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**Proposal for Professional Engineering and Permit Assistance Services
Municipal Stormwater Management Plan Updates Permit Compliance for
NJPDES: NJG0151190 / PI ID#: 168118 West Orange Township, Essex County,
New Jersey**

July 26, 2022

Dear Ms. Carballo:

Thank you for reaching out to Mott MacDonald related to updating several items related to the West Orange Township Municipal Stormwater Management Plan, Stormwater Pollution Prevention plan and Municipal Separate Stormwater Sewer System (MS4 permit) updates and compliance. As discussed, these updates are of priority due to the letter received by NJDEP on December 4, 2020 which captures the Stormwater Compliance Assistance Audit (Audit Letter) findings from the NJDEP that was conducted on July 31, 2019. The Audit Letter covers 17 items to which the Township must provide response and have required action items documented. The Audit letter is attached to this letter as Attachment 1. We also note that on June 21, 2022 NJDEP's Office of Water Compliance and Enforcement (Northern Regional Office) issued a second letter based upon an inspection conducted by the Department on February 17, 2022 related to issuance of a Notice of Violation (NOV) based upon non-compliance with a checklist of items that the inspector used during the evaluation that assess components of the MS4 permit and SPPP. At the time of the inspection, the NJDEP inspector cited submission of the Annual Report and Certification as out of compliance and therefore cause for the NOV. However, it is our understanding that the annual report was in the process of being submitted at the time. It is noted however, that there are several items that are under review and an overall comment by the inspector that the items noted in the 2020 Audit Letter.

1 Background

The two primary documents requiring update are the Stormwater Pollution Prevention Plan (SPPP) and the Municipal Stormwater Management Plan (MSWMP). Both are a requirement of the Tier A MS4 Permit and both require updates. Based upon our conversation, the intent is to have West Orange be

primarily responsible for the updates to the SPPP which consists of mostly templated text and a series of 17 “forms” that all now require update as the forms have changed since 2005. The SPPP also requires outfall mapping and other appendices. The following table has been prepared to coalesce the work required to address the Audit Letter and clarify where work can be completed in-house by West Orange, where it may be more efficient to have Mott MacDonald complete the item and, in some instances, where work by both West Orange and Mott MacDonald will offer a complete solution to address the item. Please note in the table where we have marked an asterisk for notes. The asterisks are follows:

Notes:

- * MM to update Outfall Map
- ** MM to provide some level of effort to coordinate
- *** Mostly WO but may need some technical depth or review from MM
- **** No Scope for MM

Table 1: July 31, 2019 Audit Letter: Summary of Deficiencies and Next Steps for Compliance

