1500 County Road 269
Leander, TX 78641

P.O. Box 2029
Leander, TX 78646-2029

EXHIBIT A

Statement of Work (SOW) No. 14

TO MASTER SERVICES AGREEMENT

Statement of Work No. 14 to the Master Services Agreement between the City of Manor, Texas, as CITY, and George Butler Associates, Inc., as ENGINEER, dated October 7, 2020.

Through this SOW, CITY hereby authorizes ENGINEER to undertake the work assignment described in the following, said assignment to be performed within the terms and conditions defined in said Master Services Agreement, except as modified herein.

ASSIGNMENT: Professional Engineering Services to provide services and cost for updating the comprehensive master plan for the City of Manor's (CITY) wastewater collection and treatment systems. The existing master plan was developed over a 2-year period and was adopted in July of 2008. The plan and was intended to project ultimate wastewater collection and treatment needs for the CITY and develop a 10-year capital improvements plan. Growth within the CITY over the intervening period has been slower than anticipated for a number of years due the recession that began in 2008 and lasted until 2014. In the following six to eight years growth has increased dramatically and is fast outpacing growth projections from the prior study, hence the need to update the existing study and project flows for both a 10-year period ending in 2033 and ultimate conditions. This past fall flow monitoring was performed under a separate study as part of the Inflow and Infiltration (I/I) reduction effort. Results from this plan update will be compared to collection system flow monitoring data to calibrate and confirm existing system capacities.

SCOPE OF SERVICES:

TASK 100: PRELIMINARY CONFERENCES AND INVESTIGATION

SUBTASK 1: Conduct Kickoff Meetings (2 meetings). Arrange and provide agendas for kickoff meetings with CITY's Public Works staff and others as appropriate for the project. Discussions shall be held to review and confirm the project goals, planning intervals and objectives, to evaluate primary concerns regarding implementation of the project(s), and to confirm the scope of work, schedule and deliverables. Minutes of the meetings will be generated and submitted to the City for project records.

SUBTASK 2: Conduct Progress and Review Meetings (4 meetings). Arrange, provide agendas and conduct progress and submittal review meetings with CITY staff. Minutes of the meetings will be generated and submitted to the City for project records.

SUBTASK 3: Administration. Provide project administration by coordinating work with CITY and making assignments to ENGINEER's staff and maintaining schedule. Provide monthly billings to CITY accompanied by schedule of completion and description of work completed associated with the billing.

TASK 200: COLLECT AVAILABLE DATA

SUBTASK 1: Define and Establish Wastewater Service Study Area. Work with the CITY to define the study area boundaries and gather documents related to current and future land use and population projections

for areas within the service area. Documents considered in the plan will be the 2022 Comprehensive Plan for land uses and population projections, 2008 Wastewater Master Plan for overall regional solutions, and the 2021 Community Impact Fee (CIF) Capital Improvements Plan (CIP) for status of previously identified 10-year CIP projects.

SUBTASK 2: Collect Records. Data will be collected from the CITY that will include but is not limited to previous reports, record drawings, pump station information, asset registry, GIS data (wastewater system, planning department), rainfall data, mapping and population data for the project.

SUBTASK 3: Survey Manholes. Manholes that are connected to pipes with diameters of 12 inches or greater (approximately 255) will be surveyed to obtain coordinates and manhole rim elevations. Measurements of depth to invert will also be collected. Only those manholes that are intended to be modeled will be surveyed.

SUBTASK 4: Establish Design Criteria. CITY and ENGINEER will discuss and establish desired design criteria relative to TCEQ Rules for conveyance based on expected flows, modeling, and capacity requirements. If design criteria varies from previous master plans, impacts of design criteria modification will be considered relative to existing data and projections.

SUBTASK 5: Review data. Review the collected data and established criteria, identifying any data gaps and noting any necessary assumptions.

