



# City of Sandy

## Agenda

### City Council Meeting

Meeting Date: Tuesday, July 6, 2021

Meeting Time: 6:00 PM

Page

#### 1. MEETING FORMAT NOTICE

This meeting will be conducted in a hybrid in-person / online format. The Council will be present in-person in the Council Chambers and members of the public are welcome to attend in-person as well. Members of the public also have the choice to view and participate in the meeting online via Zoom.

#### To attend the meeting in-person:

Come to Sandy City Hall (lower parking lot entrance).  
39250 Pioneer Blvd., Sandy, OR 97055

#### To attend the meeting online via Zoom:

Please use this link: <https://us02web.zoom.us/j/82944649494>  
Or by phone: (253) 215-8782; Meeting ID: 829 4464 9494

Please also note the new public comment signup process below.

#### 2. CITY COUNCIL WORK SESSION - 6:00 PM

##### 2.1. Government Relations Briefing

[Government Relations Briefing - Pdf](#)

4 - 9

#### 3. CITY COUNCIL REGULAR MEETING - 7:00 PM

#### 4. PLEDGE OF ALLEGIANCE

#### 5. ROLL CALL

#### 6. CHANGES TO THE AGENDA

## 7. PUBLIC COMMENT

The Council welcomes your comments.

### If you are attending the meeting in-person

Please submit your comment signup form to the City Recorder before the regular meeting begins at 7:00 p.m. Forms are available on the table next to the Council Chambers door.

### If you are attending the meeting via Zoom

Please complete the [online comment signup webform](#) by 12:00 p.m. on the day of the meeting.

The Mayor will call on each person when it is their turn to speak for up to three minutes.

## 8. RESPONSE TO PREVIOUS PUBLIC COMMENTS

## 9. CONSENT AGENDA

- 9.1. **City Council Minutes** 10 - 19  
[City Council - 21 Jun 2021 - Minutes - Pdf](#)

## 10. NEW BUSINESS

- 10.1. **Award Contract for NPDES Permitting Support** 20 - 50  
Wastewater System Improvement Project  
[Award Contract for NPDES Permitting Support Services - Pdf](#)
- 10.2. **Approval of Guaranteed Maximum Price Proposal #1** 51 - 78  
Wastewater System Improvement Project (Existing Wastewater Treatment Plant)  
[Approve Guaranteed Maximum Price Proposal #1 for Existing Wastewater Treatment Plant Improvements Project - Pdf](#)  
[Presentation Slides](#)

## 11. REPORT FROM THE CITY MANAGER

## 12. COMMITTEE /COUNCIL REPORTS

## 13. STAFF UPDATES

- 13.1. [Monthly Reports](#)

## 14. ADJOURN





## Staff Report

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**Meeting Date:** July 6, 2021  
**From** Jordan Wheeler, City Manager  
**SUBJECT:** Government Relations Briefing

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### **BACKGROUND:**

At the June 7, 2021 meeting, the Council approved a contract with Pac/West Lobby Group for government relations services.

The following areas were identified as areas in which Pac/West can assist the City:

- Securing funding available to local governments
- Assisting with identifying, applying for, and receiving competitive grants and other discretionary funding available to the City
- Developing strong working relationships with members of the City's state and federal delegation and their staff, federal agencies, and other key stakeholders
- Drafting letters, legislative language, and talking points on legislation as necessary
- Meeting with state and federal legislators and their staffs
- Testifying at the direction of and on behalf of the City at hearings before legislative committees

Staff organized a tour for Pac/West personnel to view key City sites to allow them to gain first-hand knowledge of our major projects and initiatives, which will assist in their advocacy efforts. The tour included the existing wastewater treatment plant and Roslyn Lake.

### **WORK SESSION PURPOSE**

This work session has three goals:

1. Provide a recap of the recently concluded session of the Oregon Legislature, including major bills passed
2. Review funding secured by the City as well as additional funding opportunities that may exist in the interim
3. Allow the Council to get to know the new government relations team and ask questions

### **RECOMMENDATION:**

Staff recommends that the Council receive the legislative session recap and funding opportunity overview from Pac/West, and use this opportunity to meet our new

government relations team and ask any questions about their strategy/approach for the coming year.

**LIST OF ATTACHMENTS/EXHIBITS:**

- Pac/West legislative session update newsletter



## Book is Closed on 2021 Legislative Session

Everyone knew the 2021 Legislative Session was going to be unique.

Coming out of a turbulent 2020 with partisan tensions lingering and a budget deficit looming, leadership prepared a streamlined agenda that focused on three priorities — COVID-19, wildfires, and social equity — in hopes of keeping the session on track.

As with the three special sessions in 2020, the Capitol was closed to the public throughout the process, adding to partisan tension over access. And for an added complication, the Legislature began the contentious and tedious process of redrawing the electoral map and adding a sixth Congressional seat. This will conclude with a special session in September when complete federal census data is available.

**The Legislature officially adjourned on Saturday evening, the 159th day of the 2021 session**, one day before the constitutionally mandated end date. Pac/West Lobby Group developed innovative ways to advocate for clients throughout the unusual session, and what follows is an overview of what happened and what's still to come.

### By the Numbers

Despite this legislative session being virtual with no public access to the Capitol building and the state's historic crises of COVID-19 and wildfires, thousands of bills related to hundreds of topics were still introduced.

The 2021 Session held 55 total committees, 7 more than the 2019 Session. On average, about 30 hours of committee hearings were held each day, Monday through Friday. This workload took a toll, especially when compounded with technical issues in online-only committee meetings.

Tracking bills and lining up testimony presented a challenge, as committees regularly ran out of time and pushed agendas to later meetings. This meant keeping in regular contact with legislators, their staffs, and committee agendas to stay updated on hearing dates and amendments. Pac/West's relationships in Capitol and at state agencies again helped deliver wins for clients.

## **Backdrop of Contention**

The 2019 and 2020 sessions were cut short by Republican walkouts over cap-and-trade legislation. The threat of another walkout was implicit from the beginning of 2021, and GOP senators boycotted a February floor session in a show of opposition to Gov. Kate Brown's COVID-19 restrictions.

As the majority party, Democrats set the agenda and choose the direction of legislation. But the minority Republicans have the ability to control the speed of the process in both chambers by requiring the full readings of bills and can even slam on the brakes by denying a quorum through a coordinated walkout.

Party leadership navigated this tricky balance, keeping their caucuses on track and in the building through negotiations on budgeting, redistricting, member discipline, and other contentious areas. This is especially notable as the session followed a fiery campaign season, both in Oregon and nationally, which often sets the tone in the Legislature.

The negotiations took a toll on caucus leadership in both chambers, with House Speaker Tina Kotek being challenged early in the session and Senate President Peter Courtney facing internal adversity in the latter days.

Other legislators faced scrutiny and lost positions and ranking during the session:

- **Rep. Diego Hernandez (D-Portland)** resigned as he was facing possible expulsion for harassing three women at the Capitol.
- **Rep. Brad Witt (D-Clatskanie)** was removed as the chair of the House Agriculture and Natural Resources Committee after complaints of sexual harassment by a fellow legislator.
- **Rep. Mike Nearman (R-Independence)** became the first legislator in Oregon history to be expelled by a vote of his colleagues after aiding protestors trying to gain access to the closed Capitol during the December 2020 special session.

## **Virtual Session Favors Expediency**

Much of the world went virtual in 2021, and the Oregon Legislature was no different. Zoom meetings replaced not only public testimony in front of committees, but one-on-one meetings between constituents and legislators.

Invited testimony became the norm, leaving less time for other citizens to voice concern or support for legislation. Technical issues also slowed the pace of the proceedings and expediency became the top priority in moving bills toward the floor late in the session.

As a whole, this enforced the echo chamber on some issues as legislators were motivated to get through testimony and pass legislation out of committee without taking the time to hear all relevant viewpoints.

However, Pac/West was able to closely track bill movement and align testimony and schedule informational hearings on key legislation.

## **Revenue Roller Coaster**

Lawmakers entered the 2020 session facing a projected shortfall of more than a \$1 billion and ended with an economic forecast predicting a surplus of more than a \$1 billion.

State economists delivered a caveat with the May report: Lawmakers would be wise to budget conservatively in case tax revenue comes in below expected levels.

While the positive report was good news for state programs, the influx of dollars from federal stimulus and a resurgent economy nevertheless led to a scramble for a piece of the pie. Ways & Means co-chairs were inundated with requests for new expenditures.

## **What's next**

Republicans negotiated an equal spot at the redistricting table, which will likely be the next place legislators will meet. The date for the September special session has yet been officially set, but the deadline for an approved map is September 27.

### **September 2021**

- 20-21: Possible Special Session
- 21: Task Force Day
- 22-24: Legislative Days



- 27: Redistricting Deadline

**November 2021**

- 2: Election Day
- 15-17: Legislative Days/Revenue Forecast
- 18: Task Force Day
- 19: Legislative Concept Request Deadline

**January 2022**

- 10: Task Force Day/Legislative Concept Return Deadline
- 11-13: Legislative Days
- 14: Legislative Concept Drop Deadline

**February-March 2022**

- Feb 1 - March 7: Legislative Session
- March 8: Candidate Filing Deadline

We will continue to provide updates in the interim and help clients stay informed and connected to the legislative and regulatory process.

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**Our mailing addresses are:**

**Western Oregon**  
PO Box 12518  
Salem, OR 97309

**Eastern Oregon**  
[1050 W. Elm Ave., Ste. 260](#)  
[Hermiston, OR 97838](#)





**MINUTES**  
**City Council Meeting**  
**Monday, June 21, 2021 6:00 PM**

**COUNCIL PRESENT:** Stan Pulliam, Mayor; Jeremy Pietzold, Council President; Laurie Smallwood, Councilor; Richard Sheldon, Councilor; Kathleen Walker, Councilor; Carl Exner, Councilor; and Don Hokanson, Councilor

**COUNCIL ABSENT:**

**STAFF PRESENT:** Jordan Wheeler, City Manager; Jeff Aprati, City Recorder; Tyler Deems, Deputy City Manager / Finance Director; Mike Walker, Public Works Director; Greg Brewster, IT/SandyNet Director; and David Snider, Economic Development Manager

**MEDIA PRESENT:** Sandy Post

**1. City Council Work Session - 6 PM**

**1.1. Transportation Projects Update and Policy Options**

Staff Report - 0440

The **City Manager** and **Public Works Director** summarized the staff report, which was included in the agenda packet. Joel Conder with Capitol Asset & Pavement Services provided a presentation regarding the City's pavement condition. The slides were included in the agenda packet.

The Council discussed the following issues:

**Pavement Condition**

- Concerns regarding the status of particular street segments
- The importance of a pavement management system in maintaining these important assets
- Concerns related to ODOT-owned roads
- Street repair prioritization methodology
- The condition of the street system overall, despite certain problem areas
- Strategies to ensure adequate funding for slurry sealing and other maintenance

362nd / Bell

- When underground utilities should be installed; balancing the desire to maintain the condition of the new road with the desire to defer expense and maintain options regarding the participation of future property owners
- Amenability of property owners to participate in transactions
- Challenges regarding the appraisal process
- Negotiation opportunities regarding utility installation and development proposals
- Installation cost factors and future inflation
- Concern regarding usage of maintenance funds for capital expenses, and the need for development to pay for itself
- Benefits of transportation connections for the larger community
- Parameters regarding reimbursement funds

The Council's consensus was to not move forward on utility installation at this point, but to reassess in the future.

SDC Reimbursement Options

- The pros and cons of Advance Financed Public Improvement Reimbursement Districts (AFRD) versus including the cost of projects in the reimbursement component of the System Development Charge methodology (staff recommended the latter).
- Whether specific projects are included in the capital improvement plan
- Concerns regarding the length of time required to recover costs through SDCs, and the risk of possibly never recovering costs through AFRDs.
- Concerns regarding equity / fairness
- Sandy's low SDCs compared to other communities

**2. City Council Regular Meeting - Immediately Following Urban Renewal Meeting**

**3. Pledge of Allegiance**

**4. Roll Call**

**5. Changes to the Agenda**

**6. Public Comment**

Meg Stein: Expressed concerns regarding the Proud Boys, particularly relative to safety concerns raised during the recent Have a Gay Day event. Noted recent violence that occurred in Oregon City. Noted intimidation tactics and criminal records

of Proud Boy members. Stated that free speech considerations should not override safety, especially in the context of the upcoming Pride event. Urged the Council to denounce the Proud Boys.

Amaya Peralta, 18230 Seaman Ave: Manager of Students Advocating for Equality. Echoed the comments expressed above. Urged the Council to formally affirm support for the LGBTQ+ community and denouncing the Proud Boys. Stressed the importance of tolerance and respect.

Janet Michaels: Echoed the comments expressed above. Also noted harassment occurring online. Raised concerns about the Patriot Front group. Urged the Council to denounce slander and hate.

Sarah Walker Dunn, 15835 Dreamcatcher Ave: Echoed the comments expressed above. Asked that Sandy Police provide protection for the upcoming Pride event.

Christy Walker: Echoed the comments expressed above. Expressed safety concerns in light of the violence in Oregon City. Asked the City to denounce the Proud Boys.

**7. Response to Previous Public Comments**

(none at 6/7/21 meeting)

**8. Consent Agenda**

8.1. **City Council Minutes** - June 7, 2021

8.2. **Professional Audit Services Agreement**

Staff Report - 0438

8.3. **Resolution 2021-17**

Sandy Enterprise Zone Renewal

Staff Report - 0441

The **City Manager** provided an overview of the Enterprise Zone program and staff's desire to retain it as an economic development tool in the future.

**9. Resolutions**

9.1. **Resolution 2021-18**

PUBLIC HEARING (continued): Master Fee Schedule Update

Staff Report - 0439

Abstentions / Conflicts of Interest

**Councilor Walker** indicated that she would abstain due to her spouse's employment with the City.

Staff Report

The Deputy City Manager summarized the staff report, which was included in the agenda packet.

Public Comments

(none)

Council Discussion

- It may become necessary to raise stormwater fees in the future to maintain adequate funding for necessary service levels.

**Moved by Don Hokanson, seconded by Laurie Smallwood**

***Close the public hearing.***

**CARRIED. 7-0**

Ayes: Stan Pulliam, Jeremy Pietzold, Laurie Smallwood, Richard Sheldon, Kathleen Walker, Carl Exner, and Don Hokanson

**Moved by Jeremy Pietzold, seconded by Don Hokanson**

***Adopt Resolution 2021-18.***

**CARRIED. 6-0**

Ayes: Stan Pulliam, Jeremy Pietzold, Laurie Smallwood, Richard Sheldon, Carl Exner, and Don Hokanson

Abstained: Kathleen Walker

- 9.2. **Resolution 2021-20**  
Supplemental Budget - 2019-2021

Staff Report - 0445

Abstentions / Conflicts of Interest

**Councilor Walker** indicated that she would abstain from voting on the public works related portions of the supplemental budget due to her spouse's employment with the City.

Staff Report

The **Deputy City Manager** summarized the staff report, which was included in the agenda packet.

Public Comments

(none)

Council Discussion

- Review of supplemental budgets passed by the Council in the past; discussion of the fact that such supplements are very common, particularly for cities with biennial budgets.

**Moved by Laurie Smallwood, seconded by Jeremy Pietzold**

***Approve the portions of Resolution 2021-20 related to the General Fund.***

**CARRIED. 7-0**

Ayes: Stan Pulliam, Jeremy Pietzold, Laurie Smallwood,  
Richard Sheldon, Kathleen Walker, Carl Exner, and Don  
Hokanson

**Moved by Laurie Smallwood, seconded by Carl Exner**

***Approve the portions of Resolution 2021-20 related to the Sewer, Water, and Street Funds.***

**CARRIED. 6-0**

Ayes: Stan Pulliam, Jeremy Pietzold, Laurie Smallwood,  
Richard Sheldon, Carl Exner, and Don Hokanson

Abstained: Kathleen Walker

**10. Old Business**

**10.1. Bull Run Water Supply Options Decision**

Staff Report - 0442

The **City Manager** summarized the staff report, which was included in the agenda packet. Staff recommends that the City treat unfiltered Bull Run water, construct a treatment facility, and amend the Water Master Plan update scope to include further study of groundwater sources as an additional/alternative option. The Council received clarification on the

definition of the term 'desktop study,' and emphasized the importance of studying a sufficient breadth of groundwater areas.

**Moved by Don Hokanson, seconded by Richard Sheldon**

***Direct staff to notify City of Portland and the Oregon Health Authority- Drinking Water Services Program of Sandy's intent to treat unfiltered water from the Bull Run system prior to September 2027, and further direct staff to seek a proposal from Murraysmith to amend the fee and scope for the Water Master Plan Update to include a desktop study of potential groundwater resources in the Sandy area.***

**CARRIED. 7-0**

Ayes: Stan Pulliam, Jeremy Pietzold, Laurie Smallwood,  
Richard Sheldon, Kathleen Walker, Carl Exner, and Don  
Hokanson

10.2. **Pool Exploratory Task Force Bylaws Clarification**

Staff Report - 0437

The **City Recorder** provided an overview of the staff report, which was included in the agenda packet.

The Council discussed the following issues:

- The appropriateness of the name Aquatics Committee versus Community Campus Committee
- Whether to determine the future of the existing pool facility at the outset (whether it will be retained, replaced, or a hybrid option)
- The importance of the Parks and Trails Master Plan update, and the importance of the Community Campus to the community
- Integral links between the pool and the campus as a whole
- Zoning of the Community Campus
- The need for expediency and a definite timeline
- Whether these issues are too expansive for a single committee
- The role of the task force vis a vis the Council subcommittee spearheading the overarching Community Campus project
- The potential for multiple campus task forces in the future
- The scope of the task force's purpose

The consensus of the Council was that (1) the task force's bylaws should indeed be amended to state their broader mission to study multiple possible options for providing aquatics at the campus; (2) the Council subcommittee of

Councilors Hokanson, Walker, and Exner should indeed spearhead the overarching Community Campus strategy; and (3) the task force should recommend a strategic path forward for the pool by January 2022.

**Moved by Don Hokanson, seconded by Jeremy Pietzold**

***Approve the revised Pool Exploratory Task Force Bylaws (amended by Laurie Smallwood: add "direct the Task Force to recommend a strategic path forward for the pool by January 2022.")***

**CARRIED. 7-0**

Ayes: Stan Pulliam, Jeremy Pietzold, Laurie Smallwood, Richard Sheldon, Kathleen Walker, Carl Exner, and Don Hokanson

**11. New Business**

**11.1. SandyNet Advisory Board Member Appointments**

Staff Report - 0447

The **IT / SandyNet Director** summarized the staff report, which was included in the agenda packet.

The Council discussed the following issues:

- Whether Council liaisons should be voting members of advisory boards
- The particular value that Council President Pietzold could provide to this board
- Concerns related to 'double votes' if a Councilor can also vote on a board
- Concerns related to setting precedents

**Moved by Richard Sheldon, seconded by Jeremy Pietzold**

***Appoint Colin Sheridan, Don Williams, Gregory Freetage, Joe Smith, Joel Brache and Michael Horttor to the SandyNet Advisory Board as prescribed in the staff report.***

**CARRIED. 7-0**

Ayes: Stan Pulliam, Jeremy Pietzold, Laurie Smallwood, Richard Sheldon, Kathleen Walker, Carl Exner, and Don Hokanson



**Moved by Richard Sheldon, seconded by Don Hokanson**

***Amend the SandyNet Advisory Board's bylaws as recommended, not including the proposal to make the Council liaison a voting member of the board.***

**CARRIED. 7-0**

Ayes: Stan Pulliam, Jeremy Pietzold, Laurie Smallwood,  
Richard Sheldon, Kathleen Walker, Carl Exner, and Don  
Hokanson

**11.2. Wastewater Treatment Plant Improvements Project Schedule Update**

Staff Report - 0446

The **City Manager** summarized the supply chain-related delays to the project, which were outlined in the staff report in the agenda packet.

**Moved by Carl Exner, seconded by Don Hokanson**

***Accept the revised project schedule for the Wastewater Treatment Plant Improvements Project.***

**CARRIED. 7-0**

Ayes: Stan Pulliam, Jeremy Pietzold, Laurie Smallwood,  
Richard Sheldon, Kathleen Walker, Carl Exner, and Don  
Hokanson

**12. Report from the City Manager**

- Noted the continuing reopening process for City facilities.
- Summarized the planning process for the city's 100th anniversary.
- Expressed appreciation for Clackamas County Bank regarding fireworks.
- Noted that expected ARPA funds now total \$2.5 million.
- Expressed appreciation for those who provided public comments on the importance of safety and respect in the community; noted the City's commitment to maintain safety during public demonstrations.

