks, replacement of the old valves with Bray 12-inch motorized butterfly valves, and design for a new gearbox, motor, shaft, and mixing impeller for Tank No. 2.

**Wastewater Treatment Plant Sludge Pump, Marine City, MI.** Civil Engineer. Prepared plans for replacement of an existing return sludge screw pump with a new submersible sludge pump, piping and electrical equipment.

**Macomb Sterling Relief Drain SAW Grant, Macomb County, MI.** Civil Engineer. Tetra Tech completed inventories, conditions assessment, and an Asset Management Report (AMR) for the Macomb County Sterling Relief Drain.

**New Baltimore Wastewater Treatment Plant, New Baltimore, MI.** Resident Project Representative. Responsible for coordinating construction operations for construction of a secondary clarifier and associated piping and site work.

**Walled Lake/Novi Wastewater Treatment Plant Improvements, Walled Lake, MI.** Resident Project Representative. Responsible for coordinating construction operations with project documents for a two million gallon per day plant expansion. Liaison between client, Contractor and MPS, Inc. Prepared Operation and Maintenance Manual for the improvements.

**Sludge Storage Tanks, City of Port Huron, MI.** Civil Engineer. Prepared plans and specs for the removal of existing valves and piping and provision of new piping and valves and pipe supports for complete installation in the Sludge Storage Tanks 5 and 7 at the City of Port Huron WWTP.

**WWTP Odor Control, Traverse City, MI.** Civil. Surveyed and developed alternatives for controlling odors from open tanks at the wastewater treatment plant. Prepared preliminary cost analyses and coordinated development of design drawings and specifications.

**WWTP Sludge Handling Facility, Monroe, MI.** Civil Engineer. Provided facilities for transfer and storage of liquid and solid sludge. Prepared process drawings and specifications, data collection and development of alternatives. Maintained correspondence between City and suppliers. Maintained project file and coordinated shop drawing submittals.



# DANIEL WARREN, PE

## SANITARY SEWER DESIGN

Mr. Warren's experience is primarily focused on municipal projects. He is involved in the preparation of innovative construction plans, specifications, and cost estimates for state, municipal, and county projects.

Mr. Warren was an effective team member in numerous complex public improvement projects including water distribution, wastewater collection, pump station rehabilitation, and a large-scale utility relocation efforts related to major transportation projects.

### EDUCATION

BS, Civil Engineering, University of Michigan, 2002

### REGISTRATIONS/CERTIFICATIONS

Professional Engineer

Michigan, 6201069357, 2020  
Virginia, No. 0402047321, 2010

NASSCO Pipeline Assessment  
Certification Program (PACP)  
Certification

NASSCO Manhole Assessment  
Certification Program (MACP and LACP)  
Certification

### OFFICE

Ann Arbor, MI

### YEARS OF EXPERIENCE

16

### RELEVANT EXPERIENCE

**Sanitary Sewer No. 500, Phase II Interceptor Rehabilitation, Lucas County, OH.** Project Engineer. Revised and updated technical specifications and drawings for the continued rehabilitation of 90-inch sewer main by spray on geopolymer lining. Phase I started at the Lucas County treatment facility and included bid provisions for multiple rehabilitation technologies. Phase II was limited to match the awarded technology from Phase I and extended another approximately 1,500 feet sewer main and included multiple manholes. Original documents had to be revised due to the proximity of conflicting utilities noted during a field visit prior to bidding.

**Michigan and Harrison Road Sanitary Sewer Improvements, City of East Lansing, MI.** Project Engineer. Developed technical specifications, reviewed pre-construction CCTV videos documenting current conditions, and provided recommendations for rehabilitation. Provided shop drawing reviews and construction engineering support for critical sanitary sewer infrastructure upgrades that included the construction of a new inverted siphon river crossing, new conveyance piping ranging in diameter from 8 to 54 inches, two new combined sewer regulator structures, as well as the modification of several control structures, new storm sewers, and rehabilitation of 24-inch sanitary sewers within the limits of Michigan State University campus. Coordinated with utility companies to remove conflicting infrastructure.

**Dorr Street Interchange, Lucas County, OH.** Utility Designer. Water main relocation work in conjunction with new interchange with US-23 that included construction of new ramps and right-of-way (ROW) relocations. Identified replacement limits, construction phasing/sequencing, and new design of over 5,500 feet of new water mains in conjunction with the complete redesign of the storm sewer to fit within the proposed ROW while maintaining service during roadway improvement construction. Researched record drawings of facilities along the project corridor to design multiple cross-street connections.

**Combined Sewer Modeling Master Plan, City of East Lansing, MI.** Project Engineer. Performed Alternative Justifiable Expenditures analysis and cost opinions for combined sewer master plan capital improvement

# WARREN

## CONTINUED

recommendations. Reviewed preliminary plans to determine State Revolving Funds eligibility. Work included reviewing proposed construction of sewers ranging in diameter from 12 to 72 inches, with projects featuring sewer separation, green infrastructure, and on-site detention.

**West Warren Green Stormwater Infrastructure and Sewer Separation, Detroit Water and Sewerage Department, Detroit, MI.** Project Engineer. Sewer separation of 218-acres of urban neighborhood to meet wet weather reduction goals. Completed 60 percent plans to date, including sewer route, sizing analyst, and cost estimation. The Parkland neighborhood is currently served by a combined sewer system which discharges to the Rouge River. Design included “opportunistic separation” by removing storm flows from the street network, but not any underdrain connections or yard drains, due to the system layout. Reviewed CCTV footage for portions of the storm drain system that connects into the combined system to determine suitability for reuse as a cost saving measure. Made recommendations to add manholes to the system for future maintenance access.

**Sidewalk Improvements, Grand River Avenue Phase VII, Genoa Township, MI.** Project Engineer. Updated years-old design documents to reflect current conditions and completed updated cost estimate. Design included replacing 1000+ SF of timber retaining wall with a Redi-Rock concrete block wall system.

**Stormwater Mitigation, Green Infrastructure and Climate Change, City of Grand Rapids, MI.** Project Engineer. Over saw inventory and data collection of the City’s storm water culverts. Coordinated CCTV inspections for additional asset data collection of the lowest scoring culverts. Coordinated and input newly acquired PACP inspection data to update the City’s GIS system.

**Lackey Pump Station, York County, VA.** Project Engineer. Authored Preliminary Engineering Report outlining options and recommendations to upgrade or replace a local sewage pumping station. Improvements were required to meet anticipated flow increases and to address condition defects within the station.

**Huxley Place to Middle Ground Boulevard Force Main Extension, City of Newport News, VA.** Project Engineer. Design and construction administration for replacement an extension of a 36-inch force main along

Huxley Place. Project included rerouting of a major HRSD main to eliminate unvented high points and allowed for the abandonment of approximately 5,000 LF of aged infrastructure. Project also included the replacement/rehabilitation of approximately 1,500 LF of 10-inch sanitary sewer main.

**Virginia Beach Transit Extension, City of Virginia Beach, VA.** Project Engineer. Coordinated utility relocations of the proposed 3.5-mile extension of the regional light rail system. Plans were developed to 30 percent for a future design-build contractor. Project included proposed relocations to electrical and gas transmission and distribution facilities, large diameter water and sewage force mains, as well as multiple communication installations.

**Rexford Drive Force Main Replacement, City of Newport News, VA.** Project Engineer. Design of 3,200 LF of replacement 8-inch force main in the Stoneybrook neighborhood. Force main was in overgrown easements behind residences and inaccessible. Replacement alignment was installed entirely within the City’s right-of-ways and included a design option to install 2,400 LF by horizontal directional drill.

**Water Treatment Plant Lime Residual Removal, City of Ann Arbor, MI.** Project Engineer. Developed specifications and design documents for dredging the lime storage lagoon. Design included utilizing piping to pump lime sludge back to the plant parking lot where temporary presses would dewater the material and to be hauled offsite.

**Moores Bridges Water Treatment Plant, City of Norfolk, VA.** Project Engineer. Administration and inspection for improvement projects at the City’s 108-MGD water treatment facility. Projects included repair and replacement to the plant’s 300-hp low lift pumps to solve cavitation issues, installation of new filter caps in the sand filters, replacement of the peristaltic sludge pumps with centrifugal pump, installation of FRP flocculators, new basin coatings, and piping modifications inside the above ground storage tanks to alleviate siphoning.



# SHELBY SCHERDT, EIT

## SANITARY SEWER DESIGN

Ms. Scherdt is a civil and environmental project engineer with experience in municipal and civil engineering project design, engineering report formulation, quantity and cost estimation, field inspection, municipal asset management programs, AutoCAD drawing, Microsoft Office and GIS software. Through passing her FE, she is now an EIT pursuing PE licensure.

As a project engineer, Ms. Scherdt has experience with the following: water distribution and sewer collection system project design; construction and site plan reviews; permit application generation, CAD drawing generation; field inspection of water and sanitary distribution installation; hydraulics; generating engineering reports; and generating construction specifications.

### EDUCATION

BS, Environmental Engineering,  
Michigan Technological University,  
2018

### REGISTRATIONS/CERTIFICATIONS

EIT, PACP, MACP, LACP

### OFFICE

Lansing, MI

### YEARS OF EXPERIENCE

3

### RELEVANT EXPERIENCE

**St. Joseph Hospital Utility Study, Genoa Township, MI.** Project Engineer. Prepared utility study to determine if existing water and sanitary sewer systems could accommodate the significant demand of a new hospital development. Used existing hydraulic model to analyze the water distribution system and recommend connection locations. Estimated future system flows and prepared system curves for downstream sanitary pump stations to evaluate capacity and recommend improvements needed to collect increased flow. Final report recommended three options to provide level of service to the proposed hospital.

**South Latson Water and Sanitary Sewer Improvements, Livingston County, MI.** Project Engineer. Design of 12-inch municipal water and 12-inch sanitary sewer service to the South Latson Road area. Improvements include three railroad crossings and directional drilling under I-96. Assist in designing plan and profile of proposed water main and sanitary sewer, generating project cost opinion, preparing specifications, generating easement documents and applying for pertinent permits.

**Asset Management Plan Annual Report, Genoa, Oceola Sewer and Water Authority, Livingston County, MI.** Project Engineer. Prepared annual report detailing status of Asset Management Plan implementation for submittal to the Michigan EGLE. Calculated and summarized values for consequence of failure, probability of failure, and asset criticality for each manhole, sanitary valve, air release, gravity main, and force main assets.

**Central Interceptor / Sycamore Lindbergh Interceptor Sewer Rehabilitation Phase II, City of Lansing, MI.** Project Engineer. Design and specification for the rehabilitation of approximately 7,000 feet of 48-inch by 72-inch, 54- and 60-inch sanitary interceptor including manholes and chambers. Utilized streamlined system to review sewer televising and provide sewer rehabilitation recommendations. Project includes multiple trenchless renewal technologies and incorporates significant bypass pumping plans and other accommodations along the sewer route.

# SCHERDT

## CONTINUED

**Michigan Avenue/Harrison Road Sewer Improvements and Rehabilitation, City of East Lansing, MI.** Project Engineer. Rehabilitation, replacement and new construction design for sanitary and storm sewer in the Michigan Avenue-Harrison Road Areas. Aided in sanitary sewer asset management data reorganization services, data verification, design assistance and cost estimation.

**Emergency Water Main Connection to the Lansing Board of Water and Light (LBWL), Delta Charter Township, MI.** Project Engineer. Design of emergency connection between Delta Charter Township and the LBWL. Assisted in maintenance of traffic plan and soil erosion and sedimentation control plan and permitting

**Water Reliability Study Update, East Lansing-Meridian Water and Sewer Authority, MI.** Project Engineer. Prepared a water reliability study report to meet Michigan EGLE reporting requirements. Infrastructure condition, demand projections and general plan mapping updated and included in report. Modeling was performed by utility with Tetra Tech to coordinate with the utility to interpret model results and summarize in report.

**Urban Development Authority Feasibility Analysis, City of Saline, MI.** Project Engineer. Development of a conceptual plan for water distribution and sanitary sewer collection for the City to provide services to up to 2,000 acres in neighboring Saline and Lodi Townships. Proposed plan included additional water main and new pressure district with a booster station and storage to provide service to an area of higher elevation. Updated City's hydraulic model (in InfoWater) to include projected future demands and infrastructure so that model could be used to size booster station and tower. Summarized recommendations in report and generated maps in GIS to show proposed improvements.

**St. Joseph Highway Water Main, Delta Charter Township, MI.** Project Engineer. Design of 12-inch water main to replace existing water main on St. Joseph Highway from Creyts Road to Waverly Road to meet the growing needs of the Township's service area and provide increased reliability. Project includes approximately 11,000 feet of water main and connections to the existing water main and services. Assisted in designing plan and profile of proposed water

main and preparing specifications. Prepared project basis of design report and cost estimate.

**Storage Building, Marion, Howell, Oceola, and Genoa Water Treatment Plant, MI.** Project Engineer / Resident Project Representative. Civil engineering for a 40-foot by 60-foot service building at the water treatment plant. Services include the site grading, water and sanitary sewer systems, and road improvements. Assisted in site grading and detention design, as well as AutoCAD drawing generation.

**Marion Cross Country Transmission Main, Marion Township, MI.** Project Engineer. Design of 20-inch water main through directional drill and open cut methods to meet growing needs of the Authority service area and feed their elevated storage tank. Project includes two connections to existing water main and a river crossing. Assist in preparing project basis of design report, designing plan and profile of proposed water main, preparing specifications, and performing quantity take off for unit price bid form. Assist in preparing monthly status communications and coordinating meetings with owner.

**South Latson Water and Sanitary Sewer Improvements, Livingston County, MI.** Project Engineer. Design of 12-inch municipal water and 12-inch sanitary sewer service to the South Latson Road area. Improvements include three railroad crossings and directional drilling under I-96. Assist in designing plan and profile of proposed water main and sanitary sewer, preparing specifications, and applying for pertinent permits.

**Authority Engineering Services, Marion, Howell, Oceola, Genoa (MHOG) Water Authority and Genoa Oceola Sewer Authority, Livingston County, MI.** Consulting Engineer. Perform construction plan reviews, construction inspection of infrastructure, development of GIS maps, perform review of new developments in GIS system, and general consulting. Assists authority in yearly maintenance programs and in implementing necessary updates to authority design standards and connection manual.



# TODD HOLLENBECK

## SANITARY SEWER DESIGN

Mr. Hollenbeck brings 27 years of experience into the municipal, commercial, and residential design fields, including conceptual and final design for underground utility work, water and wastewater facilities, commercial, industrial, and single- and multi-family developments.

### RELEVANT EXPERIENCE

#### **CSO, Phase IV Segment 3, Area 023 Separation, City of Lansing, MI.**

Designer. Provided road design as part of the required separation of sanitary and storm sewers within the City.

#### **Marion Howell Oceola Genoa Sewer and Water Authority, Livingston County, MI.**

Lead Designer. Site and utility plans, profiles, and details including water storage tank, road, and pond design per MHOG standards and specifications.

#### **Combined Sewer Overflow, Phase V Segment 2, 032 Trunk Sewer and Downtown (Washington Avenue) Separation, City of Lansing, MI.**

Lead Designer. Utility plan, profile, and details, including road design required for separation of sanitary and storm sewers within the City.

#### **Combined Sewer Overflow, Phase V Segment 1, 015N and Downtown (Ottawa Street/Grand Avenue) Separation, City of Lansing, MI.**

Lead Designer. Utility plan, profile, and details including road design required for separation of sanitary and storm sewers within the City.

#### **Combined Sewer Overflow, Phase IV Segment 5, 018SW, 034A and Downtown (Grand Avenue/Walnut Street) Separation, City of Lansing, MI.**

Designer. Utility plan, profile, and details including road design required for separation of sanitary and storm sewers within the City.

#### **Combined Sewer Overflow, Phase IV Segment 4, 018SE and Downtown Separation, City of Lansing, MI.**

Designer. Utility plan, profile, and details including road design required for separation of sanitary and storm sewers within the City.

#### **Lake Huron Water Treatment Plant, Great Lakes Water Authority, Fort Gratiot Township, MI.**

Senior Designer. Electrical, instrumentation and control plans.

#### **WWRF Headworks-Interceptor Improvements, City of East Lansing, MI.**

Senior Designer. Headworks-interceptor, solids handling with digestion design improvements.

#### **Water Resource Recovery Facility, City of Grand Rapids, MI.**

Senior Designer. Biodigestion with combined heat and power.

#### **Sidewalk Extension, Michigan Department of Transportation, Genoa Township, MI.**

Lead Designer. Site and grading plans, profile and details for the reconstruction of one mile of sidewalk MDOT standards and specifications.

### EDUCATION

Washtenaw Community College, 1992

### OFFICE

Lansing, MI

### YEARS OF EXPERIENCE

27



# ALAN FLAK, PE

## STRUCTURAL DESIGN

Mr. Flak has extensive experience with structural design and inspection, utility, and roadway designs. Specifically, he has completed structural designs of pre-engineered building foundations, steel sheet pile, masonry buildings, concrete foundations, and underground sanitary structures. Structural designs includes design and rehabilitation of deep and shallow foundations, piles and pile cap and hammer-head piers, structural steel beams, prestressed concrete beams, cast-in-place slabs, reinforced concrete decks and barriers.

### RELEVANT EXPERIENCE

**East Lansing Regulators, City of East Lansing, MI.** Project Engineer. Structural design and specifications for two regulator structure replacements and one new regulator structure as part of a sewer replacement and rehabilitation project. The sites were constrained by right of way limits and keeping the top of structures to an elevation that works with the existing grade. Form the hydraulic analysis, the structures for these structures were larger and taller than the existing structures.

**Michigan Ave and Harrison Road Sewer Rehabilitation, City of East Lansing, MI.** Project Engineer. Structural design and specifications for four new junction chambers as part of more than a mile of sewer replacement and rehabilitation.

**Cypress Street, City of Tampa Bay, FL.** Structural Engineer. Project includes multiple sizes of precast box culverts as storm sewer. Structural design included two cast in place junction boxes and a transition piece between the new box culvert runs and the existing box culverts of a different size.

**Boulder WRRF Bioenergy, City of Boulder, CO.** Structural Engineer. Project included four exterior pads for new equipment at the plant. A cast in place concrete retaining wall was included in the design to allow for a flat location to place the new equipment pads. The challenge of the project was working around existing underground utilities that had to be kept in service during construction. A few changes to the design had to be made during construction due to the known location and depth of the utilities prior to construction. Project included calculations to design the anchor bolts for the equipment.

**Port Huron Switchgear Expansion, City of Port Huron, MI.** Structural Engineer. Project was to design a building addition to house a new switchgear for the plant. The addition consisted of a masonry block building with precast concrete hollowcore rook planks founded on helical piles. The switchgear support was design with an open concrete vault underneath that was independent of the building addition, but also founded on helical piles.

### EDUCATION

BS, Civil Engineering, Michigan State University, 2000

### REGISTRATIONS/CERTIFICATIONS

Professional Engineer  
Michigan, No. 6201052179, 2005  
Ohio, No. 70480, 2005  
Alabama, No. 29291, 2008  
Florida, No. 74203, 2012  
North Carolina, No. 038852, 2012  
Missouri, No. 2013012620, 2013  
Colorado, No. 0057371, 2020

### OFFICE

Brighton, MI

### YEARS OF EXPERIENCE

21



# FLAK

## CONTINUED

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**Grand Rapids Phosphorus Building, City of Grand Rapids, MI.** Structural Engineer. Project consisted of a masonry building with precast concrete hollowcore roof planks founded on spread footings. There were also two exterior pads to support large process tanks along with miscellaneous pipe supports. Due to the poor soil conditions in the area, the ground under the building and exterior pads was improved using rammed aggregate piers.

**Milk River Pump Station Rehabilitation, Detroit Water and Sewage Department, MI.** Project Engineer. Structural design and specifications for the rehabilitation the pump station and basins. Work includes concrete repair, railing replacements, adding a loading dock for pump removal, an addition to the recirculation pump building, and other miscellaneous improvements.

**WWTP Condition Assessment, City of Saline, MI.** Project Engineer. Structural evaluation to create a condition assessment report for multiple plant structures. Structures included a masonry building built around concrete tanks and a concrete tank with prestressed concrete plank roofing.

**Pump Station Rehabilitation, Ohio Department of Transportation-District 2, Lucas and Wood Counties, OH.** Project Engineer. Structural design and specifications for the rehabilitation of three pump stations. Work included replacing flooring, adding floor supports, and concrete repair.

**WWTP Expansion, Big Cove WWTP, City of Huntsville, AL.** Project Engineer. Structural design and specifications for increasing plant capacity from 2 to 6 mgd. Work included anaerobic basin, oxidation ditch, clarifier, sludge pump station, electrical building, and modifications to various structures. Structures were concrete and had to be inspected prior to construction to determine proper repair methods. Repairs included crack injection and concrete patching.

**WWTP Improvements, City of Wyandotte, MI.** Project Engineer. Structural design and specifications for modifications for different treatment process structures. Construction assistance was also provided.

**Potable Water Ground Storage, City of Daytona Beach, FL.** Structural Engineer. Project consisted of a masonry building on spread footings with a cold formed steel roof truss. Inside the building is a steel framed monorail hoist system and a pump trench. The design also included two exterior pads for the flow meter stations and a precast concrete above ground storage tank.

**Water Treatment Plant Dehumidification System, Jackson, MI.** Structural Engineer. Performed a feasibility study addressing humidity control in the pipe gallery of the City's WTP, where piping was corroding in multiple locations with corrosion substantial enough to cause at least one pipe leak. Structural portion of the project included new foundation pad for the new exterior mechanical equipment, new wall penetrations for the ducts to come into the plant, and miscellaneous concrete repairs in the area.

**M-60 Dearing to Renfrew, Michigan Department of Transportation, Spring Arbor Township.** Bridge Engineer. 2.8 miles of cold milling and overlay of HMA roadway including culvert replacement. The culvert over the Standstone Creek was replaced with a 70 foot long, 10 foot x 6 foot precast concrete box culvert. Design included cast in place concrete wingwalls, headwalls and apron. The culvert is to be constructed under a roadway detour utilizing bypass pumping to maintain stream flow.

**US-131 at M-179 Interchange, Michigan Department of Transportation, Allegan County MI.** Bridge Engineer. Reconstruction of the US-131 and M-179/129th street interchange into a single point urban interchange. Work includes roadway replacement, bridge replacement and culvert replacement. The culvert replacement was over Pierce Drain and consisted of a 294 foot, 10 foot by 8 foot precast concrete box culvert. Design included cast in place concrete wingwalls, headwalls and apron. The culvert is to be constructed in three phases utilizing a temporary channel to maintain the flow of the drain.



# ANDY HEISE

## CONSTRUCTION ADMINISTRATION

Mr. Heise is a resident project representative with experience in the construction process from the blueprints to the actual construction. He has experience working with the Michigan Department of Transportation and local agencies in a variety of areas. His work includes providing quality assurance/observation of sewer and water utilities installation and testing, writing reports, and reporting construction pay items for payment.

### RELEVANT EXPERIENCE

#### **Michigan Avenue and Harrison Road Sewer Improvements and Rehabilitation, City of East Lansing, MI.** Resident Project Representative.

This SRF project included technical challenges such as a new inverted siphon crossing, connections to the retention basin and other large diameter sewers and control structures, and trenchless construction. Ancillary challenges included working with private property owners, coordinating/scheduling with Michigan State University, completing work in MDOT's right-of-way, and compliance with strict Michigan Department of Environment, Great Lakes, and Energy regulations regarding to the river crossing and prolonged groundwater dewatering operations. Construction of a new inverted siphon crossing in lieu of expansion of an existing crossing allowed the system to remain in-service during construction and avoided costly bypass pumping for a large portion of the project. New 36- and 18-inch barrel siphon piping across the river was installed using directional drilling techniques. New 60-inch diameter combined sewers were constructed to interconnect with the CSO tunnel drop shafts and sewer network. Installed new, cast-in-place control structures to maximize the amount of flow directed to the Water Resource Recovery Facility and to reduce the amount sent to the CSO tunnel.

**University of Michigan Health Center, City of Brighton, MI.** Lead Resident Project Representative. Installation of water main, sanitary sewer and road construction. Work closely with owner, developer and engineer to mitigate problems before they arise. Responsible for maintaining daily reports, checking shop drawings, monitoring and recording all required acceptance testing, and recording as-built drawings.

**Northridge Woods, City of Brighton, MI.** Resident Project Representative. Installation of water and sanitary main that includes all service leads and cleanouts. Responsible for maintaining daily reports, checking shop drawings, monitoring and recording all required acceptance testing and recording as-built drawings.

**Major Road Project, Michigan Department of Transportation, City of Lansing, MI.** Resident Project Representative. Oversee all facets of construction operations, which include earthwork, sanitary and storm sewer repairs, water main installation and service leads, road work, paving operations and concrete. Work with the public to mitigate issues and keep the owner apprised of project progress as required. Utilize FieldBook for keeping track of all quantities and daily reports.

### EDUCATION

Associates Degree, Illinois State University, 1999

### REGISTRATIONS/CERTIFICATIONS

CPR/First Aid

OSHA 30 Safety

Stormwater Operator

(MDOT HMA Paving (Expected. 1/17

MDOT Concrete Paving

### OFFICE

Lansing, MI

### YEARS OF EXPERIENCE

4



# ROB WATT, EIT

## CONSTRUCTION ADMINISTRATION

Mr. Watt is a Resident Project Representative with experience in the construction process from the blueprints to the actual construction. He has experience working with the Michigan Department of Transportation and local agencies in a variety of areas. His work includes providing quality assurance/observation of sewer and water utilities installation and testing, writing reports, and reporting construction pay items for payment.

### RELEVANT EXPERIENCE

**Michigan Ave and Harrison Rd Sewer Improvements and Rehabilitation, City of East Lansing, MI.** Resident Project Representative. This SRF project included technical challenges such as a new inverted siphon crossing, connections to the retention basin and other large diameter sewers and control structures, and trenchless construction. Ancillary challenges included working with private property owners, coordinating/scheduling with Michigan State University, completing work in MDOT's right-of-way, and compliance with strict Michigan Department of Environment, Great Lakes, and Energy regulations regarding to the river crossing and prolonged groundwater dewatering operations. Construction of a new inverted siphon crossing in lieu of expansion of an existing crossing allowed the system to remain in-service during construction and avoided costly bypass pumping for a large portion of the project. New 36- and 18-inch barrel siphon piping across the river was installed using directional drilling techniques. New 60-inch diameter combined sewers were constructed to interconnect with the CSO tunnel drop shafts and sewer network. Installed new, cast-in-place control structures to maximize the amount of flow directed to the Water Resource Recovery Facility and to reduce the amount sent to the CSO tunnel.

**Division Street Roadway Widening MDOT, Adrian, MI.** Resident Project Representative. Oversee all facets of construction operations, which include earthwork, sanitary remove and replace, storm sewer installation, and road work. Work with the public to mitigate issues and keep the owner apprised of project progress as required. Daily record of all work completed and payment of payment. Responsible for maintaining daily reports, checking shop drawings, monitoring and recording all required acceptance testing and recording as-built drawings.

**East Lansing Waste Water Plant Solids Handling Improvements with Digestion, City of East Lansing, MI.** Oversee all construction operations, which include earthwork, road work, paving operations, concrete and keeping track of all quantities. Create and analyze pump curves. Coordinate with onsite construction manager and Plant Superintendent.

**Single Barrel Social, City of Brighton, MI.** Resident Project Representative. Oversee all installation of water main that includes building service lead as well as road reconstruction. Responsible for maintaining daily reports, checking shop drawings, monitoring and recording all required acceptance testing and recording as-built drawings. Coordinate with project manager.

### EDUCATION

BS, Environmental Engineering,  
Michigan Technological University, 2018

### REGISTRATIONS/CERTIFICATIONS

EIT, Michigan

CPR/First Aid

OSHA 10 Safety

EGLE Stormwater Operator

MDOT HMA Paving

MDOT Underground Pipe Installation

NHI Pipe Install & Inspection

### OFFICE

Lansing, MI

### YEARS OF EXPERIENCE

1.5



Geodetic Designs Inc.

## EDUCATION

MS, Courses Business Administration, Central Michigan University, Lansing, MI, 2003

BS, Survey Engineering, Ferris State University, Big Rapids, MI, 2000

## REGISTRATIONS/CERTIFICATIONS

Professional Surveyor

Michigan #4001047942

Ohio #8203

Wisconsin #2821

Louisiana #5006

Certified Federal Surveyor: 2011 (United States/Indian Trust) - #1515

Power Geopak training for MDOT design survey projects, Lansing, MI, 2012

HAZWOPER 40-hour certified with 8-hour annual updates, 2020

Amtrak and E-railsafe certified contractor 2020, FAA Remote pilot 2016/18

## OFFICE

Lansing, MI

## YEARS OF EXPERIENCE

26

# GILBERT BARISH, PS, CFEDS

PRINCIPAL SURVEYOR - SURVEY/EASEMENTS  
GEODETIC DESIGNS, INC

## RELEVANT EXPERIENCE

**1.5 miles of MDOT Rails right of way retracement, Albion, MI.** Project Manager. Parcel line retracement, improvement location, compiled survey drawing and monumentation at key locations of the parcel for use in high speed rail improvements within the City of Albion.

**M-43 Grand River Avenue over Horse Brook Creek, Lansing, MI.** Project Manager. Right of way retracement, research, utility connectivity, 1200 lf of roadway approach mapping, hydraulic sections, structure survey, and control.

**Nine Intersection Surveys, various locations, northern, MI.** Project Manager. Intersection surveys at 9 locations in Northern Michigan. Sites include right of way retracement, research, utility connectivity, ADA approaches, control, and signal mapping.

**US-127 over the Maple River, Gratiot County, MI.** Project Manager. Control, Right of way (retracement/monumentation), Structure, roadway, and hydraulic survey for two structures crossing the Maple River.

**Boundary Retracement Survey for conveyance, Ontonagon, MI.** Project Manager. Research, quarter section and parcel line retracement, monumentation, and description of existing MDOT parcels for an excess conveyance.

**ADA Intersection Survey of two separate intersections in Lansing and Highland, MI.** Project Manager. Right of way and topographic mapping along M-43 (Lansing) and M-59 (Highland).

**M-59 at VanDyke, Macomb County, MI.** Project Manager. Control, monument retracement, right of way, topographic mapping, remote sensing, utility inventory, and alignment for 1400 feet of eight-lane roadway.

**I-75 Ogemaw Co. West Branch, MI.** Project Surveyor Consultant. Supplemental mapping for an existing 10-mile road repaving project including bridge under clearance diagrams, rest area mapping, detention basin mapping, and drainage structure observations.

**MDOT Railroad, Fife Lake, MI.** Project Manager. Rail mapping, right of way determination, horizontal and vertical control, as-built alignment determination, records research, and surveyors reporting for a 7,800 feet section of freight rail.

**MDOT Intersection right of way determination surveys (9) intersections, Ingham/Eaton Co., MI.** Project Manager. Right of Way Survey for 9 intersections within Eaton and Ingham Counties, MI. Project consists of deed retracement, easements, recovery of section corners and right of way monuments, creation of legal alignments, and right of way.



# PATTI MCCALL, PG, PWS

## ENVIRONMENTAL SERVICES - FLODOPLAIN/WETLANDS

Ms. McCall is a Professional Wetland Scientist and an Associate Hydrogeologist with more than 18 years of experience. She has experience in wetland and other waters of the U.S. delineation/mitigation, Part 303 Wetlands Protection, Part 301 Inland Lakes and Streams and Part 325 Great Lakes Bottomlands permitting in the State of Michigan in support of residential and industrial development, power plant construction and substations/switchyards and related infrastructure; dredging maintenance, petroleum and natural gas pipeline projects, solar energy developments, habitat assessments, biological risk assessments, sediment and surface water sampling, contaminant remediation in wetlands, wetland mitigation and monitoring, and environmental construction compliance. She has extensive experience serving as project manager, permitting specialist and technical support for numerous multi-discipline projects.

As an Associate Hydrogeologist, Ms. McCall has managed and completed site characterization, remediation, hydrogeological, geotechnical, landfill projects, regulatory compliance investigations, Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201 and 213 investigations, Phase I and Phase II environmental site assessments (ESAs), baseline environmental assessments (BEAs) due care plans and prepared proposals. Additional responsibilities include but are not limited to; underground storage tank compliance activities; implementing landfill monitoring projects, groundwater sampling and methane monitoring, wetland delineations and mitigation monitoring, project budgeting and tracking. She has completed and certified United States Environmental Protection Agency (USEPA) greenhouse gas reporting for municipal landfills, and completed numerous reports including aquifer analyses, remedial and natural resources assessments. She has implemented and supervised ongoing remediation projects, Phase I and II ESAs, groundwater monitoring, and completed reporting and presentations to the public, municipal boards, EGLE and clients.

### RELEVANT EXPERIENCE

**Blue Water Energy Center, DTE Energy, MI.** Professional Wetland Scientist. Ms. McCall was responsible for completing a Joint Permit Application and securing mitigation credits for the construction of the Blue Water Energy Center (BWEC) that will burn natural gas and utilize two steam turbine engines. The construction of the BWEC will impact 5.93 acres of emergent wetland. Mitigation was completed by purchasing credits through the State of Michigan's Mitigation Bank. Throughout the permitting process, Ms. McCall responded to EGLE requests and concerns raised by environmental organizations; including drafting two responses to letters received from environmental organizations. A follow-up rail off-loading area required a wetland delineation that was completed by Ms. McCall's team. The additional temporary impacts were added to the existing permit as an addendum and is awaiting approval by EGLE.

### EDUCATION

B.S., Geology, Indiana University Northwest, Gary, Indiana, 1999

University of Minnesota Hydrogeology Field Camp 1998

B.S., Public Policy (Environmental Science), Indiana University, Bloomington, Indiana, 1993

### REGISTRATIONS/CERTIFICATIONS

Certified Professional Geologist 11695, AIPG, 2014

Professional Wetland Scientist 2497, 2014

40-hour HAZWOPER Training 29 CFR 1910.120 OSHA, 2002

Annual 8-hour HAZWOPER Refresher 29 CFR 1910.120 (e)(8) OSHA

### AFFILIATIONS

American Institute of Professional Geologists (AIPG)

Geological Society of America

Society of Wetland Scientists

Michigan Wetland Association

Huron River Watershed Council

Michigan Association of Environmental Professionals

### OFFICE

Ann Arbor, MI

### YEARS OF EXPERIENCE

18

# MCCALL

## CONTINUED

Two additional areas were identified after the original permitting that required additional impacts and mitigation credit purchasing related to the transmission line.

Included in the impact area was the Sullivant's Milkweed, a state threatened species. Ms. McCall completed an application for and obtained an endangered species permit for relocating the species. Ms. McCall and her team coordinated with the subcontractor and oversaw the relocation of nearly 400 plants. In addition to the wetland permitting responsibilities, Ms. McCall completed and obtained the St. Clair County Soil Erosion Permit and the State of Michigan's Notice of Coverage for impacts over 5 acres and the renewal processes after year one. A wetland delineation and report were completed on an adjacent parcel for use in stockpiling excavated soils from the development and in the proposed transmission line and substation area. A grading plan was completed for the spoils pile area. Ms. McCall has assisted DTE and the construction contractor with the St. Clair County Drain Commissioner's office to obtain the appropriate permits and participated in weekly calls in support of the ongoing needs of the project. Currently the plant is being constructed and Ms. McCall remains involved in the project as permitting and natural resource needs are required.

**St. Clair County Drain Commissioner's Office, MI.** Professional Wetland Scientist. Ms. McCall was responsible for reviewing a mitigation design implementation and providing a professional opinion including possible corrective action options, water budget completion and coordination with state enforcement. The mitigation requirement was due to an enforcement action of a private resident who mined peat from an emergent wetland and impacted a forested wetland. The Howe-Brandymore County Drain, which carries a large volume of water during storms, lies south of and adjacent to the property. Area homeowners downstream were continually flooded during large rain events. A consent agreement between EGLE, the private resident and the Drain Commissioner's Office was drafted to meet the requirements of the enforcement action by the private resident and allow flood storage into the property from the Howe-Brandymore Drain to alleviate flooding.