SUBTASK 6: Data Collection Technical Memorandum. Issue technical memorandum documenting the Wastewater Service Study Area, current and future land uses and population projections, collected records and selected design criteria.

TASK 300: REVIEW STATUS OF EXISTING WASTEWATER CAPITAL IMPROVEMENTS PLAN INFRASTRUCTURE PROJECTS

SUBTASK 1: Review proposed infrastructure projects from City of Manor 2021 Wastewater Community Impact Fee Capital Improvements Plan.

SUBTASK 2: Provide general status (pending, under construction, complete) of each proposed infrastructure project from the City of Manor 2021 Wastewater Community Impact Fee Capital Improvements Plan from Exhibit A-4 of the Plan.

TASK 400: REVIEW EXISTING COLLECTION AND TREATMENT SYSTEMS

SUBTASK 1: Establish Understanding of Existing Systems. Review and understand current capacities and projections of the existing infrastructure focusing on interceptors, lift stations and treatment works.

SUBTASK 2: Establish Current Flow Characteristics. Review flow monitoring report from Fall of 2021 to understand the current operational state of the systems. Quantified I/I analyses from the I/I study will be considered when performing the review of the existing systems.

SUBTASK 3: Develop Network Figures. Based on existing data generated by others for land use projections and establishing flow monitoring basins, figures will be developed that represent the extents of the collection system and operational configurations.

SUBTASK 4: Evaluate Treatment Capacities. ENGINEER will compare treatment capacities designed at the plant to experienced flows.

TASK 500: MODELING

SUBTASK 1: Drainage Basins, Land Uses, Population and Flow Projections. Establish within an ArcGIS platform all system basins, and utilize planned land uses and population projections to develop flow projections within each basin for the 10-year planning horizon. CITY will provide all future land uses and population projections to be used in growth scenario modeling for 10 year and ultimate scenarios.

SUBTASK 2: Network Development. Utilizing the GIS data from the I/I Reduction program, a model network of sewers 12 inch and greater in the CITY's collection system shall be developed in PCSWMM. The network will also include pump stations within the service area. Routing, elevation, and missing data checks will be conducted on the initial network. Corrective measures will primarily be conducted in the office and may include checking record drawings for missing data or interpolating missing elevations between known invert data. It is anticipated that some data (for up to 200 locations) will need to be collected in the field and will require rim elevation surveys such as diversions and flow splitters to correct or verify the network. Pump station data will be collected from the CITY's records or from discussions with CITY staff and/ or site visits (up to 38). Any needed changes to the GIS will be documented and communicated to CITY's GIS personnel. Data flags will be included in the Model to flag the source of the data used.

SUBTASK 3: Model Calibration. Model calibration will be conducted by utilizing ENGINEER's existing procedures and existing flow monitoring data. ADDWF will be calculated from diurnal flows, large users and population equivalents. Infiltration will be inserted as a constant flow distributed through the catchments. Inflow will be represented in the model and calibrated to the Q vs. i plot, rain events to which the model is to be verified, and shape of the synthetic hydrograph obtained from summarized data.

SUBTASK 4: Model Settings Workshop. A model set-up workshop will be conducted with CITY to determine the estimated percent development of future growth basins for the 5 and 10-year study horizon model runs.

The levels of growth to include in the model runs will be based on an estimated percent development in identified growth areas. The established level of growth (percent developed) in each growth basin will be for the 5 and 10-year study horizon.

SUBTASK 5: Model Runs. Model runs will be conducted. The CITY's design storm will be used for all model runs. The following model runs will be completed:

- Existing Conditions
- Interim Future Growth Conditions (5-year time horizon)
- 10-year Future Growth Conditions

TASK 600: MODEL RUNS ANALYSIS AND RESULTING COSTS

SUBTASK 1: Cost Data. Unit cost data will be developed to estimate relief sewer and I/I removal costs. Information will be collected from CITY to assist in this process. The cost data will include sewer installation or relief sewer costs, pump station costs and I/I removal costs. The cost data will be summarized for the report.