**13. Committee /Council Reports**

Councilor Hokanson

- Expressed support for the LGBTQ community and rejection of intimidation tactics. Stressed the importance of tolerance and understanding.

Councilor Exner

- Stressed the importance of safety and opposition to intimidation.
- Highlighted plans for the City's 110th anniversary observance.
- Expressed desire for cleaning of the sculpture at Centennial Plaza.
- Provided an update on Bee City activities; proposed thanking the school district for their participation.
- Stressed the need for communication regarding the wastewater improvements project.

Councilor Walker

- Highlighted the Library's reopening plans.
- Proposed a gesture to thank Clackamas Community Bank.
- Expressed opposition to discrimination.
- Raised concerns regarding possible disruption of reserved events at Centennial Plaza.
- Suggested borrowing language from other communities regarding amendments to the development code

Councilor Sheldon

- Summarized recent meeting with the Chamber of Commerce regarding upcoming events; the City may host an upcoming Lunch and Learn.

Councilor Smallwood

- Summarized the Parks and Trails Advisory Board's work regarding invasive species concerns.
- Stressed the importance of fire safety preparedness.
- Highlighted the recent successful Career Day event.

Council President Pietzold

- Referred to the recent supply shortage of chlorine.
- Praised the covered structures program.
- Requested an update on recent state legislative activity regarding homelessness, and suggested a possible local policy response.
- Noted the upcoming opening of pickleball facilities.
- Cited the popularity of pump tracks.
- Provided an update on C-4 discussions.

Mayor Pulliam

- Expressed support for students being willing to speak up, and opposition to fear tactics. Stressed the need for everyone to adopt a welcoming attitude.
- Expressed thanks to Clackamas Community Bank.

- Praised the return of in-person meetings
- Noted the covered structure ribbon cutting at Ria's.

**14. Staff updates**

14.1. [Monthly Reports](#)

**15. Adjourn**

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Mayor, Stan Pulliam

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City Recorder, Jeff Aprati

Draft



## Staff Report

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**Meeting Date:** July 6, 2021

**From** Mike Walker, Public Works Director

**SUBJECT:** Award Contract for NPDES Permitting Support Services

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### **BACKGROUND:**

The city and its consulting engineers recently completed and presented the [detailed discharge alternatives evaluation](#) as part of the planning work on the City's significant [wastewater system improvements project](#). The studies reached a preliminary conclusion that an outfall of the recycled water into the Sandy River near Revenue Bridge is the preferred solution and location. Additionally, the studies found that as Sandy grows, the recycled water would exceed the temperature impacts threshold during certain times of year. A promising temperature mitigation strategy proposed was to discharge the treated water to wetlands that would be constructed at the former site of Roslyn Lake. There is a significant amount of environment, engineering, and other assessments that need to be completed in order to further study the discharge alternative and obtain an National Pollutant Discharge Elimination System (NPDES) permit.

To carry out this work, the City solicited proposals in May for Consulting Engineering and Environmental Services to support the application process for a NPDES permit for the new wastewater treatment facility. Proposals were due on May 28th and we received two submissions, Parametrix and West-Yost. A team consisting of City and Leeway Engineering staff reviewed and ranked the proposals and contacted references. The scoring was very close and both proposers had very positive references. The proposal from Parametrix was ranked highest by the reviewers.

We were seeking a firm that had recent experience with permitting a new, NPDES permitted wastewater discharge in Oregon and/or Washington. Parametrix has recently been successful with NPDES permit applications for the Port of Morrow in Oregon and City of Marysville in Washington. Parametrix' proposal was also strong on environmental review, technical issues and public outreach.

City and Leeway staff met during the week of the 28th and reviewed the price proposal from Parametrix. The price proposal is structured with baseline and optional tasks. Baseline tasks are the baseline necessary to submit a permit application to DEQ. Optional tasks may result from requests for additional or new information from DEQ, other regulatory agencies and the public during the application process. Optional tasks would only take place with City approval. Staff would return to Council for authorization

when additional or optional tasks are necessary to continue the process and address requests for additional information or analysis.

The baseline services in the scope of work includes a number of important studies and tasks that are critical for advancing the project. The tasks include (with a sample of the subtasks):

- Temperature Mitigation Alternatives Analysis (temperature modeling, river shade credits, cooling towers, constructed wetlands, surface aerators)
- Permitting Support (mixing zone analysis, outfall preliminary design, effluent quality analysis, Roslyn Lake hydrology and wetlands delineation, groundwater and public health assessment, NPDES application)
- Public Engagement
- Survey
- Geotechnical Support
- Cultural Resources

The Parametrix proposal, scope of work and proposed fee for required and optional tasks are attached.

**BUDGETARY IMPACT:**

The proposed fee for baseline services is \$494,173. The proposed fees for all optional tasks totaled \$874,694. There are sufficient funds in the 21-23 biennial budget for both the baseline and optional tasks.

**RECOMMENDATION:**

Authorize the City Manager to negotiate a scope of work and fee not to exceed \$494,173 with Parametrix to provide technical and environmental services associated with the NPDES permitting process for the new wastewater treatment facility.

**SUGGESTED MOTION:**

I move to authorize the City Manager to negotiate a scope of work and fee with Parametrix to provide technical and environmental services associated with the NPDES permitting process for the new wastewater treatment facility not to exceed \$494,173.

**LIST OF ATTACHMENTS/EXHIBITS:**

1. Scope of Services
2. Fee



# Proposed Fee Estimate for City Authorized Scope "B" Tasks

City of Sandy		c. simmons	m. steiner	b. pippin	d. berschauer	t. maclean	i. lapina	J. Mitzel	M. Spence	c. olson	Jenifer Young	R. Mellinger	E. Belanger	C. Tinsley	A. Romey	Labor Summary		Expenses			Subconsultants						Sub Total	Sub Markup	TOTAL			
NPDES Permitting Support		Project Manager	Deputy / Project Engineer	Permitting Lead	QA/QC / Treatment / VE	Sr Scientist/Biologist	Scientist/Biologist III	Engineer III	Sr Scientist/Biologist	Engineer III	Sr Consultant	Publications Supervisor	Sr Project Control Specialist	Sr GIS Analyst	Hydrogeologist III	Hours	Dollars	Travel	Materials	Other	Expense Total	Expense Markup	AAR (Cultural Resources)	Cascade Geoengineering (WPCF)	Cosmo. Marine Engineering (Outfall Design)	JLA Public Involvement	Shannon & Wilson (Geotech)	Wolf Water Resources (ESA/PA)	Sub Total	Sub Markup	TOTAL	
Project # 276-5073-001		230.65	185.25	262.15	351.49	198.09	149.83	145.31	207.48	128.99	304.69	129.64	138.91	128.12	142.29																	
<b>TOTAL FEE ESTIMATE</b>		\$ 31,138	\$ 10,374	\$ 54,526	\$ 4,218	\$ 2,377	\$ 15,881	\$ 15,403	\$ 14,109	\$ 5,934	\$ 3,047	\$ 259	\$ 1,111	\$ 1,025	\$ 6,545	823	\$ 165,947	\$ 1,900	\$ 500	\$ 951	\$ 3,351	\$ 168	\$ 12,720	\$ 16,730	\$ 9,820	\$ -	\$ 25,305	\$ 136,430	\$ 201,005	\$ 10,050	\$ 380,521	
2.0	Permitting Support			208		12	106	106	68	46	10	2				632	\$ 123,719		500	951	\$ 1,451	\$ 73	\$ -	\$ 16,730	\$ 9,820	\$ -	\$ -	\$ 136,430	\$ 162,980	\$ 8,149	\$ 296,371	
2.3.B.CME	CME Subtask - JPA and ESA Support (City Authorized)	20															\$ -				\$ -	\$ -	\$ -	\$ -	\$ 9,820	\$ -	\$ -	\$ -	\$ 9,820	\$ 491	\$ 10,311	
2.5.B.WWR	Permitting Support - Wolf Water Resources - (City Authorized)																\$ -				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 136,430	\$ 136,430	\$ 6,822	\$ 143,252		
2.6.B	Wetlands Delineation Services (City Authorized)																\$ -				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	Roslyn Lake area delineation (field work)					4	30									66	\$ 9,812				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 9,812
	Delineation report and concurrence					4	44					2		2	30	64	\$ 9,551		500	951	\$ 1,451	\$ 73	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 11,074
	Stream Functions and values assessment					2	16									18	\$ 2,793				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,793
	Agency site visit for concurrence					2	16									26	\$ 3,932				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,932
2.8.B	Roslyn Lake Area Hydrogeology (City Authorized)	20		200				100	60	40	10					430	\$ 92,228				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 92,228
2.9.B.CGE	Groundwater & Public Health Assessment - Cascade Geoengineering (City Authorized)																\$ -				\$ -	\$ -	\$ 16,730	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 16,730	\$ 837	\$ 17,567	
2.10.B	Agency Meetings (City Authorized)			8				6	8	6						28	\$ 5,403				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,403
3.0	Public Engagement	37														37	\$ 8,534	1,900			\$ 1,900	\$ 95	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 10,529
3.1.B	Public Engagement (City Authorized)																\$ -				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	City Council meetings, two 1-hour meetings, 1 staff, in person	4														4	\$ 923	380			\$ 380	\$ 19	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,322
	Clackamas and Sandy Watershed Council meetings, two 1-hour meetings, 1 staff, in person	4														4	\$ 923	760			\$ 760	\$ 38	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,721
	Open House, two 2-hour meeting, 1 staff, in person	20														20	\$ 4,613	190			\$ 190	\$ 10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,813
	Council Advisory Committee meeting, three 1.5-hour meetings, 1 staff, in person	9														9	\$ 2,076	570			\$ 570	\$ 29	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,674
3.2.B.JLA	Public Engagement - JLA (City Authorized)																\$ -				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
5.0	Geotechnical Support																\$ -				\$ -	\$ -	\$ -	\$ -	\$ -	\$ 25,305	\$ -	\$ 25,305	\$ 1,265	\$ 26,570		
5.1.B.SW	Geotechnical Support - SW (City Authorized)																\$ -				\$ -	\$ -	\$ -	\$ -	\$ -	\$ 25,305	\$ -	\$ 25,305	\$ 1,265	\$ 26,570		
6.0	Cultural Resources																\$ -				\$ -	\$ -	\$ 12,720	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 12,720	\$ 636	\$ 13,356	
6.1.B.AAR	Cultural Resources - AAR (City Authorized)																\$ -				\$ -	\$ -	\$ 12,720	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 12,720	\$ 636	\$ 13,356	
7.0	Project Management	78	56		12											154	\$ 33,694				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 33,694	
7.2.B	Project Management (City Authorized)																\$ -				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	bi-weekly PM meetings 1 hr., 5 hr prep/mtg, 5 hr notes																\$ -				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	action/decision/issues log	18	18													36	\$ 7,486				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,486
	invoicing, budget management, progress letters	12														12	\$ 2,768				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,768
	scheduling resources, team management, subconsultant agreements and invoices	18	18										8			44	\$ 8,597				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8,597
	change management	18	12													30	\$ 6,375				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,375
	project schedule, updating	12	8													20	\$ 4,250				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,250
	quality assurance				12											12	\$ 4,218				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,218
	<b>Total Hours</b>	135	56	208	12	12	106	106	68	46	10	2	8	8	46	823																
<b>TOTALS</b>		\$ 31,138	\$ 10,374	\$ 54,526	\$ 4,218	\$ 2,377	\$ 15,881	\$ 15,403	\$ 14,109	\$ 5,934	\$ 3,047	\$ 259	\$ 1,111	\$ 1,025	\$ 6,545	823	\$ 165,947	\$ 1,900	\$ 500	\$ 951	\$ 3,351	\$ 168	\$ 12,720	\$ 16,730	\$ 9,820	\$ -	\$ 25,305	\$ 136,430	\$ 201,005	\$ 10,050	\$ 380,521	

## SCOPE OF WORK

### NPDES Permitting Support

#### PROJECT BACKGROUND

The City of Sandy (City) has started a program to improve their wastewater collection, conveyance, and treatment system. The existing Wastewater Treatment Plant (WWTP) was first built in 1971 and was later expanded in 1998. Under the current National Pollutant Discharge Elimination System (NPDES) permit, the effluent is used for irrigation by a local nursery from May through October. From November through April, the effluent is discharged to Tickle Creek, which flows into the Clackamas River. The City of Sandy's discharge into Tickle Creek is limited by receiving stream dilution and mass load requirements under OAR 340-041-0350.

As the City grows, Tickle Creek will no longer have the capacity to handle all the City's discharge. In response, the City has searched for other solutions. The City is also considering the design and construction of a second wastewater treatment plant that would produce high-quality Class A recycled water. The City has selected Parametrix to provide temperature mitigation alternatives analysis; permitting support, including a new NPDES for discharge of the new treatment plant's treated wastewater to the Sandy River, Joint Permit Application (JPA)/Endangered Species Act (ESA) support for in-water work, and temperature mitigation permitting required for the selected alternative; and public engagement for the new Sandy River Outfall permitting.

The new outfall will be located in Sandy near Revenue Bridge (SE Ten Eyck Road), which spans the Sandy River.

#### SUBCONSULTANT SUMMARY

The following subconsultants and their respective bodies of work proposed in this contract are as follows:

Applied Archaeological Research	(AAR)	Cultural Resources
Cascade Geoengineering	(CGE)	Hydrogeology and WPCF Support
Cosmopolitan Marine Engineering	(CME)	Concept Outfall Design
JLA Public Involvement	(JLA)	Public Engagement Support
Shannon & Wilson	(SW)	Geotechnical Support
Wolf Water Resources	(WWR)	Joint Permit Application / Endangered Species Act Support

#### ESTIMATED PROJECT DURATION

Estimated project duration is 24 months. Base Scope is anticipated to extend throughout the full estimated duration of 24 months.

#### SUMMARY OF WORK BREAKDOWN

The scope includes "Base Scope" tasks and tasks which require City authorization before Parametrix can proceed. Notice to proceed on "Base Scope" items is requested and our corresponding fee is provided. The fee presented for "City-Authorized" scope is budgetary only and would be updated at the time City Authorized scope was requested by the City. Notice-to-proceed would be required for each City Authorized scope item.



## SCOPE OF WORK (continued)

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Tasks/Subtasks to be performed by subconsultants with oversight by Parametrix are noted. All other tasks/subtasks will be led by Parametrix.

This scope of work includes the following tasks and subtasks:

**Task 1: Temperature Mitigation Alternatives Analysis (Base Scope)**

Subtask 1.1A: Temperature Mitigation Alternatives Analysis (Base Scope)

Subtask 1.2A: Temperature Mitigation Alternatives Analysis – Wolf Water Resources (Base Scope)

**Task 2: Permitting Support (Combination of Base Scope and City Authorized, as noted)**

Subtask 2.1A: Data Gap Analysis (Base Scope)

Subtask 2.2A: Mixing Zone Analysis (Base Scope)

Subtask 2.3A: CME Subtask - Mixing Zone Support and Outfall Preliminary Design (Base Scope)

Subtask 2.3B: CME Subtask – JPA and ESA Support(City Authorized)

Subtask 2.4A: Predicted Treated Effluent Quality Technical Memorandum (Base Scope)

Subtask 2.5A: Permitting Support – Wolf Water Resources (Base Scope)

Subtask 2.5B: Permitting Support – Wolf Water Resources (City Authorized)

Subtask 2.6A: Permitting Support – Wetlands Delineation Services (Base Scope)

Subtask 2.6B: Permitting Support – Wetlands Delineation Services (City Authorized)

Subtask 2.7A: NPDES Application (City Authorized)

Subtask 2.8B: Roslyn Lake Area Hydrology (City Authorized)

Subtask 2.9B: Groundwater & Public Health Assessment – Cascade Geoengineering (City Authorized)

Subtask 2.10: Agency Meetings (Combination of Base Scope and City Authorized, as noted in detail below)

**Task 3: Public Engagement (Combination of Base Scope and City Authorized, as noted)**

Subtask 3.1: Public Engagement – Parametrix (Combination of Base Scope and City Authorized)

Subtask 3.2A: Public Engagement – JLA (Base Scope)

Subtask 3.2B: Public Engagement – JLA (City Authorized)

**Task 4: Survey (Base Scope)**

**Task 5: Geotechnical Support – Shannon & Wilson (Combination of Base Scope and City Authorized, as noted)**

Subtask 5.1A: Desktop Evaluation (Base Scope)

Subtask 5.2B: Borings/Field Exploration (City Authorized)

Subtask 5.3B: Geotechnical Report (City Authorized)

**Task 6: Cultural Resources - AAR (Base Scope)**

**Task 7: Project Management (Combination of Base Scope and City Authorized, as noted in detail below)**

## GENERAL ASSUMPTIONS

Assumptions applicable to all scope sections are listed here, with exceptions noted in task/subtask sections:

1. The proposed budget assumes the City team will provide all available data and documents pertinent to this contract promptly following contract/task/subtask authorization to proceed, if not before.
2. All meetings are one hour in duration unless otherwise noted.
3. The City team will provide one set of reconciled comments for each main deliverable.
4. DEQ will provide one set of reconciled comments for each main deliverable.
5. Remote (i.e., Teams, Zoom) meetings only unless otherwise noted.
6. Deliverables will be PDF electronic delivery only via email or Parametrix's secure project SharePoint site.
7. Parametrix will address one round of City's reconciled review comments in draft reports/technical memoranda.
8. All deliverables to be submitted to DEQ will be provided to the City for review in format suitable for delivery to DEQ.

## DETAILED WORK BREAKDOWN

### Task 1: Temperature Mitigation Alternatives Analysis (Base Scope)

#### Subtask 1.1A: Temperature Mitigation Alternatives Analysis (Base Scope)

##### Objectives

Engineer a solution to mitigate potential temperature impacts to the Sandy River and complete a temperature mitigation alternatives analysis in support of the NPDES permit application for a new Sandy River outfall.

##### Activities

The Alternatives Analysis will proceed sequentially through the following activities:

1. Development of a Temperature Mitigation Alternatives Analysis (TMAA) Work Plan with the following:
  - a. Summary of the planned temperature modeling approach.
  - b. Summary of alternatives to be evaluated. For more complex alternatives (i.e., discharge pipeline temperature modeling) the general evaluation approach will be described.
  - c. Establishment of approach precedent via a summary of similar analysis and approaches recently used for other municipal wastewater treatment plant (WWTP) discharges.
2. Confirmation of the required period and quantity of effluent cooling.
  - a. Plant Heat Balance: Perform a high level, 1D temperature model (heat energy balance) of the proposed plant based on similar MBRs and the Activated Sludge temperature model approach developed by J. Makinia et al and tested at the Rock Creek WWTP in Hillsboro.
  - b. Calibration and Sensitivity Analysis: A calibration and sensitivity analysis of the model will be provided using temperature data from the existing plant and other regional MBRs. Process will be documented for inclusion in the TMAA Report.

## SCOPE OF WORK (continued)

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- c. Required Cooling Capacity: Determine the cooling required to maintain the discharge temperature below the maximum allowable temperature, at the design evaluated flow on a month-to-month basis, as determined by preliminary mixing analysis, river TMDL, and projected satellite plant effluent flow.
3. Development of preliminary alternatives for technical feasibility, sizing, and cost.
  - a. Potential Solutions: Detail the potential energy/heat removal of the following passive and natural cooling solutions. Other alternatives may be considered per the conclusions of the TMAA Work Plan.
    - 1) Intrinsic Discharge Pipe Cooling
    - 2) WWTP Covers or Shading
    - 3) Blower Precoolers
    - 4) River Shade Credits: See below Subtask 1.2 for additional information.
  - b. Feasible Solutions: Determine preliminary sizing for the following active and natural cooling solutions. Other alternatives may be considered per the conclusions of the TMAA Work Plan.
    - 1) Surface Aerators
    - 2) Cooling Tower
    - 3) Geothermal Wells
    - 4) Infiltration Basin (ie Constructed Wetlands without direct discharge)
4. Lead the City through one alternatives analysis virtual meeting, and one in-person workshop to:
  - a. Present and explain the preliminary alternatives.
  - b. Identify and select non-cost and cost evaluation criteria.
  - c. Develop a consensus on the weighting factors used in the multicriteria evaluation and selection matrix.
  - d. Examine the comparative non-cost and cost value and associated rank of each of the proposed alternatives.
  - e. Select one or more alternatives for mitigating high effluent temperatures.
5. Provide a brief technical memorandum detailing the City's selected non-cost and cost-based selection criteria and weighting factors to be used in the alternatives analysis.
6. Development of draft and final TMAA Report to support NPDES permitting and selection of a preferred temperature mitigation approach.

