Wetland Solutions Inc

5302 NW 156th Avenue
Gainesville, FL 32653
(386) 462-9286
(386) 462-3196 fax

SCOPE OF SERVICES

Ichetucknee Quality and Quantity Enhancement Project (IQ²EP)

PREARED FOR: Cody Pridgeon - City of Lake City

DATE: February 17, 2020

Project Introduction

The Ichetucknee Springs Water Quality Improvement Project (ISWQIP) converted the largest of the City of Lake City's (City) sprayfields to a groundwater recharge wetland to improve water quality. The City now owns and operates the largest groundwater recharge wetland in North Florida, which provides substantial water quality improvement to Ichetucknee Springs. This project represented a new type of full-scale project for the region that benefits the City's and region's population. The Ichetucknee Quality and Quantity Enhancement Project (IQ²EP), expands those benefits by providing additional water quality improvement, enhanced wetland operations, and increased recharge to the Floridan Aquifer. Wetland Solutions, Inc. (WSI) worked with the City to develop the original ISWQIP and assisted the City with operations, water quality monitoring, and technical assistance since the project was constructed. The City and WSI also worked on the development of a funding application to the Florida Department of Environmental Protection (FDEP) to complete a subsequent phase of the initial project to improve treatment, operations, and disposal capacity of the original project.

This project includes two primary project components. The first project component is the design, permitting and construction of pipes and valves to allow treated effluent to flow to the wetland by gravity. This modification will result in more consistent flow to the wetland, improved treatment, increased reliability, and reduced operational costs. The second project component will be the design and permitting of a gravity recharge well. This modification will provide increased disposal capacity, allowing more water to receive wetland treatment rather than being discharged to the remaining two sprayfields. In addition to increased water quality treatment, the recharge well will reduce total evapotranspiration from the sprayfield, maximizing aquifer recharge. Finally, this modification will increase wetland effluent management capacity and improve wetland operation by allowing for improved management of stormwater during periods with high rainfall.

Following FDEP approval of funding for this project, the City issued a competitive solicitation to choose a project team and selected the WSI Team (WSI, ASRus, Jones Edmunds, Hydrogeo Consulting, and GSE Engineering) to complete this project. This scope of services describes the work that will be a part of this contract and the level of effort associated with completion of the project. This scope of services specifically covers Task 1 (Preconstruction Activities), Task 2 (Bidding and Contractor Selection), and Task 3 (Project Management) of the approved Grant Agreement. The City will, with assistance from the WSI Team, select a contractor to complete the construction phase activities with oversight from the WSI Team. Following project construction,

professional services will continue until final permits are issued and the project becomes fully operational.

Scope of Services

Task 1 – Preconstruction Activities

Preconstruction activities for this project include wetland performance modeling, gravity flow modification design, gravity recharge well design, and associated permitting activities. Each of these tasks is further described in more detail in the following subtasks.

Subtask 1.1 - Preliminary Engineering

Preliminary engineering will include data collection to complete the detailed design of the gravity flow modifications, recharge well, and the intake structure associated with the well. Data collection will include survey of existing infrastructure in the vicinity of the gravity line modifications to allow for detailed design and tie-in to existing piping. Geotechnical samples will be taken to evaluate subsurface conditions in the area where the intake structure for the well will be constructed.

This subtask will include review of existing data for the treatment features at the site including yard piping, reclaimed treatment infrastructure, existing wetland inflows and as-builts. This review will also include refinement of the initial gravity flow feasibility study completed by Jones Edmunds (under a previous contract) to further refine gravity flow modification needs relative to wetland cell inflow structures. This effort will also include review of applicable regulations to modify the existing facility permit.

Wetland modeling and performance will be evaluated relative to flow modifications and increased inflows. This will include assessment of the current performance of the system and wetland modeling under higher loading rates, between 3 and 4.5 MGD, anticipated as a part of this project. The initial wetland model will be enhanced based on the actual system performance. This evaluation will also consider water quality sampling that will be necessary to support recharge well permitting and development of a water quality database for the project.