SUBTASK 2: I/I Removal Cost. The estimated I/I removal cost for the CITY's wastewater collection system will be established.

SUBTASK 3: Summarize Model Runs. For each model run, overloaded sewers will be established with a percent used. An estimated relief sewer cost will be established for each run. Relief sewers and relief sewer costs will be based on replacement sewers to carry the flow with no surcharge. City-preferred priority for line replacement alternatives is first pipe bursting, then line removal/replacement and then parallel mains. Recommendations for replacement methodologies will be provided.

SUBTASK 4: Establish Urgency of Relief Sewers. The model runs will assist in determining the urgency of relief sewers for interceptors. Based on the results, a recommended timeline of improvements will be developed and presented in the alternative workshop meeting as described below. Trigger points for actual project implementation will also be identified for critical CIP projects.

TASK 700: ALTERNATIVE EVALUATION FOR RELIEF OF INTERCEPTORS

SUBTASK 1: Alternative Development Workshop. The alternative relief options for interceptors will be developed under 10-year growth conditions. Once all alternatives' options have been developed, a meeting with CITY will then be held to narrow the alternatives to no more than three. Possible alternatives include pipe bursting, parallel interceptor, replacement interceptor and storage.

SUBTASK 2: Alternative Model Runs. The alternative relief options will be set up in the model and run for 10-year growth conditions during the CITY's design storm. Relief sizing will be determined to safely transport the flow.

SUBTASK 3: Alternative Cost Estimates and Analyses. Planning level cost estimates of the alternatives will then be established. A comparison of the alternatives will then be conducted to establish pros and cons for each.

SUBTASK 4: Meeting with CITY to Select Alternative. A meeting with the CITY be held to review the alternatives and select an alternative for the recommended plan.

TASK 800: REPORTING

SUBTASK 1: Summarize Work Completed. The work completed will be summarized into report form.

SUBTASK 2: Develop Recommendations. Recommendations for improvements to the collection system including new facilities, interceptors' capacity, I/I removal and further evaluation of overloaded sewers will be developed. Included with the recommendations will be conceptual-level cost estimates.

SUBTASK 3: Phasing Plan. A phasing plan will be developed. Projects will be prioritized based on the size of the project and costs. Review of model runs for existing conditions, interim (5-year) growth and 10-year growth will also assist in establishing project phases.

SUBTASK 4: Prepare Draft Report. A draft report will be prepared that summarizes and presents results. The report will be submitted to CITY and a review meeting will be scheduled to discuss comments.

SUBTASK 5: Prepare Final Report. A final report will address any comments from the draft report review meeting. A final submittal will include a hard copy and digital version of the final report.

SUBTASK 6: Data Submittal. The following submittals will be provided at the end of the project:

- PCSWMM Model:
  - Existing System Set-up
  - 10-year Growth Set-up
  - Final Alternative Set-up
- Inventory data in a format that can be imported into a GIS database. (To be coordinated with Manor GIS Staff).

ADDITIONAL SERVICES:

Services specifically excluded under this Agreement include:

1. Any designs, reports or studies not specifically listed.
2. Additional meetings and site visits not specifically listed.
3. Any other service not specifically listed.
4. Potholing not specifically listed.
5. Testing or analysis.

COMPENSATION:

TASK 100 FEE:	$29,600
TASK 200 FEE:	$31,900
TASK 300 FEE:	$9,300
TASK 400 FEE:	$22,800
TASK 500 FEE:	$134,100
TASK 600 FEE:	$13,700
TASK 700 FEE:	$13,600
TASK 800 FEE:	$48,100
TOTAL:	*$303,100*

CITY OF MANOR, TEXAS

By:_____

Date: _____

GEORGE BUTLER ASSOCIATES, INC.

Frank T. Phelan

By:_____

Date: 8/30/2022