### Assumptions

1. Within the confines of the plant, the following are anticipated as major temperature contributors: short and long wave radiation, sensible heat, evaporation, and process energy. Minor temperature contributors are mechanical energy, geothermal energy (in the plant via the basins and field piping), and precipitation.
2. Detailed thermal modeling of the discharge pipeline geothermal losses will not be performed. Thermal losses will be calculated via spreadsheet analysis, which may assume conservative heat dissipation coefficients in the absence of additional, more detailed geotechnical / geological information. Includes

## SCOPE OF WORK (continued)

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preliminary analysis to determine if there are portions of the alignment where the water table is near the surface, as the groundwater would increase the rate of geothermal cooling.

3. The previously performed Roslyn Lake site investigations and feasibility analysis has confirmed the lack of surface located, visually discernable, fatal flaws, such as existing wetland and sensitive habitat areas, which would not allow for construction of the previously proposed wetlands or infiltration ponds. No wetland field visits, determination, delineation or habitat investigations of the Roslyn Lake area will be performed as part of this alternatives analysis.
4. Cost estimates for up to eight alternatives will be provided. The cost estimate for riparian shade (credits) will be provided under Subtask 1.2 and incorporated into the broader analysis within this task. Cost estimates will be Level 4 (conceptual) estimates as defined by the Association for the Advancement of Cost Engineering (AACE).
5. The cost-based selection criteria used within the 2019 Systems Facilities Plan will be used as a starting point for the cost-based evaluation criteria.
6. One, two-hour long workshop with the City will be conducted virtually and will be attended by up to four Parametrix staff (Project Manager, Permitting Lead, TMAA Lead, and TMAA Staff Engineer). Meeting will allow for presentation and discussion of: the plant effluent temperature model results, preliminary temperature mitigation alternatives based on the required heat dissipation, selection of the evaluation criteria for cost and non-cost alternative rankings, and preliminary selection of criteria weighting factors.
7. One four-hour workshop with the City will be conducted in-person and will be attended by up to three Parametrix staff (Project Manager, TMAA Lead, and TMAA Staff Engineer). Meeting will review the associated non-cost-based value (i.e., the sum of each alternative's social and environmental criteria values x weights). Following consensus on the non-cost-based value of each alternative, a cost overlay will be applied (i.e., the sum of each alternative's economic criteria values x weights). This will allow for preliminary identification of the highest value alternatives based on all criteria. Weighting factors may be fine-tuned in real time to solidify consensus on the identified alternative values. Workshop will conclude with selection of the final alternative(s).
8. Hours are provided to allow for up to two, two-hour review meetings with up to four Parametrix staff will be conducted virtually to allow for City review of any workshop materials, technical memorandum, or reports. Currently the two review meetings are planned for review of the TMAA workplan and the Draft TMAA and Selection Report; however, unused hours may be used for review of other materials if requested by the City.

### Deliverables

1. Draft and Final Temperature Mitigation Alternatives Analysis Work Plan Memorandum
2. Draft and Final Criteria and Weighting Factors Technical Memorandum
3. Workshop materials
4. Draft and Final Temperature Mitigation Alternatives Analysis and Selection Report

## SCOPE OF WORK (continued)

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### Subtask 1.2A: Temperature Mitigation Alternatives Analysis – Wolf Water Resources (Base Scope)

#### Objectives

Assist with analyzing temperature mitigation alternatives. WWR will focus on the natural alternatives including estimation of benefits from riparian shade (credits).

#### Activities

1. Shade Credits
  - a. Review existing information including TMDL studies.
  - b. Coordinate with local conservation groups (Sandy River Basin Council, CSWCD, and Fresh Water Trust) on existing invasive species mapping and riparian restoration opportunities within the basin (informing potential shade opportunities).
  - c. Map existing areas along the mainstem Sandy River with degraded riparian shading (segment by public and private ownership).
  - d. Apply shading improvement estimates based on rule of thumb (published) estimates.
  - e. Estimate costs of riparian planting and estimated temperature mitigation.

#### Assumptions

1. Labor estimate assumes mapping of degraded vegetation (shading) is limited to 25 miles of the mainstem Sandy River in proximity to the proposed outfall.
2. Shade modeling will not be completed in this phase. If shading becomes part of the preferred alternative, shade modeling using the Shade-a-lator model (DEQ-approved method for quantifying thermal benefits from riparian shade) may be warranted and can be added.

#### Deliverables

3. Maps of shading opportunities along mainstem Sandy River
4. Contribution to the multicriteria evaluation and selection matrix
5. Contribution to the Alternatives Analysis and Selection report

### Task 2: Permitting Support (Combination of Base Scope and City Authorized)

#### Subtask 2.1A: Data Gap Analysis (Base Scope)

#### Objectives

Identify data and design needed to support the NPDES and other permit applications.

#### Activities

Evaluate existing data and the facility design status to identify any additional data collection and facility design development that might be needed to support the NPDES and other permit applications.

## SCOPE OF WORK (continued)

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### Deliverables

Informal table or list of data gaps and recommendations for discussion.

### Subtask 2.2A: Mixing Zone Analysis (Base Scope)

### Objectives

Define the mixing zone water quality constraints and develop a mixing zone work plan required for the Effluent Mixing Study. Perform the activities required to complete the Mixing Zone Analysis as identified in the approved Mixing Study Workplan.

### Activities

The Mixing Zone Analysis will proceed sequentially through the following activities:

1. Preliminary Dilution Modeling

Preliminary dilution modeling of the Revenue Bridge outfall location will be performed to estimate the effluent temperature and dissolved oxygen that would need to be maintained to meet water quality standards.

2. Mixing Study Workplan

The scope, level of detail, supporting data, and modeling methodology for the Mixing Zone Analysis will be established in the Mixing Study Workplan. Workplan development includes:

- a. Identify the Sandy River temperature, flow, and oxygen data that will be used to evaluate critical receiving water conditions.
- b. Define the approach for characterizing current and future effluent quality.
- c. Identify the databases to research to inform the environmental mapping.
- d. Plan any additional receiving water or effluent data collection, including sampling and analysis plans.
- e. Identify any activities mentioned in DEQ's mixing zone internal management directives that are not planned for this mixing study and explain their exclusion.
- f. Participate in one remote kickoff meeting with DEQ.
- g. Participate in one remote deliverable review meeting with the City team.
- h. Participate in one remote deliverable review meeting with DEQ.

The Mixing Zone Analysis will proceed sequentially according to the DEQ-approved Mixing Study Workplan as follows:

1. Environmental Mapping

Conduct environmental mapping comprising documentation of records research and site observation of critical areas and uses, including the following:

- a. Fish spawning/rearing habitat
- b. Cold water refugia for fish (e.g., cold water tributaries)
- c. Physical structures expected to attract fish (e.g., piers, outfalls, large woody debris)

## SCOPE OF WORK (continued)

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- d. Public access areas such as boat ramps, docks, or public beaches
- e. Drinking water intakes within the vicinity of the outfall and within ½ mile downstream of the outfall
- f. Other NPDES discharges upstream and downstream within ½ mile of the outfall
- g. Threatened and endangered species presence, habitat, migration pathways
- h. Other critical or sensitive areas

It is anticipated that a significant amount of the above data is available in prior studies or will be obtained through other permitting activities (Subtask 2.5).

### 2. Critical Condition Analysis

Parametrix will obtain river current speed and bathymetry data (Task 4). This, combined with existing river flow and water quality data, will provide the basis for calculating critical conditions for dilution modeling.

### 3. Effluent Characterization

Parametrix will evaluate variability in the effluent characterization results (Subtask 2.4) to estimate maximum expected temperature and minimum dissolved oxygen for dilution modeling. This is in lieu of a conventional reasonable potential analysis since effluent monitoring data for the new discharge will not be available until after the discharge is permitted and the new treatment system starts operation.

### 4. Dilution Modeling

- a. Parametrix will model the dilution of treated effluent discharged from the proposed outfall for critical and off-design conditions at the projected maximum discharge rate during the first permit cycle and at the maximum projected future flow rate with new treatment facilities.
- b. Modeling will be performed with CORMIX.
- c. Dilution modeling results will be used to request a Regulatory Mixing Zone (i.e., chronic) boundary not exceeding Oregon's guidelines or statutory mixing zone size limits for rivers.
- d. Dilution modeling results will also be used to request a Zone of Initial Dilution (i.e., acute) boundary if reasonable potential to exceed acute water quality standards is predicted through effluent characterization.
- e. For purposes of the antidegradation analysis, dilution to complete mixing will be calculated, or to the dilution needed to demonstrate that reductions in receiving water assimilative capacity will not exceed *de minimis* thresholds.
- f. Effluent temperature will be modeled as a conservative pollutant, with no evaluation of heat transfer.
- g. Temperature increases in the effluent plume and the regulatory mixing zone boundary will be calculated using respective effluent and receiving water temperatures and volumetric dilution ratios.
- h. Resulting receiving water temperature increases will provide the basis of comparison to temperature increase allocation under the new federal total maximum daily load (TMDL).
- i. Dilution rates will be evaluated along with the first order dissolved oxygen modeling results (Subtask 2.3) to evaluate dissolved oxygen compliance.

### 5. Antidegradation Analysis

## SCOPE OF WORK (continued)

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- a. Parametrix will complete the antidegradation analysis focused on achieving *de minimis* reductions in receiving water assimilative capacity resulting from the new Sandy River discharge.
  - b. Parametrix will follow DEQ guidance and memoranda pertaining to antidegradation analyses.
  - c. The existing antidegradation analysis will serve as the basis for this effort.
  - d. This effort will focus on adding the results of mixing in the Sandy River and the requested mixing zone to the prior analysis.
6. Effluent Mixing Report

Parametrix will summarize the site data, environmental mapping, critical conditions, maximum expected effluent concentrations, dilution modeling, and the antidegradation analysis in an Effluent Mixing Report reflecting the approved Mixing Study Workplan. The tentative report outline follows:

### EXECUTIVE SUMMARY

#### 1. Introduction

- 1.1 Facility Description
- 1.2 Treatment System Upgrades
- 1.3 Outfall Description

#### 2. Environmental Mapping and Beneficial Uses

- 2.1 Data Acquisition
- 2.2 Summary of Beneficial Uses

#### 3. Ambient Receiving Water Conditions

- 3.1 Site-Specific Data
  - 3.1.1 Bathymetric Survey
  - 3.1.2 Receiving Water Flow
  - 3.1.2 Current Velocity
  - 3.1.3 Density Stratification
  - 3.1.4 Receiving Water Background Quality
- 3.2 Receiving Water Critical Conditions
  - 3.2.1 Critical Flows and Current Speeds
  - 3.2.2 Critical Background Quality

#### 4. Discharge Characteristics

- 4.1 Effluent Characterization
- 4.2 Maximum Estimated Concentrations for Dilution Modeling
- 4.3 Comparison to Water Quality Standards

#### 5. Mixing Zone Modeling Analysis

- 5.1 Sensitivity Analysis
- 5.2 Mixing Zone Basis for Permit
- 5.3 Requested Mixing Zones and Dilution Factors

#### 6. Demonstration of Compliance with Water Quality Standards

- 6.1 Aquatic Life
  - 6.1.1 Compliance With Acute Standards
  - 6.1.2 Compliance With Chronic Standards



## SCOPE OF WORK (continued)

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6.2 Temperature TMDL

6.3 Antidegradation *de minimis* Analysis

### 7. Summary and Recommendations

### 8. References

#### APPENDICES

A Receiving Water Data

B Effluent Analysis

C CORMIX Modeling Files

D Antidegradation *de minimis* Analysis

The above outline is representative and subject to minor modification based on the approved mixing study work plan and on mixing zone study results. Parametrix will participate in one remote review meeting with the City and one remote review meeting with DEQ to review the effluent mixing study.

### Assumptions

The Mixing Zone Analysis task budget is based on the following assumptions:

1. Existing Sandy River temperature, flow, and water quality data will be sufficient to support the Mixing Zone Analysis.
2. Receiving water and outfall conditions can be suitably matched with an appropriate CORMIX flow classification.
3. Only aquatic life water quality criteria are exceeded in the effluent.
4. No analysis of human health criteria is planned.

### Deliverables

1. City draft, DEQ draft, and final Preliminary Modeling Summary TM.
2. City draft, DEQ draft, and final Mixing Study Workplan.
3. City draft, DEQ draft, and Final Effluent Mixing Report.

### Subtask 2.3A: CME Subtask - Mixing Zone Support and Outfall Preliminary Design(Base Scope)

#### Objectives

1. Evaluate approach alternatives to route the pipe down the riverbank entering the river, coordinating with geotechnical evaluation
2. Develop design concepts for outfall and diffuser in the river, in parallel with the mixing zone and water quality modeling

#### Activities

1. Establish preliminary pipe size, material, and anchoring criteria
2. Establish alignment and profile alternatives for river approach, including the following options:

## SCOPE OF WORK (continued)

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- a. Lay on grade with slope anchors
  - b. Shallow burial
  - c. Trenchless option
3. Develop design concepts for diffuser layout recommended from mixing zone study:
    - a. Diffuser port orientation and configuration
    - b. Preliminary drag and debris forces
    - c. Anchor concepts

### Assumptions

1. Bathymetry/topography and current measurement data provided in Task 4 Survey.
2. Mixing zone recommendations for diffuser location and configuration provided in Task 2.2 Mixing Zone Analysis.
3. Evaluation of trenchless feasibility and slope excavation methods required. Coordination will occur with Shannon & Wilson (Task 5 Geotechnical Support).

### Deliverables

1. Plan view of potential pipe route(s) – one 11x17 sheet
2. Section view of pipe profile alternatives – one 11x17 sheet
3. In-river design concepts – with sections.
4. TM documenting design development alternatives and recommendations
5. Written Project Description submitted to permitting team for JPA and BA.
6. Text and tables documenting DO evaluation to be incorporated in Parametrix's mixing zone water quality report.

### Subtask 2.3B: CME Subtask – JPA and ESA Support (City Authorized)

### Objectives

1. Develop project description that will support development of the JPA and Biological Assessment (BA).
2. Support mixing zone analysis by evaluating dissolved oxygen (DO) deficit in Sandy River.

### Activities

1. Develop a *Project Description* that will be used by the permitting team to assess construction impacts as necessary for the JPA and BA:
  - a. Drawings showing preliminary pipe and diffuser location, and trench and anchoring concepts
  - b. Methods of construction/trenching down the riverbank.
  - c. Methods of construction within the river, including diversion and work area isolation.
  - d. Anticipated construction equipment and durations.
  - e. Outline of construction BMPs for work in and adjacent to river

## SCOPE OF WORK (continued)

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2. Run spreadsheet-based Streeter-Phelps model to estimate DO for evaluation of:
  - a. Initial DO deficit due to effluent DO,
  - b. Downstream DO sag due to CBOD and NBOD loads,
  - c. Sensitivity analysis varying the above criteria plus WWTP effluent temperature.

### Assumptions

Same assumptions as for Subtask 2.3A.

### Deliverables

1. Written Project Description submitted to permitting team for JPA and BA.
2. Text and tables documenting DO evaluation to be incorporated in Parametrix's mixing zone water quality report

### Subtask 2.4A: Predicted Treated Effluent Quality Technical Memorandum (Base Scope)

### Objectives

Predict treated effluent quality from the new Class A recycled water satellite wastewater treatment facility using existing data from MSA Basis of Design Report, bench-scale testing, engineering calculations, and data from other similar existing treatment systems.

### Activities

1. Review existing MSA Basis of Design Report.
2. Research and summarize influent and effluent quality information from other similar operating facilities, including existing MBR facilities such as City of Shelton, City of Duvall, and City of Canyonville.
3. Summarize information from previous bench testing of Class A recycled water treatment plants performed by common manufacturers such as Kubota and Zenon.
4. Develop draft and final technical memorandum; incorporate City and DEQ comments.

### Assumptions

1. This will be a desktop study using available information from previous studies, data bases, and other literature resources.
2. Influent wastewater characteristics will be assumed to be accurate as per the MSA Basis of Design report.
3. Data to be provided by existing facilities: Flow, BOD, TSS, DO, nitrogen.
4. Temperature projections assumed to be handled in Task 1 Temperature Mitigation Alternatives Analysis.

### Deliverables

Predicted treated effluent quality technical memorandum - City draft, DEQ draft, final.

## SCOPE OF WORK (continued)

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### Subtask 2.5A: Permitting Support – Wolf Water Resources (Base Scope)

#### Objectives

1. Conduct initial agency coordination.
2. Conduct desktop environmental reviews to identify potential fatal flaws or other issues with the proposed outfall location to inform the JPA development and ESA consultation.

#### Activities

1. JPA Desktop Studies and Initial Agency Outreach

WWR will perform the following desktop review of existing environmental data to identify potential issues with the proposed design and siting of the outfall location (excludes conveyance pipeline and conveyance pipeline to Roslyn Lake) to minimize environmental impacts and permit complications.

- a. Desktop review of existing data of wetland and other waters of the US or State. Datasets include NWI, local wetland inventories, and publicly available aerial photos.
- b. Desktop review of federally listed species and designated critical habitat located at the project site and within the project vicinity.
- c. Team and client coordination to review desktop study findings (conference call and emails).
- d. Participation in initial agency coordination calls.

2. ESA Desktop Studies and Initial Agency Outreach

WWR will perform the following desktop review of existing environmental data to identify potential issues with the proposed design and siting of the outfall location to minimize environmental impacts and permit complications.

- a. Team and client coordination to review desktop study findings (conference call and emails).
- b. Participation in initial agency coordination calls..

#### Assumptions

1. The desktop studies will only cover the area affected by the outfall below ordinary high water (OHW).
2. GIS data files of proposed outfall and other existing pertinent data will be provided by the client.
3. Initial coordination with USACE, DSL, and DEQ will be conducted by phone or email with regulatory staff to verify the required permits, processes, standards, and criteria.
4. Assume up to four conference calls, plus email correspondence.

#### Deliverables

1. Desktop wetlands and waters of the U.S. review summary and figure.
2. Desktop endangered species and critical habitat review summary and figures.

## SCOPE OF WORK (continued)

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### Subtask 2.5B Permitting Support – Wolf Water Resources (City Authorized)

#### Objectives

1. Advance the desktop outreach performed in subtask 2.5A and submit JPA and ESA permit applications for a new Sandy River outfall.
2. Provide JPA and ESA permit applications for the Roslyn Lake area should it be selected as the preferred temperature mitigation alternative.

#### Activities

1. Development and Submission of Joint Permit Applications and Agency Coordination for the Outfall
  - a. Continued coordination with USACE, DSL, DEQ, and U.S. Environmental Protection Agency (EPA). Assume up to eight meetings.
  - b. Host a pre-application meeting with regulatory agencies.
  - c. Submit pre-filing meeting request to DEQ.
  - d. Develop JPA permit application to be submitted for the following permits:
    - 1) USACE CWA Section 404 and Section 10
    - 2) Oregon DSL Removal-Fill permit
    - 3) Oregon DEQ CWA Section 401 for construction impacts only
2. Development and Submission of Joint Permit Applications and Agency Coordination for Roslyn Lake
  - a. Continued coordination with USACE, DSL, DEQ, and EPA. Assume up to eight meetings.
  - b. Host a pre-application meeting with regulatory agencies.
  - c. Submit pre-filing meeting request to DEQ.
  - d. Develop JPA permit application to be submitted for the following permits:
    - 1) USACE CWA Section 404 and Section 10
    - 2) Oregon DSL Removal-Fill permit
    - 3) Oregon DEQ CWA Section 401 for construction impacts only
3. Perform ESA Section 7 Consultation with NMFS and USFWS for the Outfall

SOW includes BA development and submittal. Response to agency comments will be included in the next phase.