Audit Letter Item Description	Audit Letter Item	Observation July 2019	SPPP/MSWMP/Tier A MS4 Permit/Other	Current Status	Next Step for Compliance	By
1	Stormwater Pollution Prevention Plan	Unable to Locate / Failed to Provide	SPPP	Located, Needs Update	Update	WO*
2	Municipal Stormwater Management Plan	Unable to Locate / Failed to Provide	MSWMP	Located, Needs Update	MSWP to be updated	MM
3	Required Elements to be Posted on Permittee's Website	1 & 2 Not Posted along with applicable ordinances	Both	Posted, Needs Update	Once elements are updated, WO to post	WO**
4	Local Public Education	No Copy Public Education and Outreach Program	SPPP/Tier A MS4 Permit	Needs to be Prepared	Review Permit Attachment B and current SPPP. WO DPW should coordinate with governing body and/or EC. MM could assist WO but no scope at this time.	WO
5	Major Development Project Review	Major Developments (SHP & GO Academy) Deficiencies and Lack of Inspection Data and Review Data	MSWMP/Tier A MS4 Permit	Missing Information	WO to take lead in locating information or NJDEP may indicate no action but going forward major developments must have these reviews and testing conducted and documented. Hence, no scope proposed.	WO****
			MSWMP/Tier A MS4 Permit	Nonstructural Strategies		WO****
			MSWMP/Tier A MS4 Permit	Soil Testing		WO****
			MSWMP/Tier A MS4 Permit	BMP Design/Calculation		WO****
			MSWMP/Tier A MS4 Permit	Water Quantity		WO****
			MSWMP/Tier A MS4 Permit	Water Quality		WO****
			MSWMP/Tier A MS4 Permit	Groundwater Recharge		WO****
			MSWMP/Tier A MS4 Permit	Maintenance Plans		WO****
6	Street Sweeping	Unable to Locate / Failed to Provide	SPPP/Tier A MS4 Permit	Prepare Plan & add to SPPP	WO to address and is in process	WO****
7	Catch Basin Inspection and Maintenance	Unable to Locate / Failed to Provide	SPPP/Tier A MS4 Permit	Prepare Plan & add to SPPP	MM to do the inspections and set up GIS tool to take data per SPPP forms. In future permit cycles, WO could take lead with training and onboarding of GIS tool.	WO/MM
8	Municipal Maintenance Yard BMPs	25 Lakeside Salt Dome Drainage	SPPP/Tier A MS4 Permit	salt directed towards drain structures	Addressed by WO	WO****
		25 Lakeside Floor Drains Investigation	SPPP/Tier A MS4 Permit	unknown discharge and piping scheme	Addressed by WO	WO****
		25 Lakeside Storm Inlet Cleaning	SPPP/Tier A MS4 Permit	filled and clogged	WO to do or contract	WO
		25 Lakeside Sweepings/Debris Clearing	SPPP/Tier A MS4 Permit	stockpiled not in conformance with permit and BMP	WO to do or contract	WO
		590 Mt Pleasant Ave	Other	NOV clearing & secure the Industrial Stormwater Permit for Recycling Facility (not covered under Tier A Municipal Permit)	Requires submission of separate SPPP and Basic Industrial Stormwater General Permit. May also require DPPC (gasoline/fuel spill) prevention plan if quantities have changed. WO to investigate further and consult legal counsel. No scope but MM could offer services separately.	WO
9	Employee Training	Municipal Training Program not available	SPPP/Tier A MS4 Permit	WO needs to have its new employees trained in Stormwater Management via NJDEP website	WO to do. Review SPPP form in current report and update accordingly for SPPP. Review NJDEP website Submit training proof to NJDEP per MS4 permit	WO
10	Municipal Board and Governing Body Member Related Training	Municipal Board and Governing Body Member Related Training Program not available	Tier A MS4 Permit	WO needs to have its public servants trained in Stormwater Management via NJDEP website	WO to do. Review SPPP form in current report and update accordingly. Submit training proof to NJDEP per MS4 permit	WO
11	Outfall Pipe Map	Unable to Locate / Failed to Provide	SPPP/Tier A MS4 Permit	Prepared and last updated in 2009	Submit current map immediately and then update and submit. Provide in paper and in GIS format per NJDEP requirements. Needs to also be included in the SPPP. Requires field work by MM	MM
12	Outfall Pipe Stream Scouring	Unable to Locate / Failed to Provide	SPPP/Tier A MS4 Permit	Needs to be prepared and inspections need to be done	MM will set up inspection tool for data to load into GIS and populate SPPP form. Needs to be coordinated with NJDEP tool ("app") Requires field work by MM	MM
13	Illicit Discharge Detection and Elimination	Unable to Locate / Failed to Provide	SPPP/Tier A MS4 Permit	Needs to be Prepared and Inspections performed	Needs to be coordinated with NJDEP tool ("app") No scope for MM.	WO****
14	Stormwater Facilities Maintenance	Unable to Locate / Failed to Provide	SPPP/Tier A MS4 Permit	Needs to be Prepared and maintenance implemented	MM can prepare with WO. WO to implement and keep records. MM could set up tool to have the data collected by WO load into GIS automatically and populate SPPP form. Needs to be coordinated with NJDEP tool ("app")	MM/WO
15	Stormwater Facilities Maintenance (Privately Owned or Operated)	Unable to Locate / Failed to Provide	SPPP/Tier A MS4 Permit	Needs to be Prepared and maintenance implemented	MM can prepare with WO. WO to implement and keep records. MM could set up tool to have the data collected by WO load into GIS automatically and populate SPPP form. Needs to be coordinated with NJDEP tool ("app")	MM/WO
16	Total Maximum Daily Load (TMDL)/Impaired Waterway	Unable to Locate / Failed to Provide	SPPP/Tier A MS4 Permit	Need to review 4 TMDL's for FC, 3 for Phosphorus, 1 for Verona Lake and associate if necessary to stream segments in municipality. Identify and develop strategies to address sources	MM can prepare and include in SPPP and assess if optional reduction in pollutants is applicable	MM
17	Annual Report and Certification	Unable to Locate / Failed to Provide	SPPP/Tier A MS4 Permit	Report Documents need to be submitted	WO to do and is the NOV item in the June 2022 NJDEP letter. No Scope for MM.	WO