To develop the recharge well design this subtask will include a well inventory within the area of review. This task will also include a review of applicable regulations and development of a permitting summary for the recharge well.

Deliverables

- Electronic copies (PDFs) and points file (.TXT or .XYZ) of any survey data collected.
- Electronic copy (PDF) of geotechnical engineering report.
- Electronic copy (PDF) of updated gravity flow technical memorandum.
- Electronic copy (PDF) of wetland performance technical memorandum.
- Electronic copy (PDF) of area-of-review and well inventory technical memorandum.
- Electronic copies (PDFs) of laboratory reports for water quality data.

Subtask 1.2 – FDEP Pre-Application Meeting

This subtask is to complete the preparation for a pre-application meeting with the FDEP for permitting through the Underground Injection Control (UIC) Program and the Wastewater Program. The purposes of this meeting will be to establish requirements for the recharge well, sampling necessary to support permitting, and next steps in the permitting process. Presentation materials will be developed to address the following:

- The proposed well location.
- The proposed well construction details (depths, diameters, materials).
- Proposed target water quality improvements.

Deliverables

- Electronic copies (PDFs) of draft and final pre-application meeting presentation slides.
- Electronic copy (PDF) of pre-application meeting minutes.

Subtask 1.3 – UIC Permit Application

Based on the FDEP pre-application meeting the UIC permit application will be developed. It is expected that this effort will involve development of a conceptual intake figure and draft permit application for a Class V well construction and testing permit. The well construction and testing permit will allow construction and operational testing of the well. The duration of the permit is anticipated to be five years. An operation permit application will be prepared under a future work authorization. The UIC Class V well construction and testing permit package is anticipated to include the following:

- Maps showing the proposed well location, improvements to divert water to the well, and monitoring well locations.
- Drawings showing construction details of the proposed well and monitoring wells.
- Area of review (AOR) for the proposed well based on analytical calculations of expected recharge well radius of influence of the recharge operations.
- Well inventory (prepared in task 1.1) and other AOR considerations.
- Characterization of ambient groundwater quality and surface water quality at the project area based on existing data gathered in 1.1.
- Description and cross-sections of local and regional geology.
- Drilling and testing plan.
- This task provides for a response to one FDEP request for additional information (RAI).
- This task includes collection and analysis of water quality data to support the permit application.

Deliverables

- Electronic copy (PDFs) of draft and final UIC permit application package.
- Electronic copy (PDF) of the RAI.

Subtask 1.4 – Recharge Well Design

In conjunction with the permit being processed the recharge well design will begin. This effort will include design of the well and associated technical specifications. This subtask will also include design drawings and technical specifications for the well intake structure.

The final design for the recharge well will be developed as 60% and final design plans and technical specifications. The design will be summarized and explained in the basis of design report developed for the recharge well.

1.4.1 – 60% Design of Recharge Well and Intake

The project team will prepare two sets of technical specifications and drawings to the 60% level for City approval. One set will include drilling and testing of the recharge well and associated monitoring wells, and the other set will include the intake structure and associated surface facilities and appurtenances. The design will include an intake with coarse wire screen and adjustable weir to control a flow down the well. The intake design will operate by gravity and will not require the use of a pump. The intake design will not include telemetry controls on equipment, filtration will be limited to coarse wire screens, and there will be no pump, siphon, or chemical feed included in the design. The design is anticipated to include 10-15 sheets. Following submittal of the 60% design and technical specifications, a review meeting will be held with the City to review comments. The schedule includes two weeks for City review.

1.4.2 – Final Design of Recharge Well and Intake

The project team will incorporate the comments from the 60% design to produce the final plans and specifications. The basis of design report will also be finalized based on comments received during the 60% design review meeting. The final documents will form the basis of the bid package.