**Municipal Project, City of Lansing, MI.** Senior Geologist. Ms. McCall was responsible for coordination and completion of formal wetland delineation and stream identification activities along 5.25 +/- miles of a proposed non-motorized pathway in South Lansing. The pathway was proposed along a utility corridor in an effort to connect south Lansing to the Lansing River Trail for a total of 18.25 miles of non-motorized pathway that will eventually be connected to the Michigan State University campus. Ms. McCall oversaw field activities and coordinated and met with EGLE regulators for a pre-application meeting. The JPA was submitted in July and received approval in August 2013 to meet deadlines for federal funding requirements.

**Capline Reversal Program, Marathon, Various States.** Professional Wetland Scientist. Ms. McCall was responsible for managing the completion of a four-state desktop assessment utilizing publicly available databases to assess the presence of historical, cultural and archaeological resources; federally and state threatened, endangered, proposed and special concern species; wetlands and water resources; natural resource areas; and public lands. Marathon will be reversing the flow of crude oil between Patoka, Illinois and St. James, Louisiana, requiring the uncovering and valve reversal/replacement at 30 locations. Results were summarized in tables and figures and shapefiles were provided. Following the desktop assessment, two valves were identified for wetland delineation. Tetra Tech completed these delineations as well as additional locations surrounding these valves to determine alternative sites. Tetra Tech requested a JD from the Vicksburg, Mississippi United States Army Corps of Engineers (USACE) District, resulting in the need for a permit prior to beginning work. Tetra Tech also requested and obtained a PCN from the USACE New Orleans, Louisiana District. Finally, a site visit was requested and completed to determine locations for spoils piles, outside of wetlands and waterways, at a site in Tennessee.



# EMILY MUELLER EPSTEIN, PHD

ENVIRONMENTAL SERVICES - ARCHAEOLOGICAL RESEARCH  
COMMONWEALTH HERITAGE GROUP

Dr. Mueller Epstein is a principal investigator and lab director for Commonwealth Heritage Group, Inc. (Commonwealth). With 17 years of experience in archaeology, her specialties include Great Basin pre- and post-contact archaeology, bioarchaeology, historic cemeteries, and the analysis of osseous material (both fauna and human skeletal remains). She is listed in the Register of Professional Archaeologists and is recognized by the Director of the Wisconsin Historical Society as a qualified skeletal analyst and burial excavator under Wisconsin Statute 157.70(4) and Wisconsin Administrative Code HS 2.02(12) and 2.04(6)(b).

## RELEVANT EXPERIENCE

**Archaeological Monitoring for the City of Flint's FASTStart Water Service Line Replacement, City of Flint, MI.** Principal Investigator. To comply with the Michigan State Historic Preservation Office requirements, the City of Flint has contracted Commonwealth to monitor mechanical excavations carried out as part of the water service line replacement project.

**Hydroelectric Projects Reservoir Shoreline Survey for Historic Properties, HDR, MI.** Principal Investigator. HDR contracted Commonwealth to assess historic properties and erosional surfaces along nearly 15 miles of river shoreline in support of the Village of Constantine's compliance with Federal Energy Regulatory Commission licensing requirements. Dr. Mueller Epstein was responsible for the projects technical quality that involved land and water-based assessment methods.

**Archaeological Survey, Testing, and Analysis of Human Remains, Consumers Energy, MI.** Principal Investigator. Following the inadvertent discovery of human remains during a U.S. Army Corps of Engineers-permitted mitigation project, Consumers Energy contracted Commonwealth to conduct on shore survey and testing to assess the project area for historic resources. Dr. Mueller Epstein also completed an analysis of human remains inadvertently discovered during the project.

**Re-Inventory/Management Recommendations on the Historic St. Louis Arsenal, MO.** To comply with Section 106 requirements concerning federally owned collections, Commonwealth inventoried collections and made curatorial management recommendations for the General Services Administration. As a qualified museum professional, Dr. Mueller Epstein completed the inventory of collections and assessed conditions of the intended on-site curatorial facility.

**Stockbridge-Munsee Community Curation Facility Development Services, WI.** Lab Director. Commonwealth worked with the Stockbridge-Munsee Tribe to draft archaeological curation policies, procedures, and recommendations so that the Tribe's Historic Preservation Office planned curation facility meets Section 106 requirements. Dr. Mueller Epstein was responsible for inspections, inventories, and development of a revised Curation Policy Manual.

## EDUCATION

Ph.D. University of Wisconsin-Milwaukee, Anthropology, 2017

M.S. University of Wisconsin-Milwaukee, Anthropology, 2007

B.S. University of Oregon, Anthropology, 2001

## REGISTRATIONS/CERTIFICATIONS

Skeletal Analyst qualified to conduct analyses of human burials excavated in Wisconsin

Archaeologist qualified to excavate human burials in Wisconsin

## AFFILIATIONS

Society for American Archaeology  
Midwest Archaeological Conference  
Association of Oregon Archaeologists  
Committee on Michigan Archaeology

## OFFICE

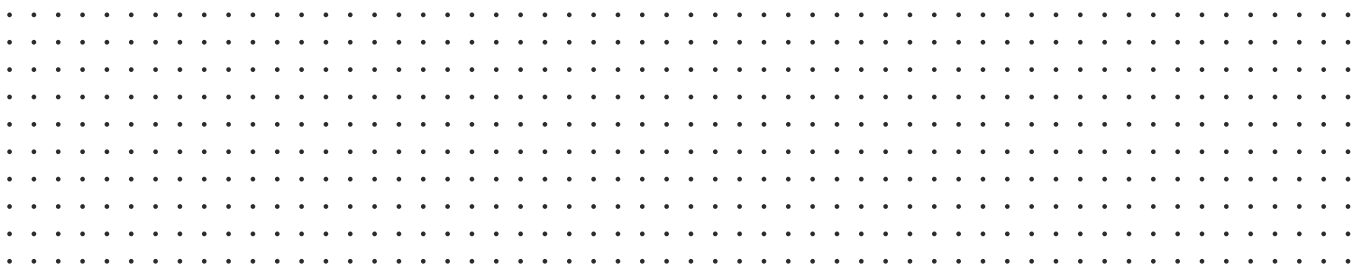
Dexter, MI

## YEARS OF EXPERIENCE

19



# Example Projects and Qualifications





# SIMILAR PROJECTS MATRIX

The following matrix lists several Tetra Tech projects that are relevant to Delta Charter Township’s Carrier Creek Interceptor Sewer Repair project as well as our team members’ experience. This matrix is followed by five detailed project descriptions which highlights our experts’ capacity to perform similar work for this project.

Project Relevance	Central & Sycamore Lindberg Interceptors, Lansing, MI	Michigan Ave. and Harrison Rd. Sewer Improvements and Rehab, East Lansing, MI	CSO Control Program, Lansing, MI	Pine Ridge Phase 3 Sanitary Sewer Repair, Oceola Township, MI	Trestle Pipe Rehabilitation, Tecumseh, MI
Design Services	✓	✓	✓	✓	✓
Construction Services	✓	✓	✓	✓	✓
Sewer > 30-inch Diameter	✓	✓	✓		
Sewer Rehabilitation	✓	✓	✓	✓	✓
Uninterrupted Sewer Service	✓	✓	✓	✓	✓
County Road Right-of-Way	✓	✓	✓		
County Drain Right-of-Way	✓	✓	✓		
Waterway Crossing	✓	✓	✓	✓	
Poor Soil Conditions / Engineered Support			✓	✓	✓
Wetland Delineation	✓	✓	✓		
EGLE Public Act 451, Part 41 Permitting	✓	✓	✓	✓	✓
Joint Permitting (EGLE/USACE)	✓	✓	✓		
<b>Team Members</b>					
Gary Markstrom, PE	✓	✓	✓	✓	✓
John Barber, PE					
Ben Whitehead, PE					
Daniel Warren, PE	✓	✓	✓		
Shelby Scherdt, EIT		✓	✓	✓	
Todd Hollenbeck	✓	✓	✓		
Alan Flak, PE		✓			
Andy Heise	✓	✓		✓	
Rob Watt, EIT		✓		✓	
Patti McCall, PG, PWS		✓			



## CENTRAL & SYCAMORE LINDBERGH INTERCEPTORS

### LANSING, MI

### Scope of Services

As part of ongoing improvements to infrastructure, the City of Lansing Public Service Department contracted with Tetra Tech to provide investigation, planning, and design engineering for the rehabilitation of its Central and Sycamore Lindbergh sanitary interceptors (CI/SLI). The City's intention was to have a clearly defined and prioritized plan to move forward in addressing the issues of the deteriorating system. Tetra Tech's goal was to evaluate the entire system, and then to define the work areas and rehabilitation methods for those portions of the CI/SLI system in poorest condition in order to restore structural integrity first to those reaches needing it most. This investigative work required manhole and pipeline inspections as well as extensive sewer televising and sonar testing.

The 5.5 mile long CI/SLI system, consisting of pre-cast and cast-in-place concrete pipes of sizes ranging from 36-inch to 66-inch round and 48-inch by 78-inch horizontal elliptical, has experienced moderate to severe concrete and reinforcing steel degradation due to sulfuric acid. Using the National Association of

Sewer Service Companies - Pipeline Assessment and Certification Program (NASSCO-PAPC) rating system, Tetra Tech evaluated the collected data and assigned a quick rating for each pipe reach. A prioritized plan was then devised for restoring or replacing the most degraded areas first. A phased approach was utilized to maximize construction cost to get the most work accomplished under the available budget.

Tetra Tech provided a detailed analysis of methods and materials available for lining the interceptor sewer based on cost, efficacy, and longevity.

Some of the special challenges of this job include four major river crossings, passing through the central business district, crossing some of the busiest streets as well as the highway (I-496), and running closely parallel to and crossing railroad tracks.

The design and planning developed by Tetra Tech not only included consideration of budget, longevity, environmental considerations, and safety, but also minimal disruption to businesses and residents in the construction areas.

# CENTRAL & SYCAMORE LINDBERGH INTERCEPTOR

## CONTINUED



### Accomplishments

- » Condition assessment of large diameter sewer
- » Bypass pumping

### Project Relevance

- » Rehabilitation of large diameter sewer
- » Design and construction services
- » Lansing-area project
- » Same project team

#### Owner:

City of Lansing, MI

#### Owner Contact Information:

Alec Malvetis, PE  
 Assistant City Engineer  
 517.483.4459  
[alec.malvetis@lansingmi.gov](mailto:alec.malvetis@lansingmi.gov)

#### Timeframe for Completion:

2009-Ongoing

#### Budget Information:

Engineer's Pre-bid Cost Estimate: \$11,484,000  
 Construction Contract Award Amount: \$9,103,000  
 Final Construction Contract Amount:  
 Ongoing; \$245,000 (Fee); \$1,500,000 (EOPCC)

#### Project Staff:

Gary Markstrom, PE - Project Manager  
 Daniel Warren, PE - Designer  
 Andy Heise - Construction Administration  
 Todd Hollenbeck - CADD Designer



## MICHIGAN AVENUE AND HARRISON ROAD SEWER IMPROVEMENTS AND REHABILITATION

EAST LANSING, MI

### Scope of Services

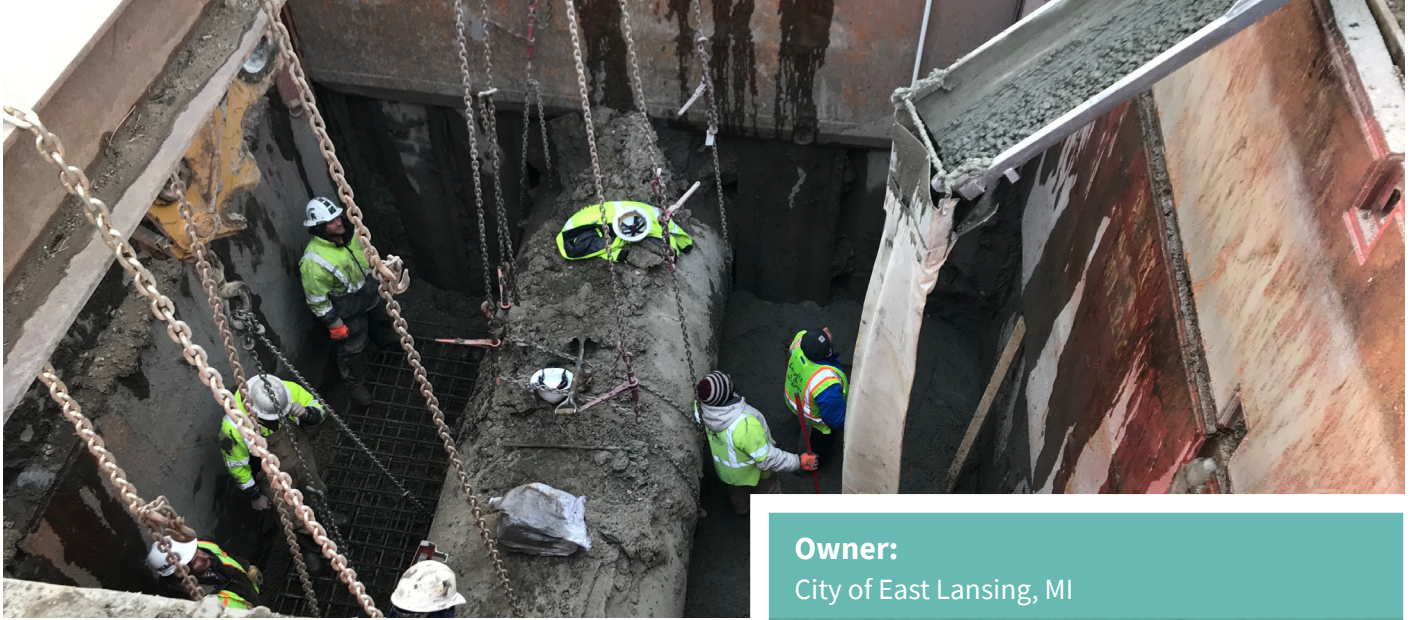
The City of East Lansing's wastewater collection system has been undergoing upgrades to accommodate growth and increase combined sewer flows to the CSO tunnel. Work was needed to eliminate a bottleneck in the system's piping. Inverted siphon river crossings did not support conveying enough flow to the Water Resource Recovery Facility's (WRRF) influent interceptor and combined sewer system flows were commonly going into the CSO tunnel. This increased chances for partially treated overflows to be discharged to the Red Cedar River.

This project was funded through the State Revolving Fund (SRF) low interest loan program. It included technical challenges including a new inverted siphon crossing, connections to the retention basin and other large diameter sewers and control structures, and trenchless construction. There were additional challenges such as working with private property owners, coordinating and scheduling work with Michigan State University (MSU), completing work in the Michigan Department of Transportation's (MDOT) right-

of-way, and obeying strict regulations from the Michigan Department of Environment, Great Lakes, and Energy (EGLE) with respect to the river crossing and prolonged groundwater dewatering operations.

Several design alternatives were reviewed with business case evaluations favoring the construction of a parallel 42-inch diameter relief sewer in greenspace adjacent to MSU dormitories and avoiding the replacement of the undersized 18-inch main found under Harrison Road. The selected alternative required construction of a new inverted siphon crossing in lieu of expansion of an existing crossing. This allowed the system to remain in service during sewer construction and avoided costly bypass pumping for a large portion of the project. New 60-inch diameter combined sewers were constructed along Michigan Avenue. They are connected to the CSO tunnel drop shafts and the sewer network. New, cast-in-place control structures were installed to increase the amount of flow directed to the WRRF and to reduce flow sent to the CSO tunnel.

# MICHIGAN AVENUE AND HARRISON ROAD SEWER IMPROVEMENTS AND REHABILITATION CONTINUED



New 36- and 18-inch barrel siphon piping across the river was installed using directional drilling techniques.

Sewer construction met a highly constrained, accelerated schedule with stringent traffic maintenance requirements to satisfy MDOT and MSU requirements. Virtually all work was completed in time for roadways to be open for the August 2019 MSU student move-in.

## Accomplishments

- » Reduced CSO volumes
- » Cast-in-place control structures
- » Complex construction
- » SRF funded

## Project Relevance

- » Design and construction services of large diameter interceptor sewers in urban areas.
- » Flow maintained during construction
- » Public engagement and neighbor coordination
- » Lansing-area project
- » Same project team

### Owner:

City of East Lansing, MI

### Owner Contact Information:

Nicole McPherson, PE  
Engineering Administrator  
517.319.6928  
nmcpher@cityofeastlansing.com

### Timeframe for Completion:

2015-2020

### Budget Information:

Engineer's Pre-bid Cost Estimate: \$9.5M  
Construction Contract Award Amount: \$9.5M  
Final Construction Contract Amount: Ongoing;  
\$245,000 (Fee); \$1,500,000 (EOPCC)

### Project Staff:

Daniel Warren, PE - Designer  
Andy Heise - Construction Administration  
Gary Markstrom, PE - QA/QC  
Alan Flak, PE - Project Engineer  
Todd Hollenbeck - CADD Designer  
Rob Watt, EIT - Project Representative  
Patti McCall, PG, PWS - Wetlands Scientist  
Shelby Scherdt, EIT - Project Engineer



## CSO CONTROL PROGRAM

### LANSING, MI

### Scope of Services

Tetra Tech completed the Lansing CSO Control Plan in 1991. The 30-year program was approved by regulators in March 1992. Sewer separation was the most cost-effective CSO control method for the City. The program focused on constructing a new, watertight sanitary sewer system and rehabilitating the combined sewers as necessary for conversion to storm sewers.

To date, the program has included: more than 45 individual projects that included design and construction engineering; 56 miles of new sanitary sewers (8 to 60 inches in diameter); 16 miles of new storm sewer (12 to 84 inches in diameter); 25 miles of sewer rehabilitation utilizing CIPP lining, pipe bursting, and slip lining; 27 miles of new water main; 75 miles of road reconstruction including full- and part-width road reconstruction often included new curb and gutter, driveways, parkway, and sidewalk; over 3 miles of trenchless construction for pipe diameters of 8 to 72 inches and casing sizes up to 84 inches; bore and jack, microtunneling, and directional drilling; one 5-MG equalization basin and two pump stations with capacities of 80 and 97 MGD; and green infrastructure

including urban bioretention, hydrodynamic devices at the O&M facilities, water quality swales, curb extension bioretention areas, and permeable pavers.

Tetra Tech assisted the City with acquiring funding. To date, the program has received low-interest SRF loan financing totaling over \$186 million. The low-interest financing will save over \$50 million on financing cost over the life of the loans originated to date.

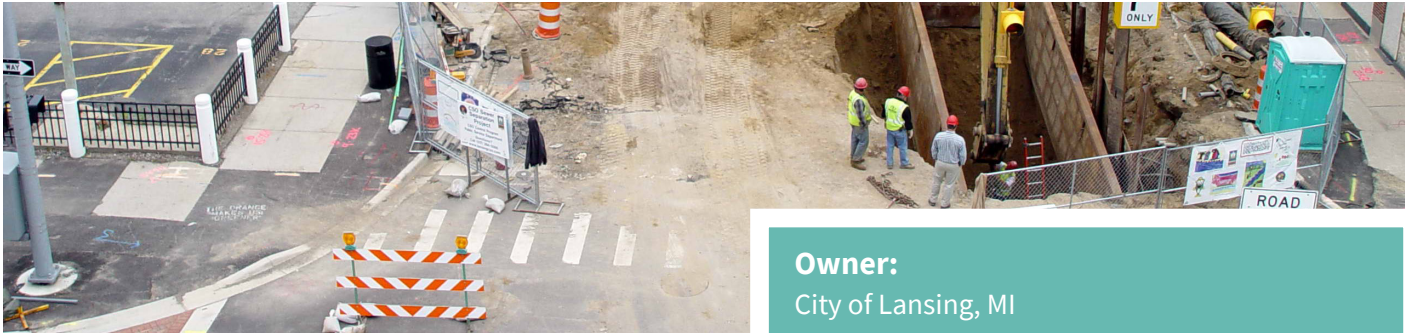
As part of the design and construction engineering, Tetra Tech provided a full range of engineering services:

***Project planning and conceptual design services.*** Design included initial project development, alternative and cost-benefit analysis, and preparation of a Basis of Design report reviewed with the City and regulatory agencies prior to proceeding to final design.

***Field investigation services.*** Infrastructure evaluation using aerial mapping, topographic survey, manhole inventories, CCTV, and subsurface utility exploration. Developed mobile applications for ArcGIS allowing field crews to record field data electronically, automatically updating the City's GIS system.

# CSO CONTROL PROGRAM

## CONTINUED



**Preparation of design drawings.** Prepared full construction documents to be used for bidding. The drawings were prepared using AutoCAD and Civil 3D, and set up for easy import/export into the City's GIS system. Performed detailed design of storm and sanitary sewers, water main, trenchless construction, sewer rehab, road reconstruction, and traffic control.

**Utility coordination.** Facilitated coordination with the Board of Water & Light, Consumers Energy, State of Michigan, and telecommunication companies. Assisted coordinating joint design contracts so the water main and sewer projects to be designed and constructed concurrently, reducing risk to both organizations and the cost for engineering and construction.

**Public involvement.** Led public involvement including meetings with key stakeholders from City Council, community organizations, business owners, and residents. Public meetings kept stakeholders informed. Tetra Tech and specialty subs developed pamphlets for the CSO Program, I/I Removal Program, and the CSO Mascot, "Swish the Fish".

**Regulatory and permitting.** Assisted the City with communication with regulatory agencies including EGLE, MDOT, railroads, and USACE. With Tetra Tech's involvement, the City was approved to utilize part-width open-cut construction of a new sanitary siphon across the Grand River, reducing the overall cost and risk.

**Construction phase services.** Construction survey, field observation, construction management and administration, preparation of record drawings, and project performance certification.

### Owner:

City of Lansing, MI

### Owner Contact Information:

Alec Malvetis, PE  
Assistant City Engineer  
517.483.4459  
alec.malvetis@lansingmi.gov

### Timeframe for Completion:

1992-ongoing

### Budget Information:

\$256M over 30 years  
Final Construction Contract Amount: N/A

### Project Staff:

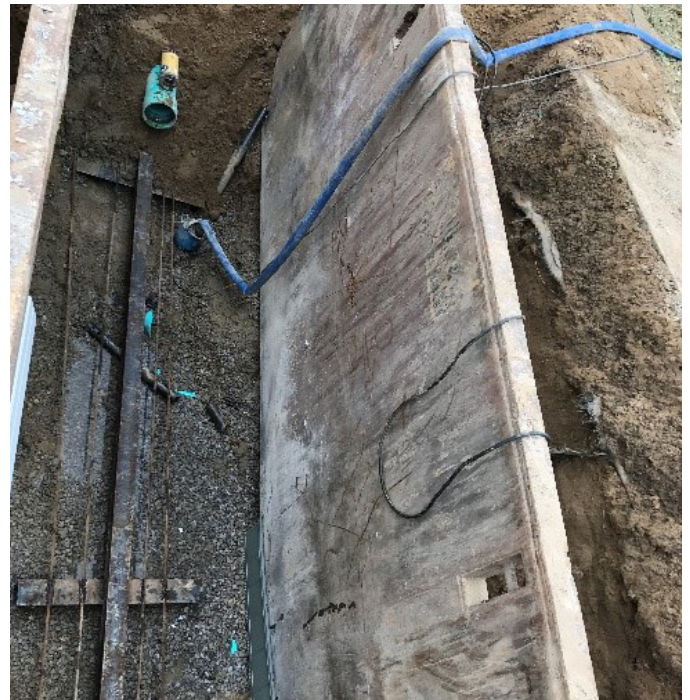
Gary Markstrom, PE - Project Manager  
Daniel Warren, PE - Designer  
Andy Heise - Construction Administration  
Shelby Scherdt - Construction Review  
Todd Hollenbeck - CADD Designer

## Accomplishments

- » EPA's 1994 Second Place National CSO Control Award and Public Relations Society of America 1993 Crystal Award – Community Relations
- » 2006 APWA Michigan Project of the Year: Capitol Loop Project
- » Original study, five-year amendments, and construction readily approved by MDNR/EGLE as a result of continued partnering

## Project Relevance

- » Large diameter sewer design and construction in an urban area



## PINE RIDGE PHASE 3 SANITARY SEWER REPAIR

### OCEOLA TOWNSHIP, MI

### Scope of Services

Tetra Tech, as the Authority Engineer, identified that a section of recently placed 8-inch gravity sewer had settled and no longer had a positive slope. After consulting with the geotechnical engineer, it was determined that helical piers would be placed to support the sewer as it crossed the area with poor soils. The helical piers were bound with a concrete grade beam creating a stable base for the PVC collection sewer. Approximately 100 feet of sewer was impacted by the poor soils and had to be stabilized. In addition, the upstream manhole had also settled. It was removed and the base soils stabilized by installing two DIP piles and two helical piers.

### Accomplishments

- » Repaired a failing sewer
- » Maintained service to existing subdivision

### Project Relevance

- » Helical piers used to stabilize trench for installation of an 8-inch collection sewer repair through unstable soils
- » Design review and construction phase services

#### Owner:

Genoa Oceola SWATH, MI

#### Owner Contact Information:

Greg Tatara, PhD  
Utility Director  
810.227.5225  
greg@mhog.org

#### Timeframe for Completion:

2020

#### Budget Information:

Engineer's Pre-bid Cost Estimate: N/A  
Construction Contract Award Amount: \$150,000  
Final Construction Contract Amount: \$150,000

#### Project Staff:

Gary Markstrom, PE - Project Manager  
Shelby Scherdt, EIT - Plan Review  
Andy Heise - Construction Administration  
Rob Watt, EIT - Construction Observation





## TECUMSEH TRESTLE PIPE REHABILITATION

### TECUMSEH, MI

### Scope of Services

Tetra Tech designed an elevated pipe crossing of a ravine in the 1980s for the City. After nearly 30 years of service, the pipe system was in need of rehabilitation primarily due to internal corrosion. However, some rehabilitation of the pipe supports was also needed. Tetra Tech evaluated and selected the pipe material through research. Ductile iron pipe with coal tar epoxy coating was selected to give the best chance of protection from corrosion from wastewater and the outside elements. Failing pipe supports were identified and rehabilitation designed to withstand both dead loads and live loads (wastewater and wind forces).

The project design was funded by a state of Michigan grant Tetra Tech received for the City. Tetra Tech subsequently led the bidding, design, and construction services. The project was completed on time, under budget and is ready to serve another generation of Tecumseh residents.

### Accomplishments

- » Rehabilitated deteriorating infrastructure before release to environment occurred

### Project Relevance

- » Sanitary sewer condition inspection
- » Unique pipe support design and construction phase services

#### Owner:

City of Tecumseh, MI

#### Owner Contact Information:

Dan Swallow, City Manager  
517.424.6555  
dswallow@tecumseh.mi.us

#### Timeframe for Completion:

2014-2015

#### Budget Information:

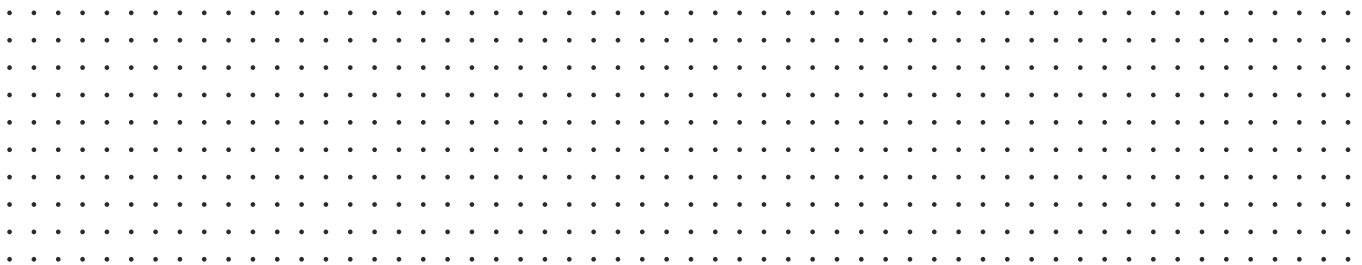
Engineer's Pre-bid Cost Estimate: \$310,000  
Construction Contract Award Amount:  
\$289,000  
Final Construction Contract Amount:  
\$280,000

#### Project Staff:

Brian Rubel, PE, PMP - Project Manager  
Gary Markstrom, PE - QA/QC



# References



# REFERENCES

## Alec Malvetis, PE

**Assistant City Engineer, City of Lansing, MI**

**Phone:** 517.483.4459

**Email:** alec.malvetis@lansingmi.gov

## Nicole McPherson, PE

**Engineering Administrator, City of East Lansing, MI**

**Phone:** 517.319.6928

**Email:** nmcpher@cityofeastlansing.com

## Greg Tatara, PhD

**Utility Director, Genoa Oceola SWATH, MI**

**Phone:** 810.227.5225

**Email:** greg@mhog.org

## Dan Swallow

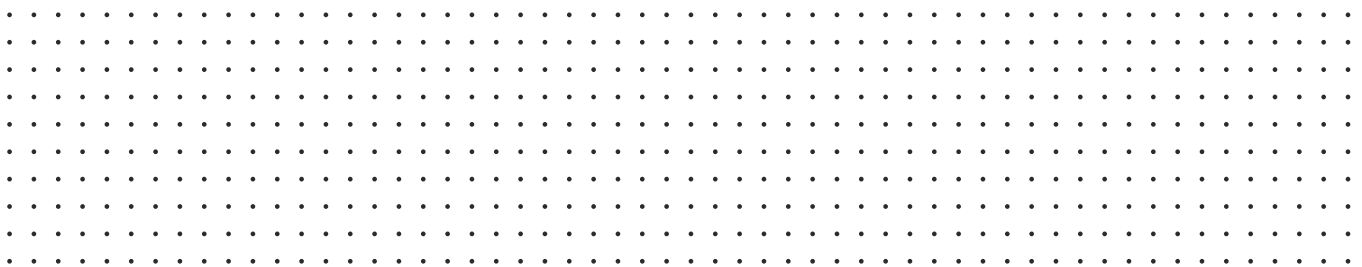
**City Manager, City of Tecumseh, MI**

**Phone:** 517.424.6555

**Email:** dswallow@tecumseh.mi.us



# Project Understanding, Work Plan, and Approach



# PROJECT UNDERSTANDING, WORK PLAN AND APPROACH

## PROJECT UNDERSTANDING

Recent sewer inspections conducted by Delta Charter Township revealed significant and uneven settlement of the Carrier Creek Interceptor Sewer, which conveys a majority of the collection system flow to the Township’s Wastewater Treatment Plant (WWTP). The Township’s proactive identification of this deficiency is likely to have avoided a catastrophic failure, sewer backups, and costly emergency restoration work. Our proposed approach to this project further reduces risk to the Township, while providing a cost-effective and reliable solution.

Tetra Tech understands the Township’s expectations for delivering a successful project. Our project leadership team and many of our proposed design team members have recently completed or are currently involved in developing your projects. The Township will benefit from our team’s knowledge of your policies and standards, and those of local, state, and federal authorities having jurisdiction (AHJs).

Our recent work on the St. Joe Highway water main design and non-motorized facility evaluation has familiarized our team with the conditions in the Eaton County right-of-way and Carrier Creek crossing. We have walked the Carrier Creek interceptor alignment as depicted in the RFP and begun developing conceptual solutions to address the unique challenges of this project.

Through this preliminary investigation, our team has obtained insight to optimize our proposed approach to provide the best value to the Township. We are confident that our proposed approach will maximize the overall value of the project, from the initial capital investment through many years of trouble-free operation.

**TABLE 1 - CHALLENGES, APPROACH, AND BENEFIT TO DELTA CHARTER TOWNSHIP**

Challenge	Approach	Benefit to Delta Charter Township
<b>Maintaining sewer service throughout construction</b>	» We developed strategies for connecting with existing sewers and outlined a sequence of construction to maintain sewer service.	» The Carrier Creek interceptor will remain in service throughout construction, without costly bypass pumping or sewage backups.
<b>Working within Eaton County right-of-way</b>	» We developed a plan to coordinate with the County and utility service providers to minimize impact to surrounding infrastructure.	» A thorough understanding of the conditions will lead to the optimum solution and minimize risks to the Township and the construction contractor, thereby reducing the overall project costs. » Early and frequent engagement with project stakeholders will reduce overall cost and facilitate permitting of the work and timely completion.
<b>Land acquisition</b>	» We identified potentially impacted properties and will evaluate alternatives to avoid land acquisition.	» Early confirmation of easement requirements will support fair and equitable agreements between the Township and property owners.
<b>Obtaining a qualified contractor</b>	» We will prepare contractor experience requirements for pre-qualification prior to bidding.	» Pre-qualification of contractors will minimize the risk of delay, construction change orders, and impact to surrounding areas.

Challenge	Approach		Benefit to Delta Charter Township
Working within and crossing the floodplain and Carrier Creek	High groundwater and poor soils	» Our sewer designers and structural engineer have developed concepts to protect the interceptor and manholes from vertical loads (both upward and downward). Our design team will work closely with the Township's geotechnical consultant to develop a holistic solution that will consider the alignment, pipe design, and structural support.	» Multi-disciplined collaboration will result in the most cost-effective and reliable solution to meet the Township's goals.
	Sensitive ecosystems	» Our in-house wetland scientist will begin field evaluation upon award and coordinate with the design team to minimize impact to wetlands and threatened wildlife.	» Wetland delineation is seasonally dependent and beginning delineation upon award will minimize the risk of potential delay.
	Permitting	» Collaboration with regulatory agencies will begin early in the project and continue until permit acceptance.	» Early and frequent engagement with regulatory agencies will reduce overall cost and facilitate permitting of the work and timely completion.

## WORK PLAN

The key to keeping a project on-schedule and on-task is the development of a thorough work plan at the initiation of the project, following the plan throughout the project, and holding team members accountable for timely completion of high quality work. Our Project Manager, Ben Whitehead, has led multi-discipline teams to execute many challenging linear infrastructure projects. Using Tetra Tech’s standard tools, Ben will develop the project work plan to align with the unique requirements of this project.

The work plan will establish project expectations and provide our team members with guidance for meeting your standards, communicating with stakeholders, coordinating tasks, meeting the schedule, site safety, and following quality assurance procedures. The work plan will be presented to our team at an internal kick-off meeting and revisited at recurring internal progress meetings.

### Quality Control Program

Delivering project value is Tetra Tech’s highest goal. We achieve this by holding all our staff to high standards and utilizing our established QA/QC procedures, proprietary processes and tools, and in-depth training so that all team members are familiar with and accountable for following our standards. Our QA/QC will include detailed checking of design calculations, drawing content, quantities, probable costs, and design document presentation.

### Constructability Analysis

Constructability will be evaluated by a senior professional at each final design milestone (30-, 60-, 90-, and 100-percent design). Our approach to project constructability will consider a number of factors:

- » Developing a schedule and sequence of construction to minimize the impact to environmentally sensitive areas, utility service, and private property
- » Identifying and minimizing risks associated with temporary interruption of sewer service
- » Designing for flexibility to adjust the construction sequence depending on site conditions, work progress, and contractor capability
- » Facilitating acceptance testing prior to abandoning the existing interceptor and placing the new interceptor work on-line.
- » Preparation of a traffic management plan to alert drivers of the construction area and detour routes
- » Minimizing total project costs, planned construction time, and risk of unanticipated delays

Consideration will be given to all these criteria very early in the project so that any required provisions can be incorporated into the design. Our constructability reviewer will prepare and maintain a risk register to identify the risks related to construction.

From that, our team will develop strategies for minimizing risk, which will be reviewed in subsequent constructability analyses.