  - a. Continued coordination with NMFS, USFWS, and ODFW. Assume up to eight meetings.
  - b. Host a pre-application meeting with regulatory agencies.
  - c. Initiation of consultation with NMFS and USFWS.
  - d. Development and submittal of a Biological Assessment for review by USFWS and NMFS.
4. ESA Section 7 Consultation with NMFS and USFWS for Roslyn Lake

## SCOPE OF WORK (continued)

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SOW includes BA development and submittal. Response to agency comments will be included in the next phase.

- a. Continued coordination with NMFS, USFWS, and ODFW. Assume up to eight meetings.
- b. Host a pre-application meeting with regulatory agencies.
- c. Initiation of consultation with NMFS and USFWS.
- d. Development and submittal of a Biological Assessment for review by USFWS and NMFS.

### Assumptions

1. Pre-Application Meeting with USACE, DEQ, DSL, NMFS, USFWS, and ODFW representatives will occur virtually via web conference.
2. Assume up to eight (8) meetings with agency staff per permit application or ESA consultation
3. Engineering details, plans, calculations, and quantities will be provided by the client for permit applications.
4. The JPA permit application will be submitted to USACE, DEQ, and DSL.
5. Responses to agency comments, requests for additional information, and public comments for the JPAs and BAs will be completed under supplemental task authorization due to the unknown scope required.
6. The JPAs will cover Section 401 for the construction of the project only. Additional Section 401 reviews relating to the NPDES permit will be covered under the NPDES permit task.
7. The BAs will be submitted to NMFS and USFWS for review.
8. The JPAs and BAs will be developed based on 30% designs.

### Deliverables

1. Draft and final Biological Assessments; one for the new Sandy River outfall and one for Roslyn Lake
2. Draft and Final Joint Permit Application; one for the new Sandy River outfall and one for Roslyn Lake

### Subtask 2.6A: Wetlands Delineation Services (Base Scope)

#### Objectives

1. Delineate the Ordinary High-Water Mark (OHWM) of the Sandy River in the proposed project area and develop a waters functions and values assessment. The delineation of OHWM is required to document project impacts to aquatic resources and to support preparation of the JPA for the DSL and the USACE. A waters functions and values assessment is also required to inform the mitigation approach required for permitting.

#### Activities

1. Parametrix will delineate jurisdictional OHWM of the west side of Sandy River up to 300 feet upstream and up to 300 feet downstream from the outfall location. Parametrix will determine the OHWM elevation based on field indicators as defined by the USACE in 33 CFR § 328.3(e) and by DSL in OAR 141-085-0515(3). Parametrix will flag OHWM elevations for professional survey.

## SCOPE OF WORK (continued)

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2. Parametrix will complete a waters functions and values assessment. The Sandy River is not a wadeable stream per *Stream Function Assessment Method for Oregon (SFAM) Version 1.1* (EPA 2020) guidance, and therefore a Best Professional Judgement (BPJ) approach to the waters functions and values assessment will be applied.
3. Parametrix will prepare a brief technical memorandum which will be provided to DSL and USACE as an attachment to the JPA. The memorandum will include methods, supporting field data, results, photographs, and a site map.
4. Parametrix will conduct a reconnaissance site visit and complete wetland and waters determination to the level of detail needed for alternative analysis, including the approximate boundaries of jurisdictional wetlands and waters.
5. Parametrix will prepare a technical memorandum describing the wetland and waters determination results. The memorandum will include supporting field data, photographs, and site maps.

### Assumptions

1. Site access will be arranged by the client.
2. Fieldwork and travel will require no more than one 8-hour day for one scientist.
3. Waters functions and values will be assessed using an acceptable BPJ method.
4. Site access will be arranged by the client.
5. Determination is intended to support the alternatives analysis and early planning only and is not intended to support permitting or advanced design.

### Deliverables

1. Draft and Final Sandy River Jurisdictional Aquatic Resource Assessment Technical Memorandum
2. Draft and final Wetland and Waters Determination Technical Memorandum

### Subtask 2.6B: Wetlands Delineation Services (City Authorized)

### Objectives

1. Should the Roslyn Lake temperature mitigation alternative be selected, delineate Roslyn Lake wetlands and waters to support JPA preparation and obtain concurrence on the delineation from DSL and USACE.

### Activities

1. Parametrix will conduct a field investigation to delineate boundaries of wetlands and waters associated with Roslyn Lake in accordance with the criteria and methods described in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) (USACE 2008). Parametrix will collect data at paired wetland-upland sample plots as required by DSL and USACE.
2. Limits of waters will be delineated by observation of field indicators of the OHWM per OAR 141-085-0515(3).
3. Parametrix will flag the boundaries of wetlands and OHWM elevations for professional survey.

## SCOPE OF WORK (continued)

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4. Parametrix will prepare a Wetland and Waters Delineation Report for the project site in the approved DSL format. Report graphics will include a site location map, tax lot map, National Wetland Inventory (NWI) map, soil survey map, and a site map depicting the boundaries of wetlands and waters and locations of plot and photograph data. The report will also include data forms, photographs, and other relevant data in appendices.
5. Parametrix will submit the Wetland and Waters Delineation Report to the DSL for concurrence and to USACE for an approved jurisdictional determination (AJD).
6. Parametrix will assess wetland functions and values using the *Oregon Rapid Wetland Assessment Protocol (ORWAP) Version 3.2* (Adamus and Verble 2020).
7. Parametrix will assess waters functions and values using *Stream Function Assessment Method for Oregon (SFAM) Version 1.1* (EPA 2020).

### Assumptions

1. Site access will be arranged by the client.
2. Fieldwork and travel will require no more than 4 days for a team of two scientists.
3. Preliminary data collected during wetland and waters determination (Subtask 2.6A) will be used to streamline field effort.
4. Parametrix will pay the DSL delineation review fee of \$475 with reimbursement from client.
5. Parametrix will order historic aerial photographs to describe land use and site alteration. Parametrix will pay the fee up to \$250 with reimbursement from client.
6. Coordination with the DSL and USACE will likely require a site visit. A site visit will take no longer than one day.
7. Obtaining DSL concurrence can take 120 days (or longer).
8. Obtaining an AJD from USACE is optional depending on whether jurisdiction of aquatic resources is in question. Obtaining a USACE AJD can take up to 60 days (or longer).
9. Up to 4 ORWAP assessments and one SFAM assessment will be completed.
10. ORWAP and SFAM assessment data will be provided in electronic format over email or FTP site to the client and to agencies. A summary of results will be provided in the JPA.

### Deliverables

1. Draft and Final Wetland and Waters Delineation Report in DSL format
2. ORWAP and SFAM assessment data in electronic format
3. ORWAP and SFAM summary data table for use in the JPA



## SCOPE OF WORK (continued)

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### Subtask 2.7A: NPDES Application (Base Scope)

#### Objectives

Develop a complete, well-supported NPDES permit application that is consistent with DEQ expectations for the project.

#### Activities

The following activities are planned:

1. Complete and check all application forms.
2. Assemble and compile all supporting studies and reports.
3. Advise DEQ of application status and confirm scope of supporting studies and reports.

#### Assumptions

1. The City team will provide one set of reconciled comments on the NPDES application package.
2. Meetings will be remote (i.e., Teams, Zoom) only.

#### Deliverables

City draft and final NPDES application package.

### Subtask 2.8B: Roslyn Lake Area Hydrology (City Authorized)

#### Objectives

Complete the hydrogeologic evaluation initiated and led by Cascade Geoengineering (Subtask 2.9B), develop the wetland conceptual design, develop the WRD registration and Recycle Water Use (RWU) Plan, and develop the appropriate discharge permit, either WPCF or NPDES.

#### Activities

The following activities are planned:

1. Coordinate and support the site hydrogeologic investigation, to be led by Cascade Geoengineering (Subtask 2.9B).
2. Develop the wetland conceptual design sufficiently to quantify the infiltration rate and water balance.
3. Develop the RWU registration with DEQ's Water Resources Department.
4. Develop the RWU Plan.
5. Develop the WPCF permit application (discharge to groundwater) or add Roslyn Lake Area to the NPDES permit application prepared under Subtask 2.7B.
6. Coordinate with DEQ and WRD to confirm appropriate level of supporting data and studies for registrations and permit applications.

## SCOPE OF WORK (continued)

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### Assumptions

1. Permit applications will be submitted per agency requirements.

### Deliverables

1. Hydrogeologic report
2. RWU Registration, City draft and final.
3. RWU Plan, City draft, DEQ draft, final.
4. Discharge permit application (WPCF or add to NPDES), City draft, final.

### Subtask 2.9: Groundwater and Public Health Assessment – Cascade Geoengineering (City Authorized)

### Objectives

1. Preparation of Groundwater and Public Health Assessment
  - a. Provide geologic and hydrogeologic consulting services related to the potential to surface discharge treated effluent to the Roslyn Lake Site (Site) located near the City of Sandy and for the potential for adverse impacts to Site area groundwater as a result of seepage of surface discharged effluent.
  - b. The effluent potential impacts to groundwater for the proposed Site are required to meet Oregon Department of Environmental Quality (DEQ) requirements contained in Oregon Administrative Rule (OAR) 340-071-0520 regarding a groundwater characterization and public health assessment as it would pertain to the potential need for a Water Pollution Control Facility permit, issued and regulated by DEQ.

### Activities

1. CGE will coordinate with the City of Sandy, Parametrix, and DEQ during project on-site investigations and report preparation.
2. CGE will conduct up to two (2) one-day site visits for on-site observation, documenting and sampling of encountered geologic materials within the identified surface discharge area(s) of Roslyn Lake. CGE will need assistance from the City for at least one of these site visits to allow for an understanding of the likely extent of the impact of proposed Site modifications, including, but not limited to, discharge/ponding locations, areal extent of proposed surface ponding, anticipated depth above/below existing ground surface conditions for pond areas, and nature of the effluent inflow and outflow locations. The second anticipated Site visit with CGE is anticipated to require a backhoe to install up to 6 test pits at the site to a depth of up to 12 feet each.
3. Conduct a review of published geologic reports, driller logs on file with the Oregon Water Resources Department, previous Project area reports on file with the DEQ, and previous site characterization reports for the Project area and up to 2 miles surrounding the Project area. Site specific details, including a characterization of likely effluent concentrations, site mapping, proposed sewage pre-treatment systems, and potential effluent loading will be provided by Parametrix and/or the City of Sandy.
4. Prepare up to two generalized geologic cross-sections of the Project area that include the likely depth to groundwater and overlying geologic materials for use in evaluating the potential for effluent impacts to the local and regional groundwater system.

## SCOPE OF WORK (continued)

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5. Based on the information obtained in Tasks 1-4 above, prepare a DRAFT groundwater and public health assessment report for review by the City of Sandy and Parametrix. Upon review and comments from the City and Parametrix, finalize the groundwater and public assessment report and submit up to 4 copies of the report with flash drives enclosed with each for submittal to DEQ (draft and final).
6. CGE will participate in project meetings with the City and Parametrix as needed; it is assumed up to 4 meetings may occur to review the site conditions, potential Project development concepts and to review the DRAFT groundwater and public health assessment report. These meetings are anticipated to occur via conference call.

### Assumptions

1. CGE will provide the listed activities in preparation of a groundwater and public health assessment as required by DEQ within 120 days or receiving written authorization to proceed.
2. The cost of a backhoe and operator is not included in this cost estimate. It is assumed that the City of Sandy would provide a suitable backhoe and operator. CGE can provide a backhoe and operator at rates that can be provided.

### Deliverables

Draft and Final Groundwater and Public Health Assessment Report

### Subtask 2.10: Agency Meetings (Combination of Base Scope and City Authorized)

### Objectives

Coordinate with permitting agencies at appropriate times throughout the permit application process. Subtask 2.10 Agency Meetings allows for agency meetings not covered within other subtasks.

### Activities

Schedule and conduct meetings with DEQ and other permitting agencies.

### Assumptions

1. Meetings will be remote (i.e., Teams, Zoom) only.
2. Provides 56 hours of Parametrix staff time for agency meetings not specified in other subtasks for permitting coordination.
3. Parametrix staff time is split evenly between Base Scope and City Authorized.

### Deliverables

Meeting summaries, one draft only.

## SCOPE OF WORK (continued)

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### Task 3: Public Engagement (Combination of Base Scope and City Authorized)

#### Subtask 3.1: Public Engagement – Parametrix (Combination of Base Scope and City Authorized)

##### Objectives

Assist with keeping the public informed and involved about the new Sandy River outfall permitting process by supporting the Sandy Wastewater Program outreach strategy.

##### Activities

1. Develop general FAQ responses, specifically around permitting
2. Update existing permitting schedules and permitting-focused graphics (to be provided by the City)
3. Prepare for, attend, and give presentations to City Council, Clackamas, and Sandy Watershed Council meetings (3 meetings, 1 staff), and open houses.
4. Prepare for and attend Council Advisory Committee for permitting updates and discussions.

##### Assumptions

1. All meetings are assumed to be virtual except open houses.
2. City Council meetings are assumed to be up to four meetings, attended by one Parametrix staff, one hour in duration.
3. Clackamas and Sandy Watershed Council meetings are assumed to be up to two meetings total, attended by one Parametrix staff, one hour in duration.
4. Open Houses are assumed to be up to four meetings, attended by one Parametrix staff, 2 hours in duration.
5. Council Advisory Committee meetings are assumed to be up to six meetings, attended by one Parametrix staff, 1.5 hours in duration.
6. No notes or agendas for any meetings will be provided.
7. Facilitation and strategy for meetings will be led by others.

##### Deliverables

PowerPoint presentations including talking points, one for each meeting.

#### Subtask 3.2A: Public Engagement – JLA (Base Scope)

##### Objectives

The objective of this task is to support the City and Parametrix in their efforts to educate and inform the broad public about the goals of the Sandy River Outfall, while creating a focused engagement program for neighboring communities and other potentially impacted stakeholders.

The delineation between base scope and city authorized proposed is provided in the fee schedule.

## SCOPE OF WORK (continued)

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### Activities

1. JLA will work collaboratively with City staff and Parametrix to carry out support for public information materials and initial public engagement events.
2. This scope assumes contribution from City staff related to providing initial content for informational materials, and review and editing of materials.
3. The following tasks represent work to be completed by JLA Public Involvement:
  - a. Public Information Materials: JLA will create one fact sheet in plain language for City staff and the consultant team to use when attending events and meeting with stakeholders.
  - b. Public Engagement Events: JLA will host up to two (2) in-person public engagement events for the broad public to learn about the Sandy River Outfall, proposed options and changes, potential impacts, and purpose/benefits. These events will also provide an opportunity for stakeholders to share their concerns, questions, and comments.

### Assumptions

Deliverables indicated in this scope and accompanying budget are for JLA only.

1. One fact sheet handout is included. Assumes one review draft and one final draft.
2. The consultant will provide the City with both a print and digital ready handout as well as native files.
3. Assumes 2 JLA staff will attend events

### Deliverables

1. Informational handout/fact sheet
2. Up to two (2) public engagement events and summary report

### Subtask 3.2B: Public Engagement – JLA (City Authorized)

Upon client request and approval, the following activities are suggested for future engagement efforts:

1. Additional in-person public engagement events to promote online open houses
2. Website and social media content
3. Postcard mailer(s)
4. Stakeholder interviews
5. Presentations to existing community groups and area clubs
6. Stakeholder list maintenance
7. Up to three online open houses
8. Informational videos
9. Press release support
10. Educational signage
11. Engagement summary and next steps memo

## SCOPE OF WORK (continued)

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### Task 4: Survey (Base Scope)

#### Subtask 4.1: Survey (Base Scope)

##### Objectives

Obtain high resolution mapping of the riverbed and bankside to support the mixing zone study and outfall design development.

##### Activities

1. Perform bathymetric survey of Sandy River using Hydrone remote boat to measure riverbed surface.
2. Establish horizontal and vertical survey control, provide a description of the spatial reference system utilized, and topographic information for surfaces above the Sandy River. Topographic and site improvement information to include but not limited to:
  - a. Ground elevations at a density to achieve 1' contours per National Map Accuracy Standards
  - b. Existing site features and improvements
  - c. Visible and located utilities

##### Assumptions

1. Limits of bathymetric survey to be 50 feet upstream and downstream of the Revenue Bridge.
2. Limits of traditional survey to be:
  - a. 50 feet upstream and downstream of the Revenue Bridge
  - b. Revenue Bridge
  - c. Right-of-way along Ten Eyck Rd from the Sandy River to 10 feet beyond the top of bank
3. Utility potholing is not a part of this scope.
4. No boundary or right-of-way delineation will be done as part of this scope.
5. No easement or title research will be done as part of this scope.

##### Deliverables

The deliverable for Task 2 is a topographic base map prepared in AutoCAD Civil 3D.

### Task 5: Geotechnical Support (Combination of Base Scope and City Authorized)

#### Subtask 5.1A: Desktop Evaluation (Base Scope)

##### Objectives

The purpose of Shannon & Wilson's scope is to advise the design team on geotechnical issues and feasibility related to the conceptual design that will form the basis of the NPDES permit.

##### Activities

1. Review readily available geologic maps and subsurface information such as geotechnical borings from the Revenue Bridge (if available from the Oregon Department of Transportation or provided by the City).
2. Perform a site reconnaissance to observe rock outcrops, slopes, potential staging areas for construction equipment, and other geotechnically relevant features.
3. Provide a discussion of geotechnical considerations for the open-cut and trenchless installation alternatives. Specifically, we will provide considerations consisting of the following:
  - a. Geotechnical considerations for rock anchors that may be used to attach the diffuser to the riverbed.
  - b. Feasibility of open-cut pipeline construction through rock.
  - c. Evaluation of potential staging areas on both ends of the bore (entry and exit) that are sufficiently large enough to accommodate equipment material storage, and pipe assembly for auger-bore, micro tunneling, and horizontal directional drilling (HDD).
  - d. Minimum overburden requirements to mitigate potential release of drilling fluid (i.e., frac-out) to the ground surface during HDD installation.
  - e. Feasible drill entry/exit angles and bending radius to be considered for HDD drill path geometry based on pipe limitations and equipment and drill steel limitations.

##### Assumptions

1. A site reconnaissance will be performed to provide an opinion, based on observable surficial features, of the site slope stability and potential required mitigation methods if slope stability hazards are observed. A detailed slope stability analysis is not included in this scope.
2. Conceptual plans will be developed by others, with geotechnical components reviewed by Shannon & Wilson.
3. Site survey and CAD files will be provided by others. If the site survey does not cover the full extent of the potential alignment, publicly available LiDAR will be used.

#### Subtask 5.2B: Borings/Field Exploration (City Authorized)

##### Objectives

1. Shannon & Wilson has included this optional scope item for a geotechnical exploration.
2. For certain trenchless installation alternatives, the rock mass parameters, hydrogeologic parameters, compressive strength, and abrasivity may influence the technical and economic feasibility. Accordingly, we have prepared this optional scope item to help advise the design team on geotechnical issues related to the conceptual design of the trenchless alternatives.

## SCOPE OF WORK (continued)

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### Activities

1. Advance one boring to a maximum depth of 80 feet using HQ-Wireline drilling using a track mounted Geoprobe equipped with SPT sampling and rock coring. We assume 1 day of excavator support will be required for positioning the drill rig.
2. Borehole optical and acoustic viewer logging to observe rock jointing, dipping angle, and dipping direction, in an effort to determine in adverse rock jointing is present at the borehole location.
3. Full wave sonic logging to provide p and s wave velocity of the rock at the borehole location.
4. Perform a laboratory testing program consisting of Unconfined Compressive Strength Testing and Cerchar Abrasivity Testing.

### Assumptions

1. Site access, right of entry and any necessary environmental or archeologic permits will be obtained by others, if necessary.
2. Soils are uncontaminated and will be drummed and disposed of at a site that will accept clean fill.

### Subtask 5.3B: Geotechnical Report (City Authorized)

1. Shannon & Wilson will document our findings from Task 5.1 and, if authorized, Task 5.2, in a technical memorandum.
2. Our draft report will be available 4 weeks after notice to proceed or 4 weeks after completion of laboratory testing (if the optional exploration is authorized and performed).
3. We will finalize the report 2 weeks after receiving comments.

### Task 6: Cultural Resources (City Authorized)

#### Subtask 6.1B: Cultural Resources (City Authorized)

### Objectives

1. Become familiar with the aspects of the project that pertain to cultural resources.
2. Convey to the agencies with jurisdiction over the project through a written report a thorough and sophisticated understanding of pre-contact and historic era land use systems in effect at the project area to assess the potential that it will or will not contain cultural resources.
3. Provide information related to where previous archaeological research has been conducted and where archaeological sites have been discovered and recorded, and where they can be expected to be found. This knowledge will provide the basis for recommendations for additional project-related cultural resource investigations, as appropriate.