Deliverables

- Electronic copy (PDFs) of draft and final basis of design report.
- Electronic copy (PDFs) of 60% design drawings.
- Electronic copy (PDFs) of 60% design specifications.
- 60% Design Review Meeting
- Electronic copy (PDF) of 60% design review meeting minutes.
- Electronic copy (PDF and CAD) of final design drawings.
- Electronic copy (PDF) of final design specifications.
- Final Design Review Meeting

Subtask 1.5 – Gravity Pipeline Design

This subtask will include development of the design and technical specifications associated with gravity pipeline modifications. This will include development of a basis of design report that describes the modifications and project goals. The design and technical specifications will be developed as 60% and final design plans and technical specifications.

1.5.1 - 60% Design of Gravity Pipeline Modifications

The project team will prepare plans and technical specifications to the 60% level for City approval. The design will include the piping, valves, and appurtenances necessary to convey treated effluent from the existing gravity line that serves the filtration unit to the 24-inch main that feeds the wetlands and sprayfields. If determined feasible during the modeling update (Task 1.1), the design will also include the option to route effluent through the public access reuse (PAR) system disk filters and relocated chlorine contact chamber (future) prior to discharge to the wetlands. Also, if feasible, the design will include improvements to the wetland cell inflow piping to maximize gravity flow delivery. A basis of design report will be prepared summarizing the design development. The design is anticipated to include up to 10 sheets. Following submittal of the 60% design and specifications, a review meeting will be held with the City to review comments. The schedule includes two weeks for City review.

1.5.2 - Final Design of Gravity Pipeline Modifications

The project team will incorporate the comments from the 60% design to produce the final plans and specifications. The basis of design report will also be finalized based on comments received during the 60% design review meeting. The final documents will form the basis of the bid package, should the City elect to bid this component of the work.

Deliverables

- Electronic copies (PDFs) of draft and final basis of design report.
- Electronic copy (PDFs) of 60% design drawings.
- Electronic copy (PDFs) of 60% design specifications.
- 60% Design Review Meeting
- Electronic copy (PDF) of 60% design review meeting minutes.
- Electronic copy (PDF and CAD) of final design drawings.
- Electronic copy (PDF) of final design specifications.
- Final Design Review Meeting

Subtask 1.6 - Operational/Startup Technical Assistance

This subtask will be used to develop the data record necessary to support recharge well permitting. This task will also be used to assist the City with operation before, during, and after construction through project completion. An updated operation and maintenance manual (OMM) will also be developed as part of this subtask. This document will describe the design, intended initial operation, as well as troubleshooting.

Deliverables

- Electronic copies (PDFs) of draft and final O&M manual.

Task 2 – Bidding and Contractor Selection

This task will be used to develop documents necessary for the City to issue a solicitation for construction, answer contractor questions, and assist the City in selection. This task is subdivided

into separate subtasks for the two project components given the anticipated differences in project schedule.

Subtask 2.1 - Bidding and Contractor Selection (Recharge Well)

This subtask covers bidding and drilling contractor selection for the gravity recharge well. This task includes compiling of bid documents to be issued with the request for proposals (RFP). These documents will include the front-end documents provided by the City, final design plans, technical specifications, and wording to be included in the RFP. Following issuance of the RFP the WSI Team will attend a pre-bid meeting to discuss the project with potential contractors and a site visit to show the project site. During the proposal process the WSI Team will address bid addenda as needed.

Subtask 2.2 - Bidding and Contractor Selection (Gravity Pipeline - if not performed by City)

This subtask covers bidding and contractor selection for the gravity pipeline. Included in this task is compiling of front-end documents to be issued with the request for proposals (RFP). These documents will include the final design plans, technical specifications, and wording to be included in the RFP. Following issuance of the RFP the WSI Team will attend a pre-bid meeting to discuss the project with potential contractors and a site visit to show the project site. During the proposal process the WSI Team will address bid addenda as needed.

Task 3 – Project Management

The final project task will cover the project management, construction oversight for both project components, associated permit modifications, and construction certification. The following four subtasks are a part of this project.