2 Scope of Work

Based upon the above table, the following items are proposed to be included in Mott MacDonald's scope:

- Items 2, 7, 11-12, 14-16

Hence, our proposed scope of work is as follows:

2.1 Item 2 (Municipal Stormwater Management Plan)

Mott MacDonald prepared the original MSWMP in 2005. Mott MacDonald will update the document 10-part main section, 2 tables, 3 figures and 2 appendices as applicable. The following 10 Sections will be prepared and updated:

- Introduction (Update)
- Goals (Update)
- Stormwater Discussion (Update)
- Background (Update)
- Design and Performance Standards (Update)
- Plan Consistency (Update)
- Nonstructural Stormwater Management Strategies (Update)
- Land Use/Build-Out Analysis (Now Required)
- Mitigation Plans (Update)

As a result of the Land Use/Buildout Analysis, additional tables and figures will be added to the report. To complete the buildout the analysis, the Township's inventory of total land area sorted by HUC14 and land use zone will be tabulated using available GIS data. Existing Impervious lands and wetlands/water areas will be subtracted out of the total land area to calculate the developable area. The township's allowable impervious coverage in each zone will be applied to indicate a theoretical build-out of impervious land. An additional calculation is then made by zoning type to compute pollutant loads of Total Phosphorus, Total Nitrogen and Total Suspended Solids Loads from the buildout data using load criteria published by NJDEP (lbs/acre/yr).

For the above update, we propose 90 hours of engineering and scientist time to complete this task.

2.2 Item 7 (Catch Basin Inspection and Maintenance - Part IV.B.5.b.ii)

As of 2018, it is now a requirement to inspect all municipally owned catch basins and inlets at least once every five years, and then clean as frequently as necessary to eliminate recurring problems and restore proper function. However, it is our understanding that whereas all inspections should have been complete by the end of this year (2022), to bring the system into compliance all inlets require inspection at this time. Hence, Mott MacDonald proposes to conduct the inspections and record the data in accordance with the current requirements of the permit and SPPP. Based on the length of municipal roads, we estimate 2,000 catch basins to locate and inspect. We estimate one field person can conduct 75 inspections a day. Moreover, we will document where cleaning and clearing are needed and

provide the information as we progress the inspections to the Township so that arrangements by the Township can be made to clean the inlets. We propose to collect the data using digital form tied to an in-house GIS platform named MOATA. The application makes use of the GPS capabilities of the user's smartphone to locate assets in the field adequately for locating and identifying for inspection purposes. This provides a cost savings over traditional survey methods. As the conclusion of the project the data will be transmitted to the Town. The town may elect to continue to use the Moata platform on a subscription basis and use the dashboard features to track the ongoing inspection requirements. The Township will need to record the data and supporting documentation to log in the amount of wet tons of material collected.

For the above update, we propose 286 hours of engineering and field technician specialist time to inspect the catch basins and inlets. In the event that there are significantly more inlets to inspect than anticipated we will inform the Town and provide a revised estimate.

2.3 Item 11 (Outfall Pipe Map - Part IV.B.6.a)

West Orange is required to update its stormwater outfall mapping which was last updated in 2009. As such, Mott MacDonald will consult with the DPW staff and will request any mapping for inspection notes to identify known areas of updates/changes in the outfall locations. Mott MacDonald will then deploy its survey and inspection crew to fill data gaps based upon the areas recommended by the DPW to investigate further. Outfalls will be logged into Moata and a GIS compatible file provided to the Town at the conclusion of the project. We anticipate walking the banks of the Town's streams to identify as many outfalls as possible. We anticipate that the Town will help identify the streams that need to be walked.