### Activities

1. Review previously prepared project reports and technical memoranda related to the project.
2. Review pertinent site distribution maps, site form files, and reports on previous archaeological research for the project area and its environs on file at the Oregon SHPO using its Oregon Archaeological Records Remote Access web portal. In addition, pertinent records, documents, maps, and literature related to the natural and cultural history of the project area will be reviewed.



## SCOPE OF WORK (continued)

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3. Initiate and maintain contact between AAR and Parametrix, and with affected parties that may include Native American tribes and the Oregon State Historic Preservation Office (SHPO).
4. Prepare a report that will include a statement of goals, context statements, a description of research methods, data analysis and interpretations, and recommendations.

### Assumptions

1. This task will orient AAR geographically and to the project requirements, as well as identifying the agencies that have jurisdiction of the project and the Native American tribes that have interest in it.
2. This task may include participation in up to four meetings or conference calls.

### Deliverables

Draft and final Cultural Resources Report. The report would be illustrated with figures and supplemented with tables and appendices as appropriate. The report will include an inadvertent discovery plan (IDP) as an appendix.

### Task 7: Project Management (Combination of Base Scope and City Authorized)

#### Subtask 7.1: Project Management (Combination of Base Scope and City Authorized)

### Objectives

1. The objective of this task is to provide overall project management of the consultant contract with the City of Sandy.
2. The delineation between base scope and city authorized proposed is provided in the fee schedule.
3. This task includes general management functions that include the following:
  - a. Project Planning – Document and communicate the scope of work, budget, and schedule as a road map for the project team. Coordinate project team and issues throughout the project.
  - b. Budget and Schedule Tracking – Track the project budget using Parametrix in-house tools to verify that progress is keeping pace with spending.
  - c. Bi-weekly design team meetings with an issues list to document project design decisions.
  - d. Monthly Progress Reports – Prepare a monthly invoice for services performed by Parametrix.
  - e. Correspondence – Prepare written correspondence as needed to document project management issues and/or concerns.

### Activities

1. Prepare and maintain the project schedule.
2. Prepare monthly billing review and invoices.
3. Participate in project status meetings with the City and City's Representative.
4. Conduct subconsultant management and contracting.
5. Provide monthly administrative project support (task set-up, filing, communications).

## SCOPE OF WORK (continued)

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### Assumptions

1. Provides up to 24 months of project management services; assumes base scope duration extends 24 months.
2. Budget assumes bi-weekly project management meetings, virtual, including up to two Parametrix staff.
3. Subconsultant contracting is limited to six firms, including:
  - a. Cultural resources
  - b. Hydrogeology/WPCF support
  - c. Outfall concept design support
  - d. Public engagement support
  - e. Geotechnical engineering
  - f. JPA/ESA permitting support
4. Oversight and review of subconsultant products is included in task-specific budgets.
5. Task and design management of technical work is included in task-specific budgets.

### Deliverables

1. Baseline project schedule.
2. Monthly invoices with progress report.
3. Monthly project status meeting and notes (one meeting, virtual).
4. Action and decision log.



## Staff Report

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**Meeting Date:** July 6, 2021

**From** Mike Walker, Public Works Director  
Approve Guaranteed Maximum Price Proposal #1 for Existing

**SUBJECT:** Wastewater Treatment Plant Improvements Project

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**BACKGROUND:**

On December 21, 2020, the Council adopted findings approving the use of a modified Construction Manager / General Contractor (CM/GC) procurement method for the wastewater treatment plant improvement project. This procurement method provides several advantages for the City, not the least of which is substantial time savings. The CM/GC method allows the City's contractor, Slayden Construction, to develop a guaranteed maximum price (GMP) for each work package, which must be approved by the City.

Upon Completion of the 100% design for GMP Package #1, Slayden developed a price proposal for the work in this package. GMP #1 consists primarily of improvements to the existing aeration basins, various electrical upgrades and rehabilitation of the clarifiers. It is the first and largest GMP package (of three total) and will complete the projects most critical to increasing plant capacity and improving plant performance. The engineer's estimate (developed upon completion of 90% design) for these improvements was \$1,973,333. Slayden's GMP proposal is \$4,542,468.

The difference between the price and the estimate is attributed to rapidly escalating construction costs resulting from pent-up demand during the pandemic. Steel and aluminum tariffs established in 2018 remain in effect and requirements to use iron and steel from domestic suppliers limits the number of bidders. The tight time frame for completing work on at least one clarifier and one aeration basin prior to November 1 increases the contractor's risk and therefore the price. If the Council decides to approve the price for this package it is important to award the contract on July 7th in order to keep the project on schedule.

The attached Technical Memorandum from Leeway Engineering describes in greater detail the external factors that are influencing the project cost. Brittany Park with Leeway will review the Tech Memo with the Council during the meeting.

Since the CM/GC delivery method is a team approach we have asked representatives from Slayden, West-Yost and our Owner's Rep, Leeway Engineering to provide a brief presentation on the construction cost environment and the team's efforts to reduce scope and cost.

**BUDGETARY IMPACT:**

The GMP for Package 1 exceeds the budget by \$2,492,468. As outlined in the tech memo, there are options to shift some project components out to later years to mitigate this added expense during this biennium. The project team will also be working on updating the project's funding plan and budget given the cost escalations but also with the news of the direct funding from the Oregon state legislature.

**RECOMMENDATION:**

Authorize the City Manager to sign an agreement for GMP package #1 with Slayden Construction in the amount of \$4,542,468.

**SUGGESTED MOTION:**

I move to authorize the City Manager to sign an agreement for GMP Package #1 with Slayden Construction in the amount of \$4,542,468.

**LIST OF ATTACHMENTS/EXHIBITS:**

1. Budget and cost evaluation memo from Leeway Engineering.
2. GMP#1 proposal - (Final) from Slayden Construction



# Project Budget Summary

Prepared for: Jordan Wheeler, City Manger  
Mike Walker, Public Works Director  
City of Sandy, OR

Project: Existing WWTP Condition Improvements Project

Author: Brittany Park, PE  
Leeway Engineering Solutions LLC (Leeway)

Reviewer: Rob Lee, PE, PMP  
Leeway Engineering Solutions LLC

Date: June 29, 2021

Subject: Project Budget Evaluation

## Contents

Introduction .....	1
Overview of Existing WWTP Project Budget.....	2
Background Information.....	2
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## Introduction

The City of Sandy, Oregon (City) is upgrading the existing Wastewater Treatment Plant (WWTP) processing facilities to provide greater ease of operability, worker safety, and environmental permit compliance. This project is part of a greater effort in Sandy to improve the wastewater system.

This Technical Memorandum provides an overview of the project budget exceedances, analysis of the exceedances, impacts to the wider wastewater program, and provides recommendations on how to proceed.

## Overview of Existing WWTP Project Budget

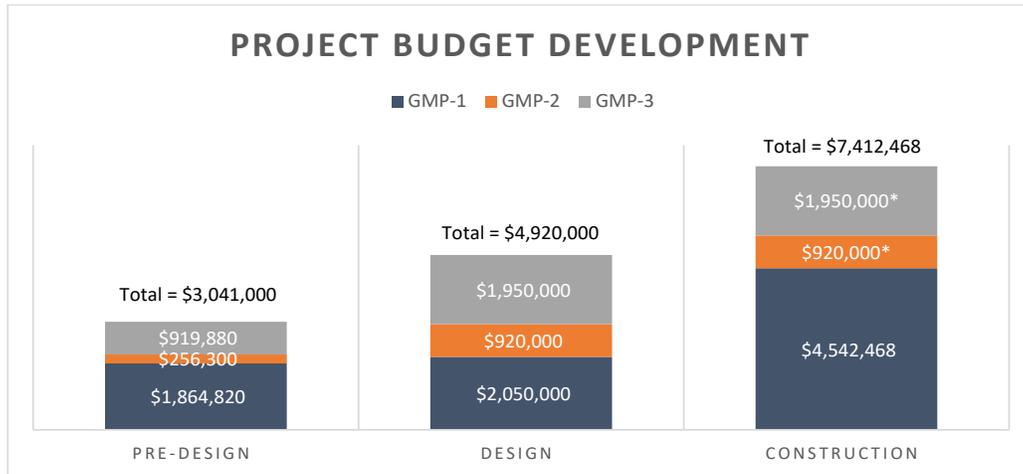
### Background Information

The project scope was originally defined in the planning phase by the Wastewater System Facilities Plan completed in October 2019. Next, a preliminary design report completed by Murraysmith dated July 2020 further defined the scope. During the design phase of the project, a pre-design evaluation was completed by West Yost (WY) in March 2021 that refined the scope. The final project includes various rehabilitation projects throughout the plant, split into three separate work packages, Guaranteed Maximum Price Package (GMP) #1, #2, and #3. The work packages, as defined in *Figure 1* below, were scheduled in order of criticality to plant compliance. GMP-1 is the core of the improvements at the WWTP and accounts for the largest amount of work at the facility. A map of the WWTP displaying the location of construction improvements by work package is found in Attachment A.



**Figure 1 - Project construction flow chart showing improvements included by work package and construction start dates.**

The preliminary design report and pre-design evaluation cost estimates were utilized to establish the project budget. The original cost estimate in the MurraySmith pre-design report was based on July, 2020 values. After West Yost’s pre-design evaluation, the City approved additional budget to include additional scope recommended by the Department of Environmental Quality (DEQ) and Veolia to help improve plant capacity; this revised budget was based on early 2021 construction values. The final construction budget in the City’s rate model was set at \$4,900,000 for the entire project. The City is working with a Construction Manager/ General Contractor (CM/GC), Slayden Constructors Inc. (Slayden) to complete the construction of the project. GMP-1 proposal from the CM/GC came back at an unexpected \$4,542,468, exceeding the project budget for GMP-1 by \$2,492,468. *Figure 2* below shows the development of the budget over time and different phases of the project.



\*This is a Cost Estimate, construction proposals have not been received yet.

**Figure 2 - The WWTP Condition Improvements budget development throughout project phases.**

#### Analysis of Budget exceedances

The project team has completed a thorough review of the GMP-1 proposal as well as several follow-up negotiations and value engineering meetings. A challenge is that 73% of the construction costs in the GMP are hard bids (subcontractors submitting bids to Slayden). This left only 27% percent of the costs that can be negotiated directly with Slayden, which include contractor labor, materials, equipment, and temporary facilities. *Table 1* below displays some of the larger discrepancies between the engineering cost estimate and the construction proposal.

**Table 1 - A comparison of design cost estimate and construction proposal costs.**

Process Area	Design Estimate	GMP-1	Difference
Area 100 - Headworks	\$ 260,000	\$ 76,059	\$ (183,941)
Area 200- Aeration Basin + Blowers	\$ 1,410,000	\$ 1,130,704	\$ (279,296)
Area 210 - Secondary Clarification and Sludge Pumping	\$ 130,000	\$ 323,344	\$ 193,344
Area 220 - RAS/WAS Pump Station	\$ 80,000	-	\$ (80,000)
Area 910 - Site Improvements	\$ 170,000	\$ 1,485,565	\$ 1,315,565
General Conditions/ Project Wide Cost of Work Items	\$ -	\$ 1,067,346	\$ 1,067,346
CM/GC Contingency + Markups	\$ -	\$ 459,450	\$ 459,450
	<b>\$ 2,050,000</b>	<b>\$ 4,542,468</b>	<b>\$ 2,492,468</b>



After several follow up discussions with both West Yost and Slayden, Leeway determined that the following are the key reasons why the construction proposal exceeded the cost estimate:

- Construction climate and unexpected increase in pricing
- The Project’s aggressive schedule and schedule risk
- Lack of subcontractor interest
- Design evolution

Construction climate and unexpected increase in pricing

A pandemic, natural disasters, and surges in demand over the past year have caused inflation of labor and material costs along with shortages of supplies and shipping capabilities across the country. The project budget has been directly impacted by these market issues.

According to the Engineering News-Record, the construction cost index (CCI) based on Seattle rates, shown in *Table 2*, has jumped from 1% or less of inflation between January and June 2020 to an average of 6.9% inflation per month since January 2021. Inflation is happening so rapidly that many quotes are only good for a few days. For example, quotes for gear procurement were acquired during the design phase cost estimate, but bids just a few months later collectively increased by 250%. The requirement from federal funding to use American Iron and Steel (AIS) and inflation of steel prices alone added an additional ~\$222,000 in unexpected raw materials costs to the project. The story was repeated for other materials such as concrete and copper conduit.

**Table 2 – the Settle monthly Construction Cost Index over the past 1.5 years.**

YEAR	MONTH	CCI	%CHG	YEAR	MONTH	CCI	%CHG
2021	June	13165.01	+8.4	2020	Sept	12771.70	+5.6
2021	May	12994.43	+7.0	2020	Aug	12430.98	+2.8
2021	April	12945.18	+6.6	2020	July	12140.48	+1.2
2021	March	12865.08	+7.3	2020	June	12141.83	+0.9
2021	Feb	12826.05	+5.9	2020	May	12145.67	+1.0
2021	Jan	12845.38	+6.0	2020	April	12141.53	+1.0
2020	Dec	12840.41	+6.0	2020	March	11991.29	0.0
2020	Nov	12796.59	5.8%	2020	Feb	12117.14	+0.8
2020	Oct	12776.24	+5.6	2020	Jan	12122.45	+0.9

Note. The data is from “*City Cost Index-Seattle.*” (2021, June). Construction Economics. <https://www.enr.com/economics>

Labor costs from sub-contractors also have increased with inflation. The Electrical subcontractor, with a labor increase of 15% from the original quoted work, is an example of the burden of increased labor costs on this project.

Project aggressive schedule and lack of subcontract interest





Contractors are increasingly busy due to the high demand for construction services in the current economy. Many contractors are booked out far in advance. We received feedback anecdotally that this project has a tight and demanding schedule, which may have made this project less appealing or more expensive due to pricing in schedule risk. Also, the short schedule duration and supply shortages/ long lead times made it challenging to acquire materials in time for the work.

There were 28 scopes competitively bid that made up GMP-1. These bids were posted publicly in the Oregon Daily Journal of Commerce (DJC), and bids were directly solicited to a total of 156 subcontractors. Only a total of 45 bids were received back. The lack of competition caused an increase in project costs.

Lastly, due to the compressed schedule for GMP-1, overtime will be needed to complete construction on time. Overtime was built into the labor bids and was not included in the original engineer cost estimate.

#### Design Evolution

The original design cost estimate was created at the 30% design phase. Naturally, the design evolved from 30% to 100%. Slight changes impacted the project costs. Some were positive, such as the reduction of four slide gates that saved \$52,000. Some were negative impacts, such as the addition of \$145,937 in temporary bypassing and temporary power equipment needs.

#### Actions taken to control costs

The project team completed a value engineering review that cut \$128,916 from the original GMP-1 proposal.

The project team also understands the need to complete GMP-2 and GMP-3 within budget. The below actions are currently being implemented to ensure cost estimates are correct for upcoming work packages:

- Slayden is currently working on a cost estimate on GMP-2
- The team has reviewed the project scope for items that can be cut or pushed out to further projects, in the event that, the next two work package are bided above the budget. Note that the most critical project scope components are all in GMP-1 and so any scope cuts will come from GMP-2 and GMP-3.
- GMP-2 and GMP-3 construction schedules have been moved to the summer 2022 construction season. This will allow more time for subcontractors to plan work into their schedule and we expect that the extra time will increase subcontractor interest in the project.

#### Wastewater Program Budget

*Table 3* contains the budget for the Sandy Wastewater Program by fiscal year. The impact of the Sandy Existing WWTP Condition Improvements budget exceedances to ratepayers can be mitigated.



**Table 3 - The City of Sandy Wastewater Program budget by fiscal year.**

PLANNED EXPENSES BY FISCAL YEAR	SUM OF BUDGET	SUM OF 19-20	SUM OF 20-21	SUM OF 21-22	SUM OF 22-23	SUM OF 23-24	SUM OF 24-25	SUM OF 25-26
CS BASIN 2 AND 8	\$7,476,187	\$8,525	\$2,505,632	\$4,962,030	\$0	\$0	\$0	\$0
WWTP IMPROVEMENTS	\$5,948,821	\$24,697	\$1,338,766	\$4,585,358	\$0	\$0	\$0	\$0
WASTEWATER SYSTEM FACILITIES PLAN	\$437,889	\$0	\$0	\$0	\$0	\$0	\$0	\$0
EASTSIDE SATELLITE TREATMENT FACILITY	\$26,400,000	\$0	\$496,165	\$2,549,989	\$1,015,385	\$2,030,769	\$13,538,462	\$6,769,231
FORCE MAIN TO SANDY OUTFALL	\$1,000,000	\$0	\$0	\$0	\$0	\$0	\$1,000,000	\$0
SANDY RIVER OUTFALL	\$13,800,000	\$0	\$0	\$1,311,538	\$811,538	\$1,061,538	\$7,076,923	\$3,538,462
ROSLYN LAKE WETLANDS AND FORCE MAIN	\$9,000,000	\$0	\$0	\$0	\$0	\$0	\$0	\$9,000,000
CS BASIN 6	\$3,105,000	\$0	\$0	\$2,070,000	\$1,035,000	\$0	\$0	\$0
<b>GRAND TOTAL</b>	<b>\$67,167,897</b>	<b>\$33,222</b>	<b>\$4,340,563</b>	<b>\$15,478,915</b>	<b>\$2,861,923</b>	<b>\$3,092,308</b>	<b>\$21,615,385</b>	<b>\$19,307,692</b>

In discussions with City staff, one attractive option is to move other upcoming fiscal year expenditures farther into the future. The Collections System (CS) work for Basin 6 is equivalent to the budget needed to complete work on the WWTP GMP-1. The Basin 6 rehabilitation is not mandated by the DEQ Mutual Agreement and Order (MAO) and can be moved with no impact to compliance with DEQ and will provide the funds needed in this fiscal year. The work could still be conducted in the summer of 2022 but paid for by FY22/23 funds.

Additionally, an Amendment to Oregon House Bill 5006 dated June 25, 2021, was passed and provides Sandy with an additional 14.7 million in funding toward the wastewater program budget. This funding will more than cover the budget exceedances without placing any additional pressure on ratepayers.

### Recommendations

Leeway recommends proceeding with the presentation of GMP-1 at cost of \$4,542,468 for Council approval on July 6. This portion of the project is critical to the future compliance of the existing WWTP and compliance with the City’s National Pollutant Discharge Elimination System (NPDES) permit.

We further recommend moving Collection System Basin 6 rehabilitation out one fiscal year to mitigate impacts to the ratepayers.