Subtask 3.1 - Construction Oversight (Recharge Well)

This subtask of the project will cover construction activities associated with the recharge well. This will include drilling oversight during well construction as well as development of the well completion report. The construction oversight will also include resident observation during construction of the intake diversion structure that will allow water to be conveyed to the gravity recharge well. Finally, this subtask will include certification of construction completion. Specific tasks provided will include the following:

- Assist with one pre-construction meeting, attended by the well drilling contractor and City staff.
- Coordinate with City staff for construction observation during drilling events. Construction of the recharge well and monitoring wells is assumed to take 10 weeks and will require nearly complete coverage by a qualified hydrogeologist due to FDEP UIC permit requirements. Daily drilling reports will be prepared for each site visit per permitting requirements.
- Prepare and submit to FDEP weekly summary reports as required by the UIC permit.
- Prepare and submit to FDEP casing seat requests based on review and interpretation of hydrogeologic data collected during well construction and testing.
- Provide review of well construction specifications and prepare design clarifications, as needed.

- Answer requests for information (RFIs) by the well construction contractor.
- Facilitate inspections for certification of final completion of construction.
- Support the development and review of as-built record drawings.
- Pay application review and approval.
- Prepare well testing procedures during drilling and review well performance testing documentation.

A well completion report will be prepared following construction activities. The report will be signed and sealed by a Florida-registered Professional Geologist. The City will be provided with one electronic copy of the report for submittal to FDEP as required by permit.

Subtask 3.2 - Pipeline Permit Modification

The WSI Team will modify the existing wastewater permit to include conveyance of water to the wetland by gravity. These permit modifications will be made prior to construction of the gravity pipeline modifications beginning.

Subtask 3.3 - Construction Oversight (Gravity Pipeline)

The WSI Team will provide construction phase oversight of the gravity pipeline modifications. This will include construction administration and resident observation during construction. Following construction completion this will include certification of the construction. Specific tasks include the following:

- Coordinate with City staff for construction observation. Construction of the gravity pipeline modifications is assumed to take 6 weeks. Daily reports will be prepared for each site visit.
- Prepare design clarifications, as needed.
- Answer requests for information (RFIs) by the construction contractor (if bid) or City (if self-performed).
- Facilitate inspections for certification of final completion of construction.
- Support the development and review of as-built record drawings.

Subtask 3.4 - Project Management

This subtask will include all project management activities related to the project. These are expected to include as-needed project meetings, regular progress meetings, attendance at meetings with the City and/or the FDEP, project management, and administration. This will also include developing and submitting supporting material for grant reporting for the City to provide to the FDEP.

Deliverables

- Electronic copies (PDFs) of minutes from progress meetings.
- Monthly invoicing reports including explanation of the work completed during the invoice period; an appraisal of the schedule; if behind schedule, a proposed recovery plan and revised schedule; and an outline of proposed activities during the next invoice period.

Assumptions

WSI has made the following assumptions in preparing this scope:

- The City is responsible for all permit application fees.
- The proposed recharge well will not require pumps, electricity, fine filtration, or additional pre-treatment before injection by gravity flow.
- The UIC permit will not require analysis of additional treatment alternatives or other modifications to the proposed intake and well.

Fee

Exhibit 1 summarizes estimated costs for the tasks described above. Work will be billed and compensated on a time and materials basis, based on the attached rate schedule (**Exhibit 2**) and will be invoiced monthly. WSI will not work beyond the authorized amount without additional authorization from the City. **The initial request for Commission approval is for Tasks 1.1 - 1.6 and Task 3.4, totaling $565,475.**