Collaboration with the Township and project stakeholders will further minimize risk. This approach is beneficial for previous complex construction projects. Our team members recently completed projects for the City of East Lansing, Marion Howell Oceola Sewer and Water Authority, and the City of Brighton, where critical sequencing constraints were detailed in the construction contract documents. We found that the definition of constraints and milestones for the construction of those projects proved to be extremely valuable for the contractors to plan their work.

### Deliverables

All deliverables will be submitted as a draft for review and comment by the Township. The Township's comments will be addressed in the subsequent versions of each submittal. Meeting minutes will be prepared and submitted to the Township for review, and superseded by submittal of the final minutes if corrections are required.

Monthly progress reports will be submitted to keep the Township apprised with the status of our work and any potential risks to the project.

### Project Kick-off Meeting

We will arrange a Kick-off Meeting with the Township to be conducted as soon as practical after receiving the Notice of Award. We will develop an agenda with the Township to guide discussions at the Kick-off Meeting. We anticipate reviewing the following topics:

- » Project management procedures, key stakeholders, and lines of communication;
- » Delta Charter Township standards and preferences;
- » Project objectives, risks, and scope of improvements;
- » Background information needs;
- » Site investigation needs, safety, and other site considerations; and
- » Project schedule.



*Tetra Tech's "early and often" planning approach and constructability analyses facilitated successful construction of the Township's emergency interconnect with Lansing BWL, despite many challenging site constraints.*

## APPROACH

Tetra Tech has a proven track record for successfully implementing challenging buried linear infrastructure projects. This success is founded upon our development of standard procedures for pipeline projects, which have been created and continuously improved based on extensive project experience. Our team members are familiar with these procedures, and **Project Manager, Ben Whitehead**, tailored our standard approach to align with the specific requirements of this project, as outlined in Table 2 - Tasks, Deliverables Meetings on page 44, at the end of this section.

Rather than repeating the tasks listed in the RFP, we acknowledge each task defined therein will be executed in support of this project, and we take no exceptions to the requirements of the RFP. **Instead, our approach focuses on developing solutions to address the unique challenges of this project.**

Our approach is focused on conducting due diligence early and often to limit the Township's exposure to risk. By initiating background tasks, such as geotechnical investigation and alignment planning prior to RFP development, the Township has already begun to address risk. **Project Manager, Ben Whitehead**, reviewed available geotechnical data, background drawings, Township GIS data, and walked the planned alignment to identify the most significant challenges which present risk to cost, schedule, and overall project success. These challenges are identified with the proposed interceptor in Figure A on the following page.

Our approach is uniquely developed to address the challenges presented above by avoiding, minimizing, or mitigating risk to the Township. These challenges are described below, along with our approach to developing the best solution to address each risk.



*Carrier Creek view looking north.*

## Keynotes 1 and 2

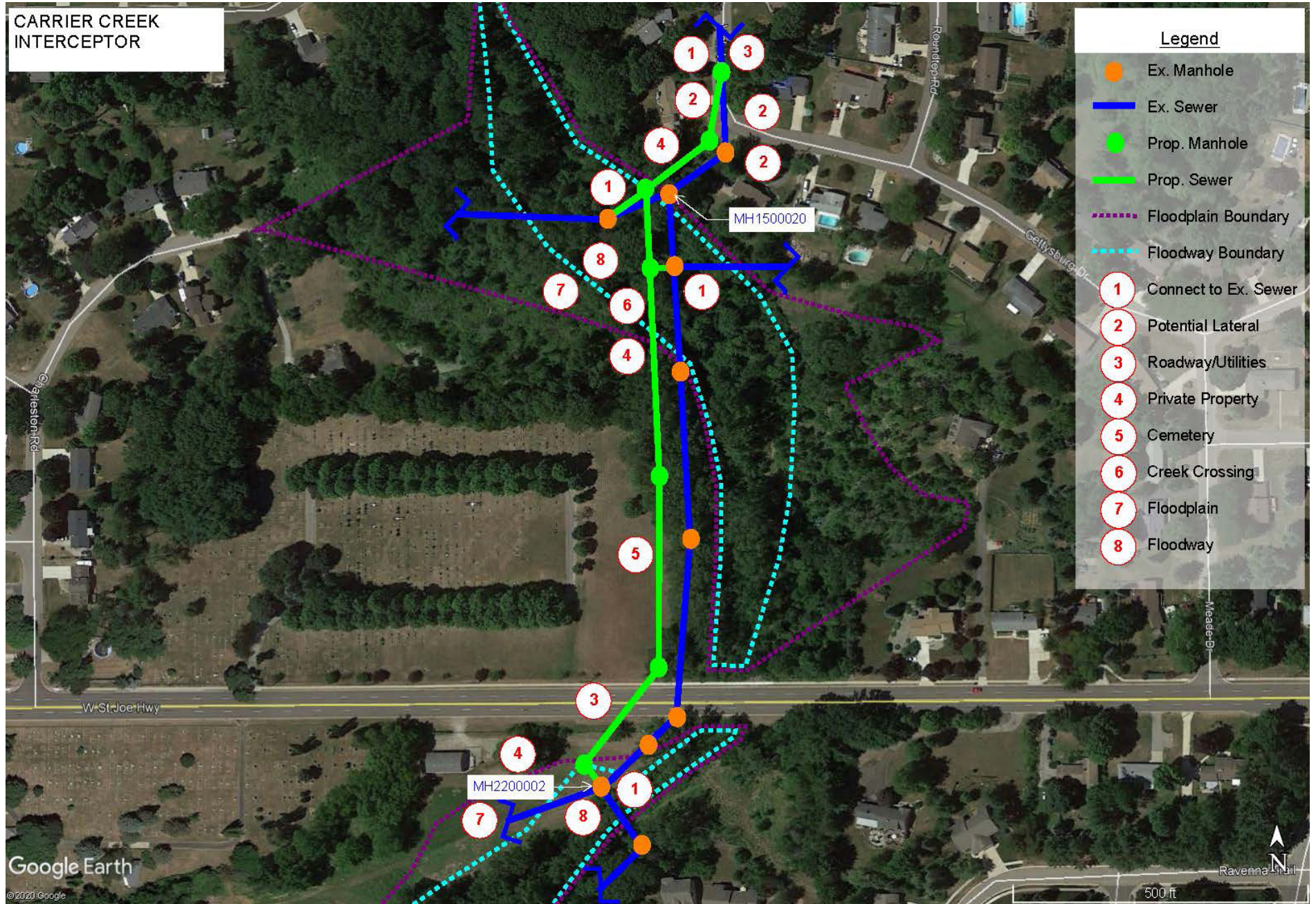
Keynotes 1 and 2 of Figure A (on the following page) identify each location where the proposed interceptor must be connected to existing sewer piping. **Several sanitary sewers must be connected to the Carrier Creek Interceptor, which are not shown on Attachment #3 of the RFP.** Gravity sewer piping is typically constructed from the low to the high point. In this case, construction would begin at the lower end, adjacent to the interceptor near the intersection of Vicksburg and Gettysburg Drives. Constructing the interceptor continuously from this location to the southern connection, south of St. Joe Highway, will allow the sewer to remain in service and avoid the need for bypass pumping during construction.

The lower connection would be made by installing a new manhole base under the existing sewer, with a new "doghouse" style manhole installed over the existing sewer. The new manhole would be sealed and readied for on-line use upon completion and acceptance testing of the new interceptor to the proposed manhole adjacent to MH1500020, where the existing sanitary sewer from the southwest must be connected. Upon connection to the existing sewer, the existing interceptor would be removed within the 'doghouse' manhole to accept flow from the newly connected sewer. Other connections to the existing interceptor, sewers, and sanitary laterals would be made after completion and acceptance testing of the new interceptor.

The upper connection, south of St. Joe Highway would be the final connection. Several alternatives are available for making this final connection. The Township's suggestion to remove MH2200002 is feasible, but would require replacement of the existing 8-inch sanitary sewer from the southwest. This alternative will require by-pass pumping or placing a temporary bulkhead in the existing upstream interceptor until the manhole could be removed and replaced. This alternative will also require a specially designed connection between the existing 30-inch RCP and proposed interceptor material. Alternately, the new interceptor could be connected directly to the existing manhole by installing a temporary bulkhead within the manhole and coring an opening for the proposed interceptor on the dry side of the manhole.



# FIGURE A - CARRIER CREEK INTERCEPTOR WITH CONCEPTUAL ALIGNMENT AND KEY CHALLENGES



**This alternative would allow for uninterrupted flow through the existing interceptor.** One potential disadvantage is that MH2200002 would be likely to remain in service as an asset for the Township to maintain. Our team will coordinate with the Township to select the preferred connection alternative.

### Keynote 3

Keynote 3 identifies work within and crossing Eaton County Road right-of-way, which contains various public utilities. We will initiate our utilities investigation upon contract award with a MISS DIG request and inquiries to known utility service providers. Coordinating with public and private utility service providers will proceed prior to completing the topographic survey to identify existing utilities to be included on the background drawings and minimize the risk of follow-on survey mobilization.

### Utilities Coordination

We visited the site and reviewed background drawings and identified an existing 30-inch sanitary sewer, a 12-inch water main, storm sewer, ditches, utility poles, and overhead electric and communication within the St. Joe Highway right-of-way. A majority of the utilities are located north of and parallel to St. Joe Highway. The utilities information request will follow with a desktop evaluation to confirm additional utilities, such as gas and buried electric which may be present. We will arrange and attend an on-site meeting with utility service providers confirm risks and discuss provisions for avoiding, relocating, or special design requirements to minimize impact to utilities.

We suggest including a contract allowance for subsurface utility investigation, soft-excavation (potholing), and follow-on topo survey services, if required, to update the background drawings with



*Our approach will support the Township to facilitate amenable and efficient easement acquisition.*

information from these potential investigations. Completed background drawings will be submitted to the Township. The recommended allowance amount for this work is included in the Omission of Services section.

### Coordination with Eaton County

Our design team worked with Eaton County Road Commission (ECRC) and Eaton County Drain Office (ECDO) and understands the County's design requirements for safety, traffic control, backfill, erosion control, paving, and site restoration. We will invite the County to attend the on-site utilities coordination meeting and will confirm the project design criteria with the County prior to preparing formal review documents and permit applications. **Based on our experience working in Eaton County, we anticipate permit applications to be processed efficiently and returned without exception.**

### Keynotes 4 and 5

Keynotes 4 and 5 identify properties where easement acquisition may be required. These include private property and the Delta Center Cemetery, operated by the Township's Parks, Recreation, & Cemeteries Department.

### Easement Identification

Our design team will conduct a desktop review of public right-of-way and easement boundaries, walk the planned alignment in the field, assess property impacts of the planned interceptor alignment, identify new easement requirements, and submit a summary of our findings to the Township. It has been our experience that if this is performed early, problematic issues with easements can sometimes be eliminated. Our design team will evaluate potential adjustments in the planned alignment to minimize impacts to private property and residents and plan the work within existing easement limits to the extent practical.

After confirming easement requirements, we will attend an on-site meeting with impacted property owners and residents to support the Township in describing the project and potential property impacts. The optimal timing of this meeting should be confirmed by the Township's land acquisition consultant, to align with their strategy for obtaining fair agreements with property owners. Our goal is to have final easement agreements in place prior to bidding the work.

### Cultural Resources Investigation (Alternate Value Added Service)

We recommend an allowance be included to conduct a cultural resources investigation.

Upon the Township's request, Tetra Tech's partner, Commonwealth Heritage Group, Inc. (Commonwealth) will complete a cultural resources desktop review for the site. Appropriate database review will be completed for assessing historical, cultural and archaeological resources in compliance with the National Historic Preservation Act (54 U.S.C. 306108). Commonwealth will conduct a literature review at the Michigan State Historic Preservation Office compiling information regarding previously identified archaeological sites and surveys within the site, as well as archaeological sites and surveys in a one-mile radius around the site. In addition, Commonwealth will review the National Register of Historic Places (NRHP) and on-line repositories and compile the background information, in order to establish an understanding of the cultural resource sensitivity in the vicinity of the site.

If the desktop investigation identifies evidence of cultural resources near or within the proposed construction site limits, we recommend a follow-on Phase I Archaeological Survey and Archaeological Survey Report.

At the Township's request, a follow-on Phase I Archaeological Survey will be conducted by Commonwealth along the proposed interceptor corridor. The recommended allowance amount for this work is included in the Omission of Services section.

A letter report will be prepared summarizing the results of the literature review and archaeological field survey, if conducted. The report will include an overview map of the site, shovel test forms, findings, and NRHP recommendations for all identified archaeological sites in the surveyed area. The recommended allowance amount for this work is included in the Omission of Services section.

### Keynotes 6, 7, and 8

Keynotes 6, 7, and 8 of Figure A identify locations where the proposed interceptor encroaches on or crosses Carrier Creek, the floodplain, or floodway. These related features present similar challenges related to poor soils and high groundwater, wetland construction, and permitting.

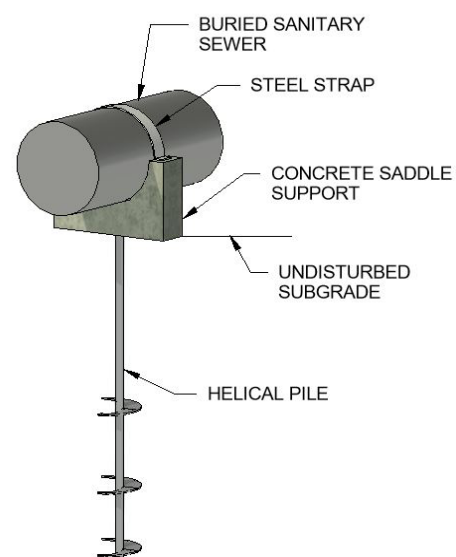
### Poor Soils and High Groundwater

Poor soils and high groundwater require consideration for alternate interceptor materials, advanced support and buoyancy resistance of the interceptor and manholes. Piping materials, bedding, backfill, foundational support, and uplift anchorage provisions will be evaluated as a complete system to optimize the best solution. The piping materials evaluation will consider strength, rigidity, joint deflection, joint restraint, weight, connection to existing pipe materials and manholes, and connection to proposed foundational and anchorage systems.

Manholes in wet areas are typically held in place with an oversized integrated base, which will resist settlement and buoyant forces. Manhole sections must be sealed, physically joined, and extended beyond the base flood elevation to prevent infiltration and inflow.

To prevent settlement and resist buoyancy of the proposed interceptor, we will evaluate various pile foundation designs and anchoring systems, including helical pile, auger-cast pile, and steel H-pile. We will collaborate with SME to identify the preferred foundation based on geotechnical investigations and constructability considerations. Helical piles may offer the best solution for this project, because they can be installed quickly and without heavy equipment. Figure B below depicts this concept. We will work closely with SME to confirm the detailed foundation requirements for the interceptor and manholes.

### FIGURE B - CONCEPTUAL HELICAL PILE INTERCEPTOR SEWER FOUNDATION AND ANCHOR





*Manholes will be extended beyond the base flood elevation with sealed and joined sections.*

### Wetland Delineation

Wetland delineation services will be completed in accordance with the U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual (1987 Manual) and the accompanying Regional Supplement to the USACE Wetland Delineation Manual North Central and Northeast Region (v2.0) dated January 2012 (Regional Supplement). Prior to site visits, on-line data sources will be reviewed, including the United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI), United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey, United States Geological Survey (USGS) National Hydrography Dataset (NHD), Michigan Department of Environment, Great Lakes, and Energy (EGLE) Final Wetland Inventory, Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (NFHL) and Flood Insurance Rate Maps (FIRM), as well as topographic and aerial data.

Wetlands and water resources on the site are under the jurisdiction of EGLE. A Joint Permit Application (JPA) will be required for crossing under Carrier Creek. Additionally, based on project design and the results of the wetland delineation, permitting for crossing EGLE regulated wetlands and 100-year floodplain adjacent to the Carrier Creek will be required under the same JPA. A review of the USFWS NWI indicates that wetlands are adjacent to each side of Carrier Creek and a review of the FEMA FIRM indicates that 100-year floodplain is associated with the creek.

Wetland boundaries will be field located upon Award, before end of year weather conditions impact the ability to determine boundaries. Boundaries will be located with a sub-meter GPS unit; wetland boundaries will be delineated within approximately 100 feet on each side of the planned alignment. The top of bank (left and right) for streams and watercourses will be recorded with a sub-meter GPS unit, provided that each bank is located within the subject property. In the event the tree canopy interferes with GPS accuracy, wetland boundaries will be field marked and surveyed for addition to the topographic background drawing. We recommend including a contract allowance to conduct additional topographic survey to locate field marked wetland boundaries in the event GPS data does not provide reliable information. The recommended allowance amount for this work is included in the Omission of Services section.

As part of the wetland field investigation, our wetland scientist will conduct a due diligence habitat assessment for potential threatened and endangered (T&E) species during the wetland delineation activities. Online data sources will be reviewed for state and federally listed T&E prior to the site visit, including the USFWS Information, Planning, and Consultation (IPaC) system and Michigan Natural Features Inventory (MNFI). In the Lansing area, the typical species of concern are the Indiana Bat and Northern Long Eared Bat. If evidence of bat habitat is observed, impacts will be minimized by scheduling tree clearing activities during the bat hibernation period (October 1 through March 31). **This effort will protect wildlife, improve public perception of the project, and minimize the risk of delay.**

Desktop evaluation and field investigation findings will be summarized in a wetland delineation and qualitative habitat assessment (QHA) report. Our design team will consider the findings in this report to minimize impact to environmentally sensitive areas.

### Permitting

The Eaton County Drain Office will require a permit for work in the Carrier Creek right-of-way. We will coordinate with the County as the proposed interceptor alignment is confirmed and keep them apprised of our progress to streamline County right-of-way permitting. Our team will prepare the required permit application and supporting documents for submittal to the County.

Permitting for work within the floodplain poses a significant risk to the project schedule. In our experience, development of the JPA can take approximately 30 days from the 90-percent design milestone, followed by up to 90 days for permit review, and up to 20 days thereafter for public comment. Bidding may take place prior to permit acceptance but at the risk of review comments requiring changes that must be addressed by addendum bidding documents or change order to the construction contract.

Wetland Scientist, Patti McCall, has worked with Jeff Pierce, from EGLE's Lansing District Office Water Resources Unit and developed a successful approach to streamlining and potentially expediting the review process. Her approach will begin with early review of the project intent with EGLE, followed by discussions at intermediate design milestones and an on-site meeting with Mr. Pierce to review the project following application submittal, which will result in efficient review of the permit application.

Frequent correspondence with EGLE enables our design team to address regulatory concerns as the design is developed, resulting in permit approval without exception. **This approach minimizes the risk of design changes and costly construction change orders.**

### **Bidding, Construction, and Closeout Services**

We will assist the Township with bidding, construction, and closeout services, as outlined in the Scope of Services provided in the RFP. In addition to these services, we will prepare contractor pre-qualification requirements and review prospective bidder submittals to short-list pre-qualified contractors.



*East floodway.*

Our construction administration team of Andy Heise and Rob Watt are knowledgeable in buried linear infrastructure work. Both hold active certification for OSHA, CPR/First Aid, and EGLE Stormwater Operator, and collectively, they provide the Township with certified technicians of MDOT HMA Paving, MDOT Concrete Paving, MDOT Underground Pipe Installation, and National Highway Institute Pipe Installation and Inspection. Further strengthening our construction administration team, our civil and structural designers on this project will support Andy and Rob with technical guidance and occasional field visits to ensure the interceptor installation meets the design intent.

Construction observation, administration, and inspection are responsibilities that Tetra Tech takes seriously. We recognize the construction professional has a large role in managing risk and minimizing cost overruns and scheduling delays on projects. They are the last set of eyes on a project before and during the construction and are trained to anticipate issues and resolve them before they become problems. Additionally, our construction professionals accurately and diligently document issues that occur during construction so the Township's risk is managed. For many projects, the construction professional maintains the records of elevations and locations for the completion of an accurate, reliable set of conforming to-construction-records drawings (i.e., as-builts). However, we understand the construction professional's role is more than that. Our construction administration team will be the liaison between the public and the Township. They must possess interpersonal skills to listen to the public, understand their concerns, and resolve issues that impact them. We have a proven track record of delivering construction contracts on-time, within budget, and without public or regulatory concerns.

### **Summary of Work**

The table on the following page summarizes our key tasks, project deliverables, and meetings to provide a clear understanding of our services, sequence, milestones, and participation by the Township. Listed meetings will be led by Tetra Tech, unless noted otherwise. Key assumptions related to our approach and scope of work are described in the Omissions of Services section of this proposal.

**TABLE 2 - TETRA TECH'S COMPREHENSIVE APPROACH TO DELIVERABLES**

TASKS	DELIVERABLES	MEETINGS
<b>Planning</b>		
<ul style="list-style-type: none"> <li>» Township, MISS DIG, &amp; Utilities Data Requests</li> <li>» Review Previous Reports &amp; Background Data</li> <li>» Confirm Right-of-Way and Easement Limits</li> <li>» Site Visit</li> <li>» Wetland Delineation</li> <li>» Cultural Resources Evaluation (optional)</li> <li>» Topographic Survey</li> <li>» Confirm Interceptor Alignment</li> <li>» Identify Easement Requirements</li> <li>» Confirm Design Criteria</li> <li>» Confirm Permit Requirements</li> </ul>	<ul style="list-style-type: none"> <li>» Site Survey / Background Drawings</li> <li>» Preliminary Easement Requirements</li> <li>» Basis of Design Memorandum                             <ul style="list-style-type: none"> <li>• Alignment Evaluation</li> <li>• Sewer Design Criteria</li> <li>• Structural Support Design Criteria</li> <li>• Permitting Requirements</li> <li>• Wetland Study</li> <li>• Archaeological Study (optional)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>✓ Kick-off</li> <li>✓ On-site Utilities</li> <li>✓ Preliminary Basis of Design</li> <li>✓ Basis of Design Review</li> </ul>
<b>Preliminary Design</b>		
<ul style="list-style-type: none"> <li>» Develop 30% Design</li> <li>» Constructability Review</li> <li>» Quality Assurance Review</li> </ul>	<ul style="list-style-type: none"> <li>» 30% Design Documents                             <ul style="list-style-type: none"> <li>• Sewer Plan Drawings</li> <li>• Opinion of Probable Const. Cost</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>✓ 30% Design Review</li> </ul>
<b>Final Design</b>		
<ul style="list-style-type: none"> <li>» Incorporate 30% Township Review Comments</li> <li>» Develop 60% Design</li> <li>» Constructability Review</li> <li>» Quality Assurance Review</li> </ul>	<ul style="list-style-type: none"> <li>» 60% Design Documents                             <ul style="list-style-type: none"> <li>• Site Removal Drawings</li> <li>• Plan &amp; Profile Drawings</li> <li>• Structural Drawings</li> <li>• Technical Specifications</li> <li>• Opinion of Probable Const. Cost</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>✓ 60% Design Review</li> </ul>
<ul style="list-style-type: none"> <li>» Incorporate 60% Township Review Comments</li> <li>» Develop 90% Design</li> <li>» Constructability Review</li> <li>» Quality Assurance Review</li> <li>» Prepare Permit Applications</li> </ul>	<ul style="list-style-type: none"> <li>» 90% Design Documents                             <ul style="list-style-type: none"> <li>• Easement Legal Descript./Exhibits</li> <li>• Drawings (full set)</li> <li>• Draft Front End Documents</li> <li>• Technical Specifications (full set)</li> <li>• Opinion of Probable Const. Cost</li> <li>• Permitting Documents</li> <li>• Eaton County Road Commission</li> <li>• Eaton County Drain Office</li> <li>• EGLE Permit Application</li> <li>• Joint Permit Application</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>✓ 90% Design Review</li> <li>✓ Township Board of Trustees Presentation</li> </ul>
<ul style="list-style-type: none"> <li>» Incorporate 90% Township Review Comments</li> <li>» Finalize Design</li> <li>» Incorporate County Review Comments</li> <li>» Incorporate Regulatory Review Comments</li> <li>» Evaluate contractor qualifications</li> </ul>	<ul style="list-style-type: none"> <li>Contractor Pre-qual. Requirements:</li> <li>» Bidding Documents                             <ul style="list-style-type: none"> <li>• Drawings</li> <li>• Draft Front End Documents</li> <li>• Technical Specifications</li> <li>• Opinion of Probable Cons. Cost</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>✓ Contractor interviews (if required)</li> </ul>

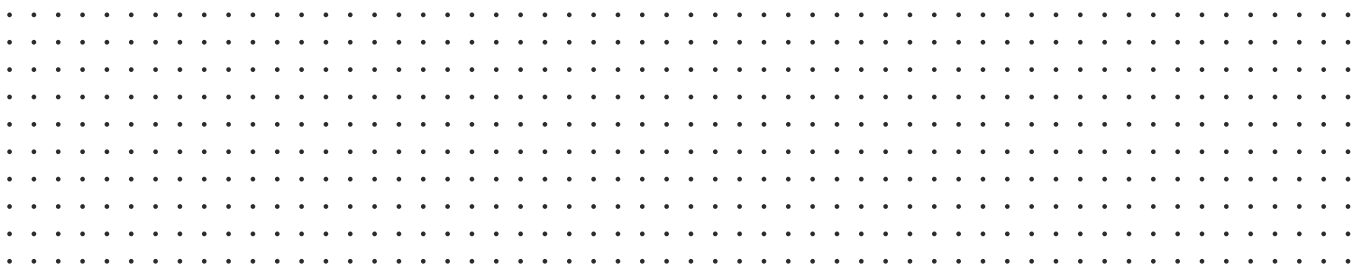
TASKS	DELIVERABLES	MEETINGS
<b>Bidding</b>		
<ul style="list-style-type: none"> <li>» Respond to Bidder RFIs</li> <li>» Prepare Addenda Clarifications</li> <li>» Recommend Award</li> </ul>	<ul style="list-style-type: none"> <li>» 100% Design / Bidding Documents</li> <li>» Final Draft Front End Documents</li> <li>» Opinion of Probable Construction Cost</li> <li>» Responses to Bidder RFIs</li> <li>» Addenda Language and Drawings</li> <li>» Recommendation of Award</li> </ul>	<ul style="list-style-type: none"> <li>✓ Pre-bid</li> <li>✓ Bid Opening (attend)</li> <li>✓ Bidder Interviews (up to 2)</li> </ul>
<b>Construction</b>		
<ul style="list-style-type: none"> <li>» Resident Inspection and Reporting</li> <li>» Submittal Review</li> <li>» Pay Application Review</li> <li>» Coordination with Home Owners</li> <li>» Construction Staking</li> <li>» Acceptance Testing</li> <li>» Punchlist Administration</li> </ul>	<ul style="list-style-type: none"> <li>» Construction Administration Correspondence                             <ul style="list-style-type: none"> <li>• Submittal Review Comments</li> <li>• Contractor RFI Responses</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>✓ Pre-construction</li> <li>✓ Monthly Construction Meetings (attend)</li> </ul>
<b>Closeout</b>		
<ul style="list-style-type: none"> <li>» Prepare As-Constructed Record Drawings</li> <li>» Gather Final Project Data</li> </ul>	<ul style="list-style-type: none"> <li>» Field Reports</li> <li>» Final Acceptance Testing Forms</li> <li>» Final Completion Forms</li> <li>» Record of Permit Closeout</li> <li>» As-Constructed Record Drawings</li> </ul>	<ul style="list-style-type: none"> <li>✓ Client Satisfaction Interview</li> </ul>

Tetra Tech strives to meet and exceed our client’s expectations for successful project delivery. Your feedback regarding our performance is imperative for our teams to consistently meet this goal. Listening to your opinions allows for continuous improvement in our approach to serving Delta Charter Township. We will conclude the project with a Client Satisfaction Interview, to be conducted by Gary Markstrom with the Township’s project manager. Our effort related to this task will not be invoiced to the Township.





# Proposed Schedule for Providing Services

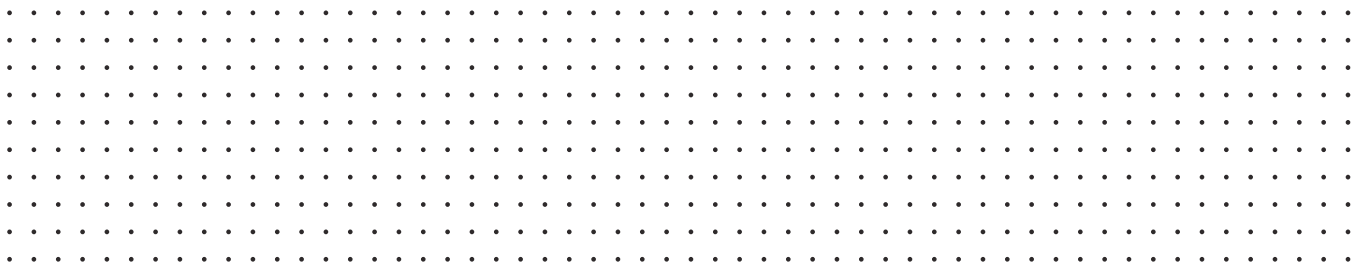








# Fees




# FEES

Our professional engineering services fees for the referenced project is presented herein. The combined cost of the proposed engineering services is **\$169,900**, which time and materials is not to exceed amount.

Tetra Tech did not collude with any other person, firm, or corporation in regard to the proposal submitted. We stipulate that this proposal will remain valid for at least a 90-day period from the date of your opening.

We confirm that the undersigned is the authorized negotiator for this project.

To the best of my knowledge, there is no known conflict of interest between Tetra Tech and Delta Charter Township.




Gary Markstrom, PE  
Client Representative

Tetra Tech Service Fees		
Service	Hours	Fee (T&M, NTE)
Design Phase Services	483	\$76,678
Wetland Delineation & Permit	184	\$16,357
Bidding Phase Services	28	\$4,779
Construction Phase Services	616	\$69,588
Reimbursable Expenses	-	\$2,498
<b>Total Estimated Fee</b>		<b>\$169,900</b>

*A comprehensive breakdown of our proposed Labor Plan and hourly billing rate schedules for subconsultant team members follow this summary.*

Commonwealth Heritage Group Team Member Billing Rates	
Title and Name	Billing Rate
Project Manager, Varies	\$128.91
Principal Investigator, Emily Mueller Epstein, Ph.D.	\$76.58
GIS Specialist, Varies	\$66.64
Field Director, Varies	\$55.81
Editor, Varies	\$61.88

 <b>Price Proposal</b>		Labor Plan																				
<b>Carrier Creek Interceptor Sewer Repair</b> <small>Design, bidding, &amp; construction engineering services</small>		Bill Rate >	100.00	260.00	196.00	152.00	136.00	100.00	135.00	147.00	120.00	195.00	105.00	85.00	159.00	38.00	51.50	65.00	Total Price		169,900	
Submitted to: Delta Charter Township Attn: Ernie West, P.E.		Total Labor Hrs	Administrative (Pat Christian)	Client Representative (Gary Markstrom)	Project Manager (Ben Whitehead)	QA/QC & Constructability (John Barber)	Sr. Civil Engineer (Daniel Warren)	Civil Engineer (Shelby Scherdt)	Civil Design Tech. (Todd Hollenbeck)	Sr. Structural Design Engineer (Alan Flak)	Structural Design Technician (Brent Fox)	Structural Design QA (Jason Burkett)	Construction Manager (Andy Heise)	Resident Engineer (Rob Watt)	Sr. Engineer/Scientist (Patti McCall)	Technician (Christy Kelly)	Project Support (Ally Racisz)	Engineer / Scientist (John Delehanty)	Pricing by Resource			
Contract Type: T&M			Labor	Sub-consultants	Reimbursable Expenses	Task Pricing Totals																
Project Phases / Tasks		1,311	10	21	123	18	112	98	142	77	24	8	68	418	64	41	20	67	156,787	10,615	2,498	169,900
<b>Design Phase Services</b>		<b>483</b>	<b>10</b>	<b>13</b>	<b>62</b>	<b>18</b>	<b>92</b>	<b>98</b>	<b>102</b>	<b>48</b>	<b>24</b>	<b>8</b>	-	-	<b>8</b>	-	-	-	<b>68,923</b>	<b>7,755</b>	-	<b>76,678</b>
Project Management (Setup, Subs, Work Plan, 6 mo. Reporting/Invoicing)		22		6	16														4,779			4,779
Kick-off Meeting		20		2	8		2			4					4				3,584			3,584
Review Meetings (4: BDR, 30, 60, 90%)		36		4	16		8			4					4				6,514			6,514
Board of Trustees Meeting / Presentation		4		1	3														878			878
Desktop Background Investigation (geotech, reports, GIS, records)		13			1		8			4									1,872			1,872
Field Investigations (coord w/homeowners, utilities, field verification)		12			4			8											1,584			1,584
Topo Survey, Utilities Investigation - Geodetic Design		-																		6,270		6,270
Legal Descriptions (3) - Geodetic Design		-																		1,485		1,485
Basis of Design Report (incl. Alignment Drawing)		38	2		4	4	16		8	4									5,436			5,436
Front End Documents		4			4														798			798
Technical Specifications (12 General/Civil, 2 Structural)		54	8				18	18		6		4							6,827			6,827
Plan & Profile Drawings (4 - 1,300-ft @ 30 scale + 3 san. sewers)		60					8	16	36										7,652			7,652
G&C Dwgs (10 - Cover, Notes, Rem., 2 Borings, SESC, 2 Rest., Det., MOT)		126					24	48	54										15,566			15,566
Structural Drawings (1 - Details)		50								22	24	4							6,989			6,989
OPCCs (BDR, 30, 60, 90, 100%)		16			4		8			4									2,494			2,494
Part 41 Application		8						4	4										973			973
ECRC Permit Application & coord w/ECRC		6			2			4											820			820
QA/QC & Constructability (30, 60, 90, 100%)		14				14													2,157			2,157
<b>Wetland Delineation &amp; Permit</b>		<b>184</b>	-	-	-	-	-	-	-	-	-	-	-	-	<b>56</b>	<b>41</b>	<b>20</b>	<b>67</b>	<b>16,357</b>	-	-	<b>16,357</b>
Wetland Delineation & Report		102													15	33	4	50	7,299			7,299
Joint Permit Application & coord w/EGLE		46													21	8	12	5	4,747			4,747
ECDO Permit Application & coord w/ECDO		36													20		4	12	4,312			4,312
<b>Bidding Phase Services</b>		<b>28</b>	-	-	<b>13</b>	-	<b>8</b>	-	<b>4</b>	<b>3</b>	-	-	-	-	-	-	-	-	<b>4,779</b>	-	-	<b>4,779</b>
Pre-bid Meeting		6			6														1,217			1,217
Bidder RFIs		8			2		4			2									1,273			1,273
Addenda Preparation		8					4		4										1,122			1,122
Bid Opening, Evaluation/2 Interviews/RoA		6			5					1									1,166			1,166
<b>Construction Phase Services</b>		<b>616</b>	-	<b>8</b>	<b>48</b>	-	<b>12</b>	-	<b>36</b>	<b>26</b>	-	-	<b>68</b>	<b>418</b>	-	-	-	-	<b>66,729</b>	<b>2,860</b>	-	<b>69,588</b>
Project Management (6 mo. Reporting/Invoicing, closeout)		16		8	8														3,776			3,776
Pre-construction Meeting		10			6								2	2					1,610			1,610
Monthly Meetings (6)		12			6								6						1,869			1,869
Construction Administration		100			24					16			60						13,823			13,823
Contractor RFIs		6					4			2									867			867
Submittal Review		20			4		8			8									3,155			3,155
Construction Staking - Geodetic Design		-																		2,860		2,860
Resident Insp. (8wk@40hr + 12wk@8hr, testing, mtgs, punchlist, records)		416												416					36,598			36,598
As-Constructed Record Drawings		36							36										5,030			5,030
<b>Reimbursable Expenses</b>		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<b>2,498</b>	<b>2,498</b>
Reimbursable Expenses (mileage, GPS equipment, NMFI access)		-																			2,498	2,498
<b>Totals</b>		<b>1,311</b>	<b>10</b>	<b>21</b>	<b>123</b>	<b>18</b>	<b>112</b>	<b>98</b>	<b>142</b>	<b>77</b>	<b>24</b>	<b>8</b>	<b>68</b>	<b>418</b>	<b>64</b>	<b>41</b>	<b>20</b>	<b>67</b>	<b>156,787</b>	<b>10,615</b>	<b>2,498</b>	<b>169,900</b>

Note: The proposed fee accounts for annual rate increases of approximately 3% for Tetra Tech professionals beginning January 2021.