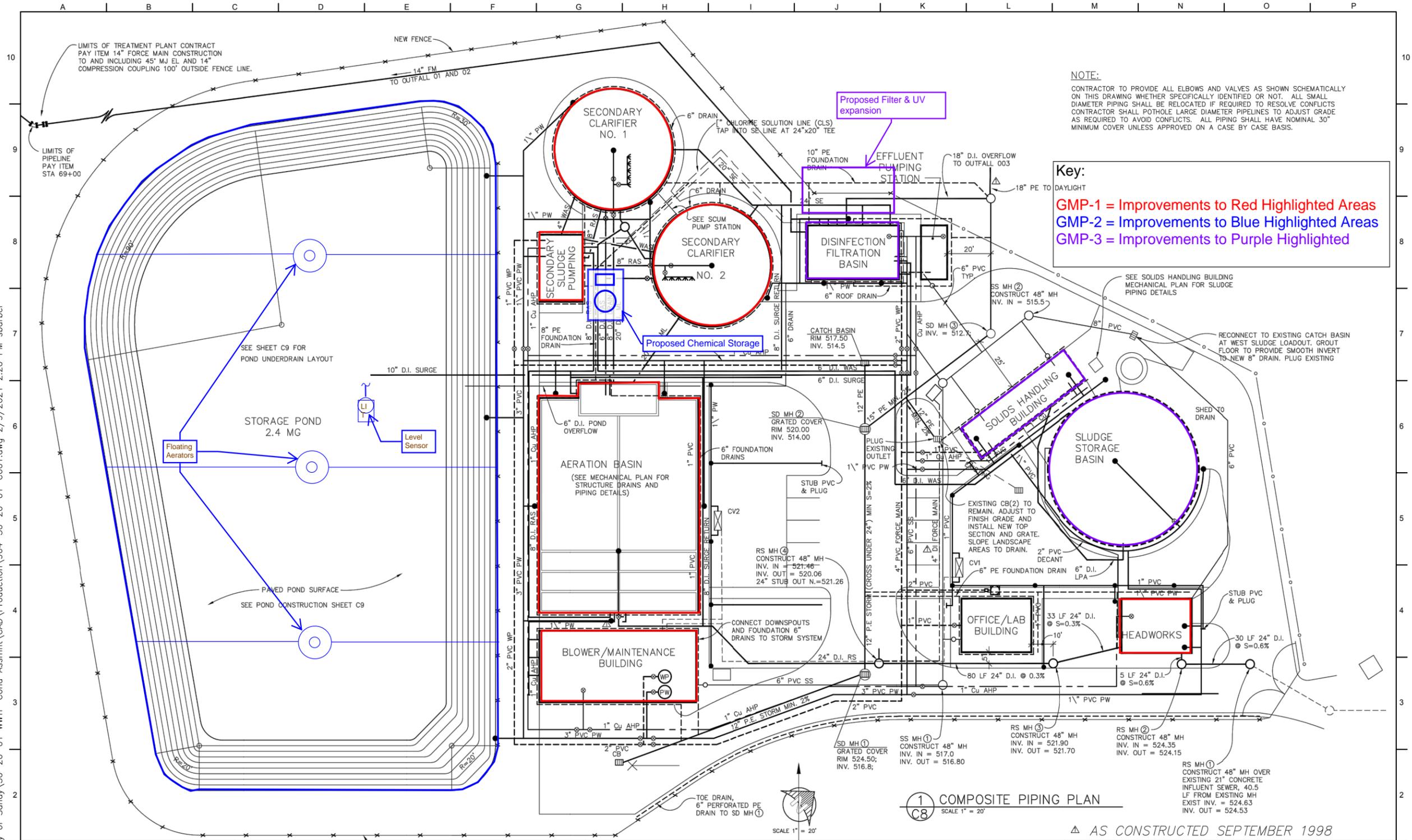
### References

*City Cost Index-Seattle*. (2021, June). Construction Economics. <https://www.enr.com/economics>



Attachment A – Map of Sandy Existing WWTP

P:\Clients\964 City of Sandy\50-20-01 WWTP Cond Assmnt\CAD\Production\964-50-20-01-C001.dwg 2/9/2021 2:20 PM sbarber



**NOTE:**  
 CONTRACTOR TO PROVIDE ALL ELBOWS AND VALVES AS SHOWN SCHEMATICALLY ON THIS DRAWING WHETHER SPECIFICALLY IDENTIFIED OR NOT. ALL SMALL DIAMETER PIPING SHALL BE RELOCATED IF REQUIRED TO RESOLVE CONFLICTS. CONTRACTOR SHALL PATCH/REPAIR LARGE DIAMETER PIPELINES TO ADJUST GRADE AS REQUIRED TO AVOID CONFLICTS. ALL PIPING SHALL HAVE NOMINAL 30" MINIMUM COVER UNLESS APPROVED ON A CASE BY CASE BASIS.

**Key:**  
 DAYLIGHT  
**GMP-1 = Improvements to Red Highlighted Areas**  
**GMP-2 = Improvements to Blue Highlighted Areas**  
**GMP-3 = Improvements to Purple Highlighted**

**1 COMPOSITE PIPING PLAN**  
 (C8) SCALE 1" = 20'

AS CONSTRUCTED SEPTEMBER 1998

NOT FOR CONSTRUCTION

THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY				
SCALE :	AS SHOWN			
DRAWN BY :	SMB			
DESIGNED BY :	WJS			
PROJ. MGR. :	PVM			
No.	ZONE	REVISIONS	BY	DATE



**CITY OF SANDY**  
**WASTE WATER TREATMENT FACILITY IMPROVEMENTS**  
**COMPOSITE PIPING PLAN**

JOB NUMBER	964-50-20-01
DRAWING NUMBER	C001
SHEET NUMBER	X OF XX
REVISION	

# City of Sandy Oregon

## Sandy WWTP Condition Assessment Improvements

GMP - 1

June 29th, 2021



# City of Sandy Oregon

## Sandy WWTP Condition Assessment Improvements

### 100% Design GMP 1

#### Table of Contents

Section 1: Description of Work

Section 2: Cost Summary

Section 3: Detailed Estimate Cost Report

Section 4: Assumptions and Clarifications Log

Section 5: Allowance Log

Section 6: Subcontractor and Supplier Quotes

Section 7: Labor & Equipment Rates

Section 8: Project Schedule

Section 9: Risk Register

Section 10: Supplemental Documents

- Drawing List
- Specification List
- Design Review Log
- Addenda 1-3
- Grit System Submittals

June 29th, 2021



# Section 1: Sandy WWTP Condition Assessment Improvements GMP – 1

## Description of Work

This proposal is for the construction services of the Sandy WWTP Condition Assessment Improvements Guaranteed Maximum Price #1 (GMP – 1). The work for GMP - 1 is in accordance with West Yost's drawings and technical specifications dated May 2021 and as modified by Addenda 1, 2, 3, & design clarification log items 1-43.

Due to the time constraints on this project various items within GMP – 1 recognized to be part of the critical work path have been procured through previous contract amendment, Early Work Agreements 1, 2, & 3. The EWAs contained the procurement of the gates, valves, actuators, fine bubble diffusers, secondary clarifier rehabilitation subcontractor, and the MCC's & VFD's. These pieces, along with the other items identified as highly crucial to the treatment process in the initial condition assessment, make up the work within GMP - 1. The major items identified as part of GMP – 1 consist of the following:

- Headworks Grit Removal Equipment Replacement (owner supplied)
- Secondary Clarifier Rehabilitation
- Aeration Basin Upgrades
- Aeration Basin Blower Building MCC and VFD Upgrades
- RAS/WAS Building MCC, RAS Pump Motor, selective RAS piping, & RAS/WAS Building HVAC Upgrades
- MCC-A Arc Flash Breaker Upgrades
- Switchboard-1 (MSB-1) Arc Flash Breaker Upgrades

Reference Section 10, Supplemental Documents, for the drawings, specifications, and design review log binding the construction work for GMP – 1.

**Sandy WWTP Condition Assessments Improvements**  
**City of Sandy, Oregon**  
**GMP-1**

Last Revision:  
6/29/2021

Created By: Slayden Constructors, Inc.  
 Based on: West Yost Design Package 1 (GMP-1) 100% Submittal Set - May 2021

COST OF WORK			
Area	Description	Value	Notes
	Direct Costs less Allowances	\$2,846,153	
	Allowances	\$15,000	
	<b>Subtotal - Cost of Work</b>	<b>\$2,861,153</b>	
CONTINGENCIES			
	CM/GC Contingency	\$200,281	7.0%
	<b>Subtotal - Contingencies</b>	<b>\$200,281</b>	
	<b>SUBTOTAL w/ CONTINGENCIES</b>	<b>\$3,061,434</b>	
MARKUPS			
	CM/GC Fee	\$198,993	6.50%
	Bonds and Insurance	\$47,276	1.45%
	OR CATax	\$12,900	0.39%
	<b>Subtotal - Markups</b>	<b>\$259,169</b>	
	<b>TOTAL CONSTRUCTION COST</b>	<b>\$3,320,603</b>	

OTHER CONTRACTS			
	Pre-Construction Contract	\$39,457	
	EWA 1 - Slide Gate Procurement	\$94,269	
	EWA 2 - Valve & Diffuser Procurement	\$254,622	Accepted VE - Excludes Jib Crane
	EWA 3 - Clarifier, & Electrical Gear Procurement	\$833,517	
	<b>Subtotal - Other Contracts</b>	<b>\$1,221,865</b>	
<b>TOTAL CM/GC CONTRACT VALUE</b>		<b>\$4,542,468</b>	



## Sandy WWTP System Upgrade Sandy, Oregon

Activity ID	Activity Name	Original Duration	Start	Finish	Remaining Duration	Total Float	2021												2022					2023						
							May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb		
<b>Sandy WWTP - 100% Schedule 2021-06-17</b>							30-Sep-22																							
<b>MILESTONES</b>							30-Sep-22																							
M1100	Preliminary Design Evaluation Report Finalized	0	23-Mar-21 A		0		Preliminary Design Evaluation Report Finalized																							
M1300	Notice to Proceed (GMP-1)	0	28-Jun-21		0	-8	28-Jun-21 ◆ Notice to Proceed (GMP-1)																							
M5000	Weather Delays '21	3	09-Dec-21	13-Dec-21	3	-29	09-Dec-21 ■ Weather Delays '21																							
M1200	GMP-1 '21 Wet Weather Milestone (by 10/31)	0		13-Dec-21*	0	-29	◆ GMP-1 '21 Wet Weather Milestone (by 10/31)																							
M5010	Weather Delays '22	3	16-Aug-22	18-Aug-22	3	0	16-Aug-22 ■ Weather Delays '22																							
M1210	GMP-1 Substantial Completion (TBD)	0		18-Aug-22*	0	0	◆ GMP-1 Substantial Completion (TBD)																							
M1220	GMP-1 '22 Wet Weather Milestone (by 10/31)	0		18-Aug-22*	0	0	◆ GMP-1 '22 Wet Weather Milestone (by 10/31)																							
M7000	Punchlist / Demobilize	20	19-Aug-22	16-Sep-22	20	10	19-Aug-22 ■ Punchlist / Demobilize																							
M9000	Project - Final Completion	0		30-Sep-22*	0	0	◆ Project - Final Completion																							
<b>DESIGN</b>							25-May-21 A																							
<b>GMP-1 Design</b>							25-May-21 A																							
A1810	GMP-1 Equipment Packages (GA Dwg & Specs)	10	23-Mar-21 A	15-Apr-21 A	0		GMP-1 Equipment Packages (GA Dwg & Specs)																							
A1820	GMP-1 90% Design	1	23-Mar-21 A	03-May-21	0		GMP-1 90% Design																							
A1970	GMP-1 Owner Furnished Equip (Grit S&L)	5	14-Apr-21 A	14-May-21	0		GMP-1 Owner Furnished Equip (Grit S&L)																							
A1830	GMP-1 90% Design Delivered	1	03-May-21	03-May-21	0		GMP-1 90% Design Delivered																							
A1840	GMP-1 90% Design Submittal Review Period	10	03-May-21	11-May-21	0		GMP-1 90% Design Submittal Review Period																							
A3380	GMP-1 - Design DEQ Review	30	04-May-21	17-May-21	0		GMP-1 - Design DEQ Review																							
A2030	GMP-1 100% Design	5	04-May-21	21-May-21	0		GMP-1 100% Design																							
A1850	GMP-1 - 100% Design Review, Bid Prep	2	21-May-21	25-May-21	0		GMP-1 - 100% Design Review, Bid Prep																							
<b>PROCUREMENT</b>							21-Jul-21																							
<b>GMP-1</b>							21-Jul-21																							
<b>EQUIPMENT</b>							21-Jul-21																							
A1790	GMP-1 Equip Pkg - RFP Preparation	5	16-Apr-21 A	21-May-21	0		GMP-1 Equip Pkg - RFP Preparation																							
<b>RFPs (GMP-1) Create, DEQ Review, Issue, Quote</b>							15-Jun-21 A																							
RFP-11	RFP M-1 Slide & Weir Gate	20	21-Apr-21 A	11-May-21	0		RFP M-1 Slide & Weir Gate																							
RFP-11	RFP M-2 Jib Crane	20	28-Apr-21 A	28-May-21	0		RFP M-2 Jib Crane																							
RFP-11	RFP M-3 Valves & Actuators	20	28-Apr-21 A	01-Jun-21 A	0		RFP M-3 Valves & Actuators																							
RFP-11	RFP M-4 Fine Bubble	20	12-May-21	15-Jun-21 A	0		RFP M-4 Fine Bubble																							
RFP-11	RFP M-5 & 6 - MCCs & VFDs	20	13-May-21	01-Jun-21 A	0		RFP M-5 & 6 - MCCs & VFDs																							
RFP-11	RFP S-1 Clarifier Assemblies	20	13-May-21	01-Jun-21 A	0		RFP S-1 Clarifier Assemblies																							
RFP-11	RFP S-2 Sawcutting & Coring	20	14-May-21	15-Jun-21 A	0		RFP S-2 Sawcutting & Coring																							
RFP-11	RFP S-3 Electrical	22	14-May-21	01-Jun-21 A	0		RFP S-3 Electrical																							
RFP-11	GMP-1 Package - Remaining Items	17	27-May-21	15-Jun-21 A	0		GMP-1 Package - Remaining Items																							
<b>GMP-1 Contracts (GMP, Negotiate, Execute Amendments)</b>							21-Jun-21																							
CON11	RFP M-1 Slide & Weir Gate	10	11-May-21	19-May-21	0		RFP M-1 Slide & Weir Gate																							
CON11	RFP M-2 Jib Crane	10	01-Jun-21 A	02-Jun-21 A	0		RFP M-2 Jib Crane																							
CON11	RFP M-3 Valves & Actuators	10	01-Jun-21 A	03-Jun-21 A	0		RFP M-3 Valves & Actuators																							
CON11	RFP M-4 Fine Bubble	10	01-Jun-21 A	04-Jun-21 A	0		RFP M-4 Fine Bubble																							
CON11	RFP S-1 Clarifier Assemblies	10	01-Jun-21 A	04-Jun-21 A	0		RFP S-1 Clarifier Assemblies																							
CON11	RFP M-5 & 6 - MCCs & VFDs	10	02-Jun-21 A	04-Jun-21 A	0		RFP M-5 & 6 - MCCs & VFDs																							
CON11	RFP S-3 Electrical	10	02-Jun-21 A	04-Jun-21 A	0		RFP S-3 Electrical																							
CON12	GMP-1 Package - Bid Clarifications	3	10-Jun-21 A	18-Jun-21 A	0		GMP-1 Package - Bid Clarifications																							
CON11	RFP S-2 Sawcutting & Coring	10	14-Jun-21 A	17-Jun-21	0	37	RFP S-2 Sawcutting & Coring																							
CON11	GMP-1 Package - Issue Proposal	3	18-Jun-21 A	18-Jun-21 A	0		GMP-1 Package - Issue Proposal																							

■ Remaining Level of Effort     ■ Critical Remaining Work  
■ Actual Work     ◆ Milestone  
■ Remaining Work     ▼ Summary

**Slayden Constructors, Inc. part of MWH**  
**Project Name: Sandy WWTP System Upgrade - GMP Schedule**

Data Date: 17-Jun-21  
 Schedule Development Level: GMP Construction Baseline  
 Revision Number: 00  
 Revision Date: 05/14/2020     Printed: 18-Jun-21

## Sandy WWTP System Upgrade Sandy, Oregon

Activity ID	Activity Name	Original Duration	Start	Finish	Remaining Duration	Total Float	2021												2022					2023						
							May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb		
							Gantt Chart																							
CON12	GMP-1 Package - Negotiations / Finalize GMP	3	21-Jun-21 A	21-Jun-21	3	-40	1-Jun-21 A   GMP-1 Package - Negotiations / Finalize GMP																							
<b>GMP-1 Issue Letters of Intent</b>							40   17-May-21   22-Jun-21   4   189																							
LOI1110	LOI M-1 Slide & Weir Gate	2	17-May-21	18-May-21	0		A   LOI M-1 Slide & Weir Gate																							
LOI1130	LOI M-3 Valves & Actuators	2	03-Jun-21 A	03-Jun-21 A	0		h-21 A   LOI M-3 Valves & Actuators																							
LOI1120	LOI M-2 Jib Crane	2	04-Jun-21 A	04-Jun-21 A	0		h-21 A   LOI M-2 Jib Crane																							
LOI1140	LOI M-4 Fine Bubble	2	08-Jun-21 A	08-Jun-21 A	0		h-21 A   LOI M-4 Fine Bubble																							
LOI1150	LOI M-5 & 6 - MCCs & VFDs (Team/Eaton)	2	08-Jun-21 A	08-Jun-21 A	0		h-21 A   LOI M-5 & 6 - MCCs & VFDs (Team/Eaton)																							
LOI1160	LOI S-1 Clarifier Assemblies (RSG)	2	08-Jun-21 A	08-Jun-21 A	0		h-21 A   LOI S-1 Clarifier Assemblies (RSG)																							
LOI1180	LOI S-3 Electrical	2	08-Jun-21 A	08-Jun-21 A	0		h-21 A   LOI S-3 Electrical																							
LOI1170	LOI S-2 Sawcutting & Coring	2	17-Jun-21	18-Jun-21	2	37	17-Jun-21   LOI S-2 Sawcutting & Coring																							
LOI1190	Notice of Intent to Award GMP-1 (City & SCI)	1	22-Jun-21	22-Jun-21	1	-40	22-Jun-21   Notice of Intent to Award GMP-1 (City & SCI)																							
<b>GMP-1 Execute Agreements</b>							32   07-Jun-21 A   21-Jul-21   24   301																							
EXE-11	RFP M-1 Slide & Weir Gate	20	07-Jun-21 A	23-Jun-21	5	320	Jun-21 A   RFP M-1 Slide & Weir Gate																							
EXE-11	RFP M-2 Jib Crane	20	10-Jun-21 A	02-Jul-21	12	43	Jun-21 A   RFP M-2 Jib Crane																							
EXE-11	RFP M-3 Valves & Actuators	20	10-Jun-21 A	02-Jul-21	12	313	Jun-21 A   RFP M-3 Valves & Actuators																							
EXE-11	RFP M-4 Fine Bubble	20	10-Jun-21 A	02-Jul-21	12	313	Jun-21 A   RFP M-4 Fine Bubble																							
EXE-11	RFP M-5 & 6 - MCCs & VFDs	20	10-Jun-21 A	02-Jul-21	12	313	Jun-21 A   RFP M-5 & 6 - MCCs & VFDs																							
EXE-11	RFP S-1 Clarifier Assemblies	20	10-Jun-21 A	02-Jul-21	12	313	Jun-21 A   RFP S-1 Clarifier Assemblies																							
EXE-11	RFP S-3 Electrical	20	10-Jun-21 A	02-Jul-21	12	243	Jun-21 A   RFP S-3 Electrical																							
EXE-11	RFP S-2 Sawcutting & Coring	20	21-Jun-21	19-Jul-21	20	37	21-Jun-21   RFP S-2 Sawcutting & Coring																							
EXE-12	City Council GMP-1 (1st / 3rd Mon) - Not Req'd	1	22-Jun-21	22-Jun-21	1	-8	22-Jun-21   City Council GMP-1 (1st / 3rd Mon) - Not Req'd																							
EXE-11	GMP-1 Package - Remaining Subs/Vendors	20	23-Jun-21	21-Jul-21	20	301	23-Jun-21   GMP-1 Package - Remaining Subs/Vendors																							
EXE-12	Execute GMP-1	3	23-Jun-21	25-Jun-21	3	-8	23-Jun-21   Execute GMP-1																							
<b>SUBMITTALS</b>							139   14-May-21   08-Dec-21   121   204																							
<b>GMP-1 Submittals (100, 200, 210)</b>							139   14-May-21   08-Dec-21   121   204																							
<b>Contractor Prep &amp; Engineering</b>							58   14-May-21   12-Aug-21   40   285																							
A2170	100 - Grit Equipment (By Owner)	20	14-May-21	14-May-21	0		A   100 - Grit Equipment (By Owner)																							
A2400	110 - 11288 Slide Gate	30	18-May-21	17-Jun-21 A	0		A   110 - 11288 Slide Gate																							
A4050	200 - 11288 - Slide Gate (2-4 weeks ARO)	15	18-May-21	17-Jun-21 A	0		A   200 - 11288 - Slide Gate (2-4 weeks ARO)																							
A3750	200 - 15115.1-15110.3 - EMO Plug Valves	10	03-Jun-21 A	30-Jun-21	10	-40	h-21 A   200 - 15115.1-15110.3 - EMO Plug Valves																							
A3800	200 - 15112-15110.3 - EMO Butterfly Valves	10	03-Jun-21 A	30-Jun-21	10	-25	h-21 A   200 - 15112-15110.3 - EMO Butterfly Valves																							
A2220	100 - 14650 - Jib Crane & Anchors	20	04-Jun-21 A	30-Jun-21	10	43	h-21 A   100 - 14650 - Jib Crane & Anchors																							
A3700	200 - 11230 - Diffusers	30	08-Jun-21 A	22-Jul-21	25	193	h-21 A   200 - 11230 - Diffusers																							
A3850	200 - 15110.3 - Valve Actuators Existing Gates	15	08-Jun-21 A	08-Jul-21	15	-42	h-21 A   200 - 15110.3 - Valve Actuators Existing Gates																							
A4150	200 - 16447 - MCC	30	08-Jun-21 A	15-Jul-21	20	188	h-21 A   200 - 16447 - MCC																							
A4250	210 - Clarifier (Retrofit Components)	15	08-Jun-21 A	02-Jul-21	12	-29	h-21 A   210 - Clarifier (Retrofit Components)																							
A4540	200 - Valve Actuators	20	08-Jun-21 A	15-Jul-21	20	-27	h-21 A   200 - Valve Actuators																							
A2350	100 - 05000 - Stop Plate / Weir	15	17-Jun-21	08-Jul-21	15	34	17-Jun-21   100 - 05000 - Stop Plate / Weir																							
A2450	110 - Level Sensor	10	17-Jun-21	30-Jun-21	10	315	17-Jun-21   110 - Level Sensor																							
A2500	110 - Flow Dar Flow Meter	10	17-Jun-21	30-Jun-21	10	315	17-Jun-21   110 - Flow Dar Flow Meter																							
A3650	200 - 05000 - Stop Plates	10	17-Jun-21	30-Jun-21	10	-17	17-Jun-21   200 - 05000 - Stop Plates																							
A3950	200 - Air Flow Meter	15	17-Jun-21	08-Jul-21	15	266	17-Jun-21   200 - Air Flow Meter																							
A4000	Instrumentation	10	17-Jun-21	30-Jun-21	10	14	17-Jun-21   Instrumentation																							
A4200	200 - Arc Flash Breakers	15	17-Jun-21	08-Jul-21	15	257	17-Jun-21   200 - Arc Flash Breakers																							
A4550	220 - RAS Pump Motor (20hp)	15	17-Jun-21	08-Jul-21	15	220	17-Jun-21   220 - RAS Pump Motor (20hp)																							
A4600	220 - RAS Pump VFD	20	17-Jun-21	15-Jul-21	20	215	17-Jun-21   220 - RAS Pump VFD																							
A4800	220 - 480V Distribution Panel	20	17-Jun-21	15-Jul-21	20	254	17-Jun-21   220 - 480V Distribution Panel																							