For this task, we propose 119 hours of field inspection time and field technician time.

Be advised that it will be required in the next permit cycle, the mapping requirement will be extended to all MS4 components, including but not limited to:

- MS4 outfalls (receiving surface water name, type of outfall);
- MS4 ground water discharge points (type);
- MS4 interconnections (type into/from, entity);
- Storm drain inlets (type, catch basin present, label present, retrofitted);
- MS4 manholes;
- MS4 conveyance (type, direction of flow);
- MS4 pump stations;
- Stormwater facilities (type); and
- Property boundaries of maintenance yard(s) and other ancillary operations (type)

Mott MacDonald would be pleased to provide under separate proposal, completion of this mapping in advance of the permit issuance to provide for West Orange to continue to remain in compliance with the Tier A permit as completion of this task will be effective date of permit (EDP+36 months).

2.4 Item 12 (Outfall Pipe Stream Scouring - Part IV.B.6.b)

The NJDEP letter requires West Orange conduct stream scouring investigations and complete the appropriate SPPP forms, to be completed digitally and provide to the Town. Although you have indicated that the SPPP was to be principally undertaken directly by West Orange, there may be some efficiency to provide for Mott MacDonald to conduct these investigations in conjunction with the outfall mapping updates since the outfall mapping data collection requires field inspection of the receiving streams.

Hence, in conjunction with Item 2.5 above, we propose an additional 12 hours of inspection, scientist and GIS Specialist time to conduct the field investigations and complete the SPPP forms for West Orange to use in their SPPP overall submission. This estimate is based on evaluating 75 outfalls, if additional outfalls are encountered, we will notify the Town.

2.5 Item 14 Stormwater Facilities Maintenance (Municipally Owned or Operated) - Part IV.C.1.a

The NJDEP letter requires West Orange to prepare a written program of long-term cleaning, operation and maintenance of all municipally owned or operated stormwater facilities. Based upon our most recent conversation, it is assumed that West Orange will take the lead on this task and compile the necessary information. Mott MacDonald assumes a very limited scope to review and confirm the program meets the requirements of the permit and will assist the Township in developing a maintenance log digital tool app that can be used using NJDEP's example templates and then linked to the Township GIS system.

For this task we assume 44 hours of engineering and GIS specialist time but limit our scope to the assistance in developing the tool to be used by West Orange.

2.6 Item 15 Stormwater Facilities Maintenance (Privately Owned or Operated) - Part IV.C.1.b

Similar to Item 14, private long-term cleaning and maintenance is required on privately owned and operated stormwater facilities. Moreover, the Township is required to submit the maintenance procedures also similar to Item 14. However, it is believed the intent is to have the Township enforce the maintenance and collect the procedures from the private entity for inclusion in the SPPP. As such, it is assumed that West Orange will take the lead on this task and compile the necessary information. Mott MacDonald assumes a very limited scope to review and confirm the program meets the requirements of the permit and will assist the Township in developing a maintenance log digital tool app that should be deployed to the private entities so they can submit their records to the Township. Again the tool will be such that it can be used using NJDEP's example templates and then linked to the Township GIS system.

For this task, we assume 18 hours of engineering and GIS specialist time but limit our scope to the assistance in developing the tool to be used by West Orange.

2.7 Item 16 Total Maximum Daily Load (TMDL)/Impaired Waterway - Part IV.C.2

The NJDEP Audit letter requires West Orange to identify TMDL's for the streams that fall within the municipal borders to assess initially and then annually stormwater related pollutants to prioritize maintenance schedules and repairs as well as overall strategies to address the sources of pollutants of the published TMDL's. Strategies that the Township implements shall be incorporated in the SPPP as Optional Measures.