**Geodetic Designs Inc.**  
 2300 North Grand River Ave.  
 Lansing, MI 48906  
 Ph: 517-908-0008  
 Fax: 517-908-0009  
[www.geodeticdesigns.com](http://www.geodeticdesigns.com)



*Boundary/Topographic Surveying*  
*Construction Staking*  
*Subdivisions/Condominiums*  
*FEMA/Floodplain Mapping*  
*Environmental Surveying*  
*ALTA/NSPS Surveys*  
*Hazwoper Certified*  
*MDOT Surveying Prequalified*  
*Certified Federal Surveyors*

**Schedule of Fees as of January 1, 2020**  
**Rates in effect until December 31<sup>st</sup>, 2020**

<i>Deposition/Special Consultation/Court appearance rate:</i>	<b>\$285.00/hr</b>
<i>Principal:</i>	<b>\$190.00/hr</b>
<i>Professional Surveyor (Project Leader):</i>	<b>\$125.00/hr</b>
<i>CAD Designer/Project Surveyor:</i>	<b>\$85.00/hr</b>
<i>Field/Office Technician:</i>	<b>\$58.00/hr</b>
<i>Clerical</i>	<b>\$47.00/hr</b>
<i>1 Man Survey Crew (Professional Surveyor With GPS/Robot):</i>	<b>\$145.00/hr</b>
<i>2 Man Survey Crew (Professional Surveyor With GPS/Robot):</i>	<b>\$180.00/hr</b>

**Miscellaneous Items:**

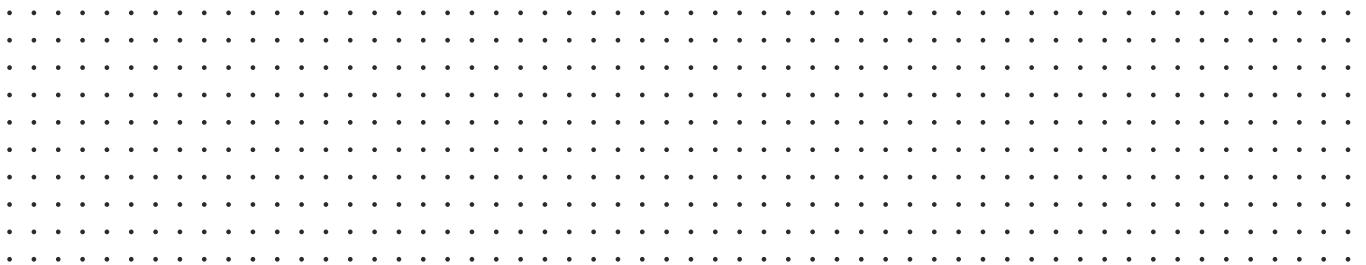
<b>Mileage (Time and Material Contracts):</b>	<b>\$0.575 per mile</b>
<b>Concrete Monument:</b>	<b>\$15.00 per monument</b>
<b>5/8"x 24" steel rebar and cap:</b>	<b>\$3.50 per monument</b>
<b>Wood stakes and lath (in excess of 50 stakes per day):</b>	<b>\$1.00 per stake</b>
<b>6' long "T" post property line markers:</b>	<b>\$8.50 per post</b>

**Notes:**

- 1) Field crew rates include staking materials (up to 50 stakes per day) and equipment
- 2) An additional \$45 per hour applies to the per hour field crew rate on projects requiring *Hazwoper* environmental certifications and PPE equipment.
- 3) Overtime rates for hourly workers will be charged at 1-1/2 times the above rates.
- 4) The rates shown shall be charged at twice the hourly rate for 24-hour emergency service and holiday/weekend responses.



# Insurance



# INSURANCE



## CERTIFICATE OF LIABILITY INSURANCE

DATE(MM/DD/YYYY)  
09/24/2020

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b> Aon Risk Insurance Services West, Inc. Los Angeles CA Office 707 Wilshire Boulevard Suite 2600 Los Angeles CA 90017-0460 USA	<b>CONTACT NAME:</b> PHONE (A/C No. Ext): (866) 283-7122      FAX (A/C No.): (800) 363-0105		
	<b>E-MAIL ADDRESS:</b>		
<b>INSURED</b> Tetra Tech of Michigan P.C. 401 South Washington Square, Suite 100 Lansing MI 48933 USA	<b>INSURER(S) AFFORDING COVERAGE</b>		<b>NAIC #</b>
	<b>INSURER A:</b> Lexington Insurance Company		19437
	<b>INSURER B:</b> Zurich American Ins Co		16535
	<b>INSURER C:</b> American International Group UK Ltd		AA1120187
	<b>INSURER D:</b>		
	<b>INSURER E:</b>		

Holder Identifier :

**COVERAGES**      **CERTIFICATE NUMBER:** 570084052388      **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS. Limits shown are as requested

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
B	<input checked="" type="checkbox"/> <b>COMMERCIAL GENERAL LIABILITY</b> <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> X,C,U Coverage GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input checked="" type="checkbox"/> LOC OTHER:			GL0181740602	10/01/2020	10/01/2021	EACH OCCURRENCE	\$2,000,000
							DAMAGE TO RENTED PREMISES (Ea occurrence)	\$1,000,000
							MED EXP (Any one person)	\$10,000
							PERSONAL & ADV INJURY	\$2,000,000
							GENERAL AGGREGATE	\$4,000,000
							PRODUCTS - COMP/OP AGG	\$4,000,000
B	<input checked="" type="checkbox"/> <b>AUTOMOBILE LIABILITY</b> <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> NON-OWNED AUTOS ONLY			BAP 1857085 02	10/01/2020	10/01/2021	COMBINED SINGLE LIMIT (Ea accident)	\$5,000,000
							BODILY INJURY (Per person)	
							BODILY INJURY (Per accident)	
							PROPERTY DAMAGE (Per accident)	
C	<input checked="" type="checkbox"/> <b>UMBRELLA LIAB</b> <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> <b>EXCESS LIAB</b> <input type="checkbox"/> CLAIMS-MADE DED <input checked="" type="checkbox"/> RETENTION \$100,000			62785232	10/01/2020	10/01/2021	EACH OCCURRENCE	\$10,000,000
							AGGREGATE	\$10,000,000
B	<input checked="" type="checkbox"/> <b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR / PARTNER / EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below			WC254061602 WC185708702	10/01/2020 10/01/2020	10/01/2021 10/01/2021	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTHER	
B							E.L. EACH ACCIDENT	\$1,000,000
							E.L. DISEASE-EA EMPLOYEE	\$1,000,000
							E.L. DISEASE-POLICY LIMIT	\$1,000,000
A	<input checked="" type="checkbox"/> <b>Env Contr Prof</b>			028182375 Prof/Poll Liab SIR applies per policy terms & conditions	10/01/2019	10/01/2021	Each Claim	\$5,000,000
							Aggregate	\$5,000,000

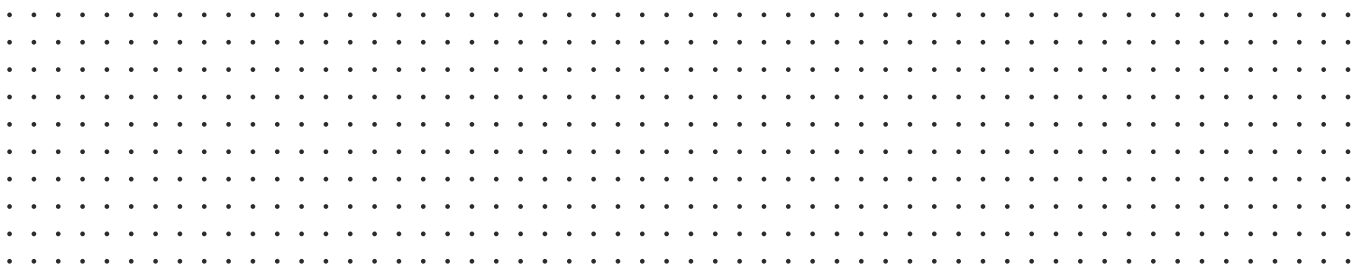
Certificate No : 570084052388

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)  
 Stop Gap Coverage for the following states: OH, ND, WA, WY.

<b>CERTIFICATE HOLDER</b>  Tetra Tech of Michigan, PC 401 South Washington Square, Suite 100 Lansing MI 48933 USA	<b>CANCELLATION</b>  SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.  AUTHORIZED REPRESENTATIVE  
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# Disclosure





# DISCLOSURE

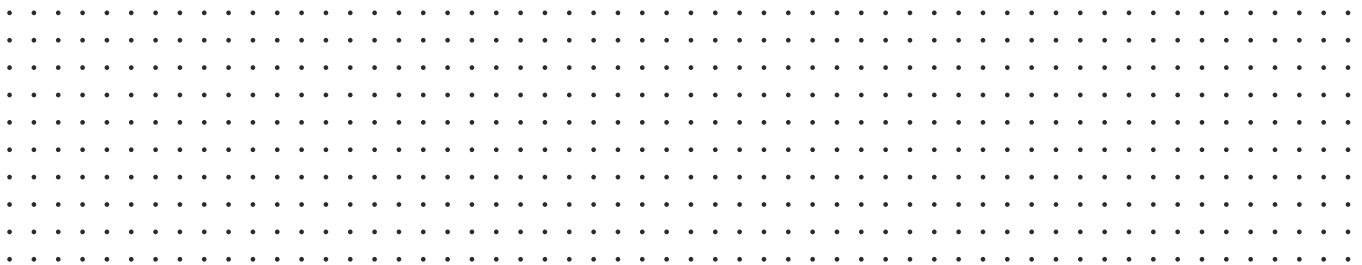
To the best of my knowledge, there is no known conflict of interest between Tetra Tech and Delta Charter Township.



Gary Markstrom, PE  
*Client Representative*



# Omission of Services



# OMISSION OF SERVICES

We acknowledge each task defined in the RFP will be executed in support of this project, and we take no exceptions to the requirements described therein. We have summarized our assumptions below to supplement our proposed approach and scope of services:

- » Deliverables will be submitted electronically, in portable document format (PDF). Draft Front End Documents will be submitted in Microsoft Word format, for final use by the Township in preparation of the Bid Advertisement. Sealed full-sized hard copy drawings and specifications will be submitted with permit applications, as required by the respective AHJs. Final bidding drawings and as-constructed record drawings will be submitted in AutoCAD Civil 3D 2018-2019 and PDF format.
- » We will prepare and submit permit applications with supporting exhibits to the Township. With exception of the Joint Permit Application (JPA), The Township will submit permit applications with applicable fees to the AHJs. Tetra Tech will submit the JPA to the local EGLE regulator through the MiWaters database system with the applicable fee. We have included a \$560 reimbursable expense in our fee.
- » Our proposed level of effort is based on the general alignment and length of planned interceptor as depicted in the RFP. We assume minor adjustments to the alignment and length will be required to optimize the design. A detailed evaluation of significantly different alternate alignments, such as locating the interceptor east of Carrier Creek, will require additional effort for related field investigation, and may impact planning, design, and construction phase effort.
- » We will submit a request to Delta Charter Township to obtain permission from property owners for accessing the site for field investigations. Delta Township will provide access agreements to Tetra Tech before field work begins and property owners will be notified of Tetra Tech's schedule.
- » Our proposed level of effort for topographic survey allows for up to 1,400-ft along the alignment, with up to 100-ft on each side. Our proposed level of effort for construction staking allows for up to 1,300-ft of proposed interceptor.
- » We have assumed up to three (3) easements will be required. Our level of effort is based on providing legal descriptions and supporting exhibits for easement acquisition by Delta Charter Township.
- » If requested by the Township, the Cultural Resources site investigation will include a series of up to forty (40) shovel test pits in accessible areas along the proposed alignment. It is assumed the survey will identify no more than one new archaeological site and recover no more than twenty-five (25) artifacts requiring analysis. Our proposed level of effort for the field investigation allows for up to 1,400-ft along the alignment, with 25-ft on each side. Identification of significant archaeological deposits, such as human remains or a burial site will require additional archaeological consulting services, not included in the recommended allowance amount.
- » Our proposed level of effort for wetland delineation allows for up to 1,400-ft along the alignment, with 100-ft on each side. Survey of the wetland delineation lines, water features and soil pit locations will be completed with a GPS unit with sub-meter accuracy during the field event, provided tree canopy does not hinder reception. We have included reimbursable expenses in our proposed fee of \$390 for GPS unit rental and \$550 for accessing the Michigan Natural Features Inventory on-line database.
- » Delta Charter Township will prepare and publish the bid advertisement. We will prepare addendum items for the Township's use in developing and transmitting addenda to prospective bidders.

- » Our level of effort for resident inspection services is based on 416 hours of on-site inspection, based on providing one full-time professional (40 hours per week) for eight weeks to witness the entire interceptor installation and providing part time inspection (8 hours per week) for twelve weeks to witness clearing, dewatering, removals, and restoration work.
- » Travel expenses for site investigations and meeting attendance by non-local professionals is included in our proposed fee as a \$1,000 reimbursable expense.
- » Recommended allowances are summarized below. These allowances are not included in our proposed fee.

Permitting Fee (ECRC, ECDO, EGLE Part 41) Allowance.....	\$4,000
Subsurface Utility Exploration & Potholing Allowance.....	\$4,400
Follow-on Survey Allowance .....	\$2,200
Cultural Resources Evaluation Allowance.....	\$1,540
Follow-on Cultural Resources Evaluation Allowance .....	\$6,670

Gary Markstrom, PE  
 Client Representative



**TETRA TECH**

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401 South Washington Square, Ste. 100 | Lansing, MI 48933

Phone: 517.316.3930

[www.tetrattech.com](http://www.tetrattech.com)



Engineering Department

(517) 323-8540

**TO: Supervisor Kenneth R. Fletcher and the Delta Township Board**

**FROM: Ernest A. West, P.E., Township Engineer  
Rick Kane, Utilities Director**

**DATE: October 14, 2020**

**SUBJECT: Willow Sanitary Sewer Lift Station Replacement  
Preliminary Design Engineering Services  
Contract Award**

**Background**

The Willow Lift Station (LS) is located on Willow Hwy in Section 8 of Delta Township (see attached sanitary sewer service area map). The station was constructed in 1985 and provides service to most of the sanitary sewer customers located west of I-69/96. Nearly all customers in the Willow LS service area are residential customers. Since the mid-2000's, most residential development in Delta Township has occurred west of I-69/96 and development pressure is expected to continue in Willow LS service area.

High flows associated with wet weather events in 2016 caused Staff to recommend an engineering study of the LS service area to determine what upgrades may be required to handle current wet weather flows, as well as accommodate additional growth in the service area. In June of 2017, the Township contracted with OHM Advisors to conduct an evaluation of the LS service area. Between June 2017 and May 2018, Staff from the Engineering Department and Utilities Department worked closely with OHM Advisors (OHM) to complete the study.

In May of 2018, OHM presented a summary of the findings and recommendations to the Township Board. The first recommendation was to complete a short-term upgrade to mechanically restore the firm capacity of the LS to handle existing high flow events and provide a nominal amount of capacity for residential growth. This work was completed by Township Staff in July of 2018, at significant cost savings to the Township, as compared to OHM estimates. The result was that the station now has sufficient capacity to handle wet weather event flow and additional capacity for approximately 300 new residential connections. Of these 300 connections, approximately 100 have since been allocated to planned development, though they are not necessarily built and contributing flow at this time.

The other recommendations contained in the presentation/report revolved around planning for the remaining future growth of the residential service area, including:

- Constructing a much larger LS to accommodate 20-yr's of projected growth, with room for expansion for the ultimate build-out of the service area - \$4.0 to \$4.3 million



- Constructing parallel force main downstream of the LS after approximately 700 new connections are made - \$3.8 million
- Constructing a relief gravity sewer in the St. Joe/Nixon area after 300 new connections are made in this area - \$1.4 to \$1.6 million

The exact timing of the need for these projects is not known, as the timing will be dependent on the residential growth in the service area. Of the three projects noted above, the design of the new LS will take the most time to accomplish.

### **Proposed Preliminary Design of New LS**

The new Willow LS, recommended by the OHM study, is planned to be constructed on a 10-acre portion of the Lootens Park property, which is adjacent to the existing Willow LS site (see attached map). A 10-acre area of the property was reserved by the Township for a potential satellite wastewater treatment plant (WWTP) in 2011, through a conversion process with the DNR. However, the recently completed study of the WWTP eliminated a satellite WWTP as a recommended alternative, given the need to upgrade the entire main WWTP anyway, due to its age, condition, and new treatment requirements. This decision makes the 10-acre area available for a new Willow LS, which cannot be situated on the existing Willow LS site due to the space constraints of the existing site and the need to maintain the existing LS operation during construction of the new LS.

The Lootens site is not easily accessed, has significant topographical change, and has a significant open county drain crossing the property that all will present challenges for the construction of the new LS. How these challenges are addressed in the design could significantly impact the cost to construct the LS. Properly analyzing these challenges and developing appropriate solutions will take approximately 6 months to complete.

To continue the proactive planning of the replacement of the Willow LS, Staff recommended, and the Township Board included funds in the 2020 budget to begin preliminary engineering for the new LS. This effort will put the Township in a good position to implement the project in a timely manner and/or take advantage of opportunities that may arise.

The goals of the preliminary design engineering effort are as follows:

- Confirm the basis of design capacity and layout of the new LS
- Determine the exact location of LS on the site
- Identify environmental permitting issues
- Evaluate underlying soil conditions that may affect construction costs
- Verify site access (driveway) routes
- Verify site utility (electricity, natural gas, sanitary sewer) routes
- Refine cost estimates from the conceptual estimates

Upon completion of the preliminary design effort, Staff will use the information to continue to financially plan for the project and monitor the demand for new sanitary sewer service connections in the service area. As stated above, the ultimate timing for construction of the new LS will be dependent on the demand for new residential connections. Once a determination is made that the construction needs to occur in order permit new residential connections, the design can be finalized, permits obtained and bids solicited in a timely manner.

Given their background with the project, their good performance with the prior study and assistance with implementing the short-term improvements to the existing LS, Staff are recommending that OHM be retained for continuing services associated with this project. Staff have met with OHM to identify the scope of work necessary to meet the goals identified above and have negotiated the attached proposal for preliminary engineering services for the Township Board's consideration.

### **Scope of Services**

Refer to the attached October 13, 2020 proposal from OHM Advisors.

### **Staff Recommendation**

Staff recommend awarding a contract to OHM Advisors for the purposes of providing preliminary design engineering services for the Willow Sanitary Sewer Lift Station Replacement Project at a cost not to exceed \$114,900.

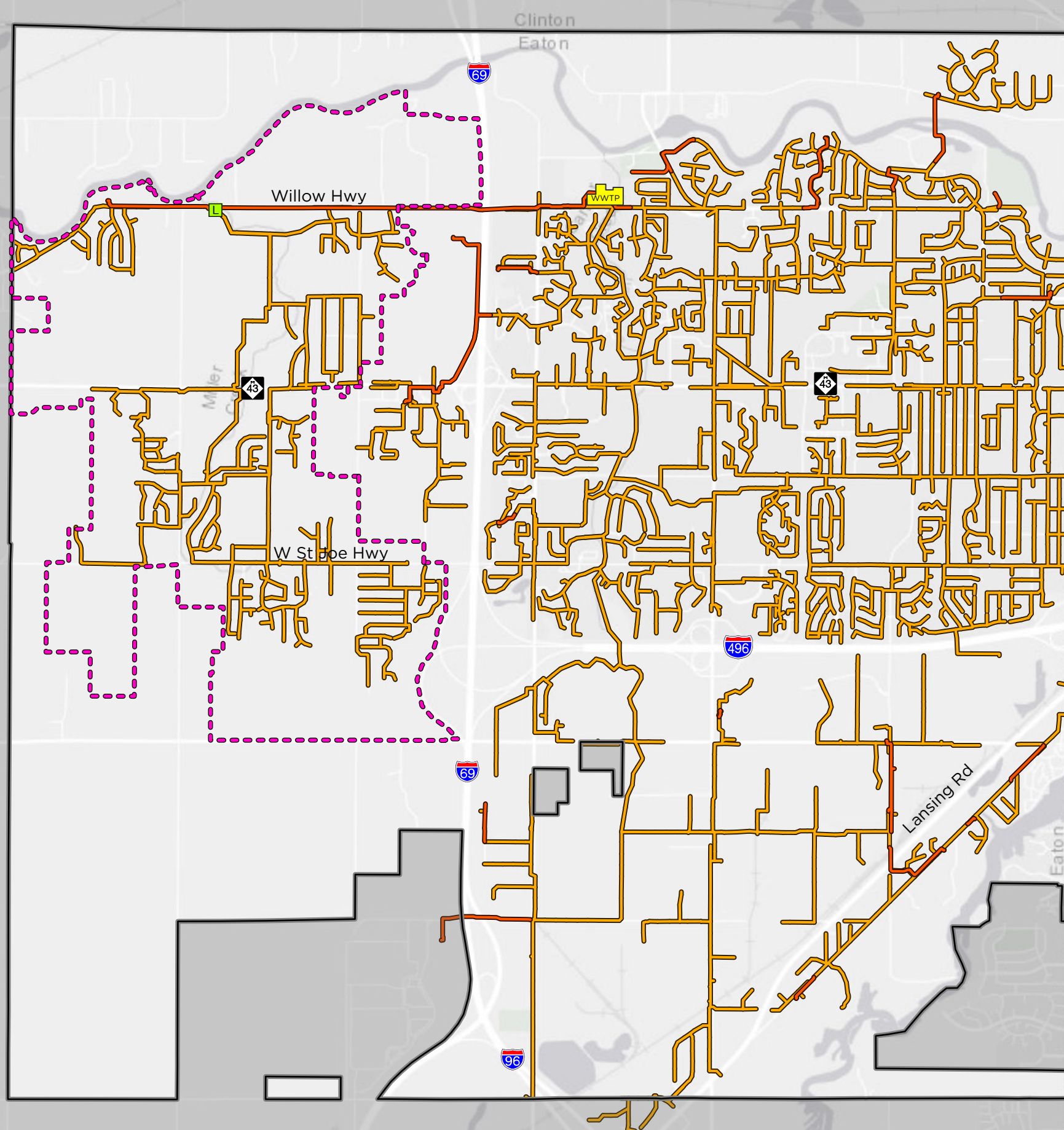
The following motion is offered for your consideration:






***"I move that the Delta Township Board contract with OHM Advisors for the purpose of providing preliminary design engineering services for the Willow Sanitary Sewer Lift Station Replacement at a cost not to exceed \$114,900. Further, the Township Manager is hereby authorized to sign and execute an agreement for said professional services on behalf of Delta Township."***

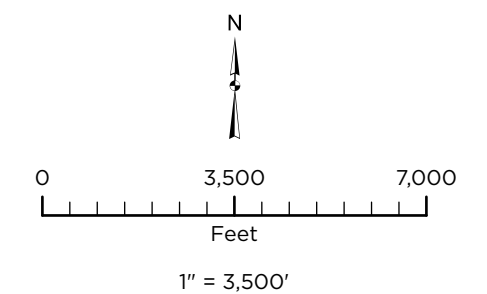
Staff will attend the October 19, 2020 Board meeting to answer any questions or address any concerns the from the Board. If there any questions in the interim, please let us know. Thank you.



**Figure 2**  
Willow Lift Station  
Service Area



-  Willow Highway Lift Station
-  Willow Lift Station Service Area Boundary
-  Wastewater Treatment Plant
-  Sanitary Forcemain
-  Sanitary Gravity Main



**Source:** Data provided by the Charter Township of Delta and ESRI. OHM Advisors does not warrant the accuracy of the data and/or the map. This document is intended to depict the approximate spatial location of the mapped features within the Community and all use is strictly at the user's own risk.

**Coordinate System:** NAD 1983 2011 StatePlane Michigan South FIPS 2113 Ft Intl

**Map Published:** February 8, 2018

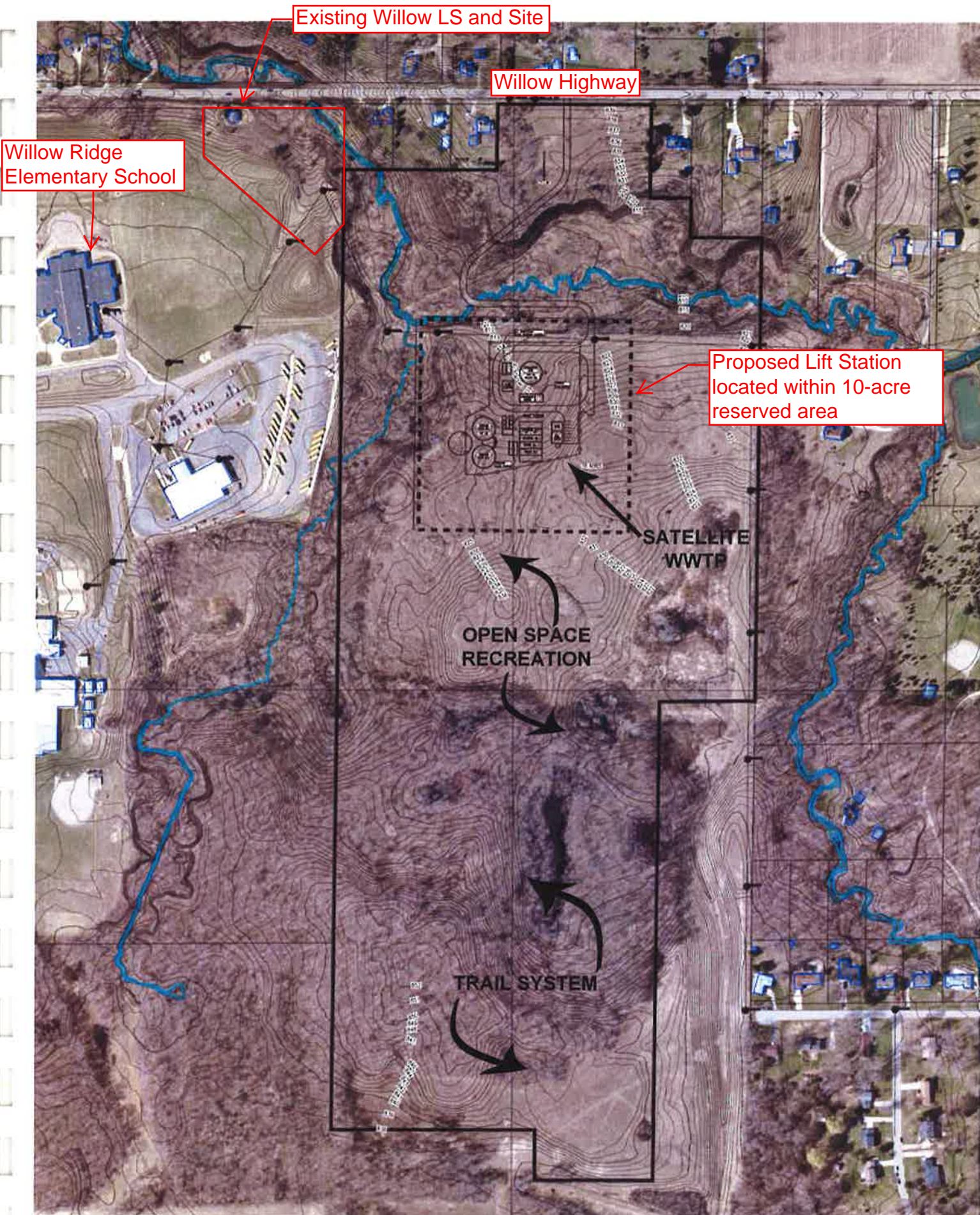


FIGURE 4.1  
 POST CONVERSION  
 LOOTENS PARK SITE PLAN  
 4-3





ARCHITECTS. ENGINEERS. PLANNERS.

October 14, 2020

Mr. Ernest (Ernie) West, P.E.  
Township Engineer  
Delta Charter Township  
7710 West Saginaw Hwy  
Lansing, MI 48917

RE: Willow Sanitary Sewer Lift Station Replacement  
Proposal for Preliminary Design Engineering Services

Dear Mr. West:

OHM Advisors (OHM) is pleased to submit this professional services proposal for preliminary design tasks associated with the full replacement of the Willow Lift Station and integration with the existing sewer collection system. We have prepared the project understanding and scope of services based on our previous evaluation study (May 2018) of the station and recent discussions with Township staff.

### PROJECT UNDERSTANDING

The existing Willow Lift Station was constructed in 1985 and is located on the western side of Delta Charter Township (Township) and serves approximately 2,000 residential equivalent units (REUs). The lift station currently discharges to a 14-inch forcemain that transports the wastewater roughly 11,000 feet to a discharge manhole upstream of the Delta Township Wastewater Treatment Plant.

The Willow Lift Station can be overloaded during wet weather events that has led to flooding of the station wet well with the potential risk to backup upstream sewers and resident's basements. In addition to the wet weather flows, significant REU growth for the station's sewer tributary area is occurring and expected to continue with projected REUs of approximately 3,432 by 2037.

Since OHM's 2018 evaluation study, the Township has completed short-term improvements at the existing Willow Lift Station including reinstalling a third pump and reconfiguring all three (3) pumps with larger motors. This work increased the station's firm capacity to 1,850 gallons per minute (gpm).

However, to meet the needs of the growing sewer district and to sufficiently handle peak wet weather flows, the construction of new 2,900 gpm lift station near the existing station for the phase I improvements (based on OHM's 2018 study) is needed. Note: phase II for the station is a 5,800 gpm capacity.

### SCOPE OF SERVICES

Below is a summary of the project work tasks that are related to the preliminary engineering design phase.

#### Task 1: Basis of Design

- ▶ Evaluate pump station options and wet well layout for dry and wet weather flows.
- ▶ Develop plan to route wastewater from existing collection sewer system to new station location.
- ▶ Evaluate existing Belaire pump station for impact on pumps due to relocating the Willow pump station.
- ▶ Develop a conceptual plan for station influent sewer and discharge force main routing.
- ▶ Evaluate and confirm capacity of downstream sewer located at the Township WWTP.
- ▶ Develop conceptual plan for demolishing and abandoning the existing Willow pump station.



- Develop a conceptual site piping and station layout to evaluate the use of the 10-acre property previously identified for a satellite WWTP for review and feedback.
- Prepare a Basis of Design Report and review design basis with the Township including system and pump head calculations for Phase I and Phase II station build-out.
- Prepare an opinion of probable cost based on Basis of Design Report concepts including demolishing and abandonment of the existing station.
- Attend a meeting to review basis of design documents and gather Township feedback and comments.

#### Task 2: Preliminary Design

- Develop a field work plan to gather quotes from geotechnical firms to obtain a soils analysis and report including soil boring logs, shoring and sheeting, and dewatering recommendations for the selected site. Note: Associated fees for geotechnical engineering are not included in our fee.
- Coordinate and attend a field visit to the proposed site to assess site access for geotechnical field investigation work to assist with the invited geotechnical firms' proposals and to develop a work plan for the environmental assessment work.
- Refine a preliminary layout for the station and associated infrastructure (lift station and wet well, power, manholes, gravity sewers and force main).
- Identify station components that could be cost-effectively designed and constructed to accommodate the Phase II ultimate build-out capacity of 5,800 gpm and review with Township staff for feedback.
- Coordinate with local/state agencies (i.e. Eaton Co. Drain Commission, Eaton Co. Road Commission, MEGLE and MDNR) on permitting requirements and key issues that will impact their review of the station design.
- Once a preliminary layout and site selection have been approved for the station layout, sewer routes, and access road, OHM will conduct an environmental assessment to include wetland and endangered species surveys. Note: we anticipate that an EGLE/USACE joint permit application (JPA) will be required for crossing Miller Creek.
- Prepare a preliminary layout for associated site design items (grading, access, drainage, landscaping, etc.).
- Request franchise utility information in the areas where the pump station construction will be located and gather all known utility information to create base plans.
- Develop preliminary utility plans for electric, gas, and communications.
- Coordinate needed telemetry between the Township and the Township's SCADA provider. The costs associated with the telemetry consultant (if needed) are not included in this proposal.
- Based on the geotechnical report recommendations, determine a preliminary dewatering plan, as necessary.
- Update basis of design and determine products desired and acceptable "or equal" products for key equipment.
- Update the opinion of probable construction costs prepared for the Basis of Design Report for the Township. Note: construction costs should be escalated to the anticipated year of construction.

#### **CLARIFICATIONS and ASSUMPTIONS**

- We have assumed no surveying will be required by OHM given the new aerial LIDAR mapping that will be made available and the Township's surveying capabilities.
- Depending on the timing for the environmental assessment work, some portions of that work may be weather dependent (e.g., wetlands assessment during growing season) and completed during the appropriate time of year.
- OHM will assist with obtaining proposals and recommendation of award for Geotechnical Engineering Services from invited firms. The Township would contract directly with the Geotechnical Firm.
- For budgeting purposes, we would recommend budgeting \$20,000 for fees associated with geotechnical engineering.



- Easement and land acquisition costs are excluded.
- Following engineering phases for final design, bidding and construction engineering and administration are not included. We will be happy to provide additional proposal(s) for this work once the preliminary engineering work is complete and approved by the Township.

### **DELIVERABLES**

OHM Advisors will provide the Township with a Basis of Design Report, preliminary plans, and a preliminary engineer's opinion of probable cost for the project.

### **PROJECT SCHEDULE**

OHM Advisors intends to start work within two (2) weeks of approval of this proposal. We anticipate the basis of design task requiring ten (10) weeks to complete with an additional fourteen (14) weeks for the preliminary engineering phase. OHM Advisors should be notified of any deadline changes to satisfy the Township's needs, as significant changes in the project schedule could affect total cost.

### **FEE SCHEDULE**

OHM proposes to provide the above outlined professional services for your consideration in accordance with the following fee schedule:

<b>Task</b>	<b>Description</b>	<b>Budget</b>
1	Basis of Design	\$36,300
2	Preliminary Design	\$78,600
	<b>Total Preliminary Engineering</b>	<b>\$114,900</b>

### **BASIS OF PAYMENT**

OHM will invoice the Township monthly on an hourly not-to-exceed (NTE) basis. Invoices for completed services will be billed monthly and shall be paid within 30 days of receipt. All invoices are payable upon receipt in accordance with the attached Standard Terms and Conditions.

### **APPROVAL AND ACCEPTANCE**

This proposal and our attached standard terms and conditions constitutes the entire Agreement between Delta Charter Township and OHM Advisors and shall not be amended, altered, or changed, except by written authorization executed by both parties. This proposal is valid for 30 days from date of submittal and upon expiration, OHM Advisors reserves the right to modify the proposal. Approval and acceptance of this Scope of Services is effective upon Township's signature. OHM Advisors is authorized to commence services upon receipt of a signed copy of this document.

### **COVID-19 DISCLAIMER**

As we submit this proposal, the world is in the midst of the Covid-19 health crises and we believe there is an increased risk for potential schedule impacts. Our team, like the Township, is adjusting our workflow logistics and our teams are working remotely in an effective manner. However, be aware that schedule impacts from elements such as field services delays, required resource agencies, and key staff illness that neither OHM Advisors nor the Township have control over are more likely in the current environment. We will communicate proactively, clearly identify project issues as they arise, and work with you and Township staff to develop a plan to deal with unforeseen issues.



Should you find this proposal acceptable, please execute a copy of this proposal at the bottom of this page and return one copy to our attention. We appreciate this opportunity and look forward to continuing to provide professional services to the Township on this extremely important project. If you have any questions, please do not hesitate to contact either of us at 734-522-6711.