■ Remaining Level of Effort     ■ Critical Remaining Work  
■ Actual Work     ◆ Milestone  
■ Remaining Work     ▼ Summary

**Slayden Constructors, Inc. part of MWH**  
**Project Name: Sandy WWTP System Upgrade - GMP Schedule**  
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Data Date: 17-Jun-21  
 Schedule Development Level: GMP Construction Baseline  
 Revision Number: 00  
 Revision Date: 05/14/2020     Printed: 18-Jun-21

## Sandy WWTP System Upgrade Sandy, Oregon

Activity ID	Activity Name	Original Duration	Start	Finish	Remain Duration	Total Float	2021												2022						2023			
							May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
							Gantt Chart Data (Color-coded bars indicate activity status and duration)																					
A4950	300 - Stop Plate/Slide Gate	30	17-Jun-21	29-Jul-21	30	204	17-Jun-21	[Green Bar]											300 - Stop Plate/Slide Gate									
A5000	600 - Diffusers	20	17-Jun-21	15-Jul-21	20	244	17-Jun-21	[Green Bar]											600 - Diffusers									
A5100	600 - Air Flow Meter	15	17-Jun-21	08-Jul-21	15	289	17-Jun-21	[Green Bar]											600 - Air Flow/Meter									
A5250	600 - PD Blower VFDs	30	17-Jun-21	29-Jul-21	30	179	17-Jun-21	[Green Bar]											600 - PD Blower VFDs									
A2950	Rough-in Electrical (Conduit, boxes, etc)	15	17-Jun-21	08-Jul-21	15	20	17-Jun-21	[Green Bar]											Rough-in Electrical (Conduit, boxes, etc)									
A2960	Conduit Layout & Wire	15	17-Jun-21	08-Jul-21	15	3	17-Jun-21	[Green Bar]											Conduit Layout & Wire									
A6560	200 - MOPO - Bypass Plan for AB Gate 200-31	10	17-Jun-21	30-Jun-21	10	-24	17-Jun-21	[Red Bar]											200 - MOPO - Bypass Plan for AB Gate 200-31									
A6630	200 - AB-B Startup & Testing Plan	20	17-Jun-21	15-Jul-21	20	-15	17-Jun-21	[Red Bar]											200 - AB-B Startup & Testing Plan									
A3160	200 - Air Valves (BFV)	20	17-Jun-21	15-Jul-21	20	-52	17-Jun-21	[Red Bar]											200 - Air Valves (BFV)									
A2510	100 - Lighting	15	17-Jun-21	08-Jul-21	15	263	17-Jun-21	[Green Bar]											100 - Lighting									
A4100	220 - RAS/WAS MCC-D	5	17-Jun-21	23-Jun-21	5	181	17-Jun-21	[Green Bar]											220 - RAS/WAS MCC-D									
A3900	200 - Magnetic Flow Meters	10	23-Jun-21	07-Jul-21	10	28	23-Jun-21	[Green Bar]											200 - Magnetic Flow Meters									
A2890	100/200 - Concrete Reinforcing	10	23-Jun-21	07-Jul-21	10	-12	23-Jun-21	[Red Bar]											100/200 - Concrete Reinforcing									
A5310	100/200 - Concrete Mix Design	15	23-Jun-21	14-Jul-21	15	-24	23-Jun-21	[Red Bar]											100/200 - Concrete Mix Design									
A3010	200&900 - Ductile Iron Pipe & Appurt.	5	23-Jun-21	29-Jun-21	5	-30	23-Jun-21	[Red Bar]											200&900 - Ductile Iron Pipe & Appurt.									
A6710	200 - FRP Deflection Panels & Anchorage	5	23-Jun-21	29-Jun-21	5	12	23-Jun-21	[Green Bar]											200 - FRP Deflection Panels & Anchorage									
A3150	200 - SSSL Pipe	10	23-Jun-21	07-Jul-21	10	-40	23-Jun-21	[Red Bar]											200 - SSSL Pipe									
A2850	100 - Excavate for Concrete Footing	1	28-Jun-21	28-Jun-21	1	65	28-Jun-21	[Green Bar]											100 - Excavate for Concrete Footing									
A4650	220 - Exhaust Fan & Duct	15	28-Jun-21	19-Jul-21	15	229	28-Jun-21	[Green Bar]											220 - Exhaust Fan & Duct									
A6750	200 - MOPO: Temp Power Plan (Blowers)	10	06-Jul-21	19-Jul-21	10	243	06-Jul-21	[Green Bar]											200 - MOPO: Temp Power Plan (Blowers)									
A6540	100 - Startup Headworks (Jib Crane)	15	19-Jul-21	06-Aug-21	15	274	19-Jul-21	[Green Bar]											100 - Startup Headworks (Jib Crane)									
A3000	200 - AB-B Startup & Testing Plan - Resubmittal	10	30-Jul-21	12-Aug-21	10	-15	30-Jul-21	[Red Bar]											200 - AB-B Startup & Testing Plan - Resubmittal									
<b>Design Engineer Review</b>		<b>68</b>	<b>14-May-21</b>	<b>26-Aug-21</b>	<b>50</b>	<b>270</b>	[Summary Bar]																					
A2180	100 - Grit Equipment (by Owner) - Review	5	14-May-21	14-May-21	0		[Green Bar]											100 - Grit Equipment (by Owner) - Review										
A2190	100 - Grit Equipment (by Owner) - Resubmittal	5	14-May-21	14-May-21	0		[Green Bar]											100 - Grit Equipment (by Owner) - Resubmittal										
A2200	100 - Grit Equipment (by Owner) - Approval	1	20-May-21	20-May-21	0		[Green Bar]											100 - Grit Equipment (by Owner) - Approval										
A4060	200 - Slide Gate - Submittal Review	5	17-Jun-21	23-Jun-21	5	-67	17-Jun-21	[Red Bar]											200 - Slide Gate - Submittal Review									
A4070	200 - Slide Gate - Submittal Resubmission	3	24-Jun-21	28-Jun-21	3	-67	24-Jun-21	[Red Bar]											200 - Slide Gate - Submittal Resubmission									
A5380	220 - RAS/WAS MCC-D - Review	5	24-Jun-21	30-Jun-21	5	181	24-Jun-21	[Green Bar]											220 - RAS/WAS MCC-D - Review									
A4080	200 - Slide Gate - Submittal Approval	1	29-Jun-21	29-Jun-21	1	-67	29-Jun-21	[Green Bar]											200 - Slide Gate - Submittal Approval									
A3090	200 - Ductile Iron Pipe & Appurt.	5	30-Jun-21	07-Jul-21	5	-30	30-Jun-21	[Red Bar]											200 - Ductile Iron Pipe & Appurt.									
A6720	200 - FRP Deflection Panels & Anchorage	5	30-Jun-21	07-Jul-21	5	12	30-Jun-21	[Green Bar]											200 - FRP Deflection Panels & Anchorage									
A2230	100 - Jib Crane - Review	5	01-Jul-21	08-Jul-21	5	43	01-Jul-21	[Green Bar]											100 - Jib Crane - Review									
A3660	200 - Stop Plates - Submittal Review	5	01-Jul-21	08-Jul-21	5	-17	01-Jul-21	[Red Bar]											200 - Stop Plates - Submittal Review									
A3760	200 - Motorized Plug Valves - Submittal Review	5	01-Jul-21	08-Jul-21	5	-40	01-Jul-21	[Red Bar]											200 - Motorized Plug Valves - Submittal Review									
A3810	200 - Motorized Butterfly Valves - Submittal Review	5	01-Jul-21	08-Jul-21	5	-25	01-Jul-21	[Red Bar]											200 - Motorized Butterfly Valves - Submittal Review									
A4010	Instrumentation - Submittal Review	5	01-Jul-21	08-Jul-21	5	14	01-Jul-21	[Green Bar]											Instrumentation - Submittal Review									
A2990	200 - MOPO - Bypass Plan for AB Gate 200-31	5	01-Jul-21	08-Jul-21	5	-24	01-Jul-21	[Red Bar]											200 - MOPO - Bypass Plan for AB Gate 200-31									
A4110	220 - RAS/WAS MCC-D - Resubmittal	20	01-Jul-21	29-Jul-21	20	181	01-Jul-21	[Green Bar]											220 - RAS/WAS MCC-D - Resubmittal									
A4260	210 - Clarifier (Retrofit Components) - Submittal Review	5	06-Jul-21	12-Jul-21	5	-29	06-Jul-21	[Red Bar]											210 - Clarifier (Retrofit Components) - Submittal Review									
A3910	200 - Magnetic Flow Meters- Submittal Review	5	08-Jul-21	14-Jul-21	5	28	08-Jul-21	[Green Bar]											200 - Magnetic Flow Meters- Submittal Review									
A5370	100/200 - Concrete Reinforcing - Submittal Review	3	08-Jul-21	12-Jul-21	3	-12	08-Jul-21	[Red Bar]											100/200 - Concrete Reinforcing - Submittal Review									
A2260	200 - SSSL Pipe - Review	5	08-Jul-21	14-Jul-21	5	-40	08-Jul-21	[Red Bar]											200 - SSSL Pipe - Review									
A2240	100 - Jib Crane - Resubmittal	5	09-Jul-21	15-Jul-21	5	43	09-Jul-21	[Green Bar]											100 - Jib Crane - Resubmittal									
A2360	100 - Stop Plate / Weir - Review	5	09-Jul-21	15-Jul-21	5	34	09-Jul-21	[Green Bar]											100 - Stop Plate / Weir - Review									
A3670	200 - Stop Plates - Submittal Resubmission	3	09-Jul-21	13-Jul-21	3	-17	09-Jul-21	[Red Bar]											200 - Stop Plates - Submittal Resubmission									
A3770	200 - Motorized Plug Valves - Submittal Resubmission	3	09-Jul-21	13-Jul-21	3	-40	09-Jul-21	[Red Bar]											200 - Motorized Plug Valves - Submittal Resubmission									

■ Remaining Level of Effort     ■ Critical Remaining Work  
■ Actual Work     ◆ Milestone  
■ Remaining Work     ▼ Summary

**Slayden Constructors, Inc. part of MWH**  
**Project Name: Sandy WWTP System Upgrade - GMP Schedule**  
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Data Date: 17-Jun-21  
 Schedule Development Level: GMP Construction Baseline  
 Revision Number: 00  
 Revision Date: 05/14/2020     Printed: 18-Jun-21





## Sandy WWTP System Upgrade Sandy, Oregon

Activity ID	Activity Name	Original Duration	Start	Finish	Remain Duration	Total Float	2021												2022						2023					
							May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb		
							Gantt Chart Data (Start/End Dates and Activity Names)																							
D4640	220 - RAS Pump VFD - Delivery (confirm duration)	40	02-Aug-21	27-Sep-21	40	215	02-Aug-21   220 - RAS Pump VFD - Delivery (confirm duration)																							
D4840	220 - 480V Distribution Panel - Delivery (confirm duration)	40	02-Aug-21	27-Sep-21	40	254	02-Aug-21   220 - 480V Distribution Panel - Delivery (confirm duration)																							
D5040	600 - Diffusers - Delivery (confirm duration)	50	02-Aug-21	11-Oct-21	50	244	02-Aug-21   600 - Diffusers - Delivery (confirm duration)																							
D4690	220 - Exhaust Fan & Duct - Delivery (confirm duration)	30	04-Aug-21	15-Sep-21	30	229	04-Aug-21   220 - Exhaust Fan & Duct - Delivery (confirm duration)																							
D4800	220 - RAS/WAS MCC-D	50	06-Aug-21	15-Oct-21	50	181	06-Aug-21   220 - RAS/WAS MCC-D																							
D3740	200 - Diffusers - Delivery	50	09-Aug-21	18-Oct-21	50	193	09-Aug-21   200 - Diffusers - Delivery																							
D4190	200 - MCC - Delivery	51	16-Aug-21	26-Oct-21	51	188	16-Aug-21   200 - MCC - Delivery																							
D4990	300 - Stop Plate/Slide Gate - Delivery (confirm duration)	80	16-Aug-21	08-Dec-21	80	204	16-Aug-21   300 - Stop Plate/Slide Gate - Delivery (confirm duration)																							
D5290	600 - PD Blower VFDs - Delivery (confirm duration)	60	16-Aug-21	08-Nov-21	60	179	16-Aug-21   600 - PD Blower VFDs - Delivery (confirm duration)																							
D3800	200 - Air Valves (BFV) - Deliver	45	16-Aug-21	18-Oct-21	45	-52	16-Aug-21   200 - Air Valves (BFV) - Deliver																							
D6580	200 - Valve Actuators - Deliver	65	16-Aug-21	15-Nov-21	65	-27	16-Aug-21   200 - Valve Actuators - Deliver																							
D6550	100 - Startup Headworks (Jib Crane)	5	23-Aug-21	27-Aug-21	5	274	23-Aug-21   100 - Startup Headworks (Jib Crane)																							
D6650	200 - AB-B Startup & Testing Plan	5	27-Aug-21	02-Sep-21	5	-15	27-Aug-21   200 - AB-B Startup & Testing Plan																							
<b>CONSTRUCTION</b>		<b>285</b>	<b>28-Jun-21</b>	<b>15-Aug-22</b>	<b>285</b>	<b>33</b>	<div style="display: flex; justify-content: space-between;"> <span>28-Jun-21   Mobilization</span> <span>15-Aug-22</span> </div>																							
<b>GMP-1 (ABs, Blower, 2nd Clarifier)</b>		<b>285</b>	<b>28-Jun-21</b>	<b>15-Aug-22</b>	<b>285</b>	<b>33</b>	<div style="display: flex; justify-content: space-between;"> <span>28-Jun-21   Mobilization</span> <span>15-Aug-22</span> </div>																							
A6120	Mobilization	5	28-Jun-21	02-Jul-21	5	-8	28-Jun-21   Mobilization																							
A6450	Potholing	5	06-Jul-21	12-Jul-21	5	12	06-Jul-21   Potholing																							
A6460	Verify Existing Structural / Mechanical Items	5	13-Jul-21	19-Jul-21	5	12	13-Jul-21   Verify Existing Structural / Mechanical Items																							
<b>Area 100 - Headworks (Jib Crane &amp; Grit Replacement)</b>		<b>51</b>	<b>13-Jul-21</b>	<b>22-Sep-21</b>	<b>51</b>	<b>257</b>	<div style="display: flex; justify-content: space-between;"> <span>13-Jul-21   Subgrade - Foundation (Jib Crane)</span> <span>22-Sep-21</span> </div>																							
A2880	Subgrade - Foundation (Jib Crane)	2	13-Jul-21	14-Jul-21	2	56	13-Jul-21   Subgrade - Foundation (Jib Crane)																							
A2900	FRPS - Concrete footing (Jib Crane)	10	15-Jul-21	28-Jul-21	10	56	15-Jul-21   FRPS - Concrete footing (Jib Crane)																							
A2910	Backfill concrete footing (Jib Crane)	1	29-Jul-21	29-Jul-21	1	56	29-Jul-21   Backfill concrete footing (Jib Crane)																							
A2920	Vertical Steel Beam Installation	1	30-Jul-21	30-Jul-21	1	56	30-Jul-21   Vertical Steel Beam Installation																							
A2930	Horizontal Beam installation	2	02-Aug-21	03-Aug-21	2	56	02-Aug-21   Horizontal Beam installation																							
A6500	Rough-in Conduit	5	18-Aug-21	24-Aug-21	5	269	18-Aug-21   Rough-in Conduit																							
A3020	Shutdown of Grit Basin- Coordinate with Plant	5	19-Aug-21	25-Aug-21	5	35	19-Aug-21   Shutdown of Grit Basin- Coordinate with Plant																							
A2940	Jib Crane install	2	23-Aug-21	24-Aug-21	2	43	23-Aug-21   Jib Crane install																							
A3030	Demo - Existing Paddle Mixer	1	26-Aug-21	26-Aug-21	1	35	26-Aug-21   Demo - Existing Paddle Mixer																							
A3040	Install New Paddle Mixer	2	27-Aug-21	30-Aug-21	2	35	27-Aug-21   Install New Paddle Mixer																							
A3130	Lighting Install	3	30-Aug-21	01-Sep-21	3	263	30-Aug-21   Lighting Install																							
A3050	Demo - Grit Pump & Discharge Piping	1	31-Aug-21	31-Aug-21	1	35	31-Aug-21   Demo - Grit Pump & Discharge Piping																							
A3060	Install Grit Pump & Discharge Piping	3	01-Sep-21	03-Sep-21	3	35	01-Sep-21   Install Grit Pump & Discharge Piping																							
A3070	Stop Plate/ Slide Gate Install	3	02-Sep-21	07-Sep-21	3	34	02-Sep-21   Stop Plate/ Slide Gate Install																							
A6670	Sawcut weir opening & install weir assembly	2	02-Sep-21	03-Sep-21	2	35	02-Sep-21   Sawcut weir opening & install weir assembly																							
A3080	Construction Complete in Area 100 - Headworks	1	08-Sep-21	08-Sep-21	1	34	08-Sep-21   Construction Complete in Area 100 - Headworks																							
A6510	Wire Pull & Terminate Jib	3	13-Sep-21	15-Sep-21	3	257	13-Sep-21   Wire Pull & Terminate Jib																							
A2970	LOTO, Startup Jib Crane	5	16-Sep-21	22-Sep-21	5	257	16-Sep-21   LOTO, Startup Jib Crane																							
<b>Area 200 - Aeration Basin Upgrades</b>		<b>280</b>	<b>06-Jul-21</b>	<b>15-Aug-22</b>	<b>280</b>	<b>33</b>	<div style="display: flex; justify-content: space-between;"> <span>06-Jul-21   AB-A: Clean &amp; set Cofferdam for 18" ML Wall Pen</span> <span>15-Aug-22</span> </div>																							
<b>Through 10-31-2021 Season</b>		<b>106</b>	<b>06-Jul-21</b>	<b>03-Dec-21</b>	<b>106</b>	<b>207</b>	<div style="display: flex; justify-content: space-between;"> <span>06-Jul-21   AB-A: Clean &amp; set Cofferdam for 18" ML Wall Pen</span> <span>03-Dec-21</span> </div>																							
A7020	AB-A: Clean & set Cofferdam for 18" ML Wall Pen	2	06-Jul-21	07-Jul-21	2	-8	06-Jul-21   AB-A: Clean & set Cofferdam for 18" ML Wall Pen																							
A6130	MOPO - Effluent Box Bypass Install & Clean	4	30-Jul-21	04-Aug-21	4	-24	30-Jul-21   MOPO - Effluent Box Bypass Install & Clean																							
A6140	FRPS - Effluent Box Wall for Gate 200-31	7	05-Aug-21	13-Aug-21	7	-9	05-Aug-21   FRPS - Effluent Box Wall for Gate 200-31																							
A6160	Isolate / Drain Aeration Basin B (Plant Staff)	3	05-Aug-21	09-Aug-21	3	-24	05-Aug-21   Isolate / Drain Aeration Basin B (Plant Staff)																							
A6170	Rinse / Clean Aeration Basin B (Plant Staff)	2	10-Aug-21	11-Aug-21	2	-24	10-Aug-21   Rinse / Clean Aeration Basin B (Plant Staff)																							
A6940	Install AB-A Work-arounds for wet weather work	5	10-Aug-21	16-Aug-21	5	8	10-Aug-21   Install AB-A Work-arounds for wet weather work																							
A6600	Clean & Disinfect AB-B Work Zones (SCI)	2	12-Aug-21	13-Aug-21	2	-23	12-Aug-21   Clean & Disinfect AB-B Work Zones (SCI)																							
A7040	AB-B: Remove diffusers at Baffle Wall	3	12-Aug-21	16-Aug-21	3	-24	12-Aug-21   AB-B: Remove diffusers at Baffle Wall																							