Exhibit 1. Estimated Time and Materials Costs

Task	Description	Hours	Cost	Expenses	Total
1.1	Preliminary Engineering	249	$32,200	$10,250[1]	$42,450
1.2	FDEP Pre-application Meeting	80	$11,615	$200	$11,815
1.3	UIC Permit Application	992	$120,820	$56,580[2]	$177,400
1.4	Recharge Well Design	576	$84,050	--	$84,050
1.5	Gravity Pipeline Design	480	$71,790	--	$71,790
1.6	Operation and Startup Technical Assistance	248	$31,220	--	$31,220
Grant Task 1 – Preconstruction Activities		**2,625**	**$351,695**	**$67,030**	**$418,725**
2.1	Bidding and Contractor Selection (Well)	109	$14,880	$100	$14,980
2.2	Bidding and Contractor Selection (Pipeline)	--	--	--	--
Grant Task 2 – Bidding and Contractor Selection		**109**	**$14,480**	**$100**	**$14,980**
3.1	Well Construction Oversight	1,205	$153,490	--	$153,490
3.2	Pipeline Permit Modification	97	$14,205	--	$14,205
3.3	Pipeline Construction Oversight	204	$25,280	--	$25,280
3.4	Project Management	1,045	$144,900	$1,850	$146,750
Grant Task 3 – Project Management		**2,551**	**$337,875**	**$1,850**	**$339,725**
Grand Total		**5,285**	**$704,450**	**$68,980**	**$773,430**

[1]Expense is allowance for surveying and geotechnical investigations

[2]Includes equipment and laboratory analysis for water quality investigations related to UIC permitting.

Exhibit 2. Labor Cost Schedule for Consulting Services

Firm	Staff	Role	Billing Rate ($/hr)
WSI	Chris Keller, PE	Project Manager - Senior Engineer	$150
	Ron Clarke	Senior Environmental Scientist	$115
	Scott Knight, PhD, PE	Project Engineer	$105
ASRus	Mark McNeal, PG	Professional Geologist	$180
	Pete Larkin, PG	Project Hydrogeologist	$150
	Romy Lahera, PG	Project Hydrogeologist	$120
	Mike Weatherby, PG	Project Hydrogeologist	$120
Jones Edmunds	Tom Friedrich, PE	Senior QC Engineer	$225
	Fred Hoyt, PE	PM Lead Engineer	$225
	John Horvath	Senior Engineer	$215
	Amy Goodden	Project Engineer	$170
	TBD	Construction Resident Observer	$155
	TBD	Quality Control Professional	$120
	TBD	Cad Designer	$115
	TBD	Editor	$85
	TBD	Administrative Assistant	$85

Schedule

The preliminary project schedule is attached as Exhibit A.

Effective Date of Authorization

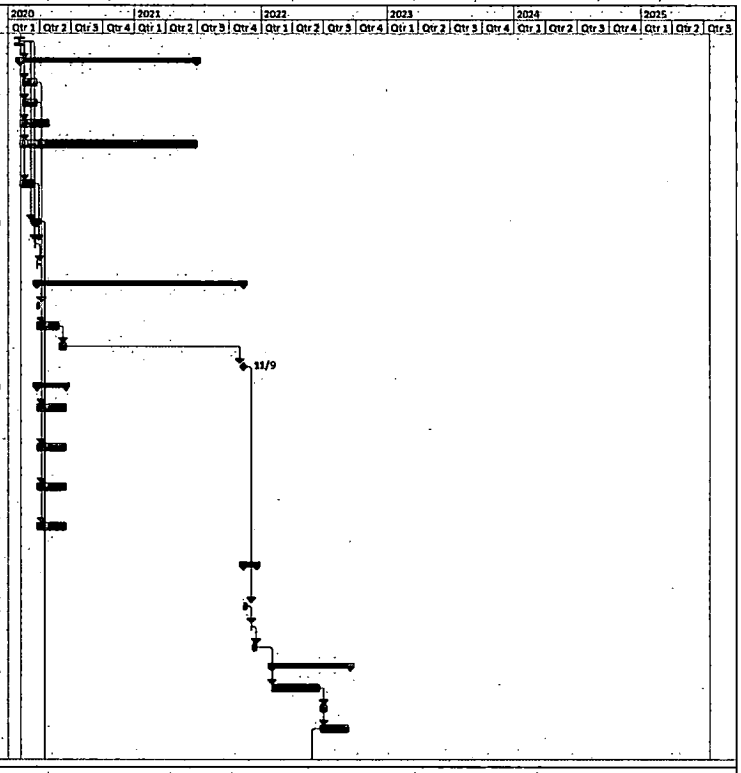
This scope of work is effective on the date of execution and WSI is authorized to begin work upon receipt of written authorization from the City of Lake City.