Sincerely,  
OHM Advisors

Carey Bond, PE  
Project Manager

Robert Czachorski, PE  
Principal

**OHM Advisors**  
CONSULTANT

**Delta Charter Township**  
CLIENT

_____	(Signature)	_____
Robert Czachorski, PE	(Name)	Brian Reed
Principal	(Title)	Township Manager
_____	(Date)	_____

Encl: Standard Terms and Conditions  
2020 Hourly Rate Schedule

cc: Rick Kane, Utility Director  
file

## STANDARD TERMS and CONDITIONS

1. THE AGREEMENT – These Standard Terms and Conditions and the attached Proposal or Scope of Services, upon their acceptance by the Owner, shall constitute the entire Agreement between Orchard, Hiltz & McCliment, Inc. (OHM ADVISORS), a registered Michigan Corporation, and the Owner. The Agreement shall supersede all prior negotiations or agreements, whether written or oral, with respect to the subject matter herein. The Agreement may be amended only by mutual agreement between OHM ADVISORS and the Owner and said amendments must be in written form. -Incorporated by reference is are the RFP, and OHM's Proposal.

2. SERVICES TO BE PROVIDED – OHM ADVISORS will perform the services as set forth in the attached proposal or scope of services which is hereby made a part of the Agreement.

3. SERVICES TO BE PROVIDED BY OWNER – The Owner shall at no cost to OHM ADVISORS: a) Provide OHM ADVISORS personnel with access to the work site to allow timely performance of the work required under this Agreement. b) Provide to OHM ADVISORS within a reasonable time frame, any and all data and information in the Owners possession as may be required and specifically requested in writing by OHM ADVISORS to perform the services under this Agreement. c) Designate a person to act as Owners representative who shall have the authority to transmit instructions, receive information, and define Owner policies and decisions as they relate to services under this Agreement.

4. PERIOD OF SERVICE – The services called for in this Agreement shall be completed within the time frame stipulated in the Proposal or Scope of Services, or if not stipulated shall be completed within a time frame which may reasonably be

required for completion of the work. OHM ADVISORS shall not be liable for any loss or damage due to failure or delay in rendering any service called for under this agreement resulting from any cause beyond OHM ADVISORS reasonable control.

5. COMPENSATION – The Owner shall pay OHM ADVISORS for services performed in accordance with the method of payment as stated in the Proposal or Scope of Services. Method of compensation may be lump sum, hourly; based on a rate schedule, percentage of the construction cost, or cost plus a fixed fee. The Owner shall pay OHM ADVISORS for reimbursable expenses for subconsultant services, equipment rental or other special project related items at a rate of 1.15 times the invoice amount.

6. TERMS OF PAYMENT – Invoices shall be submitted to the Owner not more often than monthly for services performed during the preceding period. Owner shall pay the full amount of the invoice within thirty days of the invoice date Owner's receipt of the invoice, except and to the extent disputed by the Owner in good faith. If payment is not made within thirty days of the due date, the amount due to OHM ADVISORS shall include a charge at the rate of 5% per annum per MCL 438.31 one percent per month from said thirtieth day.

7. LIMIT OF LIABILITY – OHM ADVISORS shall perform professional services under this Agreement in a manner consistent with the degree of care and skill in accordance with applicable professional standards of services of this type of work. To the fullest extent permitted by law, and notwithstanding any other provision of this Agreement, the total liability in the aggregate, of OHM ADVISORS and its Officers, Directors, Partners, employees, agents, and

## STANDARD TERMS and CONDITIONS

~~subconsultants, and any of them, to the Owner and anyone claiming by, through or under the Owner, for any and all claims, losses, costs or damages of any nature whatsoever arises out of, resulting from or in any way related to the project or the Agreement from any cause or causes, including but not limited to the negligence, professional errors or omissions, strict liability, breach of contract or warranty, express or implied, of OHM ADVISORS or OHM ADVISORS' Officers, Directors, employees, agents or subconsultants, or any of them shall not exceed the amount of \$25,000 or OHM ADVISORS fee, whichever is greater.~~

8. ASSIGNMENT – Neither party to this Agreement shall transfer, sublet, or assign any duties, rights under or interest in this Agreement without the prior written consent of the other party.

9. NO WAIVER – Failure of either party to enforce, at any time, the provisions of this Agreement shall not constitute a waiver of such provisions or the right of either party at any time to avail themselves of such remedies as either may have for any breach or breaches of such provisions.

10. GOVERNING LAW – The laws of the State of Michigan will govern the validity of this Agreement, its interpretation and performance.

11. DOCUMENTS OF SERVICE – The Owner acknowledge OHM ADVISORS' reports, plans and construction documents as instruments of professional services. Nevertheless, the plans and specifications prepared under this Agreement shall become the property of the Owner upon completion of the work and payment in full of all monies due OHM ADVISORS, however, OHM ADVISORS shall have the unlimited right to use such drawings,

specifications and reports and the intellectual property therein. The Owner shall not reuse or make any modifications to the plans and specifications without prior written authorization by OHM ADVISORS. In accepting and utilizing any drawings or other data on any electronic media provided by OHM ADVISORS, the Owner agrees that they will perform acceptance tests or procedures on the data within 30 days of receipt of the file. Any defects the Owner discovers during this period will be reported to OHM ADVISORS and will be corrected as part of OHM ADVISORS' basic Scope of Services. Without eliminating or reducing the Owner's right to ownership of the instruments of professional services, the Owner shall have an irrevocable, nonexclusive right to use and reproduce the instruments of professional service upon execution of this Agreement.

12. TERMINATION – Either party may at any time terminate this Agreement upon giving the other party 7 calendar days prior written notice. The Owner shall within 45 days of termination, pay OHM ADVISORS for all services properly rendered and all costs actually incurred up to the date of termination in accordance with compensation provisions in this Agreement.

13. OHM ADVISORS' RIGHT TO SUSPEND ITS SERVICES – In the event that the Owner fails to pay OHM ADVISORS the amount due shown on any invoice within 60 days of the date of the invoice, OHM ADVISORS may, after giving 7 days' notice to the Owner, suspend its services until payment in full for all services and expenses due is received.

14. OPINIONS OF PROBABLE COST – OHM ADVISORS preparation of Opinions of Probable Cost represents OHM ADVISORS' best judgment as a design professional familiar with the industry. The Owner must recognize that OHM



## STANDARD TERMS and CONDITIONS

ADVISORS has no control over costs or the prices of labor, equipment or materials, or over the contractor's method of pricing. OHM ADVISORS makes no warranty, expressed or implied, as to the accuracy of such opinions as compared to bid or actual cost. OHM Advisors acknowledges that it is bound by the 'not to exceed' cost for the scope of services provided as stated in our proposal to the Owner.

the parties mutually agree otherwise.

15. JOB SITE SAFETY – Neither the professional activities of OHM ADVISORS, nor the presence of OHM ADVISORS or our employees and subconsultants at a construction site shall relieve the General Contractor or any other entity of their obligations, duties, and responsibilities including, but not limited to, construction means, methods, sequences, techniques or procedures necessary for performing, superintending or coordinating all portions of the work of construction in accordance with the contract documents and the health or safety precautions required by any regulatory agency. OHM ADVISORS has no authority to exercise any control over any construction contractor or any other entity or their employees in connection with their work or any health or safety precautions. The Owner agrees that the General Contractor is solely responsible for jobsite safety and warrants that this intent shall be made clear in the Owners agreement with the General Contractor. The Owner also agrees that OHM ADVISORS shall be indemnified and shall be made additional insureds under the General Contractors general liability insurance policy.

16. DISPUTE RESOLUTION – In an effort to resolve any conflicts that arise during the design or construction of the project or following the completion of the project, the Owner and OHM ADVISORS agree that all disputes between them arising out of or relating to this Agreement shall be submitted to nonbinding mediation, unless



## OHM ADVISORS 2020 HOURLY RATE SCHEDULE

Professional Engineer IV / Architect IV / Senior Interior Designer IV	\$180.00
Professional Engineer III / Architect III / Senior Interior Designer III	\$165.00
Professional Engineer II / Architect II / Senior Interior Designer II	\$150.00
Professional Engineer I / Architect I / Senior Interior Designer I	\$137.00
Project Specialist II	\$158.00
Project Specialist I	\$130.00
Graduate Engineer IV	\$145.00
Graduate Engineer III	\$135.00
Graduate Engineer II	\$130.00
Graduate Engineer I	\$120.00
Graduate Architect III / Landscape Architect III / Interior Designer III	\$130.00
Graduate Architect II / Landscape Architect II / Interior Designer II	\$110.00
Graduate Architect I / Landscape Architect I / Interior Designer I	\$98.00
Technician IV	\$135.00
Technician III	\$120.00
Technician II	\$100.00
Technician I	\$80.00
Engineering / Architectural / Interior Design Aide	\$65.00
Professional Surveyor III	\$160.00
Professional Surveyor II	\$150.00
Professional Surveyor I	\$135.00
Graduate Surveyor	\$115.00
Surveyor III	\$115.00
Surveyor II	\$108.00
Surveyor I	\$88.00
Surveyor Aide	\$65.00
Planner IV	\$160.00
Planner III	\$140.00
Planner II	\$118.00
Planner I	\$98.00
Planner Aide	\$65.00
Graphic Designer	\$110.00
Administrative Support	\$70.00
Clerical Aide	\$59.00
Principal	\$205.00
Sr. Associate	\$195.00
Associate	\$183.00

Rates as reflected subject to review and adjustment on an annual basis.  
2020 Public Rates 19-1113

Supervisor Kenneth R. Fletcher  
Treasurer Howard A. Pizzo  
Clerk Mary R. Clark  
Manager Brian T. Reed



Trustee Fonda J. Brewer  
Trustee Andrea M. Cascarilla  
Trustee Dennis R. Fedewa  
Trustee Karen J. Mojica

Engineering Department

(517) 323-8540

TO: Supervisor Kenneth R. Fletcher and the Delta Township Board

FROM: Ernest A. West, P.E., Township Engineer  
Brian Reed, Township Manager

DATE: October 7, 2020

SUBJECT: Bellaire Hills Subdivision  
Drainage Issues  
Financial Assistance for Creation of County Drain  
Discussion

The Township received a letter dated August 10, 2020, from the Eaton County Drain Commissioner regarding resident reports of drainage issues in the Bellaire Hills Subdivision, located in the northeast ¼ of Section 7 in Delta Township. A copy of the letter is attached. Also attached are maps showing the location of the drainage and rough limits of the drainage area.

The drainage system in the Bellaire Hills Subdivision is an “orphan” drain system, and not currently under Eaton County Drain Office (ECDO) jurisdiction. The letter requests that the Township provide \$10,000 in financial assistance for inspection of the drainage system, which would be undertaken in preparation of the system being converted to a county drainage district. If the drainage system were converted to a county drainage district, a drainage assessment of the benefitting properties could generate funds needed to address the drainage complaints.

Delta Township has historically been involved with the conversion of orphan drain systems to county drains and was particularly active between the late-1980s and mid-1990s. Current Delta Township Engineering Department employee, Walt Kulasa, was hired as Storm Water Specialist and personally worked on efforts to convert orphan drains to county drains. During this timeframe, the Township provided funding and petitioned the drain office, in some cases, for an orphan drain conversion. Walt Kulasa’s, 1990 report to the Delta Township Board is attached to this memo and defines an orphan drain and describes the process and options available to convert them to a county drain.

After the mid-1990’s the orphan drain conversion program efforts ceased. As recently as 2018, however, a renewed interest in completing orphan drain conversions led to conversations with the ECDO staff and budgeting of \$20,000 in the 2018 budget. The quarterly discussions with ECDO have not yet led to any expenditures. This request represents the first such request with the current ECDO administration.

This type of request is not unprecedented; however, the 2020 budget does not have funds budgeted for this effort. If the Board would like to proceed, funds would have to be allocated from the General Fund. If the conversion to a county drain were completed, however, these funds could be reimbursed to the Township from the revenues generated by a drainage district assessment, less the Township’s at-large portion of the assessment.

7710 West Saginaw Highway • Lansing, Michigan 48917-9712  
Phone: (517) 323-8540 • Fax: (517) 327-1760  
[www.deltami.gov](http://www.deltami.gov) • [www.facebook.com/deltatownship](https://www.facebook.com/deltatownship) • [www.twitter.com/deltatownship](https://www.twitter.com/deltatownship)



**[BACK TO AGENDA](#)**

At this time, staff would like to discuss this issue with the Township Board to determine if there is interest in funding this request and/or interest in budgeting for and facilitating orphan drain conversions in coming years.

Staff and representatives from the ECDO will attend the October 12, 2020 Township Committee of the Whole Board meeting to answer any questions or address any concerns from the Board. If there are any questions in the interim, please let us know. Thank you.

# EATON COUNTY

Richard Wagner, Drain Commissioner ~ Eric Deibel, Deputy Drain Commissioner

Eaton County Courthouse  
1045 Independence Blvd  
Charlotte, Michigan 48813



Phone: (517) 543-3809  
Fax: (517) 543-6446

[www.eatoncounty.org](http://www.eatoncounty.org)

Jessica Larkin  
SESC Enforcement Officer

John Loranger  
Drain Inspector

Ruthann Clarke  
Assessment Administrator

Angela Spayde  
Administrative Assistant

August 10, 2020

Brian Reed, Township Manager  
Delta Charter Township  
7710 West Saginaw Highway  
Lansing, MI 48917-9712

**Re: Bellaire Hills Subdivision; Bellaire Hills Drain #265, Eaton County**

Dear Mr. Reed:

My office has been contacted by several residents within the Bellaire Hills Subdivision located in Northeast  $\frac{1}{4}$  of Section 7, that are experiencing flooding and drainage problems. Based on the review of the records with my office, the subdivision drainage system is not under my jurisdiction. We are requesting township financial assistance that would allow my office to undertake an inspection of the subdivision drainage system in order to assess its condition, determine the source of the flooding, and a possible solution to that problem.

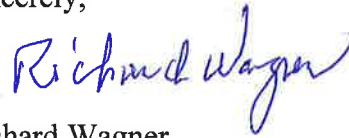
In the way of background, our records indicate that in the early 1990s, the Township instituted an "Orphan Drain Program" which sought to convert private subdivision drains to county drains that would fall under the jurisdiction of Eaton County Drain Commissioner pursuant to the Michigan Drain Code (1956 PA 40, as amended, MCL 280.1 et seq.). The orphan drain program appears to be largely one initiated and directed by the township and included having the township pursue the easement acquisition. To this end, in 1992 the township submitted an "Application for Laying Out and Designating a County Drainage District" and petitioned my predecessor in office to convert the Bellaire Hills Subdivision drainage system to a county drain. A Board of Determination was convened and found the drain necessary, and it appears that a Bellaire Hills #265 Drainage District was designated, but the proceedings were never completed. That is, I have no record showing all easements were obtained, or that a First Order or Final Order was filed in my office. The last documentation we have in our file is a letter from the township dated October 22, 1997 from Walter C. Kalusa, Storm Water Specialist indicating that the Township was still trying to obtain the last easement. Thus, while we have a

petition and order of necessity, the proceedings for converting the Bellaire Hills Subdivision drainage system to county system remain incomplete, and there is no funding source that would permit me to undertake the required inspection of the drainage system.

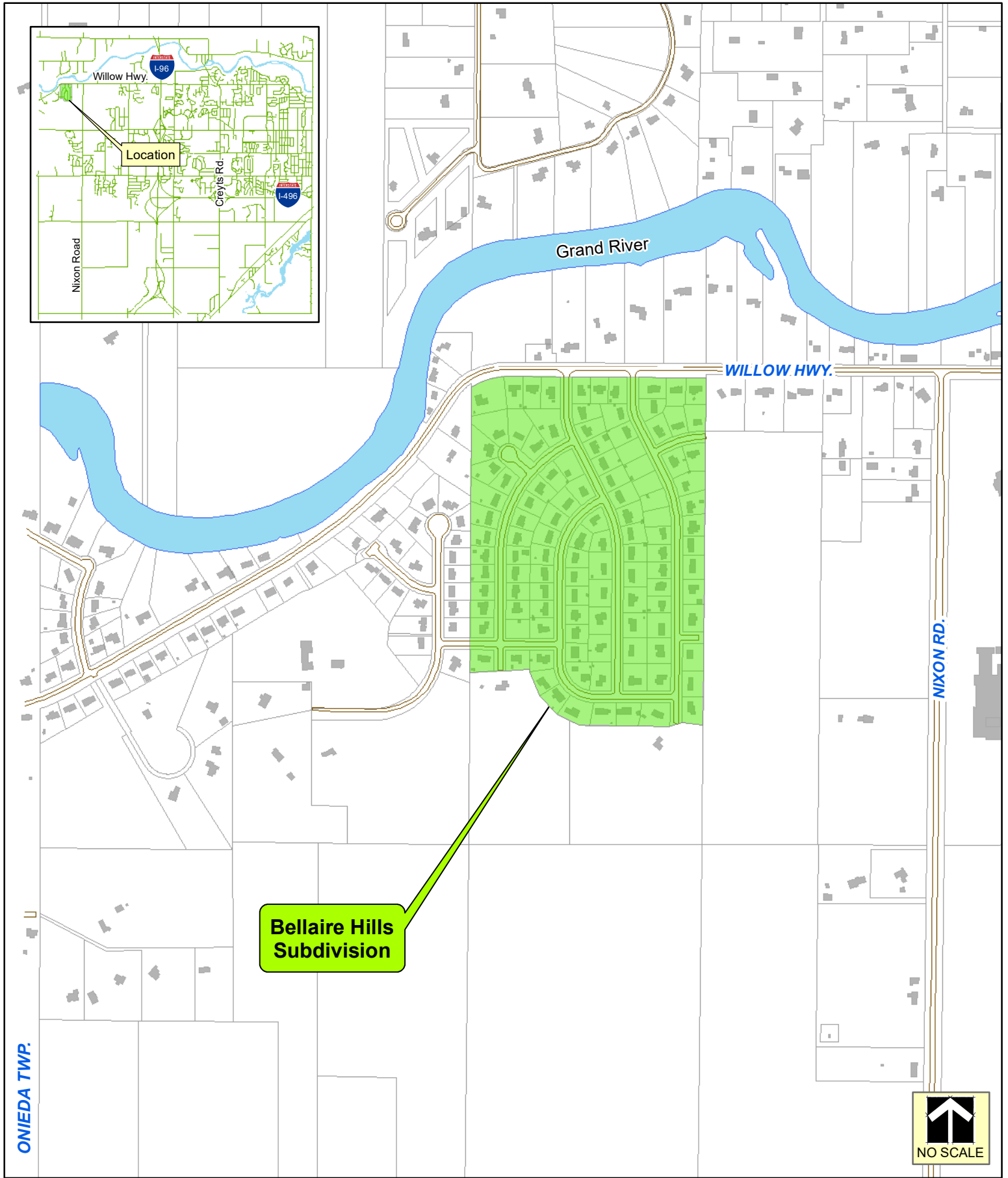
To address the present flooding and drainage concerns of the residents, we are requesting the Township consider providing financial assistance for the inspection of this system. As noted above, this will permit my office to determine the next steps in the formation of Bellaire Drain #265 Drainage District. The Drain Code provides that a township may provide an advance in connection with feasibility, practicability, easement or land acquisition, and that the advance may be reimbursed by the drainage district when funds are available, and/or relieve the Township in whole or in part, from assessment for the cost of the drain. At this time, we believe an inspection of the Bellaire Hills Subdivision drainage system would not exceed \$10,000.

Please contact me at your earliest convenience to discuss this situation and the next steps for resolving the drainage issues for the Bellaire Hills' residents.

Sincerely,



Richard Wagner  
Eaton County Drain Commissioner

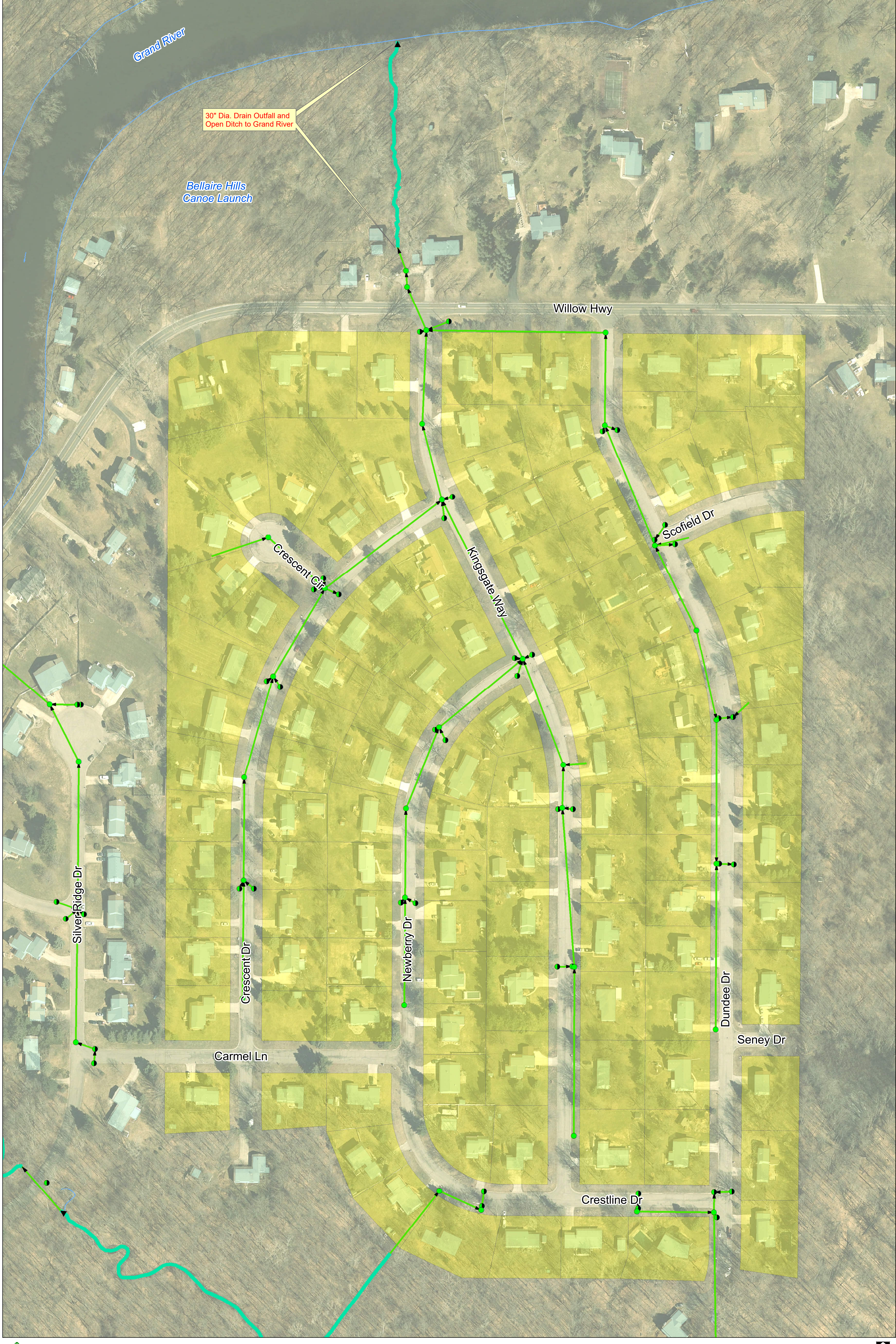


**DELTA CHARTER TOWNSHIP**

7710 W. SAGINAW HIGHWAY  
 LANSING, MI 48917  
 517.323.8555



**BELLAIRE HILLS  
 SUBDIVISION  
 LOCATION MAP**



30" Dia. Drain Outfall and Open Ditch to Grand River

Bellaire Hills Canoe Launch

Grand River

Willow Hwy

Crescent Cir

Kingsgate Way

Scofield Dr

Silver Ridge Dr

Crescent Dr

Newberry Dr

Dundee Dr

Seney Dr

Carmel Ln

Crestline Dr



## INDEX

1. Purpose
2. Definition of an Orphan Drain.
3. Summary of Michigan Drain Code. Conversion process.
4. Action plan "A".
5. Action plan "B".
6. Action plan "C".
7. Orphan Drain priority list with cost and time estimates.
8. Exceptions to the priority list.
9. Orphan Drains completed to date.
10. Completion time.

## PURPOSE

Delta Township's purpose in preparing this report is to initiate a master action plan for Orphan Drains, with the Eaton County Drain Commissioner. Included in the plan are the following tasks:

1. Define an Orphan Drain.
2. Establish existing Orphan Drains as county drains.
3. Prioritize the Orphan Drains.
4. Define an Action Plan.
5. Implement the Action Plan.

## ORPHAN DRAINS

### WHAT IS AN ORPHAN DRAIN ?

Orphan Drains are Drains or Drainage Systems that were established by developers or persons but never recorded with the County Drain Office. Orphan Drains are physically in existence and are being used, but can not be petitioned to be cleaned or repaired by the County Drain Commissioner. The signing of a Plat by the County Drain Commissioner DOES NOT constitute the recording of the drains of that plat.

### EXAMPLE of an ORPHAN DRAIN:

Mr. Developer wants to subdivide 40 acres. He presents the proposed plat showing all utilities to the County and Township for approval. The Drain Commissioner signs the plat, but the drains have not been constructed. The Township grants their approval for the subdivision. The Developer constructs the subdivision while the Township inspects the Water and Sanitary. The Subdivision is completed and all Township Utilities are completed. Now Mr. Developer builds homes and people move in. Mr. Developer and the Drain Commissioner never finish the Drain Agreement so the Drains can become County Drains. Now, years pass and the Drains fail, people want something done, but the Drain Office has no record of the Drains, so they are considered Orphan Drains.

### EXAMPLE of a BACKYARD DRAIN, NOT an Orphan Drain:

Some property was developed into a subdivision. The people have back yard flooding or their septic field begins to fail. The people, developer or the builder constructs a drain along the back lot lines into a creek or other drain, to relieve the problem. These drains were constructed without the permission and were not intended to be used as County Drains, they are Backyard Drains and privately owned.

## ORPHAN DRAINS TO COUNTY DRAINS

The following is the procedure for converting an Orphan Drain into a County Drain:

### 1. APPLICATION

#### PROCEDURE for ESTABLISHING A DRAINAGE DISTRICT

Public Act 40 of 1956, as amended  
Michigan Drain Code

#### APPLICATION and CERTIFICATION

1. Receipt of an APPLICATION for establishing a Drainage District, signed by at least 10 freeholders of the township, 5 or more signers to be liable to an assessment or signed by the city, village or township.
2. CERTIFICATION by the Drain Commissioner of the signers and review of tax status for each parcel represented.
3. CASH DEPOSIT sufficient to cover the preliminary costs, accompanies the application.
4. The Drain Commissioner shall cause a SURVEY to be made to determine the area.
5. The District will be FILED with the drain office.

### 2. PETITION

#### PROCEDURE FOR LOCATING AND ESTABLISHING DRAINS

Public Act of 1956, as amended  
Michigan Drain Code

#### PETITION and CERTIFICATION

1. Receipt of PETITION to locate and establish a drain, signed by 1/2 the number of freeholders whose lands would be traversed by the drain, or petition signed by a city, village or township.

2. CERTIFICATION by Drain Commissioner that each signer owns lands abutting the drain.

#### PUBLIC HEARING

3. Appointment of a three member BOARD OF DETERMINATION by the Drain Commissioner. No member of this panel may benefit directly from the improvement. Additionally, each must reside outside the Township where the improvement is proposed.
4. A NOTICE OF MEETING OF BOARD OF DETERMINATION is mailed to each landowner affected by the petition. Notice is also published in a newspaper of general circulation in the area.
5. The HEARING OF NECESSITY is convened by the Board of Determination on the date scheduled. This Board issues its decision upon conclusion of public testimony.

#### APPEAL

6. Individuals may appeal the Boards decision to Circuit Court within ten days of the Hearing. No further action is taken on the petition, however, until a twenty day appeal period has expired or is waived by the governing bodies of affected municipalities.

#### LOCATION

7. An engineering firm is appointed by the County Drain Commissioner to submit drawings showing the route and location of the drains along with the easements and right of ways.

#### EASEMENTS

8. Easements and releases of right of way will be secured or condemnation proceedings may begin.

#### APPORTIONMENT

9. A notice of Letting and Review of Apportionments is served on each individual who will benefit from the project. Notice is also published in a local paper. Individuals have 10 days to appeal.

**SPECIAL ASSESSMENT**

10. Individual special drain assessments, based on percentages certified by the Drain Commissioner after the Hearing of Apportionments, are placed on winter tax statements and collected with other taxes and special assessments.

PROPOSED ACTION PLANS:

Delta Township Board discuss with the Eaton County Drain Commissioner the following course of action.

ACTION "A"

1. Delta Township hires, payes and directs consultants to establish the Drainage Districts and to submit drawings showing the route and location of the drain along with the easements and right of ways.
2. Delta Township provides all necessary documents to the Drain Commissioner
3. Delta Township assumes all cost with no reimbursement. (cost to Delta - approximately \$10,000 per Orphan Drain.)
- 3a. Delta Township assumes all cost with reimbursement upon assessment of district by Drain Commissioner.

ACTION "B"

1. Delta Township hire engineering college students.
2. Engineering Department supervises and directs the students in the collection of the data for the Orphan Drains.
3. Delta Township provides all necessary documents to the Drain Commissioner.
4. Delta Township assumes all costs with no reimbursements. (cost to Delta - approximately \$2,000 per Orphan Drain.)
- 4a. Delta Township assumes all cost with reimbursement upon assessment of district by Drain Commissioner.

ACTION "C"

1. Delta Township proceeds with present procedure.

That is:

- a. Delta Township prioritizes the Orphan Drains for conversion to County Drains.
- b. Delta Township agrees to pay the costs which are to be rebated in part upon first assessment of district and Drain Commissioner agrees to proceed with the steps of conversion.
- c. Drain Commissioner hires engineer and proceeds with the process.
- d. Process continues at the Drain Commissioners pace until all the Orphan Drains become County Drains.

WHEN WILL ALL OF THE ORPHAN DRAINS BE COUNTY DRAINS ?

PRESENTLY:

I have discussed the time required with the Drain Office and they feel that 2 Orphan Drains per year would be Max. At present time their office is extremely busy. They indicated that if we would submit an application today, it would not get touched until 1991. With that in mind, it would take us approximately 15 years to complete all the Orphan Drains in the township.



PROPOSED ACTION

ORPHAN DRAIN PRIORITIES

I have prioritized the Orphan Drains according to Sections. That is, I will do Section 1 first then Section 2 then Section 3 and so on.

ORPHAN DRAINS  
file d:\orphan\list

ACTION "A"		ACTION "B"		ACTION "C"	
cost	time	cost	time	cost	time
estimate	estimate	estimate	estimate	estimate	estimate

**SECTION 1**

Saratoga Farms 1  
(Saratoga Drain)

10,000 1y.

see total

10,000 1yr.

River Ridge

10,000 1yr.

10,000 1yr.

**SECTION 2**

Lee's River Ridge  
(River Ridge Drain)

2,000 6mo.

2,000 6mo.

Stone Ridge  
(River Ridge Drain)

2,000 6mo.

2,000 6mo.

Stonegate  
(Grand River Proper/Bollman-Damon)

2,000 6mo.

2,000 6mo.

**SECTION 3**

Delta Mills Estates  
(Watson/Watson Drain)

20,000 1yr.

20,000 1yr.

	"ACTION" A		ACTION "B"		ACTION "C"	
	cost estimate	time estimate	cost estimate	time estimate	cost estimate	time estimate
			see total			
Toboggan Lane (Armstrong Hills Drain)	2,000	6mo.			2,000	6mo.
Delton Hills (Grand River Proper)	3,000	6mo.			3,000	6mo.
<b>TOTAL FOR 1991</b>			<b>8,000</b>	<b>1yr. with summer help</b>		

Sections 1, 2, and 3 can be completed in approximately 1 year with summer help, cost approx. 8,000.

NOTE: Under Action "B", the cost to do sections 1, 2, and 3 would \$8,000 with two summer students. Delta Township would within a Year, present all the documentation to the Eaton County Drain Commissioner for action. How long it would take the Drain Commissioner to complete their work is not known at this time.

	ACTION "A"		ACTION "B"		ACTION "C"	
	cost	time	cost	time	cost	time
	estimate	estimate	estimate	estimate	estimate	estimate
			see total			
<b>SECTION 7</b>						
Belaire Hills (Grand River Proper)	10,000	1yr.			10,000	1yr.
<b>SECTION 8</b>						
Dawn Haven (Myers/Henderson Drain)			converted during drain project			
Lea Verde Estates (Lazelle Drain)			convert at time of drain project			
<b>SECTION 10</b>						
Willow Woods Moon/Hamilton Drain)	5,000	1yr.			5,000	1yr.
Brookside (Moon/Hamilton Drain)			converted by developer			
Shenandoah (Watson/Watson Drain)			converted by developer			
Willow Creek (Moon/Hamilton Drain)	5,000	1yr.			5,000	1yr.
Delta Commerce Park (Benjamin Drain)			converted by developer Dev. has not requested necessary paperwork			
<b>SECTION 11</b>						

	ACTION "A" cost estimate	time estimate	ACTION "B" cost estimate	time estimate	ACTION "C" cost estimate	time estimate
Willowbrook Estates (Grand River Proper)	10,000	1yr.		see total	10,000	1yr.
Allison Height (Bollman/Damon Drain)				needs petition	5647	1yr.
Melody Acres (Watson/Watson Drain)				converted during drain project		
Windcharme Estates (Watson/Watson Drain)				converted by developer		
<b>TOTAL FOR 1992</b>					<b>9,000</b>	<b>1yr.</b>

Sections 4 through 11 can be completed in approx. 1yr. with summer help, cost approx. 9,000.

NOTE: Under Action "B", the cost to do sections 4 through 11 would be \$9,000 with two summer students. Delta Township would within a year, present all the documentation to the Eaton County Drain Commissioner for action. How long it would take the Drain Commissioner to complete their work is not known at this time.

SECTION 05  
SECTION 06  
SECTION 07  
SECTION 08  
SECTION 09  
SECTION 10  
SECTION 11

	ACTION "A"		ACTION "B"		ACTION "C"	
	cost estimate	time estimate	cost estimate	time estimate	cost estimate	time estimate
			see total			
<b>SECTION 12</b>						
Plum Hollow (Garlock/Foster Drain)	10,000	1yr.			10,000	1yr.
Sherwood Downs (Garlock/Foster Drain)	10,000	1yr.			10,000	1yr.
Mar Moor Estates (Bank/Briggs Drain)	10,000	1yr.			10,000	1yr.
Mar Moor Estates (Grand River Proper)						
Knolls (Bank/Briggs)	5,000	1yr.			5,000	1yr.
Canyon Hills (part) (Garlock/Foster Drains)	5,000	1yr.			5,000	1yr.
<b>SECTION 13</b>						
Park Meadows (Mich. Ave. Drain)	10,000	1YR.			10,000	1yr.
Huntington Acres (Bank/Briggs)	10,000	1YR.			10,000	1yr.
Harvest Ln. & Blanch Ave. (Bank/Briggs)	10,000	1YR.			10,000	1yr.

	ACTION "A"		ACTION "B"		ACTION "C"	
	cost estimate	time estimate	cost estimate	time estimate	cost estimate	time estimate
Dutch Hills Farms (Mich. Ave. Drain)	10,000	1 YR.			10,000	1 yr.
<b>TOTAL FOR 1993</b>			<b>10,000</b>	<b>1 yr.</b>		

Sections 12 and 13 can be completed in approx. 1yr. with summer help, cost approx. 9,000.

NOTE: Under Action "B" the cost to sections 12 and 13 would be \$10,000 with two summer students. Delta Township would within a year, present all the documentation to the Eaton County Drain Commissioner for action. How long it would take the Drain Commissioner to complete their work is no known at this time.