■ Remaining Level of Effort     ■ Critical Remaining Work  
■ Actual Work     ◆ Milestone  
■ Remaining Work     ▼ Summary

**Slayden Constructors, Inc. part of MWH**  
**Project Name: Sandy WWTP System Upgrade - GMP Schedule**

Data Date: 17-Jun-21  
 Schedule Development Level: GMP Construction Baseline  
 Revision Number: 00  
 Revision Date: 05/14/2020     Printed: 18-Jun-21



## Sandy WWTP System Upgrade Sandy, Oregon

Activity ID	Activity Name	Original Duration	Start	Finish	Remaining Duration	Total Float	2021												2022												2023	
							May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb				
							Gantt Chart (Summary)																									
A71	Clean & Disinfect AB-B Work Zones (SCI)	2	26-Jul-22	27-Jul-22	2	0	26-Jul-22 ■ Clean & Disinfect AB-B Work Zones (SCI)																									
A62	Diffuser Install - AB-B	6	28-Jul-22	04-Aug-22	6	0	28-Jul-22 ■ Diffuser Install - AB-B																									
A71	Diffuser Startup & Testing	7	05-Aug-22	15-Aug-22	7	0	05-Aug-22 ■ Diffuser Startup & Testing																									
A71	Complete Aeration Basin B Work ('22 season)	0		15-Aug-22	0	0	◆ Complete Aeration Basin B Work ('22 season)																									
<b>Area 205 - Blower Bldg MCC / VFD Upgrades</b>		<b>45</b>	<b>09-Nov-21</b>	<b>18-Jan-22</b>	<b>45</b>	<b>179</b>	<div style="display: flex; justify-content: space-between;"> <span>09-Nov-21 ■ MOPO B1: Setup Temp Genset (Blower Shutdown)</span> <span>18-Jan-22 ◆ Complete Area 205 Work</span> </div>																									
A6470	MOPO B1: Setup Temp Genset (Blower Shutdown)	5	09-Nov-21	15-Nov-21	5	179	09-Nov-21 ■ MOPO B1: Setup Temp Genset (Blower Shutdown)																									
A6890	Prep work prior to Blower VFD install	5	09-Nov-21	15-Nov-21	5	179	09-Nov-21 ■ Prep work prior to Blower VFD install																									
A6490	Blower MCC Demo & Install	10	16-Nov-21	01-Dec-21	10	179	16-Nov-21 ■ Blower MCC Demo & Install																									
A6550	Blower MCC Testing	5	02-Dec-21	08-Dec-21	5	179	02-Dec-21 ■ Blower MCC Testing																									
A6570	MOPO B1: Teardown Temp Genset (Blower)	3	09-Dec-21	13-Dec-21	3	179	09-Dec-21 ■ MOPO B1: Teardown Temp Genset (Blower)																									
A6910	1 week delay between shutdowns per Spec	5	14-Dec-21	20-Dec-21	5	179	14-Dec-21 ■ 1 week delay between shutdowns per Spec																									
A6900	MOPO B2: Setup Temp Genset (Blower Shutdown)	5	21-Dec-21	29-Dec-21	5	179	21-Dec-21 ■ MOPO B2: Setup Temp Genset (Blower Shutdown)																									
A6520	Blower VFD Install & Testing	7	30-Dec-21	10-Jan-22	7	179	30-Dec-21 ■ Blower VFD Install & Testing																									
A6920	MOPO B2: Teardown Temp Genset (Blower)	5	11-Jan-22	18-Jan-22	5	179	11-Jan-22 ■ MOPO B2: Teardown Temp Genset (Blower)																									
<b>Area 210 - Secondary Clarifier Rehab</b>		<b>179</b>	<b>21-Oct-21</b>	<b>11-Jul-22</b>	<b>179</b>	<b>58</b>	<div style="display: flex; justify-content: space-between;"> <span>21-Oct-21 ■ Drain, Clean, LOTO Clarifier #2</span> <span>11-Jul-22 ◆ Complete Area 210 Work</span> </div>																									
A6650	Drain, Clean, LOTO Clarifier #2	3	21-Oct-21	25-Oct-21	3	-29	21-Oct-21 ■ Drain, Clean, LOTO Clarifier #2																									
A6680	Mob & Demo Clarifier #2	3	26-Oct-21	28-Oct-21	3	-29	26-Oct-21 ■ Mob & Demo Clarifier #2																									
A6410	Clarifier #2 Install Retrofit & Paint	12	29-Oct-21	15-Nov-21	12	-29	29-Oct-21 ■ Clarifier #2 Install Retrofit & Paint																									
A6730	Clarifier #2 - Electrical Rough-in, Wire, Termination	4	16-Nov-21	19-Nov-21	4	-29	16-Nov-21 ■ Clarifier #2 - Electrical Rough-in, Wire, Terminations																									
A6420	Clarifier #2 - Functional Testing & Adjustments	5	22-Nov-21	30-Nov-21	5	-29	22-Nov-21 ■ Clarifier #2 - Functional Testing & Adjustments																									
A6830	Clarifier #2 - Fill for Testing	2	24-Nov-21	29-Nov-21	2	-29	24-Nov-21 ■ Clarifier #2 - Fill for Testing																									
A6430	Clarifier #2 - Startup & Testing	3	29-Nov-21	01-Dec-21	3	-29	29-Nov-21 ■ Clarifier #2 - Startup & Testing																									
A6770	Drain, Clean, LOTO Clarifier #1	3	02-Dec-21	06-Dec-21	3	142	02-Dec-21 ■ Drain, Clean, LOTO Clarifier #1																									
A6850	Clarifier #2 - Commissioning	5	02-Dec-21	08-Dec-21	5	-29	02-Dec-21 ■ Clarifier #2 - Commissioning																									
A6860	Clarifier #2 - Operational Period	5	02-Dec-21	08-Dec-21	5	-29	02-Dec-21 ■ Clarifier #2 - Operational Period																									
A7070	Complete Clarifier #2 Work, '21 Season	0		08-Dec-21	0	-29	◆ Complete Clarifier #2 Work, '21 Season																									
A7060	Start Clarifier 1 (Dry-Weather 2022)	0	16-May-22*		0	29	◆ Start Clarifier 1 (Dry-Weather 2022)																									
A6950	Drain, Clean, LOTO Clarifier #1	3	17-May-22	19-May-22	3	29	17-May-22 ■ Drain, Clean, LOTO Clarifier #1																									
A6780	Mob & Demo Clarifier #1	3	20-May-22	25-May-22	3	29	20-May-22 ■ Mob & Demo Clarifier #1																									
A6790	Clarifier #1 Install Retrofit & Paint	12	26-May-22	13-Jun-22	12	28	26-May-22 ■ Clarifier #1 Install Retrofit & Paint																									
A6810	Clarifier #1 - Electrical Rough-in, Wire, Term	4	14-Jun-22	17-Jun-22	4	28	14-Jun-22 ■ Clarifier #1 - Electrical Rough-in, Wire, Term																									
A6800	Clarifier #1 Functional Testing & Adjustments	5	20-Jun-22	24-Jun-22	5	28	20-Jun-22 ■ Clarifier #1 Functional Testing & Adjustments																									
A6840	Clarifier #1 - Fill for Testing	2	27-Jun-22	28-Jun-22	2	28	27-Jun-22 ■ Clarifier #1 - Fill for Testing																									
A6820	Clarifier #1 - Startup & Testing	3	29-Jun-22	01-Jul-22	3	28	29-Jun-22 ■ Clarifier #1 - Startup & Testing																									
A6870	Clarifier #1 - Commissioning	5	05-Jul-22	11-Jul-22	5	28	05-Jul-22 ■ Clarifier #1 - Commissioning																									
A6880	Clarifier #1 - Operational Period	5	05-Jul-22	11-Jul-22	5	28	05-Jul-22 ■ Clarifier #1 - Operational Period																									
A6440	Complete Secondary Clarifier- Finish Milestone	0		11-Jul-22	0	28	◆ Complete Secondary Clarifier- Finish Milestone																									
A7160	Complete Clarifier #1 Work, '22 Season	0		11-Jul-22	0	58	◆ Complete Clarifier #1 Work, '22 Season																									
<b>Area 220 - Secondary PS (RAS/WAS)</b>		<b>76</b>	<b>18-Aug-21</b>	<b>06-Dec-21</b>	<b>76</b>	<b>206</b>	<div style="display: flex; justify-content: space-between;"> <span>18-Aug-21 ■ LOTO Coordination &amp; Setup</span> <span>06-Dec-21 ◆ Complete Area 220 Work</span> </div>																									
A3100	Subgrade Prep for 16x24 Pad	5	30-Nov-21	06-Dec-21	5	176	30-Nov-21 ■ Subgrade Prep for 16x24 Pad																									
<b>MSB Arc Flash Breakers, RAS/WAS Breaker &amp; Feed</b>		<b>14</b>	<b>02-Sep-21</b>	<b>22-Sep-21</b>	<b>14</b>	<b>257</b>	<div style="display: flex; justify-content: space-between;"> <span>02-Sep-21 ■ Pre-Shutdown Prep Work</span> <span>22-Sep-21 ◆ Complete MSB Work</span> </div>																									
A3740	Pre-Shutdown Prep Work	5	02-Sep-21	09-Sep-21	5	257	02-Sep-21 ■ Pre-Shutdown Prep Work																									
A3840	LOTO Planning & Team Review	2	10-Sep-21	13-Sep-21	2	257	10-Sep-21 ■ LOTO Planning & Team Review																									
A3690	MOPO: Plant Shutdown (8pm-5am)	5	14-Sep-21	20-Sep-21	5	257	14-Sep-21 ■ MOPO: Plant Shutdown (8pm-5am)																									
A3790	Electrical Testing	5	16-Sep-21	22-Sep-21	5	257	16-Sep-21 ■ Electrical Testing																									
<b>RAS/WAS Pump Station</b>		<b>71</b>	<b>18-Aug-21</b>	<b>29-Nov-21</b>	<b>71</b>	<b>211</b>	<div style="display: flex; justify-content: space-between;"> <span>18-Aug-21 ■ LOTO Coordination &amp; Setup</span> <span>29-Nov-21 ◆ Complete RAS/WAS Work</span> </div>																									
A4090	LOTO Coordination & Setup	2	18-Aug-21	19-Aug-21	2	221	18-Aug-21 ■ LOTO Coordination & Setup																									

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# SANDY EXISTING WWTP CONDITION IMPROVEMENTS PROJECT GMP-1

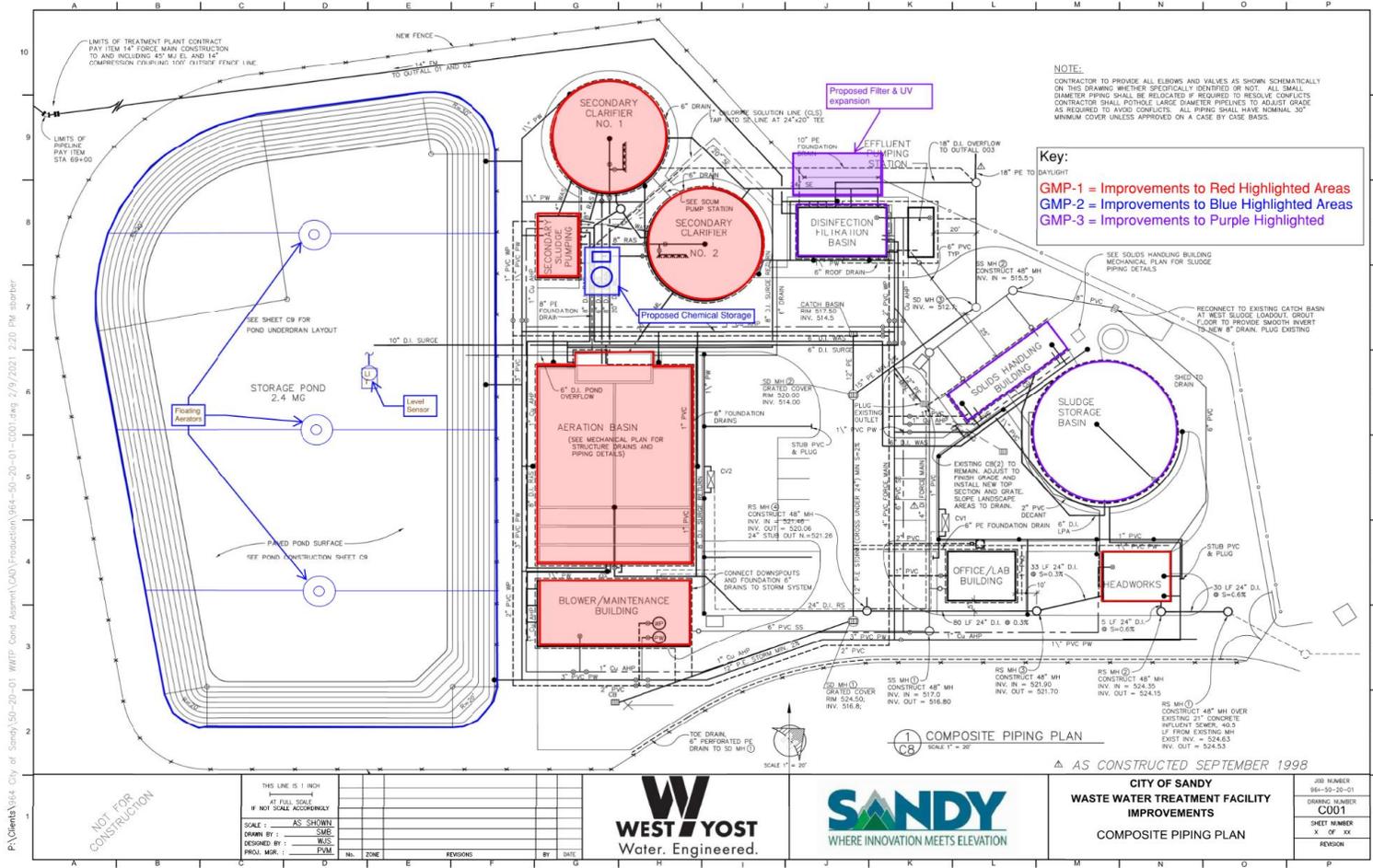
Brittany Park – Leeway Engineering Solutions

Rob Lee – Leeway Engineering Solution

Preston Van Meter – West Yost

Clayton Thompson – Slayden

# PROJECT OVERVIEW



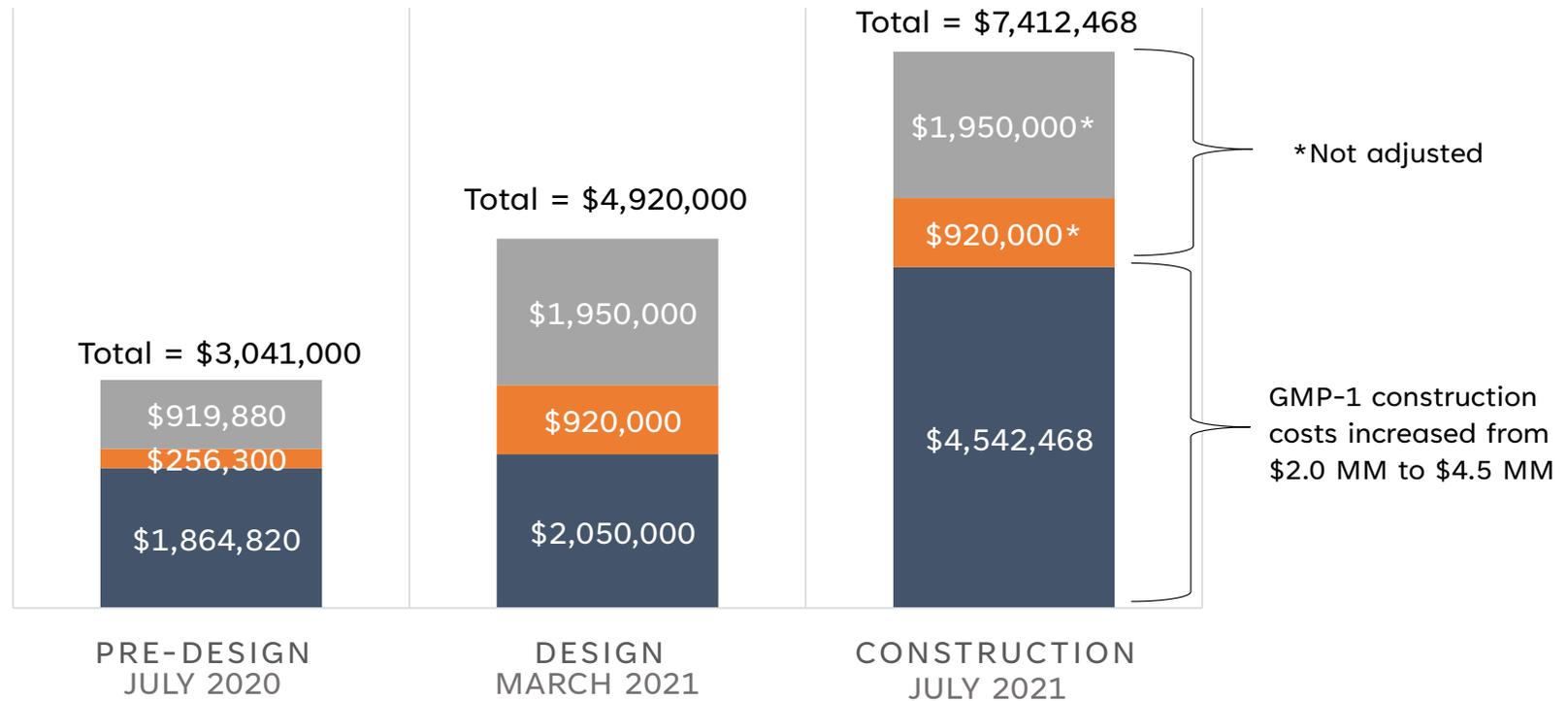
July 2021

Sandy Existing WWTP Condition Improvements Project GMP-1

2

# PROJECT BUDGET DEVELOPMENT

■ GMP-1 ■ GMP-2 ■ GMP-3



# ANALYSIS OF BUDGET EXCEEDANCES

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Construction climate and unprecedented increase in pricing

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Aggressive schedule

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Lack of subcontractor interest

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Design evolution

# MITIGATE IMPACT TO THE PROGRAM

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Move upcoming fiscal year expenditures further into the future

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Prioritizing Plant Performance for GMP-2 and GMP-3

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Increase future project contingency funding based on market inflation