Given the above, Mott MacDonald proposes to review the published TMDL's which based upon our initial review involve seven (7) TMDL's for streams and one (1) for lakes (Verona Park Lake). The TMDL's for the streams include Fecal Coliform and Phosphorus. The TMDL for Verona Park Lake is for Phosphorus.

Given the current permit requirements, Mott MacDonald's services are limited to documenting a formal review of the TMDL's noted above and preparing recommendations related to maintenance priority with the results written into the SPPP and updated Municipal Stormwater Management Plan.

For this task, we assume 36 hours of engineering and scientist time but limit our scope to the minimal requirements in the current permit.

Again, be advised that similar to Item 11, the new permit cycle will significant requirements to this aspect of the permit that would become effective in 2023. Mott MacDonald could provide a separate proposal to commence with services to address the permit requirements that will be in place by 2023.

3 Deliverables

For the above scope, our deliverables will include:

- Updated Outfall Map
- Updated Municipal Stormwater Management Plan
- Copies of all inspection reports (inspection tool, data and pdf report)
- GIS geodatabase containing the updated inlet and outfall data.

We will submit 2 paper copies of the deliverables along with a readable electronic version of all documents.

4 Proposed Fee

We propose our fee based upon the following hours per task along with overall project management and Township and NJDEP coordination time. We propose our services on a reimbursable basis for time and expenses actually incurred. We have attached our rate table indicating hourly rates by professional title and categories of direct expenses. Given the nature of the scope for this project, we anticipate direct expenses generally limited to mileage for field inspection travel, necessary paper copy mailings and an implementation cost to develop the digital application forms required by NJDEP for inspection as well as the "setup" of access for the West Orange DPW team.

For budgetary purposes, we indicate an overall fee of \$74,000 broken down by tasks, total hours and expenses as follows:

Name	Nancy Wohlleb	John Denning	Kirk Barrett	Harsho Sanyal	Christopher Lieb	01 MOATA TECHNICIAN	Task Total Labor	Task Total Expenses	Task Total Labor and Expense
Title	Principal Project Manager	Principal Project Manager	Project Engineer - Stormwater	Engineer I - Stormwater	Inspector II - Water		Labor	Expenses	and Expense
Item 2 (Municipal Stormwater Management Plan)	6	4	20	60	0	0	\$11,687.83	\$-	\$11,687.83
Item 7 (Catch Basin Inspection and Maintenance - Part IV.B.5.b.ii)	6	2	44	0	226	8	\$29,629.49	\$1,626.00	\$31,255.49
Item 11 (Outfall Pipe Map - Part IV.B.6.a)	0	4	25	0	90	0	\$12,714.39	\$-	\$12,714.39
Item 12 (Outfall Pipe Stream Scouring - Part IV.B.6.b)	0	0	2	0	10	0	\$1,181.00	\$600.00	\$1,781.00
Item 14 Stormwater Facilities Maintenance (Municipally Owned or Operated) - Part IV.C.1.a	0	0	6	30	0	8	\$5,181.01	\$1,800.00	\$6,981.01
Item 15 Stormwater Facilities Maintenance (Privately Owned or Operated) - Part IV.C.1.b	0	2	8	0	0	8	\$2,962.31	\$-	\$2,962.31
Item 16 Total Maximum Daily Load (TMDL)/Impaired Waterway - Part IV.C.2	0	4	32	0	0	0	\$6,126.08	\$-	\$6,126.08
Total	12	16	137	90	326	24	\$69,482.11	\$4,026.00	\$73,508.11*

***Say \$74,000**

The fee will be not to exceed unless additional authorization is provided by the Township. We will only proceed with authorized work as selected by West Orange. Should West Orange accept our proposal, we would be delighted to forward our standard form of agreement and upon authorization, proceed immediately with the work. Both Nancy and myself will be pleased to answer any questions you might have and look forward to a project kickoff meeting where we would be pleased to introduce the project team and commence our services.

If you have nay questions please do not hesitate to ask.

Very truly yours,

Mott MacDonald



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Enclosures: Rate Table

cc: Leonard Lepore, P.E.,
Peter Kocsik, Mott MacDonald
Kirk Barrett, Mott MacDonald