OFFICE OF THE COUNTY ENGINEER

SECTION 14

PROCEEDINGS FOR LOCATING AND RECONSTRUCTING DRAINAGE

SECTION 15

**SECTION 14**  
**St. Joseph Hwy**  
**(Tower Drain)**

**Homestead Acres**  
**(Mich. Ave. Drain)**

**SECTION 15**  
**Gettysburg Estates**  
**(Tower Drain)**

**Gettysburg Estates**  
**(Moon/Hamilton Drain)**

**Glen Terra**  
**(Moon/Hamilton Drain)**

**Country Meadows**  
**(Sherwood Forest Drain)**

**Carrier Creek Condo.**  
**(Moon/Hamilton Drain)**

**Gettysburg Farms**  
**(Moon/Hamilton Drain)**

SECTION 16

PROCEEDINGS FOR LOCATING AND RECONSTRUCTING DRAINAGE

ACTION "A"	ACTION "B"	ACTION "C"
cost estimate	time estimate	cost estimate

5,000

1yr.

10,000

1yr.

5,000

1yr.

5,000

6mo.

10,000

1yr.

10,000

1yr.

see total

5,000

1yr.

10,000

1yr.

5,000

1yr.

5,000

6mo.

10,000

1yr.

10,000

1yr.

ACTION "A"		ACTION "B"		ACTION "C"	
cost	time	cost	time	cost	time
estimate	estimate	estimate	estimate	estimate	estimate

see total

**SECTION 17**

Pine Manor (Myers/Henderson Drain)	converted during drain project
Stoneybrook Farms (Myers/Henderson Drain)	converted during drain project

**SECTION 18**

Nixonburg Hills (Myers/Henderson Drain)	converted during drain project
--	--------------------------------

**SECTION 20**

Countryside Estates (Myers/Henderson Drain)	converted during drain project
--	--------------------------------

**SECTION 21**

Evergreen Height (Myers/Henderson Drain)	converted during drain project
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**SECTION 22**

Echo Valley (Moon/Hamilton Drain)	converted during sewer project
--------------------------------------	--------------------------------



	ACTION "A"		ACTION "B"		ACTION "C"	
	cost	time	cost	time	cost	time
	estimate	estimate	estimate	estimate	estimate	estimate
			see total			
<b>SECTION 24</b>						
Westbrook Estates (early phases)	10,000	1yr.			10,000	1yr.
Delta Glens (main outlet)	5,000	6mo.			5,000	6mo.
<b>SECTION 28</b>						
Delta Industrial Park (Williams Drain)	5,000	1yr.			5,000	1yr.
<b>TOTAL FOR 1994</b>			<b>11,000</b>	<b>1yr.</b>		

Sections 14 through 36 can be complete in approx. 1yr. with summer help, approx. cost 11,000.

NOTE: Under Action "B", the cost to do sections 14 through 36 would be \$11,000 with two summer students. Delta Township would within an year, present all the documentation to the Eaton County Drain Commissioner for action. How long it would take the Drain Commission to complete their work is not known at this time.

SUMMARY OF EXPENSES

1991 expenses	\$8,000
1992 expenses	\$9,000
1993 expenses	\$10,000
1994 expenses	<u>\$11,000</u>
total expenses over the 4 years	\$28,000

Action "B" plan would be the most conducive for the Township to follow. With that plan we would hire two (2) engineering students for the summer months, to field investigate and record the storm drains in specified areas. As you can see the cost increases each year due to wage increases.

In 1986, the Township experienced a reported 7 inches of rain in 1 hour, which numerous amounts of damage to property. The Michigan National Bank reported \$1.25 million damage to their computer room and various residents experienced basement walls caving in or personal belongings destroyed by basement flooding. Note that some of the basement flooding is due to storm water entering the sanitary sewer system.

**EXCEPTION:**

If a drainage project or a Sanitary Sewer project is going on, then the Orphan's in those project areas should be given higher priority. Also, if there happens to be several complaints and the complaints deemed justified, then those drains will also be given higher priority.

**EXCEPTION PRIORITY LIST:**

**Myers and Henderson Drainage District** - all the "drains" within the district will become "County Drains", this includes Evergreen Heights, Countryside Estates, Stoney Brook Farms, Nixonburg Hills and Pine Manor.

**STATUS:** Have received DNR permit, need R/W north of Saginaw Highway. Construction in 1991. No cost estimate at this time. No cost to Twp. for Orphan Drain conversion.

**Melody Acres** - due to the Chris J. Drive Branch drainage project, all of Melody Acres will become "County Drains".

**STATUS:** Construction Aug.1990. Cost to Twp. at Large \$37,760. No cost to Twp. for Orphan Drain conversion.

**Echo Valley** - When the Sanitary Sewer Project proceeds in this subdivision, then the storm drains should be taken over by the Drain Office because the information on the existing storm drains will be collected by Delta Twp.

**STATUS:** Waiting for Sanitary Sewer Construction.

**Grandwoods Park** - We have cleaned an "orphan drainage ditch" in the Grandwoods Park. This "orphan drainage ditch" should be taken over by the Drain Office.

**STATUS:** Contractor has completed the cleaning at a cost of \$2,850.

**Lazel Drain** - if the Lazelle Drain Project proceeds, then Lea Verde Estates should be taken over by the Drain Office.

**STATUS:** Need petition from property owners.

**ORPHAN DRAINS COMPLETED TO DATE:**

Homestead Acres - 1989

Allison Heights - 1989 District has been established, need petition to establish drains.

Supervisor Kenneth R. Fletcher  
Treasurer Howard A. Pizzo  
Clerk Mary R. Clark  
Manager Brian T. Reed



Trustee Fonda J. Brewer  
Trustee Andrea M. Cascarilla  
Trustee Dennis R. Fedewa  
Trustee Karen J. Mojica

Engineering Department

(517) 323-8540

**TO: Supervisor Kenneth R. Fletcher and the Delta Township Board**

**FROM: Brian Reed, Township Manager  
Alannah Doak, Assistant Township Manager  
Marcus Kirkpatrick, Parks, Recreation & Cemeteries Director  
Ted Droste, Building Department Director/Township Assessor  
Ernest A. West, P.E., Township Engineer**

**DATE: October 13, 2020**

**SUBJECT: Facilities Study  
Phase 1 Baseline Assessment Results**

Staff have been working with our consultants, C2AE and Christman to complete a Phase 1 Baseline Assessment of the following eight (8) Township buildings:

- Drolett Community Center
- Enrichment Center
- Sheriff Substation
- Township Administration Building
- Fire Station 1
- Fire Station 3
- Parks Maintenance
- Parks Storage

The assessment is now complete, and the final report is attached to this memo.

The final report was provided by the consultants in April 2020, during the COVID 19 shutdown of many of the Township operations. Staff preferred to wait to discuss the results in a face to face board meeting, given the complexity of the discussions, however, with the prolonged need for social distancing and continuation of virtual board meetings, we believe that we should now proceed with a presentation of findings.

The assessment was a very involved effort, which produced a lot of information that will require some time to digest. Staff have reduced the information down to a high-level overview that will be presented at the October 19, 2020 Committee of the Whole meeting. A copy of the presentation is attached to this memo.

Staff anticipate that additional discussion will need to occur and will likely require special strategic planning session(s) in the upcoming months.

Staff will attend the October 19, 2020 Township Committee of the Whole Board meeting to present the information, answer any questions and discuss the next steps with the Board. If there are any questions in the interim, please let us know. Thank you.





# **FACILITIES STUDY**

**PHASE 1 BASELINE ASSESSMENT**

**OCTOBER 19, 2020**

# PHASE 1 TIMELINE

## May 2019

- Board conducts special board meeting & building tours, elects to conduct a Phase 1 Assessment of several buildings

## June 2019

- Board Awards Contract to C2AE/Christman (Consultants) to conduct assessment

## July – August 2019

- Consultants conduct inspections of buildings and sites

## September – December 2019

- Consultants compile facility needs and cost data and conduct meetings with staff to review data

## December 2019 – February 2020

- Staff receive draft report and review internally with Departments and Maintenance staff

## March 2020 - April 2020

- Staff compile and forward final review comments
- Consultants provide final draft of report on April 23, 2020

## May 2020 – October 2020

- COVID impacts delay presentation of findings to Township Board

# BUILDINGS STUDIED

Drolett  
Community  
Center

Enrichment  
Center

Administration  
Building

Sheriff  
Substation

Park  
Maintenance

Parks Storage

Fire Station 1

Fire Station 2

# PHASE 1 PROCESS

## ➤ Assess Each Site in 10 Categories

- Site
- Structure
- Life Safety/Security
- Building Envelope/Roof
- Finishes
- Mechanical Systems
- Electrical Systems
- General Program Adequacy
- Energy Consumption/Efficiency
- Accessibility

## ➤ Conduct walkthroughs and interview staff

## ➤ Identify deficiencies and necessary repairs

## ➤ Identify costs of necessary repairs

## ➤ Consider replacement at sites where repair costs become excessive and identify alternative replacement cost

## ➤ Assign relative priority of necessary repairs

# BUILDINGS STUDIED

Drolett  
Community  
Center

Enrichment  
Center

Administration  
Building

Sheriff  
Substation

Park  
Maintenance

Parks Storage

Fire Station 1

Fire Station 2

# PHASE 1 SIGNIFICANT FINDINGS

- An estimated \$16.7 million of capital investment is needed over the next 10 years to bring into or keep these eight (8) buildings in 'Good' condition
  - These are 2020 dollars and these costs will escalate over time to upwards of \$20 million
- Costs have been categorized based on a prioritization system
  - 0 – 2 years - \$3.7 million
  - 2 – 5 years - \$9.9 million
  - 5 – 10 years - \$3.1 million
- The costs address condition issues only, does not include significant improvements to building functionality or complete building replacement

## BUILDING REPAIR TOTALS

Drolett Community Center  
\$2.1 million

Enrichment Center  
\$3.3 million

Administration Building  
\$3.4 million

Sheriff Substation  
\$2.2 million

Park Maintenance  
\$1.2 million

Parks Storage  
\$1.8 million

Fire Station 1  
\$1.7 million

Fire Station 2  
\$1.0 million



# PHASE 1 SIGNIFICANT FINDINGS (CONT.)

- Buildings in Need of Routine Repairs
  - Administration Building
  - Parks Maintenance
  - Fire Station 1
  - Fire Station 3
- In these cases, staff can use the findings of this Phase I Assessment as a Capital Improvement Plan (CIP) to budget for and implement the necessary upgrades over time



# PHASE 1 SIGNIFICANT FINDINGS (CONT.)

## **Parks Storage Building**

- **Requires extensive work due to deteriorating structural masonry issues**
- **Building was re-purposed to cold storage after construction of Water Operations building**
- **Low priority for repairs due to the building being un-occupied, cold storage**
- **Suggest deferring upgrades to consider replacement of the building in a different location following a decision on Sheriff's Office**



# PHASE 1 SIGNIFICANT FINDINGS (CONT.)

- Three buildings found to need extensive upgrades
- Given age, condition, access limitations, functional limitations and cost of needed repairs, consideration should be given to replacement
- Rehabilitation Cost vs Same Size Replacement Cost
  - Community Center - \$2.1 million rehab vs \$3.0 million replacement
    - Repair cost over 69% of replacement
    - An expanded building on this site could allow function to be combined with Enrichment Center but would raise price to \$8.4 to \$9.2 million
  - Sheriff Substation - \$2.2 million rehab vs \$4.2 million replacement
    - Repair cost over 52% of replacement
    - Expanded building studied in 2008 – approximately 3X current size - \$11.4 to \$12.1 million now
  - Enrichment Center - \$3.3 million rehab vs \$6.0 million replacement
    - Repair cost over 55% of replacement
    - Site constraints don't allow for expansion of footprint



# NEXT STEPS

- Staff use this Phase 1 Assessment information to Plan/Budget/Implement improvements at these buildings:
  - Administration Building
  - Fire Stations 1 & 3
  - Parks Maintenance
- Township Board holds strategic discussion to decide if replacement of these buildings will be pursued:
  - Community Center
  - Enrichment Center
  - Sheriff Substation
- Conduct a Phase 2 Analysis for Replacement Buildings to:
  - Determine proper size and function of new building(s)
  - Determine proper location of new building(s)
  - Identify opportunities to combine functions of new building(s)
  - Identify funding source (millages) for replacement buildings
- Board determines priority and confirms funding source for each building



# PHASE 2

## ITEMS TO CONSIDER

- Size, function, location and combination discussions will require input from multiple stakeholders including board members, staff, community groups and the public
- As these discussions occur and changes in function/use or other opportunities are identified, project scope and costs will grow larger than the figures presented here
- These discussions will also take considerable time, so some current condition issues may need to be addressed in the interim, even though building may not be in the long-term plan for the Township
- These discussions will involve the prioritization of and funding strategies for accomplishing these larger projects and they may compete for attention and financial resources



QUESTIONS?

# Building and Site Assessment

Charter Township of Delta

April 23, 2020



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## INTRODUCTION

With several aging community facilities presenting condition issues and challenges, Delta Township wanted to plan for building renovations or replacements. The Township performed a condition evaluation of the following eight buildings and sites:

Drolett Community Center	7550 W. Willow Highway
Enrichment Center	4538 Elizabeth Road
Eaton Sheriff Sub-Station	7708 Administration Drive
Administration Building	7710 W. Saginaw Highway
Parks and Rec. Maintenance	7720 Administration Drive
Parks and Rec. Storage	7720 Administration Drive
Delta Township Fire Station 1	811 Canal Road
Delta Township Fire Station 3	215 Snow Road

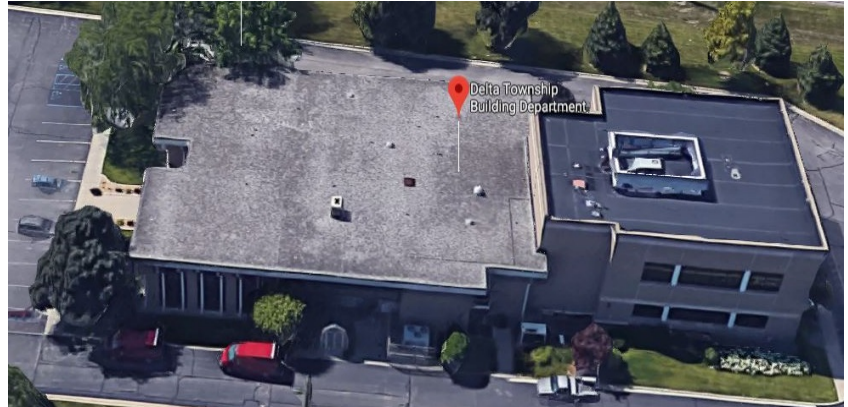
C2AE/Christman performed a Phase 1 condition assessment to inform the Township’s planning efforts from both a programming and financial standpoint. This Phase 1 assessment looked at ten different categories, identified as site, structure, life safety/security, envelope/roof, finishes, mechanical systems, electrical systems, program adequacy, energy consumption/efficiency and accessibility. The team and the Township then met to identify any pertinent items that needed immediate attention.

C2AE identified each deficiency and relayed a fix—whether repair or replacement—for each deficiency to Christman, who provided an associated cost to remedy the issue. Taking these steps allowed the Township to analyze the possibility of replacing a building if indeed the cost of necessary repairs was too high. Finally, the team compiled and prioritized a total cost for remediating these building issues for use in capital improvement planning.

In this Phase 1 condition assessment, a detailed list and/or description of these items can be seen in the subsequent report. It should be noted that this building assessment did not include any analysis of the suitability of the existing buildings to meet the program needs; rather the results of the analysis are to be used in capital improvement planning. Also note that this study does not include any recommendations for replacing buildings, enlarging buildings, relocating programs to different locations or prioritizing any of these activities, as such items were outside the scope of this Phase I assessment and will require additional policy discussions at the Township.

## 1. Administration Building Summary

The Administration Building was originally constructed in 1969 with an addition in 2000. The overall square footage is 21,173; the original building is two stories and the addition consists of three stories including the basement. The primary structural system is masonry bearing wall for the original building and steel frame for the addition. The exterior elevations are clad in a combination of face brick and aggregate panel. The roof system is a single ply membrane that is ballasted at the original building and fully adhered at the addition. The building is generally in good shape, but with dated finishes. The facility received an overall score of **75** out of 100, which is **satisfactory**.



### Estimated Costs for Necessary Repairs

#### Categories

0-2 Years Category 1	\$	70,800
2-5 Years Category 2	\$	2,265,064
5-10 Years Category 3	\$	1,066,899
<b>Total</b>	<b>\$</b>	<b>3,402,763</b>

*Note: These costs do not address any functional issues that currently exist in this building.*

## FACILITY ASSESSMENT FINDINGS

### 1.1 Site

- No sidewalk connectivity from administration building to fire station, sheriff sub-station or parks maintenance sites.



- East parking lot has many cracks.
- Site signage outdated.
- North building entrance not ADA accessible, but leads directly to staircase.
- A storage building added on north side of site. This creates an undesirable aesthetic.

## 1.2 Structure

- Nothing significant to report

## 1.3 Life Safety / Security

- There is a functioning fire suppression system in the building. A storage room added below the North stair. Building code does not allow it. The north stair separated by a non-rated aluminum system at the corridor at the upper level; this does not provide adequate separation from the corridor.
- Stair at the original building do not comply with current codes. Risers too high (over 7") and treads too small (10.5" and should be 11").
- The location of several rated doors and frames are inconsistent with the fire rating of the wall.
- Some fire rated doors were propped open for occupant convenience. Not allowed.
- Occupants requested additional emergency button locations in the building. In some cases, second means of egress for departments are desired.
- Emergency lighting – mixture of wall mounted unit equipment, fixture mounted emergency battery packs and selected fixtures on generator, see generator comment below. No exterior emergency lighting at egress doors.
- Generator – outdoors, natural gas, 60kW, 120/208V, three-phase. Does not comply with current NEC requirements for an emergency system since the generator fed transfer switch and panelboards supply both emergency and non-emergency loads. See Appendix for additional information.
- Fire alarm system – Cerberus, adequate.
- East side of building, elevator is original 1969, needs major renovations. Door access to elevator on south side of building is not ADA.
- West side of building, elevator is original, needs minor renovations.

## 1.4 Envelope / Roof

- Glazing at exterior doors and adjacent sidelight are non-insulated.
- West canopy soffit has water damage. May have leaking roof. Drainpipe above soffit may be leaking.
- North, South, and East canopy soffits are metal and starting to rust. All four (4) canopies need new roofing, soffit and lighting.
- Roof or wall is leaking at the area between the original 1969 building and the 1999 addition.
- Metal flashing at original building near addition is rusting.
- The original 1969 building roof is ballasted EPDM. West roof is almost 20 years old, replace in 5 -10 years.

- Wall sealants are showing signs of wear and should be replaced.
- The masonry wall between the original building and the addition is uninsulated; and should be insulated between low roof and high roof.
- The ladder accessing the low roof is difficult to climb which could lead to injuries.

#### 1.5 Architectural Systems and Finishes

- The counter at the clerk's office is undersized in length to handle their current traffic and should be increased; or an additional counter added to improve flow at busy times.
- Some lay-in ceiling panels have been replaced and do not match the original ones. There are multiple styles of ceiling panel in the building.
- Window coverings are inconsistent, a mix of vertical blinds, horizontal blinds, and roller shades.
- Some interior walls are demountable (furniture system walls). Renovations that include these walls will require surface mounting of new services if the walls are not replaced. These walls stop at the ceiling with the ceiling running over the wall.
- Elevator in oldest portion of building is original and requires repairs, which should be done in the next three years. Work on the existing elevator should include car modernization, door replacement, and controller/power unit replacement. The new elevator needs minor repairs including a soft start replacement and emergency light battery replacement.

#### 1.6 Mechanical

- Natural gas piping on roof rusting and should be painted.
- Drain waste vent piping on old side of building is original cast iron and past expected service life. This piping replacement throughout the building should be in next five years. In particular, a section of under floor drain piping was reported as plugged/collapsed on new building side and should be repaired as soon as possible.
- Air handling units serving original building area are dated and should be replaced with new more energy efficient natural gas fired heating and direct expansion refrigerant cooling forced air units.



- Rooftop unit and basement air handling unit on new side are original; should be replaced within the next two to five years.
- Boiler installed in 2003; this should be replaced within the next five years.

- Condensing units on grade are in poor shape and should be replaced except for the condensing unit on the old side of building which was replaced in 2018.



- Basement restrooms have odor issues, installation of a trap seal on floor drains typically throughout building to prevent sewer gases from entering the building.
- Existing restroom exhaust fans were observed to be operating but are approaching end of expected service life. Exhaust fans should be replaced in the next five years with test and balance performed at same time to verify adequate exhaust volumes are present in each restroom in order to control odors.

#### 1.7 Electrical

- 1200A, 120/208V, three-phase service, upgraded as part of 2000 project, adequate.
- Building lighting – adequate mainly T8 fluorescent with electronic ballasts, building mounted LED exterior.
- Electrical distribution equipment –2000 remodel equipment is in good condition, 1969 equipment nearing end of service life.
- Site lighting pole mounted LED, adequate.
- Emergency lighting – mixture of wall mounted unit equipment and selected fixtures on generator, see generator comment below.
- Electrical receptacles, circuiting – aged but adequate.
- Replace existing lights in the 1969 addition with LED lights.
- Lighting controls – do not comply with MI Energy Code.

#### 1.8 Program Adequacy

- The building functions adequately for a township office.
- Wayfinding within the building is difficult due to the five levels that do not connect. Any consideration of significant renovations should include aligning floors to improve access for all users.

#### 1.9 Energy Consumptions / Efficiency

- Roof insulation on the building is inadequate compared to current energy guidelines. Any new roofing should strive to improve/supplement this insulation. Current ASHRAE standard is R30 for roofs.



- Windows in the original building likely to not have a low e-coating; which reduces solar heat gain and cooling load. Consider adding operable windows to allow users to control environment.
- Minimal lighting controls present. Existing lighting (T8 with electronic ballasts) is not as energy efficient as currently available LED lighting fixtures.
- Minimal insulation in wall of original building.
- A comparison of energy usage at a typical building in the same climate zone as published by the U.S. Department of Energy (DOE) versus this building was performed. Climate Zone 5A cool-humid was utilized for the DOE database. The median Energy Use Intensity (EUI) (KBtu/SF/Year) from the DOE database for natural gas at a commercial office style building is 20. The administration building's natural gas EUI based on one year's worth of utility bills (2018-2019) provided by the township was 173. The median Energy Use Intensity (EUI) (KBtu/SF/Year) from the DOE database for electricity at a commercial office style building is 52. The administration building's electrical EUI based on one year's worth of utility bills (2018-2019) provided by the township was 90. The admin building is significantly above median EUI.

#### 1.10 Accessibility

- The main accessible entrance is located on the south side. Major issues with accessibility and entry wayfinding at this location, improvement needed.
- East entrance second floor need accessible service counter as do most customer service counters. This applies to both guests and employees.
- While not required, exterior entrances could get power assisted door openers to improve accessibility
- Restroom facilities in the original building do not meet current standards. For example, door openings are not wide enough to meet code. Adding power door operators will make opening a door easier but still not compliant. Adding power door operators are to west side restrooms can further improve access to accessible restrooms.
- Restroom facilities in the addition do not have insulation on drain pipes

#### 1.11 Final Overview

- Building is sound, generally in good condition and generally functional but represents access issues and wayfinding issues for the visiting public due to the staggered floors, lack of good accessible route from parking lot to south entrance and poor elevator access at south entrance.
- Consider eventually tearing down east side and re-building to match up to floors on west side to eliminate access issues.
- Building is in need of some improvements to building envelope, finishes, mechanical, plumbing and electrical systems
- Building could benefit from some energy efficiency upgrades.



**Delta Township  
Lansing, MI  
Facility Assessment**



April 15, 2020

**Administration Building**

Item #	Description of Work	Budget Amount	Category 1 -	Category 2 -	Category 3 - 5
			0 to 2 Yrs	3 to 5 Yrs	to 10 Yrs
<u>1</u>	Mil 1.5" & Repave East Lot	\$94,469	0	\$94,469	0
<u>2</u>	Extend Sidewalk Along North Side for Facility Connectivity	\$63,115	0	\$63,115	0
<u>3</u>	Site Monument Sign - Allowance	\$16,668	0	0	\$16,668
<u>4</u>	Replace the Existing Storage Shed and Locate at West End of Parking Lot	\$11,001	0	0	\$11,001
<u>5</u>	Remove & Replace 5 Flights of Stairs That Do Not Meet Code	\$202,789	0	0	\$202,789
<u>6</u>	Remove & Replace Incorrect Fire Rated Doors	\$27,224	0	0	\$27,224
<u>7</u>	Remove & Replace Exterior Glass in 1969 Portion of Building	\$157,120	0	0	\$157,120
<u>8</u>	Remove & Replace Soffit and Fascia at Entry Canopies & Lighting	\$47,597	0	\$47,597	0
<u>9</u>	Remove & Replace the Ballasted Roof & Insulation on the 1969 Portion	\$233,713	0	\$233,713	0
<u>10</u>	Remove & Replace Exterior Caulking	\$37,742	\$37,742	0	0
<u>11</u>	Remove & Replace the Roof Counter Flashing at the West Canopy	\$4,334	0	\$4,334	0
<u>12</u>	Remove & Replace the Roof Access Ladder from the High Roof to the Lower 1969 Roof	\$5,556	0	\$5,556	0
<u>13</u>	Install and Additional 12 Lineal Feet of Counter at the Clerk's Office & Replace Existing	\$58,948	0	\$58,948	0
<u>14</u>	Remove & Replace the Acoustical Ceiling/Lights/Diffusers in the 1969 Portion	\$318,284	0	\$318,284	0
<u>15</u>	Furnish & Install New Blinds on Exterior Windows in 1969 Portion	\$5,600	0	0	\$5,600
<u>16</u>	Remove & Replace all Interior Signage	\$33,530	0	0	\$33,530
<u>17</u>	Remove & Replace Toilet Room Accessories to Meet Code	\$15,168	0	\$15,168	0
<u>18</u>	Remove & Replace Interior Door Hardware in 1969 Portion	\$24,279	0	\$24,279	0
<u>19</u>	West Roof Replacment	\$194,844	0	0	\$194,844
<u>22</u>	Replace Roof Top Units	\$94,450	0	0	\$94,450
<u>23</u>	Elevator Work / Repair / Refurbish	\$16,668	0	\$16,668	0
<u>24</u>	Replace Collapsed/Plugged underfloor drain in New Portion of building	\$6,667	\$6,667	0	0
<u>25</u>	Replace Drain Waste Vent Piping in the Older Side of the Building	\$132,407	0	\$132,407	0
<u>26</u>	Add additional emergency button locations in the building	\$13,334	0	\$13,334	0
<u>27</u>	Paint natural gas piping	\$722	0	\$722	0
<u>28</u>	Replace AHU's (NG w/DX)	\$259,159	0	\$259,159	0
<u>29</u>	Install Trap Seal on floor drains throughout building	\$2,778	\$2,778	0	0
<u>30</u>	Electrical Distribution Equipment replacment (vintage 1969)	\$85,005	0	\$85,005	0
<u>31</u>	Replace Existing Outlets / Add Outlets	\$57,368	0	\$57,368	0
<u>32</u>	Update Lighting Controls	\$30,194	0	\$30,194	0
<u>33</u>	Restroom Plumbing Trap Covers	\$2,133	\$2,133	0	0
<u>34</u>	Replace Floor Mounted Return Fan	\$26,113	0	\$26,113	0
<u>35</u>	Replace Restroom Exh Fans	\$10,667	0	\$10,667	0
<u>36</u>	Replace Trane Condenser	\$42,291	0	\$42,291	0
<u>37</u>	Replace Water Tube Boiler	\$38,502	0	\$38,502	0
	Direct Trade Cost Numbers Only**				
	<b>GRAND TOTALS:</b>	\$2,370,438	\$49,321	\$1,577,892	\$743,225

## 2. Drolett Community Center

### Summary

The Drolett Community Center was originally constructed in 1971 as a church with a small addition in 1996. It is a 6,900 sq. ft. in size and is two stories with the basement level located half way in the ground. The exterior elevations are face brick. The roof system asphalt



shingles. The building is generally unoccupied and is generally in good shape, but with dated finishes. The facility received a score of **61**, which is **borderline**.

### Estimated Costs for Necessary Repairs

#### Categories

0-2 Years Category 1	\$	321,409
2-5 Years Category 2	\$	1,623,719
5-10 Years Category 3	\$	135,585
<b>Total</b>	<b>\$</b>	<b>2,080,713</b>

#### Facility (Condition) Cost Index = Cost to Renovate/Cost to Replace

- \$2,080,713/\$3,000,000 = 69.4% (Replace at existing size)
- \$8,400,000 would be the cost to combine the Enrichment Center and the Community Center on the Community Center property.

*Note: These costs do not address any functional issues that currently exist in this building.*

## FACILITY ASSESSMENT FINDINGS

### 2.1 Site

- Need additional parking capacity for large events and elections.
- Parking lot pavement in poor condition.
- Concrete curb in parking lot in poor condition.
- Potential parking lot expansion and secondary entrance on Canal Street.
- Need concrete dumpster pad.
- Handicap building entrance not accessible.

- Roof downspouts release gutter on grade which is positively sloped to carry water away from the building

## 2.2 Structure

- Nothing significant to report

## 2.3 Life Safety / Security

- There is no fire suppression system in the building. While this is not required by code, the various levels and the transient large population make having fire protection desirable.
- The lack of easy at grade emergency egress could provide challenges in event of an incident.
- Because other primary purpose is for elections where occupants are unfamiliar with the building, having some type of emergency alarm would be desirable.
- Emergency lighting – wall mounted battery backed units, adequate. No exterior emergency lighting provided at egress doors.
- The building does not have a fire alarm. Code does not require one.
- There is no emergency generator. The lighting is on battery backup.

## 2.4 Envelope / Roof

- Wood deck platforms at some exterior door is aging.
- Roof water is collected via gutters and downspouts which are in good condition
- Asphalt roof shingles are in good condition
- Facebrick and mortar is in good condition. Sealant in masonry expansion joints should be removed and replaced.
- Foundation wall moisture issue on east wall, waterproofing system or drainage improvements needed.
- Sealant at windows should be removed and replaced

## 2.5 Architectural Systems and Finishes

- Interior walls are drywall on wood stud.

- Finishes are generally in good condition. Due to relatively light uses infrequently in the building, existing finishes should be fine.
- The acoustical sound is poor in the main room due to all the hard surfaces not absorbing sound. Speech intelligibility in the space can be improved and background noise/reverberation reduced by the addition of acoustic absorption panels. Flooring replaced in 2020 with vinyl, which worsen the issue even more and should be address.
- Windows lack any light control.
- In 1996, the barrier free lifting device was installed and is near end of life. Consider replacing if maintaining the building or if reconstructing the building, possibly making one level.

## 2.6 Mechanical

- Two natural gas fired heating and direct expansion refrigerant cooling air handling units are in poor shape and at end of their expected service life and should be replaced.



- Exterior ductwork from air handling units into the building is original; this should be replaced when the air handling units are replaced.
- Natural gas piping on building exterior serving the air handling units should be repainted.
- Domestic water heater in good shape with five or more years of expected service life remaining.
- Domestic hot and cold water copper plumbing piping in basement not insulated.
- Lavatories missing pipe covers for ADA compliance.

## 2.7 Electrical

- There are two electric services 120/240V, single-phase and 277/480V, three-phase; equipment nearing end of useful life.
- Building lighting – some LED, minimal building mounted exterior.
- Electrical distribution equipment nearing end of service life.
- Site lighting minimal.
- Electrical receptacles, circuiting – aged but adequate.
- Lighting controls – do not comply with MI Energy Code.

- Since there is no generator, there is not possibility of standby power, which may be desirable on election days in the event of a loss of power.

## 2.8 Program Adequacy

- The spaces provided are appropriately sized for the main use of the building.
- With the primary use of the building as an election polling station, the lack of easy at entry access to all levels is challenging.

## 2.9 Energy Consumptions Efficiency

- Wall insulation is minimum and does not meet current standards.
- Windows in the original building likely do not have a low e-coating, which reduces solar heat gain and cooling load.
- Minimal lighting controls present. Existing lighting is not energy efficient.
- A comparison of energy usage at a typical building in the same climate zone as published by the U.S. Department of Energy (DOE) versus this building was performed. Climate Zone 5A cool-humid was utilized for the DOE database. The median Energy Use Intensity (EUI) (KBtu/SF/Year) from the DOE database for natural gas at a public assembly style building is 60. The Drolett community center building's natural gas EUI based on one year's worth of utility bills (2018-2019) provided by the township was 32. The median Energy Use Intensity (EUI) (KBtu/SF/Year) from the DOE database for electricity at a public assembly style building is 28. The Drolett community center building's electrical EUI based on one year's worth of utility bills (2018-2019) provided by the township was 4. The community center is below median EUI.

## 2.10 Accessibility

- There is one uni-sex toilet room.
- There is no drinking fountain within the building
- The lower level is not accessible by wheelchair. The 1996 addition installed a barrier free lifting device, which services one person per trip.

## 2.11 Final Overview

- Building is generally sound but multiple levels and access issues are challenging. If rebuilding, consider a single story building
- Parking is adequate for most events but during elections, parking is inadequate.
- Room acoustics are poor
- Building systems such mechanical and electrical should be replaced.



**Delta Township  
Lansing, MI  
Facility Assessment**



April 15, 2020

**Drolett Community Center**

Item #	Description of Work	Budget Amount	Category 1 -	Category 2 -	Category 3 -
			0 to 2 Yrs	3 to 5 Yrs	5 to 10 Yrs
<u>1</u>	Enlarge Parking Area to Provide an Additional 65 Spaces to the North and Add Second Entrance to the West	\$182,497	0	\$182,497	0
<u>2</u>	Demo & Replace the Existing Parking Lot Area	\$175,723	0	\$175,723	0
<u>3</u>	Remove & Replace Curb & Gutter in Existing Lot Due to Damage	\$47,521	0	\$47,521	0
<u>4</u>	Provide a New Dumpster Pad and CMU Enclosure	\$38,602	0	0	\$38,602
<u>5</u>	Remove Existing Ramp & Stairs at Main Entry and Replace to Meet Code	\$112,567	\$112,567	0	0
<u>6</u>	Remove Wood Decks and Provide Concrete Walkways	\$54,560	0	0	\$54,560
<u>7</u>	Allowance to Provide Emergency Egress Points at Each Level	\$83,338	\$83,338	0	0
<u>9</u>	Remove & Replace Exterior Caulking	\$9,584	0	\$9,584	0
<u>10</u>	Replacing 1996 Barrier Free Equipment	\$42,225	0	\$42,225	0
<u>11</u>	Add fire protection to the building	\$289,500	0	\$289,500	0
<u>12</u>	Improve East Wall Moisture Issues/Waterproofing	\$13,572	\$13,572	0	0
<u>13</u>	Add Acoustic Treatments to improve performance	\$13,890	\$13,890	0	0
<u>14</u>	Replace 1996 barrier free lift	\$55,892	0	\$55,892	0
<u>27</u>	Add Emergency Power	\$33,335	0	\$33,335	0
<u>28</u>	Replace AHU's (NG w/DX)	\$173,866	0	\$173,866	0
<u>29</u>	Basement Domestic Hot & Cold Water Plumbing Insulation	\$889	0	0	\$889
<u>30</u>	Restroom plumbing trap covers	\$533	\$533	0	0
<u>31</u>	Replace Electrical Distribution Equipment	\$18,668	0	\$18,668	0
<u>32</u>	Upgrade Site Lighting	\$64,893	0	\$64,893	0
<u>33</u>	Update Lighting in Small Rooms In Basement	\$20,446	0	\$20,446	0
<u>34</u>	Update Recepticals	\$10,634	0	\$10,634	0
<u>35</u>	Paint NG Piping	\$400	0	0	\$400
<u>36</u>	Add Kitchen Hood	\$6,334	0	\$6,334	0
	Direct Trade Cost Numbers Only**		0	0	0
	<b>GRAND TOTALS:</b>	<b>\$1,449,469</b>	<b>\$223,900</b>	<b>\$1,131,117</b>	<b>\$94,451</b>

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### 3. Eaton County Sherriff Substation Summary

The Sheriff Substation was originally constructed in 1982 and an addition in 1991, with an interior renovation in 2013. The building is 7,120 sq. ft. in size and is one story. The primary structural system is wood stud bearing wall for all portions of the building. The exterior elevations are primarily face brick. The roof is clad in architectural standing seam metal with the north portion clad in asphalt shingles. The building is generally used for business use with offices and supporting when used it can hold appropriately 30 occupants. The facility received a score of **58**, which is **Borderline**.