In witness of this agreement, the parties below provide their approval.

Wetland Solutions, Inc.		**City of Lake City**	
By:	_____	By:	[signature]
Title:	_____	Title:	Mayor
Date:	_____	Date:	4/6/20

EXHIBIT A

ID	Task Name	Duration	Start	Finish
1	**Notice to Proceed**	1 day	Mon 2/3/20	Mon 2/3/20
2	**Preliminary Engineering**	365 days	Tue 2/4/20	Mon 6/28/21
3	Survey	30 days	Tue 2/11/20	Mon 3/23/20
4	Geotechnical Investigations	30 days	Tue 2/11/20	Mon 3/23/20
5	Data Review and Evaluation	60 days	Tue 2/4/20	Mon 4/27/20
6	Wetland Water Quality Evaluation	365 days	Tue 2/4/20	Mon 6/28/21
7	Well Inventory/Area of Review	30 days	Tue 2/4/20	Mon 3/16/20
8	**FDEP Pre-Application Meeting**	5 days	Tue 3/17/20	Mon 3/23/20
9	Presentation Preparation	2 days	Tue 3/17/20	Wed 3/18/20
10	FDEP Meeting	1 day	Mon 3/23/20	Mon 3/23/20
11	**UIC Permit Application**	426 days	Tue 3/24/20	Tue 11/9/21
12	Conceptual Intake Figure	5 days	Tue 3/24/20	Mon 3/30/20
13	Draft Permit Application	45 days	Tue 3/24/20	Mon 5/25/20
14	Final Permit Application	15 days	Tue 5/26/20	Mon 6/15/20
15	Well Construction Permit	1 day	Tue 11/9/21	Tue 11/9/21
16	**Recharge Well Design**	60 days	Tue 3/24/20	Mon 6/15/20
17	Well Design and Technical Specifications	60 days	Tue 3/24/20	Mon 6/15/20
18	Surface Facility Design and Technical Specifications	60 days	Tue 3/24/20	Mon 6/15/20
19	Civil Design/Site Layout/Erosion Control	60 days	Tue 3/24/20	Mon 6/15/20
20	Basis of Design Memorandum	60 days	Tue 3/24/20	Mon 6/15/20
21	**Bidding and Contractor Selection (Well)**	28 days	Wed 11/10/21	Fri 12/17/21
22	Front-end Documents	7 days	Wed 11/10/21	Thu 11/18/21
23	Pre-bid Meeting	1 day	Fri 12/3/21	Fri 12/3/21
24	Bid Addenda	10 days	Mon 12/6/21	Fri 12/17/21
25	**Construction Oversight (Well)**	163 days	Mon 1/31/22	Wed 9/14/22
26	Drilling Oversight	100 days	Mon 1/31/22	Fri 6/17/22
27	Well Completion Report	15 days	Mon 6/20/22	Fri 7/8/22
28	Intake/Diversion Construction Oversight	60 days	Mon 6/20/22	Fri 9/9/22