#### Estimated Costs for Necessary Repairs

##### Categories

0-2 Years Category 1	\$	749,266
2-5 Years Category 2	\$	1,356,908
5-10 Years Category 3	\$	52,046
<b>Total</b>	<b>\$</b>	<b>2,158,220</b>

#### Facility (Condition) Cost Index = Cost to Renovate/Cost to Replace

- \$2,158,220/\$4,150,000 = 52.0% (Replace at existing size)
- New 20,800 sq. ft. Sheriff Sub-Station (from 2008 Study) inflated to 2020 dollars: \$12,200,000

*Note: These costs do not address any functional issues that currently exist in this building.*

## FACILITY ASSESSMENT FINDINGS

### 3.1 Site

- Rear parking lot in poor condition and should be replaced.
- Erosion is occurring in rear corner of parking lot near wetland.
- Drainage issue under overhang is causing deterioration of the exterior concrete near the building and erosion of the engineered fill surrounding the foundation wall.
- There is no maintenance strip around the building, which would be desirable to protect the building and reduce exterior maintenance costs.

- No sidewalk connectivity to administration building.

### 3.2 Structure

- Exterior piers are showing damage at base, perhaps due to settlement or heaving

### 3.3 Life Safety / Security

- There is fire protection in the building that is in poor condition and requires routine repairs. This should be replaced.
- Fire alarm system – Faraday, adequate.
- Emergency lighting – mixture of battery backed unit equipment and selected fixtures on generator, see generator comment below. No exterior emergency lighting provided at egress doors.
- Video monitoring of interview rooms should be added.

### 3.4 Envelope / Roof

- Asphalt shingles on the original 1982 building are near end of expected life.
- Standing seam metal roof and fascia on the 1991 addition is in good condition.
- Exterior finish on windows is fading and thinning.
- Moisture is getting thru some masonry walls. Consider sealing brick if moisture is wicking through open mortar joints.
- Exterior slab near 1991 canopy addition is getting wash out below it.
- Wood planter, wood trim on original 1982 building and deteriorating.
- The roof gutter system is inadequate and is not properly draining water off roof and away from building.



- Wood soffits and vent on the original 1982 building are damaged and deteriorating and should be repaired/replaced.
- The coating on the wood gable end is failing, should be cleaned, repainted and/or restained.

### 3.5 Architectural Systems and Finishes

- Some of the original 1982 garage areas were converted in to occupied spaces and some of the exterior walls in

these spaces not insulated.

- Exterior windows have horizontal blinds for light control.
- Carpet in some areas is stained and beyond being able to be cleaned or replaced. Replacement should consider a resilient flooring product in some areas to address constant staining.
- Water damage to drywall in area where IT is located from previous roof leak.
- No floor drainage in garage results in ponding water, no access to sanitary sewer at this location, would require a new sewer lead to the main in road to the south.
- Technology wiring and head end would need to be cleaned up and redone in any renovation project. Need a dedicated IT closet with cooling, equipment racks and backup power wiring for computer/phone technology.
- No video monitoring of interview rooms currently, consider adding.

### 3.6 Mechanical

- Six natural gas fired, forced air furnaces serve the building with condensing units mounted outside on grade. Condensing units are in poor shape and should be replaced. All furnaces are original and approaching end of expected service life. They should be replaced with new in kind units or a single air handling unit with ductwork to serve each space independently. New thermostats should be installed when replacing the units. Installation of a single unit will require significant interior renovations to run new ductwork.
- Plumbing fixtures in all rest rooms, locker and shower rooms are original and dated and should be replaced in the next five years.
- All DWV piping below slab piping has reported issues, with some sections failing and should be entirely replaced if building is renovated.



- Domestic hot and cold water copper plumbing piping not insulated.

- The Lavatories missing pipe covers for ADA compliance.
- A booster pump should be installed on domestic water service to address reported low water pressure at various restroom fixtures in the building.
- There is no control system to take advantage of unoccupied times to reduce energy use.

### 3.7 Electrical

- 200A, 120/240V, single-phase service, upgraded as part of 1991 project, adequate.
- Building lighting – mainly fluorescent, building mounted HID exterior.
- Electrical distribution equipment – 1991 remodel equipment is in good condition, 1982 equipment nearing end of service life.
- Site lighting pole mounted HID, adequate.
- Electrical receptacles, circuiting – aged but adequate and a minimum number except at workstations where additional receptacles and circuits are required
- Lighting controls – do not comply with current MI Energy Code.
- Generator – indoors, natural gas, 17kW, 120/240V, single-phase. Does not comply with current NEC requirements for an emergency system since the generator fed transfer switch and panelboard supplies both emergency and non-emergency loads. See Appendix for additional information
- Existing IT racks are located in a crowded closet. Any renovation should include creation of a dedicated; air-conditioned IT closet and provided with backup power.

### 3.8 Program Adequacy

- The building feels cramped, small, low ceiling, and un-inviting. Many of the spaces have become inadequate for their current function.
- Electrical and technology has been retro fitted as an afterthought and in many cases is exposed. Computers, radios, TVs are throughout the building and their electrical power is not integrated into the building.
- There is limited covered or indoor parking for police vehicles.
- Not enough sufficient storage and requires utilization off detached storage space.
- Facilities are lacking for female staff.

### 3.9 Energy Consumptions Efficiency

- Wall insulation is minimum and does not meet current standards.
- Windows in the original building likely do not have a low e -coating which reduces solar heat gain and cooling load.
- There are minimal lighting controls. Existing lighting is not energy efficient.
- A comparison of energy usage at a typical building in the same climate zone as published by the U.S. Department of Energy (DOE) versus this building was performed. Climate Zone 5A cool-humid was utilized for the DOE database. The median Energy Use Intensity (EUI) (KBtu/SF/Year) from the DOE database for natural gas

at a public safety style building is 70. The sheriff sub-station building's natural gas EUI based on one year's worth of utility bills (2018-2019) provided by the township was 20. The median Energy Use Intensity (EUI) (KBtu/SF/Year) from the DOE database for electricity at a public safety style building is 70. The sheriff sub-station building's electrical EUI based on one year's worth of utility bills (2018-2019) provided by the township was 44. The sheriff sub-station is below median EUI.

### 3.10 Accessibility

- Correctional facilities are generally not required to be accessible, but public areas in them need to be. There are no accessible toilets in the public area.
- Some doors have knobs and should be levers.
- Some doors swings do not comply with current accessibility requirements.

### 3.11 Final Overview

- Building is generally inadequate for the uses of the building.
- Poor mechanical, plumbing, electrical and technology systems.
- Significant roof and site drainage issues cause deterioration of building envelope and structural systems around the canopy.
- Building should be considered for replacement or major addition and renovation project.



**Delta Township  
Lansing, MI  
Facility Assessment**



April 15, 2020

**Eaton Country Sherriff Substation**

Item #	Description of Work	Budget Amount	Category 1 -	Category 2 -	Category 3 - 5
			0 to 2 Yrs	3 to 5 Yrs	to 10 Yrs
<u>1</u>	Demo all Site Paving, Add Storm Sewer System & Replace Paving	\$222,621	0	\$222,621	0
<u>2</u>	Provide Curb & Gutter and Reconstruct Catch Basin & Pipe to Wetlands - ALLOWANCE	\$37,502	0	\$37,502	0
<u>3</u>	Remove & Repalce Concrete Paving Under Overhang	\$21,036	\$21,036	0	0
<u>4</u>	Install an 18" Wide Stone Mow Strip Along Building Where There is Grass	\$6,389	0	0	\$6,389
<u>5</u>	Shoring / Repair of Overhang Columns Due to Erosion - ALLOWANCE	\$111,117	\$111,117	0	0
<u>6</u>	Remove & Replace Timber Retaining Wall with CMU	\$19,767	0	0	\$19,767
<u>7</u>	Remove & Replace Shingles	\$14,734	0	\$14,734	0
<u>8</u>	Remove & Replace Exterior Caulking	\$9,889	0	\$9,889	0
<u>9</u>	Repaint Wood Gables	\$1,667	\$1,667	0	0
<u>10</u>	Remove & Replace Double Hung WWindows	\$40,119	0	\$40,119	0
<u>11</u>	Remove & Replace Wood Fascia & Soffit	\$18,001	\$18,001	0	0
<u>12</u>	Remove & Replace Wood Soffit at Overhang	\$29,113	\$29,113	0	0
<u>13</u>	Install Furring, Insulation, & Drywall in the Garage Area for Insulation	\$17,015	0	\$17,015	0
<u>14</u>	Remove & Replace Carpet with Resilient Flooring	\$65,248	0	\$65,248	0
<u>15</u>	Remove & Replace Interior Door Hardware to Lever Type to Meet Code	\$21,723	0	\$21,723	0
<u>16</u>	Remove & Replace Acoustical Ceilings/Diffusers	\$53,600	0	\$53,600	0
<u>17</u>	Remove & Replace VCT Flooring	\$1,933	0	\$1,933	0
<u>18</u>	Remove & Replace Cermaic Floor Tile in Restrooms	\$9,523	0	\$9,523	0
<u>19</u>	Remove & Replace Millwork in Breakroom - 8 Lineal Feet	\$9,212	0	0	\$9,212
<u>20</u>	Repaint Interior of the Facility	\$19,779	0	\$19,779	0
<u>21</u>	Allowance to Make Unisex Restroom ADA Compliant - ALLOWANCE	\$22,223	\$22,223	0	0
<u>22</u>	Replace the failing fire protection system	\$104,557	\$104,557	0	0
<u>23</u>	New Sanitary Sewer Lead	\$18,334	0	\$18,334	0
<u>24</u>	Replace/Rework Gutter System	\$6,111	\$6,111	0	0
<u>25</u>	Replace water damaged material in IT closet	\$2,778	\$2,778	0	0
<u>26</u>	Replace mechanical equipment & controls	\$290,116	0	\$290,116	0
<u>27</u>	Domestic Hot & Cold Water Plumbing Insulation	\$889	0	0	\$889
<u>28</u>	Restroom plumbing trap covers	\$1,067	\$1,067	0	0
<u>29</u>	Replace the Domestic Water Piping system to correct flow issues	\$83,649	\$83,649	0	0
<u>30</u>	Update Lighting	\$49,843	0	\$49,843	0
<u>31</u>	Replace Electrical Distribution Equipment	\$19,157	0	\$19,157	0
<u>33</u>	New Emergency Generator	\$24,090	0	\$24,090	0
<u>34</u>	Video Monitoring should be added in interview rooms	\$12,778	\$12,778	0	0
<u>35</u>	Add Drainage in Garage - New Sanitary Line	\$19,168	\$19,168	0	0
<u>36</u>	Clean Up IT and Comm, Add Cooling, Equipment Racks	\$15,556	0	\$15,556	0
<u>37</u>	Replace Plumbing Fixtures and Faucets	\$14,467	0	\$14,467	0
<u>38</u>	Replace Drain & Vent Piping	\$67,022	\$67,022	0	0
<u>39</u>	Add receptacles and branch wiring where needed	\$21,668	\$21,668	0	0
	Direct Trade Cost Numbers Only**				
	<b>GRAND TOTALS:</b>	\$1,503,462	\$521,955	\$945,251	\$36,256

#### 4. Enrichment Center Summary

The Enrichment Center was originally constructed in 1939 as a school and in 1955, a six-classroom addition was added. In 1981, some of the school was partially demolished and renovated for use as the township library with some minor renovation in 2008 to support the new



use as a community center. It is a 14,100 sq. ft. in size and is one story. The primary structural system is bearing wall masonry. The exterior elevations are face brick with vinyl siding on stud infills at areas that were previously large windows. The building is used often during the week and weekend as a community center. The building is showing its age especially since portions are 80 years and 64 years old. The facility received a score of **49**, which is **Poor**.

#### Estimated Costs for Necessary Repairs

##### Categories

0-2 Years Category 1	\$	956,333
2-5 Years Category 2	\$	1,998,705
5-10 Years Category 3	\$	374,351
<b>Total</b>	<b>\$</b>	<b>3,329,389</b>

#### Facility (Condition) Cost Index = Cost to Renovate/Cost to Replace

- $\$3,329,389/\$5,974,000 = 55.7\%$  (Replace at existing size)

*Note: These costs do not address any functional issues that currently exist in this building.*

### FACILITY ASSESSMENT FINDINGS

#### 4.1 Site

- Parking lot pavement in poor condition and should be reconstructed rather than overlaid.
- Sink holes in parking lot, perhaps due to compacted fill around old building foundations.
- Parking lot reconstruction should include over excavation of existing soils, mass grading, curb and gutter, and storm water control including both green infrastructure and catch basins/storm sewer.



- Ponding in road east of building
- Remove asphalt parking area on east side of building
- Dumpster in bad location directly adjacent to sidewalk, which is not desirable.

#### 4.2 Structure

- Primary structural system is 80 years old.
- There is a settlement issue with column footing on west side of building on exterior column at roof overhang.

#### 4.3 Life Safety / Security

- There is no fire alarm in the building; code does not require one. Some individual smoke detectors installed. Considering the average age of the typical user, a fire alarm/ detection system would be desirable.
- Emergency lighting is wall-mounted units, which provide adequate lighting. There is not exterior emergency lighting at egress doors.
- There is no emergency generator.

#### 4.4 Envelope / Roof

- One area of the roof does not have an overhang, which causes roof water to drain down the face of the brick. This is causing mold growth on wall, eroding the brick face, and likely admitting water into the wall system, which can cause continued deterioration, and could eventually lead to failure of the wall.
- All of the roofing needs replacement. All of the gutter/downspout system needs replacement.
- Some metal trim has come off; the exposed wood is now deteriorating.
- Vinyl siding is a 20-25 year solution for cladding. If installed in 1981, it is beyond end of life.
- The original building likely has minimal insulation within the walls. The amount of roof insulation is unknown.
- While the “new” smaller windows likely perform better than the original windows, they are inadequate by current standards.

#### 4.5 Architectural Systems and Finishes

- Many partial finish upgrades have occurred within the building.



- The main assembly room has laminate flooring over old carpet.
- Some assembly rooms (old classrooms) have 2x4 lay-in ceilings, and the tiles are sagging.
- Some areas / rooms have low ceilings that do not comply with current building codes.
- Carpet in some rooms is old, stained and should be replaced.
- Flooring in kitchen needs replacing.

#### 4.6 Mechanical

- Multiple natural gas fired heating and direct expansion refrigerant cooling air handling units are located in two mechanical rooms and are in fair shape and should be replaced within the next ten years.
- Unit ventilators serve the classroom area and are at end of service life. These units should be replaced in next five years.
- Condensing units mounted on the roof are in fair shape and should be replaced within next ten years.
- Domestic hot and cold water copper plumbing piping in basement and crawl space on south end of building not insulated.
- The Lavatories are missing pipe covers for ADA compliance.
- DWV drain piping in walls and below slab reportedly leaks in some areas and failed in other areas, piping should be replaced in its entirety if building renovated.
- The kitchen originally designed to prep intermittent meals in the building, but now being used as meal prep area on a more regular basis. However, it is working for their use.

#### 4.7 Electrical

- There are two electric services 120/240V, single-phase and 277/480V, three-phase; equipment nearing end of useful life.
- Building lighting – some LED, minimal building mounted exterior.
- Electrical distribution equipment nearing end of service life, one distribution panel uses pullout fuses.
- Site lighting minimal.
- Electrical receptacles, circuiting – aged but adequate.
- Lighting controls – do not comply with MI Energy Code.
- Generator – none.
- Very limited IT wiring in classroom wing of building; renovation of building should include adding IT wiring to these spaces.

#### 4.8 Program Adequacy

- The existing site is landlocked between two streets and adjacent occupied residential parcels. This limits the ability for future expansion of the program at this location without the purchase of adjacent parcels.
- The size of the spaces is adequate for the building program. The variety of spaces allow flexibility in use. Some

smaller breakout spaces would be desirable for 2-4 person meetings.

- Due to the two levels of the building, the spaces and areas located on the non-accessible level are predominantly unused.
- While many spaces have windows, they are small. More daylight would be desirable.
- Parking lot needs second driveway to accommodate traffic during elections.

#### 4.9 Energy Consumptions Efficiency

- Wall insulation is minimum and likely nonexistent.
- Windows in the original building likely do not have a low e-coating; which reduces solar heat gain and cooling load.
- Roof insulation is minimum and does not meet current standards.
- Minimal lighting controls present. Existing lighting is not energy efficient.
- A comparison of energy usage at a typical building in the same climate zone as published by the U.S. Department of Energy (DOE) versus this building was performed. Climate Zone 5A cool-humid was utilized for the DOE database. The median Energy Use Intensity (EUI) (KBtu/SF/Year) from the DOE database for natural gas at a public assembly style building is 60. The enrichment center building's natural gas EUI based on one year's worth of utility bills (2018-2019) provided by the township was 74. The median Energy Use Intensity (EUI) (KBtu/SF/Year) from the DOE database for electricity at a public assembly style building is 60. The enrichment center building's electrical EUI based on one year's worth of utility bills (2018-2019) provided by the township was 4. The enrichment center is slightly above median EUI for natural gas and significantly lower for electrical EUI.

#### 4.10 Accessibility

- The building has split-levels. See comment above regarding program adequacy.
- There is one uni-sex toilet room in the building, and it is not up to the current ADA requirements. The other toilet facilities are not accessible.
- Attempts to make the west entry accessible are an improvement.
- The south entrance has stairs.

#### 4.11 Final Overview

- Building is in poor condition and given its age, site issues, roof issues, and accessibility, plumbing and mechanical issues. Given the costs to rehabilitate, replacement of the building should be strongly considered.
- While location for building might be suitable for current users, the site will limit expansion of the program.



**Delta Township  
Lansing, MI  
Facility Assessment**



April 15, 2020

**Enrichment Center**

Item #	Description of Work	Budget Amount	Category 1 -	Category 2 -	Category 3 - 5
			0 to 2 Yrs	3 to 5 Yrs	to 10 Yrs
<u>1</u>	Remove & Replace Asphalt Parking Lot and Add Storm Sewer to City System	\$195,813	\$195,813	0	0
<u>2</u>	Excavate West 1/2 of Parking Lot to a Depth of 10'-0 and Backfill with Engineered Fill to Mitigate Sinkholes	\$314,092	\$314,092	0	0
<u>3</u>	Remove Asphalt Paving Area on East Side & Plant Grass	\$12,526	0	\$12,526	0
<u>4</u>	Add Second Driveway to City Street on West Side	\$12,667	0	\$12,667	0
<u>5</u>	New Dumpster Pad & Enclosure	\$46,586	0	\$46,586	0
<u>6</u>	Remove & Replace all Roofs	\$320,436	0	\$320,436	0
<u>7</u>	Remove & Replace Vinyl Siding	\$32,352	0	\$32,352	0
<u>8</u>	Fur Perimeter Walls and Add Insulation for Energy Code	\$99,672	0	\$99,672	0
<u>9</u>	Remove & Replace Windows & Aluminum Glass Doors	\$146,453	0	\$146,453	0
<u>10</u>	Remove & Replace Flooring in Assembly Room	\$38,247	0	\$38,247	0
<u>11</u>	Remove & Replace Carpet in the Classroom Wing	\$68,559	0	\$68,559	0
<u>12</u>	Remove & Replace ACT Ceilings	\$107,437	0	\$107,437	0
<u>13</u>	Add More Glass at Exterior (Approximately 500 SF)	\$63,892	0	\$63,892	0
<u>14</u>	Allowance to Add Two (2) Additional ADA Restrooms	\$66,670	0	\$66,670	0
<u>15</u>	Allowance to Make Current Unisex Restroom ADA Compliant	\$11,112	\$11,112	0	0
<u>16</u>	Allowance to Make Existing West Entry More ADA Friendly	\$25,001	0	\$25,001	0
<u>26</u>	Replace 2 - Air Handling Equipment	\$124,385	0	\$124,385	0
<u>27</u>	Domestic Hot & Cold Water Plumbing, Vent, Sanitary Replacement	\$141,008	0	0	\$141,008
<u>28</u>	Restroom plumbing trap covers	\$1,067	\$1,067	0	0
<u>29</u>	Replace Plumbing Fixtures	\$60,359	0	\$60,359	0
<u>30</u>	Upgrade to Commercial Kitchens	\$119,773	0	0	\$119,773
<u>31</u>	Fire Alarm System	\$39,836	\$39,836	0	0
<u>32</u>	Add Emergency Generator	\$24,090	0	\$24,090	0
<u>33</u>	New Electrical Distribution/Branch Equipment	\$80,338	0	\$80,338	0
<u>34</u>	Update Lighting & Controls	\$62,670	0	\$62,670	0
<u>35</u>	Replace Kitchen Flooring w / Vinyl Tile	\$4,278	\$4,278	0	0
<u>36</u>	Replace 2 Classroom Unit Ventilators	\$53,336	\$53,336	0	0
<u>37</u>	Increase IT infrastructure and capacity throughout	\$15,556	\$15,556	0	0
<u>38</u>	Additional Drive for parking lot	\$31,113	\$31,113	0	0
	Direct Trade Cost Numbers Only**				
	<b>GRAND TOTALS:</b>	\$2,319,324	\$666,202	\$1,392,340	\$260,781

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## 5. Fire Station No. 1 Summary

Fire Station No. 1 was originally constructed in 2002. It is a 25,520 sq. ft. in size and is one story with storage mezzanines on either side of the apparatus bay. The primary structural system is bearing wall masonry and steel stud bearing wall. The exterior elevations a combination of masonry low and synthetic stucco high.



Windows are a prefinished aluminum storefront system. The roof system is high slope clad in asphalt shingles. The building primary use has always been a fire station. The building can sleep 10 firefighters. It is generally not open to the public. The building looks like a 17-year-old building but well maintained. The facility received a score of **77**, which is **Satisfactory**.

### Estimated Costs for Necessary Repairs

#### Categories

0-2 Years Category 1	\$	347,022
2-5 Years Category 2	\$	266,266
5-10 Years Category 3	\$	1,076,899
<b>Total</b>	<b>\$</b>	<b>1,690,187</b>

*Note: These costs do not address any functional issues that currently exist in this building.*

## FACILITY ASSESSMENT FINDINGS

### 5.1 Site

- Joint sealants along curbs need to be redone.
- There is a large crack in concrete in parking lot on west side of building that we recommend being removed and replaced.
- Areas of concrete curb in parking lot in poor condition.
- Parking lot striping needs to be redone.
- Drainage/flooding issue west of the South Entry to the building due to existing landscaping. Landscape improvements should be performed to improve drainage patterns and infiltration. Building footing drain system should be inspected to check subsurface soil/gravels, drainage fabrics and pipe condition. There are

inconsistencies with connected and disconnected roof downspouts throughout.

- It would be desirable to relocate irrigation system control panel and isolation valve from inside building to exterior.

## 5.2 Structure

- Nothing to report.

## 5.3 Life Safety / Security

- Fire alarm system – Faraday, adequate.
- Emergency lighting is a mixture of wall mounted unit equipment and selected fixtures on generator (see generator comment below). No exterior emergency lighting provided at egress doors.
- Due to firefighters spending overnights at the station, smoke and CO detectors should be installed in living quarters.
- Need card access for doors expanded to some interior doors to control public access to building for firefighter safety.
- Existing security videos cameras do not record (no DVR), equipment is obsolete, and coverage needs to be expanded to some interior areas as well as rear parking lot areas.

## 5.4 Envelope / Roof

- Ivy on the exterior of the building should be removed. Ivy opens cracks in the building exterior allowing moisture into the wall system.
- Street address number not on building or site. There is signage on east side, should be added on the south side as well.
- Roof has leaks. There is ice damming during the winter, near louvers adjacent to lower roof.
- Some of the joints in gutters are leaking. In general, need to address getting roof drainage to direct water away from the building.
- Exterior sliding door at dining room not working/sliding.

## 5.5 Architectural Systems and Finishes

- Interior finishes are generally in good conditions, but there is little color throughout building
- Epoxy floor finish in truck bay has come off in some areas.
- Concrete damage to floor in truck bays, near trench drains. Trench drain cast iron embedded frames rusting/swelling. Cannot get grates out to clean in some areas.
- Ceiling panels are stained from roof leaks.

## 5.6 Mechanical

- Upgrade HVAC systems with new units and controls to allow independent control in each occupied space and to

provide improved humidity control within the building within the next ten years.

- Two natural gas fired domestic water heaters are at end of expected service life and should be replaced within next five years.
- Multiple natural gas fired, forced air furnaces with remote refrigerant condensers serve the building and are approaching the end of their expected service life, original to the building but are in fair shape.
- Hose tower drying rack lacks positive ventilation to promote faster drying of hoses and removal of odors. A fan should be added to provide airflow at hose rack and existing exhaust fan operation should be adjusted to ensure humidity control in the hose rack area. Hose tower exhaust fan needs to be larger to remove toxic off gassing of fire hose.
- Laundry room (south side) has no makeup air. The existing ventilation system should be modified to provide air into the room.
- Move ice machine out of apparatus bay and into a room that is separate from the bay.
- Turn out gear locker area lacks ventilation, which does not meet current NFPA recommendations. The existing ventilation system should be modified to provide more ventilation into the room including makeup air.
- Plumbing fixtures in all rest rooms, locker and shower rooms are original and dated and should be replaced in the next five years.



## 5.7 Electrical

- 1200A, 120/208V, three-phase service, good condition.
- Building lighting – mainly fluorescent, LED in equipment bays, building mounted HID exterior.
- Electrical distribution equipment –good condition.
- Site lighting pole mounted HID, adequate.
- Electrical receptacles, circuiting – good condition.
- Lighting controls – do not comply with MI Energy Code.
- Generator – outdoors, natural gas, 125kW, 120/208V, three-phase. Does not comply with current NEC requirements for an emergency system since the generator fed transfer switch and panelboards supply both emergency lighting and non-emergency loads. See Appendix for additional information
- Currently the IT equipment housed in rafter space of high bay area with no cooling. Any renovation should create a dedicated air conditioned IT closet for equipment racks, and provided with backup power.

## 5.8 Program Adequacy

- Building functions adequately as a fire station.
- Some rooms are not being used as originally programmed.
- In general, spaces occupied by firefighters need to be highly impact resistant. As finishes replaced, consider

materials and finishes that are more abuse resistant. Examples include abuse or impact resistant drywall, ceramic or epoxy paint, or rub rails.

#### 5.9 Energy Consumption / Efficiency

- Wall insulation is adequate.
- Some existing lighting is not energy efficient.
- A comparison of energy usage at a typical building in the same climate zone as published by the U.S. Department of Energy (DOE) versus this building was performed. Climate Zone 5A cool-humid was utilized for the DOE database. The median Energy Use Intensity (EUI) (KBtu/SF/Year) from the DOE database for natural gas at a public safety style building is 70. The fire station building's natural gas EUI based on one year's worth of utility bills (2018-2019) provided by the township was 125. The median Energy Use Intensity (EUI) (KBtu/SF/Year) from the DOE database for electricity at a public safety style building is 44. The fire station building's electrical EUI based on one year's worth of utility bills (2018-2019) provided by the township was 47. The fire station is significantly above median natural gas EUI and slightly above electrical EUI.

#### 5.10 Accessibility

- Since firefighters are required to be ambulatory, many areas typically required to be accessible and exempt from this requirement. However, administrative staff could be physically disabled so those administrative areas should still comply with applicable accessibility codes.
- The building is on one level except for the storage mezzanines.
- Restrooms are compliant based on the applicable code at the time of construction.

#### 5.11 Final Overview

- Building is generally in good condition, functions well and should continue to do so with proper capital investment into upkeep.
- Need to address site pavement and roof drainage issues.
- Roof leaks have been a historical problem at this building and should be addressed ASAP.
- Mechanical systems are original and nearing end of life.





**Delta Township  
Lansing, MI  
Facility Assessment**



April 15, 2020

**Fire Station No. 1**

Item #	Description of Work	Budget Amount	Category 1 -	Category 2 -	Category 3 -
			0 to 2 Yrs	3 to 5 Yrs	5 to 10 Yrs
<u>1</u>	Remove & Replace Pavement Joint Sealants	\$26,311	0	\$26,311	0
<u>2</u>	Remove & Replace Concrete Paving at West Side Entry Due to Heavy Cracking	\$37,413	0	\$37,413	0
<u>3</u>	Remove & Replace 50 Lineal Feet of Curb & Gutter Due to Damage	\$1,945	0	\$1,945	0
<u>4</u>	Re-stripe Parking Lot	\$944	0	\$944	0
<u>5</u>	Adjust Landscaping to Alleviate Flooding on West Side of South Entrance - ALLOWANCE	\$8,889	\$8,889	0	0
<u>6</u>	Remove & Replace Exterior Caulking	\$35,446	0	\$35,446	0
<u>7</u>	Furnish & Install New Monument Sign - ALLOWANCE	\$16,668	0	0	\$16,668
<u>8</u>	Remove & Replace Shingles & Add Venting	\$144,182	\$144,182	0	0
<u>9</u>	Remove & Replace Exterior Glass Sliding Door	\$3,334	\$3,334	0	0
<u>10</u>	Remove & Replace Epoxy Floor Coating	\$165,343	0	0	\$165,343
<u>11</u>	Remove & Replace Damaged Floors & Trench Drains	\$197,233	0	0	\$197,233
<u>12</u>	Remove & Replace Acoustical Ceilings (50% of Total Approximately 12,700 sf)	\$105,839	0	0	\$105,839
<u>26</u>	Replace mechanical equipment and controls	\$163,236	0	0	\$163,236
<u>27</u>	Remove & Replace Trench Drain - Plumbing Work	\$20,557	0	0	\$20,557
<u>28</u>	Add Fan for Hose Drying	\$10,334	0	\$10,334	0
<u>29</u>	Laundry Ductwork	\$6,689	0	\$6,689	0
<u>30</u>	Emergency Power Distribution Rework	\$81,316	0	0	\$81,316
<u>31</u>	Lighting Controls Upgrade	\$28,357	0	\$28,357	0
<u>32</u>	CO & Smoke detection added in living quarters	\$889	\$889	0	0
<u>33</u>	Additional Card Access	\$17,779	\$17,779	0	0
<u>34</u>	Replace/Update Security Equipment	\$23,335	\$23,335	0	0
<u>35</u>	Rework Roof Drainage where needed	\$2,778	\$2,778	0	0
<u>36</u>	Replace Dom Water Heaters	\$12,223	0	\$12,223	0
<u>37</u>	Gear Locker room ventilation modifications	\$6,111	\$6,111	0	0
<u>38</u>	Replace All Plumbing Fixtures	\$25,824	0	\$25,824	0
<u>39</u>	Add Dedicated IT space with Cooling	\$34,446	\$34,446	0	0
	Direct Trade Cost Numbers Only**				
	<b>GRAND TOTALS:</b>	\$1,177,421	\$241,743	\$185,487	\$750,191

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## 6. Fire Station No. 3 Summary

Fire Station No. 3 originally constructed in 1991. It is 11,280 sq. ft. in size and is one story with storage mezzanines on either side of the apparatus bay. The primary structural system is bearing wall masonry. The exterior elevations were originally decorative CMU, but



upgraded to face brick. Synthetic stucco used on the exterior above bay doors and at the entry. Windows are a prefinished aluminum storefront system. The roof system is high slope and clad in architectural metal standing seam. The building's primary use has always been a fire station. The building can sleep 10 firefighters. It is generally not open to the public. The building looks like a 28-year-old building but well maintained. The facility received a score of **71**, which is **Satisfactory**.

### Estimated Costs for Necessary Repairs

#### Categories

0-2 Years Category 1	\$	199,566
2-5 Years Category 2	\$	635,589
5-10 Years Category 3	\$	119,641
<b>Total</b>	<b>\$</b>	<b>954,796</b>

*Note: These costs do not address any functional issues that currently exist in this building.*

## FACILITY ASSESSMENT FINDINGS

### 6.1 Site

- Front drive has some cracking.
- Trees at southwest corner are crowding the building which and reduce views and daylight and promote mold growth on building surface. Need to be trimmed back.
- Need to replace joint sealants in old pavement on west and east side of building.

### 6.2 Structure

- Nothing significant to report.
- There is some floor cracking with vertical displacement on west side, north half of building and some interior

doors that will not close on west side, south half of building. Possible settlement issue?

### 6.3 Life Safety / Security

- Security cameras, intercom, and access control should be added to the exterior doors
- Emergency lighting – selected fixtures on generator, see generator comment below. No exterior emergency lighting provided at egress doors
- The building does not have a fire alarm. Code does not require one.
- Due to firefighters spending overnights at the station, smoke and CO detectors should be installed.
- Building has fire suppression, some minor leaks have occurred.

### 6.4 Envelope / Roof

- Street address number not on building or site.
- Fire department name not very visible.
- There is no gutter and no overhang, which leads to water running down the face of the wall, which can facilitate water infiltration through wall and at floor to wall transition.
- Staff has maintenance done and/or replaced some operators.
- Some insulated glass has seal leaks; condensate is present between panes of glass.
- The synthetic stucco that is located at the first story has damage in some areas with exposed edge beads and penetrations. This product is not as durable as masonry and has a shorter lifespan.
- Concrete slab damage near overhead door.
- Sealant at all control joints should be inspected and replaced.

### 6.5 Architectural Systems and Finishes

- Overall, finishes are dated and in need of an update.
- Carpet appears original and showing wear. This should be replaced.
- Numerous ceiling panels show stains from leaks. These may be related to the roof of piping. The leak should be repaired and the ceiling panel replaced. In addition, there is a mix of panel styles present.
- Window coverings consist of vertical blinds.
- Dispatch area floor cracking with vertical offset and tile damage, which creates a door issue. In addition, EMS area door has a similar issue.
- Some doors and binding on the frame. There may be some foundation settling in some areas or door adjustments needed.
- Men's locker room in need of full remodel. Poor ventilation, lighting, finishes and plumbing fixtures. Showers are group style and should be changed to individual type showers. Women's locker room needs lighting.

### 6.6 Mechanical

- Upgrade HVAC systems and controls to allow independent control in each occupied space and to provide

improved humidity control within the building.

- Multiple natural gas fired, forced air furnaces with remote refrigerant condensers serve the building and are in fair shape. Three furnaces replaced within the last three years; however, condensers not replaced and should be within the next five years. The units are past their expected service life and should be replaced with new in kind units or air handling units allowing individual space temperature control.
- Hose storage racks lacks positive ventilation to promote removal of odors. A fan should be added to provide airflow at hose rack.
- Plumbing fixtures are outdated as they are original to the building. The fixtures should be replaced with new in kind units utilizing battery operated automatic sensor flush control valves.
- Natural gas fired hot water heaters are original to the building and need to be replaced.
- Plumbing fixtures in all rest rooms, locker and shower rooms are original and dated and should be replaced in the next five years.

#### 6.7 Electrical

- 400A, 120/208V, three-phase service, adequate.
- Building lighting – mainly fluorescent, LED in equipment bays, building mounted HID exterior.
- Electrical distribution equipment –adequate.
- Site lighting pole mounted HID, adequate.
- Electrical receptacles, circuiting – good condition.
- Lighting controls – do not comply with MI Energy Code.
- Generator – outdoors, relatively new, natural gas, 18kW, 120/240V, single-phase. Does not comply with current NEC requirements for an emergency system since the generator fed transfer switch and panelboard supply both emergency lighting and non-emergency loads. See Appendix for additional information.
- Building IT equipment housed in the electrical room without any protection/security. Need to create an air-conditioned IT closet with backup power to house IT equipment racks.

#### 6.8 Program Adequacy

- Building functions adequately as a fire station.
- Some rooms are not being used as originally programmed.
- In general, spaces occupied by firefighters need to be highly abuse resistant. See comments under Station 1.

#### 6.9 Energy Consumptions Efficiency

- Wall insulation is minimal and does not meet current standards.
- Some existing lighting is not energy efficient.
- A comparison of energy usage at a typical building in the same climate zone as published by the U.S. Department of Energy (DOE) versus this building was performed. Climate Zone 5A cool-humid was utilized for the DOE database. The median Energy Use Intensity (EUI) (KBtu/SF/Year) from the DOE database for natural gas at a public safety style building is 70. This building's EUI based on one year's worth of utility bills (2018-2019)

provided by the township was 110. The median Energy Use Intensity (EUI) (KBtu/SF/Year) from the DOE database for electricity at a public safety style building is 44. The fire station building's electrical EUI based on one year's worth of utility bills (2018-2019) provided by the township was 25. The fire station is significantly above median natural gas EUI and significantly below electrical EUI.

#### 6.10 Accessibility

- Since firefighters are required to be ambulatory, many areas typically required to be accessible and exempt from this requirement. However, administrative staff could be physically disabled so those administrative areas should still comply with applicable accessibility codes.
- The building is on one level except for the storage mezzanines.
- Restrooms are compliant based on the applicable code at the time of construction.
- There is no handicap parking on site adjacent to the public entrance. ADA spot in rear of building. Pavement striping needs redone.

#### 6.11 Final Overview

- Building is generally in good condition, functions well and should continue to do so with proper capital investment into upkeep.
- Need to address site pavement and sealant issues.
- Adding roof drainage system should be considered.
- Men's locker room renovation needed.
- Floor cracking/door binding issue.
- AC units and plumbing fixtures at end of life.



**Delta Township  
Lansing, MI  
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April 15, 2020



**Fire Station No. 3**

Item #	Description of Work	Budget Amount	Category 1 -	Category 2 -	Category 3 -
			0 to 2 Yrs	3 to 5 Yrs	5 to 10 Yrs
<u>1</u>	Remove & Replace Pavement Joint Sealants	\$17,813	0	\$17,813	0
<u>2</u>	Add Parallel Parking Space at North Side for ADA Access to Main Entry	\$14,785	\$14,785	0	0
<u>4</u>	Furnish & Install New Monument Sign - Allowance	\$15,001	0	0	\$15,001
<u>6</u>	Remove & Replace Exterior Caulking	\$15,668	0	\$15,668	0
<u>7</u>	Repair Exterior EIFS Column Covers	\$23,335	\$23,335	0	0
<u>8</u>	Remove & Replace Storefront Glazing with Failed Seals	\$40,252	0	\$40,252	0
<u>9</u>	Overbuild High Bay Roof Over the South Addition to Alleviate Poor Roof Drainage - ALLOWANCE	\$42,400	\$42,400	0	0
<u>10</u>	Remove & Replace Carpeting - Approximately 2,800 sf	\$24,846	0	\$24,846	0
<u>11</u>	Remove & Replace Acoustical Ceilings (50% of Total Approximately 5,600 sf)	\$53,270	0	\$53,270	0
<u>12</u>	Adjust Interior Doors to Open & Close Properly	\$2,667	0	\$2,667	0
<u>13</u>	Trim Trees on South Side of Bldg	\$1,333	\$1,333	0	0
<u>14</u>	Add Door Buzzer/Camera/Intercom	\$5,556	\$5,556	0	0
<u>15</u>	Door Adjustments	\$3,556	\$3,556	0	0
<u>16</u>	Locker Room Remodel	\$157,787	0	\$157,787	0
<u>17</u>	Restripe Parking Lot	\$2,556	\$2,556	0	0
<u>23</u>	Create an IT Space for equipment - ALLOWANCE	\$7,223	\$7,223	0	0
<u>25</u>	Replace Condensing Units	\$38,280	\$38,280	0	0
<u>26</u>	Replace controls with New DDC	\$39,620	0	0	\$39,620
<u>27</u>	Add Fan for Hose Storage	\$10,334	0	\$10,334	0
<u>28</u>	Replace HVAC Units	\$52,936	0	\$52,936	0
<u>29</u>	Replace Plumbing Fixtures	\$28,724	0	0	\$28,724
<u>30</u>	Replace Water Heater / Storage Tank	\$12,790	0	\$12,790	0
<u>31</u>	Lighting Controls Upgrade	\$12,534	0	\$12,534	0
<u>32</u>	Emergency Power Distribution Rework	\$41,869	0	\$41,869	0
	Direct Trade Cost Numbers Only**				
	<b>GRAND TOTALS:</b>	\$665,132	\$139,022	\$442,765	\$83,345

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## 7. Parks and Recreation Maintenance Building Summary

The Maintenance Building was added on to in 1982. It is unknown when the building was originally constructed though based on type and appearance it might be fair to assume a build date from the 1970s. It is a 10,550 sq. ft. in size and is one story. The primary structural system is wood post and beam sometimes referred to as pole barn construction. The addition is also this construction type. The exterior elevations are clad in metal siding with exposed fasteners. The roof system is a high slope clad in asphalt shingles. The building has approximately four occupants and is generally in good shape, but with dated finishes. The facility received a score of **54**, which is **Borderline**.



### Estimated Costs for Necessary Repairs

#### Categories

0-2 Years Category 1	\$	127,510
2-5 Years Category 2	\$	870,191
5-10 Years Category 3	\$	196,765
<b>Total</b>	<b>\$</b>	<b>1,194,466</b>

*Note: These costs do not address any functional issues that currently exist in this building.*

## FACILITY ASSESSMENT FINDINGS

### 7.1 Site

- Entrance not ADA accessible.
- Parking lot pavement in poor condition.
- Need bollards to protect garage door entrances.
- Need dumpster enclosure.
- Could create hard surface, secured storage for implements.

### 7.2 Structure

- Wood post and beam construction is relatively inexpensive to construct and depending on maintenance

performed is typically only a 25-30 year life expectancy.

### 7.3 Life Safety / Security

- Emergency lighting is not present. The office area should have some installed.
- There is no fire alarm in the building; code does not require one. Since the building has minimal occupancy, some form of minimal fire detection with offsite monitoring should be installed. This could consist of individual smoke alarms.
- No security cameras and the township has experienced theft at this location.

### 7.4 Envelope / Roof

- Based on the type of construction, it is likely that wall insulation is minimal.
- Insulation in the attic is unknown.
- Windows are residential quality vinyl windows
- Damaged metal trim at overhead doorjamb.
- Overhead doors are residential quality but in good condition.
- Exterior man doors are clad wood residential quality, but are in good condition
- Roof water collected via gutters and discharged via downspouts on to grade. Some of these grade discharges are immediately adjacent to the wall is promotes potential water intrusion

### 7.5 Architectural Systems and Finishes

- Office area finish are well worn. Floor finishes are severely worn and should be replaced. Restroom tile is in good condition.
- While finishes in the garage area show signs of wear, they are in good condition for their intended use.
- Windows have horizontal blinds installed in the office area

### 7.6 Mechanical

- Office area served by window air conditioning units and cabinet unit heaters with office spaces not having any conditioning. Replace existing HVAC in the office area with natural gas heating and direct expansion refrigerant forced air furnace with new multi zone ductwork to serve spaces independently.
- Underground sanitary piping reported to plug frequently with jetting required to clear. Recommendation camera inspection of underground sanitary piping with replacement as needed to provide for working system.
- Inspect and replace if needed the existing oil water separator outside of the building.
- Domestic water heater at end of expected service life and should be replaced with in kind electric storage tank style.

- Domestic hot and cold water copper plumbing piping not insulated.
- Existing natural gas fired unit heaters serving vehicle bays are in poor shape and at end of expected service lives. Replace unit heaters in kind.

### 7.7 Electrical

- Two 120/240V, single-phase services, equipment is nearing end of its service life.
- Building lighting – mainly fluorescent, some LED has been installed, building mounted HID exterior.
- Electrical distribution equipment –aged, nearing end of service life.
- Site lighting – limited to building mounted fixtures.
- Electrical receptacles, circuiting – aged but adequate.
- Lighting controls – do not comply with MI Energy Code.
- Generator – none.
- Limited IT availability within the building. Building IT connection relies on copper cable from adjacent building. This cabling should be replaced with fiber optic cable and an air-conditioned IT closet created in the space for IT equipment racks. Building IT premises wiring should be upgraded to points of use.



### 7.8 Program Adequacy

- The building functions okay with the Parks Department. Multiple overhead doors allow equipment to be accessed without the need to move other equipment.

### 7.9 Energy Consumption Efficiency

- Wall insulation is minimal and does not meet current standards.
- Existing lighting is not efficient. There are no lighting controls. There are occupancy/motion sensors in some areas now.
- No HVAC controls other than thermostats are present, if building to be brought back into occupied use; programmable controls should be installed to operate HVAC systems at best efficiency.
- A comparison of energy usage at a typical storage building in the same climate zone as published by the U.S. Department of Energy (DOE) versus this building was not performed, as there was not an equivalent building type in the DOE database to use for comparison.



### 7.10 Accessibility

- Doors have doorknobs and should be lever style hardware.

- Since the only restroom has a toilet and a urinal it is considered by code to be a male restroom and not unisex. There is a stool in this room.
- The restroom is not accessible. There are no grab bars and the sink has no forward approach clearances. Other required clearances are lacking also.

#### 7.11 Final Overview

- Building functions adequately as a maintenance garage but the location of the facility and site layout are not ideal to allow for properly securing the site or exterior storage of equipment and materials. If a larger project considered on the site for a reconstructed Sheriff Office, consideration should be given to relocating the facility to a different site.
- Building structural system is generally considered past its expected life



**Delta Township  
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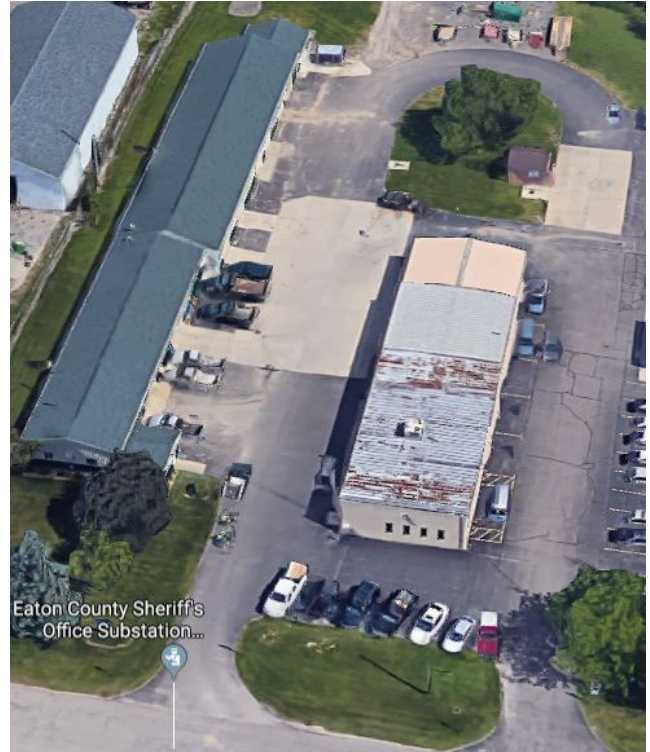
**Parks & Recreation Maintenance Building**

Item #	Description of Work	Budget Amount	Category 1 - 0	Category 2 -	Category 3 -
			to 2 Yrs	3 to 5 Yrs	5 to 10 Yrs
<u>1</u>	Remove & Replace Concrete at Entry to Make ADA Compliant	\$2,459	\$2,459	0	0
<u>2</u>	Demo all Site Paving, Add Storm Sewer System & Replace Paving	\$340,908	0	\$340,908	0
<u>3</u>	Add Protective Bollards at OH Doors & Around the Site	\$22,668	0	\$22,668	0
<u>4</u>	Add a Dumpster Enclosure & Pad	\$43,669	0	\$43,669	0
<u>5</u>	Add Fencing, Stone & Concrete Pads for Outside Storage Yard	\$132,381	0	0	\$132,381
<u>6</u>	Remove & Replace 10% of the Siding Material Due to Damage	\$26,751	0	\$26,751	0
<u>7</u>	Remove & Replace Windows	\$3,800	0	0	\$3,800
<u>8</u>	Remove & Replace Trim at OH Doors	\$13,334	0	\$13,334	0
<u>9</u>	Connect Downspouts to Storm Drain System Underground	\$10,834	0	\$10,834	0
<u>10</u>	Remove & Replace VCT Flooring in Office Area	\$2,316	0	\$2,316	0
<u>11</u>	Remove & Replace Interior Door Hardware (4 each) with Lever Type Hardware	\$2,556	0	\$2,556	0
<u>12</u>	Allowance to Add a Unisex Restroom	\$47,225	0	\$47,225	0
<u>13</u>	Make Existing Restroom ADA Compliant - Add Grab Bars & Relocate Sink	\$4,318	\$4,318	0	0
<u>14</u>	Install Security Cameras	\$11,112	\$11,112	0	0
<u>26</u>	Add Furnace (NG Heat w/ AC)	\$24,001	\$24,001	0	0
<u>27</u>	Replace 6" Underground Sanitary Pipe	\$17,979	\$17,979	0	0
<u>28</u>	Replace Water Heater	\$11,478	0	\$11,478	0
<u>29</u>	Insulate Domestic Water Piping	\$889	0	0	\$889
<u>30</u>	Replace Unit Heaters in Vehicle Bays	\$17,979	0	\$17,979	0
<u>31</u>	Add CO2/NO x sensors & Exh Fan	\$28,957	\$28,957	0	0
<u>32</u>	New Electrical Distribution/Branch Equipment	\$60,614	0	\$60,614	0
<u>33</u>	Upgrade Lighting Controls	\$5,861	0	\$5,861	0
	Direct Trade Cost Numbers Only**				
	<b>GRAND TOTALS:</b>	<b>\$832,090</b>	<b>\$88,826</b>	<b>\$606,194</b>	<b>\$137,071</b>

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## 8. Parks and Recreation Storage Building Summary

The Storage Building originally constructed in 1969 and an addition in 1982. An open-end cold storage addition added to the north side, but the date of that is unknown. It is a 5,600 sq. ft. in size and is one story. The primary structural system is bearing wall masonry; the most recent addition is wood post and beam construction. The exterior elevations are painted concrete masonry units (CMU) with the most recent addition clad in metal siding. The roof system is a low slope standing seam steel roof and exposed fastener steel roofing. The building used primarily for storage so there is no continuous occupancy. The building is in poor visual condition with dated finishes. The facility received a score of **46**, which is **Poor**.



### Estimated Costs for Necessary Repairs

#### Categories

0-2 Years Category 1	\$	879,500
2-5 Years Category 2	\$	917,653
5-10 Years Category 3	\$	48,299
<b>Total</b>	<b>\$</b>	<b>1,845,452</b>

*Note: These costs do not address any functional issues that currently exist in this building.*

## FACILITY ASSESSMENT FINDINGS

### 8.1 Site

- See maintenance building for comments

### 8.2 Structure

- Several bearing walls show significant through wall cracking. Stepped cracking tends to indicate settlement of the wall or supporting foundations. Vertical cracking tends to indicate overloading which overstresses the wall. The North masonry wall has separated from the west wall.
- Lintels over openings show cracking or, in one case, failure of the face, which exposed the reinforcement to weathering.
- The condition of the bearing wall system is poor will continue to lead to a worsening of the structural system.

### 8.3 Life Safety / Security

- There is no emergency lighting in the building.
- There is no fire alarm in the building; code does not require one. Since the building has minimal occupancy, some form of minimal fire detection should be installed. This could consist of individual smoke alarms.

### 8.4 Envelope / Roof

- There are multiple instances of cracking in the exterior wall, which allows moisture to penetrate the envelope.
- The paint on masonry severely worn and does not provide adequate resistance to moisture infiltration.



- Wall sealants are showing signs of wear and should be replaced.
- Overhead doors are commercial quality and in good condition
- Man doors are hollow metal in hollow metal frames and are in good condition.
- Finish on windows is fading and thinning.
- The roof on the original building is also original and has significant areas of rust. In addition, typically stand seam roofs are not installed on roofs with slopes less than 3:12; this roof is 1:12.

### 8.5 Architectural Systems and Finishes

- Finishes are dated and showing significant wear.

### 8.6 Mechanical

- Mechanical and plumbing systems currently shut off and abandoned. Natural gas fired unit heaters in vehicle bays are utilized for freeze protection only. If building is to be occupied replace existing natural gas heating and direct expansion refrigerant cooling forced air furnaces and unit heaters with new units serving each area independently.





### 8.7 Electrical

- 120/240V, single-phase service, equipment is nearing end of its service life.
- Building lighting – mainly fluorescent, some LED has been installed, building mounted HID exterior.
- Electrical distribution equipment –aged, nearing end of service life.
- Site lighting – limited to building mounted fixtures.
- Electrical receptacles, circuiting – aged but adequate.
- Lighting controls – do not comply with MI Energy Code.
- Generator – none.

### 8.8 Program Adequacy

- Building functions adequately for equipment storage; however refer to comments in the structural section above.

### 8.9 Energy Consumption / Efficiency

- The building intended for cold storage. If the single wythe walls are not insulated, provide a minimal R-value.
- Existing lighting is not efficient and there are no lighting controls.
- A comparison of energy usage at a typical storage building in the same climate zone as published by the U.S. Department of Energy (DOE) versus this building was not performed, as there was not an equivalent building type in the DOE database to use for comparison.

### 8.10 Accessibility

- There are toilets in this building; but are not normally used and are not accessible.

### 8.11 Final Overview

- This building re-purposed for dry storage for parks, engineering vans and sheriff's office. This building is not worth investing significant capital and consideration for replacement, likely if additional site space needed for a sheriff's office reconstruction. The structural defects are significant; but do not pose a hazard, as the building not occupied.



**Delta Township  
Lansing, MI  
Facility Assessment**



April 15, 2020

**Parks & Recreation Storage Building**

<b>Item #</b>	<b>Description of Work</b>	<b>Budget Amount</b>	<b>Category 1 - 0 to 2 Yrs</b>	<b>Category 2 - 3 to 5 Yrs</b>	<b>Category 3 - 5 to 10 Yrs</b>
<u>1</u>	Demo all Site Paving, Add Storm Sewer System & Replace Paving - Approximately 41,500 sf	\$531,017	0	\$531,017	0
<u>2</u>	Allowance for Repair of Settlement Cracks in Exterior Walls	\$55,559	\$55,559	0	0
<u>3</u>	Remove & Replace All Lintels at 3 OH Doors	\$47,669	\$47,669	0	0
<u>4</u>	Tear Down the 2 Long Masonry Bearing Walls & Re-build	\$325,307	\$325,307	0	0
<u>5</u>	Blast Paint Off Exterior Walls & Re-paint	\$36,402	0	\$36,402	0
<u>6</u>	Recaulk the Exterior of the Facility	\$18,668	0	\$18,668	0
<u>7</u>	Fur and Insulate Interior Walls of Northern Most Bay - 40'-0 x 40'-0	\$33,646	0	0	\$33,646
<u>8</u>	Allowance to Make Restroom ADA Compliant	\$27,779	\$27,779	0	0
<u>9</u>	Remove & Replace Roofing	\$148,897	\$148,897	0	0
<u>26</u>	Replace HVAC System	\$20,057	0	\$20,057	0
<u>27</u>	Add Unit Heater in (1) Vehicle Bay	\$7,467	\$7,467	0	0
<u>28</u>	New Electrical Distribution/Branch Equipment	\$33,113	0	\$33,113	0
	Direct Trade Cost Numbers Only**				
	<b>GRAND TOTALS:</b>	\$1,285,581	\$612,679	\$639,257	\$33,646

## 9. Scoring

November 26, 2019

### EXECUTIVE SUMMARY BUILDING SCORING

BUILDING	Site	Structure	Life Safety / Security	Envelope / Roof	Finishes	Mechanical	Electrical	Program Adequacy	Energy Consumption / Efficiency	Accessibility	Overall Score
	0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-100
Administration Building	7.8	9.0	8.2	7.0	7.0	6.8	6.8	7.5	7.0	7.5	75
Drolett Community Center	6.3	8.0	4.5	7.0	8.0	5.8	4.0	7.0	7.0	3.0	61
Eaton County Sheriff Substation	7.0	7.0	7.0	5.0	5.0	3.7	5.3	5.0	6.5	6.0	58
Enrichment Center	4.5	5.0	5.0	4.0	6.5	5.5	4.2	5.5	5.0	4.0	49
Fire Station 1	8.8	8.0	7.0	7.0	8.0	7.7	6.7	8.0	8.0	8.0	77
Fire Station 3	7.7	8.0	7.0	6.0	8.0	6.2	5.8	8.0	7.5	7.0	71
Parks and Recreation Maintenance Building	4.4	5.0	7.5	7.0	5.0	3.7	3.5	7.0	5.5	5.0	54
Parks and Recreation Storage Building	4.4	2.5	7.5	4.0	5.0	3.3	3.5	5.5	4.0	6.0	46

Facility Condition Scale	Non-existent	Very Inadequate	Poor	Borderline	Satisfactory	Excellent
	0	1-29	30-49	50-69	70-89	90-100
	Consider Replacement	Additions / Renovations			Selective Improvements	

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## 10. Executive Summary Recommendations

Reference the following pages.

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April 15, 2020

**EXECUTIVE SUMMARY RECOMMENDATIONS**

Facility	Category 1 - 0 to 2 Yrs	Category 2 - 3 to 5 Yrs	Category 3 - 5 to 10 Yrs	Subtotal Cost:
Administration Building	\$70,800	\$2,265,064	\$1,066,899	\$3,402,763
Drolett Community Center	\$321,409	\$1,623,719	\$135,585	\$2,080,712
Eaton Country Sherriff Substation	\$749,266	\$1,356,908	\$52,046	\$2,158,220
Enrichment Center	\$956,333	\$1,998,705	\$374,351	\$3,329,389
Fire Station No. 1	\$347,022	\$266,266	\$1,076,899	\$1,690,187
Fire Station No. 3	\$199,566	\$635,589	\$119,641	\$954,796
Parks & Recreation Maintenance Building	\$127,510	\$870,191	\$196,765	\$1,194,466
Parks & Recreation Storage Building	\$879,500	\$917,653	\$48,299	\$1,845,452
<b>TOTAL ESTIMATED (ALL -IN) PROJECT COST :</b>	<b>\$3,651,406</b>	<b>\$9,934,094</b>	<b>\$3,070,485</b>	<b>\$16,655,986</b>
Escalation	Included	\$1,986,819	\$1,228,194	\$3,215,013
			<b>Grand Total:</b>	<b>\$19,870,999</b>



Delta Township  
Lansing, MI  
Facility Assessment



April 15, 2020



Location Summary

Facility	Bldg. SF	Totals	Site	Structure & Envelope	Arch. Systems & Finishes	Mechanical	Elec. / Life Safety / Security
Administration Building	27,173	\$2,370,438	\$185,251	\$680,906	\$472,476	\$615,890	\$415,914
Drolett Community Center	6,900	\$1,449,469	\$694,809	\$23,156	\$112,006	\$182,022	\$437,475
Eaton Country Sheriff Substation	7,120	\$1,503,462	\$307,314	\$249,919	\$223,035	\$475,544	\$247,649
Enrichment Center	14,100	\$3,193,324	\$612,797	\$662,805	\$321,304	\$499,928	\$222,490
Fire Station No. 1	25,520	\$1,177,421	\$92,170	\$185,740	\$468,415	\$244,974	\$186,121
Fire Station No. 3	11,280	\$665,132	\$51,488	\$121,654	\$242,125	\$182,684	\$67,182
Parks & Recreation Maintenance Building	10,550	\$832,090	\$542,085	\$54,720	\$56,414	\$101,283	\$77,588
Parks & Recreation Storage Building	5,600	\$1,285,581	\$531,017	\$632,502	\$61,426	\$27,524	\$33,113
<b>TOTAL DIRECT TRADE COSTS:</b>		<b>\$11,602,916</b>	<b>\$3,016,933</b>	<b>\$2,611,402</b>	<b>\$1,957,201</b>	<b>\$2,329,849</b>	<b>\$1,687,532</b>
Contingency (Design, Estimate, Construction)	10.00%	\$1,160,292	\$301,693	\$261,140	\$195,720	\$232,985	\$168,753
		\$0	\$0	\$0	\$0	\$0	\$0
<b>SUBTOTAL I - INDIRECT CONSTRUCTION COSTS:</b>		<b>\$1,160,292</b>	<b>\$301,693</b>	<b>\$261,140</b>	<b>\$195,720</b>	<b>\$232,985</b>	<b>\$168,753</b>
Construction Manager Fee Only (CM Costs are below)	3.50%	\$446,712	\$116,152	\$100,539	\$75,352	\$89,699	\$64,970
<b>SUBTOTAL II - INDIRECT CONSTRUCTION COSTS:</b>		<b>\$446,712</b>	<b>\$116,152</b>	<b>\$100,539</b>	<b>\$75,352</b>	<b>\$89,699</b>	<b>\$64,970</b>
<b>TOTAL CONSTRUCTION COSTS:</b>		<b>\$13,209,920</b>	<b>\$3,434,778</b>	<b>\$2,973,081</b>	<b>\$2,228,273</b>	<b>\$2,652,533</b>	<b>\$1,921,256</b>
Total Owner Costs		\$1,148,689	\$298,676	\$258,529	\$193,763	\$230,655	\$167,066
<b>TOTAL ALLOWANCE OWNER COSTS: (includes; AE Fees/Costs, CM Fees/Costs, Insurance, Bonds, Permits, Testing, Survey, Borings, Abatement, Fundamental Commissioning, Owner Purchased Technology, Owner Purchased PFE, and Bond Costs</b>		<b>\$3,446,066</b>	<b>\$896,029</b>	<b>\$775,586</b>	<b>\$581,289</b>	<b>\$691,965</b>	<b>\$501,197</b>
<b>TOTAL CONSTRUCTION &amp; OWNER COSTS:</b>		<b>\$16,655,986</b>	<b>\$4,330,807</b>	<b>\$3,748,667</b>	<b>\$2,809,562</b>	<b>\$3,344,498</b>	<b>\$2,422,453</b>
<b>TOTAL ESTIMATED INVESTIGATION &amp; REPAIR COSTS:</b>		<b>\$16,655,986</b>					



## 11. Building Replacement Options Assumptions and Clarifications

Reference the following pages.

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Delta Township  
Building Replacement Options  
Assumptions & Clarifications

April 17, 2020

**Drolett Community Center:**

This option is based on approximately 7000 sf of first floor space (slab on grade. The range of magnitude “all-in” cost is between \$412.00 to \$445.00 per sf (\$2,884,000 to \$3,115,000). Below are the assumptions that were used to assemble the cost model.

1. Shallow spread foundation system
2. CMU load bearing exterior walls with brick exterior
3. Steel columns, beams and bar joist framing
4. Punched aluminum windows (5’x5’ approximately 675 sf) and storefront glazing at the main entry
5. Membrane roof mechanically attached with rigid insulation
6. Interior drywall partitions based on .6 sf of partition per sf of floor area
7. Solid surface vanities in the restrooms
8. Wood door with hollow metal frame and passage set hardware based on one door per 2,500 sf of floor area
9. Porcelain tile in the restroom floors and walls
10. Vinyl plank flooring in all common area
11. 2x2 acoustical ceilings in all areas
12. No elevator
13. 10 plumbing fixtures. Distribution systems based on PVC for sanitary systems and copper for hot and cold water.
14. Gas fired heating equipment with associated ductwork
15. Standard wet fire suppression system
16. Standard LED lay-in light fixtures
17. Rough in for security and telecommunication systems by others
18. Stripping of topsoil and re-using on site
19. Balanced cut and fill of materials to allow for the building pad.
20. Light duty asphalt paving (3” asphalt on 6” base) to allow for 135 parking spaces
21. Dumpster enclosure allowance
22. Ground mounted sign allowance
23. Landscaping allowance
24. New water and sanitary services to the building from the street
25. Storm water system to onsite detention pond
26. Demolition of existing facility, asphalt paving and sidewalks

### **Enrichment Center:**

This option is based on approximately 14,500 sf of first floor space (slab on grade). The range of magnitude “all-in” cost is between \$412.00 to \$445.00 per sf (\$5,974,000 to \$6,453,000). Below are the assumptions that were used to assemble the cost model.

1. Shallow spread foundation system
2. CMU load bearing exterior walls with brick exterior
3. Steel columns, beams and bar joist framing
4. Punched aluminum windows (5’x5’ approximately 340 sf) and storefront glazing at the main entry
5. Membrane roof mechanically attached with rigid insulation
6. Interior drywall partitions based on .8 sf of partition per sf of floor area
7. Solid surface vanities in the restrooms
8. Wood door with hollow metal frame and passage set hardware based on one door per 1,100 sf of floor area
9. Porcelain tile in the restroom floors and walls
10. Vinyl plank flooring in all common area
11. 2x2 acoustical ceilings in all areas
12. 13 plumbing fixtures. Distribution systems based on PVC for sanitary systems and copper for hot and cold water.
13. Gas fired heating equipment with associated ductwork
14. Standard wet fire suppression system
15. Standard LED lay-in light fixtures
16. Rough in for security and telecommunication systems by others
17. Stripping of topsoil and re-using on site
18. Balanced cut and fill of materials to allow for the building pad.
19. Light duty asphalt paving (3” asphalt on 6” base) to allow for 73 parking spaces
20. Dumpster enclosure allowance
21. Ground mounted sign allowance
22. Landscaping allowance
23. New water and sanitary services to the building from the street
24. Storm water system to city system
25. Demolition of existing facility, asphalt paving, and sidewalks

### **Sheriff Station – Larger Size:**

This option is based on approximately 20,800 sf of first floor space (slab on grade). The range of magnitude “all-in” cost is between \$570.00 to \$605.00 per sf (\$11,856,000 to \$12,584,000).

Below are the assumptions that were used to assemble the cost model.

1. Shallow spread foundation system
2. CMU load bearing exterior walls with brick exterior
3. Steel columns, beams and bar joist framing
4. Punched aluminum windows (5’x5’ approximately 400 sf) and storefront glazing at the main entry
5. Membrane roof mechanically attached with rigid insulation
6. Interior masonry partitions based on 1.5 sf of partition per sf of floor area
7. Solid surface vanities in the restrooms
8. Wood door with hollow metal frame and passage set hardware based on one door per 650 sf of floor area
9. 25 single tier metal lockers
10. Porcelain tile in the restroom floors and walls
11. Vinyl plank flooring and carpeting in all common area
12. 2x2 acoustical ceilings in all areas
13. 24 plumbing fixtures. Distribution systems based on PVC for sanitary systems and copper for hot and cold water.
14. Gas fired heating equipment with associated ductwork
15. Standard wet fire suppression system
16. Standard LED lay-in light fixtures
17. Rough in for security and telecommunication systems by others
18. Stripping of topsoil and re-using on site
19. Balanced cut and fill of materials to allow for the building pad.
20. Light duty asphalt paving (3” asphalt on 6” base) to allow for 74 parking spaces
21. Dumpster enclosure allowance
22. Ground mounted sign allowance
23. Landscaping allowance
24. New water and sanitary services to the building from the street
25. Storm water system to city system
26. Demolition of existing facility, asphalt paving, and sidewalks and the existing storage facility

**Sheriff Station – same Size:**

This option is based on approximately 7,120 sf of first floor space (slab on grade). The range magnitude “all-in” cost is between \$570.00 to \$605.00 per sf (\$4,058,000 to \$4,307,000). Below are the assumptions that were used to assemble the cost model.

1. Shallow spread foundation system
2. CMU load bearing exterior walls with brick exterior
3. Load bearing interior walls with “residential” trusses
4. Punched aluminum windows (5’x5’ approximately 350 sf) and storefront glazing at the main entry
5. Shingle roofing with batt insulation
6. Interior masonry partitions based on 1.5 sf of partition per sf of floor area
7. Solid surface vanities in the restrooms
8. Wood door with hollow metal frame and passage set hardware based on one door per 500 sf of floor area
9. 25 single tier metal lockers
10. Porcelain tile in the restroom floors and walls
11. Vinyl plank flooring and carpeting in all common area
12. 2x2 acoustical ceilings in all areas
13. 12 plumbing fixtures. Distribution systems based on PVC for sanitary systems and copper for hot and cold water.
14. Gas fired heating equipment with associated ductwork
15. Standard wet fire suppression system
16. Standard LED lay-in light fixtures
17. Rough in for security and telecommunication systems by others
18. Stripping of topsoil and re-using on site
19. Balanced cut and fill of materials to allow for the building pad.
20. Light duty asphalt paving (3” asphalt on 6” base) to allow for 49 parking spaces
21. Dumpster enclosure allowance
22. Ground mounted sign allowance
23. Landscaping allowance
24. New water and sanitary services to the building from the street
25. Storm water system to city system
26. Demolition of existing facility, asphalt paving, and sidewalks

**General Notes:**

1. All costs are in current dollars. We have not included an escalation factor in any of the costs at this time due to actual timing of the options is unknown at this time.
2. We have not included any relocation costs associated with these options.
3. We have included 8% design costs.
4. We have included 10% Construction GC, Staff, Fee
5. We have included 4% for furniture, equipment, security systems, & telecom systems
6. We have included 0.5% insurance costs at this time.

## APPENDIX A

### EMERGENCY GENERATOR REQUIREMENTS

If a generator installation used to supply emergency power to exit/egress lighting and other emergency loads, the installation needs to comply with Chapter 27 of the Michigan Building Code, Article 700 of the National Electrical Code (NEC), Chapter 9 of NFPA-101 - Life Safety Code and applicable portions of NFPA-110 - Standard for Emergency and Standby Power Systems.

The NEC requires that the circuit wiring and transfer switch for power supplying emergency and egress lighting and any other emergency loads be separate from any other circuit wiring. This requires a dedicated transfer switch and circuit breaker panelboard for the emergency loads including emergency/egress lighting.

Circuits from an emergency panel to the emergency lighting fixture or other emergency load must be run dedicated conduits/raceways and separated from non-emergency circuit wiring.

Additionally, NFPA-110 defines the routine maintenance and operational testing requirements for generators classified as emergency generators.

An emergency generator can be used to provide backup power to non-emergency loads but that power would need to have its own transfer switch and circuit breaker panelboard. The circuit wiring for such standby loads does not need to be separated from normal power wiring.

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Supervisor Kenneth R. Fletcher  
Treasurer Howard A. Pizzo  
Clerk Mary R. Clark  
Manager Brian T. Reed



Trustee Fonda J. Brewer  
Trustee Andrea M. Cascarilla  
Trustee Dennis R. Fedewa  
Trustee Karen J. Mojica

Engineering Department

(517) 323-8540

**TO: Supervisor Kenneth R. Fletcher and the Delta Township Board**  
**FROM: Brian Reed, Township Manager**  
**DATE: October 19, 2020**  
**SUBJECT: Assessing Agreement**

We have been contacted by the City of Charlotte, Michigan to provide assistance with their winter tax roll. They have had staff turnover and Delta Township assessing staff was recommended to them. We have reviewed the work and feel we could provide the assistance that they have asked for without too much burden on our staff. We are in the process of preparing a draft agreement if the board approves. We would anticipate the agreement would be a set hourly rate to reimburse the Township for staff time.

I have placed this on the committee of the whole for discussion.