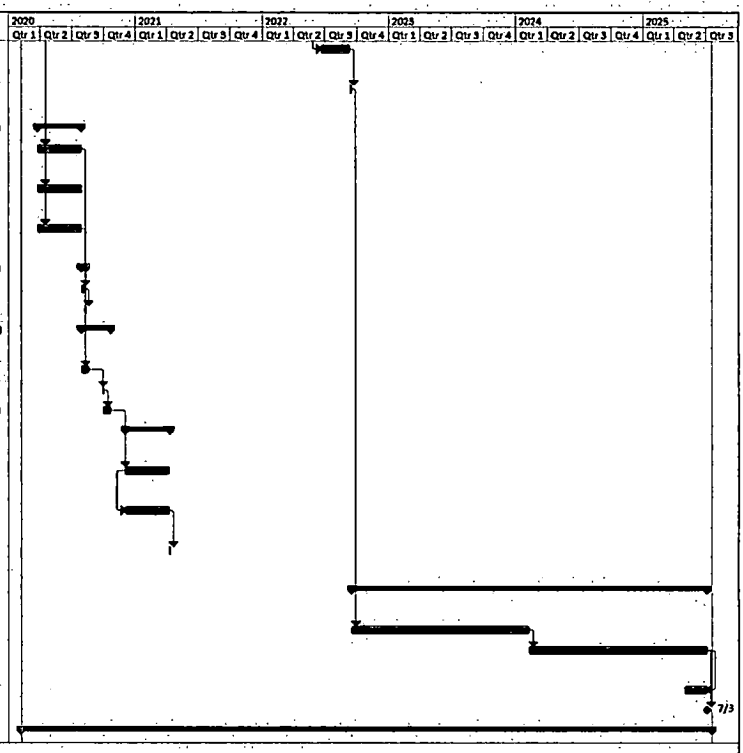


Project: Lake City Draft Schedule
Date: Wed 2/5/20

Task	External Tasks	Manual Task	Finish-only				
Split	External Milestone	Duration-only	Deadline				
Milestone	Inactive Task	Manual Summary Rollup	Progress				
Summary	Inactive Milestone	Manual Summary					
Project Summary	Inactive Summary	Start-only					

Page 1

ID	Task Name	Duration	Start	Finish
29	Intake/Diversion Resident Observation	60 days	Mon 6/20/22	Fri 9/9/22
30	Certification of Construction Completion	3 days	Mon 9/12/22	Wed 9/14/22
31	**Gravity Pipeline Design**	**90 days**	**Tue 3/24/20**	**Mon 7/27/20**
32	Pipeline Design and Technical Specifications	90 days	Tue 3/24/20	Mon 7/27/20
33	Civil Design/Site Layout/Erosion Control	90 days	Tue 3/24/20	Mon 7/27/20
34	Basis of Design Memorandum	90 days	Tue 3/24/20	Mon 7/27/20
35	**Pipeline Permit Modification**	**10 days**	**Tue 7/28/20**	**Mon 8/10/20**
36	Draft Permit Application	7 days	Tue 7/28/20	Wed 8/5/20
37	Final Permit Application	3 days	Thu 8/6/20	Mon 8/10/20
38	**Bidding and Contractor Selection (Pipeline)**	**61 days**	**Tue 7/28/20**	**Tue 10/20/20**
39	Front-end Documents	15 days	Tue 7/28/20	Mon 8/17/20
40	Pre-bid Meeting	1 day	Tue 9/29/20	Tue 9/29/20
41	Bid Addenda	15 days	Wed 9/30/20	Tue 10/20/20
42	**Construction Oversight (Pipeline)**	**93 days**	**Wed 12/2/20**	**Fri 4/9/21**
43	Pipeline Construction Administration	90 days	Wed 12/2/20	Tue 4/6/21
44	Pipeline Resident Observation	90 days	Wed 12/2/20	Tue 4/6/21
45	Certification of Construction Completion	3 days	Wed 4/7/21	Fri 4/9/21
46	**Operational/Startup Technical Assistance**	**731 days**	**Thu 9/15/22**	**Thu 7/3/25**
47	Well Operational Testing	365 days	Thu 9/15/22	Wed 2/7/24
48	Operational Permit Application	365 days	Thu 2/8/24	Wed 7/2/25
49	O&M Manual Update	45 days	Thu 5/1/25	Wed 7/2/25
50	Well Operation Permit	1 day	Thu 7/3/25	Thu 7/3/25
51	**Project Management**	**1423 days**	**Tue 2/4/20**	**Thu 7/17/25**



Project: Lake City Draft Schedule
Date: Wed 2/5/20

Task	External Tasks	Manual Task	Finish-only		
Split	External Milestone	Duration-only	Deadline		
Milestone	Inactive Task	Manual Summary Rollup	Progress		
Summary	Inactive Milestone	Manual Summary			
Project Summary	Inactive Summary	Start-only			